# CHEMICAL AND PETROCHEMICAL STATISTICS AT A GLANCE-2023

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## MESSAGE

The "Chemical & Petrochemical Statistics at a Glance", an annual publication by the Department, serves as a reliable resource for evaluating the performance of the chemical and petrochemical sector, a major contributor to India's economy. This sector has vast potential to drive economic growth for betterment of Indian economy.

I am glad to note that the "Chemical and Petrochemical Statistics at a Glance – 2023" publication, prepared by the Statistics and Monitoring (S&M) Division, provides a thorough statistical analysis of key indicators in the chemical sector. The data and insights in this publication will be invaluable for tracking the industry's progress and pinpointing areas in need of further development.

I appreciate the efforts of the officers and officials of S&M Division for their hard work and dedication in producing this comprehensive publication. Their efforts in collecting and analysing data from various sources have made this year's edition possible.

My best wishes to everyone involved.

(Ganga Kumar)

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## Preface

The Statistics and Monitoring (S&M) Division, Department of Chemicals and Petrochemicals is mandated for gathering, organizing, and maintaining statistical data on chemical and petrochemical products from manufacturing units nationwide. The publication of "*Chemical and Petrochemical Statistics at a Glance – 2023*" offers a detailed and current overview of various facets of the chemical industry. The publication covers trends in installed capacity, production, consumption, and trade by group and product, along with crucial economic indicators such as the Index of Industrial Production (IIP), Wholesale Price Index (WPI), Gross Value Added (GVA), and others. Accurate and up-to-date data is vital for policymakers, stakeholders, and data users in the chemical sector. This resource serves as a valuable tool for understanding the sector's performance, identifying growth opportunities, and developing strategies for sustainable development.

The support of various ministries, departments, and organizations—including the Ministry of Statistics & Programme Implementation (MoS&PI), Directorate General of Commercial Intelligence and Statistics (DGCI&S), Directorate General of Foreign Trade (DGFT), Department for Promotion of Industry and Internal Trade (DPIIT) under the Ministry of Commerce and Industry, Ministry of Petroleum and Natural Gas, and the Ministry of Agriculture & Farmers Welfare—is highly commendable. Their contributions have provided updated inputs that will offer valuable insights and data to all stakeholders in the chemical and petrochemical sector.

I applaud the efforts of the S&M Division team in the Department for presenting this statistical information in a user-friendly format, making it readily accessible to policymakers, investors, researchers, and industry professionals. I extend my best wishes for their continued success in delivering valuable statistical data to all stakeholders. This publication can also be accessed on the Department's website at https://chemicals.gov.in/statistics-at-glance.

The feedback towards enhancing the quality and relevance of future editions of this publication is welcomed.

(Ram Sajeevan)

Dated 19th November, 2024

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# Introduction

Chemical and Petrochemical Sector is one of the pioneering sectors having an impact on day to day needs of the society. Chemical Industry is playing a vital role in addressing our basic needs in the fields of food and water security, shelter, clothing and textiles, health care, information, communication and entertainment and many more. In order to boost domestic production capacities as a part of Petroleum Sector, Chemicals and Petrochemicals Investment Regions (PCPIRs) policy, a perspective planning for the chemical and petrochemical industry has been initiated to study demand supply scenario keeping in view the existing and under execution capacities. This will help to realize India's vision of becoming self-reliant and provide substantial employment to the youth in the Chemical Sector.

2. Statistics and Monitoring (S&M) Division under the Department of Chemicals & Petrochemicals (DCPC) compiles statistics on monthly production data and installed capacity of selected Chemical and Petrochemical products from large and medium scale units. It also derives estimates of consumption of the chemical's products in the country. Data on Export and Import of Chemical and Petrochemical items are being maintained by the DCPC based on the data received from the Directorate General of Commercial Intelligence and Statistics (DGCIS), Ministry of Commerce and Industry.

3. This publication consists of seven chapters, namely,

- Chapter-1: An Overview of Chemical and Petrochemical Sectors;
- Chapter-2: Global Scenario;
- Chapter-3: Important Economic Indicators;
- Chapter-4: Important Definitions of CPC Coding System and Economic System;
- Chapter-5: Indices Released by Government of India;
- Chapter-6: ChemIndia - Chemicals inventory of India;
- Chapter-7: Relevant National & International regulations for C&PC Sector
- Chapter-8: Glimpses of Important Trends from the FY 2018-19 to FY 2022-23.

Chapter-1 besides defining Basic Chemicals, Specialty Chemicals & Agro-chemicals, also presents the latest status of Chemical Sector in India. Chapter-2 presents the status of Indian Chemical Sector vis-a-vis other countries of the world. Chapter-3 provides important statistics like GVA, Index of Industrial Production, Export and Import of Chemical sector. Chapter-5 describes important indices like Index of Industrial Production (IIP), Consumer Price Index (CPI) & Wholesale Price Index (WPI). Chapter-7 provides Relevant National & International regulations for C&PC Sector.

Chapter-8 provides graphical representation of trends as well as summarise information from the FY 2018-19 to FY 2022-23 on Production, Installed Capacity, Import and Export for various groups under Major Chemicals and Major Petrochemicals along with brief analysis. At the end of the Appendices Section, Statistical tables presenting information inter-alia on Production, Installed Capacity, Capacity Utilization, Imports / Exports along with their growth rates from the FY 2015-16 to FY 2022-23 have also been provided. Detailed table on Foreign Trade, FDI, IIP, WPI etc. related to Chemical and Petrochemical Sector have been included in the Appendices Section.

4. The share of Gross Value Added (GVA) of Chemicals Sector in the Manufacturing Sector in the FY 2021-22 is about 9.2% at current prices. GVA of Chemical Sector has grown with CAGR of 8.3% from the FY 2016-17 to FY 2021-22.

5. The production of selected Major Chemicals and selected Basic Major Petrochemicals for each Group is generally found to be growing consistently over the years. In case of Major Chemicals, the production has grown with a CAGR of 4.0% over a period of 8 years while Basic Major Petrochemicals has grown with a CAGR of 2.8% during the same period.

6. Installed Capacity utilization of basic Major Chemicals was 78.8% in the FY 2022-23 while it was around 84.1% in case of Basic Major Petrochemicals over the last year. The utilization of installed capacity was around 85.5% and 67.2% for the Alkali Chemicals and Inorganic Chemicals respectively in the FY 2022-23. The utilization of installed capacity was 103.4% for the Synthetic Detergent Intermediates whereas, it was 89.1%, 88.4%, 85.9% and 52.6% for Polymers, Synthetic Fibres, Synthetic Rubber and Performance Plastics respectively in the FY 2022-23.

7. Among Selected Major Chemicals, there was a substantial import of Inorganic Chemicals and Organic Chemicals into the country in the FY 2022-23. Amongst Inorganic Chemicals, three products, namely, Carbon Black (Rs.1,652/- crore), Calcium Carbonate (Rs.1,119/-crore) and Aluminium Fluoride (Rs.562/- crore) had been imported worth more than Rs.3,300/- crores. Amongst Organic Chemicals, seven products, namely, Methanol (Rs.7,524/- crore), Acetic Acid (Rs.5,127/- crore), Phenol (Rs.2,422/- crore), Citric Acid (Rs.1,407/- crore), Aniline (Rs.1,375/- crore), Maleic Anhydride (Rs.945/- crore), and Acetone (Rs.659/- crore) had imported worth more than Rs.19, 400/- crore. (Table 17).

8. Amongst Selected Basic Major Petrochemicals, substantial import was seen for Polymers, Synthetic Rubber and Synthetic Fibres/Yarn into the country in the FY 2022-23. Amongst Polymers, three products, namely, Polypropylene (Inc. Co-Polymer) (Rs. 17,789/-crore), High Density Polyethylene (Rs. 16,909/-crore) and Poly Vinyl Chloride (Rs. 5,347/-crore) had import of approximately Rs. 40,000/-crore. Amongst Synthetic Rubber, four products, namely, Ethyl Vinyl Acetate (Rs. 4,070/-crore), Styrene Butadiene Rubber (SBR) (Rs. 2,873/-crore), Poly Butadiene Rubber (Rs. 2,336/-crore) and Butyl Rubber (Rs. 1,540/-crore), was imported of approximately worth Rs. 10,800/-crore into the country (Table 25).

9. The trade deficit in the FY 2022-23 (i.e. net import) in Chemicals and Petrochemicals Sector (comprising chapters 28, 29, 32, 38, 39, 4002, 54 and 55 of HS code) was Rs. 2,60,782/-crore as per information on DGCIS portal (Table 12 A). The trade deficit of selected Major Chemicals and Petrochemical Products was around Rs. 39,857 /-crore as per figures received from DGCIS, Kolkata (Tables 15 & 23). The export / import monitored by DCPC are basically intermediate in nature.

10. In respect of Major Chemicals at group level, it is observed that Organic Chemicals was in trade surplus whereas Alkali Chemicals, Inorganic Chemicals, Pesticides and Dyes & Pigments were in trade deficit during 2022-23 (Table 18). However, in respect of Major Petrochemicals at group level Fibre Intermediates, Polymers, Synthetic Rubber, Synthetic Detergent Intermediates and Other Petro-based Chemicals were in trade surplus, whereas Synthetic Fibre, Performance Plastics, Olefins and Aromatics were in trade deficit during the same period (Table 26). This aggregates to overall trade deficit in Major Chemicals and overall trade surplus in Major Petrochemicals which resulted into net trade deficit for Chemicals and Petrochemicals sector.

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# Acronyms

| | |
|---|---|
| AF | Acrylic Fiber (including Dry Spun) |
| ASI | Annual Survey of Industries |
| ACN | Acrylonitrile |
| CAGR | Compound Annual Growth Rate |
| CEFIC | European Chemical Industry Council |
| NSO | National Statistical Office |
| CSO | Central Statistics Office |
| CPI | Consumer Price Index |
| DGCI&S | Directorate General of Commercial Intelligence & Statistics |
| DPIIT | Department for Promotion of Industry and Internal Trade |
| DMT | Dimethyl Terephthalate |
| EO | Ethylene Oxide |
| EPDM | Ethyl Propylene Dimers |
| EVA | Ethyl Vinyl Acetate |
| EX-PS | Expandable Polystyrene |
| FY | Financial Year |
| FDI | Foreign Direct Investment |
| GVA | Gross Value Added |
| HBR | Halo Butyl Rubber |
| HDPE | High Density Polyethylene |
| IIP | Index of Industrial Production |
| IIR | Iso Butylene Isoprene Rubber |
| ISIC | International Standard Industrial Classification |
| ITC (HS) | Indian Trade Classification (Harmonized System) |
| KTPA | Thousand Tons Per Annum |
| LAB | Linear Alkyl Benzene |
| LDPE | Low Density Polyethylene |
| LLDPE | Linear Low Density Polyethylene |
| MEG | Mono Ethylene Glycol |
| MEK | Methyl Ethyl Ketone |
| MMA | Methyl Methacrylate |
| MMSCM | Million Metric Standard Cubic Meters |

| | |
|---|---|
| **MoSPI** | **Ministry of Statistics and Programme Implementation** |
| **MT** | **Metric Tons** |
| **NBR** | **Nitrile Butadiene Rubber** |
| **NFY** | **Nylon Filament Yarn** |
| **NIC** | **National Industrial Classification** |
| **NIY** | **Nylon Industrial Yarn** |
| **ONCB** | **Ortho Nitro Chloro Benzene** |
| **PAN** | **Phthalic Anhydride** |
| **PBR** | **Poly Butadiene Rubber** |
| **PBT** | **Polybutylene Terephthalate** |
| **PET** | **Polyethylene terephthalate** |
| **PIB** | **Poly Isobutylene** |
| **PFY** | **Polyester Filament Yarn** |
| **PG** | **Propylene Glycol** |
| **PMMA** | **Polymethyl Methacrylate** |
| **PNCB** | **Para Nitro Chloro Benzene** |
| **PO** | **Propylene Oxide** |
| **PP** | **Polypropylene** |
| **PPFY** | **Polypropylene Filament Yarn** |
| **PPSF** | **Polypropylene Staple Fibre** |
| **PS** | **Poly Styrene** |
| **PSF** | **Polyester Staple Fibre** |
| **PSFF** | **Polyester Staple Fibre Filament** |
| **PTA** | **Purified Terephthalic Acid** |
| **PVC** | **Poly Vinyl Chloride** |
| **SAN** | **Styrene Acrylonitrile** |
| **SBR** | **Styrene Butadiene Rubber** |
| **UNSC** | **United Nations Statistical Commission** |
| **VAM** | **Vinyl Acetate Monomer** |
| **WPI** | **Wholesale Price Index** |
| **CAS** | **Chemical Abstracts Service** |
| **UN** | **United Nations** |

# Coverage

| Major Chemicals | | | |
|---|---|---|---|
| **S. No.** | **Group** | **Products** | |
| **I** | **Alkali Chemicals** | Soda Ash | Caustic Soda |
| | | Liquid Chlorine | |
| **II** | **Inorganic Chemicals** | Aluminium Fluoride | Calcium Carbide |
| | | Carbon Black | Potassium Chlorate |
| | | Sodium Chlorate | Titanium Dioxide |
| | | Red Phosphorous | Hydrogen Peroxide |
| | | Calcium Carbonate | |
| **III** | **Organic Chemicals** | Acetic Acid | Acetic Anhydride |
| | | Acetone | Phenol |
| | | Methanol | Formaldehyde |
| | | Nitrobenzene | Citric Acid |
| | | Maleic Anhydride | Pentaerythritol |
| | | Aniline | Chloromethane |
| | | ONCB | PNCB |
| | | MEK | Acetaldehyde |
| | | Ethanol amines | Ethyl Acetate |
| | | Menthol | Ortho- Nitro Toluene |
| | | Isobutyl Benzene | |
| **IV** | **Pesticides (Technical Grade)** | D.D.T. | Malathion |
| | | Parathion(Methyl) | Dimethoate |
| | | D.D.V.P. | Quinalphos |
| | | Monocrotophos | Phosphamidon |
| | | Phorate | Ethion |
| | | Endosulfan | Fenvalerate |
| | | Cypermethrin | Anilophos |
| | | Acephate | Chlorpyrifos |
| | | Phosalone | Metasystox |
| | | Temephos | Fenthion |
| | | Triazophos | Lindane |
| | | Temephos | Deltamethrin |
| | | Alphamethrin | Profenofos Technical |

| S. No. | Group | Products | |
|---|---|---|---|
| | | Pretilachlor Technical | Lambda Cyhalothrin |
| | | Phenthoate | Permethrin Tech |
| | | Imidacaloprid Tech | Captan & Captafol |
| | | Ziram (Thio Barbamate) | Carbendazim (Bavistin) |
| | | Calixin | Mancozeb |
| | | Copper-Oxychloride | Hexaconazole |
| | | Metconazole | 2, 4-D (2,4-Dichlorophenoxyacetic acid) |
| | | Butachlor | Ethofumesate Technical |
| | | Thiamethoxam Technical | Pendimethalin |
| | | Metribuzin | Triclopyr Acid Tech |
| | | Isoproturon | Basalin |
| | | Glyphosate | Paraquat |
| | | Diuron | Atrazin |
| | | Fluchloralin | Zinc Phosphide |
| | | Aluminium Phosphide | Methyl Bromide |
| | | Dicofol | |
| V | **Dyes and Pigments** | Acid Direct Dyes (other than AZO) | Azo Dyes |
| | | Basic Dyes | Disperse Dyes |
| | | Oil soluble (Solvent Dyes) | Fast Colour Bases |
| | | Ingrain Dyes | Solubilised Vat Dyes |
| | | Optical Whitening Agents | Organic Pigments |
| | | Inorganic Pigments | Pigment Emulsion |
| | | Reactive Dyes | Sulphur Dyes |
| | | Vat Dyes | Food Colours |
| | | Naphthols | Other Dyes |

| Major Petrochemicals | | | |
|---|---|---|---|
| **A. Basic Major Petrochemicals** | | | |
| **S. No.** | **Group** | **Products** | |
| **I** | **Synthetic Fibres** | Acrylic Fibre | Polyester Staple Fibre Filament |
| | | Nylon Filament Yarn | Nylon Industrial Yarn/Tyre Cord |
| | | Polyester Filament Yarn | Polyester Staple Fibre |
| | | Polypropylene Filament Yarn | Polypropylene Staple Fibre |
| | | Polyster Industrial Yarn | Elastomeric/Spandex Filament Yarn |
| **II** | **Polymers** | Low Density Polyethylene | High Density Poly Ethylene |
| | | Poly Styrene | Polypropylene (Inc. Co-Polymer) |
| | | Expandable Poly Styrene | Poly Vinyl Chloride |
| | | Linear Low Density Poly Ethylene | PVC Compound |
| **III** | **Synthetic Rubber (Elastomers)** | Styrene Butadiene Rubber (SBR) | Poly Butadiene Rubber (PBR) |
| | | Nitrile Butadiene Rubber (NBR) | Ethyl Propylene Dimers (EPDM) |
| | | Ethyl Vinyl Acetate (EVA) | Butyl Rubber |
| **IV** | **Synthetic Detergent Intermediates** | Linear Alkyl Benzene (LAB) | Ethylene Oxide (EO) |
| V | **Performance Plastics** | Acrylonitrile Butadiene Styrene (ABS) Resin | Nylon-6 |
| | | Nylon 6,6 | Poly Methyl Methacrylate (PMMA) |
| | | Styrene Acrylonitrile (SAN) Resin | Polytetrafluoroethylene(PTFE) |
| | | Polyester Chips/PET Chips | |
| **B. Intermediates** | | | |
| I. | **Fibre Intermediates** | Acrylonitrile | Caprolactum |
| | | Mono Ethylene Glycol (MEG) | Dimethyl Terephthalate (DMT) |
| | | Purified Terephthalic Acid (PTA) | |
| **II.** | **Building Blocks** | **(a) Olefins** | |
| | | Ethylene | Propylene |
| | | Butadiene | |
| | | **(b) Aromatics** | |
| | | Benzene | Toluene |
| | | Ortho Xylene | Para Xylene |
| | | Mixed Xylene | |

| C. Other Petro-based Chemicals | | |
|---|---|---|
| Diethylene Glycol | Diacetone Alcohol | Ethylene Dichloride |
| Butanol | Oxo Alcohol | 2-Ethyl Hexanol |
| Vinyl Chloride Monomer | Epichlohydrine | Iso Butylene |
| PET | PIB | Polycarbonate |
| Propylene Oxide | Propylene Glycol | Polyvinyl Acetate Resin |
| Unsaturated Polyster Resin | Methyl Methacrylate | Iso-Butanol |
| Ethyl Benzene | C4-Raffinate | Cellulose Acetate Butyrate |
| Polyacetal Resin | Phthalic Anhydride | Styrene |
| Vinyl Actate Monomer | Isopropanol | Polyol |
| Metaxylene | Methyl Isobutyl Ketone | PBT |
| Cellulose Acetate Sheet | Cellulose Nitrate Sheet | Melamine Moulding Powder |

# Data Sources & Definitions

| | | |
|---|---|---|
| The major sources of data presented in this publication are: | | |
| i | Production & Installed capacities | Production of Major Chemicals and Petrochemicals and their installed capacities have been aggregated based on monthly returns received from large and medium scale Chemicals & Petrochemicals Industries of the country. |
| ii | Imports & Exports | Directorate General of Commercial Intelligence & Statistics (DGCIS), Ministry of Commerce & Industry, Kolkata. |
| iii | FDI | Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce & Industry, New Delhi. |
| iv | IIP | National Statistical Office (NSO), Ministry of Statistics & Programme Implementation, New Delhi. |
| v | WPI | Office of the Economic Adviser, Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce & Industry, New Delhi. |
| vi | Chemical Industry (Broad definition) | The chemical industry includes organic chemicals, inorganic chemicals, pharmaceuticals products, fertilizers, tanning or dyeing extracts, dyes pigments, paints and varnishes, putty and other mastics inks, essential oils, perfumery cosmetic, soap, organic surface, active agents, washing, lubricating, artificial waxes, dental waxes, polishing, albuminoidal substance, modified starches, glues, enzymes, explosive, pyrotechnic products, beverages, spirits and vinegar, matches, pyrophoric alloys, photographic or cinematographic goods, miscellaneous chemical products, petrochemicals, plastics synthetic, rubber, man-made filaments, man-made fibre. |
| vii | Chemicals and Petrochemicals (Narrow definition) | The Chemicals and Petrochemical products monitored by the Department of Chemicals & Petrochemicals are selected major products and the list of these products is given in the tables 3 & 8 respectively. Unless contrary is mentioned, the terms 'Major Chemicals' and 'Major Petrochemicals' refer to the products or groups thereof as enumerated in the tables 3 & 8. |

# Duration of the Data

| Data | Data Source | Duration |
|---|---|---|
| Installed Capacity Production | DCPC | FY 2015-16 to FY 2022-23 |
| Import / Export | DGCIS, Kolkata, M/o Commerce and Industry | FY 2015-16 to FY 2022-23 |
| Exchange Rates of Indian Rupee vis-à-vis US$ | Financial Benchmarks India Private Limited (https://www.fbil.org.in) | April 2020 to March 2023 |
| FDI | DPIIT | FY 2020-21 to FY 2022-23 |
| IIP | MoSPI | FY 2015-16 to FY 2022-23 |
| WPI | Office of the Economic Advisor (http://eaindustry.nic.in) | FY 2016-17 to FY 2022-23 |
| Gross value added, Value Output | MoSPI | FY 2016-17 to FY 2021-22 |
| World Import / Export | UN Comrade | 2022 |
| Number of factories, Number of Workers, Total output | Annual Survey of Industries | FY 2017-18 to FY 2021-22 |

# Chapter 1

# Chapter 1
# An Overview of Chemical and Petrochemical Sectors

The chemical industry is the backbone of industrial and agricultural development of the country and provides building blocks for several downstream industries, such as textiles, papers, paints, soaps, detergents, pharmaceuticals, varnish etc. It is one of the most diversified sectors of all industrial sectors covering thousands of commercial products. Indian chemical industry comprises of small scale, medium scale as well as large scale units. With initiatives like "Make in India" programme gaining steam, investments, innovation and infrastructure are going to be the major thrust areas for chemical industry players. The current per capita consumption of chemical products in India is about 1/10 of the world average, indicating that the demand potential is yet to be realized. The industry is important as it has several linkages with other sectors of an economy. Petrochemicals have backward linkages with other industries in petroleum refining, natural gas processing and forward linkages with industries dealing variety of downstream products. Also, the industry offers alternatives, which serve as substitutes for natural products and therefore, it has the capacity to meet the constantly growing demand that would otherwise strain the natural resources. The value additions in the petrochemicals chain offer immense possibilities and cater to the need of textiles and clothing, agriculture, packaging, infrastructure, healthcare, furniture, automobiles, information technology, power, electronics and telecommunication, irrigation, drinking water, construction needs and host of other articles of daily and specialized usage, amidst other emerging areas.

**1.2** In Chemicals sector, 100% FDI in India is allowed under the automatic route (except in the case of certain hazardous chemicals). Manufacture of most chemical products, inter-alia, covering organic / inorganic, dyestuffs & pesticides is de-licensed. The entrepreneurs need to submit only Industries Entrepreneur Memorandum (IEM) with the Department of Industrial Policy & Promotion provided location of the project falls outside standard urban area limits of metropolitan cities and municipal cities. However, the following items are still covered in the compulsory licensing list because of their hazardous nature as required by international conventions.

- Hydrocyanic acid & its derivatives
- Phosgene & its derivatives

• Isocynates & di-isocynates of hydrocarbons.

**1.3 Chemicals can be broadly divided into the following sub-groups: -**

Two broad categories within the chemical industry, each with its own characteristics and purposes are:

1. Basic Chemicals are known as commodity-type chemicals which are usually produced in large quantities and are essential for the manufacturing of a wide range of goods.

   Examples of basic chemicals include:

   I. Petrochemicals: Chemicals derived from petroleum or natural gas, such as ethylene, propylene, and benzene, used as raw materials for plastics, synthetic fibres, and more.

   II. Inorganic Chemicals: Chemicals like sulphuric acid, chlorine, and ammonia used in various industrial processes, including manufacturing fertilizers and metals.

   III. Bulk Polymers: These are polymers produced in large quantities, such as polyethylene, polypropylene, and polyvinyl chloride (PVC), which are used in plastics manufacturing.

2. Specialty Chemicals are higher value-added chemicals that are produced in smaller quantities and are often tailored to specific applications. These chemicals provide unique properties or functions and are used in various industries, including pharmaceuticals, electronics, cosmetics, and more.

   Examples of specialty chemicals include:

   I. Pharmaceutical Intermediates: Chemical compounds used as intermediate steps in the production of pharmaceutical drugs.

   II. Agrochemicals: Chemicals like pesticides, herbicides, and fertilizers used in agriculture to enhance crop yield and protect plants from pests and diseases.

   III. Performance Chemicals: Chemicals designed to provide specific properties, such as flame retardants, anti-corrosion agents, and coatings.

   IV. Electronic Chemicals: Chemicals used in the manufacturing and assembly of electronic components, such as semiconductors and printed circuit boards.

**1.4** Further, Chemicals are broadly classified into the following groups:

## I. Alkali:

Alkali also known as a base, are typically found on the opposite end of the pH scale with pH values above 7 and are known for their ability to neutralize acids and react with them to form salts and water in a process called neutralization.

The main characteristics of alkalis include:

- They taste bitter unlike acids which taste sour.
- They are slippery or soapy to touch due to the reaction of alkalis with the natural oils on the skin, forming soap-like substances.
- They have the ability to turn red litmus paper blue.
- They react with acid, to form salt and water, neutralizing the acidic properties.
- The pH scale ranges from 0 to 14, with 7 being neutral, alkalis have pH values greater than 7, indicating their basic nature.

Examples of alkalis include sodium hydroxide (NaOH), potassium hydroxide (KOH), calcium hydroxide (Ca (OH)2), and ammonia (NH3).

## II. Inorganic chemicals:

Inorganic chemicals are chemical compounds that do not contain carbon-hydrogen (C-H) bonds.

Key characteristics of inorganic chemicals include:

- They contain elements such as metals, non-metals, and metalloids. They can form various ionic or covalent bonds without the presence of carbon-hydrogen bonds.
- They encompass a diverse range of compounds. Examples include salts (such as sodium chloride), metals and metal oxides (like iron oxide), minerals (e.g., calcium carbonate), acids and bases (like sulfuric acid and sodium hydroxide, respectively) etc.
- They are naturally occurring and can be found in minerals, rocks, soil, water, and the atmosphere.
- They are used in agriculture Industry as fertilizers, in medicine field as metal-based drugs or contrast agents for medical imaging, in construction for cement production, in electronics for semiconductor materials, and in many other fields.
- They are either highly stable or can react and participate in redox reactions.

Exceptions: organometallic compounds, which contain metal-carbon bonds are considered a blend of organic and inorganic chemicals

## III. Organic Compounds:

Organic chemicals contain carbon atoms bonded with other elements such as hydrogen, oxygen, nitrogen, sulphur, and more.

Key characteristics of organic chemicals include:

- They contain carbon atoms, which have the unique ability to form stable covalent bonds with other carbon atoms and various other elements.
- They include a vast array of compounds, ranging from simple hydrocarbons like methane and ethane to complex molecules like proteins, carbohydrates, lipids, and nucleic acids.
- They form the basis of biomolecules such as sugars, amino acids, fatty acids, and nucleotides, which are crucial for the structure and functioning of cells and living organisms.
- They are used in pharmaceuticals, plastics, synthetic rubber, dyes, pesticides, solvents, perfumes, and many other products.

Note: carbonates, carbides, and cyanides are examples of carbon-containing compounds that fall under the domain of inorganic chemistry, not organic.

## IV. Dyes and Pigments:

Dyes and pigments are both colouring agents used to add colour to various materials even though they serve a similar purpose, there are fundamental differences in their properties and applications.

Key characteristics of dyes include:

- They are soluble in liquids, which allows them to be easily applied to different materials.
- They are generally transparent or semi-transparent, allowing the underlying material's colour or texture to show through.
- They are absorbed into the material, resulting in a more permanent and vibrant coloration.
- They are commonly used in the textile industry for colouring fabrics, in the printing industry for inks, and have other applications like food colouring, cosmetics, and medical dyes.

Key characteristics of pigments include:

- They are insoluble in the medium they are applied to, which means they do not dissolve but remain as solid particles.
- They are generally opaque, meaning they cover the underlying material's colour and texture, providing excellent hiding power.

- They are often more stable and resistant to fading than dyes, making them suitable for outdoor applications and products that need to withstand exposure to light, heat, and other environmental factors.
- Pigments are commonly used in paints, coatings, plastics, ceramics, and various other applications.

**V. Pesticides and Insecticides:**

Pesticides are chemical substances or mixtures of chemicals that are used to mitigate, or eliminate Pests i.e., insects, weeds, fungi, rodents, and other organisms to protect agricultural crops and indirectly protect human health and livestock from their adverse effects.

Pesticides are grouped according to the types of pests they kill, such as:

- Larvicides – Target larvae of insects
- Insecticides: Target insects and arthropods
- Herbicides: Target unwanted plants, commonly known as weeds
- Fungicides: Target fungi and mold that can damage plants
- Rodenticides: Target rodents like rats and mice
- Nematicides: Target nematodes, microscopic worms that can harm plants
- Bactericides and Virucides: Target bacteria and viruses that affect plants

Key characteristics of Pesticides include:

- They help increase agricultural productivity by protecting crops from pests that can cause yield losses.
- They also contribute to reducing the spread of disease vectors, such as mosquitoes carrying malaria or ticks carrying Lyme disease.
- However, their use needs to be balanced with careful consideration of potential environmental and health impacts.
- They are formulated as liquids, powders, granules, aerosols, or gases for specific application methods, such as spraying, dusting, or fumigation.

Examples of common pesticides and insecticides include organophosphate are insecticides, they affect the nervous system of insect, carbamate also affect the nervous system of insect, pyrethroid are synthetic version of pyrethrin, a naturally occurring pesticide, found in chrysanthemums (Flower) etc.

**1.5** Petrochemicals are broadly classified into the following groups:

## I. Synthetic Fibres:

Synthetic fibres, also known as man-made fibres or synthetic textiles are engineered to have specific properties, making them suitable for various applications in the textile industry. They are designed to imitate or enhance the characteristics of natural fibres like cotton, silk, or wool, while offering distinct advantages.

Key characteristics of Synthetic fibres include:

- They are not derived from natural sources like plants or animals instead, they are created by polymerizing synthetic materials derived from petrochemicals or other raw materials.
- They can be engineered to have a wide range of properties, including strength, durability, elasticity, water resistance, and colourfastness allowing them to be tailored for specific uses.
- They exhibit resistance to chemicals, mildew, and insects, making them suitable for applications where natural fibres might be less durable.
- They are used in a variety of products, including clothing, home furnishings, industrial textiles, geotextiles, ropes, medical textiles, and more.

Examples of synthetic Fibres include polyester, nylon, acrylic, polypropylene, rayon (Viscose) etc.

## II. Polymers:

Polymers are composed of repeating units called monomers. These monomers are chemically bonded together in long chains or networks, to form large molecules. Polymers can be natural or synthetic and have a wide range of applications in various fields.

Key features of polymers include:

- These monomers can be identical or different, linked together through chemical bonds to create the polymer chain. Some polymers can have thousands or even millions of monomer units in their structure.
- They have higher molecular weights being made up of repeating units, resulting in a larger mass for each molecule.
- They have diverse properties, such as flexibility, strength, elasticity, thermal resistance, and electrical conductivity, hence are chemical processed to form materials like plastics, synthetic fibres, and rubber.
- Being versatile they have applications in various industries, such as packaging, textiles, construction, electronics, automotive, healthcare, and more.

Examples of common synthetic polymers include polyethylene (used in in plastic bags, bottles, and various packaging materials), polypropylene (found in automotive parts, textiles, and household items), polyvinyl chloride (PVC) (used in pipes, electrical insulation, and vinyl products), polystyrene (used in foam packaging and disposable utensils) polyethylene terephthalate (PET) (used in beverage bottles and synthetic fibres (e.g., polyester).

## III. Synthetic rubber

Synthetic rubber also known as elastomers, is a man-made material designed to imitate the properties and characteristics of natural rubber obtained from the latex sap of certain plants.

Key characteristics of synthetic rubber include:

- It is produced by polymerizing various petrochemical-derived monomers, using either emulsion polymerization or solution polymerization.
- They can be engineered to have specific properties, such as elasticity, flexibility, durability, resistance to heat, chemicals, and weathering, making it suitable for diverse applications.

- It is used manufacturing of tires (largest application of synthetic rubber), gaskets, belts, hoses, rubber soles, in industrial goods such as conveyor belts, seals, and in consumer goods such as gloves, swimwear, and inflatable items etc.

Examples of common synthetic rubber include styrene-butadiene rubber (SBR), polybutadiene rubber (BR), neoprene (chloroprene rubber), and nitrile rubber (NBR).

**VI. Synthetic detergent:**

Synthetic detergents, commonly known as detergents, are cleaning agents that are specifically formulated to remove dirt, stains, grease, and other contaminants from various surfaces. Unlike soap, which is produced via saponification of natural fats and oils, synthetic detergents are chemically synthesized compounds designed to provide effective cleaning

Key characteristics of synthetic detergents include:

- Their molecules allow detergents to break down and emulsify grease and oils, enabling them to be washed away with water.
- They are effective in both soft and hard water i.e., even in presence of calcium and magnesium ions, synthetic detergents do produce lather and maintain their cleaning efficiency.
- They are used in various cleaning products, including laundry detergents, dishwashing liquids, surface cleaners, shampoos, body washes, and more.
- They contain chemicals that may have environmental impacts, surfactant containing wastewater, if discharged into the environment, results in harming aquatic life, polluting the water and endangering human health. Therefore, there's a growing interest in developing environmentally friendly detergents.

Examples of common synthetic rubber include sodium lauryl sulphate (SLS) (used in personal care products like shampoos, body washes, and toothpaste) cetyl trimet04hyl ammonium chloride (CTAC) (used in fabric softeners, hair conditioners, and some industrial cleaners) linear alkyl benzene sulfonate (LAS) (used in laundry detergents and household cleaners).

**V. Performance plastics**

Performance plastics, also known as engineering plastics or high-performance polymers, offer advanced mechanical, thermal, electrical, and chemical properties and are specifically designed to withstand challenging conditions and provide enhanced performance compared to standard or commodity plastics.
Key features of performance plastics include:

- They can maintain their mechanical properties over a broad temperature range, from high-temperature applications to extremely low temperatures.
- They often have higher tensile strength, impact resistance, and toughness compared to standard plastics.
- They are resistant to various chemicals, acids, solvents, and corrosive substances, making them suitable for applications involving contact with aggressive environments.
- Some of them exhibit excellent electrical insulating properties and can be used in applications requiring high dielectric strength.
- They have low coefficients of thermal expansion and exhibit minimal creep, maintaining their shape and size even under stress and temperature changes.
- They can have self-lubricating properties, reducing wear and friction in moving parts.
- They have inherent flame-retardant properties, making them suitable for applications where fire safety is a concern.
- Despite their enhanced properties, they are often lighter than metals, making them useful in weight-sensitive applications.

Examples of performance plastics include: polyether ether ketone (PEEK) (used in aerospace, medical implants, and industrial applications.) polytetrafluoroethylene (PTFE) known as Teflon, PTFE (used in non-stick cookware, gaskets, and seals) polyimides (PI) (used in aerospace, electronics, and automotive applications) polyphenylene sulphide (PPS) used in automotive parts, electrical components, and industrial applications.

## VI. Fiber intermediates:

Fiber intermediates serve as precursors in the production of synthetic fibres. These intermediates are transformed into polymers through various chemical processes, which are then spun into fibres for use in textiles, plastics, and other applications.

Key points about fibre intermediates include:

- They are the initial building blocks used to create the polymers that form synthetic fibres which are then processed into fibres through spinning and other techniques.
- They may undergo chemical modifications to enhance their properties or adjust their characteristics for specific applications.
- Once they are transformed into polymers and then fibres, can be further processed into textiles, garments, industrial materials, and other products.

Examples of fibre intermediates and their corresponding synthetic fibres include: terephthalic acid and ethylene glycol are combined to produce polyethylene terephthalate (PET) polymer used in textiles, bottles, and packaging. adipic acid and hexamethylenediamine react to form nylon 6,6 polymer used in nylon fibres used in acrylonitrile and other monomers used in the production of acrylic fibres,

which have applications in textiles, clothing, and outdoor fabrics. caprolactam polymerized to create nylon 6 polymer, used in textiles and engineering plastics.

## VII. Olefins

Olefins, also known as alkenes, are a class of unsaturated hydrocarbons with at least one carbon-carbon double bond in their molecular structure. They are an important group of organic compounds widely used in various industrial processes and applications. Olefins are commonly found in the production of plastics, polymers, and other chemicals.

Key characteristics of olefins include:

- The defining feature of olefins is the presence of a carbon-carbon double bond (C=C) in their chemical structure. This double bond gives them unique reactivity and properties.
- They are unsaturated hydrocarbons, meaning they have fewer hydrogen atoms in their structure compared to their saturated counterparts (alkanes).
- Due to the presence of the double bond, they readily undergo addition reactions, where atoms or groups of atoms are added to the double bond.
- They are crucial feedstocks in the petrochemical industry, are obtained from the cracking of hydrocarbons in processes like steam cracking, which breaks down larger hydrocarbon molecules into smaller olefin molecules.
- They serve as starting materials for the production of various polymers, including polyethylene and polypropylene.
- They are used to produce a wide range of products, including plastics, synthetic rubber, solvents, detergents, and more.

Examples of olefins include ethylene (simplest olefin), propylene (used in the production of plastics, synthetic rubber, and various chemicals), Butenes (used in the production of synthetic rubber, plastics, and fuels), hexenes and heptenes (as intermediates in the synthesis of chemicals and polymers), octenes and nonenes (used in the production of detergents, lubricants, and specialty chemicals)

## VIII. Aromatics

Aromatics contain a specific type of cyclic structure called an aromatic ring or benzene ring which is stable and highly conjugated, having alternating single and double bonds.
Key characteristics of aromatic compounds include:

- They are highly stable due to the resonance (delocalization) of electrons over the entire ring. This resonance leads to a distribution of electron density that helps stabilize the molecule.
- They exhibit distinct reactivity patterns i.e., they undergo electrophilic aromatic substitution reactions, where a hydrogen atom in the ring is replaced by another atom or group.

- They are used as starting materials in the production of many chemicals, including plastics, dyes, pharmaceuticals, and solvents.

Examples of olefins include benzene (C6H6), simplest example which has a hexagonal ring with three alternating double bonds, toluene, xylene, naphthalene, and various aromatic compounds found in essential oils and perfumes.

## 1.6 Growth Drivers for the Chemical Sector:

- A large population, huge domestic market, dependence on agriculture and strong export demand are the key growth drivers for this industry.
- A global shift towards Asia as the World's chemicals manufacturing hub.
- Per capita consumption of chemicals in India is lower compared to western countries, so immense scope for new investments.
- Rise in GDP and purchasing power generates huge growth potential for the domestic market.
- A focus on new segments such as specialty and knowledge chemicals.
- Availability of skilled science professionals.
- World-class engineering and strong R&D capabilities.

## 1.7 Research & Development (R&D)

The Chemical sector is highly heterogeneous encompassing many segments like organic, inorganics, dyestuffs, pesticides, paints, soaps and petrochemicals etc. R&D is critical and of paramount importance for the growth & development of this sector. Continued R&D efforts in the part of the industry helps to improve the quality standards, obtain higher yields resulting reduction in cost of production and to earn competitive edge in the International Market. Indian Chemical Industry spends on R&D to the extent of 2-3% of their total turnover, as against 9-10% by the multi-national companies in overseas countries. The industry would, therefore, have to make large investments in R&D to successfully counter the competition from the international chemicals industry. India has a number of scientific institutions and the country's strength lies in its large pool of highly trained scientific manpower. With the introduction of the Patent Act 2005, product innovation has assumed high importance.

## 1.8 Foreign Technology Agreements

Foreign Technology Agreements in India cater to the growth of the technology in the Indian industries. The foreign technology is transferred from foreign sources such as research and development agencies, foreign parent companies and other manufacturers to the Indian counterparts. The transfer of foreign technology takes place by the means of foreign direct investments and foreign technology collaboration agreements. Foreign Technology Agreements in India enable transfer of technology by the means of Government approval or through the automatic route delegated by the RBI.

**1.9** The Chemical and Petrochemical Industries occupies a pivotal position in meeting some basic human needs and in improving the quality of life. It is extremely important to the economy and is an integral part of everyday life. India has a high population base and thus, faces formidable problems in providing sufficient food, medicines and adequate shelter. From a very modest level of 52 million MT in 1951-52, food grain production increased to about 323.6 million MT in the FY 2022-23 in the country (Second Advance Estimates of Production of Food grains for 2022-23, D/o Agriculture and Farmers Welfare, M/o Agriculture and Farmers Welfare). The chemical industry provides the vital inputs required, chemical fertilizers and pesticides, to augment food production and save crops from attack by a variety of pests in a safe and selective way. The marked improvements in the average life expectancy of our countrymen can be at-least partially attributed to the Chemical Industry which has provided lifesaving drugs and other chemicals required for managing public health care. The problem of housing can be tackled effectively with the assistance of the Chemicals Industry. It plays a crucial role in housing development.

**1.10** The Chemical Industry converts raw materials like water, salt, crude oil, natural gas, air, metals minerals, etc. into other valuable products. It has involved in almost every industrial process and therefore plays a significant role in economic and social development. Without Chemical Industry, there would be no electronics or microelectronics, refrigerators, recording tapes, automobiles, laser discs, super magnets, processed foods and virtually all consumer products etc. Even the power industry depends on the Chemical Industry for its operations. The use of chemicals (ion exchange resins) becomes indispensable for removing dissolved salts needs in boilers and other applications. In gold mining, cyanide solution is used for extracting gold. The crude oil refining process uses chemicals, catalysts, heat and pressure to separate and

combine the basic types of hydrocarbon molecules naturally found in crude oil into groups of similar molecules. Apart from providing a variety of drugs for alleviation of human sufferings, the chemical industry provides safe anaesthetic agents and high quality artificial aids including a hip joint made from ultra-low molecular weight polyethylene. Other health products including dental fills, contact lenses and dialyses also depend on the Chemicals Industry.

**1.11** Some of the most useful materials, synthetic polymers, also known as plastics, have transformed our lives in the last few decades. The driving force for this development was provided by the need for conservation of natural resources and energy efficiency and inherent advantages of the material which created possibilities of innovative designs and cost savings. Its usefulness, adaptability and flexibility of usage have led to a shift in manufacturing from the conventional material-based products to synthetic products. The production of polymers has increased from 8.84 million tonne in the FY 2015-16 to 11.49 million ton in the FY 2022-23 (CAGR of 3.8%) while its consumption has increased from 12.05 million tons to 15.10 million tons during the same period. (Reference: Table: 6 of Section II)

**1.12** Chemicals from petroleum may range from basic petrochemicals such as ethylene, propylene, benzene, xylenes to finished end-products like plastics, rubbers, fibres, detergents, pesticides, dyes etc. These may be classified as (a) first generation, (b) second generation and (c) third generation petrochemicals.

First generation petrochemicals are chemicals directly available from basic inputs such as petroleum crude oil or natural gas, either by fractionation, isomerization, cracking etc. These can also be derived from coal gasification and bio mass. These generally represent the basic petrochemicals, which are the building blocks for various chemical syntheses. Examples of this class of chemicals are methane, ethane, propane, ethylene, propylene, toluene, xylenes etc.

Second generation petrochemicals are the derivatives of the first generation petrochemicals. Example of such products are styrene (derived from benzene and ethylene), dimethyl terephthalate or terephthalic acid (derived from p-xylene), acrylonitrile (derived from propylene), ethylene glycol (derived from ethylene), vinyl chloride monomer (derived from acetylene or ethylene) etc. Second generation

petrochemicals constitute the intermediate chemicals which serve as the raw materials for consumer industries like plastics, rubbers, fibres, dyes, detergents etc.

Third Generation Petrochemicals are the consumer commodities derived generally from second generation petrochemicals and represent the most important commercial products such as plastics, rubbers, fibres, detergents etc. Examples are polystyrene (from vinyl chloride monomer), DDT from (chlorobenzene), azo dyes (from styrene), Polyvinyl chloride (from aniline) etc. However, some of the products may be directly synthesized from first generation petrochemicals. Polybutadiene rubber, for instance, is obtained by polymerizing butadiene. Since most of the plastics or rubbers are derived from second generation petrochemicals, polybutadiene rubber is regarded as a third-generation petrochemical. *(# Dr. G.N.Sarkar, Advanced Petrochemicals, First Edition, Khanna Publishers, New Delhi)*

**1.13** Chemical sector is predominantly based on feedstock derived from crude oil, natural gas, salt and minerals. Naphtha (used for production of Urea, Aromatics and Olefins), Heavy Gas oil (propylene and ethylene) and Kerosene (Linear Alkyl Benzene) are derived from crude oil. Steam cracking/ Catalytic Reforming of low and high aromatic naphtha in oil refineries provide Olefins (Ethylene, Propylene and Butadiene) and Aromatics (benzene, toluene and xylenes). Natural gas contains Methane (CH4), Ethane (C2H6), Propane (C3H8) and Butane (C4H10). Rich natural gas, which contains C2 and C3 in extractable quantity, is used in producing Ethylene and Propylene. Methane is converted into synthesis gas. Synthesis gas is a mixture of carbon monoxide & hydrogen which is used to make ammonia & methanol. Ammonia is used to make Urea and Methanol is used to make acetic acid and derivatives. Consumption of naphtha in petrochemical sector has decreased from 10602 thousand tons in the FY 2018-19 to 10434 (Provisional) thousand ton in the FY 2022-23. The consumption of natural gas for petrochemical sector has decreased from 3386 million standard cubic meter to 1959 million standard cubic meters during the same period. (Reference: Table-42 of Section-VII).

**1.14** Olefins and Fibre Intermediates (Acrylonitrile, Caprolactam, Mono Ehylene Glycol, Purified Terephthalic Acid, and Dimethyl Terephthalate) form the basis of the petrochemical industries. Olefins and Aromatics are used in producing Fibre Intermediates. Salt is the feed stock for the Chlor-alkali chemical industry, just as crude oil and Natural Gas for the petrochemical industry. Salt, Aromatics, Minerals

(Limestone, Bauxite ore (Aluminium), Rock Phosphate, Sulphur, Iron ore, Indium ore (Tin), Chromite ore, Mica, Silica, Manganese ore, etc.) and Basic metals (Copper, Zinc, Titanium, Aluminium, Iron, Chromium, Tin, Nickel, etc.) form the basis of chemical industries producing Chlor-Alkali, Organic Chemicals, Inorganic Chemicals, Pesticides and Dyes & Pigments. Dyes are organic compounds and are mainly based on Benzene, Toluene, Naphthalene (from petroleum fractions and coke oven batteries of steel plants), Anthracene and Cyanuric Chloride. Pesticides are mainly based on Benzene, Naphthalene, Phosphorous (produced from phosphate rock) and Sulphur. Pharmaceuticals are mainly based on Benzene, Toluene and Xylene.

**1.15** Innovations in additives, alloys, blends, compounds, composites and high grade reinforcement materials such as glass, nano-clays, carbon nano-tubes and carbon fibres require attention for technology development. New developments in the field of bio and photodegradable plastics, are also taking place all over the world. The chemical and petrochemical industries face the challenge to operate in an environmentally acceptable manner. Chemicals are globally tradable and unless chemicals produced in India are cost effective, these cannot contribute usefully to the Nation's economy. With an eye on emerging usages, research and development efforts may focus on the need to modernize and upgrade the existing manufacturing processes, improve the quality of existing products and make them safe for environment and human health.

**1.16** According to the Annual Survey of Industries (ASI) 2021-22 (factory sector), 10.26 lakh persons were engaged in Chemicals and Chemical Products (Industry Division 20, NIC 2008), in organised sector in medium and large-scale industries, whereas 1.72 crore persons engaged in all industries during FY 2021-22.

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# Chapter 2

# Chapter 2
# Global Scenario

As per the European Chemical Industry Council (CEFIC) Report 2023, the world chemicals (excluding pharmaceuticals) sales in 2022 are valued at €5,434 billion. India ranks 4th in Asia and 7th in world with chemicals sales valued at €115 billion in 2022. India's Capital spending in World Chemicals (excluding pharmaceuticals) is valued at €5.0 billion in 2022, as compared to €3.4 billion in 2011. India's R&I spending in the chemicals industry is valued at €2.0 billion in 2022, as compared to €1.1 billion in 2011. Top ten countries in World Chemical sales during 2022 are as under:


***Source:*** *Cefic-Facts and Figures-2023*

2.2 As per UN Comtrade Database for 2022, India ranks 11th in the world exports of chemicals (excluding pharmaceutical products) and ranks 4th in the world imports of chemicals (excluding pharmaceutical products). India's exports of chemicals (excluding pharmaceutical products) was 49.18 US$ billion in 2022, which is 2.3% share of World exports of chemicals (excluding pharmaceutical products). India's imports of chemicals (excluding pharmaceutical products) was 97.62 US$ billion in 2022, which is 4.3% share of World imports of chemicals (excluding pharmaceutical products). (Reference: Table 32 of section III)

2.3 The top five Chemical Products (in terms of value) exported to different countries in the FY 2022-23 were Other Herbicides-anti Sprouting Products (₹31,080/- Cr.), Other

Insecticides (₹24,224/- Cr.), Other Fungicide NES (₹16,817/- Cr.), Pigment Emulsion (₹12,517/- Cr.), and Reactive Dyes (₹9,670/- Cr.). Other Herbicides-anti Sprouting Products mainly exported to U S A, Brazil, Australia, Argentina and France; Other Insecticides exported to Brazil, U S A, Japan, Bangladesh PR and Nigeria; Other Fungicide NES exported Brazil, Bangladesh PR, U S A, Costa Rica and Indonesia; Pigment Emulsion exported to China People's Republic, U S A, Netherland, Japan and Brazil; and Reactive Dyes exported Bangladesh PR, Turkey, Honduras, Brazil and Indonesia. (Reference: Table 16 and Table 19 of section III)

2.4 During FY 2022-23, top five Chemical products (in terms of value) imported from different countries were Methanol (₹ 7,524/- Cr), Acetic Acid (₹ 5,127/- Cr), Other Insecticides (₹ 3,857/- Cr), Other Herbicides-Anti Sprouting Products (₹ 3,117/- Cr) and Other Fungicide Nes (₹ 2574/- Cr). Methanol mainly imported from Saudi Arab, Iran, Qatar, Oman, Finland; Acetic Acid from China People's Republic, Malaysia, Singapore, Taiwan and Saudi Arab; Other Insecticides from China People's Republic, U S A, Japan, Taiwan and Israel; Other Herbicides-Anti Sprouting Products imported from China People's Republic, Israel, Japan, U S A and Taiwan: Other Fungicide Nes imported from China People's Republic, Thailand, Germany, U S A and Spain. (Reference: Table 17 and Table 20 of section III)

2.5 Export of top five Petrochemical Products (in terms of value) to different countries in the FY 2022-23 were Benzene (₹ 23,139/- Cr.), Paraxylene (₹ 17,044/- Cr.), Polyester Filament Yarn (₹ 13,320/- Cr.), Polypropylene (Inc. Co-Polymer) (₹ 6,484/- Cr.) and Polyester Staple Fibre (₹ 4,564/- Cr.). Benzene was mainly exported to Saudi Arab, Kuwait, Belgium, China People's Republic and Singapore; Paraxylene exported to Malaysia, China People's Republic, Indonesia, U S A and Portugal; Polyester Filament Yarn was exported to Turkey, Brazil, U S A, Morocco and Argentina; Polypropylene (Inc. Co-Polymer) was exported to China People's Republic, Turkey, Nepal, Vietnam SOC REP and Bangladesh PR; and Polyester Staple Fibre was exported to U S A, Nepal, Turkey, Belgium and Spain. (Reference: Table 24 and Table 27 of section III)

2.6 Top five Petrochemical products (in terms of value) imported from different countries in the FY 2022-23 were Polypropylene (Inc. Co-Polymer) (₹ 17,789/- Cr.), High Density Polyethylene (₹ 16,909/- Cr.), Purified Terephthalic Acid (₹ 11,684/- Cr.), Styrene (₹ 10,150/- Cr.) and Mono Ethylene Glycol (₹ 6,666/- Cr.). Polypropylene (Inc. Co-Polymer) mainly imported from Saudi Arab, U Arab EMTS, Singapore, China

People’s Republic and Oman; High Density Polythylene imported from U Arab EMTS, Saudi Arab, Qatar, USA and Oman; Purified Terephthalic Acid mainly imported from China People’s Republic, Taiwan, Thailand, Malaysia and Indonesia; Styrene imported from Singapore, Kuwait, Saudi Arab, Korea RP and China People’s Republic; and Mono Ethylene Glycol imported Kuwait, Saudi Arab, Singapore, Oman and United Arab Emirates. (Reference: Table 25 and Table 28 of section III)

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# Chapter 3

# Chapter 3

# Important Economic Indicators

According to the National Accounts Statistics, brought out by the Central Statistics Office (CSO), Chemical and Chemical products sector, excluding pharmaceuticals (Industry Division 20 of NIC 2008), accounted for 1.4% of the GVA for All Economic Activity in the FY 2021-22. The share of Gross Value Added (GVA) of Chemicals in the Manufacturing Sector in the FY 2021-22 is about 9.2%. GVA of Chemical Sector has grown with CAGR of 8.3% from the FY 2016-17 to FY 2021-22. The average Indices of Industrial Production (IIP) for the Chemical and Chemical products (Industry Division 20 of NIC 2008) for the FY 2022-23 stood at 129.3, which is 6.9% more as compared to the previous year. The size of the Indian Chemical industry, excluding Pharmaceuticals (Industry Division 20 of NIC 2008), in terms of Value of Output in the FY 2021-22 was Rs. 12, 96,422/- cores and it was 8.2% of Value of Output of Manufacturing Sector. The size of Chemical industry, including Pharmaceuticals (i.e. Industry Division 20 and 21 of NIC 2008), in terms of Value of Output in the FY 2021-22 was Rs. 19,08,568/- crores and it was 12.1% of the Total Value of Output of Manufacturing sector. During last six years, i.e. within FY 2016-17 to FY 2021-22, real growth rate in output of Chemical Industry excluding Pharmaceuticals Industry (i.e. Industry Division 20) was 14.2%, which was 14.1% for Chemical Industry including Pharmaceutical Industry {i.e. Industry Division 20 & 21}. Growth in value of output for Manufacturing Sector during the same period was 11.9%.

3.1. The exports and imports data of FY 2022-23 shows that in the Chemical Sector, comprising of chapters 28, 29, 30, 31, 32, 38, 39, 4002, 54 and 55 of HS code, India was net importer in all categories except of four categories, namely, Pharmaceuticals Products (Chapter 30 HS code), Man-made staple fibres (Chapter 55 HS code), Man-Made Filaments (Chapter 54 HS code) and Tanning or Dyeing (Chapter 32 HS code). Pharmaceuticals products accounted Rs.1,38,621/- crore, Man-made staple fibres accounted Rs.4,461/- crore, Man-Made Filaments accounted Rs.1,444/- crore and Tanning or Dyeing accounted Rs.6,038/- crore in net Import. (Reference: Table 12A of section III)

3.2. As per Annual Survey of Industries (Factory Sector: 2021-22), top seven States, namely, Gujarat (36.0%), Maharashtra (16.9%), Uttar Pradesh (5.2%), Tamil Nadu (4.5%), Dadra & N Haveli & Daman & Diu (4.0%), Uttarakhand (3.5%) and Rajasthan (3.4%), contributed around 73.6% in the Gross Value Added (GVA) for the Chemical &

Chemical products Sector (Industry Division 20 of NIC 2008) and seven States, namely, Gujarat (34.9%), Maharashtra (16.0%), Uttar Pradesh (6.3%), Tamil Nadu (5.8%), Dadra & N Haveli & Daman & Diu (4.7%), Rajasthan (3.8%) and West Bengal (3.7%), contributed around 75.2% in the value of output. . (Reference: Table 50 of Section VII)

3.4. The exports of chemicals & petrochemicals (excluding pharmaceutical products and fertilizers) has increased from Rs. 1,81,374/- crores in the FY 2015-16 to Rs. 3,81,306/-crore in the FY 2022-23. The percentage share of the exports of chemicals & petrochemicals (excluding pharmaceutical products and fertilizers) in the total national exports slightly decreased from 10.6% to 10.5% during the same period. (Reference: Table 11 of Section III)

At the product level, the following products accounted more than Rs. One Thousand five hundred crores in the exports during 2022-23 (Reference: Table 16 & 24 of Section III):

| Product (Chemical) | Export (Rs. Crore) | Product (Petro-Chemical) | Export (Rs. Crore) |
|---|---|---|---|
| Other herbicides-anti sprouting products | 31080 | Benzene | 23139 |
| Other insecticides | 24224 | Paraxylene | 17044 |
| Other fungicide nes | 16817 | Polyester filament yarn | 13320 |
| Pigment emulsion | 12517 | Polypropylene (inc. Co-polymer) | 6484 |
| Reactive dyes | 9670 | Polyester staple fibre | 4564 |
| Carbon black | 5464 | Polyester chips/pet chips | 3127 |
| Caustic soda | 4858 | Polytetrafluoroethylene(ptfe) | 2452 |
| Azo dyes | 4461 | Ortho-xylene | 2161 |
| Menthol | 3094 | Low density polyethylene | 2000 |
| Food colours | 2975 | High density polythylene | 1909 |
| 2, 4-d | 2035 | Butadiene | 1728 |
| Cypermethrin | 1908 | | |
| Disperse dyes | 1797 | | |
| Ethyl acetate | 1731 | | |
| Oil soluble (solvent dyes) | 1656 | | |

3.5. The imports of Chemicals & Petrochemicals (excluding Pharmaceutical products and fertilizers) has increased from Rs. 2,61,880/- crores in the FY 2015-16 to Rs. 6,42,088/- crores in the FY 2022-23. The percentage share of the imports of Chemicals & Petrochemicals (excluding Pharmaceutical products and fertilizers) in the total

national imports increased from 10.52% to 11.17% during the same period. (Reference: Table 11 of Section III)

At the product level, the following products accounted for more than Rs. One Thousand crores in the imports in 2022-23 (Reference: Table 17 & 25 of Section III):

| Product (Chemical) | Import (Rs. Crore) | Product (Petro-Chemical) | Import (Rs. Crore) |
|---|---|---|---|
| Methanol | 7524 | Polypropylene (inc. Co-polymer) | 17789 |
| Acetic acid | 5127 | High density polythylene | 16909 |
| Other insecticides | 3857 | Purified terephthalic acid | 11684 |
| Other herbicides-anti sprouting products | 3117 | Styrene | 10150 |
| Other fungicide nes | 2574 | Mono ehylene glycol | 6666 |
| Phenol | 2422 | Paraxylene | 5497 |
| Soda ash | 1954 | Polyester filament yarn | 5409 |
| Carbon black | 1652 | Poly vinyl chloride | 5347 |
| Citric acid | 1407 | Linear alkyl benzene | 5219 |
| Aniline | 1375 | Toluene | 5148 |
| Calcium carbonate | 1119 | Polycarbonate | 5030 |
| | | Linear low density polythylene | 4395 |
| | | Vinyl chloride monomer | 4107 |
| | | Ethyl vinyl acetate | 4070 |
| | | Low density polyethylene | 3318 |
| | | Acrylonitrile | 3024 |
| | | Styrene butadiene rubber | 2873 |
| | | Vinyl actate monomer | 2816 |
| | | Ethylene dichloride | 2623 |
| | | Poly butadiene rubber | 2336 |
| | | Abs resin | 1960 |
| | | Polyestyrene | 1781 |
| | | Butyl rubber | 1540 |
| | | Ethyl propylene dimers | 1307 |
| | | Isopropanol | 1229 |
| | | Polyacetal resin | 1214 |
| | | Epichlohydrine | 1212 |
| | | Unsaturated polyster resin | 1145 |
| | | Nitrile butadiene rubber | 1080 |
| | | Propylene Glycol | 1055 |

3.6. The net imports of Chemicals & Petrochemicals (excluding Pharmaceutical products and fertilizers) has increased from Rs. 80,506/- crore in 2015-16 to Rs.

2,60,782/-crore in 2022-23. The percentage share of the net imports of Chemicals & Petrochemicals (excluding Pharmaceutical products and fertilizers) in the total national net imports increased from 10.4% to 12.3% during the same period. At the product level, the following products accounted more than Rupees One Thousand crores in the net imports in 2022-23. (Reference: Table 12(a), 18 & 26)

| Product (Chemical) | Net Import (Rs. Crore) | Product (Petro-Chemical) | Net Import (Rs. Crore) |
|---|---|---|---|
| Methanol | 7246 | High density polythylene | 15000 |
| Acetic acid | 4551 | Purified terephthalic acid | 11529 |
| Phenol | 1863 | Polypropylene (inc. Co-polymer) | 11305 |
| Aniline | 1370 | Styrene | 9380 |
| Citric acid | 1293 | Mono ehylene glycol | 5921 |
| | | Poly vinyl chloride | 5320 |
| | | Linear alkyl benzene | 5197 |
| | | Polycarbonate | 4905 |
| | | Toluene | 4842 |
| | | Vinyl chloride monomer | 4106 |
| | | Ethyl vinyl acetate | 3890 |
| | | Linear low density polythylene | 3577 |
| | | Vinyl actate monomer | 2761 |
| | | Acrylonitrile | 2712 |
| | | Ethylene dichloride | 2616 |
| | | Poly butadiene rubber | 2259 |
| | | Styrene butadiene rubber | 2023 |
| | | Abs resin | 1942 |
| | | Low density polyethylene | 1318 |
| | | Ethyl propylene dimers | 1242 |
| | | Polyacetal resin | 1129 |
| | | Isopropanol | 1004 |
| | | Epichlohydrine | 1003 |

The following products accounted more than Rs. One Thousand crore in the total net exports in 2022-23.

| Product (Chemical) | Net Export (Rs. Crore) | Product (Petro-Chemical) | Net Export (Rs. Crore) |
|---|---|---|---|
| Other herbicides-anti sprouting products | 27963 | Benzene | 23062 |
| Other insecticides | 20367 | Paraxylene | 11547 |
| Other fungicide nes | 14243 | Polyester filament yarn | 7911 |
| Pigment emulsion | 11819 | Polyester staple fibre | 3607 |

| | | | |
|---|---|---|---|
| Reactive dyes | 9445 | Polyester chips/pet chips | 2251 |
| Azo dyes | 4406 | Polytetrafluoroethylene(ptfe) | 2120 |
| Caustic soda | 4116 | Ortho-xylene | 1666 |
| Carbon black | 3812 | Butadiene | 1636 |
| Food colours | 2899 | | |
| Menthol | 2666 | | |
| 2, 4-d | 2015 | | |
| Cypermethrin | 1908 | | |
| Ethyl acetate | 1714 | | |
| Disperse dyes | 1605 | | |
| Oil soluble (solvent dyes) | 1525 | | |
| Basic dyes | 1150 | | |

3.7. Chemical Sector (including Pharmaceutical) in India {i.e. 99.5% GVA of Chemical Sector (including Pharmaceutical) comes from the organized Sector. The estimates of the Total Output (Factory Sector) of at 4-digit Industry class in the Chemicals and Chemical Products (Division 20-NIC 2008) from the FY 2020-21 and FY 2021-22 are given in the table below:

| **Class** | **Description** | **Total Output (Rs. Crore)** | |
|---|---|---|---|
| | | **2020-21** | **2021-22** |
| 2011 | Manufacture of basic chemicals | 182061 | 288868 |
| 2012 | Manufacture of fertilizers and nitrogen compounds | 119603 | 182647 |
| 2013 | Manufacture of plastics and synthetic rubber in primary forms | 102426 | 169930 |
| 2021 | Manufacture of pesticides and other agrochemical products | 77289 | 85924 |
| 2022 | Manufacture of paints, varnishes and similar coatings, printing ink and mastics | 55964 | 71956 |
| 2023 | Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations | 109397 | 114937 |
| 2029 | Manufacture of other chemical products n.e.c. | 88904 | 103610 |
| 2030 | Manufacture of man-made fibres | 45839 | 80035 |
| **Total** | | **781483** | **1097907** |

***Source**: Annual Survey of Industries, 2020-21 and 2021-22 (Factory sector), Ministry of Statistics & Programme Implementation.*

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# Chapter 4

# Chapter 4

# Important Definitions for CPC Coding System and Economic System

## 4.1 **Harmonized System**:

Harmonized System is an internationally standardized system of names and numbers for classifying traded products. It has been developed and maintained by World Customs Organization (WCO). It is used by customs authorities around the world to identify products when assessing duties and taxes and for gathering statistics.

The HS is organized into 21 Sections, which are subdivided into 96 Chapters (Chapters 1 to 97 with Chapter 77 reserved for potential future use by the HS). The 96 HS Chapters are further subdivided into 1,228 headings and 5,612 subheadings in the current 2022 edition of the HS.

The HS code consists of 6-digits. The first two digits designate the Chapter wherein headings and subheadings appear. The second two digits designate the position of the heading in the Chapter

Eg: HS code 1006.30 indicates Chapter 10 (Cereals), heading 10.06 (Rice), and subheading 1006.30 (Semi-milled or wholly milled rice, whether or not polished or glazed)

Most of countries use an 8-digit or 10-digit classification system, with the first 6-digit adopting the Harmonized System developed by the WCO and the last 2 or 4 digits representing a further breakdown in commodity classification to meet domestic needs.

## 4.2 **Indian Trade Clarification based on Harmonized System (ITC-HS) 2017**

Indian Trade Classification (Harmonized System), 2017 was compiled and notified by the Directorate General of Foreign Trade, Ministry of Commerce and Industry, Government of India in January 2017. ITC-HS codes are divided into two schedules. ITC (HS) Import Schedule I describe the rules and guidelines related to import policies. Schedule II describes the rules and regulation related to export policies. Schedule I of the ITC-HS code is divided into 21 sections and each section is further divided into chapters. The total number of chapters in the schedule I is 98. The chapters are further divided into sub- heading under which different HS codes are mentioned. Export Policy Schedule II of the ITC-HS code contains 97 chapters giving all the details about the guidelines related to the export policies.

The Chapters dealing with Chemicals and Petrochemical products are falling under Section VI, VII & XI as depicted below:

| Chapter | Description | Section |
|---|---|---|
| Chapter 28 | Inorganic chemicals; organic or inorganic compounds of precious metals, of rare- earth metals, of radioactive elements or of; isotopes | SECTION VI |
| Chapter 29 | Organic chemicals | |
| Chapter 38 | Miscellaneous chemical products | |
| Chapter 39 | Plastics and articles thereof | SECTION VII |
| Chapter 40 | Rubber and articles thereof | |
| EXIM Code 4002 | Synthetic rubber and factice derived from oils, in primary Forms or in plates, sheets or strip; mixtures of any product of heading 4001 with any product of this heading, in primary forms or in plates, sheets or strip | |
| Chapter 54 | Man-made filaments | SECTION XI |
| Chapter 55 | Man-made staple Fibre | |

Illustration of 8-digit Product Code:

| Chapter | Exim Code | Item Description |
|---|---|---|
| 28 | Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, of radioactive elements or of; isotopes | |
| | 2801 | Fluorine, Chlorine, Bromine and Iodine |
| | 28011000 | Chlorine |
| 39 | Plastics and articles thereof | |
| | 3902 | Polymers Of Propylene or Of Other Olefins, In Primary Forms |
| | 39021000 | Polypropylene |

***Source:*** *Directorate General Foreign trade (DGFT), Ministry of Commerce and Industry, Government of India (https://www.dgft.gov.in/CP/?opt=itchs-import-export)*

### 4.3 **Group-wise bifurcation of HS code of 2334 Chemicals and Petrochemicals product**

Department of Chemicals and Petrochemicals deals with the import and export of Chemicals that falls in the chapter 28,29,30,31,32,38,39,4002,54 and 55 of HS Code. There are total 2334 products that comes under these chapters which are currently imported in the country. Of these 2334 products there are certain product categories that fall under the purview of other Departments too. This identification of the products will help in avoiding duplicity at the time of monitoring imports of the products by the concerned departments.

The formulation of group wise bifurcation of available HS code list prepared by DCPC for chemicals and petrochemicals for 2334 products as under:

| **List of Abbreviations for Chemicals** | | | | |
|---|---|---|---|---|
| **S. No** | **Abbreviations** | | **Description** | **Nos.** |
| | C | | Chemicals | |
| 1 | | AC | Alkali Chemicals | 10 |
| 2 | | IC | In-Organic Chemicals | 271 |
| 3 | | OC | Organic Chemicals | 473 |
| 4 | | PI | Pesticides and Insecticides | 43 |
| 5 | | DP | Dyes and Pigments | 304 |
| 6 | | MISC | Miscellaneous | 167 |
| | | | **Sub-Total** | **1268** |
| | | NA | Not Applicable | **593** |
| **List of Abbreviations for Petro-Chemicals** | | | | |
| **S. No** | **Abbreviations** | | **Description** | **Nos.** |
| | PC | | Petro-Chemicals | |
| 1 | | SF | Synthetic Fibres | 38 |
| 2 | | P | Polymers | 221 |
| 3 | | SR | Synthetic Rubber (Elastomers) | 20 |
| 4 | | SDI | Synthetic Detergent Intermediates | 3 |
| 5 | | PP | Performance Plastics | 33 |
| 6 | | FI | Fibre Intermediates | 5 |
| 7 | | O | Olefins | 3 |
| 8 | | A | Aromatics | 6 |
| 9 | | OP | Other Petro-based Chemicals | 144 |

| | | | |
|---|---|---|---|
| | | **Sub-Total** | **473** |
| | | **Grand Total** | **2334** |

The Pharmaceutical Department stated that 191 out of the 2334 Chemicals and Petrochemicals products listed by HS codes are related to pharmaceuticals according to Pharma Principal Commodities (PCGs) in the BD/DI HSN codes

List of Chemical & Petrochemical products (HS- Code Wise) related to Pharma as per PCGs of BD/DI list of HSN code:

| S. No | Abbreviations | Description | Nos. | Remarks |
|---|---|---|---|---|
| 1. | C | Chemicals | | All these HSN codes are also related to Pharma-Principal commodities group (PCGs) of Bulk Drug & Drug Intermediates list of 260 HSN codes. |
| 2. | OC | Organic Chemicals | 38 | |
| 3. | PI | Pesticides and Insecticides | 1 | |
| 4. | DP | Dyes and Pigments | 8 | |
| 5. | MISC | Miscellaneous | 47 | |
| 6. | NA | Not Applicable | 97 | |
| | **Total** | | 191 | |

Details of 2334 Chemicals and Petrochemicals products is in attached in **Annexure.**

4.4 **CAS Registry Number**:

Chemical Abstract Service (CAS) is a division of American Chemical Society. It is the only organization in the world whose objective is to find, collect and organize all publicly disclosed chemical substance information.

The registry maintained by CAS is an authoritative collection of disclosed chemical substance information. It identifies more than 182 million unique organic and inorganic substances and 68 million protein and DNA sequences, plus additional information about each substance. It is updated with around 15,000 additional new substances daily

A CAS Registry Number has no inherent meaning, but is assigned in sequential, increasing order when the substance is identified by CAS scientists for inclusion in the CAS REGISTRY database.

A CAS RN is separated by hyphens into three parts, the first consisting from two up to seven digits, the second consisting of two digits, and the third consisting of a single digit serving as a check digit. This format gives CAS a maximum capacity of 1,000,000,000 unique numbers. The check digit is found by taking the last digit times 1, the preceding digit times 2, the preceding digit times 3 etc., adding all these up and computing the sum modulo 10.

For example, the CAS number of water is 7732-18-5: the checksum 5 is calculated as (8×1 + 1×2 + 2×3 + 3×4 + 7×5 + 7×6) = 105; 105 mod 10 = 5.

### 4.5 UN Codes:

UN Numbers or UN IDS are four-digit numbers that Identify hazardous substances, and articles such as explosives, flammable Liquids, toxic substances etc.

The UN numbers range from UN0001 to about UN3600 and are assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods.

For example, the UN Code for Nitrogen (compressed) is UN 1066

### 4.6 International Standard Industrial Classification

The International Standard Industrial Classification (ISIC) of All Economic Activities (ISIC) is the international reference classification of productive activities. Its main purpose is to provide a set of activity categories that can be utilized for the collection and reporting of statistics according to such activities.

Wide use has been made of ISIC, both nationally and internationally, in classifying data according to kind of economic activity in the fields of economic and social statistics, such as for statistics on national accounts, demography of enterprises, employment and others. In addition, ISIC is increasingly used for non-statistical purposes.

### 4.7 National Industrial Classification (NIC) - A Digest

The Central Statistics Office (CSO), Ministry of Statistics & Programme Implementation being nodal Statistical Authority in the Country is vested with the responsibility of setting up Standards for collection, compilation and dissemination of Statistical data. The Official statistics is required to be collected and presented according to classification designed to facilitate its use for National Economic Policies

and conform to International comparison. The need for comparability of Statistics available from various sources, on different aspects of the economy and usability of such data for economic analysis necessitated the need of standardization of a system of classification.

CSO being responsible for coordination of statistical activities in the country and with a view to evolve and maintain statistical standards, initiated task of bringing out Standard Industrial Classification as early as in 1960 and evolved a Standard Industrial Classification (SIC) in 1962. To take care of emerging changes in organizations and structure of Industries, the need for revision of this document was felt from time to time. With this objective, the CSO revised SIC 1962 in 1970 (NIC-70), NIC-1970 in 1987 (NIC-87) and NIC-87 in 1998 (NIC-98). It is during 1998 that 4-digit system of International Standard Industrial Classification (ISIC- 3) was followed and these 4 digits were extended up to 5 digits based on national needs. Consequent upon release of United Nations International Standard Industrial Classification (ISIC) – 2002 Rev. 3.1, NIC-1998 was updated to bring out NIC–2004. After adoption of ISIC Revision-4 by the United Nations Statistical Commission (UNSC) in the year 2008, an expert committee under the chairmanship of DG, CSO deliberated on the issues and approved the draft NIC-2008 incorporating revision in NIC-2004 consistent with ISIC revision 4.

**Basic features of NIC-2008**

All the activities are grouped into several “activity groups” or “tabulation categories” in a hierarchical manner. Activities are first grouped into ‘section’ alphabetically coded from A through U, every section is divided into ‘division’ with 2-digit numeric code, every division into ‘group’ with 3-digit numeric code, every group into ‘class’ with 4-digit numeric code and every 4-digit class into 5-digit ‘sub-class’. The structure is illustrated below.

| Level | | Description |
|---|---|---|
| Section | | Manufacturing |
| Division 20 | | Manufacture of Chemicals and Chemical Products |
| Group | 201 | Manufacture of Basic Chemicals, Fertilizer and Nitrogen Compounds, Plastics and Synthetic Rubber in Primary Forms |
| | 203 | Manufacture of man-made Fibre |

| | | |
|---|---|---|
| Class | 2011 | Manufacture of Basic Chemicals |
| | 2030 | Manufacture of man-made Fibre |
| Sub-Class | 20111 | Manufacture of liquefied or compressed inorganic industrial or medical gases (elemental gases, liquid or compressed air, refrigerant gases, mixed industrial gases etc.) |
| | 20301 | Manufacture of synthetic or artificial filament |

The structure of NIC-2008 is identical to the structure of ISIC Revision up to 4-digit level 'class'. Classes were then divided into 5-digit 'sub classes" according to national requirements.

**Salient features of NIC-2008**

- The sections A to Q of NIC-2004 have been replaced by sections A to U in respect of NIC-2008. NIC-2008 has 21 sections, 88 divisions, 238 groups, 403 classes and 1304 sub-classes.
- NIC-2008 is comparable with ISIC Rev.4 till 4-digit classes in totality.
- The concept of shadow classes introduced in NIC-2004 has been done away with in NIC- 2008 as the emphasis has been given on activity rather than type of operation and scale of operation.
- In NIC-2008 some of the 5-digit sub-classes of NIC-2004 have been made separate 4- digit classes e.g. 'Growing of Sugarcane (01115)", 'Growing of tobacco (01114)', 'Growing of fibre crops (01113)" 'Growing of flowers (01122)".
- Repair and installation of machinery and equipment has been classified as separate division (Division-33) in NIC-2008.
- Repair of Personal Household goods (5260 of NIC-2004) has been removed from Section-G (wholesale and retail trade; repair of motor vehicles and motor cycles) and now included in Section-S (other service activities).
- Publishing activity which was included in division-22 of manufacturing section in NIC-2004 is now included in division-58 (publishing activities) of NIC-2008 under Section-J (information and communication).
- Activity 'water supply' under division-41 (Electricity, Gas and Water Supply) of NIC-2004 is now included in Section-E (water supply; sewerage, waste management and remediation activities).

- Explanatory notes of ISIC Rev.4 at 1/2/3-digit level have been incorporated in NIC-2008 as Annexure for better understanding of the revised classification.
- Under 4-digit classes of NIC-2008, inclusion and exclusion statements have been included in the detailed structure itself to remove ambiguity in the scope of classification and to facilitate the classification of economic activity distinctly.

Division 20 and 21 of NIC-2008 relates to “Chemical and Chemical Products” and “Pharmaceutical, Medicinal and botanical products” respectively.

***Source:***

*Website of Ministry of Statistics and Programme Implementation, Government of India*

## 4.8 Important Definitions of Economic System

**Gross Domestic Product (GDP)**:

The total market value of all final goods and services produced during a given time period within a nation’s domestic borders.

There are three primary approaches to calculating GDP:

**1) Production Approach (GDP by Production):**

This approach calculates GDP by summing up the value-added at each stage of production. It considers the value of all goods and services produced in various industries and sectors of the economy. The formula for GDP by production is:

GDP = Value of Output - Value of Intermediate Consumption

**2) Expenditure Approach (GDP by Expenditure):**

This approach calculates GDP by measuring the total spending on goods and services within the economy. It is represented by the equation:

GDP = C + I + G + (X - M)

**C** represents consumer spending.

**I** represent investment spending

(business investment in equipment, structures, etc.).

**G** represents government spending.

**X** represents exports of goods and services.

**M** represents imports of goods and services.

**3) Income Approach (GDP by Income):**

This approach calculates GDP by summing all the income generated within an economy. It includes wages, rents, interest, and profits. The formula for GDP by income is:

GDP = Compensation of Employees + Gross Operating Surplus + Gross Mixed Income + Taxes on Production and Imports - Subsidies on Production and Imports

There are 2 types of GDP,

**Nominal GDP**:

Nominal GDP measures the total market value of all finished good and service produced by a country at their current market price in single year. It includes all the changes in the prices of finished goods and services that took place in one year due to inflation or deflection.

**Real GDP**:

Real GDP is also known as inflation adjusted GDP, measure the value of finished goods and services at constant base year price. Real GDP considered as a true indicator of country economic growth. Real GDP includes change in quantity but not price.

**GDP deflator**:

The GDP price deflator measures the changes in prices for all goods and services produced in an economy. GDP deflator helps economists compare the level of real economic activity from one year to another. The formula for GDP deflator is:

$$GDP\ Deflator = \frac{Nominal\ GDP}{Real\ GDP} \times 100$$

**GDP per capita**:

Gross Domestic Product (GDP) per capita is a commonly used economic indicator that measures the average income or economic output per person in a given country or region. It is calculated by dividing a country's total GDP by its population. The formula for GDP per capita is:

GDP per capita = GDP / Population

**Net domestic product (NDP):**

The net domestic product (NDP) equals the gross domestic product (GDP) minus depreciation on a country's capital goods.

Net domestic product accounts for capital that has been consumed over the year in the form of housing, vehicle, or machinery deterioration

NDP= GDP- Depreciation

Depreciation is the decrease in the value of assets due to usage of machinery

**Gross National product (GNP):**

Gross national product is the total value of all final goods and services produced by country's citizens in given financial year, irrespective of their location. The formula for GNP is:

GNP = GNP + Net Factor Income from Abroad (NFIA)

Where, Net Factor income from Abroad(NFIA) = Income of Indian residence working in Abroad – Income of Foreigners working in country

**Net National product (NNP):**

Net National product (NNP) in economy is the GNP after deducting the loss due to the depreciation.

**Gross value added (GVA)**:

Gross value added (GVA) is the measure of the value of goods and services produced in an area, industry or sector of an economy. "Gross value added is the value of output minus the value of intermediate consumption"

**Relation between GDP & GVA**:

The relationship between GVA and GDP is defined as:

GVA= GDP + subsidies on products – taxes on products

## 4.9 Statistics:

- In the FY 2022-23, the estimated Nominal GDP, or GDP at Current Prices, is projected to reach ₹269.49 lakh crore, marking a significant increase from ₹235.97 lakh crore in the FY 2021-22, representing a growth rate of 14.2%
- In the FY 2022-23, Real GDP, or Gross Domestic Product (GDP) at Constant (2011-12) Prices, is projected to reach ₹160.71 lakh crore, in contrast to the First Revised Estimate of ₹150.21 lakh crore for FY 2021-22. The GDP growth for FY 2022-23 is estimated at 7.0%.
- In the FY 2022-23, the projected Nominal NDP, or NDP at Current Prices, is expected to reach Rs. 238.09 lakh crore, marking a substantial increase from Rs. 209.30 lakh crore in 2021-22, reflecting a growth rate of 13.8%.
- Real NDP or Net Domestic Product (NDP) at Constant (2011-12) Prices in the FY 2022-23 is estimated to attain a level of ₹139.86 lakh crore, as against the First Revised Estimate of GDP for the FY 2021-22 of ₹130.66 lakh crore. The growth in GDP in the FY 2022-23 is estimated at 7.0%.
- Nominal GVA or GVA at Current Prices in the FY 2022-23 is estimated to attain a level of ₹246.59 lakh crore, as against ₹216.35 lakh crore in the FY 2021-22, showing a growth rate of 14.0 %.
- Real GVA or Gross Value Added (GVA) at Constant (2011-12) Prices in the FY 2022-23 is estimated to attain a level of ₹148.04 lakh crore, as against the First Revised Estimate of GDP for the FY 2021-22 of ₹138.76 lakh crore. The growth in GDP during FY 2022-23 is estimated at 6.7 %.

  **Source:**https://mospi.gov.in/sites/default/files/press_release/PressNote_onGDP_SAE_Q3_FRE_SRE_TRE01032024.pdf

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# Chapter 5

# Chapter 5

# Indices released by Government of India

Indices are important economic indicators to demonstrate the relative change in the parameters over a specified period of time. Some of the important indices compiled and released by different Departments under the Government of India along with their inception and uses in different sectors of economy are summarized below:

A. Index of Industrial Production (IIP)
B. Consumer Price Index (CPI)- Industrial Worker, Agricultural Labourer / Rural Labourer, Rural / Urban / Combined
C. Wholesale Price Index (WPI)

## 5.1. Index of Industrial Production-(IIP)

1. The Central Statistics Office (CSO), Ministry of Statistics and Programme Implementation Compiles and brings out an index of Industrial Production. CSO revises the base year of the macroeconomic indicators, as a regular exercise, to capture structural changes in the economy and improve the quality and representativeness of the indices. In this direction, the base year of the all-India Index of Industrial Production (IIP) has also been revised from 2004-05 to 2011-12 to not only reflect the changes in the industrial sector but also to align it with the base year of other macroeconomic indicators like the Gross Domestic Product (GDP), Wholesale Price Index (WPI) etc.

2. IIP in the revised series is continued to represent the Mining, Manufacturing and Electricity sectors. The revised series uses the National Industrial Classification (NIC) 2008 for the purpose of classification of industrial production. 15 source agencies are proving production data for Index of Industrial Production (IIP) base year 2011-12.

Summary of Source Agencies of IIP in the new series with base year 2011-12.

**Table 6.1**

| S. No | Source | Weights |
|---|---|---|

| | | (%) |
|---|---|---|
| 1 | Department of Industrial Policy and Promotion (DIPP) | 47.54 |
| 2 | Indian Bureau of Mines | 14.37 |
| 3 | Ministry of Petroleum & Natural Gas | 11.29 |
| 4 | Joint Plant Committee | 10.52 |
| 5 | Central Electricity Authority | 7.99 |
| 6 | Department of Chemicals and Petrochemicals | 2.54 |
| 7 | Office of Textile Commissioner | 1.94 |
| 8 | Department of Fertilizers | 1.06 |
| 9 | Directorate Of Sugar and Vegetable Oils (for Edible Oils only) | 0.97 |
| 10 | Directorate Of Sugar and Vegetable Oils (for Sugar only) | 0.76 |
| 11 | Office of Coal Controller | 0.49 |
| 12 | Tea Board | 0.29 |
| 13 | Railway Board | 0.13 |
| 14 | Office of Jute Commissioner | 0.07 |
| 15 | Coffee Board | 0.04 |
| | **GENERAL** | **100.00** |

3. Highlights of the changes in New Series of Index of Industrial Production are summarized below:

a. The selection of items in the new series has been done at the 3-digit level of NIC for better representation as compared to selection at 2-digit level done in 2004-05 series.

b. At the broad level, the new series has a total of 809 items occurring in the manufacturing sector in the item basket (405 item groups), where 149 new items like Steroids and hormonal preparations, Cement clinkers, Medical/ surgical accessories, pre-fabricated concrete blocks, refined Palm Oil have been added and 124 items such as Biaxially Oriented Polypropylene (BOPP) Films, Calculators, Colour TV picture tubes, Gutka have been deleted from the 2004-05 series in the manufacturing sector. The sectoral composition of the IIP is as follows:

**Table: 6.2**

| Sector | Base year 2011-12 | | Base year 2004-05 | |
|---|---|---|---|---|
| | Weights (%) | Item groups | Weights (%) | Item groups |
| Mining | 14.373 | 1 | 14.157 | 1 |
| Manufacturing | 77.633 | 405 | 75.527 | 397 |
| Electricity | 7.994 | 1 | 10.316 | 1 |
| **Total** | **100** | **407** | **100** | **399** |

c. To reflect the increasing significance of electricity generation from renewable sources, it was decided to include data on electricity generation figures from these sources in the new series. This inclusion was done from April, 2014 onwards as monthly data for electricity generation from renewable sources for earlier months were not available.

d. For capital goods, data in the new series is captured in terms of 'work in progress 'to better represent the growth of capital goods and to avoid reporting of production figures in bulk after the completion of production. Details on this methodology are available in the Report of the Working Group set up for the revision of base year, which may be accessed in the official website of Ministry of Statistics and Programme Implementation (www.mospi.gov.in).

e. The number of source agencies reporting data for compilation of IIP in the new series is 14 as compared to 15 in its previous. This is on account of the fact that data on 'Iodised Salt' in the new series is being provided by the Department of Industrial Policy and Promotion (DIPP) as O/o Salt Commissioner was not in a position to supply Salt production data after abolition of Salt Cess Act, 1953 in Finance Bill 2016.

f. In the Mining Sector the coverage was undergone a change on account of the MCDR Amendment Rules, 2016 resulting in 27 non-metallic minerals being designated as minor minerals and which were no longer monitored by Indian Bureau of Mines.

## 5.2. Consumer Price Index (CPI)

1. A Consumer Price Index (CPI) is designed to measure the changes over time in general level of retail prices of selected goods and services that households purchase for the purpose of consumption. Such changes affect the real purchasing power of

consumer's income and their welfare. CPI numbers are widely used as macroeconomic indicator of inflation, and also as a tool by government and central banks for targeting inflation and monitoring price stability. CPI is also used as deflators in the National Accounts. Therefore, CPI is considered as one of the most important economic indicators.

2. Different types of CPIs, namely, CPI (IW), CPI (AL/RL), CPI (UNME) and CPI (R/U/C) compiled by different agencies of Government of India, are available for users in our country. First three indices, including CPI (UNME), are specific to population segments. The price collection for CPI (UNME) was discontinued with effect from April 2008 and linked all India CPI (UNME) numbers were brought out from April 2008 to December 2010. The fourth one i.e. CPI (R/U/C) is for general population, sector-wise, to be explained in subsequent paragraphs.

**3. Salient features of different types of CPIs:**

**Consumer Price Index for Industrial Workers - CPI (IW)**

This index is compiled by the Labour Bureau, Ministry of Labour and Employment. The target population is working class family, defined as a family: (i) located within the centre for industrial worker, (ii) has at least one member working as manual worker in an establishment in any of the seven sectors of employment covered viz., factories, plantations, mining, ports and docks, public motor transport undertakings, electricity generating and distributing establishments, and railways; and (iii) derived 50 per cent or more of its income during the calendar month preceding the day of enquiry through any manual work.

The present series of CPI (IW) is on base 2016=100. The weighting diagrams for the purpose of compilation of index numbers had been derived on the basis of average monthly family expenditure of the working class obtained from the Working Class Family Income Expenditure Survey conducted during 1999-2000.

The CPI (IW) is released every month (on the last working day of succeeding month) for each of the selected 88 centres as well at all India level. It is mainly used for the determination of Dearness Allowance (DA) being paid to Central/State Government employees and also to the workers in the industrial sectors, besides fixation and revision of minimum wages in scheduled employments. It is also used in moving the base year poverty lines for urban areas to the subsequent years.

**Consumer Price Index for Agricultural/ Rural Labourers - CPI (AL/RL)**

These indices are compiled by the Labour Bureau, Ministry of Labour and Employment. The target populations are agricultural and rural labourers. A rural labour household is defined as one, which derives major income from manual employment (rural labour) during the last 365 days. From amongst the rural labour households, those households, which earn 50% or more of their total income from gainful employment as manual labour in agriculture during the last 365 days, are categorized as agricultural labour households. Agricultural labour households form a major subset of rural labour households. A person is considered engaged in agricultural labour if he/she follows one or more of the agricultural occupations in the capacity of wage paid manual labourer, whether paid in cash or kind (excluding exchange labour) or both. A person who does manual work in return for wages in cash or kind or partly in cash and partly in kind (excluding exchange labour) is a wage paid manual labourer. Persons who are self-employed doing manual work are not treated as wage paid manual labourers. People living in rural areas and engaged in manual labour by working in agricultural and/or non-agricultural occupations in return for wages paid either in cash or kind (excluding exchange labour) or both, are considered as rural labourers. Thus, rural labourers include both agricultural and other labourers.

The present series of CPI (AL/RL) is on base 1986-87=100. Estimates of average consumer expenditure per household generated from the results of the NSS 38th round (1983), CES formed the source of weights for different items of goods and services, used in compilation of CPI (AL) and CPI (RL).

For both the current series of CPI (AL) and CPI (RL), the retail prices in respect of goods and services are collected on monthly basis, from fixed markets in 600 sample villages in 20 states by the field workers of the Field Operations Division (FOD) of the National Sample Survey Office (NSSO). The various items (12) of goods and services are categorized into four main groups namely, (i) Food, (ii) Fuel and Light, (iii) Clothing, Bedding and Footwear; and (iv) Miscellaneous. The items of goods and services are common for the state as a whole but the varieties of most of the items differ from village to village. The collection of retail prices is staggered over four weeks of a month with one- fourth of the sample covered every week.

The CPI (AL/RL) is released every month (20th or preceding working day of the following month) for each of the selected states as well at all India level. It is mainly used for the determination/ fixation and revision of minimum wages in agricultural sector. CPI (AL) is also used in moving the base year poverty lines for rural areas to the subsequent years.

**Consumer Price Index for Rural, Urban and Combined - CPI (R/U/C)**

The indices are compiled by the CSO on base 2010 = 100. The consumption patterns (weighting diagrams) for this series of CPI have been derived on the basis of average monthly consumer expenditure of an urban/rural household obtained from the results of the 61st Round of CES conducted by the National Sample Survey Office during 2004-05.

## 6. Wholesale Price Index (WPI)

WPI is an important measure to monitor the dynamic movement of prices at the wholesale level. In a dynamic world, prices keep on changing. WPI is used as a deflator of various nominal macroeconomic variables including Gross Domestic Product (GDP). The WPI based inflation estimates also serve as an important determinant, in formulation of trade, fiscal and other economic policies by the Government. WPI is also used for the purpose of escalation clauses in the supply of raw materials, machinery and construction work. Business firms in search of effective methods for coping with changes in prices often employ price adjustment (escalation) clauses in long-term sales and purchase contracts. WPI is widely recognized among business people, economists, statisticians and accountants as a useful objective indexing tool in price adjustment clauses.

The base year of All-India WPI has been revised from 2004-05 to 2011-12 by the Office of Economic Advisor (OEA), Department of Industrial Policy and Promotion, Ministry of Commerce and Industry to align it with the base year of other macroeconomic indicators like the Gross Domestic Product (GDP) and Index of Industrial Production (IIP). The Wholesale Price Index (WPI) series in India has undergone six revisions in 1952-53, 1961-62, 1970-71, 1981-82, 1993- 94 and 2004-05 so far. The current series (base year 2011-12) is the seventh revision.

**Features of WPI**

- In the current series of WPI, prices used for compilation do not include indirect taxes in order to remove impact of fiscal policy. This is in consonance with international practices and will make the current WPI conceptually closer to 'Producer Price Index'.
- A current "WPI Food Index" is compiled to capture the rate of inflation in food items.
- Seasonality of fruits and vegetables has been updated to account for more months as these are now available for longer duration.
- Item level aggregates for current WPI are compiled using Geometric Mean (GM) following international best practice and as is currently used for compilation of All India CPI.
- A high-level Technical Review Committee was set up for the first time to carry out dynamic review process in order to keep pace with the changing structure of the economy.

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# Chapter 6

# Chapter 6

# ChemIndia-Chemicals inventory of India

## 6.1. Objective:

ChemIndia, short for Chemicals Inventory of India, is a secure and adaptable web-based data collection and management system. This platform efficiently compiles and analyses real-time reports from Chemical and Petrochemical manufacturing units. It enhances data management, enabling users to generate swift visualizations and comprehensive reports tailored to the chemical sector's specific needs. The application's primary objective is to elevate the value of chemical industries by streamlining data supply, fostering efficiency, and providing access to the latest sector innovations and technological advancements.

## 6.2. Key Aspects

- Assessment of the current Data Management System in DCPC.
- Identification of requirements for a comprehensive web-based data management system (ChemIndia) for the chemical industry.
- Categorization of parameters, including Chemical & Petrochemical segments.
- Development of an integrated bilingual web platform (ChemIndia) following Guidelines for Government Websites (GIGW) guidelines.
- Expansion of data coverage by on-boarding chemical units/industries.
- Provision of automated reconciliation and diverse report generation for stakeholders.
- Integration of APIs to amalgamate sector data from various Departments/Ministries.

- Implementation of robust security measures.
- Establishment of Facilitator & Coordinator roles for user management.
- Inclusion of Security Login and user activity logs.
- Integration of Geographic Information System (GIS) mapping.
- Creation of user manuals and provision of user training.
- Migration of existing Production Monitoring System (PMS) data into ChemIndia.
- Pre-production security audit by Computer Emergency Response Team (CERT-In) empanelled bidders.
- Design of a graphical reporting dashboard for easy data visualization.

### 6.3. Features

- Paperless Data Collection: Reduces paper usage for documentation.
- Time Efficiency: Accelerates data collection and processing for prompt decision-making.
- Interactive User Interface: Ensures consistent visual experience with standardized design.
- Data Validation: Incorporates validations during data entry.
- Role Management: Implements roles for Company, Units, and DCPC.
- User Creation: Allows unlimited user creation for various tasks.
- Reminder Alerts: Sends auto reminders for non-compliance or irregular data submission.
- API Integration: Creates APIs for future external system integration.
- Insights and Charts: Provides data insights and graphical representations on the dashboard.
- User Activity Monitoring: Maintains secure user activity logs.
- Data Confidentiality: Ensures confidential and controlled data access.
- Administrative Controls: Enables industry administrators to validate data entry.
- GIS Dashboard: Displays location-based analytics using interactive visualizations.
- Dynamic Application: Adapts database and entry fields as needed.

### 6.4. Benefits

- Provides comprehensive sector performance and trend insights.
- Offers geographically based information.

- Facilitates quick decision-making based on real-time market data.
- Enhances data accuracy and efficiency.
- Promotes knowledge generation and innovation in the chemical industry.
- Supports informed policymaking at national and regional levels.
- Encourages collaboration and partnerships within the chemical sector ecosystem.
- Implements cutting-edge technologies for data management.
- Enables remote data entry, monitoring, and analysis.
- Supports researchers and stakeholders in conducting analysis and research activities.

# Chapter 7

# Chapter 7

# Relevant National & International Regulations for C&PC Sector

## 7.1. Regulations in Europe

European Union has European Chemicals Agency (ECHA), which aims at effective implementation of chemical regulations under framework of the Registration, Evaluation, Authorization, and Restriction of Chemicals regulation abbreviated as REACH and the Classification, Labelling, and Packaging regulation abbreviated as CLP. These regulations are instrumental in ensuring the safe handling of chemicals, safeguarding of human health and protecting the environment and promoting regulatory consistency across the European Union member states.

Key Features of REACH:

1. Manufacturers and importers producing or importing chemicals with quantities exceeding one ton per annum must register their chemical substances with ECHA, including properties and safe utilization of the substance
2. ECHA evaluates the submitted data meticulously, and may request for additional information, if required. If registered substance is found to pose risks to human health or environment, regulatory actions may be taken
3. Entities registering for substances with Very High Concern (SVHCs) require authorization for their continued use and are supposed to submit applications along with safer alternatives, if available
4. Substances deemed to poses an unacceptable risk to human health or the environment, may be restricted or prohibited across the EU

Key Features of CLP:

1. CLP Aligns the European system with UN's Globally Harmonized System (GHS), ensuring chemical substances and mixtures are classified and labelled to communicate the hazards effectively to the user. Chemicals are classified based on their properties such as toxicity, flammability, reactivity and environmental impact
2. CLP empowers individuals to take appropriate safety measures when working with or in proximity to hazardous chemicals and promotes safer practices in the handling and storage of chemicals

3. Globally recognized hazard communication under CLP facilitates the seamless import and export of chemicals there by streamlining international trade of chemicals

### 7.2. Regulations in United States:

Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA) are the federal agencies for regulation of chemicals in United States.

Acts Administered by EPA:

1. Toxic Substances Control Act (TSCA) main federal law that regulates the production, importation, use, and disposal of chemicals in the U.S., it enhances the EPA's authority to assess and regulate chemicals for their potential health and environmental risks
2. Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) regulates the registration, distribution, sale, and use of pesticides in the U.S., evaluation and registration of pesticides is responsibility of EPA

EPA also administers Clean Air Act (CAA) controls emissions of volatile organic compounds (VOCs), hazardous air pollutants (HAPs), and other chemicals that can contribute to air pollution and health issues and Clean Water Act (CWA) for controlling the release of hazardous substances and chemicals into water bodies

Acts Administered by OSHA:

1. Hazard Communication Standard (HCS) requires employers to communicate chemical hazards to workers through labels, safety data sheets (SDSs), and conduct trainings, it’s also aligned with the GHS
2. Occupational Safety and Health Act (OSH Act) sets standards for workplace safety and health, similar as HCS mentioned previously

### 7.3. Regulations in Japan:

Japan has a framework for regulating chemicals to ensure the safety of human health and the environment administered by Ministry of the Environment (MOE) and the Ministry of Health, Labour and Welfare (MHLW). Major laws and acts are as follows:

1. Chemical Substance Control Law (CSCL) governs manufacture and import of chemical substances in Japan and is similar to the EU's REACH regulation, as

per law companies make submission related to new and existing chemical substances.

2. Industrial Safety and Health Act (ISHA) is administered by the Ministry of Health, Labour and Welfare (MHLW), regulates workplace safety and health, also includes the handling of hazardous chemicals, enforces employers to mandatorily provide training to workers, and maintain safety data sheets.
3. Chemical Assessment and Regulation Law regulates the manufacture, import, and handling of chemical substances that may pose risks to human health and the environment.
4. Poisonous and Deleterious Substances Control Act: This law regulates the manufacture, import, storage, and use of poisonous and deleterious substances in Japan. It categorizes chemicals into three classes and imposes various requirements on their handling, including labelling, safety data sheets, and reporting.

MHLW also administers Pollution Control Act, which governs the prevention of pollution and environmental conservation including regulations on release of hazardous substances into the environment, including air and water.

### 7.4. Regulations in Australia:

Australia has two regulations to manage the safety of chemicals and their impact on human health and the environment. Some key regulations and acts in Australia include:

1. Industrial Chemicals Act 2019: This act establishes the Australian Industrial Chemicals Introduction Scheme (AICIS) and regulates the importation and manufacture of industrial chemicals. AICIS assesses and categorizes chemicals based on risk and imposes regulatory requirements accordingly.
2. Globally Harmonized System (GHS): Australia has adopted the GHS for classification and labelling of chemicals. The GHS provides a standardized approach to hazard communication, ensuring that labels and safety data sheets convey consistent information about chemical hazards.

### 7.5. Regulations in China:

China has enacted several laws and regulations related to hazardous chemicals to ensure the safe handling, storage, transportation, and disposal of such substances. Some of the key laws and regulations include:

1. China REACH (Registration, Evaluation, Authorization, and Restriction of Chemicals): China implemented its own version of REACH, which is similar to the European Union's REACH regulation. China REACH requires the registration of new and existing chemicals, including hazardous chemicals, and imposes obligations on manufacturers and importers to ensure the safe use of these substances.
2. Hazardous Chemicals Control Ordinance (China GHS): This regulation implements the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) in China. It standardizes the classification and labelling of hazardous chemicals.
3. Hazardous Chemicals Regulations (Decree No. 591): These regulations lay out the classification and labelling requirements for hazardous chemicals. They also provide guidelines for the safe production, storage, transportation, and use of hazardous chemicals.

## 7.6. International regulations for control of Chemicals

| Sr No | Acts and Rules | Purpose of Legislation | Ministry/ Authority |
|---|---|---|---|
| 1 | National Chemical Policy, 2014 (DRAFT) | To create an enabling framework to foster innovation, catalyse manufacturing, addressing environmental concerns, encourage research and expansion of the industry | Ministry of Chemicals and Fertilizers ( Dept. of Chemicals and Petro-Chemicals) |
| 2 | The Petroleum Act, 1934 | Regulate the import, transport, storage, production, refining and blending of petroleum | Ministry of Petroleum and Natural Gas |
| 3 | The Petroleum Rules, 2002 | Regulate the import, transport, storage, production, refining and blending of petroleum | Ministry of Petroleum and Natural Gas, and Ministry of Environment & Forests (MoEF), |
| 4 | The Calcium Carbide Rules, 1987 | To regulate the import, production, storage, transportation, sale, use and handling and disposal of Calcium Carbide with a view to prevent accidents | Ministry of Petroleum and Natural Gas, |

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|---|---|---|---|
| 5 | The Explosives Act, | To regulate the manufacture, possession, use, sale, transport, export and import of explosives with a view to prevent misuse | Ministry of Commerce and Industry (Department of Explosives) |
| 6 | The Explosives Rules, 1983 | To regulate the manufacture, possession, use, sale, transport, export and import of explosives with a view to prevent accidents | Ministry of Commerce and Industry and Ministry of Environment & Forests (MoEF), |
| 7 | The Insecticides Act, 1968 | Regulate the import, manufacture, sale, transport, distribution and use of insecticides with a view to prevent risk to human beings or animals | Ministry of Agriculture, Central Insecticides Board, and Registration Committee |
| 8 | The Insecticides Rules, 1971 | Regulate the import, manufacture, sale, transport, distribution and use of insecticides with a view to prevent risk to human beings or animals | Ministry of Agriculture, |
| 9 | The Fertiliser (Control) Order, 1985 under the Essential Commodities Act, 1955 | Regulate the import, manufacture, sale, transport, distribution and | Ministry of Agriculture (Department of Agriculture and Cooperation) |
| 10 | The Drugs and Cosmetics Act, 1940 | To regulate import, manufacture, distribution and sale of drugs | Ministry of Health and Family Welfare |
| 11 | EIA Notification, 1994 | Requirement of environmental clearance before establishment/ expansion of certain type of industries having bearing on Environment. | Ministry of Environment & Forests (MoEF), and Central/ State Pollution Control Board and Pollution Control Committees Union Territories |
| 12 | Batteries (Management and Handling) Rules, 2001. | To control the hazardous waste generation (lead waste) from used lead acid batteries | Ministry of Environment & Forests (MoEF), and Central/ State Pollution Control Board and Pollution Control Committees Union Territories |

| | | | |
|---|---|---|---|
| 13 | Hazardous Waste (Management and Handling) Rules, 1989 | Management & handling of hazardous wastes in line with the Basel Convention ( Trans-boundary movement of hazardous waste) | Ministry of Environment & Forests (MoEF), and Central/ State Pollution Control Board and Pollution Control Committees Union Territories. |
| 14 | Ozone Depleting Substances (Regulation and Control) Rules, 2000 | Regulate the production, import, use, sale, purchase and phase-out of the Ozone Depleting Substances | Ministry of Environment & Forests |
| 15 | Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 | Regulate the manufacture, storage and import of hazardous chemicals | Ministry of Environment & Forests (MoEF), and Central/ State Pollution Control Board and Pollution Control Committees Union Territories |
| 16 | Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996 | Emergency planning preparedness and response to chemical accidents | Ministry of Environment & Forests (MoEF), and Central/ State Pollution Control Board and Pollution Control Committees Union Territories |
| 17 | The Air (Prevention and Control of Pollution) Act, 1981 amended 1987 | Prevention, control and abatement of air pollution | Central/ State Pollution Control Board and Pollution Control Committees Union Territories |
| 18 | The Air (Prevention and Control of Pollution) (Union Territories) Rules, | Prevention, control and abatement of air pollution | Central/ State Pollution Control Board and Pollution Control Committees Union Territories |
| 19 | The Water (Prevention and Control of Pollution) Act, 1974 amended 1988 | Prevention and control of water pollution and also maintaining or restoring the wholesomeness of water bodies | Central/ State Pollution Control Board and Pollution Control Committees Union Territories |
| 20 | The Water (Prevention and Control of Pollution) Rules, 1975 | The prevention and control of water pollution and also maintaining or restoring the wholesomeness of water | Central/ State Pollution Control Board and Pollution Control Committees Union Territories |

| | | | |
|---|---|---|---|
| 21 | The Environment (Protection) Act, 1986, | Protection and Improvement of the Environment | Ministry of Environment & Forests (MoEF), and Central/ State Pollution Control Board and Pollution Control Committees Union Territories |
| 22 | Environmental (Protection) Rules, 1986 | Protection and Improvement of the Environment | Ministry of Environment & Forests (MoEF), and Central/ State Pollution Control Board and Pollution Control Committees Union Territories |
| 23 | National Disaster Management Act, 2005 | Disaster prevention, mitigation, capacity building, improving preparedness to deal with disaster, response capability and provision of evacuation, rescue, relief and rehabilitation | Ministry of Home Affairs and Disaster Management Authority |

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# Chapter 8

# Chapter 8

# Glimpses of Important Trends from the FY 2018-19 to FY 2022-23

This Chapter has been included in this publication to highlight important trends of chemicals and petrochemicals sector during the last five years i.e. 2018-19 to 2022-23, through graphical presentation with concise analysis. The graphical presentation contains tables alongside trends during the considered period in respect of Production, Installed Capacity, Export, Import and Net Export / Net Import relating to various groups of Major Chemicals and Major Petrochemicals with Compound Annual Growth Rate (CAGR) from the FY 2018-19 to FY 2022-23. The Chapter also contains pie charts depicting share of Major Groups under Major Chemicals and Major Petrochemicals in respect of Production, Installed Capacity, Export and Import along with Net Import / Net Export in the FY 2022-23.

8.2. This Publication has also contained detailed tables in Appendices Section showing group-wise, product-wise, year-wise information of selected Major Chemicals and Major Petrochemicals along with top five import and export destinations. The information relating to exchange rates of Indian Rupees' vis-a-vis US$, World export of Chemicals by top ten countries-2022, sector–wise FDI inflows etc. are also included in the Appendices Section.

8.3. Many of statistical tables appended in the Publication present temporal data from the FY 2015-16 to FY 2022-23. CAGR in these tables has also been reflected over the period of 8 years.

8.4. Hope trends indicated in this chapter and data contained in the publication would help users in understanding the emerging scenario in the sector with clarity and ease.

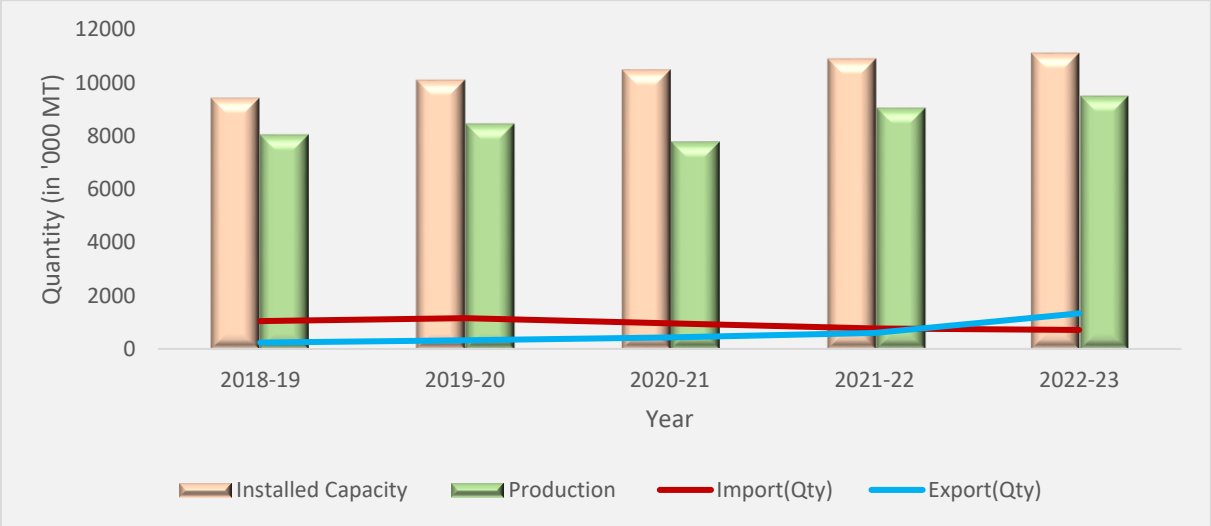
## Alkali Chemicals

**Table 7.1: -** Installed Capacity, Production, Import & Export (in '000 MT)

| Year | Installed Capacity | Production | Import(Qty) | Export(Qty) |
|---|---|---|---|---|
| **2018-19** | 9422 | 8043 | 1049 | 239 |
| **2019-20** | 10089 | 8457 | 1157 | 329 |
| **2020-21** | 10473 | 7776 | 968 | 429 |
| **2021-22** | 10889 | 9041 | 767 | 598 |
| **2022-23** | 11100 | 9493 | 713 | 1336 |
| **CAGR (%)** | 4.2 | 4.2 | -9.2 | 53.8 |

*Source: DCPC*

**Graph 7.1: -** Installed Capacity, Production, Import & Export




The Alkali Chemicals chart reveals a steady upward trend in the installed capacity of these chemicals from the FY 2018-19 to FY 2022-23, indicating a promising outlook for the industry. Additionally, during this period, there was a significant rise in Alkali Chemicals production, with a Compound Annual Growth Rate (CAGR) of 4.9%, pointing to a positive trajectory for the market. Moreover, the chart demonstrates that exports exceeded imports in the FY 2022-23, signifying a strengthened domestic production capability and reduced dependence on import.

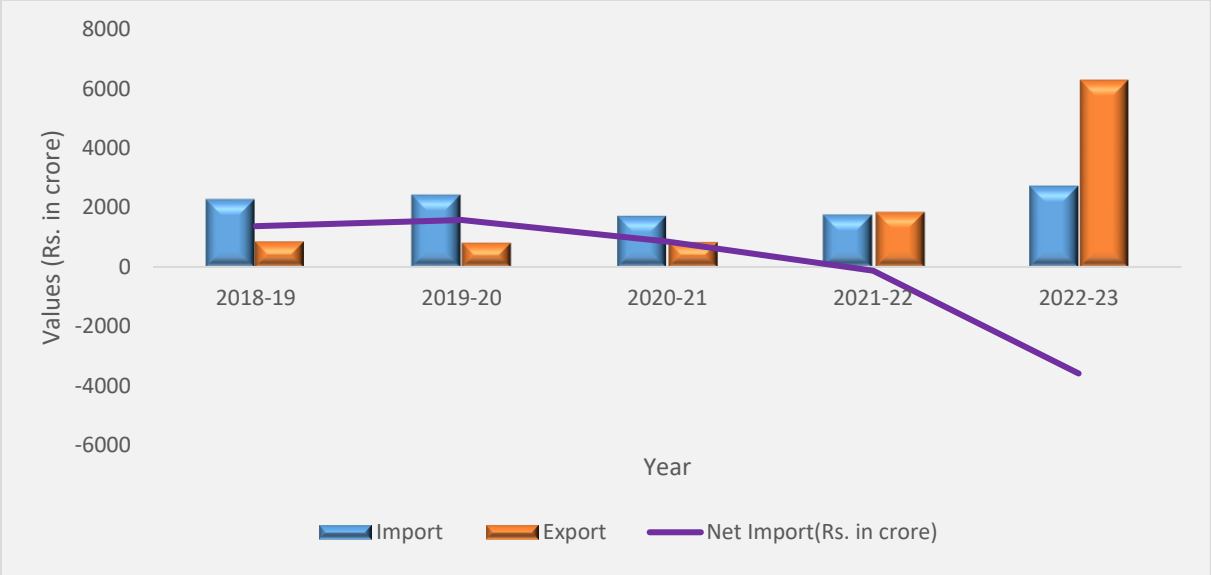
## Alkali Chemicals

**Table 7.2:** Value of Import, Value of Export and Net Import (Rs. in Crore)

| Year | Import | Export | Net Import |
|---|---|---|---|
| **2018-19** | 2255 | 878 | 1377 |
| **2019-20** | 2408 | 828 | 1580 |
| **2020-21** | 1705 | 853 | 852 |
| **2021-22** | 1747 | 1872 | -124 |
| **2022-23** | 2700 | 6287 | -3587 |
| **CAGR (%)** | 4.6 | 63.6 | NA |

*Source: DCPC*

**Graph 7.2:-** Value of Import, Value of Export and Net Import




The import value of Alkali Chemicals remained relatively stable from the FY 2018-19 to FY 2022-23, with minor fluctuations. However, the export value showed a steady increase, and in the FY 2022-23, it significantly exceeded the import value. This decrease in net import value suggests a decreasing reliance on imported Alkali Chemicals, indicating positive progress for the country.

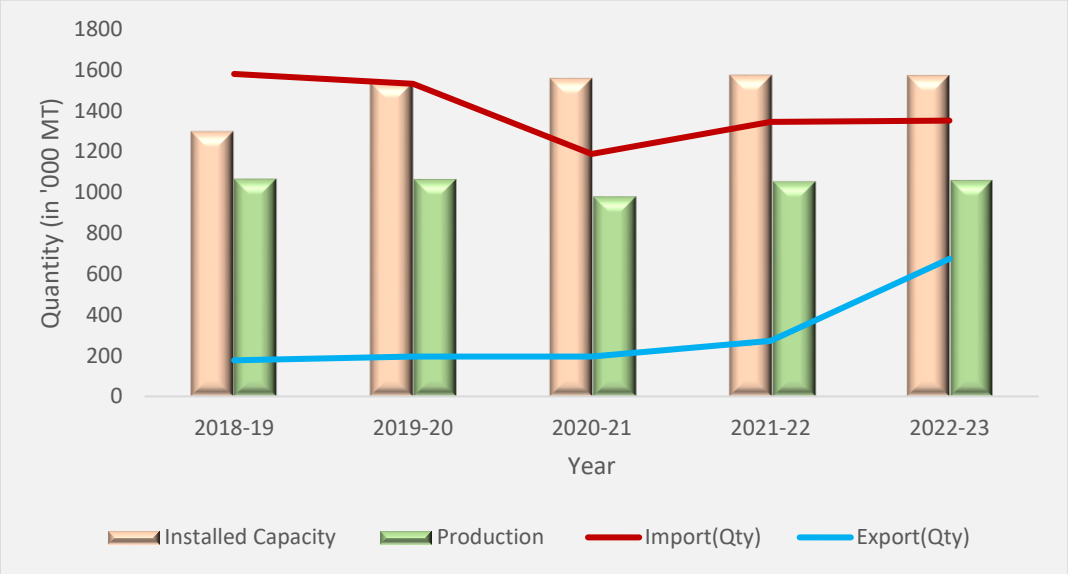
## Inorganic Chemicals

**Table 7.3:-**Installed Capacity, Production, Import & Export (in '000 MT)

| Year | Installed Capacity | Production | Import(Qty) | Export(Qty) |
|---|---|---|---|---|
| **2018-19** | 1300 | 1064 | 1580 | 177 |
| **2019-20** | 1538 | 1063 | 1532 | 196 |
| **2020-21** | 1560 | 978 | 1188 | 195 |
| **2021-22** | 1575 | 1052 | 1345 | 273 |
| **2022-23** | 1575 | 1058 | 1351 | 674 |
| **CAGR (%)** | 4.9 | -0.3 | -3.8 | 39.7 |

*Source: DCPC*

**Graph 7.3:-** Installed Capacity, Production, Import & Export




The installed capacity of inorganic chemicals has been increasing gradually. The chart displays a stable production trend for inorganic chemicals from the FY 2018-19 to FY 2022-23, indicating a consistent market output. However, during the same period, there was a significant rise in exports of inorganic chemicals, but the chart also reveals a relatively high import rate, suggesting a reliance on foreign markets for supply.

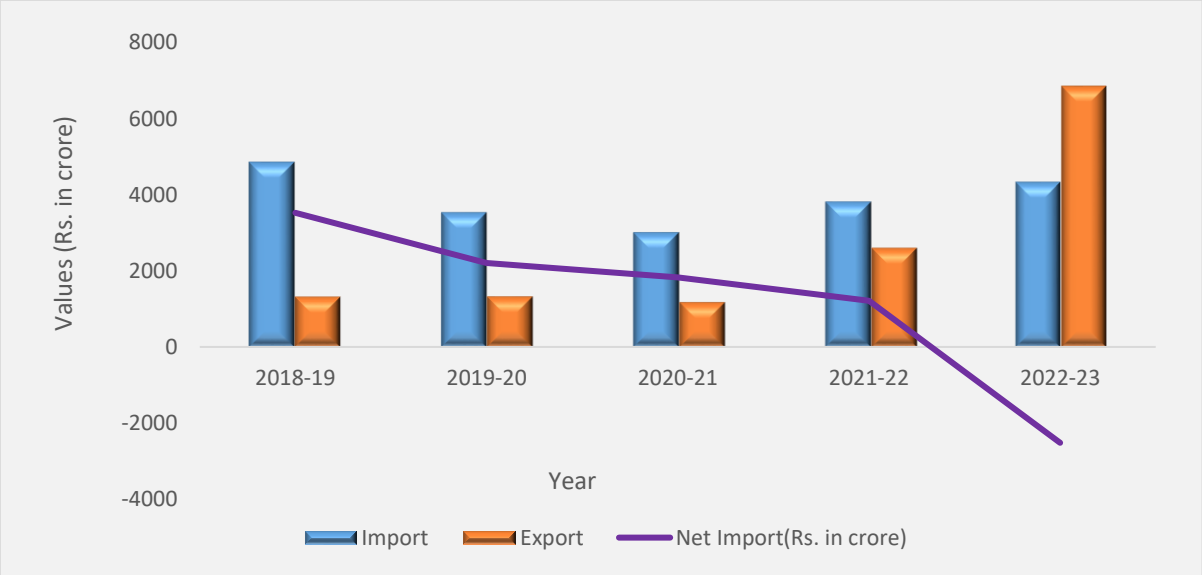
## Inorganic Chemicals

**Table 7.4:-**Value of Import, Value of Export and Net Import (Rs. in Crore)

| Year | Import | Export | Net Import |
|---|---|---|---|
| **2018-19** | 4858 | 1332 | 3525 |
| **2019-20** | 3546 | 1341 | 2205 |
| **2020-21** | 3021 | 1192 | 1829 |
| **2021-22** | 3824 | 2612 | 1212 |
| **2022-23** | 4336 | 6856 | -2520 |
| **CAGR (%)** | -2.8 | 60.6 | NA |

*Source: DCPC*

**Graph 7.4:-** Value of Import, Value of Export and Net Import




The graph shows that the import value of Inorganic Chemicals had varied trends over the years, while the export value remained stable from the FY 2018-19 to FY 2020-21 and saw a significant increase from the FY 2021-22. Additionally, the net import value consistently decreased from the FY 2018-19 to FY 2021-22 and experienced a sharp decline in FY 2022-23. These trends suggest an improved domestic production capacity and reduced reliance on imports.

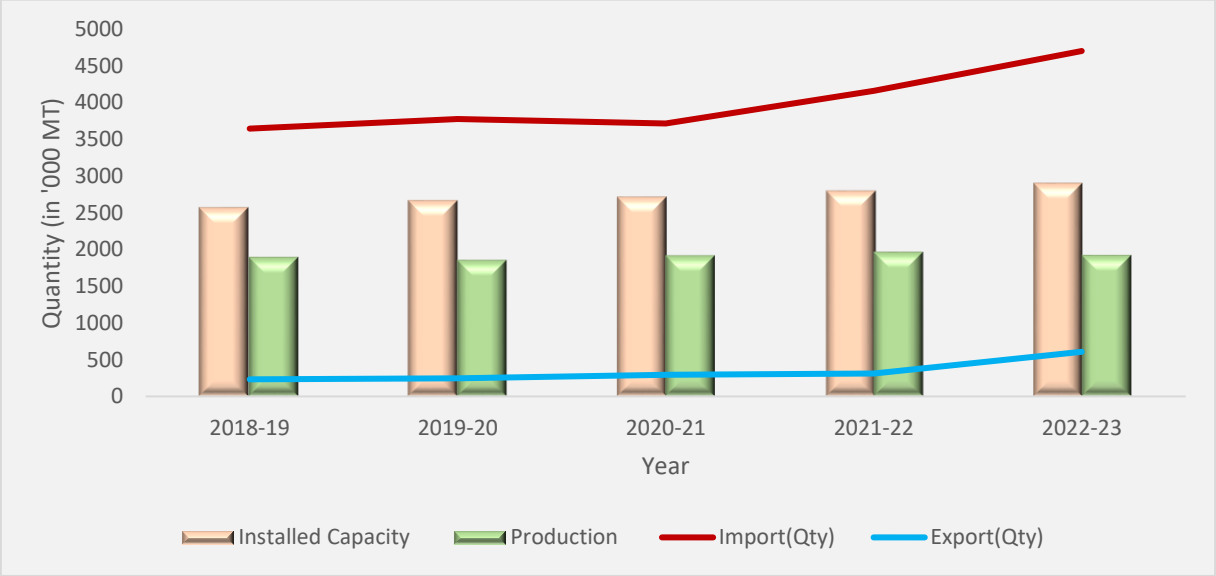
## Organic Chemicals

**Table 7.5:-**Installed Capacity, Production, Import & Export (in '000 MT)

| Year | Installed Capacity | Production | Import(Qty) | Export(Qty) |
|---|---|---|---|---|
| **2018-19** | 2575 | 1884 | 3645 | 233 |
| **2019-20** | 2671 | 1847 | 3775 | 245 |
| **2020-21** | 2716 | 1906 | 3716 | 296 |
| **ss2021-22** | 2800 | 1953 | 4160 | 310 |
| **2022-23** | 2905 | 1912 | 4701 | 608 |
| **CAGR (%)** | 3.1 | 0.4 | 6.6 | 27.1 |

*Source: DCPC*

**Graph 7.5:-** Installed Capacity, Production, Import & Export




The chart depicting Organic Chemicals illustrates a consistent and gradual rise in installed capacity from the FY 2018-19 to FY 2022-23, indicating a sustained increase in the demand for these chemicals. Concurrently, the chart displays a stable production trend for Organic Chemicals during this period, suggesting a steady and balanced market for the industry. However, the chart also highlights a widening disparity between import and export, signifying a growing dependence on foreign markets for the supply of Organic Chemicals.

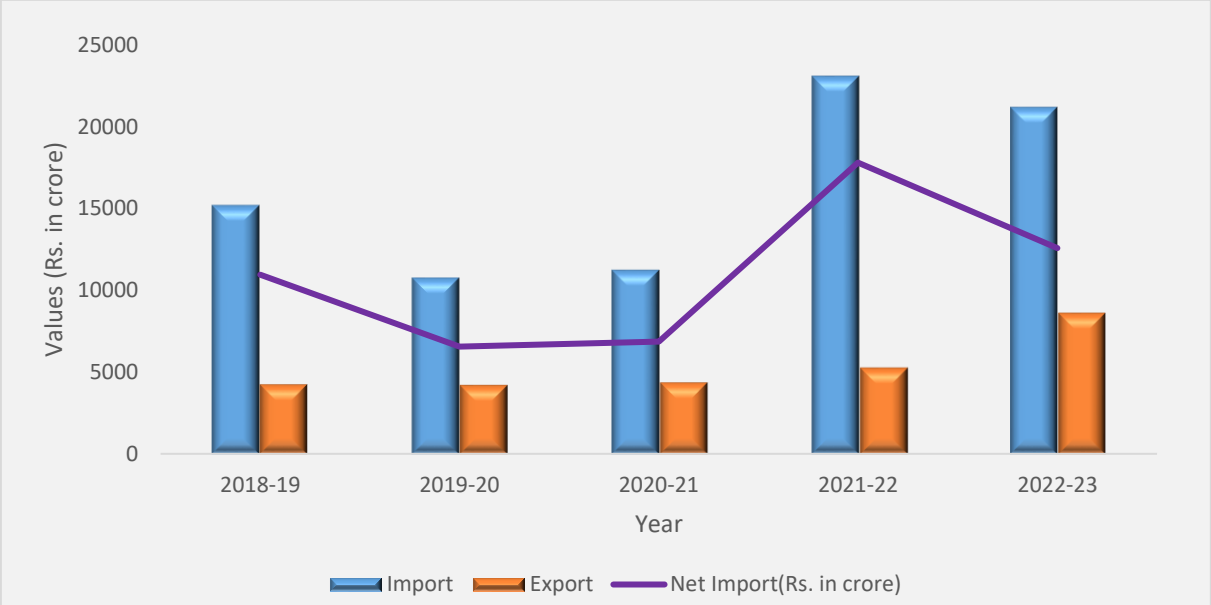
## Organic Chemicals

**Table 7.6: -**Value of Import, Value of Export and Net Import (Rs. in Crore)

| Year | Import | Export | Net Import |
|---|---|---|---|
| **2018-19** | 15203 | 4257 | 10945 |
| **2019-20** | 10781 | 4227 | 6553 |
| **2020-21** | 11247 | 4380 | 6867 |
| **2021-22** | 23082 | 5283 | 17799 |
| **2022-23** | 21176 | 8594 | 12582 |
| **CAGR (%)** | 8.6 | 19.2 | 3.5 |

*Source: DCPC*

**Graph 7.6:-** Value of Import, Value of Export and Net Import




The graph demonstrates a rising trend in the import value of Organic Chemicals from the FY 2019-20 to FY 2021-23. Similarly, the export value of Organic Chemicals increased steadily during this period but remained considerably lower than the import value. However, in the FY 2022-23, there was a significant decrease in the net import value.

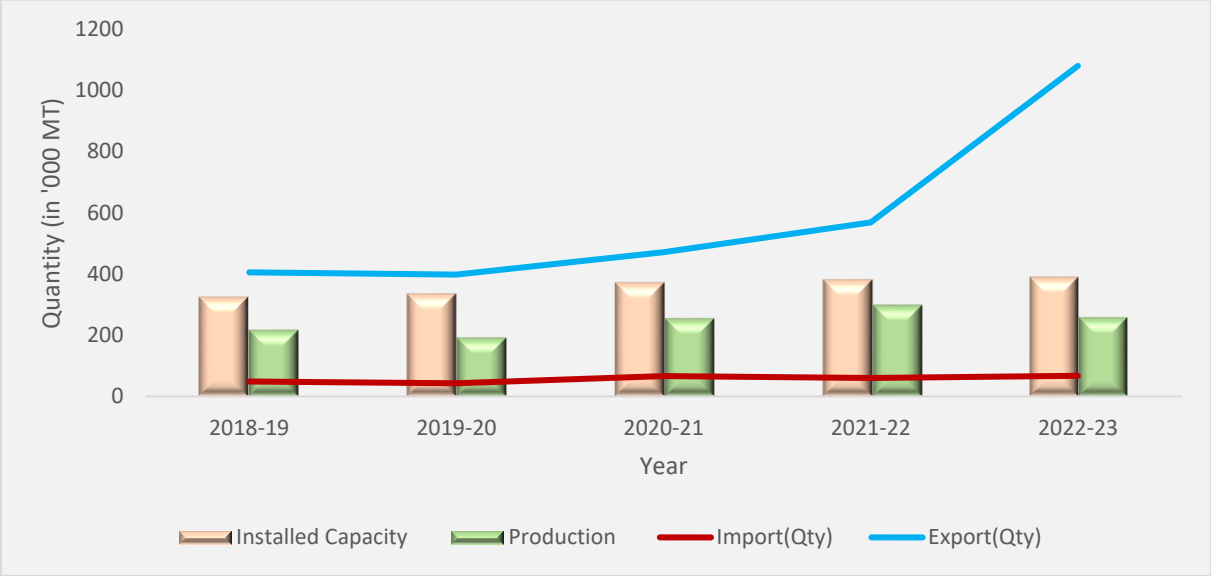
## Pesticides

**Table 7.7: -**Installed Capacity, Production, Import & Export (in '000 MT)

| Year | Installed Capacity | Production | Import(Qty) | Export(Qty) |
|---|---|---|---|---|
| **2018-19** | 324 | 217 | 49 | 405 |
| **2019-20** | 334 | 192 | 43 | 398 |
| **2020-21** | 371 | 255 | 66 | 471 |
| **2021-22** | 380 | 299 | 60 | 568 |
| **2022-23** | 389 | 258 | 67 | 1080 |
| **CAGR (%)** | 4.7 | 4.4 | 8.3 | 27.8 |

*Source: DCPC*

**Graph 7.7:-** Installed Capacity, Production, Import & Export




The Pesticides chart exhibits a consistent increase in installed capacity from the FY 2018-19 to FY 2022-23, reflecting a growing demand for these chemicals in various industries. Over the same period, the chart shows a notable increase in Pesticides production with a Compound Annual Growth Rate (CAGR) of 4.4%, indicating a positive trend for the market. Additionally, the Pesticides chart highlights a significantly higher rate of export compared to import, indicating a strong domestic production capability and a competitive presence in the global market.

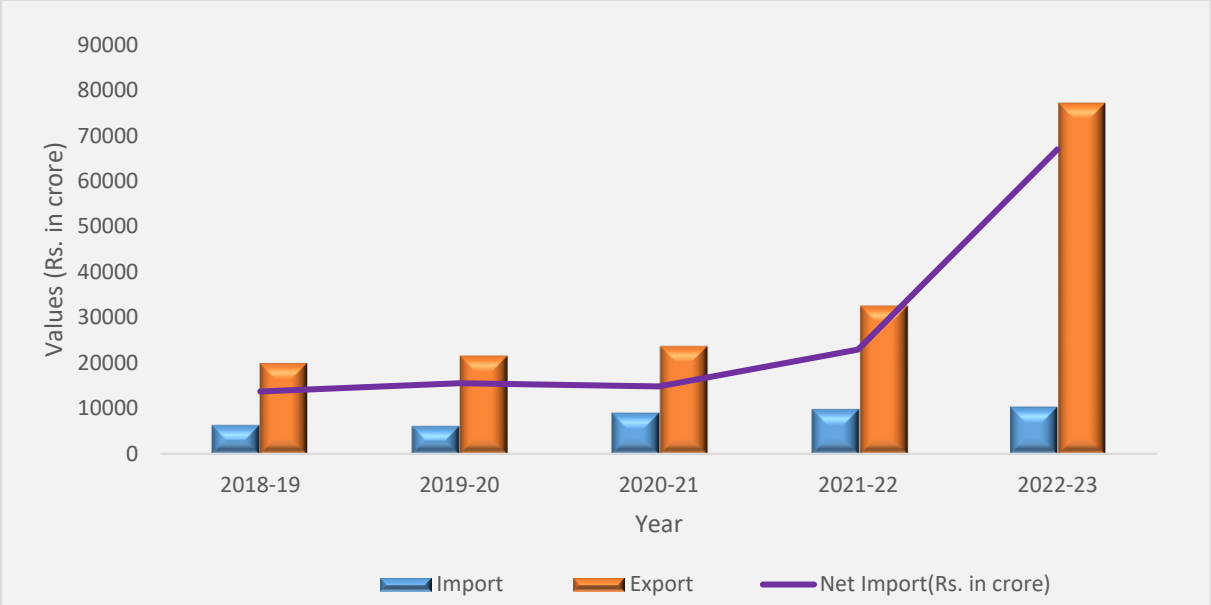
## Pesticides

**Table 7.8: -**Value of Import, Value of Export and Net Import (Rs. in Crore)

| Year | Import | Export | Net Export |
|---|---|---|---|
| **2018-19** | 6326 | 20041 | 13715 |
| **2019-20** | 6111 | 21633 | 15522 |
| **2020-21** | 8991 | 23806 | 14815 |
| **2021-22** | 9726 | 32664 | 22938 |
| **2022-23** | 10252 | 77234 | 66982 |
| **CAGR (%)** | 12.8 | 40.1 | 48.7 |

*Source: DCPC*

**Graph 7.8: -** Value of Import, Value of Export and Net Import




The Pesticides chart depicts a sharp increase in the export value of Pesticides, reflecting a growing global demand from the FY 2018-19 to FY 2022-23. Simultaneously, the import value of Pesticides shows a consistent upward trend, suggesting a potential reliance on foreign markets to meet domestic needs. Moreover, the chart exhibits a significant rise in the net export value of Pesticides, indicating a potential expansion in domestic production capacity and a subsequent increase in exports.

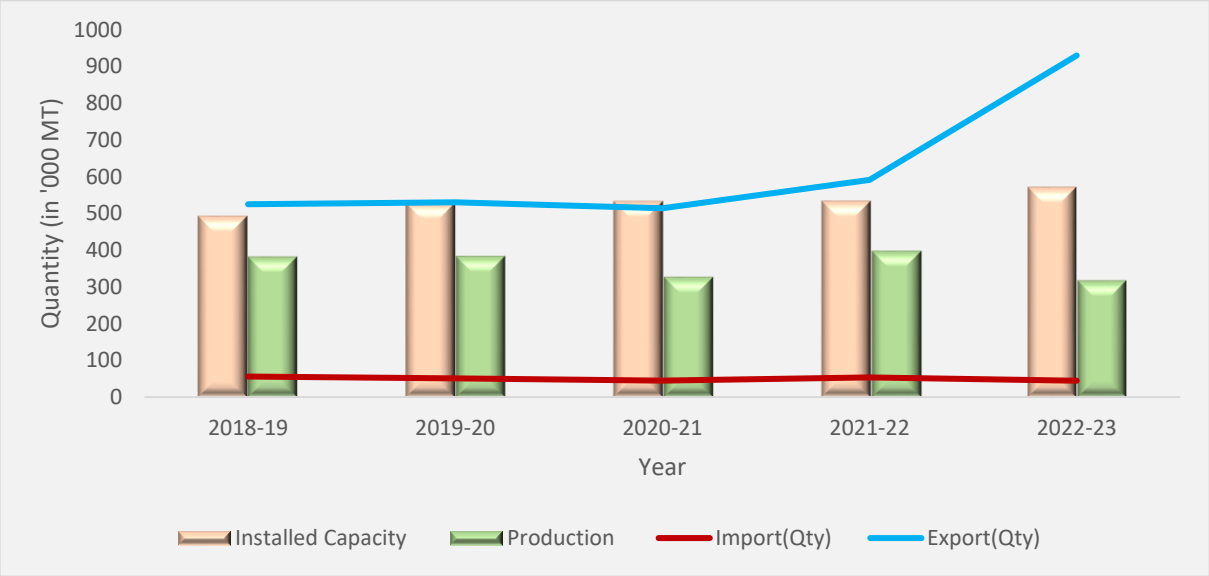
## Dyes and Pigments

**Table 7.9:-**Installed Capacity, Production, Import & Export (in '000 MT)

| Year | Installed Capacity | Production | Import(Qty) | Export(Qty) |
|---|---|---|---|---|
| **2018-19** | 492 | 382 | 56 | 525 |
| **2019-20** | 528 | 384 | 51 | 530 |
| **2020-21** | 532 | 327 | 45 | 514 |
| **2021-22** | 533 | 398 | 54 | 591 |
| **2022-23** | 570 | 318 | 45 | 930 |
| **CAGR (%)** | 3.7 | -4.5 | -5.5 | 15.4 |

*Source: DCPC*

**Graph 7.9:-** Installed Capacity, Production, Import & Export




The chart for Dyes and Pigments demonstrates a consistent growth in installed capacity from the FY 2018-19 to FY 2022-23, indicating a rising demand for these chemicals in various industries. Similarly, the chart indicates stable production with minor fluctuations, reflecting a steady market for the industry. Moreover, there is a notable gap between export and import rates, suggesting a strong domestic production capability and a competitive presence in the global market.

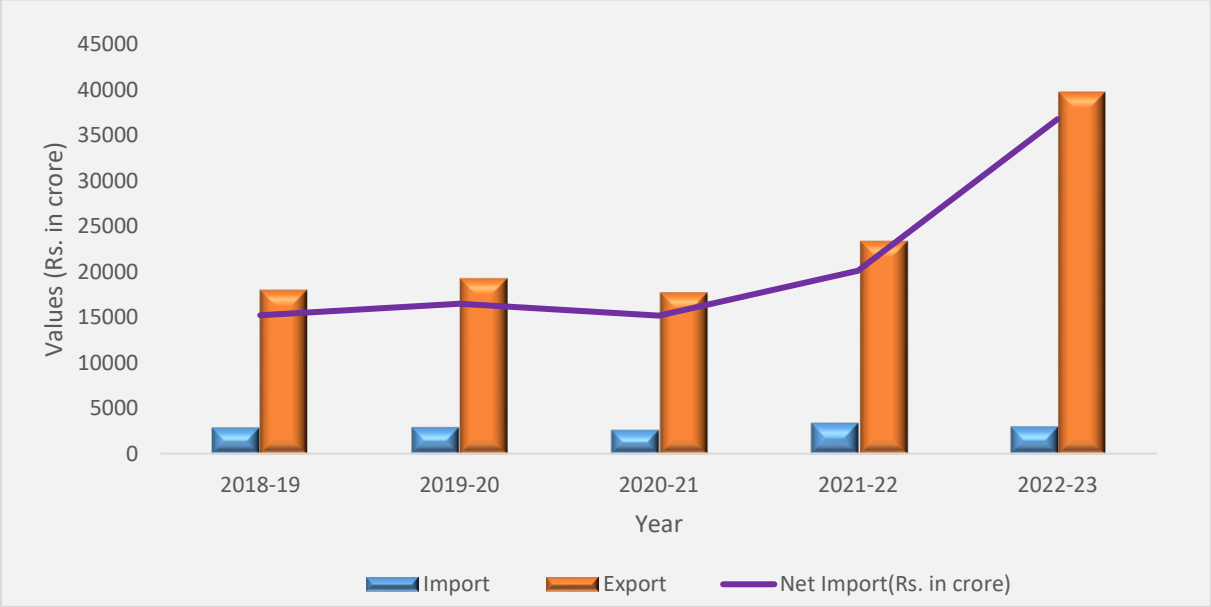
## Dyes and Pigments

**Table 7.10: -**Value of Import, Value of Export and Net Export (Rs. in Crore)

| Year | Import | Export | Net Export |
|---|---|---|---|
| **2018-19** | 2784 | 18007 | 15223 |
| **2019-20** | 2814 | 19284 | 16470 |
| **2020-21** | 2527 | 17704 | 15177 |
| **2021-22** | 3267 | 23365 | 20098 |
| **2022-23** | 2904 | 39689 | 36785 |
| **CAGR (%)** | 1.1 | 21.8 | 24.7 |

*Source: DCPC*

**Graph 7.10:-** Value of Import, Value of Export and Net Export




From the FY 2020-21 to FY 2022-23, the Dyes and Pigments chart exhibits a sharp increase in export value, indicating a growing international demand. Concurrently, the chart shows a stable import value for Dyes and Pigments, reflecting a steady market for the industry. Furthermore, there is a notable upward trend in the net export value of Dyes and Pigments during this period, implying potential growth in domestic production of Dyes and Pigments.

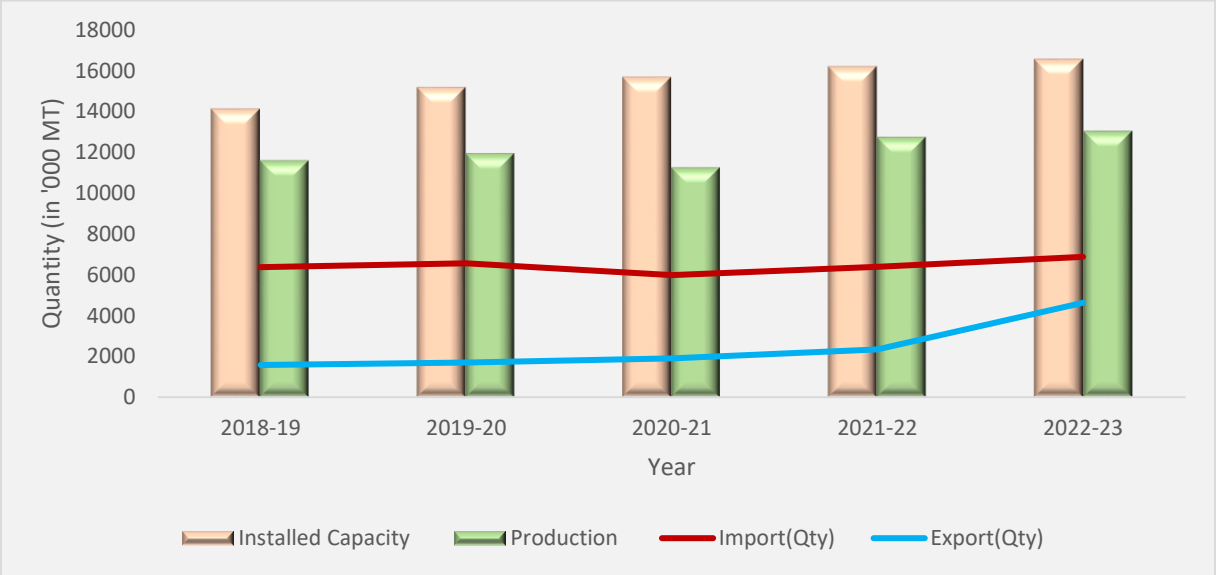
## Total Major Chemicals

**Table 7.11: -**Installed Capacity, Production, Import & Export (in '000 MT)

| Year | Installed Capacity | Production | Import(Qty) | Export(Qty) |
|---|---|---|---|---|
| **2018-19** | 14112 | 11589 | 6379 | 1579 |
| **2019-20** | 15160 | 11943 | 6557 | 1698 |
| **2020-21** | 15652 | 11243 | 5983 | 1905 |
| **2021-22** | 16178 | 12743 | 6385 | 2339 |
| **2022-23** | 16538 | 13039 | 6878 | 4627 |
| **CAGR (%)** | 4.0 | 3.0 | 1.9 | 30.8 |

*Source: DCPC*

**Graph 7.11:-** Installed Capacity, Production, Import & Export




The Total Major Chemicals chart exhibits a gradual increase in installed capacity from the FY 2018-19 to 2022-23. Over the same period, the chart shows a consistent increase in Major Chemicals production with a Compound Annual Growth Rate (CAGR) of 2.9%, except for a minor dip in the FY 2020-21. This suggests a stable market for the industry, despite the disruptions caused by the pandemic. Although the Total Major Chemicals chart displays a higher rate of import compared to export, there is a slow but steady reduction in the gap between them over the years, indicating an improving domestic production capability and potentially reducing the reliance on foreign markets.

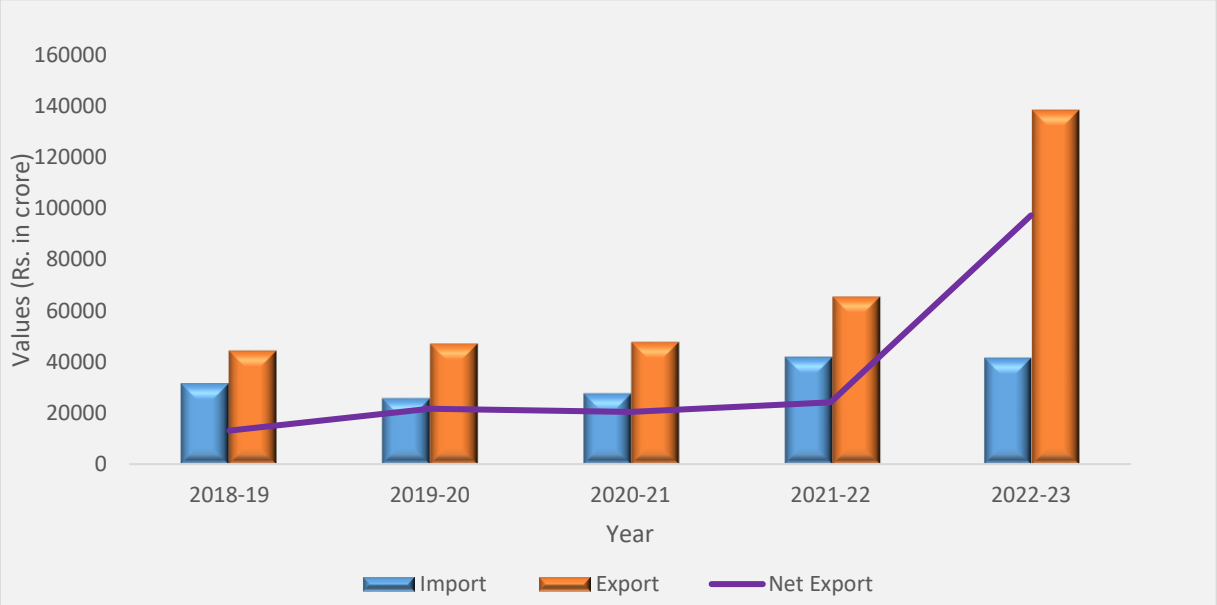
**Total Major Chemicals**

**Table 7.12: -**Value of Import, Value of Export and Net Export (Rs. in Crore)

| Year | Import | Export | Net Export |
|---|---|---|---|
| **2018-19** | 31426 | 44516 | 13091 |
| **2019-20** | 25659 | 47313 | 21653 |
| **2020-21** | 27490 | 47935 | 20445 |
| **2021-22** | 41646 | 65796 | 24150 |
| **2022-23** | 41368 | 138660 | 97292 |
| **CAGR (%)** | 7.1 | 32.8 | 65.1 |

*Source: DCPC*

**Graph 7.12:-** Value of Import, Value of Export and Net Export



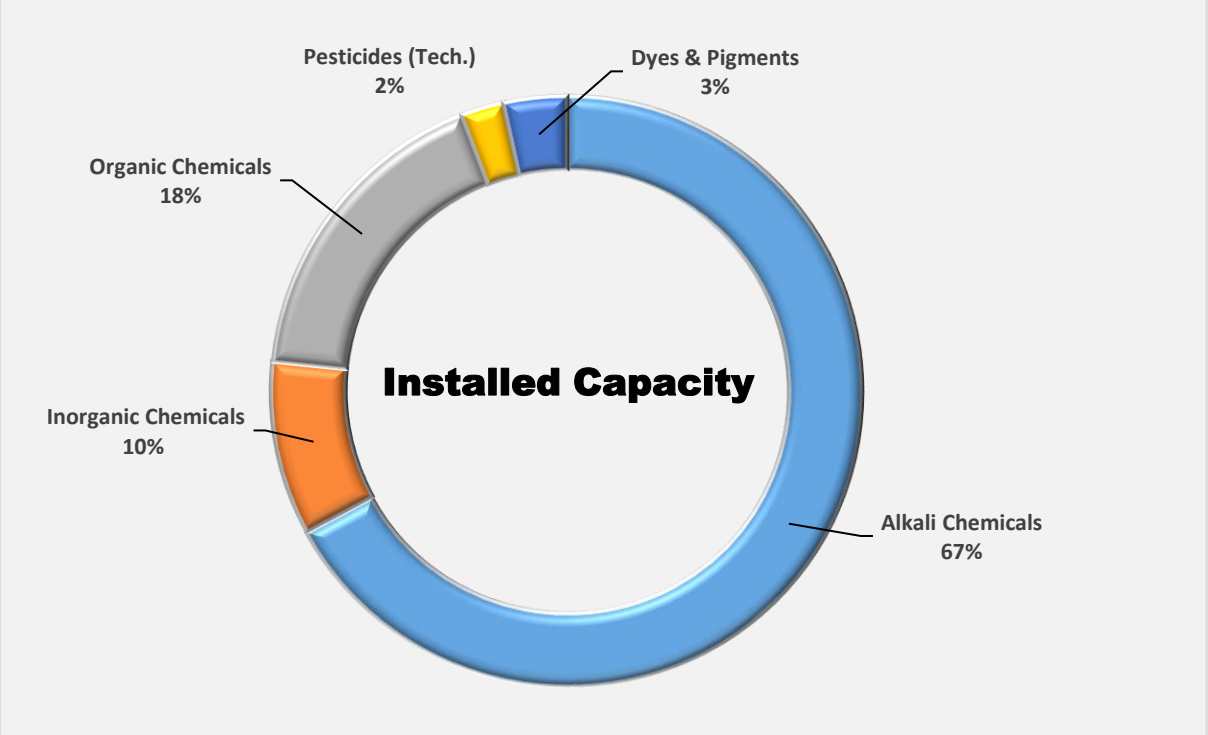

The chart related to value of Import and Export for Total Major Chemicals displays a sharp increase in the value of export from the FY 2020-21 to FY 2022-23. Over the same period, the chart also shows quite an increase in the value of the import of Major Chemicals, suggesting a stable market for the industry. In FY 2022-23, the net export of Total Major chemicals demonstrates a rapid and substantial increase, highlighting a significant growth in the country's capability to export these chemicals.

**Table 7.13: -** Installed capacity of Major Chemical (Group wise) in the FY 2022-23

| Group | Installed Capacity (in '000 MT) |
|---|---|
| Alkali Chemicals | 11100 |
| Inorganic Chemicals | 1575 |
| Organic Chemicals | 2905 |
| Pesticides (Tech.) | 389 |
| Dyes & Pigments | 570 |

*Source: DCPC*

**Pie Chart 7.1: -**Share of different groups of Major Chemicals in Installed Capacity in the FY 2022-23



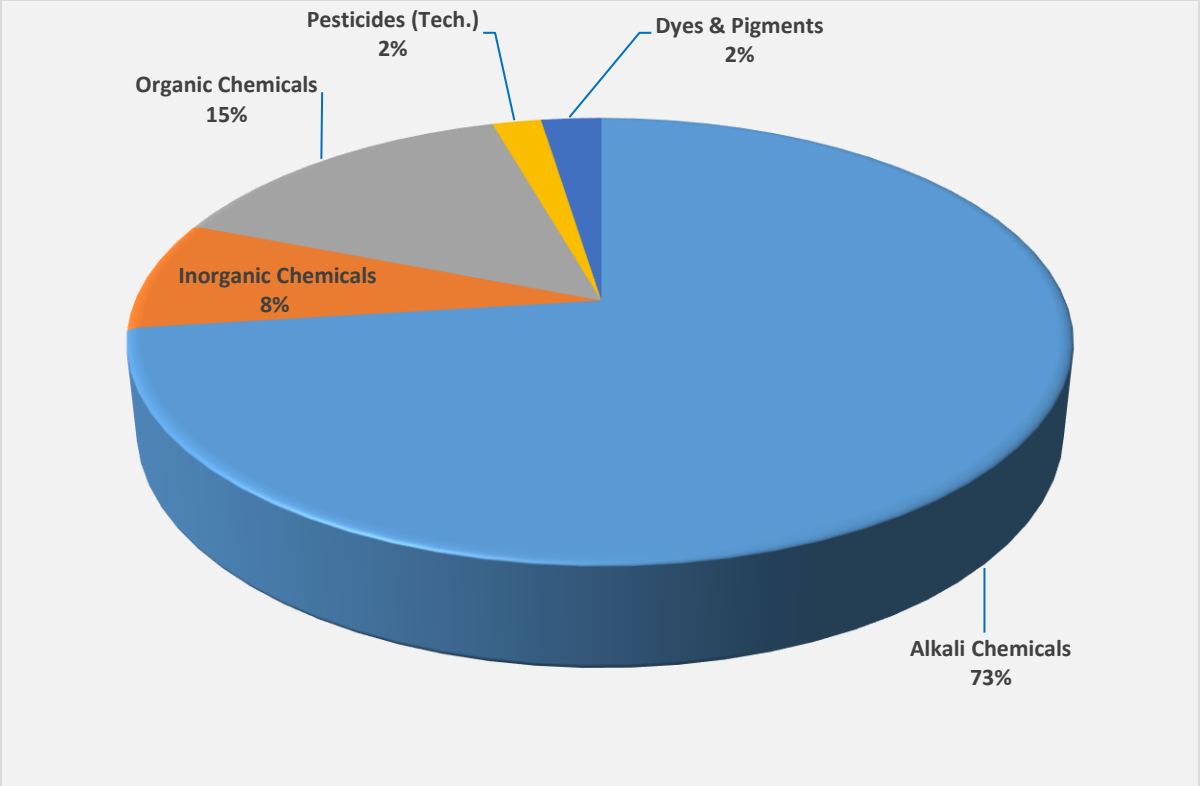

The charts above visually represent the installed capacity distribution among major chemical groups for the FY 2022-23. Alkali Chemicals dominate with the highest share, accounting for 67% of the installed capacity, followed by Organic Chemicals at 18%, Inorganic Chemicals at 10%, Dyes & Pigments at 3%, and Pesticides at 2%

**Table 7.14: -** Production of Major Chemical (Group wise) in the FY 2022-23

| Group | Production (in '000 MT) |
|---|---|
| Alkali Chemicals | 9493 |
| Inorganic Chemicals | 1058 |
| Organic Chemicals | 1912 |
| Pesticides (Tech.) | 258 |
| Dyes & Pigments | 318 |

*Source: DCPC*

**Pie Chart 7.2: -**Share of different groups of Major Chemicals in production in the FY 2022-23



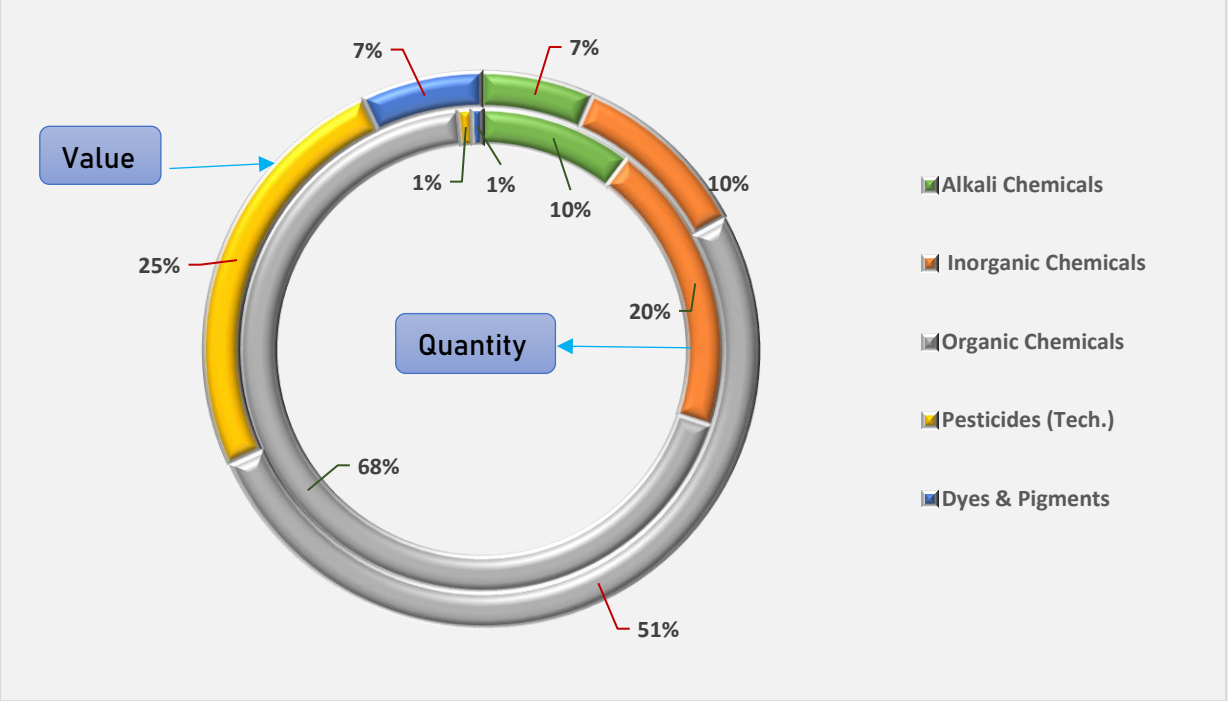

The charts illustrate the production figures for major chemical groups in the FY 2022-23. Notably, Alkali chemicals lead with the largest share, representing 73% of the production. Following closely, Organic chemicals account for the second-highest share at 15%, while Inorganic chemicals contribute 8%. Pesticides and Dyes and pigments both make up 2% of the production.

**Table 7.15: -** Import quantity and value of Major Chemical (Group wise) in the FY 2022-23

| Group | Qty (in MT) | Values (Rs. Lakh) |
|---|---|---|
| Alkali Chemicals | 713367 | 269998 |
| Inorganic Chemicals | 1351450 | 433595 |
| Organic Chemicals | 4700910 | 2117580 |
| Pesticides (Tech.) | 67445 | 1025202 |
| Dyes & Pigments | 44637 | 290398 |

*Source: DCPC*

**Pie Chart 7.3: -** Share of different Groups of Major Chemicals in Import quantity and value in the FY 2022-23



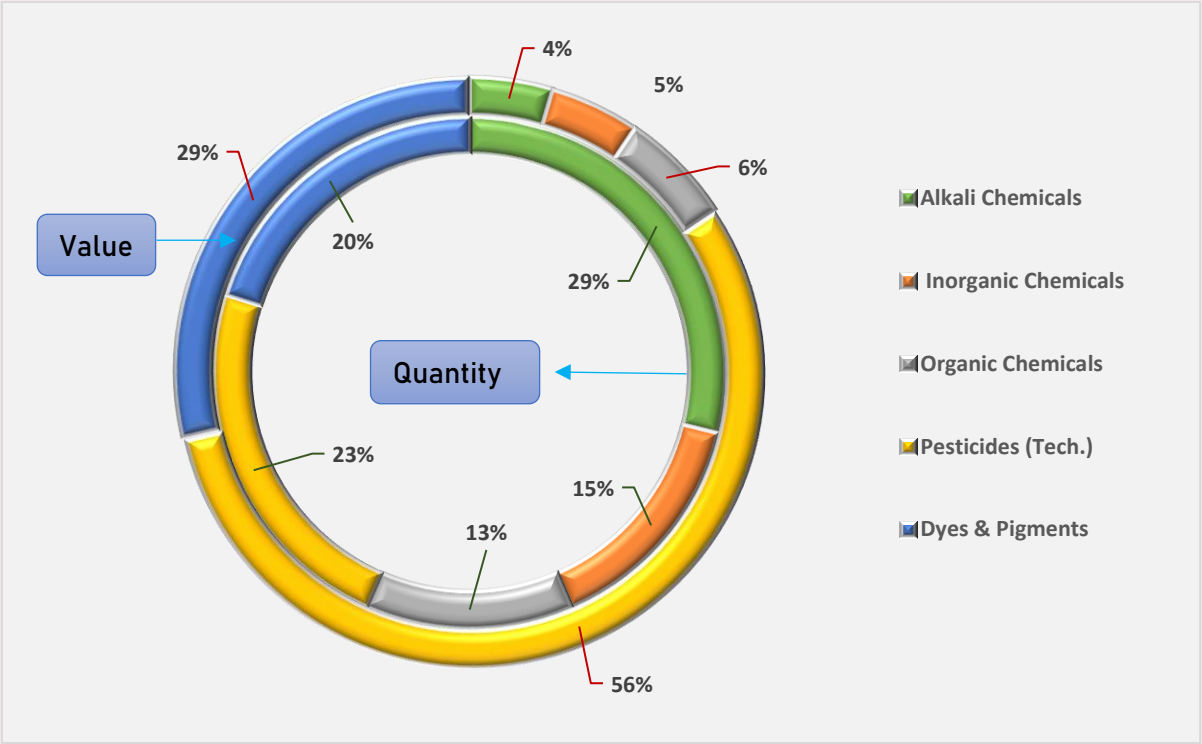

The above graph illustrates bivariate analysis of two key attributes, Import Quantity & Value, for the major chemical groups for the FY 2022–23. Alkali Chemicals quantity import accounts for 68% of total imports and value represents 51% of total value. Following, Inorganic Chemicals quantity import amounts to 20% and value represents 10% of total value. As we can see from the graph, Pesticides quantity import accounts for only 1% of total imports but its value percentage from total is 25%.

**Table 7.16: -** Export quantity and value of Major Chemical (Group wise) in the FY 2022-23

| Group | Qty (in MT) | Values (Rs. Lakh) |
|---|---|---|
| Alkali Chemicals | 1335556 | 628667 |
| Inorganic Chemicals | 674218 | 685617 |
| Organic Chemicals | 607619 | 859418 |
| Pesticides (Tech.) | 1079564 | 7723393 |
| Dyes & Pigments | 929808 | 3968862 |

*Source: DCPC*

**Pie Chart 7.4: -** Share of different Groups of Major Chemicals in Export quantity and value in the FY 2022-23




The graph presented above depicts a bivariate analysis of two critical metrics, Export Quantity and Value, for major chemical groups in the FY 2022–23. Alkali Chemicals export quantity comprises 29% of the total exports, while its value represents a only 4% of the total export value. In the case of Inorganic Chemicals, the exported quantity accounts for 20%, contributing to 10% of the total value. Remarkably, Pesticides' import quantity constitutes 23% of the total exports, but its value as a

percentage of the total stands significantly higher at 56%, as visually depicted in the graph.

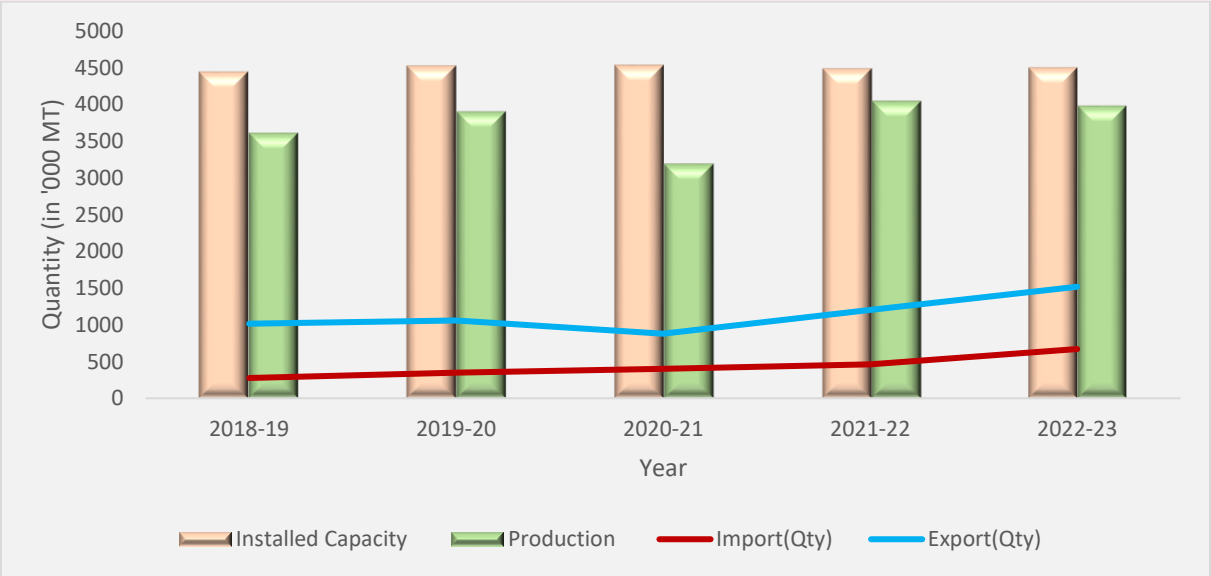
**Synthetic Fibre**

**Table 7.17:-**Installed Capacity, Production, Import & Export (in '000 MT)

| Year | Installed Capacity | Production | Import(Qty) | Export(Qty) |
|---|---|---|---|---|
| **2018-19** | 4440 | 3601 | 276 | 1016 |
| **2019-20** | 4521 | 3893 | 347 | 1059 |
| **2020-21** | 4529 | 3185 | 403 | 879 |
| **2021-22** | 4483 | 4040 | 460 | 1202 |
| **2022-23** | 4496 | 3973 | 670 | 1518 |
| **CAGR (%)** | 0.3 | 2.5 | 24.9 | 10.6 |

*Source: DCPC*

**Graph 7.13: -** Installed Capacity, Production, Import & Export




The chart for Synthetic Fibres exhibits a slight increase in installed capacity from the FY 2018-19 to FY 2022-23, reflecting a slow but steady growth in demand for fibre related products across various industries. Over the same period, the trend of production of Alkali Chemicals was stable from FY 2018-19 and FY 2022-23 with only minor fluctuations, except for a minor dip in the FY 2020-21. This suggests a stable market for the industry, despite the disruptions caused by the pandemic. As with the

chart on Major Chemicals, the Synthetic Fibres chart also displays a higher rate of export compared to import quantity of synthetic fibres.

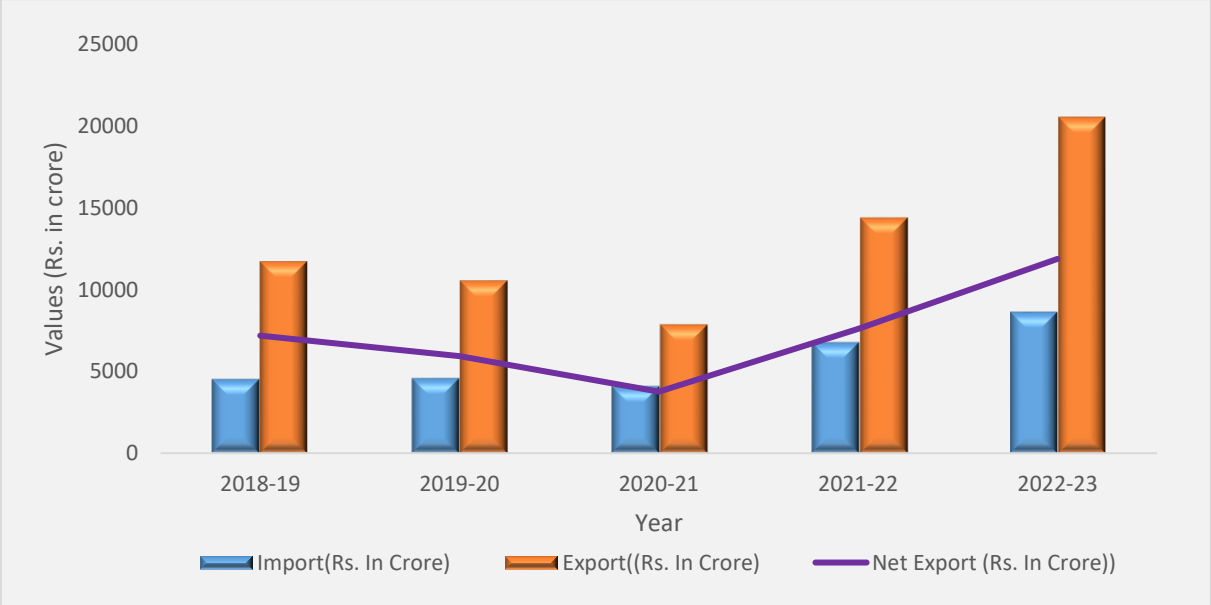
**Synthetic Fibre**

**Table 7.18: -**Value of Import, Value of Export and Net Import (Rs. in Crore)

| Year | Import | Export | Net Export |
|---|---|---|---|
| **2018-19** | 4534 | 11720 | 7187 |
| **2019-20** | 4609 | 10550 | 5941 |
| **2020-21** | 4107 | 7870 | 3763 |
| **2021-22** | 6785 | 14389 | 7604 |
| **2022-23** | 8647 | 20522 | 11875 |
| **CAGR (%)** | 17.5 | 15.0 | 13.4 |

*Source: DCPC*

**Graph 7.14: -** Value of Import, Value of Export and Net Import




The chart related to Import and Export for Synthetic Fibres displays a mixed trend with an overall increase in the value of export from the FY 2018-19 to FY 2022-23. Over the same period, the chart also shows a steady increase in the value of the import of Synthetic Fibres. Furthermore, there is a notable increase in net exports starting from FY 2020-21, indicating a significant expansion in the country's ability to export these chemicals.

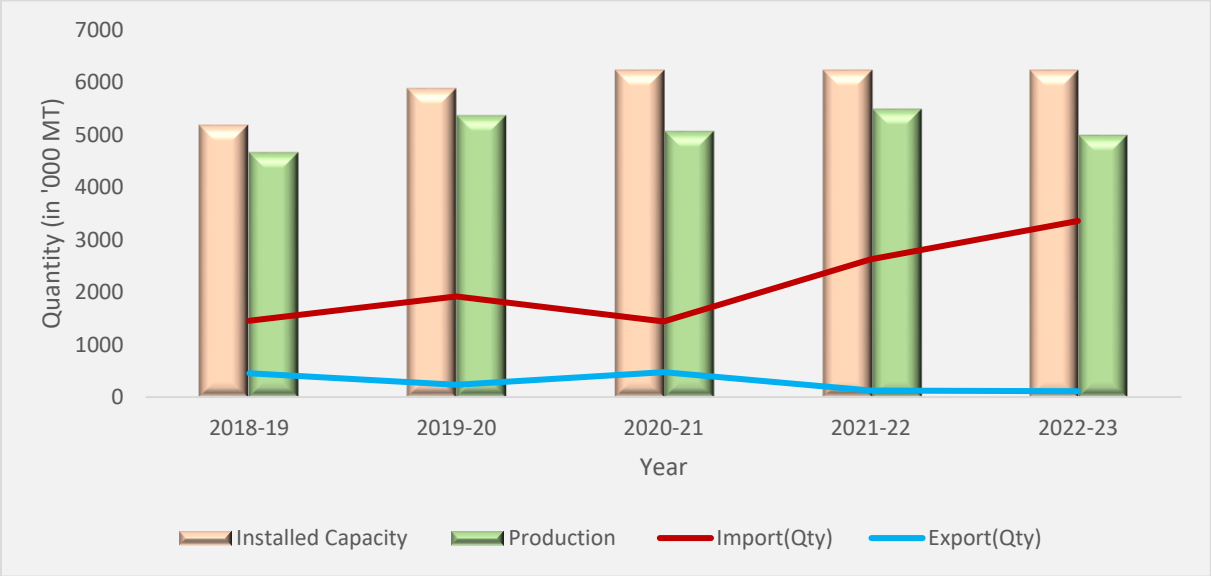
## Fibre Intermediate

**Table 7.19:-**Installed Capacity, Production, Import & Export (in '000 MT)

| Year | Installed Capacity | Production | Import(Qty) | Export(Qty) |
|---|---|---|---|---|
| **2018-19** | 5187 | 4657 | 1455 | 457 |
| **2019-20** | 5885 | 5359 | 1920 | 234 |
| **2020-21** | 6228 | 5059 | 1441 | 475 |
| **2021-22** | 6228 | 5482 | 2627 | 128 |
| **2022-23** | 6228 | 4988 | 3356 | 112 |
| **CAGR (%)** | 4.7 | 1.7 | 23.2 | -29.6 |

*Source: DCPC*

**Graph 7.15:-** Installed Capacity, Production, Import & Export




The Fibre Intermediate chart displays a consistent rise in installed capacity from the FY 2018-19 to FY 2020-21 and remain constant from the FY 2021-22. Over the same period the chart shows gradual increase in production with a CAGR of 1.7% indicating positive trend in the market. Furthermore the gap between Import and Export widening showing strong demand in domestic market as well as increasing reliance on foreign market.

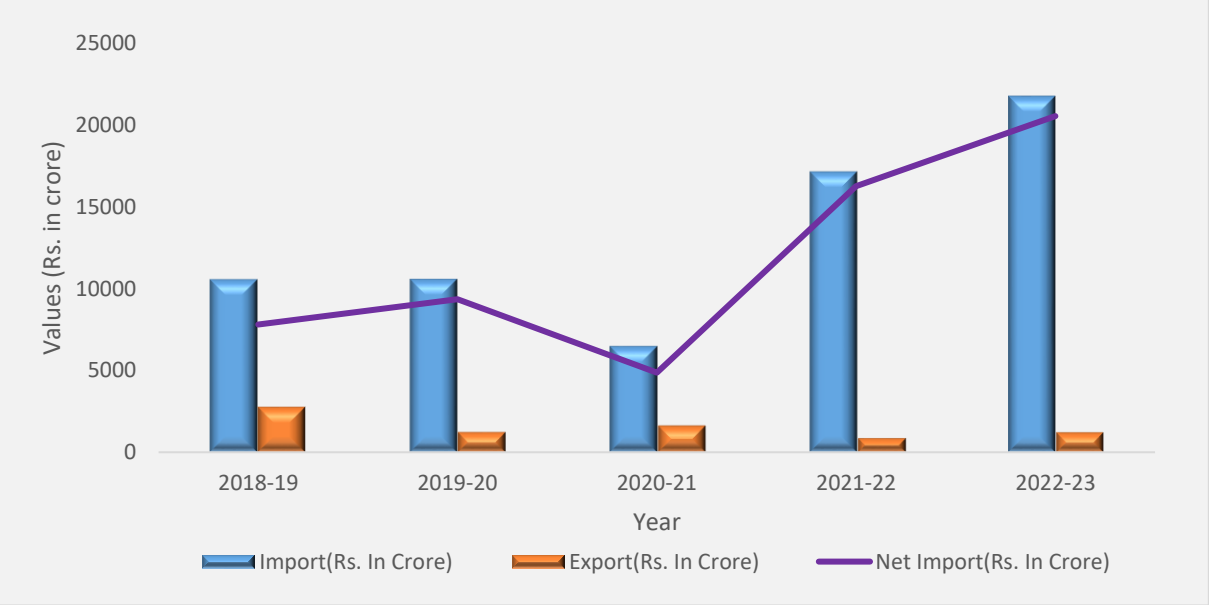
## Fibre Intermediate

**Table 7.20: -***Value of Import, Value of Export and Net Import (Rs. in Crore)*

| Year | Import | Export | Net Import |
|---|---|---|---|
| **2018-19** | 10569 | 2759 | 7810 |
| **2019-20** | 10595 | 1236 | 9359 |
| **2020-21** | 6495 | 1629 | 4866 |
| **2021-22** | 17133 | 865 | 16267 |
| **2022-23** | 21762 | 1216 | 20546 |
| **CAGR (%)** | 19.8 | -18.5 | 27.4 |

*Source: DCPC*

**Graph 7.16:-** Value of Import, Value of Export and Net Import




The Fibre Intermediates chart demonstrates a gradual decline in the value of exports from the FY 2018-19 to FY 2022-23. In addition, it shows an increase in the value of imports during the same period, with the exception of a slight dip in the FY 2020-21.

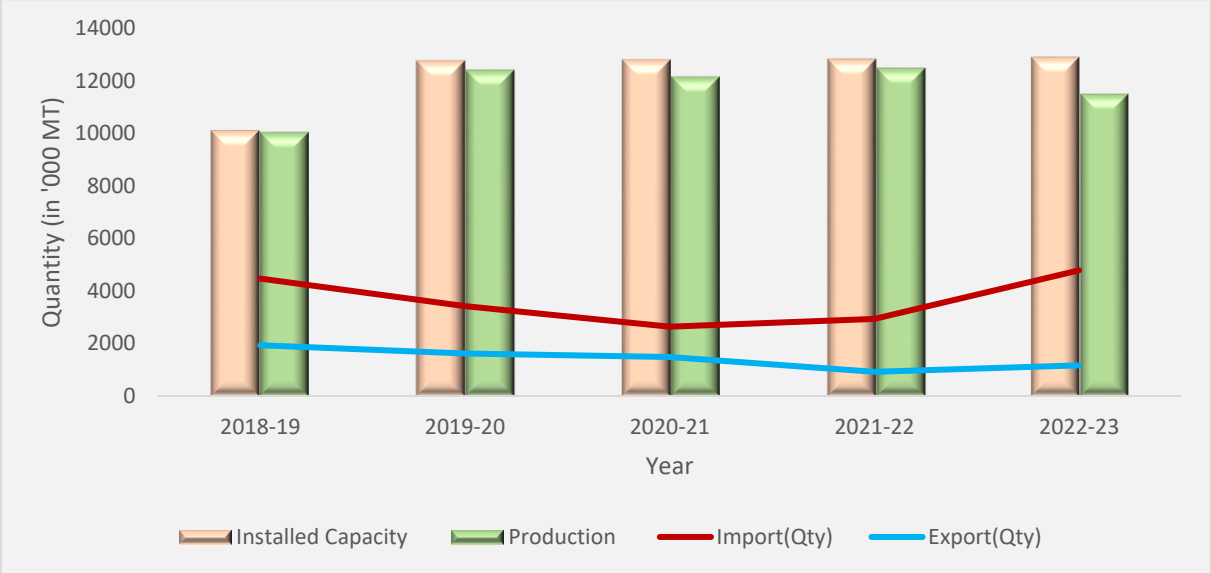
## Polymers

**Table 7.21:-**Installed Capacity, Production, Import & Export (in '000 MT)

| Year | Installed Capacity | Production | Import(Qty) | Export(Qty) |
|---|---|---|---|---|
| **2018-19** | 10115 | 10040 | 4479 | 1934 |
| **2019-20** | 12754 | 12404 | 3430 | 1615 |
| **2020-21** | 12799 | 12144 | 2641 | 1489 |
| **2021-22** | 12820 | 12471 | 2941 | 921 |
| **2022-23** | 12894 | 11487 | 4789 | 1173 |
| **CAGR (%)** | 6.3 | 3.4 | 1.7 | -11.8 |

*Source: DCPC*

**Graph 7.17:-** Installed Capacity, Production, Import & Export




The chart for Polymers exhibits a steady increase in the installed capacity from the FY 2018-19 to FY 2022-23. Over the same period, the trend of production of Polymers was stable between FY 2019-20 and FY 2022-23 with only minor fluctuations. Furthermore, the gap between quantity of Import and Export widening showing strong demand in domestic market as well as increasing dependence on foreign market.

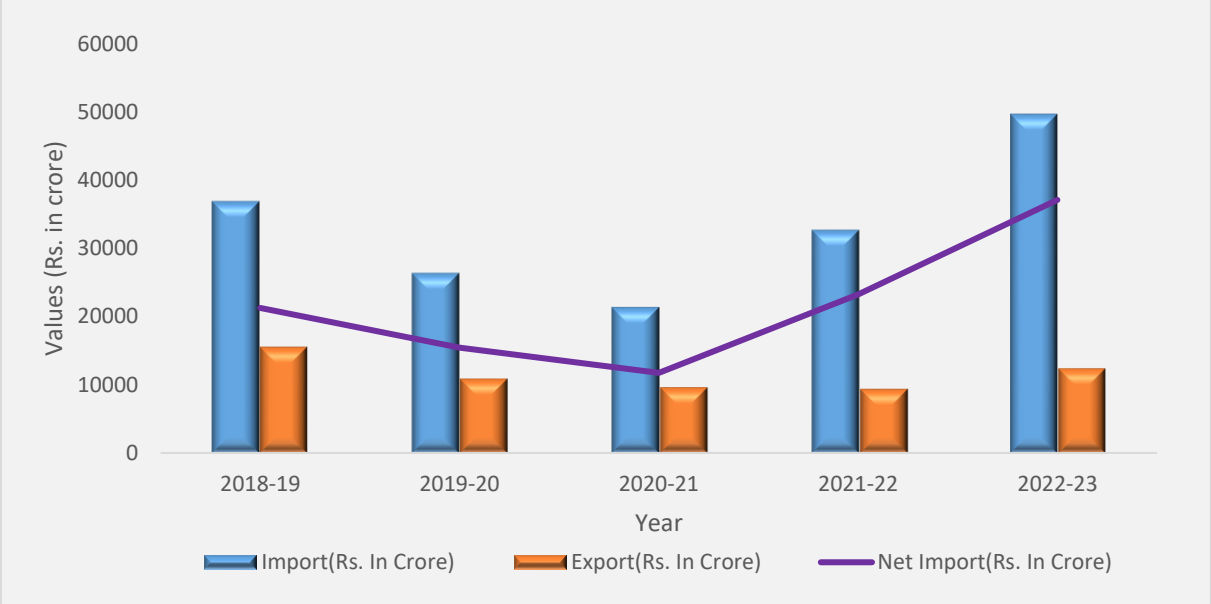
## Polymers

**Table 7.22: -**Value of Import, Value of Export and Net Import (Rs. in Crore)

| Year | Import | Export | Net Import |
|---|---|---|---|
| **2018-19** | 36848 | 15584 | 21264 |
| **2019-20** | 26394 | 10953 | 15440 |
| **2020-21** | 21423 | 9681 | 11742 |
| **2021-22** | 32672 | 9425 | 23247 |
| **2022-23** | 49567 | 12450 | 37116 |
| **CAGR (%)** | 7.7 | -5.5 | 14.9 |

*Source: DCPC*

**Graph 7.18:-** Value of Import, Value of Export and Net Import




The chart illustrates a significant rise in import values for Polymers from FY 2020-21 to FY 2022-23. Export values remained relatively stable with some fluctuations. Initially, net import values decreased, but later on, they increased, suggesting a continued reliance on imports for Polymers in India.

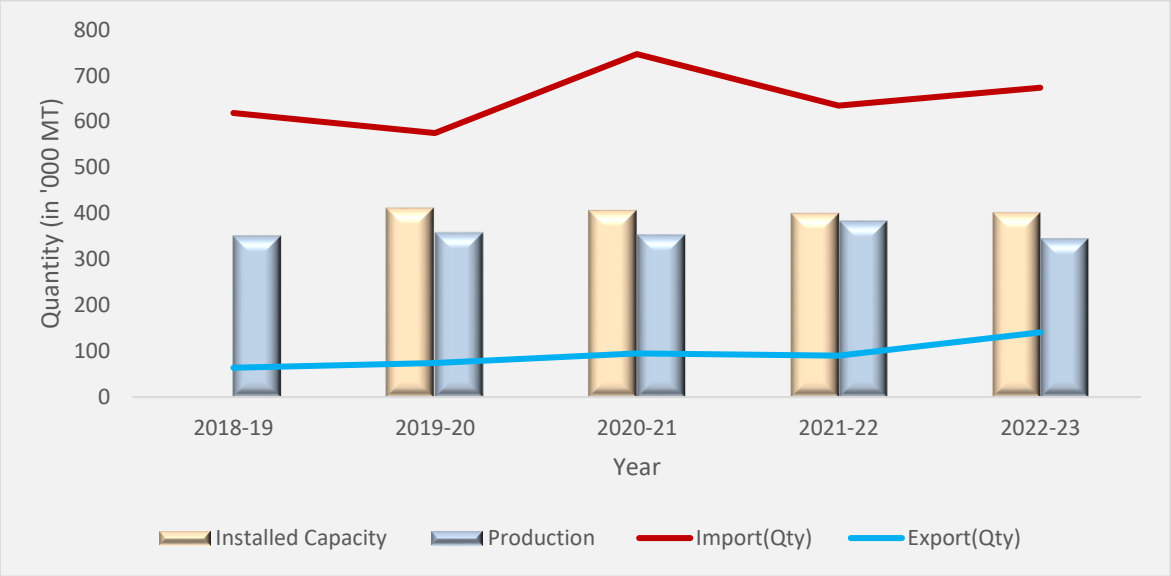
## Synthetic Rubber

**Table 7.23:-**Installed Capacity, Production, Import & Export (in '000 MT)

| Year | Installed Capacity | Production | Import(Qty) | Export(Qty) |
|---|---|---|---|---|
| **2018-19** | 425 | 351 | 619 | 64 |
| **2019-20** | 411 | 358 | 575 | 74 |
| **2020-21** | 406 | 353 | 747 | 95 |
| **2021-22** | 400 | 383 | 635 | 90 |
| **2022-23** | 402 | 345 | 673 | 141 |
| **CAGR (%)** | -1.4 | -0.4 | 2.1 | 21.8 |

*Source: DCPC*

**Graph 7.19:-** Installed Capacity, Production, Import & Export




The chart shows a consistent installed capacity for Synthetic Rubber from the FY 2018-19 to FY 2022-23. However, despite this constant capacity, the production of Synthetic Rubber experienced a decrease at a Compound Annual Growth Rate (CAGR) of 0.4% during the same period, indicating a reduction in capacity utilization. On the other hand, the import value of Synthetic Rubber is significantly higher than its export value during the same period, indicating a higher demand for the product domestically than abroad

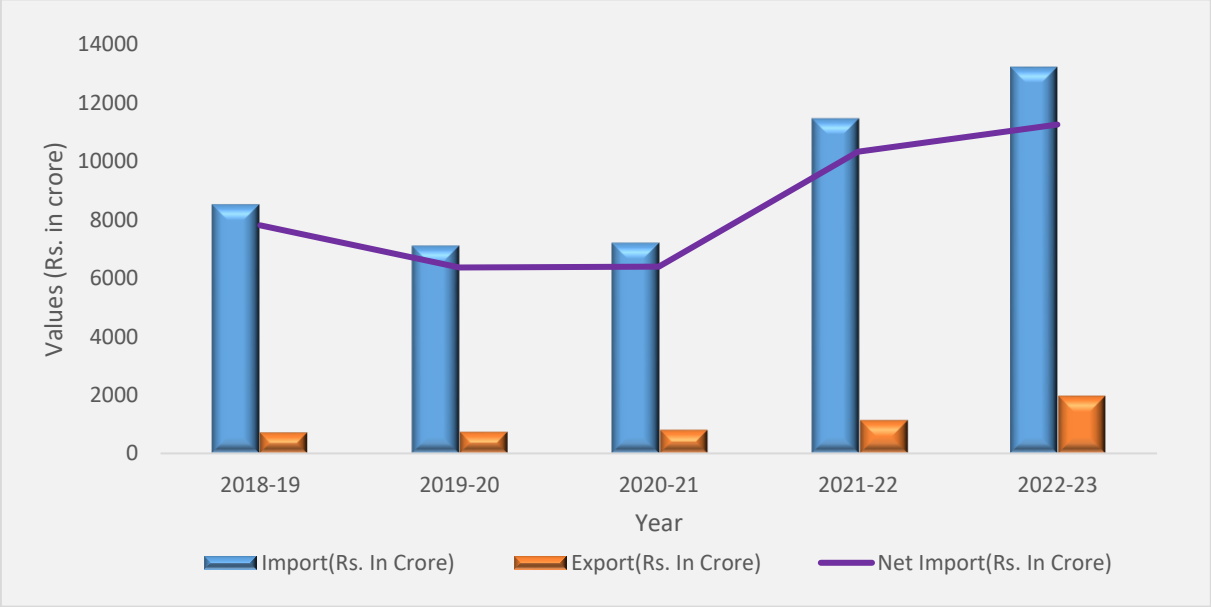
## Synthetic Rubber

**Table 7.24:-**Value of Import, Value of Export and Net Import (Rs. in Crore)

| Year | Import | Export | Net Import |
|---|---|---|---|
| **2018-19** | 8514 | 707 | 7807 |
| **2019-20** | 7095 | 731 | 6365 |
| **2020-21** | 7189 | 794 | 6394 |
| **2021-22** | 11441 | 1118 | 10323 |
| **2022-23** | 13206 | 1949 | 11257 |
| **CAGR (%)** | 11.6 | 28.9 | 9.6 |

*Source: DCPC*

**Graph 7.20:-** Value of Import, Value of Export and Net Import




According to the Synthetic Rubber chart, import values exhibited a consistent upward trend from the FY 2018-2019 to FY 2022-2023, with the highest value recorded in the latest year. Similarly, export values showed a rising trend, reaching their peak in the FY 2022-2023. Although the net import values decreased marginally from the FY 2018-2019 to FY 2020-2021, they increased in the subsequent years, reaching their maximum value in the FY 2022-2023. This suggests that the country's reliance on imports for Synthetic Rubber.

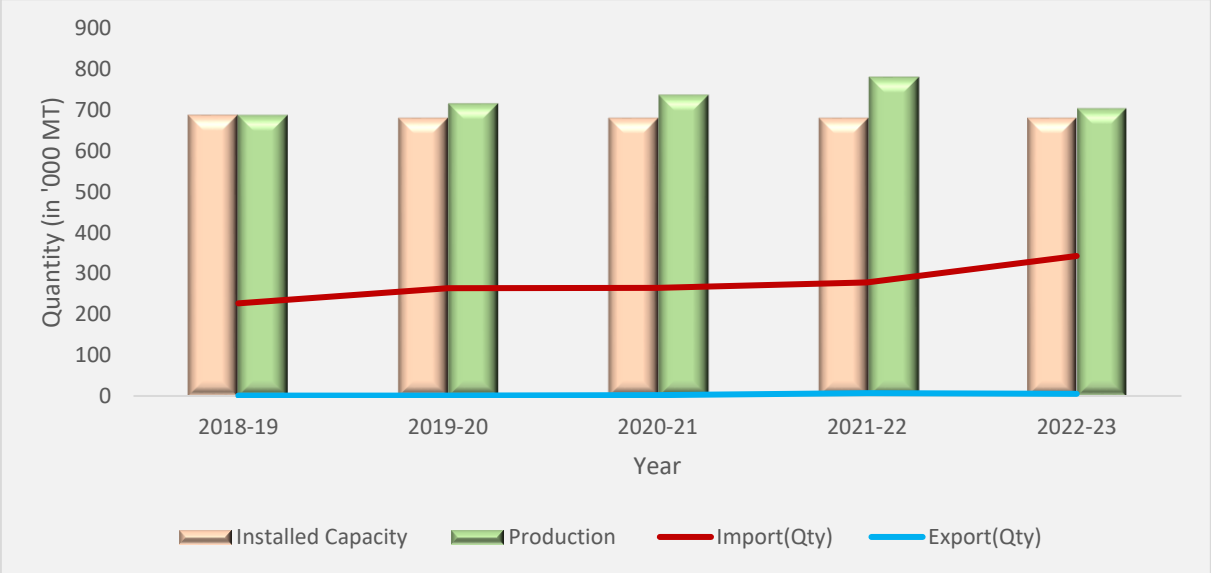
## Synthetic Detergent Intermediates

**Table 7.25:-**Installed Capacity, Production, Import & Export (in '000 MT)

| Year | Installed Capacity | Production | Import(Qty) | Export(Qty) |
|---|---|---|---|---|
| **2018-19** | 687 | 687 | 227 | 1 |
| **2019-20** | 680 | 715 | 264 | 1 |
| **2020-21** | 680 | 736 | 265 | 2 |
| **2021-22** | 680 | 780 | 278 | 7 |
| **2022-23** | 680 | 703 | 343 | 5 |
| **CAGR (%)** | -0.3 | 0.6 | 10.8 | 48.1 |

*Source: DCPC*

**Graph 7.21: -** Installed Capacity, Production, Import & Export




The chart reveals that the installed capacity for Synthetic Detergent Intermediates remained constant from the FY 2018-19 to FY 2022-23. However, the production of Synthetic Detergent Intermediates showed an increasing trend from the FY 2018-19 to FY 2022-23, indicating an improvement in production efficiency during this period. Moreover, the import value of Synthetic Detergent Intermediates was higher than its export value during the same period, suggesting a higher demand for the product domestically than abroad.

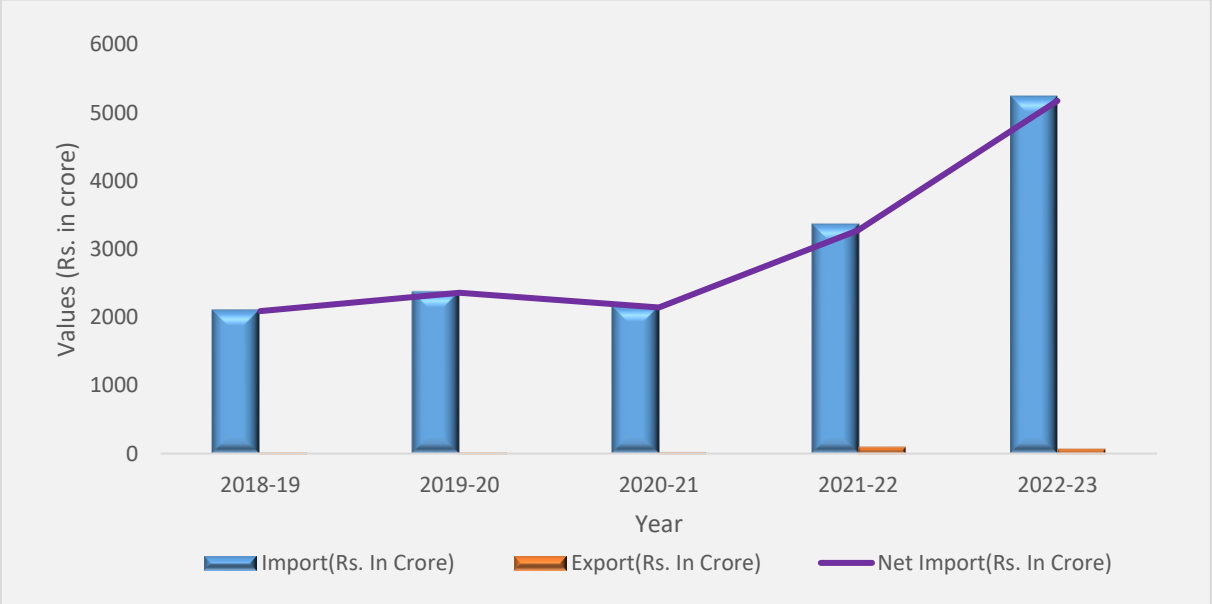
## Synthetic Detergent Intermediates

**Table 7.26: -**Value of Import, Value of Export and Net Import (Rs. in Crore)

| Year | Import | Export | Net Import |
|---|---|---|---|
| **2018-19** | 2104 | 15 | 2089 |
| **2019-20** | 2374 | 15 | 2359 |
| **2020-21** | 2163 | 19 | 2143 |
| **2021-22** | 3362 | 87 | 3275 |
| **2022-23** | 5236 | 62 | 5174 |
| **CAGR (%)** | 25.6 | 41.9 | 25.4 |

*Source: DCPC*

**Graph 7.22: -** Value of Import, Value of Export and Net Import




The chart for Synthetic Detergent Intermediates displays a steady increase in import values over the five-year period, with the highest value in the FY 2022-2023. Export values remained consistently low throughout the period. Net import values showed a similar trend to import values, increasing steadily over the period. The CAGR for import values indicated a significant increase in demand, while the CAGR for export values showed a large increase but from a low base. The CAGR for net import values also indicated a significant increase in net imports, suggesting a growing dependence on imports for this product in India.

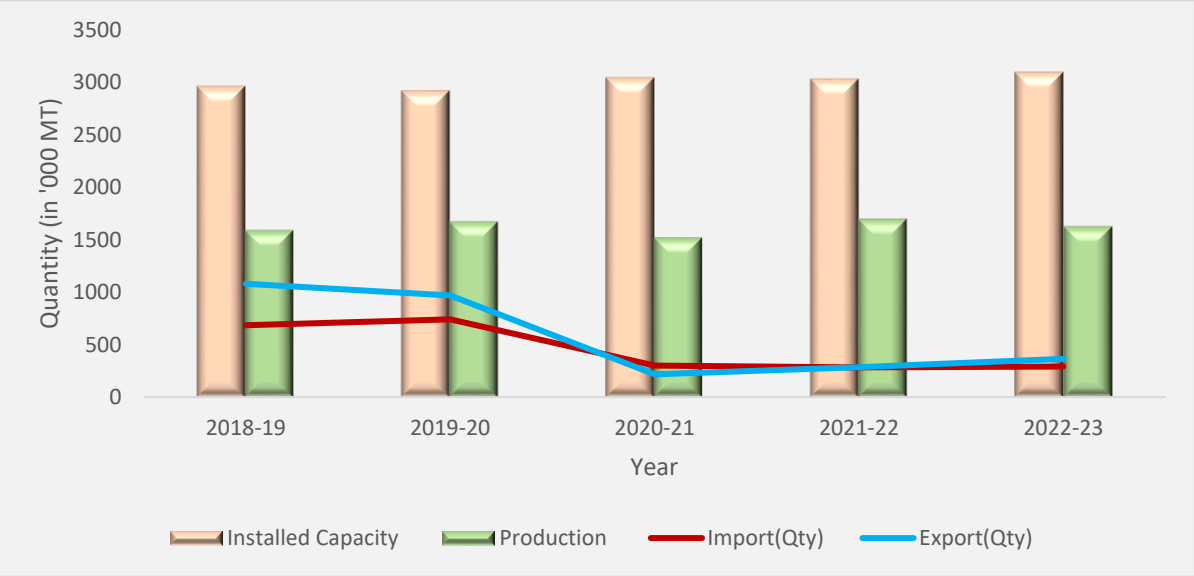
## Performance Plastics

**Table 7.27:-**Installed Capacity, Production, Import & Export (in '000 MT)

| Year | Installed Capacity | Production | Import(Qty) | Export(Qty) |
|---|---|---|---|---|
| **2018-19** | 2963 | 1589 | 684 | 1080 |
| **2019-20** | 2919 | 1672 | 741 | 969 |
| **2020-21** | 3046 | 1520 | 299 | 217 |
| **2021-22** | 3032 | 1698 | 283 | 284 |
| **2022-23** | 3096 | 1628 | 292 | 364 |
| **CAGR (%)** | 1.1 | 0.6 | -19.1 | -23.8 |

*Source: DCPC*

**Graph 7.23:-** Installed Capacity, Production, Import & Export




The chart suggests that the installed capacity for Performance Plastics is very high compared to its production during the FY 2018-19 to FY 2022-23. This indicates that the installed capacity is not being fully utilized, which could be due to various reasons such as lack of demand or operational issues. On the other hand, the export value of Performance Plastics was higher than its import value during the period of 2018-19 to 2019-20. However, the values were approximately the same in 2020-21 and 2022-23, suggesting a shift in the trade balance for Performance Plastics during those years.

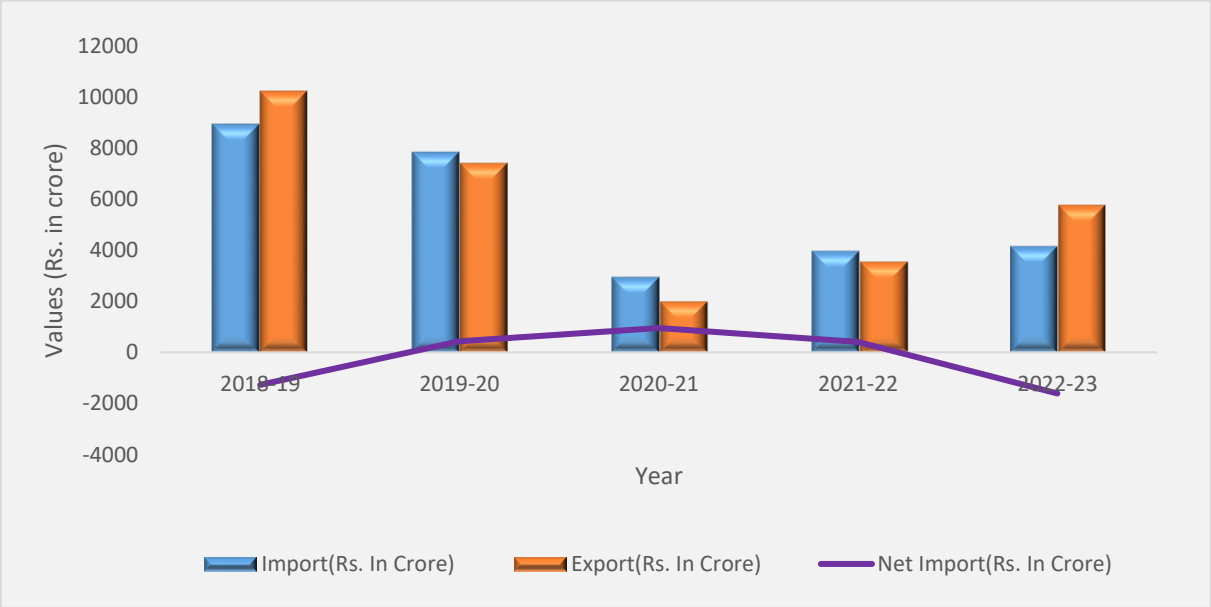
## Performance Plastics

**Table 7.28: -**Value of Import, Value of Export and Net Import (Rs. in Crore)

| Year | Import | Export | Net Import |
|---|---|---|---|
| **2018-19** | 8917 | 10188 | -1271 |
| **2019-20** | 7825 | 7390 | 435 |
| **2020-21** | 2938 | 1987 | 951 |
| **2021-22** | 3949 | 3537 | 412 |
| **2022-23** | 4143 | 5751 | -1608 |
| **CAGR (%)** | -17.4 | -13.3 | 6.1 |

*Source: DCPC*

**Graph 7.24:-** Value of Import, Value of Export and Net Import




The Performance Plastics chart demonstrates a steady decrease in import values from the FY 2018-2019 to FY 2020-2021, followed by a slight increase in subsequent years. Export values exhibited fluctuations during the same period, reaching a peak in the FY 2018-2019, then declining and slightly increasing again from the FY 2021-2022. In the FY 2022-23, the net import values were negative, indicating that more Performance Plastics were exported than imported. The Compound Annual Growth Rate (CAGR) for import values indicated a decrease in demand, while for export values, it suggested a significant decline

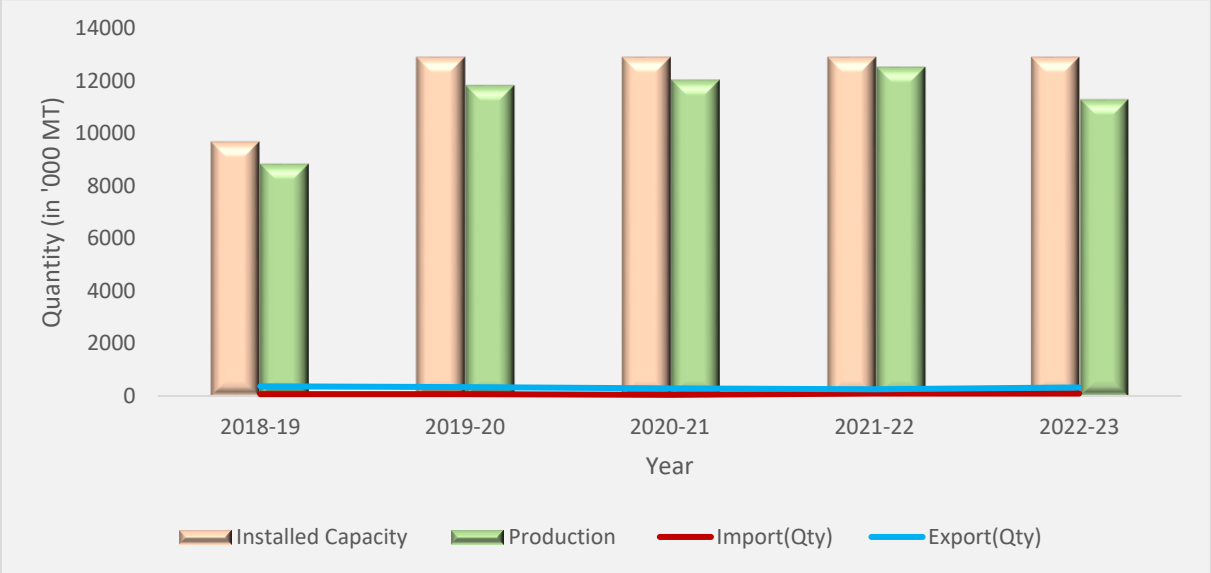
## Olefins

**Table 7.29:-**Installed Capacity, Production, Import & Export (in '000 MT)

| Year | Installed Capacity | Production | Import(Qty) | Export(Qty) |
|---|---|---|---|---|
| **2018-19** | 9683 | 8857 | 70 | 369 |
| **2019-20** | 12890 | 11835 | 76 | 336 |
| **2020-21** | 12890 | 12039 | 44 | 285 |
| **2021-22** | 12890 | 12527 | 92 | 256 |
| **2022-23** | 12890 | 11296 | 94 | 323 |
| **CAGR (%)** | 7.4 | 6.3 | 7.6 | -3.2 |

*Source: DCPC*

**Graph 7.25:-** Installed Capacity, Production, Import & Export




The Olefins chart illustrates a rise in installed capacity from the FY 2018-2019 to FY 2019-2020, which then remained constant in the subsequent years. Production exhibited an upward trend from the FY 2018-19 to FY 2021-22, but experienced a decline in the FY 2022-23. The quantity of exports and imports followed a similar pattern, with exports slightly greater than imports in quantity.

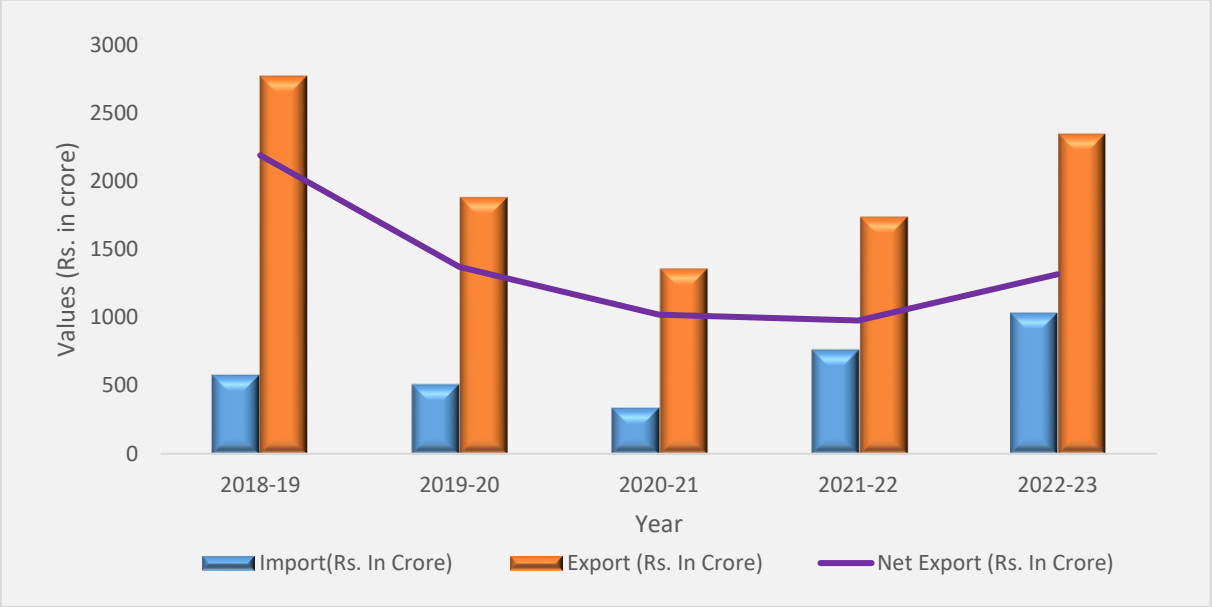
## Olefins

**Table 7.30: -**Value of Import, Value of Export and Net Import (Rs. in Crore)

| Year | Import | Export | Net Export |
|---|---|---|---|
| **2018-19** | 578 | 2767 | 2189 |
| **2019-20** | 510 | 1881 | 1371 |
| **2020-21** | 340 | 1361 | 1021 |
| **2021-22** | 762 | 1739 | 977 |
| **2022-23** | 1028 | 2345 | 1317 |
| **CAGR (%)** | 15.5 | -4.1 | -11.9 |

*Source: DCPC*

**Graph 7.26:-** Value of Import, Value of Export and Net Import




The Olefins chart exhibits fluctuations in import values, peaking in the FY 2018-2019 before decreasing in subsequent years and then experiencing a rise again from the FY 2021-2022. On the other hand, export values for Olefins demonstrate a consistent decline from the FY 2018-2019 to FY 2020-2021, followed by increase from the FY 2021-2022 to FY 2022-23. The Compound Annual Growth Rate (CAGR) for import values indicates an increasing demand, whereas for export values, it suggests a slight decline over the same period.

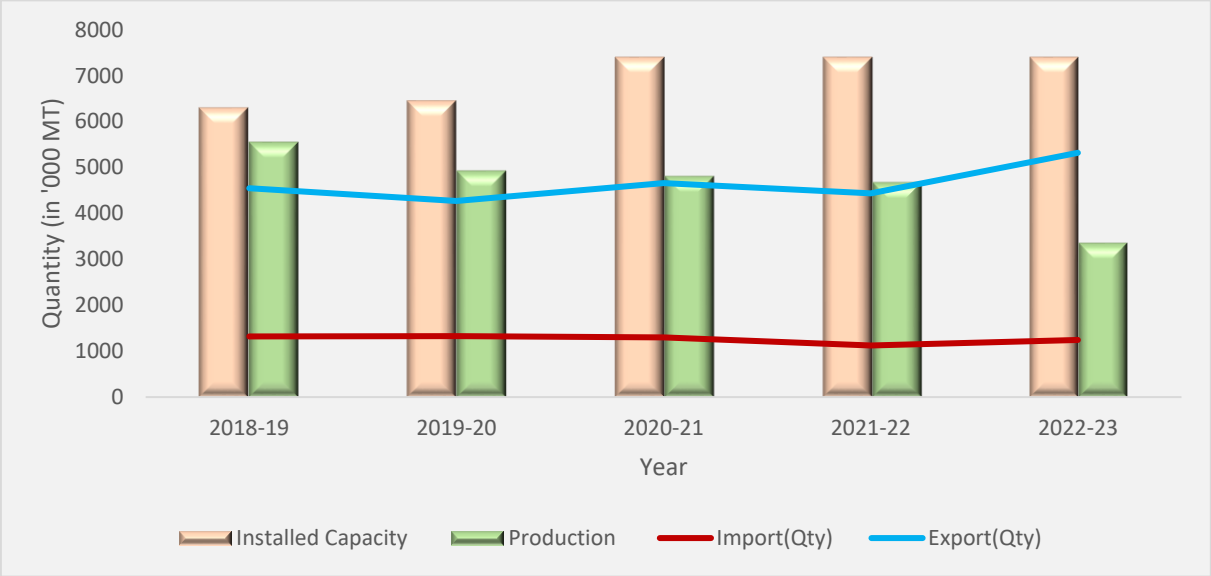
## Aromatics

**Table 7.31:-**Installed Capacity, Production, Import & Export (in '000 MT)

| Year | Installed Capacity | Production | Import(Qty) | Export(Qty) |
|---|---|---|---|---|
| **2018-19** | 6305 | 5543 | 1320 | 4551 |
| **2019-20** | 6460 | 4925 | 1328 | 4271 |
| **2020-21** | 7404 | 4805 | 1300 | 4661 |
| **2021-22** | 7404 | 4677 | 1124 | 4435 |
| **2022-23** | 7404 | 3362 | 1246 | 5320 |
| **CAGR (%)** | 4.1 | -11.8 | -1.4 | 4.0 |

*Source: DCPC*

**Graph 7.27:-** Installed Capacity, Production, Import & Export




The Aromatics industry experienced a slight rise in installed capacity from the FY 2018-19 to FY 2020-21, which remained consistent in the following years. However, there was a notable decline in production values from the FY 2018-19 to FY 2022-23. Import values remained steady throughout this period. Conversely, export values displayed fluctuations but overall demonstrated an upward trend, with a Compound Annual Growth Rate (CAGR) of 4%.

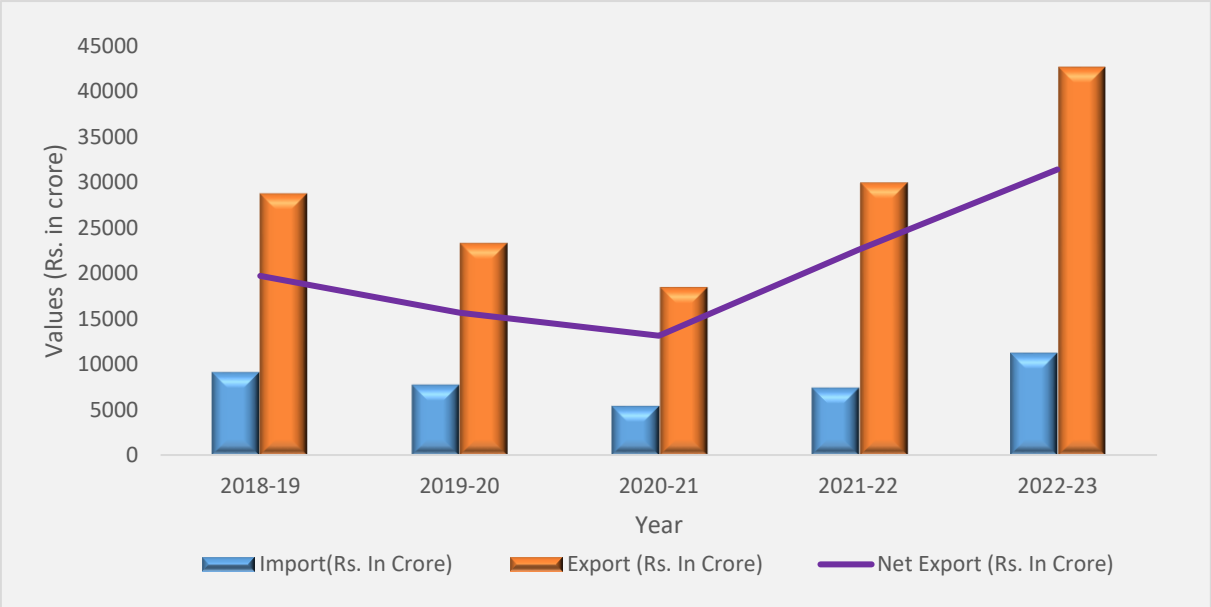
## Aromatics

**Table 7.32: -**Value of Import, Value of Export and Net Import (Rs. in Crore)

| Year | Import | Export | Net Export |
|---|---|---|---|
| **2018-19** | 9102 | 28803 | 19701 |
| **2019-20** | 7728 | 23374 | 15646 |
| **2020-21** | 5421 | 18547 | 13126 |
| **2021-22** | 7425 | 29980 | 22555 |
| **2022-23** | 11237 | 42654 | 31417 |
| **CAGR (%)** | 5.4 | 10.3 | 12.4 |

*Source: DCPC*

**Graph 7.28:-** Value of Import, Value of Export and Net Import




The Aromatics chart shows an overall increasing trend in both import and export values from the FY 2018-2019 to FY 2022-2023. Import values for Aromatics peaked in the FY 2018-2019 before gradually decreasing in the following years, while export values continued to increase over the same period, with a slight dip in the FY 2020-2021. The CAGR for import values indicated a slow and steady increase, while for export values showed a significant increase over the same period. The CAGR for net export values showed a significant increase, this suggests that the country's exports of the Aromatics have surpassed its imports, resulting in a positive net export value.

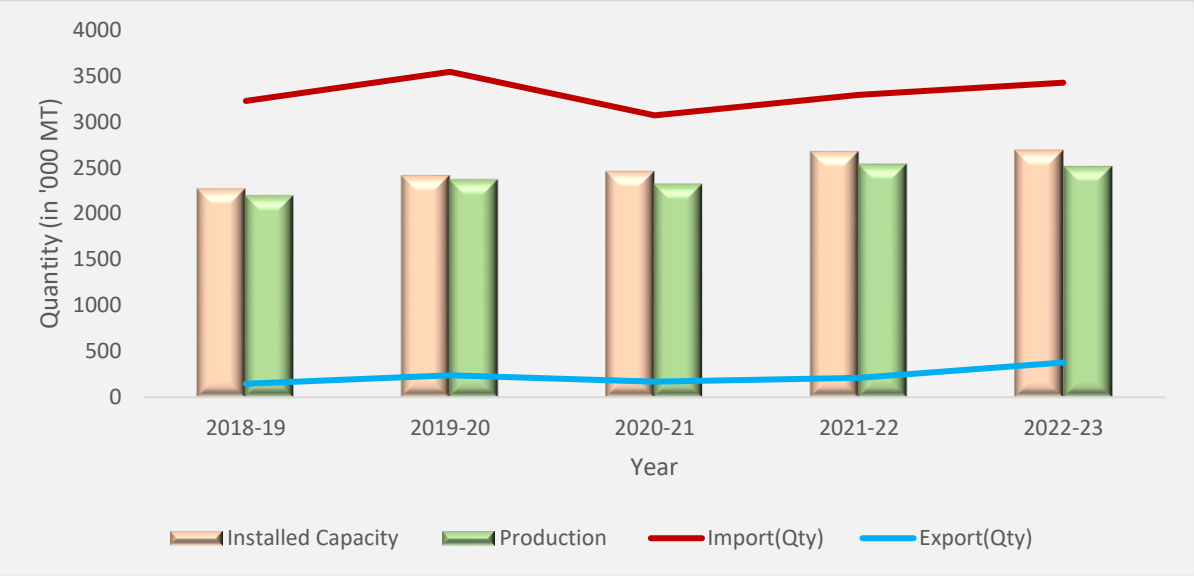
## Other Petrochemicals

**Table 7.34:-**Installed Capacity, Production, Import & Export (in '000 MT)

| Year | Installed Capacity | Production | Import(Qty) | Export(Qty) |
|---|---|---|---|---|
| **2018-19** | 2271 | 2192 | 3227 | 147 |
| **2019-20** | 2413 | 2364 | 3543 | 238 |
| **2020-21** | 2458 | 2318 | 3069 | 171 |
| **2021-22** | 2677 | 2531 | 3291 | 212 |
| **2022-23** | 2691 | 2511 | 3426 | 378 |
| **CAGR (%)** | 4.3 | 3.5 | 1.5 | 26.6 |

*Source: DCPC*

**Graph 7.29:-** Installed Capacity, Production, Import & Export




Other Petrochemicals industry showed a slight increase in installed capacity from the FY 2018-2019 to FY 2022-2023. Production also increased during this period. Import values were consistently higher than export values, indicating a heavy reliance on imports. The CAGR for import quantity showed a moderate increase in demand, while the CAGR for export quantity indicated a slight increase.

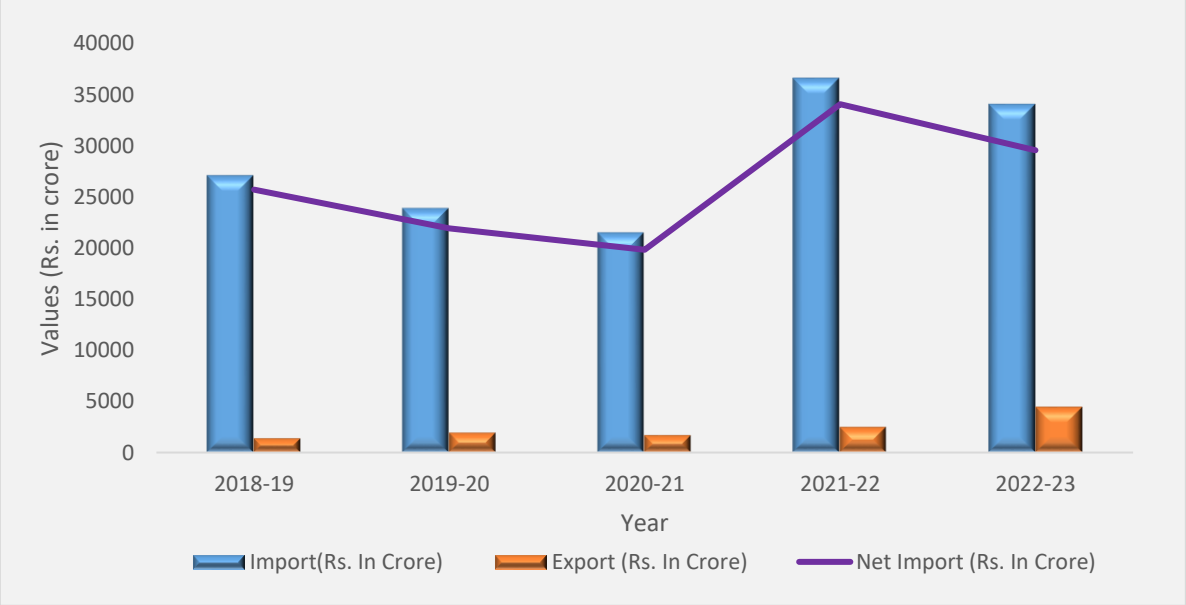
## Other Petrochemicals

**Table 7.35: -**Value of Import, Value of Export and Net Import (Rs. in Crore)

| Year | Import | Export | Net Import |
|---|---|---|---|
| **2018-19** | 27092 | 1398 | 25694 |
| **2019-20** | 23883 | 1949 | 21934 |
| **2020-21** | 21521 | 1691 | 19829 |
| **2021-22** | 36564 | 2498 | 34066 |
| **2022-23** | 34043 | 4483 | 29560 |
| **CAGR (%)** | 5.9 | 33.8 | 3.6 |

*Source: DCPC*

**Graph 7.30:-** Value of Import, Value of Export and Net Import




The chart for Other Petrochemicals depicts a declining trend in import values from the FY 2018-2019 to FY 2021-2022, with the highest import level observed in the FY 2021-22. Export values remained consistently low throughout the period, except for minor increases in FY 2018-2019 and FY 2022-2023. The net import values consistently remained high, indicating a substantial dependency on imports for Other Petrochemicals.

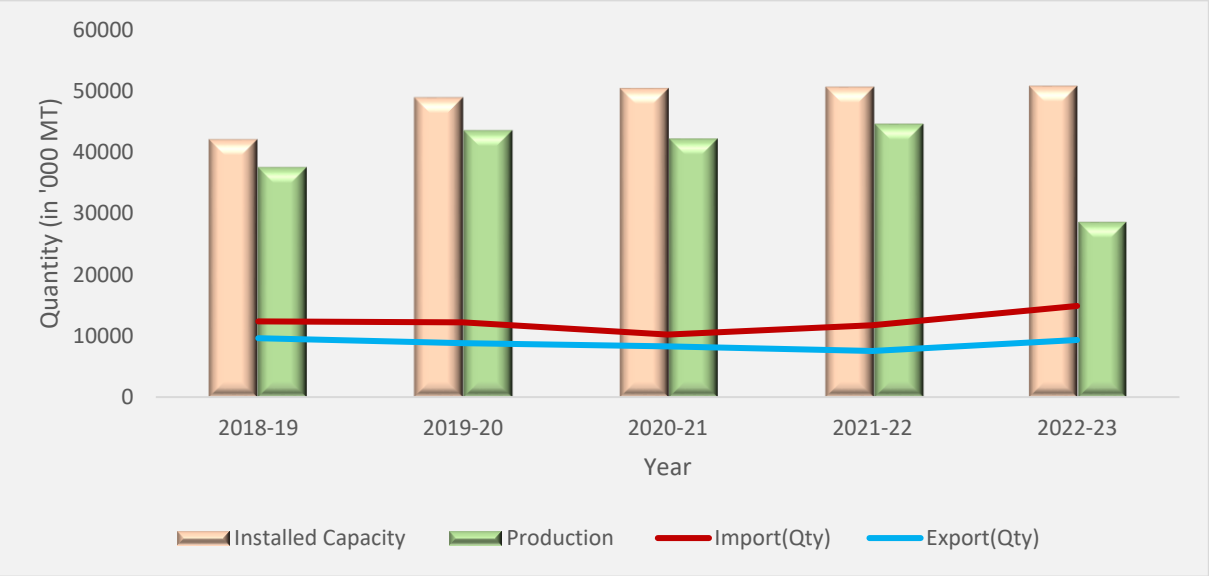
## Total Major Petrochemicals

**Table 7.36:-**Installed Capacity, Production, Import & Export (in '000 MT)

| Year | Installed Capacity | Production | Import(Qty) | Export(Qty) |
|---|---|---|---|---|
| **2018-19** | 42077 | 37519 | 12356 | 9619 |
| **2019-20** | 48933 | 43524 | 12222 | 8798 |
| **2020-21** | 50439 | 42159 | 10211 | 8274 |
| **2021-22** | 50612 | 44589 | 11732 | 7535 |
| **2022-23** | 50779 | 40292 | 14890 | 9335 |
| **CAGR (%)** | 4.8 | -6.6 | 4.8 | -0.7 |

*Source: DCPC*

**Graph 7.31:-** Installed Capacity, Production, Import & Export




The Total Major Petrochemicals sector witnessed growth in its installed capacity and production from the FY 2017-2018 to FY 2021-2022. In the FY 2022-23 Installed capacity is same, but production decreased. This indicates that the installed capacity is not being fully utilized, which could be due to various reasons such as lack of demand or operational issues. However, imports and exports showed fluctuations during the same period.

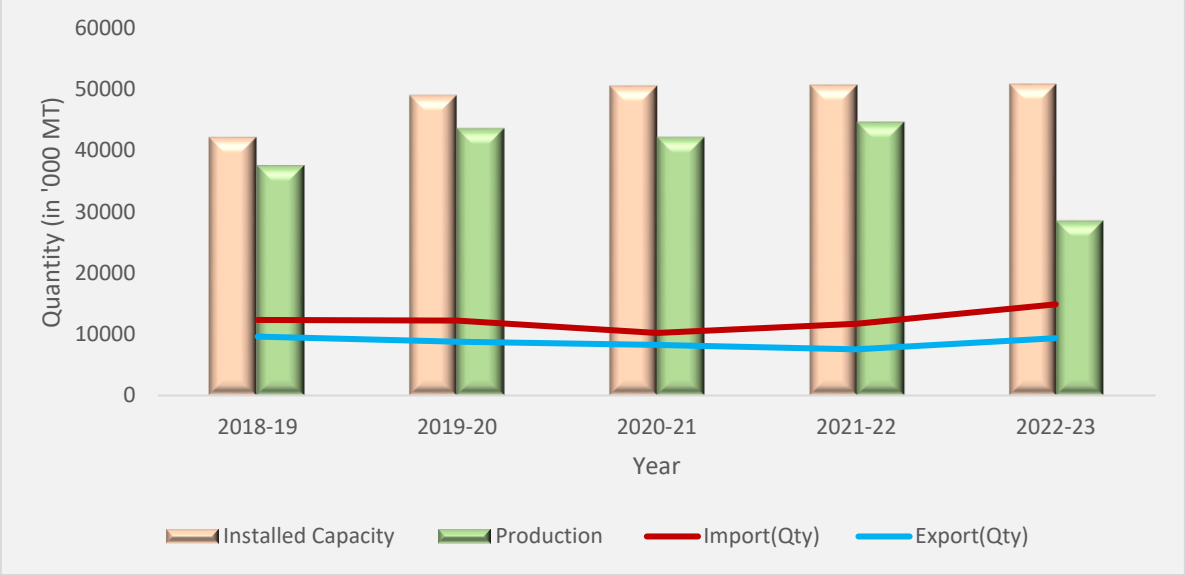
## Total Major Petrochemicals

**Table 7.38: -**Value of Import, Value of Export and Net Import (Rs. in Crore)

| Year | Import | Export | Net Import (Rs. In Crore) |
|---|---|---|---|
| **2018-19** | 108259 | 73941 | 34318 |
| **2019-20** | 91013 | 58079 | 32934 |
| **2020-21** | 71596 | 43581 | 28015 |
| **2021-22** | 120093 | 63639 | 56455 |
| **2022-23** | 148869 | 91433 | 57435 |
| **CAGR (%)** | 8.3 | 5.5 | 13.7 |

*Source: DCPC*

**Graph 7.32:-** Value of Import, Value of Export and Net Import



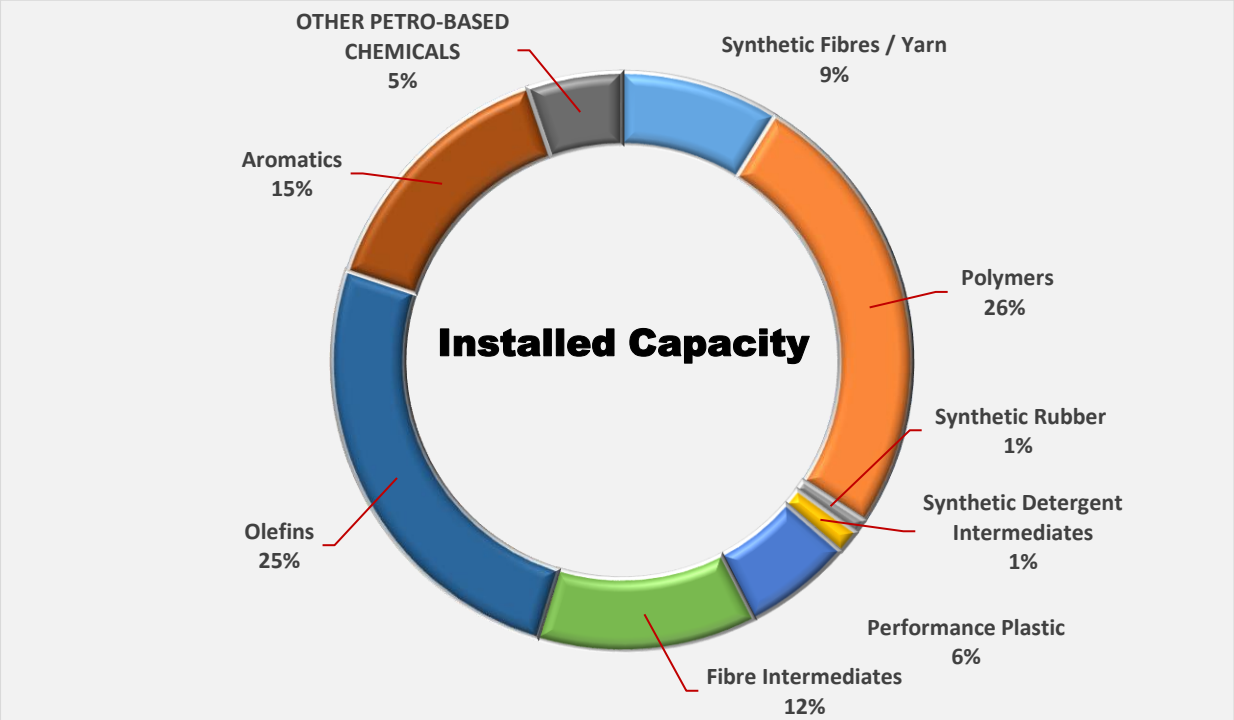

The data from the Total Major Petrochemicals chart indicates a general increase in import values, with a Compound Annual Growth Rate (CAGR) of 8.3%. On the other hand, export values exhibited a steady decline from the FY 2018-19 to FY 2020-21, followed by a slight increase starting from the FY 2021-2022. The net import trend suggests a significant reliance on imports for Other Petrochemicals.

**Table 7.39: -**Installed capacity of different groups of Major Petrochemicals

| Groups | Installed Capacity (In 000'MT) |
|---|---|
| Synthetic Fibres / Yarn | 4496 |
| Polymers | 12894 |
| Synthetic Rubber | 402 |
| Synthetic Detergent Intermediates | 680 |
| Performance Plastic | 3096 |
| Fibre Intermediates | 6228 |
| Olefins | 12890 |
| Aromatics | 7404 |
| Other petro-based chemicals | 2691 |

*Source: DCPC*

**Pie Chart 7.7: -** Share of different groups of Major Petrochemicals in installed capacity during 2022-23



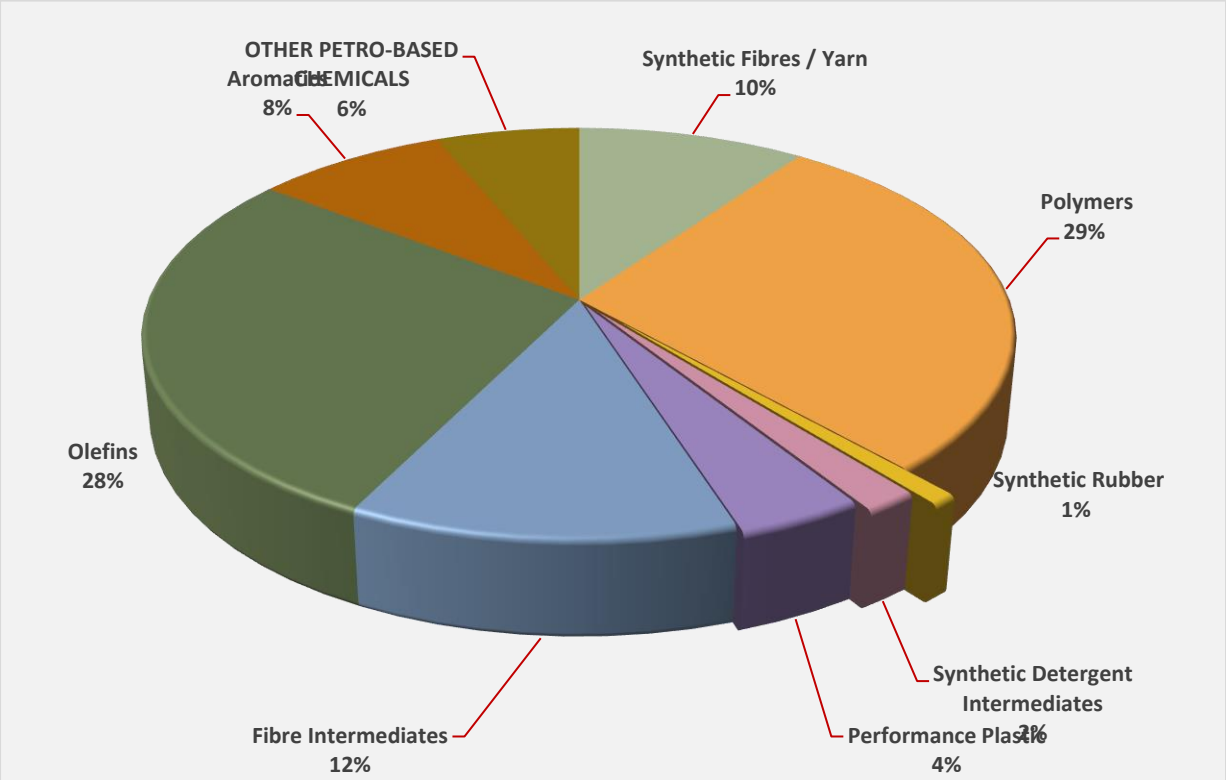

The above graph presents a visual representation of the installed capacity among major petrochemical groups for FY 2022–23. Polymers take the lead with the highest percentage, holding 26% of the total installed capacity, closely trailed by Olefins at 25%. Aromatics comprise 15%, Fiber Intermediates represent 12%, Synthetic Yarn stands at 9%, Performance Plastic at 6%, Other Petro-Based Chemicals at 5%, while both Synthetic Rubber and Synthetic Detergent Intermediates contribute 1% each to the overall capacity.

**Table 7.40:-** Production of different groups of Major Petrochemicals

| Groups | Production (In 000'MT) |
|---|---|
| Synthetic Fibres / Yarn | 3973 |
| Polymers | 11487 |
| Synthetic Rubber | 345 |
| Synthetic Detergent Intermediates | 703 |
| Performance Plastic | 1628 |
| Fibre Intermediates | 4988 |
| Olefins | 11296 |
| Aromatics | 3362 |
| Other petro-based chemicals | 2510 |

*Source: DCPC*

**Pie Chart 7.8: -** Share of different groups of Major Petrochemicals in production during 2022-23




The graph presented above illustrates the production figures for major petrochemical groups in the FY 2022–23. Aromatics take the lead with the highest percentage, representing 35% of the total production, followed by Olefins at 20%. Polymers contribute 15%, Synthetic Yarn stands at 7%, Other Petro-Based Chemicals

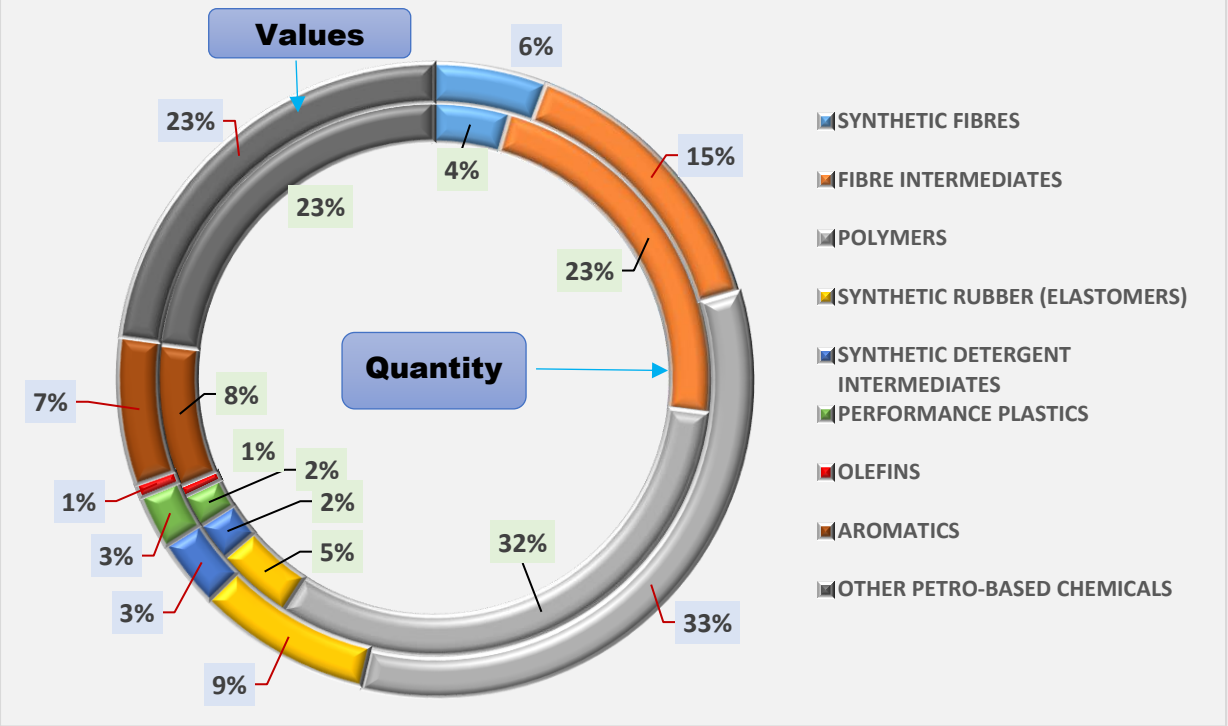
make up 4%, Performance Plastic at 3%, and both Synthetic Rubber and Synthetic Detergent Intermediates each account for 1% of the overall production.

**Table 7.41: -** Import quantity and value of different groups of Major Petrochemicals in the FY 2022-23

| Groups | Qty (in MT) | Values (in Rs. Lakh ) |
|---|---|---|
| Synthetic fibers | 670250 | 864661 |
| Fibre intermediates | 3355729 | 2176204 |
| Polymers | 4789378 | 4956650 |
| Synthetic rubber (elastomers) | 673480 | 1320567 |
| Synthetic detergent intermediates | 342892 | 523554 |
| Performance plastics | 292316 | 414336 |
| Olefins | 94231 | 102839 |
| Aromatics | 1245729 | 1123727 |
| Other petro-based chemicals | 3425800 | 3404342 |

*Source: DCPC*

**Pie Chart 7.9: -** Share of different Groups of Major chemicals in import quantity and value during 2022-23




The graph above provides a visual representation of bivariate analysis, focusing on two crucial attributes: Import Quantity and Value, for major chemical groups during FY 2022-23. Polymer leads the way with the highest percentage, making up 32% of the total import quantity. Following closely, both Fiber Intermediates and Other Petro-based Chemicals each contribute 23% to the total import quantity. Regarding import value, Polymer makes the most substantial contribution, representing 33% of the total import

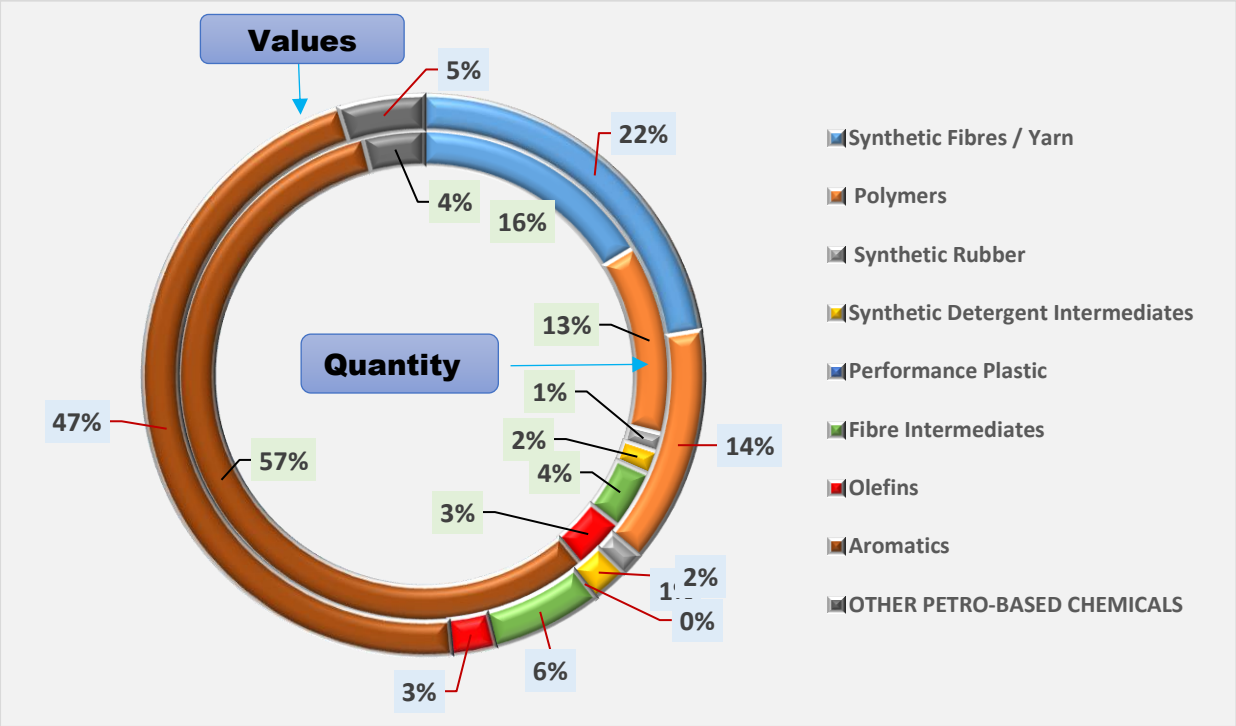
value. Following Polymer, Other Petro-based Chemicals account for 23%, Fiber Intermediates for 15%, and Synthetic Rubber for 9% of the total import value.

**Table 7.42: -** Export quantity and value of different groups of Major Petrochemicals in the FY 2022-23

| Groups | Qty (in MT) | Values (in Rs. Lakh ) |
|---|---|---|
| Synthetic fibers | 1518008 | 2052206 |
| Fiber intermediates | 112427 | 121610 |
| Polymers | 1172703 | 1245027 |
| Synthetic rubber (elastomers) | 140859 | 194901 |
| Synthetic detergent intermediates | 5044 | 6214 |
| Performance plastics | 363856 | 575133 |
| Olefins | 323495 | 234525 |
| Aromatics | 5320017 | 4265410 |
| Other petro-based chemicals | 378150 | 448320 |

Source: DCPC

**Pie Chart 7.11: -** Share of different groups of Major Petrochemicals in export Quantity and value during 2022-23




The graph depicted above provides a bivariate analysis of two crucial attributes: Import Quantity and Value, for major chemical groups during FY 2022–23. Aromatics play a substantial role, contributing 57% to the total import quantity and 47% to the import value. In the case of Synthetic Fibers/Yarn, the import quantity amounts to 22%,

representing 16% of the total import value. Meanwhile, Synthetic Rubber constitutes 14% of the import quantity, contributing 13% to the total import value.

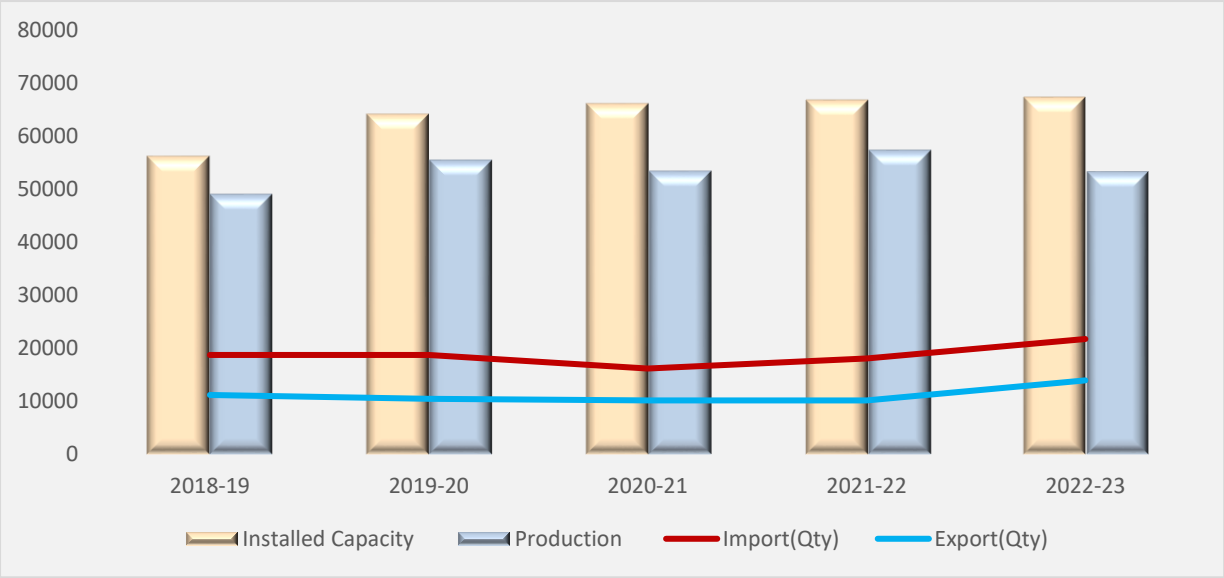
**Total Major Chemicals and Petrochemicals**

**Table 7.43:-**Installed Capacity, Production, Import & Export (in '000 MT)

| Year | Installed Capacity | Production | Import(Qty) | Export(Qty) |
|---|---|---|---|---|
| **2018-19** | 56189 | 49108 | 18735 | 11198 |
| **2019-20** | 64093 | 55467 | 18780 | 10497 |
| **2020-21** | 66091 | 53402 | 16194 | 10179 |
| **2021-22** | 66790 | 57332 | 18117 | 9874 |
| **2022-23** | 67317 | 53331 | 21768 | 13961 |
| **CAGR (%)** | 4.6 | 2.1 | 3.8 | 5.7 |

*Source: DCPC*

**Graph 7.33:-** Installed Capacity, Production, Import & Export




The graph depicting Total Major Chemicals and Petrochemicals highlights a steady expansion in installed capacity, growing at a Compound Annual Growth Rate (CAGR) of 4.6%. On the other hand, the production trend indicates an overall decline,

with a CAGR of 4.1%. Nevertheless, the quantities of imports and exports exhibit a fluctuating pattern, with a slight upturn in the most recent year. Notably, the graph indicates that imports surpass exports in volume.

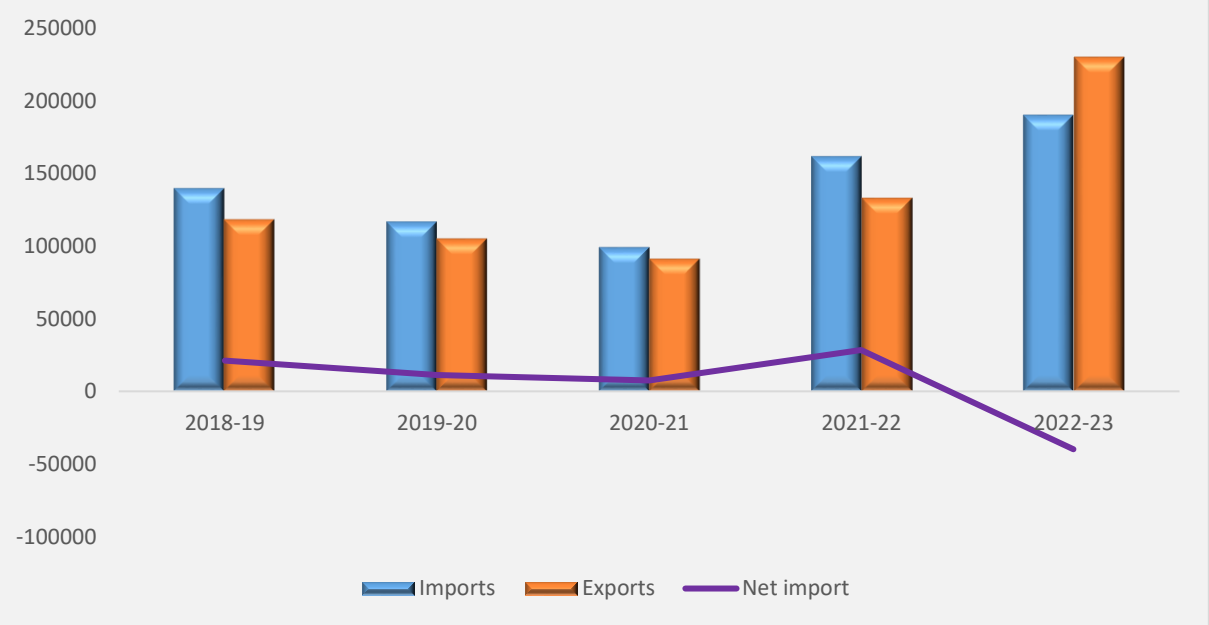
## Total Major Chemicals and Petrochemicals

**Table 7.34:-**Value of Import, Value of Export and Net Import (Rs. in Crore)

| Year | Imports | Exports | Net import |
|---|---|---|---|
| **2018-19** | 139685 | 118457 | 21228 |
| **2019-20** | 116673 | 105392 | 11281 |
| **2020-21** | 99086 | 91516 | 7570 |
| **2021-22** | 161740 | 129435 | 32304 |
| **2022-23** | 190237 | 230093 | -39857 |
| **CAGR (%)** | 8.0 | 18.1 | NA |

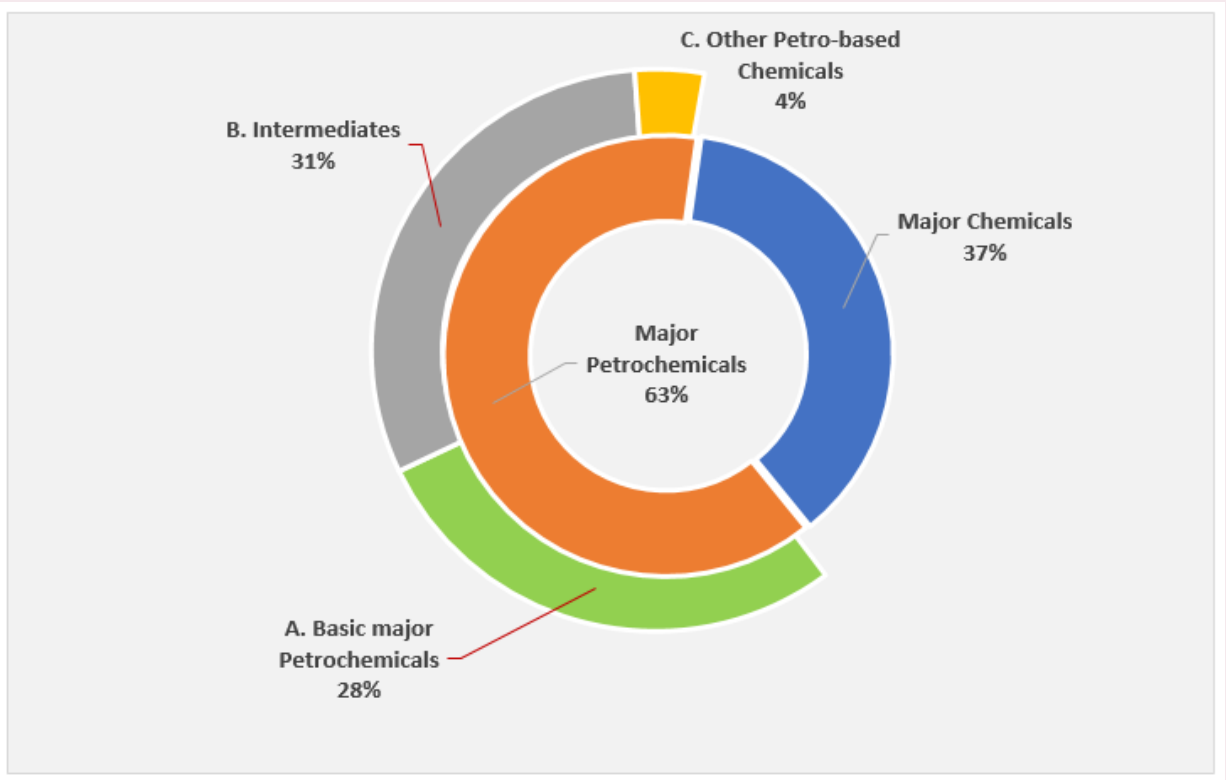
*Source: DCPC*

**Graph 7.34:-** Value of Import, Value of Export and Net Import




According to the Total Major Chemical and Petrochemicals chart, there was a consistent decline in import values between FY 2018-2019 and FY 2020-2021, followed by subsequent increases in the subsequent years. Export values for Total Major Chemical and Petrochemicals exhibited a similar pattern to the import values. Moreover, the net import values displayed a downward trend from the FY 2018-19 to FY 2022-23, indicating a decrease in dependence on imports. The Compound Annual Growth Rate (CAGR) for net import values also reflected a decline in reliance on imported good

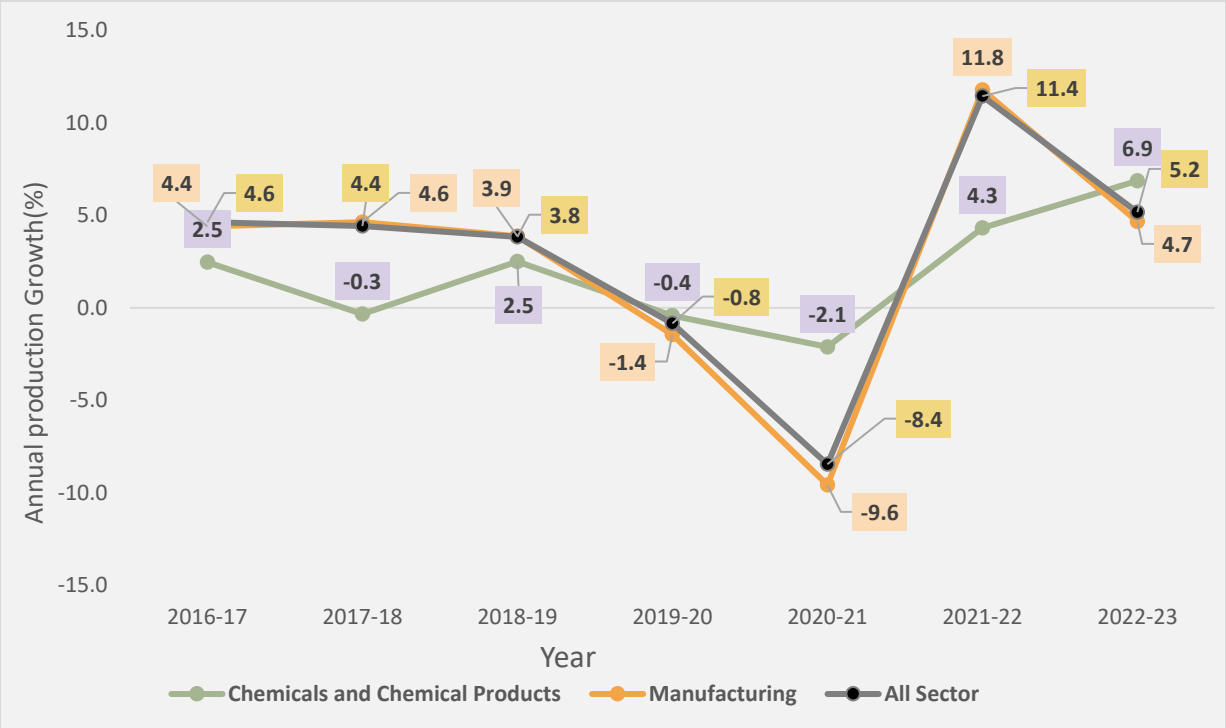
**Production share of Chemicals and petrochemicals form the FY 2022 to FY 23**




*Source: DCPC*

In the fiscal year 2022-23, the production breakdown is depicted in the graph above, with Major Chemicals comprising 37% and Major Petrochemicals constituting the remaining 63%. Furthermore, Major Petrochemicals can be divided into three subcategories: Basic Petrochemicals at 28%, Intermediates at 31%, and Other Petro-based Chemicals at 4%.

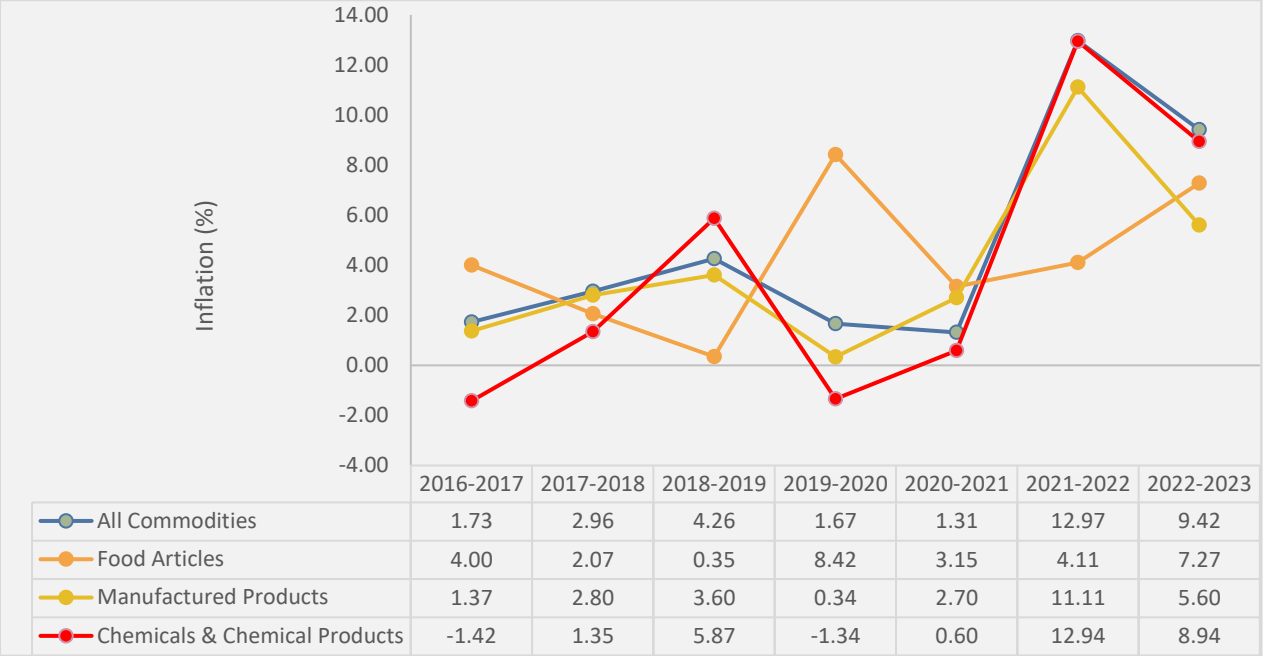
**Annual Production Growth (%) (Based on Index on Industrial Production with Base year: 2011-12)**




*Source: Ministry of Statistics and Programme Implementation*

In the fiscal year 2022-23, the Index of Industrial Production (IIP) suggests an estimated annual growth rate of 6.9% in the manufacturing of Chemicals and Chemical Products, surpassing both the overall manufacturing sector and the growth rate of all other sectors

**Annual Inflation (%) (Based on Wholesale Price Index with base year: 2011-12)**



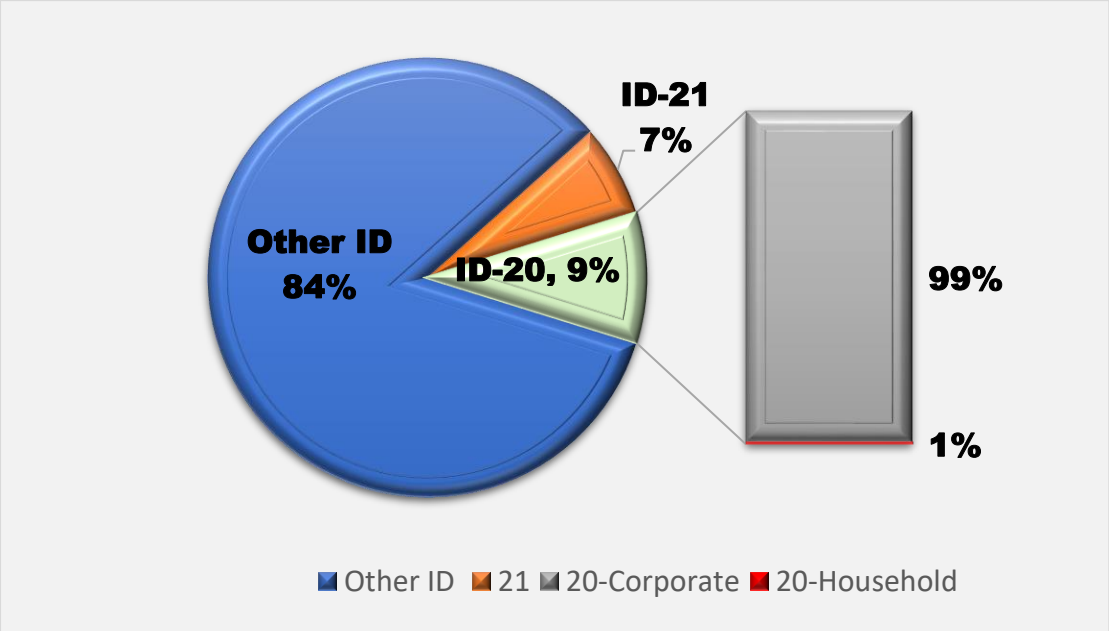

| | 2016-2017 | 2017-2018 | 2018-2019 | 2019-2020 | 2020-2021 | 2021-2022 | 2022-2023 |
|---|---|---|---|---|---|---|---|
| All Commodities | 1.73 | 2.96 | 4.26 | 1.67 | 1.31 | 12.97 | 9.42 |
| Food Articles | 4.00 | 2.07 | 0.35 | 8.42 | 3.15 | 4.11 | 7.27 |
| Manufactured Products | 1.37 | 2.80 | 3.60 | 0.34 | 2.70 | 11.11 | 5.60 |
| Chemicals & Chemical Products | -1.42 | 1.35 | 5.87 | -1.34 | 0.60 | 12.94 | 8.94 |

Source: Office of the Economic Advisor (http://eaindustry.nic.in)

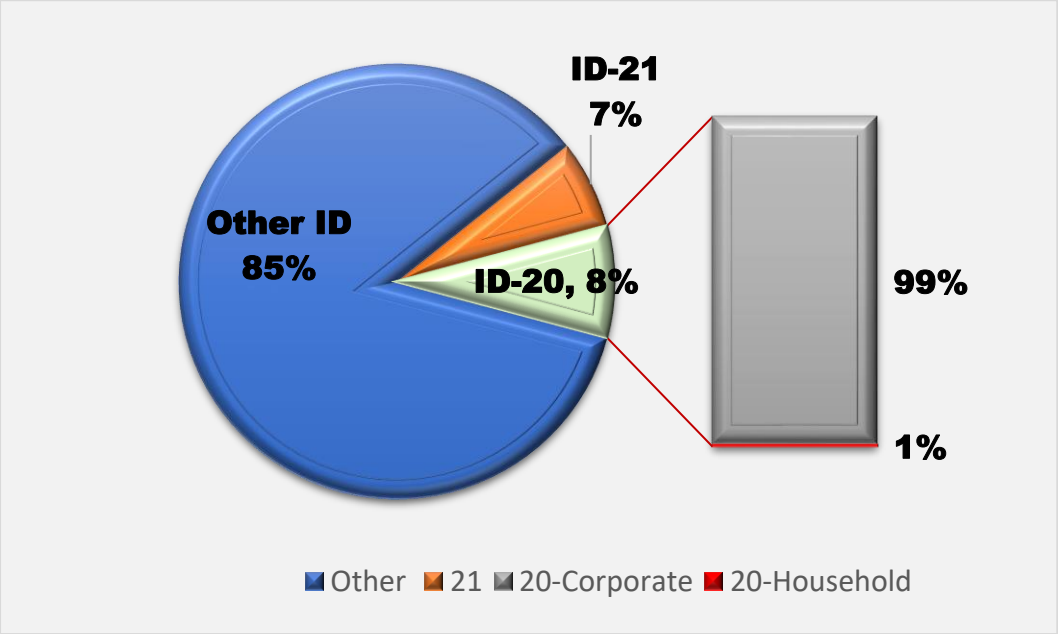
Annual Inflation for Chemicals and Chemical Products in the FY 2022-23 is 8.94%

**GVA of manufacturing sector**

**A) FY 2021-22 (At current prices)**



**B) FY 2021-22 At constant prices (Base year: 2011-12)**




*Source: Ministry of Statistics & Programme Implementation.*

*Note: Industry Division (ID) 20 (NIC-2008): Chemical and Chemical products*

*Industry Division (ID) 21 (NIC-2008): Pharmaceutical; medicinal chemicals and botanical products.*

Graph A illustrates the distribution of GVA (Gross Value Added) within the manufacturing sector at current prices for Industry divisions 21 and 20. Notably, Industry division 20, which encompasses Chemical and Chemical products, accounts for 9% of the total GVA in the manufacturing sector. Within Industry division 20, the corporate sector contributes a substantial 99% of the GVA

Graph B displays the distribution of Industry divisions 21 and 20 within the manufacturing sector at constant prices. Notably, Industry division 20 contributes 8% to the total GVA of the manufacturing sector. Within Industry division 20, the corporate sector accounts for a substantial 99% of the GVA.

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# Section - I

## Chemical Sector

**Table 1: Performance of Selected Major Chemicals (Group-Wise) during 2015-16 to 2022-23 at a Glance**

*(Figures in 000'MT)*

| Group | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | Trend line | CAGR (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
| **1. Alkali Chemicals** | | | | | | | | | | |
| Capacity | 8422 | 8822 | 9274 | 9422 | 10089 | 10473 | 10889 | 11100 | | 4.02 |
| Production | 6802 | 7009 | 7631 | 8043 | 8457 | 7776 | 9041 | 9493 | | 4.88 |
| Capacity Utilisation (%) | 80.8 | 79.4 | 82.3 | 85.4 | 83.8 | 74.2 | 83.0 | 85.5 | | |
| Imports | 1118 | 1121 | 1194 | 1049 | 1157 | 968 | 767 | 713 | | -6.22 |
| Exports | 107 | 154 | 273 | 239 | 329 | 429 | 598 | 1336 | | 43.47 |
| **2. Inorganic Chemicals** | | | | | | | | | | |
| Capacity | 1316 | 1313 | 1315 | 1300 | 1538 | 1560 | 1575 | 1575 | | 2.59 |
| Production | 1002 | 1053 | 1058 | 1064 | 1063 | 978 | 1052 | 1058 | | 0.79 |
| Capacity Utilisation (%) | 76.1 | 80.2 | 80.5 | 81.8 | 69.2 | 62.7 | 66.8 | 67.2 | | |
| Imports | 1010 | 1010 | 1229 | 1580 | 1532 | 1188 | 1345 | 1351 | | 4.25 |
| Exports | 157 | 378 | 173 | 177 | 196 | 195 | 273 | 674 | | 23.18 |
| **3. Organic Chemicals** | | | | | | | | | | |
| Capacity | 2580 | 2529 | 2535 | 2575 | 2671 | 2716 | 2800 | 2905 | | 1.71 |
| Production | 1589 | 1638 | 1799 | 1884 | 1847 | 1906 | 1953 | 1912 | | 2.68 |
| Capacity Utilisation (%) | 61.6 | 64.8 | 71.0 | 73.2 | 69.1 | 70.2 | 69.7 | 65.8 | | |
| Imports | 3143 | 3170 | 3407 | 3645 | 3775 | 3716 | 4160 | 4701 | | 5.92 |
| Exports | 232 | 190 | 205 | 233 | 245 | 296 | 310 | 608 | | 14.76 |
| **4. Pesticides (Tech.)** | | | | | | | | | | |
| Capacity | 307 | 322 | 325 | 324 | 334 | 371 | 380 | 389 | | 3.41 |
| Production | 188 | 214 | 213 | 217 | 192 | 255 | 299 | 258 | | 4.67 |
| Capacity Utilisation (%) | 61.0 | 66.5 | 65.4 | 66.9 | 57.6 | 68.7 | 78.8 | 66.4 | | |
| Imports | 34 | 43 | 44 | 49 | 43 | 66 | 60 | 67 | | 10.34 |
| Exports | 267 | 342 | 358 | 405 | 398 | 471 | 568 | 1080 | | 22.09 |
| **5. Dyes & Pigments** | | | | | | | | | | |
| Capacity | 456 | 471 | 478 | 492 | 528 | 532 | 533 | 570 | | 3.24 |
| Production | 304 | 320 | 367 | 382 | 384 | 327 | 398 | 318 | | 0.63 |
| Capacity Utilisation (%) | 66.7 | 68.1 | 76.8 | 77.6 | 72.8 | 61.6 | 74.7 | 55.8 | | |
| Imports | 55 | 56 | 63 | 56 | 51 | 45 | 54 | 45 | | -2.86 |
| Exports | 376 | 419 | 486 | 525 | 530 | 514 | 591 | 930 | | 13.81 |
| **Total Major Chemicals (1 to 5)** | | | | | | | | | | |
| **Capacity** | **13082** | **13456** | **13927** | **14112** | **15160** | **15652** | **16178** | **16538** | | 3.41 |
| **Production** | **9884** | **10234** | **11069** | **11589** | **11943** | **11243** | **12743** | **13039** | | 4.04 |
| **Capacity Utilisation (%)** | **75.6** | **76.1** | **79.5** | **82.1** | **78.8** | **71.8** | **78.8** | **78.8** | | |
| **Imports** | **5360** | **5400** | **5937** | **6379** | **6557** | **5983** | **6385** | **6878** | | 3.63 |
| **Exports** | **1138** | **1484** | **1496** | **1579** | **1698** | **1905** | **2339** | **4627** | | 22.18 |

***Note: 1.*** *Production and Installed Capacity data based on MPRs received from manufacturer of chemicals under large and medium scale units only monitored by S&M Division of DCPC.*

***2.*** *Data Source in respect of imports and exports is DGCIS, Kolkata, M/o Commerce and Industry.*

***3.*** *Import and Export includes both technical and formulations.*

**Table 1A: Projection of Production, Installed Capacity, Export and Import of Selected Major Chemical (Group-wise) from the year 2023-24 to 2028-29**

(Figures in 000'MT)

| | Actual Values | | | | | | Forecast Values | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Group** | **2017-18** | **2018-19** | **2019-20** | **2020-21** | **2021-22** | **2022-23** | **2023-24** | **2024-25** | **2025-26** | **2026-27** | **2027-28** | **2028-29** |
| **(1)** | **(2)** | **(3)** | **(4)** | **(5)** | **(6)** | **(7)** | **(8)** | **(9)** | **(10)** | **(11)** | **(12)** | **(13)** |
| **1. Alkali Chemicals** | | | | | | | | | | | | |
| Capacity | 9274 | 9422 | 10089 | 10473 | 10889 | 11100 | 11599 | 12029 | 12359 | 12743 | 13134 | 13554 |
| Production | 7631 | 8043 | 8457 | 7776 | 9041 | 9493 | 9569 | 9930 | 10364 | 10930 | 11130 | 11506 |
| Capacity Utilisation (%) | 82.3 | 85.4 | 83.8 | 74.2 | 83.0 | 85.5 | 82.5 | 82.6 | 83.9 | 85.8 | 84.7 | 84.9 |
| Imports | 1194 | 1049 | 1157 | 968 | 767 | 713 | 631 | 518 | 366 | 277 | 185 | 63 |
| Exports | 273 | 239 | 329 | 429 | 598 | 1336 | 1183 | 1476 | 1765 | 2047 | 2284 | 2444 |
| **2. Inorganic Chemicals** | | | | | | | | | | | | |
| Capacity | 1315 | 1300 | 1538 | 1560 | 1575 | 1575 | 1692 | 1749 | 1760 | 1815 | 1875 | 1933 |
| Production | 1058 | 1064 | 1063 | 978 | 1052 | 1058 | 1033 | 1032 | 1038 | 1054 | 1039 | 1039 |
| Capacity Utilisation (%) | 80.5 | 81.8 | 69.2 | 62.7 | 66.8 | 67.2 | 61.1 | 59.0 | 59.0 | 58.0 | 55.4 | 53.8 |
| Imports | 1229 | 1580 | 1532 | 1188 | 1345 | 1351 | 1327 | 1223 | 1216 | 1250 | 1187 | 1152 |
| Exports | 173 | 177 | 196 | 195 | 273 | 674 | 561 | 689 | 828 | 966 | 1071 | 1132 |
| **3. Organic Chemicals** | | | | | | | | | | | | |
| Capacity | 2535 | 2575 | 2671 | 2716 | 2800 | 2905 | 2958 | 3041 | 3117 | 3201 | 3275 | 3348 |
| Production | 1799 | 1884 | 1847 | 1906 | 1953 | 1912 | 1966 | 1976 | 2005 | 2015 | 2032 | 2062 |
| Capacity Utilisation (%) | 71.0 | 73.2 | 69.1 | 70.2 | 69.7 | 65.8 | 66.5 | 65.0 | 64.3 | 63.0 | 62.0 | 61.6 |
| Imports | 3407 | 3645 | 3775 | 3716 | 4160 | 4701 | 4696 | 4963 | 5277 | 5607 | 5824 | 6044 |
| Exports | 205 | 233 | 245 | 296 | 310 | 608 | 546 | 639 | 743 | 840 | 929 | 976 |
| **4. Pesticides (Tech.)** | | | | | | | | | | | | |
| Capacity | 325 | 324 | 334 | 371 | 380 | 389 | 406 | 426 | 442 | 453 | 470 | 487 |
| Production | 213 | 217 | 192 | 255 | 299 | 258 | 293 | 315 | 337 | 342 | 355 | 382 |
| Capacity Utilisation (%) | 65.4 | 66.9 | 57.6 | 68.7 | 78.8 | 66.4 | 72.1 | 73.9 | 76.4 | 75.5 | 75.4 | 78.4 |
| Imports | 44 | 49 | 43 | 66 | 60 | 67 | 72 | 78 | 84 | 86 | 94 | 98 |
| Exports | 358 | 405 | 398 | 471 | 568 | 1080 | 963 | 1141 | 1340 | 1522 | 1675 | 1772 |
| **5. Dyes & Pigments** | | | | | | | | | | | | |
| Capacity | 478 | 492 | 528 | 532 | 533 | 570 | 581 | 596 | 609 | 629 | 648 | 660 |
| Production | 367 | 382 | 384 | 327 | 398 | 318 | 337 | 323 | 312 | 308 | 285 | 287 |
| Capacity Utilisation (%) | 76.8 | 77.6 | 72.8 | 61.6 | 74.7 | 55.8 | 58.1 | 54.2 | 51.3 | 49.0 | 43.9 | 43.5 |
| Imports | 63 | 56 | 51 | 45 | 54 | 45 | 42 | 40 | 39 | 37 | 32 | 31 |
| Exports | 486 | 525 | 530 | 514 | 591 | 930 | 836 | 937 | 1057 | 1177 | 1263 | 1314 |
| **Total Major Chemicals (1 to 5)** | | | | | | | | | | | | |
| **Capacity** | **13927** | **14112** | **15160** | **15652** | **16178** | **16538** | **17236** | **17841** | **18285** | **18840** | **19402** | **19982** |
| **Production** | **11069** | **11589** | **11943** | **11243** | **12743** | **13039** | **13199** | **13576** | **14057** | **14649** | **14840** | **15277** |
| **Capacity Utilisation (%)** | **79.5** | **82.1** | **78.8** | **71.8** | **78.8** | **78.8** | **76.6** | **76.1** | **76.9** | **77.8** | **76.5** | **76.5** |
| **Imports** | **5937** | **6379** | **6557** | **5983** | **6385** | **6878** | **6768** | **6823** | **6983** | **7257** | **7322** | **7390** |
| **Exports** | **1496** | **1579** | **1698** | **1905** | **2339** | **4627** | **4088** | **4883** | **5733** | **6552** | **7221** | **7638** |

***Note: 1.*** *Production and Installed Capacity data based on MPRs received from manufacturer under large and medium scale units only monitored by S&M Division of DCPC.*

**2.** Data Source in respect of imports and exports is DGCIS, Kolkata, M/o Commerce and Industry.

**3.** $ Imports and Exports includes both technical and formulations.

***4.*** *Projected figures have been calculated by using Linear regression in MS Excel.(Y=aX+b)*

**Table 2: Production, Installed Capacity & Growth of Selected Major Chemicals (Group-wise) during 2015-16 to 2022-23**

*(Figures in 000'MT)*

| Groups | Installed Capacity | | | Production / Growth Rate | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2020-21 | 2021-22 | 2022-23 | | | | | | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| **Alkali Chemicals** | 10473 | 10889 | 11100 | Production | 6802 | 7009 | 7631 | 8043 | 8457 | 7776 | 9041 | 9493 |
| | | | | Growth Rate (%) | 2.7 | 3.0 | 8.9 | 5.4 | 5.1 | -8.0 | 16.3 | 5.0 |
| **Inorganic Chemicals** | 1560 | 1575 | 1575 | Production | 1002 | 1053 | 1058 | 1064 | 1063 | 978 | 1052 | 1058 |
| | | | | Growth Rate (%) | 6.1 | 5.1 | 0.5 | 0.5 | 0.0 | -8.1 | 7.6 | 0.6 |
| **Organic Chemicals** | 2716 | 2800 | 2905 | Production | 1589 | 1638 | 1799 | 1884 | 1847 | 1906 | 1953 | 1912 |
| | | | | Growth Rate (%) | -1.9 | 3.1 | 9.8 | 4.8 | -2.0 | 3.2 | 2.5 | -2.1 |
| **Pesticides** | 371 | 380 | 389 | Production | 188 | 214 | 213 | 217 | 192 | 255 | 299 | 258 |
| | | | | Growth Rate (%) | 0.6 | 14.0 | -0.5 | 1.9 | -11.3 | 32.8 | 17.3 | -13.8 |
| **Dyes & Pigments** | 532 | 533 | 570 | Production | 304 | 320 | 367 | 382 | 384 | 327 | 398 | 318 |
| | | | | Growth Rate (%) | 6.7 | 5.3 | 14.7 | 3.9 | 0.7 | -14.8 | 21.5 | -20.1 |

***Note:*** *Production and Installed Capacity data based on MPRs received from manufacturer of chemicals under large and medium scale units only monitored by S&M Division of DCPC.*

**Table 3: Production, Capacity Utilization & Growth of Major Chemicals (Product-wise) during 2015-16 to 2022-23**

*(Figures in 000'MT)*

| Major Groups / Products | Installed Capacity | | | Production | | | | | | | | CAGR (%) | Capacity Utilization in 2022-23 (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2020-21 | 2021-22 | 2022-23 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | | |
| (1) | (3) | (4) | (5) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
| **1. Alkali Chemicals** | | | | | | | | | | | | | |
| SODA ASH | 3614 | 3614 | 3714 | 2583 | 2613 | 2990 | 3048 | 3069 | 2638 | 3079 | 3219 | 3.2 | 86.7 |
| CAUSTIC SODA | 3898 | 4151 | 4227 | 2504 | 2594 | 2742 | 2925 | 3137 | 2964 | 3463 | 3604 | 5.3 | 85.3 |
| LIQUID CHLORINE | 2961 | 3124 | 3158 | 1715 | 1801 | 1899 | 2069 | 2250 | 2174 | 2499 | 2669 | 6.5 | 84.5 |
| **Total** | **10473** | **10889** | **11100** | **6802** | **7009** | **7631** | **8043** | **8457** | **7776** | **9041** | **9493** | **4.9** | **85.5** |
| **2. Inorganic Chemicals** | | | | | | | | | | | | | |
| ALUMINIUM FLOURIDE | 25.6 | 25.6 | 25.6 | 9.5 | 8.1 | 7.5 | 5.7 | 5.1 | 3.7 | 8.9 | 5.3 | -8.0 | 20.7 |
| CALCIUM CARBIDE | 112.0 | 112.0 | 112.0 | 83.5 | 85.0 | 87.3 | 83.2 | 81.3 | 86.8 | 98.6 | 83.4 | 0.0 | 74.5 |
| CARBON BLACK | 696.0 | 696.0 | 696.0 | 469.6 | 535.3 | 530.4 | 546.4 | 500.1 | 384.8 | 456.5 | 447.0 | -0.7 | 64.2 |
| POTASSIUM CHLORATE | 28.6 | 28.6 | 28.6 | 0.4 | 0.0 | 0.3 | 0.7 | 16.2 | 17.1 | 17.7 | 14.2 | 66.2 | 49.8 |
| SODIUM CHLORATE | 22.3 | 22.3 | 22.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.9 | 21.1 | 23.2 | | 104.0 |
| TITANIUM DIOXIDE | 82.5 | 82.5 | 82.5 | 58.5 | 58.5 | 57.8 | 57.1 | 49.5 | 51.2 | 57.0 | 46.8 | -3.1 | 56.7 |
| RED PHOSPHORUS | 1.7 | 1.7 | 1.7 | 0.8 | 0.8 | 0.9 | 1.0 | 1.0 | 1.1 | 1.1 | 1.2 | 4.9 | 69.6 |
| HYDROXEN PEROXIDE | 218.6 | 221.8 | 221.3 | 153.1 | 148.9 | 157.0 | 156.5 | 122.8 | 139.9 | 143.5 | 184.4 | 2.7 | 83.3 |
| POTASSIUM IODATE | 1.2 | 1.2 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.5 | 0.6 | 0.5 | | 42.3 |
| CALCIUM CARBONATE | 371.5 | 383.5 | 383.5 | 226.1 | 216.3 | 217.2 | 213.3 | 286.8 | 274.8 | 246.8 | 252.4 | 1.6 | 65.8 |
| **Total** | **1560.1** | **1575.2** | **1574.7** | **1001.5** | **1052.9** | **1058.5** | **1063.8** | **1063.5** | **977.8** | **1051.8** | **1058.4** | **0.8** | **67.2** |
| **3. Organic Chemicals** | | | | | | | | | | | | | |
| ACETIC ACID | 142.0 | 142.0 | 165.5 | 157.9 | 158.5 | 157.1 | 153.8 | 167.9 | 154.8 | 166.6 | 165.5 | 0.7 | 100.0 |
| ACETIC ANHYDRIDE | 119.2 | 119.2 | 124.7 | 93.0 | 94.8 | 97.1 | 95.5 | 74.1 | 75.1 | 78.4 | 97.9 | 0.7 | 78.5 |
| ACETONE | 47.1 | 47.1 | 47.1 | 25.0 | 26.8 | 32.9 | 40.7 | 36.3 | 39.0 | 36.1 | 34.0 | 4.5 | 72.1 |
| PHENOL | 76.8 | 76.8 | 76.8 | 40.4 | 43.6 | 53.4 | 65.4 | 57.9 | 61.3 | 58.2 | 55.0 | 4.5 | 71.6 |
| METHANOL | 474.3 | 474.3 | 474.3 | 162.6 | 177.0 | 260.5 | 271.9 | 176.0 | 234.0 | 167.7 | 69.3 | -11.5 | 14.6 |
| FORMALDEHYDE | 397.8 | 451.8 | 435.3 | 242.1 | 244.2 | 248.2 | 226.6 | 260.4 | 244.7 | 293.1 | 301.1 | 3.2 | 69.2 |
| NITROBENZENE | 126.5 | 126.5 | 126.5 | 68.4 | 69.7 | 71.4 | 68.8 | 61.1 | 76.1 | 82.8 | 64.5 | -0.8 | 51.0 |
| MALEIC ANHYDRIDE | 7.7 | 7.7 | 7.7 | 3.5 | 3.5 | 3.3 | 4.6 | 5.0 | 5.4 | 6.3 | 6.9 | 10.0 | 90.1 |
| PENTAERYTHRITOL | 15.8 | 17.4 | 17.4 | 14.0 | 14.0 | 14.1 | 15.0 | 15.2 | 11.7 | 16.3 | 15.6 | 1.6 | 89.6 |
| ANILINE | 54.1 | 54.1 | 54.1 | 39.4 | 41.5 | 41.9 | 37.9 | 25.4 | 33.5 | 39.7 | 22.2 | -7.9 | 41.0 |
| CHLORO METHANES | 331.0 | 346.0 | 438.5 | 220.2 | 221.5 | 222.4 | 285.5 | 296.9 | 327.0 | 340.8 | 411.6 | 9.3 | 93.9 |
| ISOBUTYLBENZENE | 16.8 | 16.8 | 16.8 | 7.2 | 6.9 | 9.0 | 9.7 | 9.4 | 12.7 | 8.5 | 9.6 | 4.1 | 57.2 |
| ONCB | 30.0 | 30.0 | 30.0 | 19.3 | 22.6 | 24.9 | 23.7 | 19.8 | 23.3 | 26.7 | 27.1 | 5.0 | 90.3 |
| PNCB | 48.4 | 48.4 | 48.4 | 31.3 | 34.2 | 37.8 | 36.1 | 31.9 | 38.9 | 43.7 | 46.2 | 5.7 | 95.4 |
| MEK | 10.0 | 10.0 | 10.0 | 5.8 | 6.5 | 6.4 | 7.0 | 9.8 | 8.0 | 8.9 | 8.3 | 5.5 | 83.5 |
| ACETALDEHYDE | 151.0 | 152.0 | 152.0 | 59.0 | 60.5 | 65.7 | 61.9 | 77.1 | 56.0 | 72.5 | 77.7 | 4.0 | 51.1 |
| ETHANOLAMINES | 27.0 | 27.0 | 27.0 | 13.2 | 13.1 | 13.2 | 16.7 | 15.4 | 16.7 | 21.0 | 19.7 | 5.8 | 72.9 |
| ETHYL ACETATE | 562.1 | 575.1 | 575.1 | 360.4 | 371.3 | 411.5 | 440.6 | 473.4 | 453.1 | 445.4 | 438.3 | 2.8 | 76.2 |
| MENTHOL | 33.7 | 33.7 | 33.7 | 14.7 | 14.5 | 13.7 | 6.2 | 7.4 | 7.5 | 10.3 | 6.4 | -11.3 | 18.9 |
| ORTHO NITRO TOLUENE | 44.8 | 44.8 | 44.8 | 11.5 | 13.8 | 14.4 | 16.9 | 26.0 | 27.7 | 29.9 | 34.9 | 17.1 | 77.9 |
| **Total** | **2715.9** | **2800.5** | **2905.4** | **1588.8** | **1638.4** | **1798.9** | **1884.4** | **1846.6** | **1906.3** | **1953.0** | **1911.5** | **2.7** | **65.8** |
| **4. Pesticides and Insecticides** | | | | | | | | | | | | | |
| D.D.T. | 6.3 | 6.3 | 6.3 | 2.1 | 2.3 | 1.3 | 1.4 | 1.1 | 0.6 | 0.7 | 0.3 | -25.0 | 4.4 |
| MALATHION | 3.8 | 3.8 | 3.8 | 2.0 | 2.3 | 3.3 | 4.4 | 3.8 | 3.8 | 3.3 | 2.8 | 4.8 | 74.7 |
| DIMETHOATE | 1.5 | 1.5 | 1.5 | 1.4 | 1.4 | 1.2 | 1.3 | 1.4 | 1.5 | 1.4 | 1.0 | -4.9 | 69.9 |

| Major Groups / Products | Installed Capacity | | | Production | | | | | | | | CAGR (%) | Capacity Utilization in 2022-23 (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2020-21 | 2021-22 | 2022-23 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | | |
| (1) | (3) | (4) | (5) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
| D.D.V.P. | 33.6 | 33.6 | 33.6 | 7.2 | 8.1 | 8.1 | 9.1 | 0.0 | 0.9 | 0.4 | 0.0 | -52.1 | 0.1 |
| QUINALPHOS | 3.4 | 3.4 | 3.4 | 0.8 | 1.3 | 1.2 | 0.9 | 0.9 | 1.1 | 2.5 | 0.6 | -4.7 | 17.7 |
| MONOCROTOPHOS | 13.9 | 13.9 | 13.9 | 5.5 | 6.6 | 5.5 | 5.3 | 5.8 | 7.9 | 7.5 | 5.1 | -1.0 | 36.6 |
| PHOSPHAMIDON | 2.0 | 2.0 | 2.0 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -100.0 | 0.0 |
| PHORATE | 12.4 | 6.6 | 6.6 | 5.9 | 5.9 | 7.0 | 5.8 | 0.0 | 0.0 | 0.0 | 0.0 | -100.0 | 0.0 |
| ETHION | 2.8 | 2.8 | 2.8 | 1.7 | 2.1 | 2.4 | 1.3 | 2.1 | 2.2 | 2.8 | 2.3 | 4.5 | 83.3 |
| FENVALERATE | 5.0 | 5.0 | 5.0 | 0.6 | 0.5 | 0.7 | 0.7 | 0.7 | 0.5 | 0.7 | 0.5 | -1.5 | 10.1 |
| CYPERMETHRIN | 23.8 | 24.7 | 26.8 | 8.5 | 7.9 | 8.2 | 11.0 | 10.9 | 12.3 | 16.5 | 10.9 | 3.5 | 40.6 |
| ACEPHATE | 20.5 | 20.5 | 20.5 | 16.6 | 16.3 | 18.3 | 19.6 | 21.1 | 29.6 | 29.6 | 33.4 | 10.5 | 162.9 |
| CHLORPYRIPHOS | 13.8 | 13.4 | 13.4 | 6.9 | 5.9 | 8.0 | 7.1 | 6.5 | 8.5 | 7.6 | 8.5 | 3.0 | 63.1 |
| TRIAZOPHOS | 3.4 | 3.4 | 3.4 | 1.7 | 2.4 | 1.5 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | -100.0 | 0.0 |
| TEMEPHOS | 0.3 | 0.3 | 0.3 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | -3.0 | 25.6 |
| DELTAMETHRIN | 0.8 | 0.9 | 1.0 | 0.4 | 0.4 | 0.6 | 0.7 | 0.7 | 0.6 | 0.7 | 0.7 | 9.9 | 72.5 |
| ALPHAMETHRIN | 0.5 | 0.6 | 0.6 | 0.2 | 0.1 | 0.3 | 0.3 | 0.4 | 0.5 | 0.5 | 0.5 | 11.3 | 75.8 |
| PROFENOFOS TECHNICAL | 10.5 | 17.3 | 17.4 | 6.9 | 10.5 | 9.9 | 12.5 | 12.4 | 16.1 | 16.2 | 16.1 | 13.0 | 92.5 |
| PRETILACHLOR TECHNICAL | 4.2 | 4.2 | 4.5 | 1.9 | 2.6 | 3.6 | 3.6 | 3.1 | 3.6 | 3.2 | 3.5 | 8.6 | 77.1 |
| LAMBDA CYHALOTHRIN | 3.2 | 3.2 | 3.8 | 0.4 | 0.7 | 1.1 | 0.6 | 2.3 | 1.7 | 2.7 | 3.1 | 33.1 | 82.3 |
| PHENTHOATE | 0.9 | 0.9 | 0.9 | 1.1 | 1.1 | 1.3 | 1.5 | 1.4 | 1.3 | 1.8 | 1.8 | 7.1 | 199.7 |
| PERMETHRIN TECH | 1.8 | 1.8 | 1.9 | 1.3 | 1.1 | 1.5 | 1.9 | 1.2 | 1.7 | 2.5 | 3.6 | 15.6 | 187.3 |
| IMIDACALOPRID TECH | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | -53.1 | 0.7 |
| CAPTAN & CAPTAFOL | 3.4 | 3.4 | 3.4 | 2.1 | 1.8 | 1.8 | 1.9 | 1.5 | 1.5 | 1.9 | 1.6 | -3.6 | 47.6 |
| ZIRAM(THIO BARBAMATE) | 0.7 | 0.7 | 0.7 | 0.5 | 0.6 | 0.7 | 0.8 | 0.6 | 0.9 | 0.7 | 0.6 | 2.1 | 84.2 |
| CARBENDZIM(BAVISTIN) | 0.8 | 0.8 | 0.8 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -100.0 | 0.0 |
| MANCOZAB | 119.8 | 121.8 | 121.8 | 66.4 | 78.5 | 70.2 | 69.3 | 60.9 | 97.4 | 118.7 | 83.6 | 3.4 | 68.7 |
| HEXACONAZOLE | 1.7 | 2.8 | 3.5 | 0.6 | 0.5 | 0.6 | 0.5 | 0.8 | 0.8 | 1.3 | 0.6 | -0.2 | 17.7 |
| METCONAZOLE | 0.8 | 0.5 | 0.5 | 0.4 | 0.4 | 0.4 | 0.3 | 0.2 | 0.2 | 0.2 | 0.3 | -1.6 | 69.4 |
| 2, 4-D | 27.0 | 30.0 | 30.0 | 18.5 | 23.4 | 25.8 | 24.2 | 22.6 | 27.1 | 40.0 | 42.0 | 12.5 | 139.9 |
| BUTACHLOR | 0.5 | 0.5 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -100.0 | 0.0 |
| ETHOFUMESATE TECHNICAL | 1.7 | 1.7 | 2.0 | 0.5 | 1.0 | 1.3 | 1.0 | 0.8 | 0.4 | 0.7 | 0.9 | 8.6 | 45.7 |
| THIAMETHOXAM TECHNICAL | 5.1 | 5.1 | 6.3 | 1.9 | 2.5 | 3.3 | 5.6 | 6.2 | 5.2 | 6.6 | 6.4 | 18.9 | 101.7 |
| PENDIMETHALIN | 5.8 | 6.6 | 7.4 | 2.8 | 4.0 | 3.8 | 2.8 | 2.8 | 3.6 | 4.8 | 4.7 | 7.5 | 63.2 |
| METRIBUZIN | 2.5 | 2.9 | 3.8 | 0.9 | 1.1 | 0.9 | 1.9 | 2.6 | 3.2 | 2.0 | 2.3 | 14.5 | 60.8 |
| TRICLOPYR ACID TECH | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.1 | 0.1 | 0.0 | 0.4 | 0.2 | -7.9 | 56.3 |
| ISOPROTURON | 6.0 | 6.0 | 6.0 | 2.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -100.0 | 0.0 |
| GLYPHOSATE | 12.9 | 12.9 | 12.9 | 7.0 | 6.4 | 6.3 | 6.7 | 5.9 | 6.1 | 5.7 | 4.7 | -5.5 | 36.4 |
| DIURON | 6.0 | 6.0 | 6.0 | 1.3 | 3.7 | 3.3 | 3.6 | 3.4 | 3.4 | 2.3 | 3.5 | 15.8 | 58.4 |
| ATRAZIN | 1.2 | 1.2 | 2.4 | 1.2 | 1.9 | 2.2 | 1.5 | 1.7 | 1.6 | 1.7 | 3.1 | 14.2 | 127.6 |
| ZINC PHOSPHIDE | 1.9 | 1.9 | 1.9 | 1.5 | 1.3 | 1.4 | 1.3 | 1.3 | 1.5 | 2.0 | 1.5 | -0.1 | 77.5 |
| ALUMINIUM PHOSPHIDE | 4.7 | 4.7 | 4.7 | 5.7 | 6.4 | 4.8 | 4.9 | 4.9 | 7.6 | 9.9 | 7.4 | 3.6 | 155.4 |
| DICOFOL | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | -100.0 | 0.0 |
| **Total** | **371.5** | **380.1** | **388.6** | **187.5** | **213.7** | **212.7** | **216.7** | **192.1** | **255.1** | **299.3** | **258.1** | **4.7** | **66.4** |
| **5. Dyes and Pigments** | | | | | | | | | | | | | |
| AZO DYES | 21.1 | 21.1 | 18.9 | 9.8 | 10.0 | 11.0 | 9.0 | 8.5 | 6.6 | 9.1 | 7.6 | -3.5 | 40.5 |
| ACID DIRECT DYES(OTHER THAN AZO) | 40.9 | 40.9 | 46.0 | 20.6 | 19.9 | 21.2 | 24.1 | 22.7 | 20.2 | 24.0 | 21.2 | 0.4 | 46.0 |
| DISPERSE DYES | 77.9 | 77.9 | 92.3 | 43.6 | 41.4 | 46.7 | 55.2 | 61.9 | 51.8 | 65.9 | 60.4 | 4.8 | 65.5 |

| Major Groups / Products | Installed Capacity | | | Production | | | | | | | | CAGR (%) | Capacity Utilization in 2022-23 (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2020-21 | 2021-22 | 2022-23 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | | |
| (1) | (3) | (4) | (5) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
| FAST COLOUR BASES | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| INGRAIN DYES | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -100.0 | |
| OIL SOLUBLE (SOLVENT DYES) | 3.6 | 3.6 | 1.2 | 2.2 | 2.2 | 2.1 | 2.3 | 2.4 | 0.4 | 0.7 | 0.5 | -19.7 | 39.4 |
| OPTICAL WHITENING AGENTS | 67.7 | 67.7 | 67.7 | 24.7 | 23.8 | 23.2 | 29.3 | 20.7 | 18.2 | 22.5 | 16.8 | -5.4 | 24.8 |
| ORGANIC PIGMENT | 88.4 | 88.4 | 89.0 | 61.3 | 63.7 | 73.3 | 73.9 | 75.1 | 67.3 | 74.3 | 55.6 | -1.4 | 62.5 |
| PIGMENT EMULSION | 5.4 | 5.4 | 3.8 | 9.7 | 10.6 | 10.2 | 9.8 | 9.7 | 8.6 | 9.3 | 8.3 | -2.1 | 220.7 |
| REACTIVE DYES | 196.3 | 197.5 | 216.5 | 106.2 | 121.0 | 151.9 | 151.4 | 156.7 | 132.1 | 161.9 | 117.2 | 1.4 | 54.1 |
| SULPHUR DYES (SULPHUR BLACK) | 8.2 | 8.2 | 13.2 | 9.6 | 10.1 | 7.3 | 7.5 | 7.4 | 5.1 | 8.6 | 10.7 | 1.6 | 80.9 |
| VAT DYES | 2.9 | 2.9 | 3.3 | 1.4 | 1.5 | 1.7 | 1.8 | 2.1 | 2.0 | 2.3 | 2.4 | 7.8 | 73.1 |
| SOLUBILISED VAT DYES | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -100.0 | |
| FOOD COLOURS | 0.0 | 0.0 | 0.0 | 0.7 | 0.8 | 0.8 | 0.8 | 0.7 | 0.5 | 0.7 | 0.9 | 3.8 | |
| NAPTHOLS | 0.9 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| INORGANIC PIGMENTS | 18.1 | 18.1 | 18.1 | 14.2 | 15.4 | 17.9 | 16.3 | 16.1 | 14.6 | 18.6 | 16.4 | 2.1 | 90.9 |
| **Total** | **531.5** | **532.7** | **570.0** | **304.3** | **320.3** | **367.2** | **381.5** | **384.2** | **327.5** | **398.0** | **318.1** | **0.6** | **55.8** |
| **Total (All Groups)** | **15652.4** | **16177.8** | **16538.2** | **9883.9** | **10233.9** | **11068.6** | **11589.1** | **11943.2** | **11243.1** | **12743.1** | **13038.8** | **4.0** | **78.8** |

***Note:*** *Production and Installed Capacity data based on MPRs received from manufacturer under large and medium scale units only monitored by S&M Division of DCPC.*

**Table 4: Installed Capacities of Selected Chemicals (Group-Wise) from 2015-16 to 2022-23**

*(Figures in 000'MT)*

| Group | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 |
|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| **1. Alkali Chemicals** | 8422 | 8822 | 9274 | 9422 | 10089 | 10473 | 10889 | 11100 |
| **2. Inorganic Chemicals** | 1316 | 1313 | 1315 | 1300 | 1538 | 1560 | 1575 | 1575 |
| **3. Organic Chemicals** | 2580 | 2529 | 2535 | 2575 | 2671 | 2716 | 2800 | 2905 |
| **4. Pesticides (Tech.)** | 307 | 322 | 325 | 324 | 334 | 371 | 380 | 389 |
| **5. Dyes & Pigments** | 456 | 471 | 478 | 492 | 528 | 532 | 533 | 570 |
| **Total Major Chemicals** | **13082** | **13456** | **13927** | **14112** | **15160** | **15652** | **16178** | **16538** |

***Note:*** *Installed Capacity data based on MPRs received from manufacturer of chemicals under large and medium scale units only monitored by S&M Division of DCPC.*

**Table 5: Consumption of Selected Major Chemicals (Product-Wise) during 2015-16 to 2022-23**

*(Figures in 000'MT)*

| Products | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 |
|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| **Alkali Chemicals** | | | | | | | | |
| SODA ASH | 3197.7 | 3244.3 | 3652.1 | 3826.3 | 3779.4 | 3208.1 | 3391.4 | 3592.9 |
| CAUSTIC SODA | 2905.9 | 2935.5 | 3004.0 | 2961.5 | 3258.8 | 2936.8 | 3323.0 | 3282.1 |
| LIQUID CHLORINE | 1709.3 | 1795.6 | 1895.7 | 2064.7 | 2246.3 | 2170.5 | 2495.2 | 2663.2 |
| **Total** | **7812.9** | **7975.5** | **8551.8** | **8852.5** | **9284.5** | **8315.4** | **9209.6** | **9538.2** |
| **Inorganic Chemicals** | | | | | | | | |
| ALUMINIUM FLUORIDE | 35.0 | 54.4 | 57.1 | 67.6 | 44.1 | 62.9 | 82.3 | 59.6 |
| CALCIUM CARBIDE | 145.0 | 140.2 | 142.5 | 128.2 | 112.2 | 119.3 | 119.8 | 104.8 |
| CARBON BLACK | 479.0 | 331.8 | 594.3 | 702.1 | 553.6 | 436.5 | 408.9 | 349.2 |
| POTASSIUM CHLORATE | 2.8 | -1.5 | -1.6 | -2.2 | 13.1 | 15.4 | 15.7 | 11.5 |
| SODIUM CHLORATE | 17.3 | 7.3 | 7.7 | 13.4 | 24.1 | 29.5 | 37.8 | 45.0 |
| TITANIUM DIOXIDE | 70.5 | 64.2 | 62.0 | 64.3 | 59.7 | 58.1 | 66.0 | 60.4 |
| RED PHOSPHORUS | 0.4 | 0.3 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 | 0.5 |
| HYDROGEN PEROXIDE | 196.8 | 205.7 | 225.4 | 240.5 | 174.8 | 159.2 | 171.3 | 173.9 |
| POTASSIUM IODATE | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 0.5 | 0.6 | 0.5 |
| CALCIUM CARBONATE | 907.9 | 883.0 | 1026.5 | 1252.3 | 1416.9 | 1088.9 | 1221.2 | 1267.3 |
| **Total** | **1854.7** | **1685.4** | **2114.3** | **2466.6** | **2399.3** | **1970.8** | **2124.1** | **2072.8** |
| **Organic Chemicals** | | | | | | | | |
| ACETIC ACID | 942.3 | 993.4 | 1029.4 | 1073.3 | 1081.6 | 1048.4 | 1199.2 | 1255.0 |
| ACETIC ANHYDRIDE | 77.3 | 76.6 | 81.8 | 89.3 | 74.1 | 69.9 | 78.6 | 75.9 |
| ACETONE | 152.6 | 159.5 | 174.7 | 146.6 | 97.7 | 92.9 | 133.2 | 130.9 |
| PHENOL | 282.4 | 321.7 | 337.3 | 292.5 | 179.6 | 179.2 | 220.7 | 256.8 |
| METHANOL | 1830.5 | 1801.8 | 2034.3 | 2247.7 | 2449.4 | 2445.5 | 2547.0 | 2843.7 |
| FORMALDEHYDE | 233.7 | 235.9 | 237.7 | 214.1 | 246.3 | 229.4 | 276.6 | 284.8 |
| NITROBENZENE | 74.2 | 83.8 | 86.7 | 86.9 | 76.5 | 85.9 | 90.5 | 68.2 |
| CITRIC ACID | 74.5 | 80.0 | 81.9 | 93.0 | 88.5 | 92.7 | 94.4 | 128.3 |
| MALEIC ANHYDRIDE | 50.9 | 54.1 | 55.7 | 74.4 | 71.8 | 64.9 | 80.7 | 89.2 |
| PENTAERYTHRITOL | 31.8 | 31.4 | 30.0 | 31.1 | 33.9 | 23.9 | 30.1 | 30.7 |
| ANILINE | 77.6 | 85.9 | 107.1 | 126.2 | 106.3 | 106.2 | 131.7 | 123.5 |
| CHLORO METHANES | 220.8 | 221.7 | 222.9 | 286.9 | 299.3 | 329.4 | 342.6 | 412.9 |
| ISOBUTYLBENZENE | -5.3 | -6.5 | -3.4 | -2.0 | -0.3 | -3.4 | 0.0 | -4.7 |
| ONCB | 18.7 | 22.4 | 24.9 | 23.7 | 19.8 | 23.3 | 26.7 | 27.1 |
| PNCB | 38.0 | 39.3 | 37.8 | 36.1 | 31.9 | 38.9 | 43.7 | 46.2 |
| MEK | 46.5 | 37.3 | 51.7 | 53.7 | 35.1 | 50.5 | 51.2 | 57.4 |
| ACETALDEHYDE | 59.0 | 60.5 | 65.8 | 60.8 | 76.1 | 55.0 | 71.7 | 77.7 |
| ETHANOLAMINES | 22.2 | 23.1 | 24.5 | 30.2 | 30.4 | 33.0 | 36.5 | 32.9 |
| ETHYL ACETATE | 255.9 | 279.2 | 306.0 | 324.8 | 367.2 | 344.5 | 330.3 | 345.5 |
| MENTHOL | 6.8 | 4.0 | 2.3 | -5.8 | -6.6 | -8.0 | -5.4 | -2.1 |
| ORTHO NITRO TOLUENE | 10.5 | 13.3 | 12.0 | 12.7 | 18.8 | 24.0 | 23.1 | 28.7 |
| **Total** | **4500.6** | **4618.4** | **5001.0** | **5296.1** | **5377.4** | **5326.1** | **5802.8** | **6308.6** |

***Note: 1.*** *Production and Installed Capacity data based on MPRs received from manufacturer of chemicals under large and medium scale units only monitored by S&M Division of DCPC.*

***2.*** *Data Source in respect of Imports and Exports is DGCIS, Kolkata, M/o Commerce and Industry.*

***3.*** *Consumption is derived as Production + Imports - Exports*

**Table 5A: Consumption of Selected Pesticides (Tech. Grade) (State -wise) during 2018-19 to 2022-23**

*(Figures in MT)*

| S. No. | States/UTs | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 |
|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| 1 | Andhra Pradesh | 1689 | 1559 | 1559 | 1759 | 2001 |
| 2 | Bihar | 850 | 850 | 995 | 850 | 995 |
| 3 | Chhattisgarh | 1770 | 1672 | 1639 | 1740 | 1775 |
| 4 | Goa | 25 | 30 | 30 | 32 | 34 |
| 5 | Gujarat | 1608 | 1784 | 1573 | 1869 | 1750 |
| 6 | Haryana | 4015 | 4200 | 4050 | 4066 | 4066 |
| 7 | Himachal Pradesh | 322 | 881 | 56 | 279 | 470 |
| 8 | Jharkhand | 646 | 681 | 1161 | 450 | 450 |
| 9 | Karnataka | 1524 | 1568 | 1930 | 2224 | 1669 |
| 10 | Kerala | 995 | 656 | 585 | 532 | 504 |
| 11 | Madhya Pradesh | 540 | 540 | 691 | 654 | 598 |
| 12 | Maharashtra | 11746 | 12783 | 13243 | 13175 | 6814 |
| 13 | Orissa | 1609 | 1115 | 1158 | 1240 | 1348 |
| 14 | Punjab | 5543 | 4995 | 5193 | 5376 | 5130 |
| 15 | Rajasthan | 2290 | 2088 | 2330 | 2104 | 1865 |
| 16 | Tamil Nadu | 1901 | 2225 | 1834 | 1851 | 1952 |
| 17 | Telangana | 4894 | 4915 | 4986 | 4920 | 4920 |
| 18 | Uttar Pradesh | 11049 | 12217 | 11557 | 11688 | 11824 |
| 19 | Uttarakhand | 195 | 224 | 135 | 213 | 111 |
| 20 | West Bengal | 3190 | 3630 | 3630 | 3630 | 3321 |
| **Sub Total** | | **56402** | **58613** | **58336** | **58653** | **51597** |
| **North-Eastern States** | | | | | | |
| 21 | Arunachal Pradesh | 5 | 5 | 2 | 1 | NR |
| 22 | Assam | 256 | 410 | 420 | 474 | 455 |
| 23 | Manipur | NR | 25 | 46 | NR | NR |
| 24 | Meghalaya | Organic State | Organic State | Organic State | Organic State | Organic State |
| 25 | Mizoram | 26 | 27 | NR | 29 | 31 |
| 26 | Nagaland | 21 | 19 | 36 | 41 | NR |
| 27 | Sikkim | Organic State | Organic State | Organic State | Organic State | Organic State |
| 28 | Tripura | 349 | 364 | NR | NR | NR |
| **Sub Total** | | **657** | **851** | **503** | **545** | **485** |
| **Union Territories** | | | | | | |
| 29 | Andaman & Nicobar | NR | NR | 1 | NR | NR |
| 30 | Chandigarh | NR | NR | NR | NR | NR |
| 31 | Dadra & Nagar Haveli & Daman & Diu | NR | NR | NR | NR | NR |
| 32 | Delhi | 110 | NR | NR | NR | NR |
| 33 | Jammu & Kashmir | 2459 | 2198 | 3352 | 4086 | 384 |
| 34 | Ladakh | NR | NR | NR | NR | NR |
| 35 | Lakshadweep | NR | NR | NR | NR | NR |
| 36 | Pondicherry | 42 | 40 | NR | NR | NR |
| **Sub Total** | | **2611** | **2238** | **3353** | **4086** | **384** |
| **Grand Total** | | **59670** | **61702** | **62193** | **63284** | **52466** |

**Source:** Directorate of Plant Protection, Quarantine & Storage, Department of Agriculture & Farmers Welfare, Ministry of Agriculture & Farmers Welfare (*https://ppqs.gov.in* )

***NR-*** *Not reported*

# Section - II

## Petrochemical Sector

**Table 6: Performance of Basic Major Petrochemicals (Group Wise) during 2015-16 to 2022-23**

*(Figures in 000'MT)*

| Group | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | Trend Line | CAGR (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
| **1. Synthetic Fibre** | | | | | | | | | | |
| Capacity | 4452 | 4393 | 4379 | 4440 | 4521 | 4529 | 4483 | 4496 | | 0.1 |
| Production | 3558 | 3599 | 3625 | 3601 | 3893 | 3185 | 4040 | 3973 | | 1.6 |
| Capacity Utilisation (%) | 79.9 | 81.9 | 82.8 | 81.1 | 86.1 | 70.3 | 90.1 | 88.4 | | |
| Imports | 264 | 280 | 260 | 276 | 347 | 403 | 460 | 670 | | 14.3 |
| Exports | 878 | 1026 | 1001 | 1016 | 1059 | 879 | 1202 | 1518 | | 8.1 |
| **2. Polymers** | | | | | | | | | | |
| Capacity | 9768 | 10110 | 10112 | 10115 | 12754 | 12799 | 12820 | 12894 | | 4.0 |
| Production | 8839 | 9163 | 9276 | 10040 | 12404 | 12144 | 12471 | 11487 | | 3.8 |
| Capacity Utilisation (%) | 90.5 | 90.6 | 91.7 | 99.3 | 97.3 | 94.9 | 97.3 | 89.1 | | |
| Imports | 4214 | 4452 | 4751 | 4479 | 3430 | 2641 | 2941 | 4789 | | 1.8 |
| Exports | 998 | 912 | 1188 | 1934 | 1615 | 1489 | 921 | 1173 | | 2.3 |
| **3. Synthetic Rubber** | | | | | | | | | | |
| Capacity | 425 | 425 | 425 | 425 | 411 | 406 | 400 | 402 | | -0.8 |
| Production | 242 | 285 | 308 | 351 | 358 | 353 | 383 | 345 | | 5.2 |
| Capacity Utilisation (%) | 56.9 | 67.0 | 72.4 | 82.5 | 87.0 | 87.0 | 95.8 | 85.9 | | |
| Imports | 596 | 560 | 608 | 619 | 575 | 747 | 635 | 673 | | 1.8 |
| Exports | 43 | 38 | 52 | 64 | 74 | 95 | 90 | 141 | | 18.6 |
| **4. Synthetic Detergent Intermediates** | | | | | | | | | | |
| Capacity | 687 | 687 | 687 | 687 | 680 | 680 | 680 | 680 | | -0.2 |
| Production | 566 | 664 | 743 | 687 | 715 | 736 | 780 | 703 | | 3.1 |
| Capacity Utilisation (%) | 82.3 | 96.6 | 108.1 | 99.9 | 105.2 | 108.3 | 114.7 | 103.4 | | |
| Imports | 218 | 228 | 206 | 227 | 264 | 265 | 278 | 343 | | 6.7 |
| Exports | 10 | 7 | 1 | 1 | 1 | 2 | 7 | 5 | | -8.8 |
| **5. Performance Plastics** | | | | | | | | | | |
| Capacity | 3018 | 2945 | 2947 | 2963 | 2919 | 3046 | 3032 | 3096 | | 0.4 |
| Production | 1700 | 1799 | 1719 | 1589 | 1672 | 1520 | 1698 | 1628 | | -0.6 |
| Capacity Utilisation (%) | 56.3 | 61.1 | 58.3 | 53.6 | 57.3 | 49.9 | 56.0 | 52.6 | | |
| Imports | 389 | 417 | 583 | 684 | 741 | 299 | 283 | 292 | | -4.0 |
| Exports | 814 | 973 | 1051 | 1080 | 969 | 217 | 284 | 364 | | -10.9 |
| **Total Basic Major Petrochemicals (1 to 5)** | | | | | | | | | | |
| Capacity | **18351** | **18561** | **18551** | **18630** | **21286** | **21460** | **21415** | **21567** | | 2.3 |
| Production | **14905** | **15510** | **15671** | **16268** | **19042** | **17938** | **19372** | **18136** | | 2.8 |
| Capacity Utilisation (%) | **81.2** | **83.6** | **84.5** | **87.3** | **89.5** | **83.6** | **90.5** | **84.1** | | |
| Imports | **5681** | **5938** | **6408** | **6284** | **5356** | **4356** | **4597** | **6768** | | 2.5 |
| Exports | **2743** | **2956** | **3293** | **4095** | **3719** | **2681** | **2505** | **3200** | | 2.2 |

***Note : 1.*** *Production and Installed Capacity data based on MPRs received from manufacturer under large and medium scale units only monitored by S&M Division of DCPC.*

***2.*** *Data Source in respect of imports and exports is DGCIS, Kolkata, M/o Commerce and Industry.*

**Table 6A: Projection of Production, Installed Capacity, Export and Import of Major Petrochemical (Group-wise) from the year 2023-24 to 2028-29**

(Figures in 000'MT)

| Group | Actual Values | | | | | | Forcast values | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 | 2025-26 | 2026-27 | 2027-28 | 2028-29 |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| **1. Synthetic Fibre** | | | | | | | | | | | | |
| Capacity | 4379 | 4440 | 4521 | 4529 | 4483 | 4496 | 4547 | 4544 | 4538 | 4551 | 4572 | 4580 |
| Production | 3625 | 3601 | 3893 | 3185 | 4040 | 3973 | 3954 | 4061 | 4159 | 4387 | 4335 | 4465 |
| Capacity Utilisation (%) | 82.8 | 81.1 | 86.1 | 70.3 | 90.1 | 88.4 | 87.0 | 89.4 | 91.6 | 96.4 | 94.8 | 97.5 |
| Imports | 260 | 276 | 347 | 403 | 460 | 670 | 669 | 770 | 866 | 964 | 1054 | 1122 |
| Exports | 1001 | 1016 | 1059 | 879 | 1202 | 1518 | 1409 | 1547 | 1704 | 1881 | 1953 | 2043 |
| **2. Polymers** | | | | | | | | | | | | |
| Capacity | 10112 | 10115 | 12754 | 12799 | 12820 | 12894 | 14123 | 14632 | 14680 | 15265 | 15878 | 16418 |
| Production | 9276 | 10040 | 12404 | 12144 | 12471 | 11487 | 13112 | 13237 | 13084 | 13452 | 13789 | 14265 |
| Capacity Utilisation (%) | 91.7 | 99.3 | 97.3 | 94.9 | 97.3 | 89.1 | 92.8 | 90.5 | 89.1 | 88.1 | 86.8 | 86.9 |
| Imports | 4751 | 4479 | 3430 | 2641 | 2941 | 4789 | 3318 | 3457 | 3830 | 4098 | 4044 | 3821 |
| Exports | 1188 | 1934 | 1615 | 1489 | 921 | 1173 | 1062 | 740 | 626 | 506 | 434 | 209 |
| **3. Synthetic Rubber** | | | | | | | | | | | | |
| Capacity | 425 | 425 | 411 | 406 | 400 | 402 | 391 | 385 | 382 | 377 | 372 | 365 |
| Production | 308 | 351 | 358 | 353 | 383 | 345 | 377 | 373 | 376 | 380 | 380 | 390 |
| Capacity Utilisation (%) | 72.4 | 82.5 | 87.0 | 87.0 | 95.8 | 85.9 | 96.4 | 96.9 | 98.5 | 100.8 | 102.2 | 106.9 |
| Imports | 608 | 619 | 575 | 747 | 635 | 673 | 698 | 716 | 734 | 720 | 759 | 768 |
| Exports | 52 | 64 | 74 | 95 | 90 | 141 | 140 | 159 | 177 | 195 | 216 | 227 |
| **4. Synthetic Detergent Intermediates** | | | | | | | | | | | | |
| Capacity | 687 | 687 | 680 | 680 | 680 | 680 | 676 | 675 | 675 | 673 | 672 | 670 |
| Production | 743 | 687 | 715 | 736 | 780 | 703 | 737 | 752 | 749 | 744 | 742 | 759 |
| Capacity Utilisation (%) | 108.1 | 99.9 | 105.2 | 108.3 | 114.7 | 103.4 | 109.0 | 111.5 | 110.9 | 110.6 | 110.4 | 113.3 |
| Imports | 206 | 227 | 264 | 265 | 278 | 343 | 348 | 373 | 397 | 429 | 455 | 474 |
| Exports | 1 | 1 | 1 | 2 | 7 | 5 | 7 | 9 | 10 | 11 | 12 | 14 |
| **5. Performance Plastics** | | | | | | | | | | | | |
| Capacity | 2947 | 2963 | 2919 | 3046 | 3032 | 3096 | 3109 | 3152 | 3201 | 3220 | 3265 | 3297 |
| Production | 1719 | 1589 | 1672 | 1520 | 1698 | 1628 | 1610 | 1634 | 1628 | 1653 | 1622 | 1638 |
| Capacity Utilisation (%) | 58.3 | 53.6 | 57.3 | 49.9 | 56.0 | 52.6 | 51.8 | 51.9 | 50.9 | 51.3 | 49.7 | 49.7 |
| Imports | 583 | 684 | 741 | 299 | 283 | 292 | 170 | 19 | -98 | -129 | -249 | -371 |
| Exports | 1051 | 1080 | 969 | 217 | 284 | 364 | 3 | -227 | -386 | -448 | -682 | -904 |
| **Total Major Petrochemicals (1 to 5)** | | | | | | | | | | | | |
| **Capacity** | **18551** | **18630** | **21286** | **21460** | **21415** | **21567** | **22846** | **23388** | **23476** | **24086** | **24759** | **25330** |
| **Production** | **15671** | **16268** | **19042** | **17938** | **19372** | **18136** | **19791** | **20058** | **19996** | **20616** | **20868** | **21518** |
| **Capacity Utilisation (%)** | **84.5** | **87.3** | **89.5** | **83.6** | **90.5** | **84.1** | **86.6** | **85.8** | **85.2** | **85.6** | **84.3** | **84.9** |
| **Imports** | **6408** | **6284** | **5356** | **4356** | **4597** | **6768** | **5203** | **5334** | **5729** | **6082** | **6063** | **5814** |
| **Exports** | **3293** | **4095** | **3719** | **2681** | **2505** | **3200** | **2622** | **2227** | **2132** | **2145** | **1932** | **1590** |

***Note: 1.*** *Production and Installed Capacity data based on MPRs received from manufacturer under large and medium scale units only monitored by S&M Division of DCPC.*

**2.** Data Source in respect of imports and exports is DGCIS, Kolkata, M/o Commerce and Industry.

***3.*** *Projected figures have been calculated by using Forecast formula in MS Excel.*

**Table 7: Production, Installed Capacity & Growth of Major Petrochemicals (Group-wise) during 2015-16 to 2022-23**

*(Figures in 000' MT)*

| Group | Installed Capacity | | | Production / Growth Rate | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2020-21 | 2021-22 | 2022-23 | | | | | | | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| **1. Synthetic Fibre** | 4529 | 4483 | 4496 | Production | 3558 | 3599 | 3625 | 3601 | 3893 | 3185 | 4040 | 3973 |
| | | | | Growth Rate (%) | 0.7 | 1.2 | 0.7 | -0.7 | 8.1 | -18.2 | 26.9 | -1.7 |
| **2. Polymers** | 12799 | 12820 | 12894 | Production | 8839 | 9163 | 9276 | 10040 | 12404 | 12144 | 12471 | 11487 |
| | | | | Growth Rate (%) | 17.0 | 3.7 | 1.2 | 8.2 | 23.5 | -2.1 | 2.7 | -7.9 |
| **3. Synthetic Rubber** | 406 | 400 | 402 | Production | 242 | 285 | 308 | 351 | 358 | 353 | 383 | 345 |
| | | | | Growth Rate (%) | 40.8 | 17.9 | 8.0 | 14.0 | 2.1 | -1.3 | 8.3 | -9.9 |
| **4. Synthetic Detergent Intermediat** | 680 | 680 | 680 | Production | 566 | 664 | 743 | 687 | 715 | 736 | 780 | 703 |
| | | | | Growth Rate (%) | -5.1 | 17.4 | 11.9 | -7.5 | 4.0 | 3.0 | 6.0 | -9.9 |
| **5. Performance Plastics** | 3046 | 3032 | 3096 | Production | 1700 | 1799 | 1719 | 1589 | 1672 | 1520 | 1698 | 1628 |
| | | | | Growth Rate (%) | 6.9 | 5.8 | -4.5 | -7.6 | 5.2 | -9.1 | 11.7 | -4.1 |
| **Total Basic Major Petrochemicals** | **21460** | **21415** | **21567** | **Production** | **14905** | **15510** | **15670** | **16269** | **19041** | **17938** | **19371** | **18135** |
| | | | | **Growth Rate %)** | **10.8** | **4.1** | **1.0** | **3.8** | **17.0** | **-5.8** | **8.0** | **-6.4** |

***Note : 1.*** *Production and Installed Capacity data based on MPRs received from manufacturer under large and medium scale units only monitored by S&M Division of DCPC.*

**Table 8: Production, Capacity Utilization & Growth of Selected Major Petrochemicals (Product-Wise) during 2015-16 to 2022-23**

*(Figures in 000'MT)*

| Major Groups / Products | Installed Capacity | | | Production | | | | | | | | CAGR (%) | Capacity Utilisation in 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2020-21 | 2021-22 | 2022-23 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) |
| **A : BASIC MAJOR PETROCHEMICALS** | | | | | | | | | | | | | |
| **I : Synthetic Fibres / Yarn** | | | | | | | | | | | | | |
| ACRYLIC FIBRE (AF) | 107.0 | 107.0 | 108.0 | 105.9 | 95.4 | 91.0 | 99.5 | 102.9 | 77.0 | 66.7 | 96.2 | -1.4 | 89.0 |
| POLYESTER STAPLE FIBREFILL | 69.0 | 69.0 | 69.0 | 51.1 | 53.7 | 51.3 | 53.0 | 49.9 | 40.3 | 39.0 | 34.1 | -5.6 | 49.5 |
| NYLON FILAMENT YARN | 58.5 | 66.6 | 66.6 | 37.3 | 40.9 | 40.0 | 46.6 | 48.3 | 33.3 | 46.2 | 44.1 | 2.4 | 66.3 |
| NYLON INDUSTRIAL YARN/TYRE CORD | 152.0 | 165.7 | 165.7 | 94.9 | 103.6 | 107.6 | 109.5 | 99.7 | 90.3 | 115.5 | 100.6 | 0.8 | 60.7 |
| POLYESTER FILAMENT YARN | 2727.4 | 2661.1 | 2661.1 | 2179.0 | 2200.9 | 2283.4 | 2316.4 | 2520.3 | 1997.9 | 2560.8 | 2486.5 | 1.9 | 93.4 |
| POLYESTER STAPLE FIBRE | 1350.5 | 1350.5 | 1350.5 | 1039.6 | 1056.0 | 1005.3 | 931.4 | 1027.5 | 909.4 | 1160.5 | 1161.0 | 1.6 | 86.0 |
| POLYPROPYLENE FILAMENT YARN | 3.6 | 3.6 | 3.6 | 3.5 | 3.4 | 3.1 | 2.4 | 2.5 | 2.2 | 2.8 | 1.9 | -8.1 | 53.4 |
| POLYPROPYLENE STAPLE FIBRE | 30.9 | 29.7 | 29.7 | 27.0 | 24.6 | 22.2 | 20.7 | 18.8 | 15.3 | 21.2 | 22.2 | -2.8 | 74.8 |
| POLYSTER INDUSTRIAL YARN | 21.5 | 21.5 | 21.5 | 15.4 | 16.3 | 15.0 | 14.8 | 14.7 | 12.4 | 14.4 | 13.6 | -1.8 | 63.1 |
| Elastomeric/Spandex Filament Yarn | 8.5 | 8.5 | 20.0 | 4.8 | 4.7 | 6.2 | 7.1 | 8.1 | 6.6 | 12.9 | 12.3 | 14.4 | 61.7 |
| **Group Total** | **4528.9** | **4483.2** | **4495.7** | **3558.4** | **3599.4** | **3625.2** | **3601.5** | **3892.8** | **3184.6** | **4040.0** | **3972.5** | **1.6** | **88.4** |
| **II : Polymers** | | | | | | | | | | | | | |
| LINEAR LOW DENSITY POLYETHYLENE (LLDPE) | | | | 1204.6 | 1318.3 | 1290.0 | 1581.2 | 2994.0 | 2958.9 | 2914.1 | 2424.4 | 10.5 | |
| HIGH DENSITY POLYETHYLENE (HDPE) | | | | 1317.2 | 1520.0 | 1578.4 | 1597.7 | 1897.6 | 1910.0 | 1915.8 | 1717.9 | 3.9 | |
| **LLDPE/HDPE (Combined) ($)** | **5158.1** | **5158.1** | 5158.1 | **2521.7** | **2838.3** | **2868.4** | **3178.9** | **4891.6** | **4869.0** | **4829.9** | **4142.3** | 7.3 | **80.3** |
| LOW DENSITY POLYETHYLENE (LDPE) | 610.0 | 610.0 | 610.0 | 200.0 | 201.8 | 185.7 | 193.1 | 613.3 | 616.6 | 583.0 | 625.1 | 17.7 | **102.5** |
| POLYSTYRENE (PS) | 471.0 | 471.0 | 499.0 | 308.6 | 311.3 | 301.6 | 292.9 | 291.7 | 217.4 | 247.9 | 271.7 | -1.8 | **57.7** |
| POLYPROPYLENE(PP) | 4933.8 | 4933.8 | 4933.8 | 4284.4 | 4253.4 | 4350.2 | 4779.0 | 4982.8 | 4919.1 | 5240.7 | 4773.5 | 1.6 | **96.8** |
| EXPANDABLE POLYSTYRENE (EXPS) | 133.3 | 147.1 | 193.0 | 86.2 | 96.8 | 103.9 | 108.3 | 110.7 | 87.4 | 97.2 | 108.4 | 3.3 | **73.7** |
| POLY VINYL CHLORIDE (PVC) | 1493.0 | 1500.0 | 1500.0 | 1437.9 | 1461.5 | 1466.1 | 1488.4 | 1513.6 | 1434.1 | 1471.9 | 1565.6 | 1.2 | **104.4** |
| **Group Total** | **12799.2** | **12820.0** | **12893.9** | **8838.8** | **9163.1** | **9275.9** | **10040.5** | **12403.7** | **12143.6** | **12470.7** | **11486.6** | **3.8** | **89.6** |
| **III : Synthetic Rubber** | | | | | | | | | | | | | |
| STYRENE BUTADIENE RUBBER (SBR) | 277.0 | 271.0 | 271.0 | 124.8 | 167.3 | 194.0 | 228.6 | 227.8 | 212.9 | 237.5 | 205.4 | 7.4 | 75.8 |
| POLY BUTADIENE RUBBER (PBR) | 100.0 | 100.0 | 100.0 | 113.9 | 117.1 | 113.6 | 122.2 | 130.3 | 128.5 | 132.8 | 126.1 | 1.5 | 126.1 |
| ETHYL VINYL ACETATE (EVA) | 15.0 | 15.0 | 15.0 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -100.0 | 0.0 |
| NITRILE BUTADIENE RUBBER (NBR) | 13.7 | 13.7 | 15.5 | 0.4 | 0.4 | 0.1 | 0.0 | 0.0 | 11.9 | 12.3 | 13.4 | 65.4 | 86.2 |
| **Group Total** | **405.7** | **399.7** | **401.5** | **241.5** | **284.8** | **307.7** | **350.9** | **358.1** | **353.3** | **382.6** | **344.9** | 5.2 | **85.9** |
| **IV : Synthetic Detergent Intermediates** | | | | | | | | | | | | | |
| LINEAR ALKYL BENZENE (LAB) | 544.8 | 544.8 | 544.8 | 377.2 | 447.6 | 451.5 | 454.8 | 413.5 | 457.1 | 462.3 | 413.2 | 1.3 | 75.8 |
| ETHYLENE OXIDE (EO) | 135.0 | 135.0 | 135.0 | 188.3 | 216.1 | 291.3 | 232.3 | 301.2 | 279.4 | 318.1 | 289.9 | 6.4 | 214.7 |
| **Group Total** | **679.8** | **679.8** | **679.8** | **565.5** | **663.7** | **742.8** | **687.2** | **714.7** | **736.4** | **780.4** | **703.0** | 3.2 | **103.4** |
| **V : Performance Plastic** | | | | | | | | | | | | | |
| ABS RESINS | 213.0 | 199.0 | 199.0 | 117.0 | 117.8 | 145.2 | 148.2 | 136.5 | 121.9 | 122.8 | 148.9 | 3.5 | 74.8 |
| NYLON-6/ NYLON 6,6* | 83.5 | 83.5 | 83.5 | 21.4 | 21.5 | 20.6 | 21.5 | 41.6 | 55.4 | 68.3 | 68.7 | 18.1 | 82.3 |
| POLYMETHYL METHACRYLATE (PMMA) | 3.9 | 3.9 | 3.9 | 1.5 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -100.0 | 0.0 |

| Major Groups / Products | Installed Capacity | | | Production | | | | | | | | CAGR (%) | Capacity Utilisation in 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2020-21 | 2021-22 | 2022-23 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) |
| STYRENE ACRYLONITRILE (SAN) | 167.0 | 167.0 | 167.0 | 98.7 | 99.2 | 114.7 | 131.8 | 133.8 | 118.6 | 121.7 | 139.1 | 5.0 | 83.3 |
| PET Chips/Polyester Chips | 2558.6 | 2558.6 | 2622.6 | 1452.9 | 1548.7 | 1424.6 | 1271.1 | 1344.7 | 1209.0 | 1365.9 | 1254.3 | -2.1 | 47.8 |
| PTFE (TEFLON) | 20.3 | 20.3 | 20.3 | 8.7 | 11.7 | 13.7 | 16.2 | 15.1 | 14.6 | 18.9 | 17.3 | 10.3 | 85.3 |
| **Group Total** | **3046.3** | **3032.3** | **3096.3** | **1700.3** | **1799.3** | **1718.8** | **1588.8** | **1671.6** | **1519.6** | **1697.7** | **1628.4** | -0.6 | 52.6 |
| **Total Basic Major Petrochemicals (I+II+III+IV+V)** | **21459.8** | **21415.0** | **21567.2** | **14904.5** | **15510.3** | **15670.3** | **16268.8** | **19040.9** | **17937.6** | **19371.4** | **18135.4** | 2.8 | 84.1 |
| **B : INTERMEDIATES** | | | | | | | | | | | | | |
| **I : Fibre Intermediates** | | | | | | | | | | | | | |
| ACRYLONITRILE (ACN) | 24.0 | 24.0 | 24.0 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -100.0 | 0.0 |
| CAPROLACTUM | 120.0 | 120.0 | 120.0 | 86.3 | 87.0 | 86.0 | 92.6 | 84.1 | 80.4 | 108.2 | 129.6 | 6.0 | 108.0 |
| MONO ETHYLENE GLYCOL (MEG) | 2210.6 | 2210.6 | 2210.6 | 1159.0 | 1110.5 | 1132.7 | 1159.8 | 2007.8 | 1982.0 | 1990.2 | 1656.2 | 5.2 | 74.9 |
| PURIFIED TEREPHTHALIC ACID (PTA) | 3873.0 | 3873.0 | 3873.0 | 3431.8 | 3390.6 | 3492.4 | 3404.9 | 3267.1 | 2996.8 | 3383.3 | 3202.2 | -1.0 | 82.7 |
| **Group Total** | **6227.6** | **6227.6** | **6227.6** | **4679.0** | **4588.0** | **4711.1** | **4657.2** | **5358.9** | **5059.1** | **5481.7** | **4988.0** | **0.9** | **80.1** |
| **II : Building Blocks** | | | | | | | | | | | | | |
| **(a) Olefins** | | | | | | | | | | | | | |
| BUTADIENE | 552.0 | 552.0 | 552.0 | 343.5 | 347.4 | 332.4 | 385.8 | 481.0 | 458.8 | 477.4 | 429.4 | 3.2 | 77.8 |
| ETHYLENE | 7147.3 | 7147.3 | 7147.3 | 3727.4 | 4021.7 | 4222.7 | 3831.9 | 6466.8 | 6364.9 | 6414.5 | 5802.6 | 6.5 | 81.2 |
| PROPYLENE | 5190.4 | 5190.4 | 5190.4 | 4456.7 | 4425.2 | 4457.9 | 4639.5 | 4887.6 | 5215.8 | 5635.1 | 5064.0 | 1.8 | 97.6 |
| **Group Total** | **12889.7** | **12889.7** | **12889.7** | **8527.5** | **8794.3** | **9013.0** | **8857.2** | **11835.4** | **12039.4** | **12527.0** | **11296.0** | **4.1** | **87.6** |
| **(b) Aromatics** | | | | | | | | | | | | | |
| BENZENE | 1884.3 | 1884.3 | 1884.3 | 1332.6 | 1332.0 | 1318.0 | 1414.6 | 1346.2 | 1407.9 | 1427.6 | 1156.6 | -2.0 | 61.4 |
| MIXED XYLENE | 898.3 | 898.3 | 898.3 | 269.4 | 296.0 | 271.4 | 249.1 | 269.6 | 146.7 | 160.9 | 45.4 | -22.5 | 5.1 |
| ORTHOXYLENE | 511.0 | 511.0 | 511.0 | 499.5 | 444.9 | 447.8 | 406.3 | 386.4 | 522.1 | 511.2 | 408.4 | -2.8 | 79.9 |
| TOLUENE | 288.3 | 288.3 | 288.3 | 115.7 | 126.8 | 106.9 | 141.1 | 140.2 | 114.0 | 115.7 | 112.5 | -0.4 | 39.0 |
| PARAXYLENE (PX) | 3821.7 | 3821.7 | 3821.7 | 3266.4 | 3161.3 | 3194.5 | 3331.8 | 2782.3 | 2614.2 | 2461.9 | 1638.9 | -9.4 | 42.9 |
| **Group Total** | **7403.6** | **7403.6** | **7403.6** | **5483.5** | **5361.0** | **5338.6** | **5542.9** | **4924.7** | **4804.9** | **4677.2** | **3361.8** | **-6.8** | **45.4** |
| **Total Intermidates (I+II(a)+II(b))** | **26520.9** | **26520.9** | **26520.9** | **18690.1** | **18743.3** | **19062.6** | **19057.3** | **22119.0** | **21903.5** | **22685.9** | **19645.9** | **0.7** | **74.1** |
| **C : OTHER PETRO-BASED CHEMICALS** | | | | | | | | | | | | | |
| DIETHYLENE GLYCOL | 170.9 | 170.9 | 170.9 | 114.2 | 108.2 | 105.7 | 107.4 | 167.7 | 172.3 | 173.7 | 141.8 | 3.1 | 82.9 |
| DIACETONE ALCOHOL | 9.5 | 9.5 | 9.5 | 0.0 | 0.0 | 0.2 | 4.1 | 6.0 | 2.9 | 5.7 | 3.2 | | 33.4 |
| ETHYLENE DICHLORIDE | 593.2 | 593.2 | 593.2 | 277.4 | 282.6 | 282.3 | 339.2 | 345.3 | 326.2 | 367.0 | 398.6 | 5.3 | 67.2 |
| BUTANOL | 26.0 | 176.0 | 176.0 | 11.1 | 12.5 | 17.4 | 21.7 | 16.4 | 20.3 | 38.3 | 42.4 | 21.1 | 24.1 |
| 2-ETHYL HEXANOL | 55.2 | 110.2 | 110.2 | 44.4 | 45.6 | 56.6 | 58.9 | 48.7 | 49.7 | 91.3 | 90.2 | 10.7 | 81.9 |
| VINYL CHLORIDE MONOMER | 541.3 | 541.3 | 541.3 | 790.7 | 791.3 | 778.0 | 803.6 | 874.5 | 799.2 | 813.1 | 849.3 | 1.0 | 156.9 |
| PBT* | 0.0 | 0.0 | 0.0 | 0.5 | 0.6 | 0.6 | 1.3 | 6.2 | 6.1 | 7.5 | 7.9 | 48.4 | |
| POLYCARBONATE* | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | -100.0 | |
| PROPYLENE OXIDE | 51.0 | 51.0 | 51.0 | 25.6 | 29.3 | 36.0 | 35.1 | 34.6 | 44.4 | 49.9 | 49.2 | 9.8 | 96.5 |
| PROPYLENE GLYCOL | 22.0 | 22.0 | 22.0 | 13.6 | 16.3 | 17.6 | 19.1 | 19.5 | 19.7 | 20.5 | 21.3 | 6.6 | 96.9 |
| POLYVINYL ACETATE RESIN | 12.0 | 12.0 | 12.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.0 | 7.3 | 9.5 | | 79.5 |
| UNSATURATED POLYSTER RESIN | 34.0 | 34.0 | 34.0 | 0.0 | 0.0 | 0.0 | 0.0 | 16.4 | 12.9 | 16.5 | 19.0 | | 55.9 |

| Major Groups / Products | Installed Capacity | | | Production | | | | | | | | CAGR (%) | Capacity Utilisation in 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2020-21 | 2021-22 | 2022-23 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) |
| METHYL METHACRYLATE | 4.4 | 4.4 | 4.4 | 2.3 | 0.5 | 2.8 | 4.0 | 1.7 | 0.0 | 0.0 | 0.0 | -100.0 | 0.0 |
| ISO-BUTANOL | 2.8 | 9.8 | 9.8 | 1.9 | 2.0 | 2.2 | 2.2 | 1.7 | 2.1 | 4.0 | 5.8 | 17.6 | 59.0 |
| C4-RAFFINATE | 291.6 | 291.6 | 291.6 | 428.6 | 437.2 | 339.2 | 380.3 | 413.3 | 433.4 | 444.6 | 393.5 | -1.2 | 135.0 |
| PHTHALIC ANHYDRIDE | 401.9 | 401.9 | 401.9 | 305.8 | 296.1 | 290.0 | 275.1 | 269.6 | 293.0 | 339.6 | 330.2 | 1.1 | 82.1 |
| VINYL ACETATE MONOMER | 30.0 | 30.0 | 30.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 |
| ISOPROPANOL | 70.2 | 70.2 | 70.2 | 71.2 | 72.5 | 71.8 | 58.3 | 60.5 | 55.3 | 65.1 | 48.8 | -5.3 | 69.5 |
| POLYOL | 142.0 | 148.5 | 163.0 | 71.8 | 78.7 | 79.4 | 82.1 | 81.8 | 77.8 | 87.2 | 99.8 | 4.8 | 61.2 |
| **Group Total** | **2458.0** | **2676.5** | **2691.0** | **2159.2** | **2173.5** | **2080.1** | **2192.5** | **2364.2** | **2318.3** | **2531.3** | **2510.6** | **2.2** | **93.3** |
| **Total Major Petrochemical (9 Groups)** | **50438.8** | **50612.4** | **50779.1** | **35753.8** | **36427.1** | **36813.1** | **37518.5** | **43524.1** | **42159.4** | **44588.5** | **40291.9** | **1.7** | **79.3** |

***Note : 1.*** *Production and Installed Capacity data based on MPRs received from manufacturer under large and medium scale units only monitored by S&M Division of DCPC.*

***$*** *: Combined capacity to produce both LLDPE and HDPE. However, production is independent.*

******* *Nylon 6, 6 has combined Installed Capacity that includes the capacity of PBT and Polycarbonate also.*

**Table 9: Installed Capacities of Selected Major Petrochemicals (Group Wise) from 2015-16 to 2022-23**

*(Figures in 000'MT)*

| Groups / Products | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 |
|---|---|---|---|---|---|---|---|---|
| (1) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| **A : BASIC PETROCHEMICALS** | | | | | | | | |
| I : SYNTHETIC FIBRES | 4452 | 4393 | 4379 | 4440 | 4521 | 4529 | 4483 | 4496 |
| II : POLYMERS | 9768 | 10110 | 10112 | 10115 | 12754 | 12799 | 12820 | 12894 |
| III : SYNTHETIC RUBBER (ELASTOMERS) | 425 | 425 | 425 | 425 | 411 | 406 | 400 | 402 |
| IV : SYNTH. DETERGENT INTERMEDIATE | 687 | 687 | 687 | 687 | 680 | 680 | 680 | 680 |
| V : PERFORMANCE PLASTICS | 3018 | 2945 | 2947 | 2963 | 2919 | 3046 | 3032 | 3096 |
| **TOTAL MAJOR PETROCHEMICALS (I TO V)** | **18351** | **18561** | **18551** | **18630** | **21286** | **21460** | **21415** | **21567** |
| **B : INTERMEDIATES** | | | | | | | | |
| VI : FIBRE INTERMEDIATES | 5067 | 5067 | 5187 | 5187 | 5885 | 6228 | 6228 | 6228 |
| VII : OLEFINS | 9462 | 9683 | 9683 | 9683 | 12890 | 12890 | 12890 | 12890 |
| VIII : AROMATICS | 6304 | 6305 | 6305 | 6305 | 6460 | 7404 | 7404 | 7404 |
| **TOTAL INTERMEDIATES (VI TO VIII)** | **20834** | **21055** | **21175** | **21175** | **25234** | **26521** | **26521** | **26521** |
| **C : OTHER PETRO-BASED CHEMICALS** | **2272** | **2273** | **2271** | **2271** | **2413** | **2458** | **2677** | 2691 |
| **Total (A+B+C)** | **41457** | **41888** | **41998** | **42077** | **48933** | **50439** | **50612** | **50779** |

***Note:*** *Installed Capacity data based on MPRs received from manufacturer under large and medium scale units only monitored by S&M Division of DCPC.*

**Table 10: Consumption of Selected Major Petrochemicals (Product-wise) during 2015-16 to 2022-23**

*(Figures in 000'MT)*

| Groups / Products | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| **1. SYNTHETIC FIBRE** | | | | | | | | |
| ACRYLIC FIBRE | 97.2 | 83.8 | 83.9 | 94.0 | 118.7 | 93.4 | 78.1 | 93.6 |
| POLYESTER STAPLE FIBREFILL | 51.1 | 53.7 | 51.3 | 53.0 | 49.9 | 40.3 | 39.0 | 34.1 |
| NYLON FILAMENT YARN | 64.6 | 70.1 | 58.7 | 64.1 | 65.0 | 44.2 | 62.1 | 74.1 |
| NYLON INDUSTRIAL YARN/TYRE CORD | 98.2 | 109.8 | 112.5 | 115.8 | 103.0 | 95.5 | 121.6 | 102.7 |
| POLYESTER FILAMENT YARN | 1616.8 | 1537.2 | 1648.5 | 1703.7 | 1924.2 | 1696.0 | 2094.0 | 2502.1 |
| POLYESTER STAPLE FIBRE | 957.6 | 941.9 | 866.8 | 767.8 | 860.5 | 702.3 | 855.1 | 1029.1 |
| POLYPROPYLENE FILAMENT YARN | 1.3 | 2.0 | 3.6 | 3.2 | 2.5 | 2.2 | 2.3 | 1.1 |
| POLYPROPYLENE STAPLE FIBRE | 21.4 | 16.8 | 16.0 | 16.2 | 12.1 | 9.3 | 13.3 | 14.8 |
| POLYSTER INDUSTRIAL YARN | 15.4 | 16.3 | 15.0 | 14.8 | 14.7 | 12.4 | 14.4 | 13.6 |
| Elastomeric/Spandex Filament Yarn | 20.4 | 21.9 | 27.2 | 28.9 | 29.4 | 13.9 | 18.1 | 18.5 |
| **Total** | **2943.8** | **2853.7** | **2883.8** | **2861.4** | **3180.0** | **2709.3** | **3298.1** | **3883.8** |
| **2. POLYMERS** | | | | | | | | |
| LOW DENSITY POLYETHYLENE | 550.8 | 566.4 | 542.0 | 370.0 | 825.6 | 833.5 | 756.3 | 830.9 |
| HIGH DENSITY POLYTHYLENE | 2122.8 | 2372.4 | 2365.7 | 2042.5 | 2198.6 | 2321.9 | 2544.9 | 3276.3 |
| POLYESTYRENE | 264.8 | 273.2 | 284.6 | 285.2 | 296.5 | 250.9 | 269.1 | 345.2 |
| POLYPROPYLENE (INC. CO-POLYMER) | 4249.9 | 4460.3 | 4737.2 | 4915.8 | 5438.4 | 4911.8 | 5831.0 | 6123.0 |
| EXPANDABLE POLYESTYRENE | 85.4 | 96.9 | 103.4 | 106.4 | 109.0 | 91.2 | 101.8 | 107.8 |
| POLY VINYL CHLORIDE | 2936.1 | 3157.9 | 3305.7 | 3523.8 | 2439.9 | 1836.4 | 1929.7 | 2155.2 |
| LINEAR LOW DENSITY POLYTHYLENE | 1778.8 | 1734.1 | 1486.2 | 1349.4 | 2910.4 | 3050.9 | 3070.8 | 2860.7 |
| PVC COMPOUND | 65.9 | 42.1 | 14.3 | -7.7 | 0.0 | 0.0 | -12.5 | -9.5 |
| **Total** | **12054.5** | **12703.2** | **12839.1** | **12585.5** | **14218.4** | **13296.5** | **14491.0** | **15689.6** |
| **3. SYNTHETIC RUBBER** | | | | | | | | |
| STYRENE BUTADIENE RUBBER | 266.5 | 289.8 | 286.3 | 305.5 | 285.6 | 325.5 | 371.4 | 335.1 |
| POLY BUTADIENE RUBBER | 182.6 | 196.9 | 201.4 | 213.7 | 207.6 | 220.2 | 220.3 | 258.4 |
| ETHYL PROPYLENE DIMERS | 36.6 | 40.1 | 42.6 | 50.3 | 43.2 | 40.4 | 47.5 | 53.5 |
| ETHYL VINYL ACETATE | 166.4 | 143.1 | 182.4 | 178.2 | 192.7 | 188.5 | 180.6 | 201.3 |
| NITRILE BUTADIENE RUBBER | 51.9 | 36.4 | 39.9 | 38.0 | 40.5 | 166.6 | 43.7 | 51.7 |
| BUTYL RUBBER | 90.8 | 100.3 | 111.0 | 120.1 | 89.3 | 64.3 | 64.4 | 47.9 |
| **Total** | **794.9** | **806.5** | **863.6** | **905.8** | **858.9** | **1005.6** | **927.8** | **947.9** |
| **4. SYNTHETIC DETERGENT INTERMEDIATES** | | | | | | | | |
| LINEAR ALKYL BENZENE | 585.9 | 669.3 | 656.5 | 681.6 | 677.3 | 721.5 | 733.6 | 754.7 |
| ETHYLENE OXIDE | 188.0 | 215.6 | 290.9 | 231.6 | 300.4 | 278.4 | 317.1 | 288.7 |
| **Total** | **774.0** | **884.9** | **947.4** | **913.2** | **977.7** | **1000.0** | **1050.7** | **1043.4** |
| **5. PERFORMANCE PLASTICS** | | | | | | | | |
| ABS RESIN | 206.6 | 220.2 | 243.0 | 267.1 | 240.8 | 220.4 | 233.8 | 263.7 |
| NYLON-6 | 150.2 | 161.5 | 174.1 | 216.5 | 237.0 | 55.4 | 68.3 | 68.7 |
| POLYMETHYL METHACRYLATE | 12.6 | 18.9 | 26.5 | 25.2 | 24.7 | 28.5 | 21.8 | 29.8 |
| STYRENE ACRYLONITRILE | 107.7 | 107.1 | 122.9 | 140.6 | 143.8 | 131.7 | 141.4 | 160.3 |
| NYLON 6,6 | 1.2 | 1.2 | 1.1 | 1.0 | 0.7 | 0.0 | 0.0 | 0.0 |
| POLYESTER CHIPS/PET CHIPS | 792.0 | 729.4 | 676.4 | 534.8 | 789.6 | 1158.6 | 1223.9 | 1207.3 |
| POLYTETRAFLUOROETHYLENE(PTFE) | 4.8 | 5.6 | 7.1 | 7.1 | 6.8 | 6.8 | 7.2 | 9.0 |
| **Total** | **1275.1** | **1244.0** | **1251.0** | **1192.4** | **1443.4** | **1601.4** | **1696.5** | **1738.8** |
| **6. FIBRE INTERMEDIATE** | | | | | | | | |
| ACRYLONITRILE | 159.8 | 139.7 | 158.3 | 180.4 | 172.9 | 126.7 | 173.8 | 221.8 |
| CAPROLACTUM | 130.9 | 138.9 | 144.3 | 159.0 | 151.9 | 131.8 | 168.2 | 152.3 |
| DIMETHYL TEREPHTHALATE | 2.2 | 1.8 | 2.3 | 1.5 | 1.8 | 1.8 | 2.0 | 1.9 |
| MONO EHYLENE GLYCOL | 2198.3 | 2283.7 | 2061.7 | 1501.9 | 2644.1 | 2277.8 | 2836.7 | 3117.4 |
| PURIFIED TEREPHTHALIC ACID | 3955.6 | 3543.1 | 3801.6 | 3812.3 | 4073.6 | 3487.2 | 4800.1 | 4794.2 |
| **Total** | **6446.9** | **6107.1** | **6168.1** | **5655.0** | **7044.2** | **6025.3** | **7980.8** | **8287.6** |
| **7. OLEFINS** | | | | | | | | |
| BUTADIENE | 214.6 | 242.6 | 231.8 | 250.6 | 306.8 | 292.0 | 333.3 | 316.9 |
| ETHYLENE | 3743.3 | 4102.6 | 4125.4 | 3699.2 | 6379.3 | 6301.9 | 6365.4 | 5838.9 |
| PROPYLENE | 4445.6 | 4415.1 | 4446.0 | 4608.3 | 4889.0 | 5204.4 | 5664.6 | 5072.7 |
| **Total** | **8403.5** | **8760.4** | **8803.2** | **8558.2** | **11575.1** | **11798.3** | **12363.3** | **11228.5** |
| **8. AROMATICS** | | | | | | | | |
| BENZENE | 417.7 | 542.6 | 31.8 | -214.3 | -51.1 | -80.5 | -491.2 | -284.0 |
| MIXED XYLENE | 269.5 | 296.1 | 273.4 | 248.7 | 269.3 | 146.7 | 160.9 | 47.4 |

| Groups / Products | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 |
|---|---|---|---|---|---|---|---|---|
| ORTHO-XYLENE | 299.6 | 316.8 | 277.8 | 203.6 | 225.5 | 237.7 | 293.2 | 338.0 |
| TOLUENE | 454.1 | 513.7 | 517.0 | 565.6 | 596.5 | 698.0 | 598.2 | 682.3 |
| PARAXYLENE | 3213.8 | 3557.3 | 2256.7 | 1508.8 | 940.5 | 442.7 | 805.9 | 1163.7 |
| **Total** | **4654.7** | **5226.5** | **3356.6** | **2312.4** | **1980.8** | **1444.6** | **1367.0** | **1947.5** |
| **9. OTHER PETRO-BASED CHEMICALS** | | | | | | | | |
| DIETHYLENE GLYCOL | 114.2 | 108.2 | 105.7 | 107.4 | 167.7 | 172.3 | 173.7 | 141.8 |
| DIACETONE ALCOHOL | 0.0 | 0.0 | 0.2 | 4.1 | 6.0 | 2.9 | 5.7 | 3.2 |
| ETHYLENE DICHLORIDE | 861.5 | 786.5 | 950.8 | 901.7 | 1044.9 | 921.7 | 987.0 | 1061.4 |
| BUTANOL | 73.4 | 68.1 | 70.2 | 70.2 | 75.0 | 62.5 | 66.8 | 81.0 |
| OXO ALCOHOL | 0.7 | 1.9 | 1.4 | -0.2 | 1.5 | 2.1 | 2.1 | 1.0 |
| 2-ETHYL HEXANOL | 152.8 | 110.4 | 112.1 | 109.8 | 130.4 | 104.5 | 101.6 | 144.1 |
| VINYL CHLORIDE MONOMER | 1140.1 | 1135.7 | 1262.4 | 1261.2 | 1385.6 | 1279.1 | 1394.9 | 1386.5 |
| EPICHLOHYDRINE | 43.4 | 48.1 | 56.0 | 65.0 | 61.1 | 55.1 | 66.4 | 66.3 |
| ISO BUTYLENE | 15.8 | 20.1 | 48.7 | 44.6 | -7.3 | -4.2 | -18.5 | -14.1 |
| METAXYLENE | 3.0 | 2.6 | 2.1 | 2.9 | 1.9 | 2.7 | 4.7 | 3.0 |
| METHYL ISOBUTYL KETONE | 27.3 | 21.6 | 33.7 | 31.9 | 27.8 | 30.1 | 35.8 | 30.4 |
| PBT | 0.5 | 0.6 | 0.6 | 1.3 | 6.2 | 6.1 | 7.5 | 7.9 |
| PIB | 8.2 | 13.8 | 12.4 | 12.0 | 10.3 | 6.7 | 12.2 | 8.7 |
| POLYCARBONATE | 133.9 | 134.5 | 154.1 | 187.1 | 172.5 | 174.7 | 207.2 | 221.3 |
| PROPYLENE OXIDE | 51.1 | 52.4 | 59.4 | 61.9 | 54.7 | 61.8 | 70.4 | 74.1 |
| PROPYLENE GLYCOL | 67.2 | 66.8 | 73.9 | 83.9 | 80.9 | 76.0 | 81.0 | 88.0 |
| POLYVINYL ACETATE RESIN | -8.1 | -5.7 | -3.5 | -5.8 | -5.5 | -1.4 | 2.3 | 5.7 |
| UNSATURATED POLYSTER RESIN | 18.2 | 23.7 | 35.5 | 28.3 | 49.6 | 44.9 | 42.6 | 49.4 |
| METHYL METHACRYLATE | 2.3 | 0.5 | 2.8 | 4.0 | 1.7 | 0.0 | 0.0 | 0.0 |
| ISO-BUTANOL | 1.9 | 2.0 | 2.2 | 2.2 | 1.7 | 2.1 | 4.0 | 5.8 |
| ETHYL BENZENE | 0.2 | 0.3 | 0.4 | 0.7 | 0.5 | 0.5 | 0.9 | 0.7 |
| C4-RAFFINATE | 428.6 | 437.2 | 339.2 | 380.3 | 413.3 | 433.4 | 444.6 | 393.5 |
| CELLULOSE ACETATE SHEET | 1.3 | 1.0 | 1.3 | 1.5 | 1.3 | 1.3 | 1.6 | 1.6 |
| CELLULOSE NITRATE SHEET | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 1.2 | 0.5 | 0.1 |
| MELAMINE MOULDING POWDER | 3.9 | 2.9 | -0.1 | -1.3 | -6.7 | -9.8 | -19.0 | -26.5 |
| POLYACETAL RESIN | 34.9 | 37.5 | 43.5 | 48.5 | 47.3 | 48.4 | 47.2 | 60.2 |
| PHTHALIC ANHYDRIDE | 345.1 | 346.1 | 382.6 | 393.4 | 415.2 | 410.4 | 428.3 | 403.7 |
| STYRENE | 716.9 | 724.5 | 784.7 | 811.2 | 872.6 | 720.8 | 847.2 | 1055.4 |
| VINYL ACTATE MONOMER | 140.0 | 150.2 | 163.7 | 163.0 | 159.4 | 136.5 | 174.4 | 209.6 |
| ISOPROPANOL | 155.1 | 162.3 | 171.3 | 193.1 | 204.2 | 233.8 | 189.5 | 183.9 |
| POLYOL | 236.9 | 226.0 | 274.5 | 308.3 | 295.7 | 239.5 | 247.7 | 99.8 |
| **Total** | **4770.3** | **4680.0** | **5142.0** | **5272.2** | **5669.7** | **5215.7** | **5610.3** | **5747.3** |

***Note : 1.*** *Production and Installed Capacity data based on MPRs received from manufacturer under large and medium scale units only monitored by S&M Division of DCPC.*

***2.*** *Data Source in respect of imports and exports is DGCIS, Kolkata, M/o Commerce and Industry.*

***3.*** *Consumption is derived as Production + Imports - Exports*

# Section - III

## Foreign Trade

**Table 11: Exports and Imports of Chemicals & Chemical Products (excluding Pharmaceutical Products and Fertilizers) during 2015-16 to 2022-23**

*(Rs. in Crore)*

| HS Code | Commodity | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | Trend line | CAGR (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| **Total National Exports of which** | | **1716384** | **1849434** | **1956515** | **2307726** | **2219854** | **2159043** | **3147021** | **3621550** | | **11.3** |
| **28** | INORGANIC CHEMICALS | 7913 | 9138 | 11175 | 14056 | 12512 | 12301 | 19800 | 26642 | | **18.9** |
| **29** | ORGANIC CHEMICALS | 75295 | 78386 | 95381 | 127855 | 124195 | 133637 | 164815 | 172357 | | **12.6** |
| **32** | TANNING OR DYEING | 16165 | 17189 | 18951 | 23124 | 24409 | 22660 | 29513 | 26528 | | **7.3** |
| **38** | MISCELLANEOUS CHEMICAL PRODUCTS. | 20083 | 21792 | 25080 | 32397 | 35663 | 37886 | 52416 | 63282 | | **17.8** |
| **39** | PLASTIC AND ARTICLES THEREOF. | 34381 | 35502 | 40928 | 56079 | 48970 | 51004 | 67440 | 61518 | | **8.7** |
| **4002** | SYNTHETIC RUBBER AND FACTICE | 452 | 480 | 571 | 739 | 759 | 821 | 1141 | 964 | | **11.4** |
| **54** | MAN-MADE FILAMENTS. | 13460 | 13334 | 13984 | 16018 | 16962 | 11470 | 18070 | 15731 | | **2.3** |
| **55** | MAN-MADE STAPLE FIBRES. | 13625 | 14373 | 13212 | 13308 | 11824 | 9559 | 15402 | 14283 | | **0.7** |
| **A:Total Chemicals and Petrochemical Products** | | **181374** | **190193** | **219281** | **283575** | **275294** | **279337** | **368597** | **381306** | | **11.2** |
| **% share in total export** | | **10.6** | **10.3** | **11.2** | **12.3** | **12.4** | **12.9** | **11.7** | **10.5** | | |
| **Total National Imports of which** | | **2490306** | **2577675** | **3001033** | **3594675** | **3360954** | **2915958** | **4572775** | **5749801** | | **12.7** |
| **28** | INORGANIC CHEMICALS | 33170 | 31654 | 38927 | 53237 | 45045 | 50955 | 76356 | 102895 | | **17.6** |
| **29** | ORGANIC CHEMICALS | 101986 | 103798 | 123761 | 156552 | 140205 | 145830 | 212615 | 232169 | | **12.5** |
| **32** | TANNING OR DYEING | 10467 | 11186 | 12995 | 15460 | 14518 | 14036 | 19431 | 20490 | | **10.1** |
| **38** | MISCELLANEOUS CHEMICAL PRODUCTS. | 27207 | 30642 | 35521 | 41748 | 39069 | 45324 | 58634 | 65756 | | **13.4** |
| **39** | PLASTIC AND ARTICLES THEREOF. | 74566 | 77573 | 89768 | 106591 | 100607 | 98392 | 149067 | 185547 | | **13.9** |
| **4002** | SYNTHETIC RUBBER AND FACTICE | 5205 | 5654 | 6687 | 7896 | 6079 | 6269 | 9154 | 11121 | | **11.5** |
| **54** | MAN-MADE FILAMENTS. | 4879 | 4856 | 5538 | 6843 | 7351 | 6727 | 11144 | 14287 | | **16.6** |
| **55** | MAN-MADE STAPLE FIBRES. | 4401 | 3826 | 4658 | 6508 | 6785 | 6180 | 7714 | 9822 | | **12.2** |
| **B: Total Chemicals and Petrochemical Products** | | **261880** | **269189** | **317856** | **394834** | **359660** | **373714** | **544115** | **642088** | | **13.7** |
| **% share in total import** | | **10.5** | **10.4** | **10.6** | **11.0** | **10.7** | **12.8** | **11.9** | **11.2** | | |

***Chapter 28:*** *Inorganic Chemicals; Organic or Inorganic Compounds of Precious Metals, of Rare-Earth Metals, of Radioactive Elements or of Isotopes;* ***Chapter 29:*** *Organic Chemicals;* ***Chapter 32:*** *Tanning or Dyeing Extracts; Tannins and their Derivatives; Dyes, Pigments and Other Colouring Matter; Paints and Varnishes; Putty and other Mastics; Inks;* ***Chapter 38:*** *Miscellaneous Chemical Products;* ***Chapter 39:*** *Plastics and articles thereof;* ***4002:*** *Synthetic rubber and factice derived from oils, in primary forms or in plates, sheets or strip; mixtures of any product of heading No.4001 with any product of this heading, in primary forms or in plates, sheets; Chapter 54: Man-made Filaments and* ***Chapter 55:*** *Man-made staple fibres*

*Note 1: Import and Export includes both technical and formulations.*

Note 2**:** *Data Source in respect of Imports and Exports is DGCIS, Kolkata, M/o Commerce and Industry*

**Table 12: Exports and Imports of Chemicals & Chemical Products (including Pharmaceutical Products and Fertilizers) during 2015-16 to 2022-23**

*(Rs. in Crore)*

| HS Code | Commodity | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | CARG (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
| **Total National Exports of which** | | **1716384** | **1849434** | **1956515** | **2307726** | **2219854** | **2159043** | **3147021** | **3621550** | **9.0** |
| 28,29,32,38,39,4002, 54 & 55 | Chemicals and Chemical Products (excluding Pharmaceutical Products and Fertilizers) | 181374 | 190193 | 219281 | 283575 | 275294 | 279337 | 368597 | 381306 | 11.2 |
| | Share in Total Exports (%) | 10.6 | 10.3 | 11.2 | 12.3 | 12.4 | 12.9 | 11.7 | 10.5 | |
| 30 | Pharmaceutical Products | 84481 | 86705 | 85447 | 103240 | 115473 | 143738 | 144581 | 159644 | 9.5 |
| | Share in Total Exports (%) | 4.9 | 4.7 | 4.4 | 4.5 | 5.2 | 6.7 | 4.6 | 4.4 | |
| 31 | Fertilisers | 673 | 466 | 685 | 1038 | 837 | 779 | 630 | 1057 | 6.7 |
| | Share in Total Exports (%) | 0.04 | 0.03 | 0.04 | 0.04 | 0.04 | 0.04 | 0.02 | 0.03 | |
| **A: Total Chemicals and Chemical Products (including Pharmaceutical Products and Fertilizers)** | | **266528** | **277364** | **305413** | **387853** | **391604** | **423855** | **513807** | **542007** | 10.7 |
| **Share in Total Exports (%)** | | **15.53** | **15.00** | **15.61** | **16.81** | **17.64** | **19.63** | **16.33** | **14.97** | -0.5 |
| **Total National Imports of which** | | **2490306** | **2577675** | **3001033** | **3594675** | **3360954** | **2915958** | **4572775** | **5749801** | **13** |
| 28,29,32,38,39,4002, 54 & 55 | Chemicals and Chemical Products (excluding Pharmaceutical Products and Fertilizers) | 261880 | 269189 | 317856 | 394834 | 359660 | 373714 | 544115 | 642088 | 13.7 |
| | Share in Total Imports (%) | 10.5 | 10.4 | 10.6 | 11.0 | 10.7 | 12.8 | 11.9 | 11.2 | |
| 30 | Pharmaceutical Products | 10742 | 11515 | 12241 | 14581 | 16530 | 18934 | 25603 | 21023 | 10.1 |
| | Share in Total Imports (%) | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 | 0.6 | 0.6 | 0.4 | |
| 31 | Fertilisers | 45973 | 28754 | 30108 | 46457 | 47397 | 51034 | 95329 | 123407 | 15.1 |
| | Share in Total Imports (%) | 1.85 | 1.12 | 1.00 | 1.29 | 1.41 | 1.75 | 2.08 | 2.15 | |
| **B: Total Chemicals and chemical Products (including Pharmaceutical Products and Fertilizers)** | | **318595** | **309458** | **360205** | **455872** | **423587** | **443683** | **665047** | **786518** | 13.8 |
| **Share in Total Imports (%)** | | **12.79** | **12.01** | **12.00** | **12.68** | **12.60** | **15.22** | **14.54** | **13.68** | |

**Chapter 28:** Inorganic Chemicals; Organic or Inorganic Compounds of Precious Metals, of Rare-Earth Metals, of Radioactive Elements or of Isotopes; **Chapter 29:** Organic Chemicals; **Chapter 30:** Pharmaceutical Products; **Chapter 31:** Fertilisers; **Chapter 32:** Tanning or Dyeing Extracts; Tannins and their Derivatives; Dyes, Pigments and Other Colouring Matter; Paints and Varnishes; Putty and other Mastics; Inks; **Chapter 38:** Miscellaneous Chemical Products; **Chapter 39:** Plastics and articles thereof; **4002:** Synthetic rubber and factice derived from oils, in primary forms or in plates, sheets or strip; mixtures of any product of heading No.4001 with any product of this heading, in primary forms or in plates, sheets; **Chapter 54:** Man-made Filaments and **Chapter 55:** Man-made staple fibres

*Note 1: Import and Export includes both technical and formulations.*

Note 2**:** *Data Source in respect of Imports and Exports is DGCIS, Kolkata, M/o Commerce and Industry*

**Table 12A: Net Imports of Chemicals and Chemical Products (including Pharmaceutical Products and Fertilizers) during 2015-16 to 2022-23**

(Rs. in Crore)

| HS Code | Commodity | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) |
| **Total National Net Imports of which** | | **773921** | **728242** | **1044519** | **1286948** | **1141100** | **756914** | **1425753** | **2128251** |
| 28 | INORGANIC CHEMICALS | 25256 | 22516 | 27752 | 39181 | 32533 | 38654 | 56556 | 76253 |
| 29 | ORGANIC CHEMICALS | 26692 | 25412 | 28380 | 28696 | 16009 | 12194 | 47800 | 59812 |
| 32 | TANNING OR DYEING | -5698 | -6004 | -5956 | -7664 | -9891 | -8624 | -10082 | -6038 |
| 38 | MISCELLANEOUS CHEMICAL PRODUCTS. | 7124 | 8850 | 10441 | 9352 | 3407 | 7438 | 6218 | 2474 |
| 39 | PLASTIC AND ARTICLES THEREOF. | 40185 | 42071 | 48841 | 50512 | 51638 | 47388 | 81627 | 124029 |
| 4002 | SYNTHETIC RUBBER AND FACTICE | 4753 | 5174 | 6116 | 7157 | 5320 | 5448 | 8013 | 10157 |
| 54 | MAN-MADE FILAMENTS. | -8582 | -8479 | -8446 | -9175 | -9611 | -4743 | -6926 | -1444 |
| 55 | MAN-MADE STAPLE FIBRES. | -9224 | -10546 | -8554 | -6800 | -5039 | -3379 | -7688 | -4461 |
| **Net Imports of Total Chemicals and Chemical Products (excluding Pharmaceutical Products and Fertilizers)** | | **80506** | **78995** | **98575** | **111259** | **84366** | **94377** | **175518** | **260782** |
| **Share in Total National Net Imports (%)** | | 10.4 | 10.8 | 9.4 | 8.6 | 7.4 | 12.5 | 12.3 | 12.3 |
| 30 | Pharmaceutical Products | -73739 | -75190 | -73206 | -88659 | -98943 | -124804 | -118978 | -138621 |
| 31 | Fertilisers | 45300 | 28289 | 29423 | 45419 | 46560 | 50255 | 94699 | 122350 |
| **Net Imports of Total Chemicals and Chemical Products (including Pharmaceutical Products and Fertilizers)** | | **52067** | **32094** | **54792** | **68019** | **31983** | **19828** | **151240** | **244511** |
| **Share in Total National Net Imports (%)** | | 6.7 | 4.4 | 5.2 | 5.3 | 2.8 | 2.6 | 10.6 | 11.5 |

***Chapter 28:*** *Inorganic Chemicals; Organic or Inorganic Compounds of Precious Metals, of Rare-Earth Metals, of Radioactive Elements or of Isotopes;* ***Chapter 29:*** *Organic Chemicals;* ***Chapter 32:*** *Tanning or Dyeing Extracts; Tannins and their Derivatives; Dyes, Pigments and Other Colouring Matter; Paints and Varnishes; Putty and other Mastics; Inks;* ***Chapter 38:*** *Miscellaneous Chemical Products;* ***Chapter 39:*** *Plastics and articles thereof;* ***4002:*** *Synthetic rubber and factice derived from oils, in primary forms or in plates, sheets or strip; mixtures of any product of heading No.4001 with any product of this heading, in primary forms or in plates, sheets; Chapter 54: Man-made Filaments and* ***Chapter 55:*** *Man-made staple fibres*

*Note 1: Import and Export includes both technical and formulations.*

Note 2**:** *Data Source in respect of Imports and Exports is DGCIS, Kolkata, M/o Commerce and Industry*

**Table 13: Exports of Major Chemicals (Group Wise) during 2015-16 to 2022-23**

(QTY. in MT; Value in Rs. Lakh)

| GROUP | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | | 2021-22 | | 2022-23 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE |
| (1) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) |
| ALKALI CHEMICALS | 106744 | 29210 | 154244 | 39591 | 273456 | 86880 | 239321 | 87844 | 329459 | 82760 | 428873 | 85310 | 597971 | 187161 | 1335556 | 628667 |
| INORGANIC CHEMICALS | 156683 | 74466 | 377587 | 111322 | 173071 | 102270 | 176900 | 133248 | 196035 | 134079 | 194941 | 119206 | 272948 | 261181 | 674218 | 685617 |
| ORGANIC CHEMICALS | 231728 | 216771 | 190306 | 232940 | 204923 | 320492 | 233147 | 425738 | 244524 | 422713 | 295922 | 438010 | 310144 | 528314 | 607619 | 859418 |
| PESTICIDES & INSECTICIDES $ | 266915 | 1126874 | 342331 | 1315026 | 358481 | 1481030 | 404783 | 2004132 | 398069 | 2163297 | 470787 | 2380601 | 567666 | 3266419 | 1079564 | 7723393 |
| DYES & PIGMENTS | 376046 | 1219795 | 419272 | 1307546 | 485741 | 1439290 | 525170 | 1800681 | 530297 | 1928414 | 514395 | 1770381 | 590558 | 2336505 | 929808 | 3968862 |
| **EXPORTS OF MAJOR CHEMICALS** | **1138116** | **2667116** | **1483740** | **3006425** | **1495672** | **3429962** | **1579321** | **4451643** | **1698384** | **4731263** | **1904918** | **4793508** | **2339287** | **6579580** | **4626765** | **13865957** |

***Source:*** *DGCIS, Kolkata, M/o Commerce and Industry.*

**Note:** Import and Export includes both technical and formulations.

**Table 14: Imports of Major Chemicals (Group Wise) during 2015-16 to 2022-23**

(Qty. in MT; Value in Rs. Lakh)

| GROUP | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | | 2021-22 | | 2022-23 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE |
| (1) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) |
| ALKALI CHEMICALS | 1117878 | 218199 | 1121137 | 215051 | 1193978 | 265347 | 1049124 | 225523 | 1157130 | 240752 | 967827 | 170499 | 766564 | 174732 | 713367 | 269998 |
| INORGANIC CHEMICALS | 1009821 | 237368 | 1010071 | 235237 | 1228854 | 308363 | 1579667 | 485763 | 1531826 | 354602 | 1187990 | 302101 | 1345272 | 382374 | 1351450 | 433595 |
| ORGANIC CHEMICALS | 3143476 | 865684 | 3170287 | 904366 | 3407051 | 1207748 | 3644781 | 1520278 | 3775333 | 1078053 | 3715724 | 1124697 | 4159984 | 2308240 | 4700910 | 2117580 |
| PESTICIDES & INSECTICIDES $ | 33868 | 390707 | 42591 | 490581 | 44145 | 581385 | 49233 | 632590 | 42580 | 611078 | 66190 | 899057 | 59722 | 972605 | 67445 | 1025202 |
| DYES & PIGMENTS | 54691 | 219304 | 55868 | 214913 | 62971 | 231383 | 56452 | 278422 | 50583 | 281435 | 45339 | 252666 | 53657 | 326661 | 44637 | 290398 |
| **IMPORTS OF MAJOR CHEMICALS** | **5359734** | **1931262** | **5399954** | **2060148** | **5936999** | **2594226** | **6379257** | **3142576** | **6557452** | **2565920** | **5983070** | **2749020** | **6385199** | **4164612** | **6877809** | **4136773** |

***Source:*** *DGCIS, Kolkata, M/o Commerce and Industry*

**Note:** Import and Export includes both technical and formulations.

**Table 15: Net Imports of Major Chemicals (Group Wise) during 2015-16 to 2022-23**

(Qty. in MT; Value in Rs. Lakh)

| GROUP | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | | 2021-22 | | 2022-23 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE | QTY. | VALUE |
| (1) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) |
| ALKALI CHEMICALS | 1011134 | 188989 | 966893 | 175460 | 920522 | 178467 | 809803 | 137679 | 827671 | 157992 | 538954 | 85189 | 168593 | -12429 | -622189 | -358669 |
| INORGANIC CHEMICALS | 853138 | 162902 | 632484 | 123915 | 1055783 | 206093 | 1402767 | 352515 | 1335791 | 220523 | 993049 | 182895 | 1072324 | 121193 | 677232 | -252022 |
| ORGANIC CHEMICALS | 2911748 | 648913 | 2979981 | 671426 | 3202128 | 887256 | 3411634 | 1094540 | 3530809 | 655340 | 3419802 | 686687 | 3849840 | 1779926 | 4093291 | 1258162 |
| PESTICIDES & INSECTICIDES $ | -233047 | -736167 | -299740 | -824445 | -314336 | -899645 | -355550 | -1371542 | -355489 | -1552219 | -404597 | -1481544 | -507944 | -2293814 | -1012119 | -6698191 |
| DYES & PIGMENTS | -321355 | -1E+06 | -363404 | -1092633 | -422770 | -1207907 | -468718 | -1522259 | -479714 | -1646979 | -469056 | -1517715 | -536901 | -2009844 | -885171 | -3678464 |
| **NET IMPORTS OF MAJOR CHEMICALS** | **4221618** | **-735854** | **3916214** | **-946277** | **4441327** | **-835736** | **4799936** | **-1309067** | **4859068** | **-2165343** | **4078152** | **-2044488** | **4045912** | **-2414968** | **2251044** | **-9729184** |

***Source:*** *DGCIS, Kolkata, M/o Commerce and Industry*

**Note:** Import and Export includes both technical and formulations.

**Table 16: Exports of Major Chemicals (Product Wise) during 2015-16 to 2022-23**

(QTY in MT; VAL in Rs. Lakh)

| PRODUCT | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | | 2021-22 | | 2022-23 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL |
| (1) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) |
| **ALKALI CHEMICALS** | | | | | | | | | | | | | | | | |
| SODA ASH | 18613 | 3927 | 64377 | 10793 | 110087 | 19377 | 62457 | 15202 | 137749 | 27137 | 149721 | 23725 | 250639 | 53739 | 407819 | 138751 |
| CAUSTIC SODA | 82144 | 23807 | 84809 | 27773 | 159630 | 66829 | 172165 | 71663 | 187494 | 54532 | 275374 | 60246 | 343042 | 131967 | 916363 | 485814 |
| LIQUID CHLORINE | 5987 | 1476 | 5058 | 1025 | 3739 | 674 | 4699 | 979 | 4216 | 1091 | 3778 | 1339 | 4290 | 1455 | 11374 | 4102 |
| **TOTAL** | **106744** | **29210** | **154244** | **39591** | **273456** | **86880** | **239321** | **87844** | **329459** | **82760** | **428873** | **85310** | **597971** | **187161** | **1335556** | **628667** |
| **INORGANIC CHEMICALS** | | | | | | | | | | | | | | | | |
| ALUMINIUM FLUORIDE | 1796 | 1240 | 321 | 265 | 206 | 204 | 442 | 363 | 1362 | 1210 | 2046 | 1872 | 984 | 247 | 783 | 1004 |
| CALCIUM CARBIDE | 371 | 206 | 493 | 284 | 464 | 258 | 325 | 204 | 371 | 244 | 129 | 112 | 787 | 974 | 1470 | 1683 |
| CARBON BLACK | 114668 | 55019 | 332172 | 87414 | 122287 | 72959 | 122832 | 103643 | 144017 | 103457 | 138724 | 85640 | 203936 | 218180 | 448877 | 546424 |
| POTASSIUM CHLORATE | 758 | 576 | 1658 | 1145 | 1941 | 1245 | 3024 | 2124 | 3178 | 2190 | 2595 | 1803 | 1981 | 1564 | 5374 | 6069 |
| SODIUM CHLORATE | 13 | 13 | 118 | 56 | 1075 | 256 | 810 | 41 | 0 | 6 | 5 | 5 | 24 | 34 | 17 | 27 |
| TITANIUM DIOXIDE | 4436 | 5582 | 8183 | 10216 | 9560 | 15377 | 7345 | 12743 | 6235 | 10654 | 6483 | 11521 | 6051 | 15382 | 9864 | 25540 |
| RED PHOSPHORUS | 482 | 1777 | 454 | 1757 | 455 | 1716 | 595 | 2242 | 650 | 2567 | 582 | 2460 | 626 | 3628 | 1344 | 11049 |
| HYDROGEN PEROXIDE | 351 | 222 | 270 | 284 | 116 | 214 | 263 | 225 | 808 | 482 | 3077 | 1053 | 5683 | 1996 | 110014 | 56163 |
| CALCIUM CARBONATE | 33808 | 9831 | 33918 | 9901 | 36967 | 10041 | 41264 | 11663 | 39414 | 13269 | 41300 | 14740 | 52876 | 19176 | 96475 | 37658 |
| **TOTAL** | **156683** | **74466** | **377587** | **111322** | **173071** | **102270** | **176900** | **133248** | **196035** | **134079** | **194941** | **119206** | **272948** | **261181** | **674218** | **685617** |
| **ORGANIC CHEMICALS** | | | | | | | | | | | | | | | | |
| ACETIC ACID | 8378 | 5181 | 12914 | 6277 | 12220 | 5401 | 17821 | 10476 | 12746 | 6265 | 10697 | 6270 | 22227 | 20425 | 90011 | 57637 |
| ACETIC ANHYDRIDE | 18605 | 9941 | 20443 | 10277 | 19644 | 13743 | 18444 | 13582 | 20529 | 12815 | 23960 | 15302 | 20700 | 24118 | 70740 | 71795 |
| ACETONE | 10778 | 6392 | 3225 | 2201 | 5054 | 3173 | 10901 | 5904 | 11004 | 5646 | 28161 | 19355 | 21604 | 15500 | 26171 | 22360 |
| PHENOL | 6841 | 7379 | 4013 | 8192 | 4750 | 9709 | 4724 | 11740 | 22273 | 23408 | 53100 | 39575 | 43658 | 50811 | 33384 | 55867 |
| METHANOL | 44013 | 8196 | 12624 | 3123 | 9466 | 2846 | 10943 | 3819 | 12941 | 3482 | 8451 | 2607 | 18645 | 6084 | 82996 | 27831 |
| FORMALDEHYDE | 8480 | 1383 | 8406 | 1548 | 10616 | 2098 | 12484 | 2495 | 14153 | 2484 | 15241 | 2734 | 16486 | 4115 | 32428 | 9463 |
| NITROBENZENE | 49 | 38 | 344 | 231 | 60 | 49 | 103 | 110 | 133 | 131 | 98 | 99 | 119 | 149 | 303 | 474 |
| CITRIC ACID | 1487 | 1144 | 1670 | 1244 | 2393 | 1931 | 2323 | 2010 | 2411 | 1942 | 2296 | 2018 | 5572 | 11418 | 6291 | 11436 |
| MALEIC ANHYDRIDE | 80 | 67 | 232 | 164 | 233 | 227 | 87 | 105 | 167 | 193 | 50 | 62 | 114 | 204 | 266 | 419 |
| PENTAERYTHRITOL | 1632 | 2958 | 2044 | 3470 | 2110 | 3399 | 2287 | 4161 | 2584 | 4741 | 1336 | 2550 | 2620 | 6578 | 4982 | 14109 |
| ANILINE | 129 | 134 | 168 | 207 | 162 | 614 | 137 | 341 | 68 | 148 | 68 | 89 | 74 | 179 | 112 | 531 |
| CHLORO METHANES | 38 | 41 | 89 | 121 | 101 | 283 | 75 | 149 | 49 | 107 | 68 | 156 | 122 | 250 | 131 | 339 |
| ISOBUTYLBENZENE | 12572 | 14186 | 13430 | 14854 | 12341 | 14384 | 11740 | 16320 | 9705 | 14150 | 16156 | 20894 | 8541 | 13709 | 28560 | 56549 |
| ONCB | 843 | 883 | 973 | 950 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PNCB | 1670 | 1114 | 1023 | 738 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MEK | 184 | 795 | 189 | 98 | 19 | 36 | 465 | 477 | 243 | 245 | 66 | 75 | 10 | 37 | 682 | 1051 |
| ACETALDEHYDE | 2 | 4 | 40 | 44 | 3 | 6 | 1148 | 912 | 1139 | 893 | 1027 | 692 | 993 | 812 | 302 | 351 |
| ETHANOLAMINES | 1129 | 7119 | 1692 | 4996 | 4801 | 14201 | 3143 | 13553 | 1686 | 10522 | 2760 | 11850 | 3081 | 10668 | 6350 | 29761 |
| ETHYL ACETATE | 104814 | 54269 | 93699 | 48020 | 105551 | 62174 | 118682 | 82170 | 108384 | 63095 | 108725 | 69937 | 118930 | 133346 | 186157 | 173077 |

| PRODUCT | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | | 2021-22 | | 2022-23 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL |
| MENTHOL | 8836 | 94548 | 12006 | 125246 | 12749 | 183951 | 13351 | 253213 | 17089 | 265334 | 19980 | 240427 | 19795 | 222579 | 25429 | 309442 |
| ORTHO NITRO TOLUENE | 1168 | 999 | 1082 | 939 | 2650 | 2267 | 4289 | 4201 | 7220 | 7112 | 3682 | 3318 | 6853 | 7332 | 12324 | 16926 |
| **TOTAL** | **231728** | **216771** | **190306** | **232940** | **204923** | **320492** | **233147** | **425738** | **244524** | **422713** | **295922** | **438010** | **310144** | **528314** | **607619** | **859418** |
| **PESTICIDES & INSECTICIDES** | | | | | | | | | | | | | | | | |
| MALATHION | 1010 | 1943 | 1264 | 2274 | 1977 | 3682 | 2499 | 5792 | 2318 | 6230 | 1673 | 5079 | 2772 | 9020 | 2886 | 11076 |
| DIMETHOATE | 20 | 52 | 24 | 58 | 24 | 62 | 126 | 429 | 199 | 603 | 154 | 590 | 96 | 443 | 26 | 149 |
| D.D.V.P. | 550 | 1461 | 322 | 1145 | 493 | 1835 | 689 | 2716 | 12 | 41 | 639 | 2620 | 468 | 1128 | 44 | 162 |
| QUINALPHOS | 235 | 1036 | 384 | 1772 | 382 | 1645 | 281 | 1439 | 338 | 1606 | 522 | 2909 | 811 | 5809 | 1080 | 7908 |
| CYPERMETHRIN | 8837 | 45949 | 9416 | 45742 | 9706 | 62713 | 13609 | 112381 | 15122 | 95462 | 18945 | 106342 | 19820 | 126617 | 30369 | 190832 |
| FENTHION | 0 | 0 | 10 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| OTHER PESTICIDES | 41058 | 214054 | 45560 | 208648 | 43320 | 216510 | 39174 | 233275 | 7416 | 28448 | 6155 | 23536 | 6410 | 24045 | 10060 | 51232 |
| OTHER INSECTICIDES | 31146 | 276427 | 41471 | 311285 | 50008 | 393497 | 62714 | 580271 | 106352 | 840555 | 111743 | 833725 | 125025 | 1083286 | 240067 | 2422385 |
| COPPER-OXYCHLORIDE | 810 | 1818 | 871 | 1921 | 723 | 1732 | 806 | 2427 | 2240 | 5896 | 1603 | 5135 | 1767 | 8035 | 2984 | 13716 |
| 2, 4-D | 19449 | 29770 | 20677 | 27496 | 24125 | 36076 | 22242 | 46347 | 19623 | 32924 | 21097 | 33198 | 33070 | 80574 | 80051 | 203535 |
| ISOPROTURON | 1087 | 3830 | 356 | 1295 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ALUMINIUM PHOSPHIDE | 64 | 226 | 127 | 515 | 505 | 1703 | 481 | 2084 | 426 | 1909 | 764 | 3024 | 1029 | 3241 | 1199 | 5961 |
| METHYL BROMIDE | 1274 | 4641 | 1756 | 6229 | 2000 | 7292 | 2208 | 8384 | 1628 | 6682 | 2089 | 9966 | 2214 | 11088 | 3933 | 26753 |
| OTHER HERBICIDES-ANTI SPROUTING PRODUCTS | 32381 | 266182 | 50720 | 362041 | 67039 | 425113 | 74058 | 595122 | 79434 | 717390 | 101726 | 857814 | 140909 | 1197464 | 295576 | 3107998 |
| OTHER FUNGICIDE NES | 128994 | 279485 | 169373 | 344587 | 158179 | 329170 | 185896 | 413465 | 162961 | 425551 | 203677 | 496663 | 233275 | 715669 | 411289 | 1681686 |
| **TOTAL** | **266915** | **1126874** | **342331** | **1315026** | **358481** | **1481030** | **404783** | **2004132** | **398069** | **2163297** | **470787** | **2380601** | **567666** | **3266419** | **1079564** | **7723393** |
| **DYES & PIGMENTS** | | | | | | | | | | | | | | | | |
| AZO DYES | 55327 | 161970 | 60390 | 162456 | 69996 | 181785 | 72999 | 225224 | 68352 | 210313 | 64125 | 179167 | 76648 | 246547 | 124240 | 446100 |
| ACID DIRECT DYES(OTHER THAN AZO) | 3559 | 17300 | 4434 | 19689 | 5098 | 21655 | 5103 | 26145 | 5601 | 28666 | 5892 | 29584 | 6996 | 40191 | 12311 | 70856 |
| BASIC DYES | 8173 | 23896 | 9229 | 26186 | 10757 | 32222 | 12017 | 44585 | 12730 | 48887 | 13585 | 51140 | 13913 | 60670 | 27385 | 120869 |
| DISPERSE DYES | 13117 | 52818 | 16078 | 59912 | 14460 | 56914 | 20552 | 107647 | 23362 | 133160 | 18521 | 93517 | 24336 | 120607 | 33826 | 179726 |
| FAST COLOUR BASES | 2262 | 11868 | 2174 | 15766 | 2042 | 9726 | 2652 | 14987 | 5364 | 46929 | 3667 | 21816 | 4008 | 28273 | 4662 | 35598 |
| OIL SOLUBLE (SOLVENT DYES) | 6123 | 31703 | 8702 | 39439 | 8995 | 42906 | 10195 | 66808 | 11091 | 76571 | 9106 | 65358 | 10656 | 92079 | 18051 | 165638 |
| OPTICAL WHITENING AGENTS | 25203 | 46519 | 26957 | 46240 | 30124 | 48069 | 30259 | 66858 | 26084 | 82724 | 21458 | 44381 | 23448 | 63463 | 33383 | 104294 |
| ORGANIC PIGMENT | 75 | 531 | 71 | 293 | 62 | 185 | 15 | 98 | 50 | 333 | 67 | 229 | 29 | 84 | 31 | 125 |
| PIGMENT EMULSION | 81536 | 374190 | 88980 | 392700 | 102051 | 441253 | 110526 | 494598 | 110669 | 534039 | 116980 | 581196 | 130371 | 757608 | 194381 | 1251744 |
| REACTIVE DYES | 113224 | 344963 | 128417 | 379350 | 147417 | 413080 | 158530 | 511426 | 169648 | 502283 | 152579 | 426490 | 180640 | 591072 | 269427 | 966985 |
| SULPHUR DYES (SULPHUR BLACK) | 1472 | 1945 | 2023 | 2682 | 5467 | 5794 | 5720 | 7303 | 4510 | 5233 | 3701 | 4115 | 5565 | 7958 | 6627 | 9810 |
| VAT DYES | 1364 | 20523 | 1404 | 22737 | 1707 | 26607 | 4475 | 46284 | 4524 | 64023 | 3643 | 63587 | 6936 | 81370 | 6394 | 113241 |
| SOLUBILISED VAT DYES | 36 | 354 | 31 | 265 | 46 | 529 | 63 | 789 | 71 | 1185 | 83 | 759 | 74 | 1043 | 123 | 2088 |

| PRODUCT | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | | 2021-22 | | 2022-23 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL |
| FOOD COLOURS | 27101 | 79537 | 28359 | 79492 | 31110 | 87129 | 29007 | 107344 | 25347 | 107786 | 30271 | 118294 | 35087 | 143435 | 61969 | 297500 |
| NAPTHOLS | 1489 | 3463 | 2076 | 4753 | 2329 | 5725 | 3276 | 8341 | 4169 | 11467 | 4982 | 10894 | 3053 | 8471 | 5007 | 13502 |
| OTHER DYES | 10159 | 22693 | 12711 | 24977 | 13735 | 26227 | 13621 | 31196 | 15218 | 34504 | 17473 | 34086 | 17930 | 38503 | 33163 | 76385 |
| INORGANIC PIGMENTS | 25826 | 25522 | 27236 | 30609 | 40345 | 39484 | 46160 | 41048 | 43507 | 40311 | 48262 | 45768 | 50868 | 55131 | 98828 | 114401 |
| **TOTAL** | **376046** | **1219795** | **419272** | **1307546** | **485741** | **1439290** | **525170** | **1800681** | **530297** | **1928414** | **514395** | **1770381** | **590558** | **2336505** | **929808** | **3968862** |

***Source:*** *DGCIS, Kolkata, M/o Commerce and Industry*

**Table 17: Imports of Major Chemicals (Product Wise) during 2015-16 to 2022-23**

(QTY in MT; VAL in Rs. Lakh)

| PRODUCT | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | | 2021-22 | | 2022-23 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL |
| (1) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) |
| **ALKALI CHEMICALS** | | | | | | | | | | | | | | | | |
| SODA ASH | 633263 | 101707 | 695307 | 102490 | 772622 | 111757 | 840591 | 144900 | 847704 | 152515 | 719731 | 114804 | 563140 | 97002 | 577480 | 195359 |
| CAUSTIC SODA | 484133 | 116303 | 425795 | 112391 | 421298 | 153382 | 208267 | 79927 | 309345 | 87982 | 248057 | 55495 | 203275 | 77347 | 135823 | 74227 |
| LIQUID CHLORINE | 482 | 189 | 35 | 170 | 58 | 208 | 266 | 696 | 81 | 255 | 39 | 200 | 149 | 383 | 64 | 412 |
| **TOTAL** | **1117878** | **218199** | **1121137** | **215051** | **1193978** | **265347** | **1049124** | **225523** | **1157130** | **240752** | **967827** | **170499** | **766564** | **174732** | **713367** | **269998** |
| **INORGANIC CHEMICALS** | | | | | | | | | | | | | | | | |
| ALUMINIUM FLUORIDE | 27258 | 18102 | 46564 | 26437 | 49758 | 29075 | 62374 | 56075 | 40362 | 37910 | 61224 | 48059 | 74347 | 52878 | 54655 | 56217 |
| CALCIUM CARBIDE | 61935 | 25429 | 55692 | 23652 | 55651 | 23941 | 45321 | 21554 | 31218 | 14507 | 32666 | 17749 | 22008 | 15761 | 22133 | 17150 |
| CARBON BLACK | 124059 | 83401 | 128740 | 82424 | 186224 | 143618 | 278531 | 249368 | 197491 | 153367 | 190469 | 127583 | 156331 | 155878 | 126675 | 165212 |
| POTASSIUM CHLORATE | 3160 | 2026 | 100 | 61 | 29 | 22 | 128 | 272 | 55 | 119 | 909 | 884 | 0 | 9 | 0 | 2 |
| SODIUM CHLORATE | 17298 | 6400 | 7447 | 2907 | 8822 | 3041 | 14240 | 5884 | 24082 | 11254 | 11589 | 5118 | 16655 | 6822 | 21823 | 14720 |
| TITANIUM DIOXIDE | 16421 | 25709 | 13901 | 22943 | 13701 | 24771 | 14546 | 28686 | 16416 | 30825 | 13389 | 25107 | 15134 | 36230 | 18505 | 53925 |
| RED PHOSPHORUS | 0 | 0 | 0 | 1 | 0 | 3 | 14 | 51 | 18 | 57 | 4 | 18 | 0 | 1 | 0 | 0 |
| HYDROGEN PEROXIDE | 44084 | 11211 | 57068 | 15910 | 68474 | 19305 | 84261 | 36931 | 52727 | 15858 | 22355 | 8150 | 33475 | 11293 | 44550 | 14499 |
| CALCIUM CARBONATE | 715606 | 65090 | 700559 | 60902 | 846195 | 64587 | 1080252 | 86942 | 1169457 | 90705 | 855385 | 69433 | 1027322 | 103502 | 1063109 | 111870 |
| **TOTAL** | **1009821** | **237368** | **1010071** | **235237** | **1228854** | **308363** | **1579667** | **485763** | **1531826** | **354602** | **1187990** | **302101** | **1345272** | **382374** | **1351450** | **433595** |
| **ORGANIC CHEMICALS** | | | | | | | | | | | | | | | | |
| ACETIC ACID | 792775 | 206305 | 847808 | 193958 | 884515 | 290624 | 937298 | 422360 | 926492 | 273709 | 904345 | 275694 | 1054823 | 778838 | 1134506 | 512714 |
| ACETIC ANHYDRIDE | 2918 | 1780 | 2272 | 1118 | 4381 | 2346 | 12275 | 9700 | 20529 | 11716 | 18807 | 10479 | 20896 | 22339 | 13400 | 10112 |
| ACETONE | 138402 | 55796 | 135887 | 63055 | 146878 | 74975 | 116760 | 52108 | 72402 | 28094 | 82056 | 53673 | 118656 | 82777 | 110027 | 65925 |
| PHENOL | 248769 | 147715 | 282187 | 176601 | 288572 | 202842 | 231808 | 217710 | 144005 | 99070 | 170993 | 89789 | 206208 | 210164 | 218476 | 242182 |
| METHANOL | 1711879 | 285259 | 1637457 | 295762 | 1783293 | 400004 | 1986712 | 519474 | 2286274 | 425567 | 2219944 | 434805 | 2397912 | 743153 | 2815926 | 752424 |
| FORMALDEHYDE | 66 | 42 | 84 | 248 | 46 | 44 | 22 | 13 | 5 | 111 | 6 | 148 | 8 | 194 | 6 | 108 |
| NITROBENZENE | 5838 | 2733 | 14429 | 6944 | 15384 | 8207 | 18204 | 10721 | 15533 | 8073 | 9866 | 5008 | 7816 | 6361 | 3887 | 4235 |
| CITRIC ACID | 75978 | 36119 | 81681 | 39558 | 84262 | 45489 | 95283 | 45136 | 90958 | 38453 | 94966 | 47550 | 99929 | 100565 | 131440 | 140713 |
| MALEIC ANHYDRIDE | 47399 | 31392 | 50813 | 34618 | 52627 | 42928 | 69920 | 61694 | 66942 | 46858 | 59533 | 46705 | 74467 | 107691 | 82414 | 94533 |
| PENTAERYTHRITOL | 19486 | 21468 | 19380 | 20690 | 17963 | 19614 | 18407 | 23000 | 21311 | 23116 | 13613 | 13022 | 16340 | 25537 | 17553 | 25392 |
| ANILINE | 38341 | 26965 | 44650 | 29368 | 65416 | 58924 | 88454 | 81524 | 80946 | 53293 | 72770 | 47402 | 92072 | 113186 | 101437 | 137516 |
| CHLORO METHANES | 608 | 364 | 258 | 223 | 519 | 429 | 1413 | 1089 | 2404 | 2122 | 2469 | 2111 | 1905 | 2163 | 1406 | 1720 |
| ISOBUTYLBENZENE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| ONCB | 237 | 192 | 839 | 628 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PNCB | 8408 | 3886 | 6095 | 2899 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MEK | 40883 | 26950 | 30901 | 16629 | 45331 | 36027 | 47158 | 40994 | 25509 | 19145 | 42542 | 33013 | 42363 | 44585 | 49348 | 61386 |
| ACETALDEHYDE | 74 | 299 | 130 | 357 | 81 | 243 | 94 | 275 | 113 | 375 | 82 | 568 | 150 | 497 | 141 | 454 |
| ETHANOLAMINES | 10072 | 10321 | 11662 | 10202 | 16101 | 16140 | 16648 | 19347 | 16694 | 16398 | 19070 | 17807 | 18605 | 24326 | 16431 | 23742 |
| ETHYL ACETATE | 290 | 909 | 1664 | 861 | 43 | 127 | 2917 | 2358 | 2157 | 1768 | 141 | 1697 | 3778 | 5336 | 262 | 1630 |
| MENTHOL | 936 | 7112 | 1511 | 10211 | 1372 | 8573 | 1334 | 12718 | 3057 | 30181 | 4521 | 45226 | 4056 | 40528 | 4250 | 42794 |
| ORTHO NITRO TOLUENE | 117 | 77 | 579 | 436 | 267 | 212 | 74 | 57 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **TOTAL** | **3143476** | **865684** | **3170287** | **904366** | **3407051** | **1207748** | **3644781** | **1520278** | **3775333** | **1078053** | **3715724** | **1124697** | **4159984** | **2308240** | **4700910** | **2117580** |
| **PESTICIDES & INSECTICIDES** | | | | | | | | | | | | | | | | |

| PRODUCT | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | | 2021-22 | | 2022-23 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL |
| MALATHION | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 540 | 1758 |
| DIMETHOATE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 326 | 153 | 723 | 334 | 1382 |
| D.D.V.P. | 64 | 116 | 16 | 28 | 35 | 66 | 1561 | 3167 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| QUINALPHOS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 81 | 0 | 0 | 0 | 0 | 0 | 0 |
| CYPERMETHRIN | 0 | 0 | 0 | 0 | 8 | 47 | 5 | 53 | 93 | 849 | 6 | 57 | 3 | 45 | 0 | 0 |
| FENTHION | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| OTHER PESTICIDES | 1318 | 12700 | 1176 | 91641 | 1907 | 139991 | 1868 | 163792 | 4534 | 131268 | 5453 | 216253 | 1443 | 143124 | 891 | 65176 |
| OTHER INSECTICIDES | 15634 | 213829 | 18067 | 208838 | 17307 | 239549 | 17188 | 240036 | 13525 | 268040 | 16512 | 343526 | 16376 | 385766 | 16776 | 385652 |
| COPPER-OXYCHLORIDE | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 40 | 138 | 0 | 0 |
| 2, 4-D | 72 | 123 | 16 | 27 | 1824 | 2735 | 2819 | 5935 | 2382 | 4311 | 2412 | 3657 | 601 | 2315 | 746 | 2078 |
| ISOPROTURON | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ALUMINIUM PHOSPHIDE | 6 | 98 | 0 | 0 | 0 | 0 | 5 | 39 | 1 | 27 | 7 | 40 | 0 | 1 | 0 | 1 |
| METHYL BROMIDE | 53 | 250 | 24 | 70 | 18 | 107 | 2 | 14 | 28 | 141 | 12 | 63 | 30 | 170 | 0 | 0 |
| OTHER HERBICIDES-ANTI SPROUTING PRODUCTS | 10171 | 85167 | 16149 | 104626 | 15248 | 100387 | 18044 | 122207 | 14232 | 104807 | 30307 | 189422 | 24959 | 213811 | 31871 | 311738 |
| OTHER FUNGICIDE NES | 6550 | 78424 | 7143 | 85350 | 7798 | 98502 | 7738 | 97341 | 7770 | 101554 | 11418 | 145713 | 16117 | 226512 | 16287 | 257417 |
| **TOTAL** | **33868** | **390707** | **42591** | **490581** | **44145** | **581385** | **49233** | **632590** | **42580** | **611078** | **66190** | **899057** | **59722** | **972605** | **67445** | **1025202** |
| **DYES & PIGMENTS** | | | | | | | | | | | | | | | | |
| AZO DYES | 716 | 4016 | 630 | 3509 | 514 | 3734 | 437 | 4207 | 306 | 4096 | 298 | 3880 | 408 | 4775 | 323 | 5548 |
| ACID DIRECT DYES(OTHER THAN AZO) | 312 | 1685 | 188 | 1348 | 248 | 1942 | 322 | 2639 | 133 | 1295 | 163 | 1073 | 125 | 1548 | 90 | 1582 |
| BASIC DYES | 475 | 4135 | 560 | 4183 | 647 | 5445 | 487 | 6868 | 529 | 8213 | 735 | 9836 | 636 | 8916 | 399 | 5824 |
| DISPERSE DYES | 6199 | 28647 | 4970 | 23618 | 4051 | 23972 | 1731 | 19295 | 2322 | 23128 | 2314 | 20496 | 2266 | 20665 | 2264 | 19214 |
| FAST COLOUR BASES | 510 | 3058 | 426 | 2314 | 379 | 2113 | 169 | 1743 | 265 | 2149 | 260 | 2414 | 45 | 773 | 253 | 1897 |
| OIL SOLUBLE (SOLVENT DYES) | 689 | 5967 | 762 | 5446 | 846 | 6414 | 710 | 7812 | 590 | 6250 | 525 | 6140 | 894 | 14411 | 918 | 13174 |
| OPTICAL WHITENING AGENTS | 664 | 5376 | 612 | 5455 | 593 | 5540 | 565 | 6978 | 738 | 8746 | 588 | 6492 | 742 | 8961 | 556 | 7156 |
| ORGANIC PIGMENT | 190 | 889 | 100 | 678 | 65 | 271 | 138 | 471 | 98 | 272 | 107 | 646 | 93 | 444 | 275 | 870 |
| PIGMENT EMULSION | 6578 | 47122 | 7085 | 47759 | 8261 | 52679 | 7985 | 57272 | 7303 | 54365 | 6443 | 53389 | 7080 | 65345 | 7314 | 69850 |
| REACTIVE DYES | 3148 | 27009 | 3460 | 28744 | 3340 | 24642 | 3117 | 26440 | 3661 | 27931 | 2962 | 21959 | 3461 | 28663 | 2819 | 22464 |
| SULPHUR DYES (SULPHUR BLACK) | 1332 | 2636 | 1283 | 2638 | 1252 | 2916 | 1116 | 3286 | 1041 | 3128 | 1337 | 3294 | 1810 | 5523 | 3363 | 9298 |
| VAT DYES | 20580 | 48846 | 23527 | 53539 | 26368 | 59134 | 21571 | 77638 | 16400 | 63470 | 13310 | 40263 | 20402 | 89474 | 11536 | 57921 |
| SOLUBILISED VAT DYES | 473 | 1007 | 337 | 756 | 319 | 764 | 358 | 1289 | 170 | 810 | 108 | 463 | 22 | 261 | 19 | 444 |
| FOOD COLOURS | 1083 | 5225 | 1041 | 4859 | 1162 | 5057 | 1364 | 6747 | 1215 | 6695 | 375 | 6268 | 449 | 6638 | 350 | 7628 |
| NAPTHOLS | 1051 | 3824 | 1107 | 3750 | 1286 | 4446 | 1255 | 5267 | 1374 | 6559 | 1465 | 5757 | 1355 | 8239 | 1408 | 6248 |
| OTHER DYES | 177 | 1531 | 183 | 1533 | 512 | 2239 | 2337 | 7151 | 2265 | 7188 | 2332 | 7239 | 2439 | 8260 | 2671 | 9706 |
| INORGANIC PIGMENTS | 10514 | 28331 | 9597 | 24784 | 13128 | 30075 | 12790 | 43319 | 12173 | 57140 | 12017 | 63057 | 11430 | 53765 | 10079 | 51574 |
| **TOTAL** | **54691** | **219304** | **55868** | **214913** | **62971** | **231383** | **56452** | **278422** | **50583** | **281435** | **45339** | **252666** | **53657** | **326661** | **44637** | **290398** |

***Source:*** *DGCIS, Kolkata, M/o Commerce and Industry*

**Table 18: Net Imports of Major Chemicals (Product Wise) during 2015-16 to 2022-23**

[QTY in MT & VAL in Rs. Lakh]

| PRODUCT | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | | 2021-22 | | 2022-23 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL |
| (1) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) |
| **ALKALI CHEMICALS** | | | | | | | | | | | | | | | | |
| SODA ASH | 614650 | 97780 | 630930 | 91697 | 662535 | 92380 | 778134 | 129698 | 709955 | 125378 | 570010 | 91079 | 312501 | 43263 | 169661 | 56608 |
| CAUSTIC SODA | 401989 | 92496 | 340986 | 84618 | 261668 | 86553 | 36102 | 8264 | 121851 | 33450 | -27317 | -4751 | -139767 | -54620 | -780540 | -411587 |
| LIQUID CHLORINE | -5505 | -1287 | -5023 | -855 | -3681 | -466 | -4433 | -283 | -4135 | -836 | -3739 | -1139 | -4141 | -1072 | -11310 | -3690 |
| **TOTAL** | **1011134** | **188989** | **966893** | **175460** | **920522** | **178467** | **809803** | **137679** | **827671** | **157992** | **538954** | **85189** | **168593** | **-12429** | **-622189** | **-358669** |
| **INORGANIC CHEMICALS** | | | | | | | | | | | | | | | | |
| ALUMINIUM FLUORIDE | 25462 | 16862 | 46243 | 26172 | 49552 | 28871 | 61932 | 55712 | 39000 | 36700 | 59178 | 46187 | 73363 | 52631 | 53872 | 55213 |
| CALCIUM CARBIDE | 61564 | 25223 | 55199 | 23368 | 55187 | 23683 | 44996 | 21350 | 30847 | 14263 | 32537 | 17637 | 21221 | 14787 | 20663 | 15467 |
| CARBON BLACK | 9391 | 28382 | -203432 | -4990 | 63937 | 70659 | 155699 | 145725 | 53474 | 49910 | 51745 | 41943 | -47605 | -62302 | -322202 | -381212 |
| POTASSIUM CHLORATE | 2402 | 1450 | -1558 | -1084 | -1912 | -1223 | -2896 | -1852 | -3123 | -2071 | -1686 | -919 | -1981 | -1555 | -5374 | -6067 |
| SODIUM CHLORATE | 17285 | 6387 | 7329 | 2851 | 7747 | 2785 | 13430 | 5843 | 24082 | 11248 | 11584 | 5113 | 16631 | 6788 | 21806 | 14693 |
| TITANIUM DIOXIDE | 11985 | 20127 | 5718 | 12727 | 4141 | 9394 | 7201 | 15943 | 10181 | 20171 | 6906 | 13586 | 9083 | 20848 | 8641 | 28385 |
| RED PHOSPHORUS | -482 | -1777 | -454 | -1756 | -455 | -1713 | -581 | -2191 | -632 | -2510 | -578 | -2442 | -626 | -3627 | -1344 | -11049 |
| HYDROGEN PEROXIDE | 43733 | 10989 | 56798 | 15626 | 68358 | 19091 | 83998 | 36706 | 51919 | 15376 | 19278 | 7097 | 27792 | 9297 | -65464 | -41664 |
| CALCIUM CARBONATE | 681798 | 55259 | 666641 | 51001 | 809228 | 54546 | 1038988 | 75279 | 1130043 | 77436 | 814085 | 54693 | 974446 | 84326 | 966634 | 74212 |
| **TOTAL** | **853138** | **162902** | **632484** | **123915** | **1055783** | **206093** | **1402767** | **352515** | **1335791** | **220523** | **993049** | **182895** | **1072324** | **121193** | **677232** | **-252022** |
| **ORGANIC CHEMICALS** | | | | | | | | | | | | | | | | |
| ACETIC ACID | 784397 | 201124 | 834894 | 187681 | 872295 | 285223 | 919477 | 411884 | 913746 | 267444 | 893648 | 269424 | 1032596 | 758413 | 1044495 | 455077 |
| ACETIC ANHYDRIDE | -15687 | -8161 | -18171 | -9159 | -15263 | -11397 | -6169 | -3882 | 0 | -1099 | -5153 | -4823 | 196 | -1779 | -57340 | -61683 |
| ACETONE | 127624 | 49404 | 132662 | 60854 | 141824 | 71802 | 105859 | 46204 | 61398 | 22448 | 53895 | 34318 | 97052 | 67277 | 83856 | 43565 |
| PHENOL | 241928 | 140336 | 278174 | 168409 | 283822 | 193133 | 227084 | 205970 | 121732 | 75662 | 117893 | 50214 | 162550 | 159353 | 185092 | 186315 |
| METHANOL | 1667866 | 277063 | 1624833 | 292639 | 1773827 | 397158 | 1975769 | 515655 | 2273333 | 422085 | 2211493 | 432198 | 2379267 | 737069 | 2732930 | 724593 |
| FORMALDEHYDE | -8414 | -1341 | -8322 | -1300 | -10570 | -2054 | -12462 | -2482 | -14148 | -2373 | -15235 | -2586 | -16478 | -3921 | -32422 | -9355 |
| NITROBENZENE | 5789 | 2695 | 14085 | 6713 | 15324 | 8158 | 18101 | 10611 | 15400 | 7942 | 9768 | 4909 | 7697 | 6212 | 3584 | 3761 |
| CITRIC ACID | 74491 | 34975 | 80011 | 38314 | 81869 | 43558 | 92960 | 43126 | 88547 | 36511 | 92670 | 45532 | 94357 | 89147 | 125149 | 129277 |
| MALEIC ANHYDRIDE | 47319 | 31325 | 50581 | 34454 | 52394 | 42701 | 69833 | 61589 | 66775 | 46665 | 59483 | 46643 | 74353 | 107487 | 82148 | 94114 |
| PENTAERYTHRITOL | 17854 | 18510 | 17336 | 17220 | 15853 | 16215 | 16120 | 18839 | 18727 | 18375 | 12277 | 10472 | 13720 | 18959 | 12571 | 11283 |
| ANILINE | 38212 | 26831 | 44482 | 29161 | 65254 | 58310 | 88317 | 81183 | 80878 | 53145 | 72702 | 47313 | 91998 | 113007 | 101325 | 136985 |
| CHLORO METHANES | 570 | 323 | 169 | 102 | 418 | 146 | 1338 | 940 | 2355 | 2015 | 2401 | 1955 | 1783 | 1913 | 1275 | 1381 |
| ISOBUTYLBENZENE | -12572 | -14186 | -13430 | -14854 | -12341 | -14384 | -11740 | -16320 | -9703 | -14146 | -16156 | -20894 | -8541 | -13709 | -28560 | -56549 |
| ONCB | -606 | -691 | -134 | -322 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PNCB | 6738 | 2772 | 5072 | 2161 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MEK | 40699 | 26155 | 30712 | 16531 | 45312 | 35991 | 46693 | 40517 | 25266 | 18900 | 42476 | 32938 | 42353 | 44548 | 48666 | 60335 |
| ACETALDEHYDE | 72 | 295 | 90 | 313 | 78 | 237 | -1054 | -637 | -1026 | -518 | -945 | -124 | -843 | -315 | -161 | 103 |
| ETHANOLAMINES | 8943 | 3202 | 9970 | 5206 | 11300 | 1939 | 13505 | 5794 | 15008 | 5876 | 16310 | 5957 | 15524 | 13658 | 10081 | -6019 |
| ETHYL ACETATE | -104524 | -53360 | -92035 | -47159 | -105508 | -62047 | -115765 | -79812 | -106227 | -61327 | -108584 | -68240 | -115152 | -128010 | -185895 | -171447 |
| MENTHOL | -7900 | -87436 | -10495 | -115035 | -11377 | -175378 | -12017 | -240495 | -14032 | -235153 | -15459 | -195201 | -15739 | -182051 | -21179 | -266648 |
| ORTHO NITRO TOLUENE | -1051 | -922 | -503 | -503 | -2383 | -2055 | -4215 | -4144 | -7220 | -7112 | -3682 | -3318 | -6853 | -7332 | -12324 | -16926 |
| **TOTAL** | **2911748** | **648913** | **2979981** | **671426** | **3202128** | **887256** | **3411634** | **1094540** | **3530809** | **655340** | **3419802** | **686687** | **3849840** | **1779926** | **4093291** | **1258162** |
| **PESTICIDES & INSECTICIDES** | | | | | | | | | | | | | | | | |
| MALATHION | -1010 | -1943 | -1264 | -2274 | -1977 | -3682 | -2499 | -5792 | -2318 | -6230 | -1673 | -5079 | -2772 | -9020 | -2346 | -9318 |

| PRODUCT | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | | 2021-22 | | 2022-23 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL |
| DIMETHOATE | -20 | -52 | -24 | -58 | -24 | -62 | -126 | -429 | -199 | -603 | -91 | -264 | 57 | 280 | 308 | 1233 |
| D.D.V.P. | -486 | -1345 | -306 | -1117 | -458 | -1769 | 872 | 451 | -12 | -41 | -639 | -2620 | -468 | -1128 | -44 | -162 |
| QUINALPHOS | -235 | -1036 | -384 | -1772 | -382 | -1645 | -281 | -1439 | -323 | -1525 | -522 | -2909 | -811 | -5809 | -1080 | -7908 |
| CYPERMETHRIN | -8837 | -45949 | -9416 | -45742 | -9698 | -62666 | -13604 | -112328 | -15029 | -94613 | -18939 | -106285 | -19817 | -126572 | -30369 | -190832 |
| FENTHION | 0 | 0 | -10 | -18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| OTHER PESTICIDES | -39740 | -201354 | -44384 | -117007 | -41413 | -76519 | -37306 | -69483 | -2882 | 102820 | -702 | 192717 | -4967 | 119079 | -9169 | 13944 |
| OTHER INSECTICIDES | -15512 | -62598 | -23404 | -102447 | -32701 | -153948 | -45526 | -340235 | -92827 | -572515 | -95231 | -490199 | -108649 | -697520 | -223291 | -2036733 |
| COPPER-OXYCHLORIDE | -810 | -1818 | -871 | -1920 | -723 | -1731 | -806 | -2425 | -2240 | -5896 | -1603 | -5135 | -1727 | -7897 | -2984 | -13716 |
| 2, 4-D | -19377 | -29647 | -20661 | -27469 | -22301 | -33341 | -19423 | -40412 | -17241 | -28613 | -18685 | -29541 | -32469 | -78259 | -79305 | -201457 |
| ISOPROTURON | -1087 | -3830 | -356 | -1295 | 0 | 0 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ALUMINIUM PHOSPHIDE | -58 | -128 | -127 | -515 | -505 | -1703 | -476 | -2045 | -425 | -1882 | -757 | -2984 | -1029 | -3240 | -1199 | -5960 |
| METHYL BROMIDE | -1221 | -4391 | -1732 | -6159 | -1982 | -7185 | -2206 | -8370 | -1600 | -6541 | -2077 | -9903 | -2184 | -10918 | -3933 | -26753 |
| OTHER HERBICIDES-ANTI SPROUTING PRODUCTS | -22210 | -181015 | -34571 | -257415 | -51791 | -324726 | -56014 | -472915 | -65202 | -612583 | -71419 | -668392 | -115950 | -983653 | -263705 | -2796260 |
| OTHER FUNGICIDE NES | -122444 | -201061 | -162230 | -259237 | -150381 | -230668 | -178158 | -316124 | -155191 | -323997 | -192259 | -350950 | -217158 | -489157 | -395002 | -1424269 |
| **TOTAL** | **-233047** | **-736167** | **-299740** | **-824445** | **-314336** | **-899645** | **-355550** | **-1371542** | **-355489** | **-1552219** | **-404597** | **-1481544** | **-507944** | **-2293814** | **-1012119** | **-6698191** |
| **DYES & PIGMENTS** | | | | | | | | | | | | | | | | |
| AZO DYES | -54611 | -157954 | -59760 | -158947 | -69482 | -178051 | -72562 | -221017 | -68046 | -206217 | -63827 | -175287 | -76240 | -241772 | -123917 | -440552 |
| ACID DIRECT DYES(OTHER THAN AZO) | -3247 | -15615 | -4246 | -18341 | -4850 | -19713 | -4781 | -23506 | -5468 | -27371 | -5729 | -28511 | -6871 | -38643 | -12221 | -69274 |
| BASIC DYES | -7698 | -19761 | -8669 | -22003 | -10110 | -26777 | -11530 | -37717 | -12201 | -40674 | -12850 | -41304 | -13277 | -51754 | -26986 | -115045 |
| DISPERSE DYES | -6918 | -24171 | -11108 | -36294 | -10409 | -32942 | -18821 | -88352 | -21040 | -110032 | -16207 | -73021 | -22070 | -99942 | -31562 | -160512 |
| FAST COLOUR BASES | -1752 | -8810 | -1748 | -13452 | -1663 | -7613 | -2483 | -13244 | -5099 | -44780 | -3407 | -19402 | -3963 | -27500 | -4409 | -33701 |
| OIL SOLUBLE (SOLVENT DYES) | -5434 | -25736 | -7940 | -33993 | -8149 | -36492 | -9485 | -58996 | -10501 | -70321 | -8581 | -59218 | -9762 | -77668 | -17133 | -152464 |
| OPTICAL WHITENING AGENTS | -24539 | -41143 | -26345 | -40785 | -29531 | -42529 | -29694 | -59880 | -25346 | -73978 | -20870 | -37889 | -22706 | -54502 | -32827 | -97138 |
| ORGANIC PIGMENT | 115 | 358 | 29 | 385 | 3 | 86 | 123 | 373 | 48 | -61 | 40 | 417 | 64 | 360 | 244 | 745 |
| PIGMENT EMULSION | -74958 | -327068 | -81895 | -344941 | -93790 | -388574 | -102541 | -437326 | -103366 | -479674 | -110537 | -527807 | -123291 | -692263 | -187067 | -1181894 |
| REACTIVE DYES | -110076 | -317954 | -124957 | -350606 | -144077 | -388438 | -155413 | -484986 | -165987 | -474352 | -149617 | -404531 | -177179 | -562409 | -266608 | -944521 |
| SULPHUR DYES (SULPHUR BLACK) | -140 | 691 | -740 | -44 | -4215 | -2878 | -4604 | -4017 | -3469 | -2105 | -2364 | -821 | -3755 | -2435 | -3264 | -512 |
| VAT DYES | 19216 | 28323 | 22123 | 30802 | 24661 | 32527 | 17096 | 31354 | 11876 | -553 | 9667 | -23324 | 13466 | 8104 | 5142 | -55320 |
| SOLUBILISED VAT DYES | 437 | 653 | 306 | 491 | 273 | 235 | 295 | 500 | 99 | -375 | 25 | -296 | -52 | -782 | -104 | -1644 |
| FOOD COLOURS | -26018 | -74312 | -27318 | -74633 | -29948 | -82072 | -27643 | -100597 | -24132 | -101091 | -29896 | -112026 | -34638 | -136797 | -61619 | -289872 |
| NAPTHOLS | -438 | 361 | -969 | -1003 | -1043 | -1279 | -2021 | -3074 | -2795 | -4908 | -3517 | -5137 | -1698 | -232 | -3599 | -7254 |
| OTHER DYES | -9982 | -21162 | -12528 | -23444 | -13223 | -23988 | -11284 | -24045 | -12953 | -27316 | -15141 | -26847 | -15491 | -30243 | -30492 | -66679 |
| INORGANIC PIGMENTS | -15312 | 2809 | -17639 | -5825 | -27217 | -9409 | -33370 | 2271 | -31334 | 16829 | -36245 | 17289 | -39438 | -1366 | -88749 | -62827 |
| **TOTAL** | **-321355** | **-1000491** | **-363404** | **-1092633** | **-422770** | **-1207907** | **-468718** | **-1522259** | **-479714** | **-1646979** | **-469056** | **-1517715** | **-536901** | **-2009844** | **-885171** | **-3678464** |

***Source:*** *DGCIS, Kolkata, M/o Commerce and Industry*

**Table 19: Top Five Export Destinations of selected Chemicals during 2022-23**

| PRODUCTS | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| SODA ASH | BANGLADESH PR | 184494.84 | 58495.94 |
| | NEPAL | 25272.65 | 8328.32 |
| | SRI LANKA DSR | 23982.83 | 8745.16 |
| | SAUDI ARAB | 22288.06 | 7016.52 |
| | U ARAB EMTS | 21779.81 | 8293.64 |
| | **Product Total** | **277818.19** | **90879.57** |
| CAUSTIC SODA | SOUTH AFRICA | 168738.55 | 82967.51 |
| | SAUDI ARAB | 108376.24 | 57394.06 |
| | ITALY | 56693.86 | 31324.12 |
| | KENYA | 42334.09 | 21703.28 |
| | NETHERLAND | 40663.87 | 22923.33 |
| | **Product Total** | **416806.62** | **216312.30** |
| LIQUID CHLORINE | KENYA | 2403.00 | 690.80 |
| | SRI LANKA DSR | 1560.67 | 283.70 |
| | U ARAB EMTS | 1404.34 | 291.67 |
| | NIGERIA | 1298.55 | 818.34 |
| | PHILIPPINES | 1254.60 | 380.03 |
| | **Product Total** | **7921.16** | **2464.53** |
| ALUMINIUM FLUORIDE | U ARAB EMTS | 400.80 | 490.26 |
| | JAPAN | 360.00 | 484.33 |
| | TURKEY | 20.05 | 21.09 |
| | GERMANY | 1.90 | 7.46 |
| | BELGIUM | 0.10 | 1.25 |
| | **Product Total** | **782.85** | **1004.39** |
| CALCIUM CARBIDE | BANGLADESH PR | 1038.60 | 1244.90 |
| | ANGOLA | 174.00 | 201.39 |
| | BHUTAN | 93.30 | 107.08 |
| | NEPAL | 91.57 | 50.91 |
| | CONGO P REP | 72.00 | 76.08 |
| | **Product Total** | **1469.47** | **1680.35** |
| CARBON BLACK | SRI LANKA DSR | 66720.81 | 81282.63 |
| | POLAND | 39438.33 | 50465.20 |
| | VIETNAM SOC REP | 38332.87 | 40971.30 |
| | THAILAND | 34391.46 | 40615.96 |
| | KOREA RP | 33410.78 | 37554.25 |
| | **Product Total** | **212294.25** | **250889.36** |
| POTASSIUM CHLORATE | KENYA | 1050.00 | 1146.34 |
| | MEXICO | 864.00 | 943.76 |
| | PHILIPPINES | 504.00 | 582.90 |
| | THAILAND | 480.00 | 529.66 |
| | SRI LANKA DSR | 460.00 | 563.54 |
| | **Product Total** | **3358.00** | **3766.20** |
| SODIUM CHLORATE | SINGAPORE | 16.00 | 22.78 |
| | BANGLADESH PR | 1.20 | 3.43 |
| | NEPAL | 0.10 | 0.11 |
| | BHUTAN | 0.00 | 0.01 |
| | SRI LANKA DSR | 0.00 | 0.16 |

| PRODUCTS | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| | **Product Total** | **17.31** | **26.49** |
| **TITANIUM DIOXIDE** | U S A | 5169.30 | 13474.68 |
| | ITALY | 1328.00 | 3257.15 |
| | JAPAN | 1116.01 | 2308.94 |
| | NIGERIA | 312.65 | 810.75 |
| | NEPAL | 296.26 | 841.17 |
| | **Product Total** | **8222.22** | **20692.69** |
| **RED PHOSPHORUS** | U S A | 508.34 | 3987.84 |
| | U ARAB EMTS | 329.80 | 2785.02 |
| | ISRAEL | 64.00 | 490.37 |
| | CHILE | 60.00 | 489.96 |
| | BRAZIL | 52.03 | 426.73 |
| | **Product Total** | **1014.17** | **8179.92** |
| **HYDROGEN PEROXIDE** | RUSSIA | 37285.16 | 21913.15 |
| | TURKEY | 28164.34 | 14206.43 |
| | GHANA | 12475.20 | 5485.52 |
| | U ARAB EMTS | 7927.04 | 3285.75 |
| | IRAN | 6792.40 | 3180.44 |
| | **Product Total** | **92644.14** | **48071.30** |
| **CALCIUM CARBONATE** | NEPAL | 40326.21 | 9038.01 |
| | SOUTH AFRICA | 12515.07 | 4099.56 |
| | BANGLADESH PR | 9937.36 | 7698.01 |
| | SRI LANKA DSR | 9306.31 | 1781.35 |
| | U S A | 2429.02 | 2111.49 |
| | **Product Total** | **74513.97** | **24728.43** |
| **ACETIC ACID** | TURKEY | 20436.47 | 12848.44 |
| | BELGIUM | 18107.66 | 10842.88 |
| | U ARAB EMTS | 17002.52 | 8269.85 |
| | BANGLADESH PR | 8030.16 | 6250.38 |
| | U S A | 7738.14 | 4946.56 |
| | **Product Total** | **71314.95** | **43158.11** |
| **ACETIC ANHYDRIDE** | BELGIUM | 57841.60 | 56836.60 |
| | NETHERLAND | 6814.72 | 7927.90 |
| | KOREA RP | 2729.66 | 2947.07 |
| | BANGLADESH PR | 1626.66 | 1933.51 |
| | VIETNAM SOC REP | 977.60 | 1162.33 |
| | **Product Total** | **69990.24** | **70807.40** |
| **ACETONE** | IRAN | 8554.34 | 6893.18 |
| | U ARAB EMTS | 2959.84 | 2144.12 |
| | KENYA | 2817.86 | 2336.84 |
| | TANZANIA REP | 1402.05 | 1164.83 |
| | SRI LANKA DSR | 1320.92 | 1091.43 |
| | **Product Total** | **17055.01** | **13630.40** |
| **PHENOL** | IRAN | 8216.80 | 14309.76 |
| | U ARAB EMTS | 8087.57 | 10023.79 |
| | TURKEY | 4505.45 | 5133.81 |
| | NEPAL | 3285.29 | 3888.69 |
| | INDONESIA | 1458.04 | 1607.51 |
| | **Product Total** | **25553.15** | **34963.55** |

| PRODUCTS | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| **METHANOL** | U ARAB EMTS | 28427.74 | 7790.38 |
| | BANGLADESH PR | 21461.35 | 8026.25 |
| | SRI LANKA DSR | 19882.61 | 6442.12 |
| | NEPAL | 4719.09 | 1574.15 |
| | NIGERIA | 3494.00 | 1476.89 |
| | **Product Total** | **77984.80** | **25309.79** |
| **FORMALDEHYDE** | NEPAL | 25486.27 | 4427.22 |
| | BHUTAN | 2139.78 | 425.72 |
| | CHILE | 1728.00 | 3431.47 |
| | KENYA | 576.65 | 170.68 |
| | MYANMAR | 385.42 | 115.66 |
| | **Product Total** | **30316.12** | **30316.12** |
| **NITROBENZENE** | JAPAN | 160.00 | 215.07 |
| | U S A | 50.00 | 91.64 |
| | NEPAL | 31.91 | 42.20 |
| | PERU | 24.00 | 45.20 |
| | MEXICO | 22.00 | 44.18 |
| | **Product Total** | **287.92** | **438.30** |
| **CITRIC ACID** | U S A | 2925.30 | 5120.96 |
| | BRAZIL | 388.80 | 1347.09 |
| | CHINA P RP | 360.00 | 265.41 |
| | QATAR | 207.30 | 300.17 |
| | SPAIN | 200.50 | 169.92 |
| | **Product Total** | **4081.91** | **7203.54** |
| **MALEIC ANHYDRIDE** | SAUDI ARAB | 68.00 | 110.22 |
| | BANGLADESH PR | 57.00 | 136.13 |
| | SRI LANKA DSR | 48.20 | 58.96 |
| | QATAR | 44.00 | 37.83 |
| | KOREA RP | 24.00 | 32.21 |
| | **Product Total** | **241.20** | **375.35** |
| **PENTAERYTHRITOL** | U S A | 3815.36 | 11563.08 |
| | NETHERLAND | 576.00 | 1100.69 |
| | SWEDEN | 144.00 | 275.56 |
| | NEPAL | 134.00 | 237.03 |
| | COLOMBIA | 108.00 | 211.40 |
| | **Product Total** | **4777.36** | **13387.74** |
| **ANILINE** | U S A | 33.60 | 80.71 |
| | TURKEY | 32.75 | 71.24 |
| | THAILAND | 26.40 | 59.84 |
| | CHINA P RP | 8.40 | 139.72 |
| | NETHERLAND | 6.00 | 155.43 |
| | **Product Total** | **107.15** | **506.93** |
| **CHLORO METHANES** | U ARAB EMTS | 98.28 | 258.19 |
| | SAUDI ARAB | 27.44 | 61.41 |
| | U S A | 3.04 | 16.37 |
| | NEPAL | 2.30 | 1.34 |
| | NIGERIA | 0.05 | 0.31 |
| | **Product Total** | **131.11** | **337.62** |
| | CHINA P RP | 17554.00 | 36195.60 |

| PRODUCTS | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| **ISOBUTYLBENZENE** | U S A | 10444.80 | 19353.42 |
| | JAPAN | 480.00 | 829.31 |
| | NEPAL | 55.62 | 64.32 |
| | NETHERLAND | 13.60 | 42.32 |
| | **Product Total** | **28548.02** | **56484.97** |
| **MEK** | U ARAB EMTS | 678.04 | 1015.57 |
| | NEPAL | 2.19 | 12.53 |
| | BHUTAN | 0.41 | 5.64 |
| | CONGO D. REP. | 0.36 | 3.17 |
| | SAUDI ARAB | 0.33 | 0.62 |
| | **Product Total** | **681.33** | **1037.53** |
| **ACETALDEHYDE** | TURKEY | 300.64 | 305.92 |
| | BANGLADESH PR | 1.29 | 42.46 |
| | BHUTAN | 0.21 | 0.01 |
| | EGYPT A RP | 0.20 | 1.33 |
| | NEPAL | 0.02 | 0.61 |
| | **Product Total** | **302.36** | **350.31** |
| **ETHANOLAMINES** | IRAQ | 1380.31 | 1753.71 |
| | U ARAB EMTS | 552.13 | 934.75 |
| | KOREA RP | 487.25 | 2278.81 |
| | BELGIUM | 465.10 | 3533.32 |
| | TURKEY | 463.52 | 891.98 |
| | **Product Total** | **3348.30** | **9392.57** |
| **ETHYL ACETATE** | ITALY | 35710.10 | 32872.02 |
| | BELGIUM | 34316.39 | 30728.71 |
| | U ARAB EMTS | 15824.77 | 13667.06 |
| | BANGLADESH PR | 14730.80 | 14321.53 |
| | NIGERIA | 13724.02 | 13230.00 |
| | **Product Total** | **114306.07** | **104819.32** |
| **MENTHOL** | CHINA P RP | 15192.56 | 171561.03 |
| | U S A | 2242.73 | 29908.36 |
| | SINGAPORE | 1361.30 | 15999.97 |
| | JAPAN | 777.65 | 10107.76 |
| | NETHERLAND | 752.67 | 9844.97 |
| | **Product Total** | **20326.92** | **237422.09** |
| **ORTHO NITRO TOLUENE** | GERMANY | 9453.77 | 12489.21 |
| | JAPAN | 854.16 | 1292.77 |
| | NETHERLAND | 797.64 | 1317.24 |
| | KOREA RP | 596.90 | 877.19 |
| | CHINA P RP | 421.57 | 557.81 |
| | **Product Total** | **12124.04** | **16534.21** |
| **MALATHION** | TURKEY | 1463.64 | 5434.08 |
| | MEXICO | 512.00 | 2087.73 |
| | PHILIPPINES | 400.00 | 1548.56 |
| | MALAYSIA | 200.00 | 819.80 |
| | EGYPT A RP | 100.00 | 367.19 |
| | **Product Total** | **2675.64** | **10257.35** |
| **DIMETHOATE** | U ARAB EMTS | 20.16 | 60.21 |
| | NEPAL | 6.19 | 88.91 |

| PRODUCTS | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| DIMETHOATE | MALDIVES | 0.02 | 0.29 |
| | **Product Total** | **26.37** | **149.41** |
| **D.D.V.P.** | ZAMBIA | 43.86 | 161.72 |
| | **Product Total** | **43.86** | **161.72** |
| **QUINALPHOS** | VIETNAM SOC REP | 974.70 | 7281.93 |
| | BANGLADESH PR | 83.92 | 370.10 |
| | AUSTRALIA | 11.00 | 128.50 |
| | THAILAND | 6.00 | 69.12 |
| | SOUTH AFRICA | 2.70 | 39.75 |
| | **Product Total** | **1078.32** | **7889.39** |
| **CYPERMETHRIN** | CHINA P RP | 4377.87 | 32289.81 |
| | BRAZIL | 3453.45 | 28098.60 |
| | INDONESIA | 1958.42 | 7909.94 |
| | NIGERIA | 1944.34 | 4520.75 |
| | THAILAND | 1898.31 | 13364.84 |
| | **Product Total** | **13632.39** | **86183.94** |
| **OTHER PESTICIDES** | NEPAL | 1357.40 | 2414.86 |
| | BANGLADESH PR | 901.98 | 1687.59 |
| | BRAZIL | 883.13 | 5712.00 |
| | VIETNAM SOC REP | 426.64 | 1999.50 |
| | THAILAND | 425.58 | 1476.84 |
| | **Product Total** | **3994.74** | **13290.79** |
| **OTHER INSECTICIDES** | BRAZIL | 108287.81 | 1239136.64 |
| | U S A | 17596.95 | 329602.38 |
| | BANGLADESH PR | 13926.02 | 44103.01 |
| | NIGERIA | 6534.97 | 22889.89 |
| | VIETNAM SOC REP | 5536.32 | 40207.60 |
| | **Product Total** | **151882.09** | **1675939.52** |
| **COPPER-OXYCHLORIDE** | SPAIN | 314.40 | 1438.36 |
| | MOROCCO | 273.82 | 1210.95 |
| | VIETNAM SOC REP | 270.00 | 1223.15 |
| | PORTUGAL | 264.00 | 1282.73 |
| | TURKEY | 215.20 | 1050.67 |
| | **Product Total** | **1337.42** | **6205.85** |
| **2, 4-D** | BRAZIL | 22640.42 | 59683.16 |
| | U S A | 21413.76 | 56279.99 |
| | AUSTRALIA | 7536.00 | 21719.72 |
| | ARGENTINA | 4078.00 | 11131.70 |
| | THAILAND | 3129.63 | 6887.88 |
| | **Product Total** | **58797.82** | **155702.45** |
| **ALUMINIUM PHOSPHIDE** | BANGLADESH PR | 583.70 | 2179.09 |
| | TURKEY | 192.69 | 1127.10 |
| | NIGERIA | 97.12 | 512.57 |
| | TANZANIA REP | 83.30 | 597.48 |
| | MOZAMBIQUE | 46.08 | 347.41 |
| | **Product Total** | **1002.90** | **4763.63** |
| **METHYL BROMIDE** | VIETNAM SOC REP | 929.14 | 5636.49 |
| | U ARAB EMTS | 661.00 | 4981.27 |
| | AUSTRALIA | 468.00 | 3074.15 |

| PRODUCTS | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| METHYL BROMIDE | EL SALVADOR | 464.70 | 3523.34 |
| | EGYPT A RP | 384.00 | 2441.06 |
| | **Product Total** | **2906.84** | **19656.32** |
| **OTHER HERBICIDES-ANTI SPROUTING PRODUCTS** | U S A | 118712.64 | 1520050.51 |
| | BRAZIL | 31726.22 | 309983.92 |
| | AUSTRALIA | 19057.45 | 99239.45 |
| | ARGENTINA | 13672.96 | 146600.52 |
| | FRANCE | 10516.96 | 112842.03 |
| | **Product Total** | **193686.24** | **2188716.43** |
| **OTHER FUNGICIDE NES** | BRAZIL | 72064.79 | 398849.54 |
| | BANGLADESH PR | 51960.03 | 57172.91 |
| | U S A | 30814.92 | 243448.16 |
| | COSTA RICA | 20062.71 | 46448.64 |
| | INDONESIA | 18903.29 | 53594.41 |
| | **Product Total** | **193805.73** | **799513.65** |
| **AZO DYES** | ITALY | 18357.93 | 83358.25 |
| | CHINA P RP | 15159.97 | 49566.69 |
| | SPAIN | 8880.33 | 37991.78 |
| | NETHERLAND | 8438.24 | 28416.58 |
| | TURKEY | 6949.67 | 23562.31 |
| | **Product Total** | **57786.15** | **222895.61** |
| **ACID DIRECT DYES(OTHER THAN AZO)** | U S A | 2698.58 | 14626.03 |
| | CHINA P RP | 1266.30 | 6173.30 |
| | ITALY | 902.33 | 7549.70 |
| | MALAYSIA | 768.58 | 2739.88 |
| | MEXICO | 635.51 | 2854.46 |
| | **Product Total** | **6271.30** | **33943.36** |
| **BASIC DYES** | CHINA P RP | 5308.71 | 21259.25 |
| | THAILAND | 1948.30 | 5051.03 |
| | BRAZIL | 1865.08 | 5750.96 |
| | U S A | 1784.97 | 10584.06 |
| | NETHERLAND | 1701.96 | 7566.93 |
| | **Product Total** | **12609.02** | **50212.22** |
| **DISPERSE DYES** | TURKEY | 7865.70 | 29879.29 |
| | HONDURAS | 4031.05 | 20871.87 |
| | CHINA P RP | 2605.03 | 20262.05 |
| | BRAZIL | 1836.13 | 9355.93 |
| | EGYPT A RP | 1790.35 | 6394.99 |
| | **Product Total** | **18128.27** | **86764.13** |
| **FAST COLOUR BASES** | NETHERLAND | 840.50 | 9018.07 |
| | GERMANY | 772.80 | 5240.24 |
| | JAPAN | 640.13 | 4603.73 |
| | CHINA P RP | 463.75 | 4317.52 |
| | MEXICO | 280.00 | 1708.98 |
| | **Product Total** | **2997.19** | **24888.55** |
| **OIL SOLUBLE (SOLVENT DYES)** | U K | 2789.16 | 16527.55 |
| | U S A | 1739.18 | 26840.95 |
| | SINGAPORE | 1528.47 | 8370.85 |
| | CHINA P RP | 1219.35 | 17177.48 |

| PRODUCTS | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| | ITALY | 1194.94 | 7940.13 |
| | **Product Total** | **8471.10** | **76856.96** |
| **OPTICAL WHITENING AGENTS** | BANGLADESH PR | 3288.79 | 8098.41 |
| | SOUTH AFRICA | 2717.82 | 4867.97 |
| | JAPAN | 2412.88 | 2772.78 |
| | U ARAB EMTS | 2149.03 | 3193.15 |
| | U S A | 2127.84 | 12572.15 |
| | **Product Total** | **12696.36** | **31504.46** |
| **ORGANIC PIGMENT** | NIGERIA | 21.60 | 71.78 |
| | OMAN | 4.23 | 29.59 |
| | AUSTRALIA | 2.00 | 6.08 |
| | NEW ZEALAND | 1.92 | 7.78 |
| | U S A | 1.34 | 6.25 |
| | **Product Total** | **31.10** | **121.48** |
| **PIGMENT EMULSION** | CHINA P RP | 27385.22 | 139141.22 |
| | U S A | 22691.94 | 184054.57 |
| | NETHERLAND | 12018.45 | 83391.02 |
| | JAPAN | 9024.18 | 70934.00 |
| | BRAZIL | 8711.88 | 53153.86 |
| | **Product Total** | **79831.67** | **530674.67** |
| **REACTIVE DYES** | BANGLADESH PR | 73240.34 | 202881.17 |
| | TURKEY | 56225.36 | 171347.77 |
| | HONDURAS | 15531.17 | 64578.50 |
| | BRAZIL | 12863.39 | 44122.12 |
| | INDONESIA | 12819.10 | 47205.84 |
| | **Product Total** | **170679.35** | **530135.39** |
| **SULPHUR DYES (SULPHUR BLACK)** | EGYPT A RP | 1633.40 | 2084.30 |
| | ITALY | 1337.70 | 1591.12 |
| | BANGLADESH PR | 843.87 | 985.78 |
| | U ARAB EMTS | 762.10 | 1048.03 |
| | BRAZIL | 324.00 | 866.98 |
| | **Product Total** | **4901.07** | **6576.21** |
| **VAT DYES** | BANGLADESH PR | 814.97 | 9787.40 |
| | CHINA P RP | 704.23 | 19880.09 |
| | TAIWAN | 537.73 | 2426.59 |
| | U S A | 388.67 | 10311.65 |
| | SINGAPORE | 356.36 | 1799.41 |
| | **Product Total** | **2801.96** | **44205.15** |
| **SOLUBILISED VAT DYES** | INDONESIA | 77.00 | 1506.60 |
| | VIETNAM SOC REP | 21.40 | 329.18 |
| | BANGLADESH PR | 10.35 | 36.97 |
| | MALAYSIA | 5.00 | 88.77 |
| | CHINA P RP | 3.92 | 57.32 |
| | **Product Total** | **117.66** | **2018.83** |
| **FOOD COLOURS** | U S A | 5743.20 | 37108.88 |
| | CHINA P RP | 5133.03 | 25142.64 |
| | U ARAB EMTS | 3251.89 | 12138.60 |
| | INDONESIA | 3193.01 | 17748.17 |
| | MEXICO | 3111.58 | 17578.06 |

| PRODUCTS | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| | **Product Total** | **20432.70** | **109716.34** |
| **NAPTHOLS** | SOUTH AFRICA | 1050.42 | 1168.55 |
| | RUSSIA | 625.40 | 1023.87 |
| | U S A | 552.05 | 2873.86 |
| | TURKEY | 302.51 | 437.89 |
| | POLAND | 278.60 | 401.10 |
| | **Product Total** | **2808.98** | **5905.27** |
| **OTHER DYES** | POLAND | 5312.30 | 6818.30 |
| | NETHERLAND | 4335.95 | 7517.70 |
| | CHINA P RP | 3283.47 | 9547.04 |
| | U K | 1963.67 | 2735.83 |
| | JAPAN | 1842.13 | 4433.27 |
| | **Product Total** | **16737.52** | **31052.14** |
| **INORGANIC PIGMENTS** | KENYA | 14506.50 | 9653.09 |
| | ECUADOR | 5370.15 | 4223.97 |
| | ALGERIA | 4946.97 | 8087.35 |
| | COLOMBIA | 4265.25 | 3267.23 |
| | BANGLADESH PR | 4216.17 | 6096.81 |
| | **Product Total** | **33305.04** | **31328.44** |

***Source:*** *DGCIS, Kolkata, M/o Commerce and Industry*

| Table 20: Top Five Import Destinations of selected Chemicals during 2022-23 | | | |
|---|---|---|---|
| **PRODUCTS** | **COUNTRY** | **QUANTITY (MT)** | **VALUE (RS. LAKHS)** |
| **(1)** | **(2)** | **(3)** | **(4)** |
| **SODA ASH** | TURKEY | 109758.5 | 32030.4 |
| | CHINA P RP | 96552.5 | 37296.4 |
| | U S A | 88186.3 | 30051.2 |
| | KENYA | 79604.6 | 25964.4 |
| | U ARAB EMTS | 71978.4 | 24030.4 |
| | **Product Total** | **446080.4** | **149372.9** |
| **CAUSTIC SODA** | JAPAN | 87452.2 | 44544.1 |
| | OMAN | 20363.8 | 13277.7 |
| | BANGLADESH PR | 12494.5 | 6883.2 |
| | QATAR | 5917.5 | 3372.6 |
| | TAIWAN | 5207.6 | 3414.2 |
| | **Product Total** | **131435.5** | **71491.9** |
| **LIQUID CHLORINE** | KOREA RP | 40.4 | 269.7 |
| | CHINA P RP | 18.8 | 31.2 |
| | JAPAN | 3.0 | 90.1 |
| | FRANCE | 1.4 | 17.1 |
| | GERMANY | 0.2 | 1.5 |
| | **Product Total** | **63.8** | **409.7** |
| **ALUMINIUM FLUORIDE** | CHINA P RP | 29769.0 | 36130.5 |
| | QATAR | 5569.6 | 693.9 |
| | INDONESIA | 5220.0 | 5065.8 |
| | MEXICO | 4625.0 | 4853.4 |
| | U ARAB EMTS | 3125.7 | 4389.3 |
| | **Product Total** | **48309.3** | **51133.0** |
| **CALCIUM CARBIDE** | CHINA P RP | 19550.1 | 15293.4 |
| | INDONESIA | 2583.0 | 1837.8 |
| | GERMANY | 0.0 | 0.4 |
| | SWITZERLAND | 0.0 | 18.5 |
| | **Product Total** | **22133.1** | **17150.1** |
| **CARBON BLACK** | TURKEY | 24928.9 | 26372.8 |
| | CHINA P RP | 20824.2 | 21509.7 |
| | U ARAB EMTS | 19146.3 | 18136.3 |
| | KOREA RP | 16541.3 | 24926.5 |
| | RUSSIA | 13217.9 | 16151.0 |
| | **Product Total** | **94658.5** | **107096.3** |
| **POTASSIUM CHLORATE** | U K | 0.0 | 0.2 |
| | GERMANY | 0.0 | 0.4 |
| | BELGIUM | 0.0 | 0.1 |
| | U S A | 0.0 | 0.8 |
| | **Product Total** | **0.0** | **1.6** |
| **SODIUM CHLORATE** | U S A | 9513.8 | 5791.7 |
| | URUGUAY | 4975.0 | 3586.5 |
| | FINLAND | 4404.0 | 3194.7 |
| | CHINA P RP | 1503.0 | 1354.8 |
| | FRANCE | 1118.9 | 592.8 |
| | **Product Total** | **21514.7** | **14520.5** |
| **TITANIUM DIOXIDE** | CHINA P RP | 5770.7 | 14399.2 |
| | KOREA RP | 5540.0 | 14196.1 |
| | NETHERLAND | 2102.3 | 7350.6 |
| | GERMANY | 1940.5 | 7383.3 |
| | JAPAN | 1348.3 | 3994.6 |
| | **Product Total** | **16701.8** | **47323.8** |

| PRODUCTS | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| HYDROGEN PEROXIDE | BANGLADESH PR | 40997.9 | 11746.9 |
| | THAILAND | 2535.8 | 1817.8 |
| | KOREA RP | 345.6 | 144.7 |
| | BELGIUM | 301.0 | 208.6 |
| | TAIWAN | 241.9 | 111.5 |
| | **Product Total** | **44422.3** | **14029.5** |
| CALCIUM CARBONATE | EGYPT A RP | 373932.7 | 28238.2 |
| | VIETNAM SOC REP | 326943.6 | 34726.4 |
| | MALAYSIA | 277858.5 | 34071.3 |
| | JORDAN | 58738.3 | 5179.0 |
| | GREECE | 6075.0 | 647.8 |
| | **Product Total** | **1043548.1** | **102862.7** |
| ACETIC ACID | CHINA P RP | 578057.7 | 260633.1 |
| | MALAYSIA | 287189.7 | 132056.2 |
| | SINGAPORE | 201230.9 | 90605.4 |
| | TAIWAN | 25499.0 | 12105.5 |
| | SAUDI ARAB | 13261.4 | 4852.2 |
| | **Product Total** | **1105238.7** | **500252.5** |
| ACETIC ANHYDRIDE | SAUDI ARAB | 13124.3 | 9874.0 |
| | SINGAPORE | 208.2 | 181.9 |
| | CHINA P RP | 67.8 | 56.0 |
| | **Product Total** | **13400.3** | **10111.9** |
| ACETONE | THAILAND | 36641.3 | 21656.3 |
| | TAIWAN | 33920.4 | 19543.5 |
| | KOREA RP | 28560.8 | 17574.6 |
| | SAUDI ARAB | 5075.5 | 3033.2 |
| | NETHERLAND | 2379.3 | 1378.7 |
| | **Product Total** | **106577.4** | **63186.3** |
| PHENOL | THAILAND | 48740.6 | 53477.6 |
| | CHINA P RP | 30403.5 | 35198.9 |
| | SAUDI ARAB | 28833.8 | 33430.0 |
| | KOREA RP | 25484.3 | 26812.3 |
| | U S A | 24230.8 | 26893.6 |
| | **Product Total** | **157692.8** | **175812.5** |
| METHANOL | SAUDI ARAB | 671363.1 | 181920.6 |
| | IRAN | 542384.4 | 141655.3 |
| | QATAR | 525289.0 | 138796.9 |
| | OMAN | 418413.3 | 106821.3 |
| | FINLAND | 229657.5 | 61560.8 |
| | **Product Total** | **2387107.2** | **630754.8** |
| FORMALDEHYDE | GERMANY | 2.6 | 37.1 |
| | SPAIN | 1.7 | 10.3 |
| | CHINA P RP | 1.1 | 47.7 |
| | U K | 0.7 | 3.8 |
| | U S A | 0.1 | 8.4 |
| | **Product Total** | **6.2** | **107.3** |
| NITROBENZENE | KOREA RP | 3790.8 | 4130.4 |
| | U ARAB EMTS | 96.0 | 102.9 |
| | GERMANY | 0.0 | 0.9 |
| | **Product Total** | **3886.8** | **4234.3** |
| CITRIC ACID | CHINA P RP | 130156.0 | 138458.1 |
| | THAILAND | 521.3 | 848.9 |
| | U ARAB EMTS | 400.0 | 204.0 |
| | HONG KONG | 154.0 | 110.7 |
| | GERMANY | 56.9 | 657.0 |

| PRODUCTS | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| | **Product Total** | **131288.3** | **140278.7** |
| **MALEIC ANHYDRIDE** | CHINA P RP | 48730.3 | 56116.9 |
| | TAIWAN | 13317.2 | 14613.9 |
| | MALAYSIA | 12331.1 | 15262.8 |
| | KOREA RP | 3700.6 | 3687.0 |
| | RUSSIA | 2524.6 | 1902.9 |
| | **Product Total** | **80603.8** | **91583.5** |
| **PENTAERYTHRITOL** | SAUDI ARAB | 10007.2 | 14500.5 |
| | TAIWAN | 2909.0 | 3536.3 |
| | CHINA P RP | 2526.5 | 3449.6 |
| | SWEDEN | 1360.0 | 2207.4 |
| | RUSSIA | 273.0 | 351.9 |
| | **Product Total** | **17075.7** | **24045.7** |
| **ANILINE** | CHINA P RP | 84058.2 | 111556.2 |
| | U S A | 15890.7 | 23778.3 |
| | BELGIUM | 1000.8 | 1374.8 |
| | IRAN | 208.0 | 338.7 |
| | U ARAB EMTS | 208.0 | 353.8 |
| | **Product Total** | **101365.6** | **137401.8** |
| **CHLORO METHANES** | CHINA P RP | 1194.0 | 1213.1 |
| | NETHERLAND | 156.1 | 334.3 |
| | U S A | 55.6 | 171.4 |
| | HONG KONG | 0.0 | 0.9 |
| | **Product Total** | **1405.7** | **1719.7** |
| **MEK** | CHINA P RP | 25797.4 | 33949.8 |
| | TAIWAN | 8216.5 | 10559.9 |
| | KOREA RP | 6805.7 | 6924.1 |
| | SOUTH AFRICA | 5104.8 | 6369.5 |
| | NETHERLAND | 1611.7 | 1761.6 |
| | **Product Total** | **47536.0** | **59564.7** |
| **ACETALDEHYDE** | SWITZERLAND | 67.9 | 135.1 |
| | NETHERLAND | 45.8 | 92.2 |
| | BELGIUM | 23.6 | 45.6 |
| | U K | 2.0 | 80.6 |
| | U S A | 1.1 | 59.0 |
| | **Product Total** | **140.4** | **412.4** |
| **ETHANOLAMINES** | MALAYSIA | 4760.6 | 4714.1 |
| | U ARAB EMTS | 4711.9 | 4173.9 |
| | SAUDI ARAB | 3874.7 | 3646.8 |
| | THAILAND | 1697.8 | 2252.0 |
| | CHINA P RP | 389.8 | 3919.0 |
| | **Product Total** | **15434.9** | **18705.8** |
| **ETHYL ACETATE** | SAUDI ARAB | 126.3 | 20.3 |
| | SWITZERLAND | 74.0 | 1421.8 |
| | SINGAPORE | 30.1 | 24.2 |
| | KOREA RP | 13.6 | 22.3 |
| | CHINA P RP | 9.2 | 18.3 |
| | **Product Total** | **253.2** | **1507.0** |
| **MENTHOL** | MALAYSIA | 2282.4 | 24460.5 |
| | U S A | 436.3 | 4346.1 |
| | SINGAPORE | 397.2 | 4133.7 |
| | GERMANY | 370.7 | 3547.4 |
| | CHINA P RP | 311.4 | 2971.7 |
| | **Product Total** | **3798.0** | **39459.4** |
| **DIMETHOATE** | DENMARK | 334.1 | 1381.9 |

| PRODUCTS | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| DIMETHOATE | **Product Total** | **334.1** | **1381.9** |
| **OTHER PESTICIDES** | U S A | 334.3 | 50338.6 |
| | TAIWAN | 212.0 | 729.7 |
| | CHINA P RP | 171.5 | 12778.0 |
| | RUSSIA | 120.0 | 905.9 |
| | U ARAB EMTS | 20.5 | 160.0 |
| | **Product Total** | **858.2** | **64912.1** |
| **OTHER INSECTICIDES** | CHINA P RP | 10235.6 | 131817.7 |
| | ISRAEL | 1657.2 | 19215.4 |
| | U S A | 1509.7 | 128650.2 |
| | TAIWAN | 756.8 | 2415.7 |
| | JAPAN | 575.4 | 31251.0 |
| | **Product Total** | **14734.7** | **313350.0** |
| **2, 4-D** | CHINA P RP | 576.0 | 1648.8 |
| | MAURITIUS | 116.2 | 286.0 |
| | RUSSIA | 54.0 | 142.6 |
| | GERMANY | 0.0 | 0.8 |
| | **Product Total** | **746.2** | **2078.1** |
| **ALUMINIUM PHOSPHIDE** | U S A | 0.0 | 0.1 |
| | ISRAEL | 0.0 | 0.5 |
| | **Product Total** | **0.0** | **0.6** |
| **OTHER HERBICIDES-ANTI SPROUTING PRODUCTS** | CHINA P RP | 12416.2 | 124279.0 |
| | ISRAEL | 8012.5 | 56071.2 |
| | U S A | 4313.8 | 27024.5 |
| | TAIWAN | 2974.4 | 9119.9 |
| | JAPAN | 1588.3 | 43873.7 |
| | **Product Total** | **29305.1** | **260368.4** |
| **OTHER FUNGICIDE NES** | THAILAND | 4529.2 | 18937.6 |
| | CHINA P RP | 3116.8 | 51723.7 |
| | GERMANY | 1943.2 | 34844.8 |
| | U S A | 1126.0 | 23972.0 |
| | SPAIN | 784.1 | 14948.3 |
| | **Product Total** | **11499.3** | **144426.5** |
| **AZO DYES** | CHINA P RP | 83.2 | 969.9 |
| | SPAIN | 42.8 | 2546.5 |
| | THAILAND | 41.2 | 348.8 |
| | POLAND | 34.7 | 39.3 |
| | ITALY | 24.0 | 158.5 |
| | **Product Total** | **225.9** | **4063.0** |
| **ACID DIRECT DYES(OTHER THAN AZO)** | ITALY | 21.4 | 223.5 |
| | MALAYSIA | 17.0 | 55.2 |
| | CHINA P RP | 12.7 | 336.6 |
| | SINGAPORE | 8.9 | 281.7 |
| | THAILAND | 7.2 | 109.2 |
| | **Product Total** | **67.3** | **1006.2** |
| **BASIC DYES** | CHINA P RP | 285.2 | 4372.4 |
| | ICELAND | 40.0 | 462.8 |
| | TURKEY | 21.9 | 119.0 |
| | GERMANY | 13.2 | 198.4 |
| | SWITZERLAND | 10.6 | 173.2 |
| | **Product Total** | **370.9** | **5325.8** |
| | CHINA P RP | 1484.6 | 11550.2 |
| | ICELAND | 322.0 | 1103.9 |

| PRODUCTS | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| **DISPERSE DYES** | SINGAPORE | 99.0 | 1927.6 |
| | KOREA RP | 75.3 | 581.2 |
| | INDONESIA | 60.8 | 741.9 |
| | **Product Total** | **2041.6** | **15904.7** |
| **FAST COLOUR BASES** | CHINA P RP | 180.3 | 1234.7 |
| | GERMANY | 61.3 | 370.0 |
| | ITALY | 5.0 | 31.6 |
| | BELGIUM | 3.8 | 169.1 |
| | NETHERLAND | 2.2 | 91.4 |
| | **Product Total** | **252.7** | **1896.8** |
| **OIL SOLUBLE (SOLVENT DYES)** | CHINA P RP | 505.6 | 9293.3 |
| | KOREA RP | 190.9 | 1227.9 |
| | U ARAB EMTS | 111.1 | 1280.3 |
| | U S A | 44.9 | 292.8 |
| | TAIWAN | 18.8 | 110.9 |
| | **Product Total** | **871.4** | **12205.2** |
| **OPTICAL WHITENING AGENTS** | BELGIUM | 240.0 | 3309.5 |
| | CHINA P RP | 148.4 | 1880.4 |
| | NETHERLAND | 112.8 | 1495.2 |
| | FRANCE | 18.6 | 82.7 |
| | SINGAPORE | 16.5 | 194.3 |
| | **Product Total** | **536.3** | **6962.2** |
| **ORGANIC PIGMENT** | SPAIN | 202.8 | 334.0 |
| | U S A | 42.0 | 272.0 |
| | TURKEY | 11.3 | 62.2 |
| | POLAND | 9.0 | 11.6 |
| | CHINA P RP | 7.3 | 25.5 |
| | **Product Total** | **272.4** | **705.3** |
| **PIGMENT EMULSION** | CHINA P RP | 4212.6 | 28865.8 |
| | GERMANY | 564.3 | 11033.5 |
| | KOREA RP | 402.2 | 4518.7 |
| | ITALY | 334.6 | 1580.2 |
| | U S A | 278.2 | 5771.0 |
| | **Product Total** | **5791.9** | **51769.2** |
| **REACTIVE DYES** | KOREA RP | 1055.9 | 5812.2 |
| | THAILAND | 1036.4 | 8548.8 |
| | CHINA P RP | 329.3 | 4560.9 |
| | TURKEY | 105.6 | 858.8 |
| | ITALY | 70.6 | 690.4 |
| | **Product Total** | **2597.8** | **20471.1** |
| **SULPHUR DYES (SULPHUR BLACK)** | CHINA P RP | 3114.9 | 7899.9 |
| | SPAIN | 225.0 | 781.3 |
| | SINGAPORE | 11.2 | 36.0 |
| | GERMANY | 5.4 | 113.2 |
| | KOREA RP | 4.4 | 429.6 |
| | **Product Total** | **3360.9** | **9260.0** |
| **VAT DYES** | SINGAPORE | 7232.4 | 23566.4 |
| | CHINA P RP | 4176.9 | 33052.0 |
| | MEXICO | 58.6 | 544.0 |
| | GERMANY | 48.3 | 327.0 |
| | ITALY | 5.4 | 28.7 |
| | **Product Total** | **11521.6** | **57518.1** |
| | ITALY | 7.3 | 72.3 |
| | SWITZERLAND | 5.1 | 184.1 |

| PRODUCTS | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| **SOLUBILISED VAT DYES** | CHINA P RP | 4.2 | 80.0 |
| | HONG KONG | 1.4 | 56.6 |
| | SINGAPORE | 0.6 | 32.9 |
| | **Product Total** | **18.6** | **425.9** |
| **FOOD COLOURS** | U S A | 77.9 | 1897.4 |
| | TAIWAN | 58.8 | 250.7 |
| | KOREA RP | 52.0 | 299.2 |
| | CHINA P RP | 43.8 | 2118.5 |
| | KENYA | 20.0 | 134.5 |
| | **Product Total** | **252.5** | **4700.3** |
| **NAPTHOLS** | CHINA P RP | 1227.5 | 5725.9 |
| | MALAYSIA | 162.1 | 214.5 |
| | BELGIUM | 10.9 | 100.0 |
| | JAPAN | 2.2 | 118.0 |
| | GERMANY | 1.5 | 7.8 |
| | **Product Total** | **1404.3** | **6166.2** |
| **OTHER DYES** | U K | 2061.2 | 6192.2 |
| | CHINA P RP | 323.1 | 596.5 |
| | U S A | 167.9 | 2016.3 |
| | UNSPECIFIED | 39.6 | 39.0 |
| | ITALY | 36.7 | 349.1 |
| | **Product Total** | **2628.4** | **9193.2** |
| **INORGANIC PIGMENTS** | CHINA P RP | 2454.6 | 9105.7 |
| | U ARAB EMTS | 1318.9 | 2533.0 |
| | VIETNAM SOC REP | 1068.3 | 805.6 |
| | THAILAND | 819.2 | 3751.7 |
| | KOREA RP | 598.5 | 3360.1 |
| | **Product Total** | **6259.6** | **19555.9** |

***Source:*** *DGCIS, Kolkata, M/o Commerce and Industry*

**Table 21: Exports of Major Petrochemicals (Group-wise) during 2015-16 to 2022-23**

[QTY in MT & VAL in Rs. Lakh]

| GROUP | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | | 2021-22 | | 2022-23 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL |
| (1) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) |
| SYNTHETIC FIBRES | 878358 | 833783 | 1025740 | 922018 | 1001053 | 977982 | 1015666 | 1172008 | 1059348 | 1054987 | 878619 | 787040 | 1202246 | 1438887 | 1518008 | 2052206 |
| FIBRE INTERMEDIATES | 247540 | 121394 | 323096 | 153574 | 351358 | 181069 | 456955 | 275919 | 234372 | 123612 | 475165 | 162929 | 127582 | 86540 | 112427 | 121610 |
| POLYMERS | 998339 | 732497 | 912124 | 667432 | 1188233 | 891771 | 1934155 | 1558391 | 1615451 | 1095332 | 1488512 | 968069 | 921155 | 942517 | 1172703 | 1245027 |
| SYNTHETIC RUBBER (ELASTOMERS) | 42688 | 42428 | 38204 | 46387 | 51889 | 54589 | 63550 | 70696 | 74036 | 73065 | 95037 | 79421 | 89936 | 111822 | 140859 | 194901 |
| SYNTHETIC DETERGENT INTERMEDIATES | 9634 | 7768 | 7058 | 5941 | 1413 | 1468 | 1048 | 1534 | 1044 | 1479 | 1876 | 1939 | 7491 | 8701 | 5044 | 6214 |
| PERFORMANCE PLASTICS | 813967 | 527737 | 972750 | 636450 | 1050548 | 747271 | 1080286 | 1018773 | 968791 | 739010 | 217142 | 198743 | 283722 | 353686 | 363856 | 575133 |
| OLEFINS | 149389 | 76055 | 117365 | 101742 | 260597 | 179804 | 368714 | 276701 | 336140 | 188100 | 284988 | 136102 | 255597 | 173883 | 323495 | 234525 |
| AROMATICS | 2033143 | 942807 | 1749173 | 885136 | 3303041 | 1754998 | 4550911 | 2880299 | 4271477 | 2337408 | 4660796 | 1854685 | 4434556 | 2998035 | 5320017 | 4265410 |
| OTHER PETRO-BASED CHEMICALS | 128670 | 101261 | 144135 | 116773 | 193342 | 138613 | 147298 | 139759 | 237571 | 194934 | 171468 | 169127 | 212298 | 249815 | 378150 | 448320 |
| **TOTAL EXPORT OF MAJOR PETROCHEMICALS** | **5301728** | **3385730** | **5289645** | **3535453** | **7401474** | **4927565** | **9618583** | **7394080** | **8798230** | **5807927** | **8273603** | **4358055** | **7534583** | **6363886** | **9334559** | **9143346** |

***Source:*** *DGCIS, Kolkata, M/o Commerce and Industry*

**Table 22: Imports of Major Petrochemicals (Group-wise) during 2015-16 to 2022-23**

[QTY in MT & VAL in Rs. Lakh]

| GROUP | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | | 2021-22 | | 2022-23 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) |
| SYNTHETIC FIBRES | 263774 | 346368 | 279993 | 342993 | 259632 | 363079 | 275617 | 453356 | 346600 | 460883 | 403273 | 410701 | 460377 | 678520 | 670250 | 864661 |
| FIBRE INTERMEDIATES | 2015419 | 1026126 | 1842229 | 943136 | 1808425 | 1072331 | 1454656 | 1056882 | 1919655 | 1059484 | 1441326 | 649525 | 2626726 | 1713284 | 3355729 | 2176204 |
| POLYMERS | 4214022 | 3132488 | 4452258 | 3267230 | 4751478 | 3549286 | 4479129 | 3684829 | 3430180 | 2639363 | 2641372 | 2142272 | 2941493 | 3267215 | 4789378 | 4956650 |
| SYNTHETIC RUBBER (ELASTOMERS) | 596101 | 612690 | 559919 | 628042 | 607867 | 741750 | 618500 | 851418 | 574832 | 709547 | 747278 | 718860 | 635138 | 1144125 | 673480 | 1320567 |
| SYNTHETIC DETERGENT INTERMEDIATES | 218097 | 177489 | 228229 | 179003 | 205984 | 164533 | 227136 | 210428 | 264058 | 237426 | 265406 | 216258 | 277828 | 336160 | 342892 | 523554 |
| PERFORMANCE PLASTICS | 388796 | 445847 | 417442 | 472270 | 582692 | 621047 | 683851 | 891721 | 740577 | 782460 | 298958 | 293817 | 282523 | 394910 | 292316 | 414336 |
| OLEFINS | 25398 | 20177 | 83453 | 60651 | 50791 | 43283 | 69700 | 57846 | 75857 | 51011 | 43875 | 33958 | 91880 | 76193 | 94231 | 102839 |
| AROMATICS | 1204325 | 633048 | 1614652 | 864845 | 1321018 | 708548 | 1320424 | 910212 | 1327535 | 772834 | 1300486 | 542096 | 1124365 | 742531 | 1245729 | 1123727 |
| OTHER PETRO-BASED CHEMICALS | 2739780 | 1775978 | 2650608 | 1764933 | 3255244 | 2232102 | 3227017 | 2709229 | 3543017 | 2388328 | 3068899 | 2152067 | 3291372 | 3656404 | 3425800 | 3404342 |
| **TOTAL IMPORT OF MAJOR PETROCHEMICALS** | **11665712** | **8170211** | **12128783** | **8523103** | **12843131** | **9495959** | **12356030** | **10825921** | **12222311** | **9101336** | **10210873** | **7159554** | **11731702** | **12009342** | **14889805** | **14886880** |

***Source:*** *DGCIS, Kolkata, M/o Commerce and Industry*

**Table 23: Net Imports of Major Petrochemicals (Group Wise) during 2015-16 to 2022-23**

[QTY in MT & VAL in Rs. Lakh]

| GROUP | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | | 2021-22 | | 2022-23 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL |
| (1) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) |
| SYNTHETIC FIBRES | -614584 | -487415 | -745747 | -579025 | -741421 | -614903 | -740049 | -718652 | -712748 | -594104 | -475346 | -376339 | -741869 | -760367 | -847758 | -1187545 |
| FIBRE INTERMEDIATES | 1767879 | 904732 | 1519133 | 789562 | 1457067 | 891262 | 997701 | 780963 | 1685283 | 935872 | 966161 | 486596 | 2499144 | 1626744 | 3243302 | 2054594 |
| POLYMERS | 3215683 | 2399991 | 3540134 | 2599798 | 3563245 | 2657515 | 2544974 | 2126438 | 1814729 | 1544031 | 1152860 | 1174203 | 2020338 | 2324698 | 3616675 | 3711623 |
| SYNTHETIC RUBBER (ELASTOMERS) | 553413 | 570262 | 521715 | 581655 | 555978 | 687161 | 554950 | 780722 | 500796 | 636482 | 652241 | 639439 | 545202 | 1032303 | 532621 | 1125666 |
| SYNTHETIC DETERGENT INTERMEDIATES | 208463 | 169721 | 221171 | 173062 | 204571 | 163065 | 226088 | 208894 | 263014 | 235947 | 263530 | 214319 | 270337 | 327459 | 337848 | 517340 |
| PERFORMANCE PLASTICS | -425171 | -81890 | -555308 | -164180 | -467856 | -126224 | -396435 | -127052 | -228214 | 43450 | 81816 | 95074 | -1199 | 41224 | -71540 | -160797 |
| OLEFINS | -123991 | -55878 | -33912 | -41091 | -209806 | -136521 | -299014 | -218855 | -260283 | -137089 | -241113 | -102144 | -163717 | -97690 | -229264 | -131686 |
| AROMATICS | -828818 | -309759 | -134521 | -20291 | -1982023 | -1046450 | -3230487 | -1970087 | -2943942 | -1564574 | -3360310 | -1312589 | -3310191 | -2255504 | -4074288 | -3141683 |
| OTHER PETRO-BASED CHEMICALS | 2611110 | 1674717 | 2506473 | 1648160 | 3061902 | 2093489 | 3079719 | 2569470 | 3305446 | 2193394 | 2897431 | 1982940 | 3079074 | 3406589 | 3047650 | 2956022 |
| **TOTAL NET IMPORT OF MAJOR PETROCHEMICALS** | **6363984** | **4784481** | **6839138** | **4987650** | **5441657** | **4568394** | **2737447** | **3431841** | **3424081** | **3293409** | **1937270** | **2801499** | **4197119** | **5645456** | **5555246** | **5743534** |

**Table 24: Exports of Major Petrochemicals (Product Wise) 2015-16 to 2022-23**

[QTY in MT & VAL in Rs. Lakh]

| PRODUCT | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | | 2021-22 | | 2022-23 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL |
| (1) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) |
| **SYNTHETIC FIBRES** | | | | | | | | | | | | | | | | |
| ACRYLIC FIBRE | 47911 | 58966 | 48332 | 60060 | 39213 | 52227 | 45932 | 71700 | 40505 | 59726 | 25569 | 33923 | 23743 | 43557 | 57173 | 123303 |
| NYLON FILAMENT YARN | 1639 | 6236 | 1857 | 6462 | 4014 | 12111 | 5794 | 18888 | 7748 | 22360 | 6098 | 15495 | 9363 | 29452 | 17417 | 57715 |
| NYLON INDUSTRIAL YARN/TYRE CORD | 1122 | 1471 | 1474 | 1872 | 1620 | 2239 | 1895 | 2827 | 3624 | 5116 | 4296 | 5939 | 5312 | 9033 | 13172 | 24606 |
| POLYESTER FILAMENT YARN | 634799 | 624444 | 748037 | 690836 | 717714 | 730282 | 696668 | 839555 | 711319 | 750466 | 540650 | 545550 | 762473 | 966876 | 944062 | 1331965 |
| POLYESTER STAPLE FIBRE | 181813 | 129129 | 213903 | 150316 | 227441 | 169364 | 255455 | 225045 | 285157 | 204876 | 291399 | 172242 | 383703 | 329736 | 454732 | 456387 |
| POLYPROPYLENE FILAMENT YARN | 2844 | 3878 | 2077 | 2690 | 869 | 1117 | 494 | 713 | 720 | 965 | 729 | 1005 | 798 | 1297 | 2031 | 3259 |
| POLYPROPYLENE STAPLE FIBRE | 7531 | 6885 | 9755 | 8767 | 9497 | 8663 | 7892 | 8446 | 9509 | 9103 | 8212 | 7668 | 10896 | 14033 | 24252 | 32055 |
| Elastomeric/Spandex Filament Yarn | 699 | 2774 | 305 | 1015 | 685 | 1979 | 1536 | 4834 | 766 | 2375 | 1666 | 5218 | 5958 | 44903 | 5169 | 22916 |
| **TOTAL** | **878358** | **833783** | **1025740** | **922018** | **1001053** | **977982** | **1015666** | **1172008** | **1059348** | **1054987** | **878619** | **787040** | **1202246** | **1438887** | **1518008** | **2052206** |
| **FIBRE INTERMEDIATES** | | | | | | | | | | | | | | | | |
| ACRYLONITRILE | 2323 | 2132 | 6 | 39 | 1514 | 1900 | 1872 | 3059 | 2988 | 3262 | 8533 | 8178 | 1956 | 3401 | 24010 | 31137 |
| CAPROLACTUM | 0 | 8 | 1010 | 867 | 53 | 93 | 77 | 129 | 258 | 327 | 6225 | 4672 | 25 | 554 | 124 | 260 |
| DIMETHYL TEREPHTHALATE | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 117 | 226 |
| MONO EHYLENE GLYCOL | 72239 | 52081 | 62199 | 45932 | 137462 | 90499 | 292583 | 175325 | 151301 | 81361 | 325429 | 105684 | 71204 | 48936 | 79298 | 74496 |
| PURIFIED TEREPHTHALIC ACID | 172977 | 67172 | 259880 | 106735 | 212329 | 88577 | 162422 | 97404 | 79825 | 38661 | 134978 | 44395 | 54397 | 33649 | 8878 | 15491 |
| **TOTAL** | **247540** | **121394** | **323096** | **153574** | **351358** | **181069** | **456955** | **275919** | **234372** | **123612** | **475165** | **162929** | **127582** | **86540** | **112427** | **121610** |
| **POLYMERS** | | | | | | | | | | | | | | | | |
| LOW DENSITY POLYETHYLENE | 24007 | 26531 | 26909 | 27321 | 108257 | 88430 | 164142 | 132765 | 140022 | 98135 | 39442 | 35801 | 49187 | 66522 | 145252 | 200033 |
| HIGH DENSITY POLYTHYLENE | 116114 | 97840 | 148142 | 117815 | 205797 | 155550 | 457416 | 365235 | 486892 | 315945 | 398659 | 247524 | 198169 | 192824 | 140105 | 190896 |
| POLYESTYRENE | 86290 | 72301 | 82542 | 75483 | 69814 | 67452 | 63990 | 64060 | 49611 | 43139 | 36502 | 27805 | 44494 | 52518 | 78448 | 93456 |
| POLYPROPYLENE (INC. CO-POLYMER) | 735410 | 503124 | 574234 | 382678 | 552002 | 397646 | 718053 | 596611 | 539045 | 386684 | 861712 | 561818 | 546609 | 547136 | 703502 | 648400 |
| EXPANDABLE POLYESTYRENE | 3762 | 3735 | 3697 | 3548 | 3119 | 3272 | 3064 | 3818 | 2745 | 2762 | 894 | 895 | 944 | 1279 | 4807 | 6254 |
| POLY VINYL CHLORIDE | 3054 | 3272 | 6484 | 6127 | 6662 | 6015 | 2133 | 1788 | 2060 | 1471 | 16985 | 8467 | 2537 | 2894 | 1934 | 2673 |
| LINEAR LOW DENSITY POLYTHYLENE | 15825 | 14160 | 53215 | 41558 | 228952 | 163632 | 508135 | 380841 | 395076 | 247196 | 134318 | 85759 | 66494 | 65425 | 79702 | 81762 |
| PVC COMPOUND | 13877 | 11534 | 16901 | 12902 | 13630 | 9774 | 17222 | 13273 | 0 | 0 | 0 | 0 | 12721 | 13919 | 18953 | 21553 |
| **TOTAL** | **998339** | **732497** | **912124** | **667432** | **1188233** | **891771** | **1934155** | **1558391** | **1615451** | **1095332** | **1488512** | **968069** | **921155** | **942517** | **1172703** | **1245027** |
| **SYNTHETIC RUBBER (ELASTOMERS)** | | | | | | | | | | | | | | | | |
| STYRENE BUTADIENE RUBBER | 31053 | 23969 | 27139 | 27423 | 40704 | 36382 | 46179 | 43572 | 44929 | 37838 | 39757 | 28768 | 35715 | 38037 | 73726 | 84996 |
| POLY BUTADIENE RUBBER | 5988 | 4008 | 5114 | 4942 | 7012 | 7376 | 13175 | 15311 | 20323 | 19289 | 23329 | 15059 | 22558 | 28190 | 5112 | 7726 |
| ETHYL PROPYLENE DIMERS | 2725 | 8882 | 3282 | 9531 | 2517 | 7696 | 2463 | 7958 | 2292 | 7284 | 1371 | 3275 | 1429 | 3438 | 2134 | 6444 |
| ETHYL VINYL ACETATE | 1274 | 1510 | 1494 | 1751 | 901 | 1314 | 530 | 1251 | 999 | 1614 | 1042 | 1650 | 1381 | 3351 | 9811 | 17972 |
| NITRILE BUTADIENE RUBBER | 400 | 970 | 451 | 1092 | 427 | 1128 | 507 | 1316 | 719 | 1316 | 3823 | 4326 | 7134 | 9282 | 16193 | 16964 |
| BUTYL RUBBER | 1248 | 3089 | 724 | 1648 | 328 | 693 | 696 | 1288 | 4774 | 5724 | 25715 | 26343 | 21719 | 29524 | 33883 | 60799 |
| **TOTAL** | **42688** | **42428** | **38204** | **46387** | **51889** | **54589** | **63550** | **70696** | **74036** | **73065** | **95037** | **79421** | **89936** | **111822** | **140859** | **194901** |
| **SYNTHETIC DETERGENT INTERMEDIATES** | | | | | | | | | | | | | | | | |
| LINEAR ALKYL BENZENE | 9256 | 7034 | 6440 | 4816 | 930 | 809 | 323 | 367 | 193 | 253 | 926 | 956 | 6402 | 7462 | 2269 | 2192 |
| ETHYLENE OXIDE | 378 | 734 | 618 | 1125 | 483 | 659 | 725 | 1167 | 851 | 1226 | 950 | 983 | 1089 | 1239 | 2775 | 4022 |
| **TOTAL** | **9634** | **7768** | **7058** | **5941** | **1413** | **1468** | **1048** | **1534** | **1044** | **1479** | **1876** | **1939** | **7491** | **8701** | **5044** | **6214** |
| **PERFORMANCE PLASTICS** | | | | | | | | | | | | | | | | |
| ABS RESIN | 465 | 682 | 294 | 473 | 273 | 445 | 449 | 622 | 328 | 598 | 407 | 673 | 1744 | 2197 | 786 | 1759 |
| NYLON-6 | 14577 | 25321 | 17656 | 29593 | 21353 | 34774 | 19744 | 38965 | 21214 | 40855 | 0 | 0 | 0 | 0 | 0 | 0 |
| POLYMETHYL METHACRYLATE | 9158 | 10541 | 8557 | 10230 | 3563 | 3584 | 4323 | 5218 | 4632 | 5586 | 3296 | 4774 | 4104 | 6781 | 6763 | 10201 |

| PRODUCT | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | | 2021-22 | | 2022-23 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL |
| STYRENE ACRYLONITRILE | 579 | 459 | 671 | 450 | 1179 | 682 | 387 | 380 | 460 | 362 | 230 | 212 | 817 | 990 | 5211 | 5232 |
| POLYESTER CHIPS/PET CHIPS | 783106 | 460787 | 937251 | 557185 | 1014588 | 655326 | 1043386 | 889691 | 930982 | 618181 | 202297 | 117960 | 262129 | 221810 | 326379 | 312699 |
| POLYTETRAFLUOROETHYLENE(PTFE) | 6082 | 29947 | 8321 | 38519 | 9592 | 52460 | 11997 | 83897 | 11175 | 73428 | 10912 | 75124 | 14928 | 121908 | 24717 | 245242 |
| **TOTAL** | **813967** | **527737** | **972750** | **636450** | **1050548** | **747271** | **1080286** | **1018773** | **968791** | **739010** | **217142** | **198743** | **283722** | **353686** | **363856** | **575133** |
| **OLEFINS** | | | | | | | | | | | | | | | | |
| BUTADIENE | 129808 | 66961 | 106838 | 97268 | 103426 | 73371 | 136191 | 113889 | 174252 | 103916 | 166809 | 72272 | 144095 | 89886 | 242631 | 172848 |
| ETHYLENE | 5119 | 3789 | 27 | 23 | 136426 | 97327 | 193233 | 140672 | 152230 | 79955 | 102895 | 57712 | 111502 | 83997 | 80864 | 61674 |
| PROPYLENE | 14462 | 5305 | 10500 | 4451 | 20745 | 9106 | 39290 | 22140 | 9658 | 4229 | 15284 | 6118 | 0 | 0 | 0 | 3 |
| **TOTAL** | **149389** | **76055** | **117365** | **101742** | **260597** | **179804** | **368714** | **276701** | **336140** | **188100** | **284988** | **136102** | **255597** | **173883** | **323495** | **234525** |
| **AROMATICS** | | | | | | | | | | | | | | | | |
| BENZENE | 914875 | 371288 | 789425 | 366822 | 1286323 | 662408 | 1651123 | 822052 | 1408477 | 635303 | 1507626 | 559554 | 1922951 | 1388168 | 2903277 | 2313942 |
| MIXED XYLENE | 8 | 49 | 66 | 110 | 418 | 278 | 981 | 668 | 410 | 297 | 535 | 330 | 46 | 57 | 254 | 334 |
| ORTHO-XYLENE | 234386 | 107621 | 154347 | 74761 | 185675 | 86881 | 225703 | 122734 | 177267 | 100950 | 309550 | 127934 | 234328 | 148221 | 242605 | 216118 |
| TOLUENE | 5268 | 3314 | 5843 | 3764 | 4103 | 2772 | 13601 | 9501 | 8124 | 5564 | 17834 | 9791 | 17804 | 13832 | 29428 | 30590 |
| PARAXYLENE | 878606 | 460535 | 799492 | 439679 | 1826522 | 1002659 | 2659503 | 1925344 | 2677199 | 1595294 | 2825251 | 1157076 | 2259427 | 1447757 | 2144453 | 1704426 |
| **TOTAL** | **2033143** | **942807** | **1749173** | **885136** | **3303041** | **1754998** | **4550911** | **2880299** | **4271477** | **2337408** | **4660796** | **1854685** | **4434556** | **2998035** | **5320017** | **4265410** |
| **OTHER PETRO-BASED CHEMICALS** | | | | | | | | | | | | | | | | |
| ETHYLENE DICHLORIDE | 15839 | 3103 | 16 | 8 | 44861 | 6510 | 19181 | 4478 | 80857 | 20134 | 37412 | 8605 | 5902 | 3221 | 899 | 715 |
| BUTANOL | 195 | 162 | 2292 | 1189 | 863 | 703 | 452 | 655 | 282 | 287 | 1032 | 1288 | 577 | 887 | 1253 | 1562 |
| OXO ALCOHOL | 582 | 565 | 1271 | 731 | 890 | 682 | 2935 | 1505 | 1328 | 1146 | 740 | 2021 | 988 | 5590 | 2587 | 14194 |
| 2-ETHYL HEXANOL | 746 | 654 | 2055 | 1437 | 2636 | 1701 | 3175 | 2781 | 46 | 54 | 1408 | 1412 | 3463 | 5010 | 1508 | 2208 |
| VINYL CHLORIDE MONOMER | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 6 | 8 | 51 | 104 |
| EPICHLOHYDRINE | 28 | 33 | 54 | 55 | 49 | 76 | 48 | 90 | 106 | 183 | 58 | 306 | 28 | 275 | 10497 | 20956 |
| ISO BUTYLENE | 28 | 249 | 1 | 3 | 0 | 2 | 0 | 1 | 18085 | 9028 | 6048 | 2593 | 18588 | 12966 | 28151 | 25916 |
| METAXYLENE | 46 | 140 | 64 | 217 | 4 | 263 | 15 | 282 | 35 | 587 | 18 | 857 | 20 | 676 | 83 | 1423 |
| METHYL ISOBUTYL KETONE | 287 | 266 | 918 | 788 | 940 | 878 | 2038 | 1817 | 2165 | 1525 | 667 | 882 | 1350 | 2681 | 1617 | 2542 |
| PIB | 6128 | 7200 | 2237 | 2448 | 2620 | 2711 | 4297 | 4788 | 5828 | 5839 | 9729 | 8097 | 6327 | 7754 | 22382 | 30059 |
| POLYCARBONATE | 4790 | 4597 | 3990 | 3284 | 4926 | 5370 | 3432 | 4605 | 3331 | 3621 | 4447 | 5685 | 4603 | 6563 | 5960 | 12559 |
| PROPYLENE OXIDE | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 3 | 0 | 2 |
| PROPYLENE GLYCOL | 531 | 724 | 865 | 1113 | 1117 | 1713 | 1697 | 2419 | 5934 | 6573 | 3254 | 3931 | 1706 | 5187 | 6350 | 14689 |
| POLYVINYL ACETATE RESIN | 11259 | 11415 | 8767 | 8927 | 6958 | 6522 | 8510 | 8622 | 9048 | 7767 | 8175 | 7358 | 9527 | 15019 | 18493 | 36435 |
| UNSATURATED POLYSTER RESIN | 12112 | 15025 | 16263 | 18552 | 14436 | 18212 | 14667 | 21668 | 15498 | 22694 | 17443 | 27544 | 22071 | 42671 | 47211 | 95839 |
| ETHYL BENZENE | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CELLULOSE ACETATE BUTYRATE | 6 | 81 | 8 | 30 | 1 | 18 | 1 | 15 | 0 | 0 | 9 | 39 | 0 | 2 | 0 | 0 |
| CELLULOSE ACETATE SHEET | 34 | 116 | 85 | 178 | 59 | 145 | 22 | 79 | 33 | 106 | 25 | 102 | 13 | 39 | 9 | 29 |
| CELLULOSE NITRATE SHEET | 3 | 5 | 19 | 14 | 2 | 5 | 7 | 24 | 5 | 9 | 4 | 31 | 2 | 13 | 4 | 21 |
| MELAMINE MOULDING POWDER | 7993 | 2541 | 10124 | 3072 | 14754 | 3747 | 16578 | 4758 | 21691 | 6495 | 21800 | 6695 | 32531 | 11571 | 84639 | 34170 |
| POLYACETAL RESIN | 312 | 383 | 387 | 439 | 141 | 279 | 276 | 402 | 334 | 540 | 590 | 1081 | 1636 | 3556 | 3094 | 8441 |
| PHTHALIC ANHYDRIDE | 40448 | 22378 | 42033 | 25960 | 37869 | 25156 | 26495 | 18956 | 28898 | 17976 | 23296 | 12668 | 32492 | 25529 | 41484 | 41354 |
| STYRENE | 793 | 669 | 5088 | 4176 | 4524 | 3842 | 6531 | 6690 | 4366 | 3326 | 17361 | 7081 | 41340 | 42223 | 76082 | 77057 |
| VINYL ACTATE MONOMER | 1695 | 1388 | 11755 | 6285 | 21261 | 13220 | 8344 | 6623 | 3434 | 2260 | 1834 | 1231 | 4545 | 6316 | 4235 | 5551 |
| ISOPROPANOL | 3716 | 2805 | 7385 | 5106 | 11004 | 7850 | 6281 | 5336 | 10442 | 7773 | 8298 | 9567 | 11100 | 11539 | 21561 | 22494 |
| POLYOL | 21099 | 26760 | 28458 | 32760 | 23427 | 39008 | 22316 | 43162 | 25825 | 77010 | 7820 | 60051 | 13483 | 40516 | 0 | 0 |
| **TOTAL** | **128670** | **101261** | **144135** | **116773** | **193342** | **138613** | **147298** | **139759** | **237571** | **194934** | **171468** | **169127** | **212298** | **249815** | **378150** | **448320** |
| **TOTAL EXPORT OF MAJOR PETRO-CHEMICALS** | **5301728** | **3385730** | **5289645** | **3535453** | **7401474** | **4927565** | **9618583** | **7394080** | **8798230** | **5807927** | **8273603** | **4358055** | **7534583** | **6363886** | **9334559** | **9143346** |

***Source:*** *DGCIS, Kolkata, M/o Commerce and Industry*

**Table 25: Imports of Major Petrochemicals (Product Wise) 2015-16 to 2022-23**

[QTY in MT & VAL in Rs. Lakh]

| PRODUCT | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | | 2021-22 | | 2022-23 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL |
| (1) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) |
| **SYNTHETIC FIBRES** | | | | | | | | | | | | | | | | |
| ACRYLIC FIBRE | 39238 | 53809 | 36771 | 44394 | 32184 | 46549 | 40475 | 71158 | 56316 | 84841 | 41928 | 53586 | 35164 | 76074 | 26049 | 57635 |
| NYLON FILAMENT YARN | 28972 | 54485 | 31063 | 53352 | 22731 | 43317 | 23259 | 52088 | 24476 | 49669 | 17058 | 34533 | 25307 | 60951 | 38680 | 82278 |
| NYLON INDUSTRIAL YARN/TYRE CORD | 4411 | 6803 | 7741 | 10247 | 6566 | 10070 | 8108 | 16323 | 6893 | 11802 | 9459 | 15174 | 11445 | 31261 | 8720 | 20790 |
| POLYESTER FILAMENT YARN | 72605 | 86166 | 84367 | 92492 | 82784 | 100756 | 83954 | 118045 | 115170 | 129162 | 238680 | 197017 | 295709 | 343248 | 487693 | 540875 |
| POLYESTER STAPLE FIBRE | 99719 | 73357 | 99809 | 70113 | 88990 | 71053 | 91775 | 89685 | 118176 | 94729 | 84273 | 64616 | 78310 | 78489 | 95480 | 95660 |
| POLYPROPYLENE FILAMENT YARN | 697 | 1001 | 695 | 850 | 1343 | 1715 | 1362 | 2007 | 670 | 954 | 755 | 1418 | 315 | 975 | 164 | 1092 |
| POLYPROPYLENE STAPLE FIBRE | 1885 | 1997 | 2016 | 2181 | 3281 | 3378 | 3333 | 3863 | 2778 | 3097 | 2164 | 2316 | 2986 | 4218 | 4706 | 5998 |
| Elastomeric/Spandex Filament Yarn | 16247 | 68750 | 17531 | 69364 | 21753 | 86241 | 23351 | 100187 | 22121 | 86629 | 8956 | 42041 | 11141 | 83304 | 8758 | 60333 |
| **TOTAL** | **263774** | **346368** | **279993** | **342993** | **259632** | **363079** | **275617** | **453356** | **346600** | **460883** | **403273** | **410701** | **460377** | **678520** | **670250** | **864661** |
| **FIBRE INTERMEDIATES** | | | | | | | | | | | | | | | | |
| ACRYLONITRILE | 160202 | 121692 | 139709 | 108192 | 159778 | 172707 | 182234 | 244043 | 175867 | 200713 | 135230 | 121075 | 175763 | 298158 | 233759 | 302358 |
| CAPROLACTUM | 44577 | 45299 | 52906 | 50601 | 58413 | 75965 | 66497 | 99336 | 68049 | 75256 | 57649 | 55553 | 60061 | 94382 | 22757 | 36652 |
| DIMETHYL TEREPHTHALATE | 2216 | 1400 | 1761 | 1051 | 2256 | 1520 | 1455 | 1137 | 1807 | 1199 | 1766 | 982 | 1973 | 1567 | 1934 | 2217 |
| MONO EHYLENE GLYCOL | 1111582 | 539689 | 1235385 | 604838 | 1066477 | 584695 | 634714 | 371592 | 787574 | 312149 | 621221 | 226286 | 917787 | 471777 | 1500812 | 666600 |
| PURIFIED TEREPHTHALIC ACID | 696842 | 318046 | 412468 | 178454 | 521501 | 237444 | 569756 | 340774 | 886358 | 470167 | 625460 | 245629 | 1471142 | 847400 | 1596467 | 1168377 |
| **TOTAL** | **2015419** | **1026126** | **1842229** | **943136** | **1808425** | **1072331** | **1454656** | **1056882** | **1919655** | **1059484** | **1441326** | **649525** | **2626726** | **1713284** | **3355729** | **2176204** |
| **POLYMERS** | | | | | | | | | | | | | | | | |
| LOW DENSITY POLYETHYLENE | 374761 | 313547 | 391501 | 330125 | 464591 | 398992 | 341063 | 310441 | 352372 | 282510 | 256287 | 208489 | 222431 | 268779 | 278393 | 331845 |
| HIGH DENSITY POLYTHYLENE | 921743 | 798927 | 1000457 | 824364 | 993072 | 840665 | 902265 | 872720 | 787964 | 634354 | 810467 | 648402 | 827307 | 863139 | 1628435 | 1690936 |
| POLYESTYRENE | 42514 | 47364 | 44374 | 54225 | 52790 | 64224 | 56312 | 69827 | 54371 | 62759 | 69916 | 81878 | 65664 | 121494 | 112718 | 178082 |
| POLYPROPYLENE (INC. CO-POLYMER) | 700914 | 574265 | 781188 | 611882 | 938998 | 762085 | 854828 | 837001 | 994615 | 853958 | 854399 | 746492 | 1136898 | 1290866 | 1701271 | 1778886 |
| EXPANDABLE POLYESTYRENE | 2981 | 2723 | 3779 | 3554 | 2644 | 2744 | 1241 | 1611 | 1037 | 1184 | 4684 | 4308 | 5511 | 6709 | 1822 | 2705 |
| POLY VINYL CHLORIDE | 1501311 | 878823 | 1702852 | 1015835 | 1846296 | 1123738 | 2037570 | 1354121 | 928376 | 587544 | 419309 | 300980 | 460352 | 508138 | 590624 | 534672 |
| LINEAR LOW DENSITY POLYTHYLENE | 590015 | 459471 | 469075 | 381387 | 425112 | 335698 | 276313 | 228745 | 311445 | 217054 | 226310 | 151723 | 223153 | 208037 | 476089 | 439494 |
| PVC COMPOUND | 79783 | 57368 | 59032 | 45858 | 27975 | 21140 | 9537 | 10363 | 0 | 0 | 0 | 0 | 177 | 53 | 26 | 30 |
| **TOTAL** | **4214022** | **3132488** | **4452258** | **3267230** | **4751478** | **3549286** | **4479129** | **3684829** | **3430180** | **2639363** | **2641372** | **2142272** | **2941493** | **3267215** | **4789378** | **4956650** |
| **SYNTHETIC RUBBER (ELASTOMERS)** | | | | | | | | | | | | | | | | |
| STYRENE BUTADIENE RUBBER | 172802 | 155614 | 149559 | 155436 | 132989 | 161301 | 123010 | 156987 | 102738 | 118659 | 152373 | 149081 | 169618 | 256501 | 166616 | 287301 |
| POLY BUTADIENE RUBBER | 74646 | 63210 | 84910 | 93064 | 94772 | 122673 | 104671 | 138315 | 97712 | 107321 | 114961 | 113497 | 109987 | 167151 | 134822 | 233641 |
| ETHYL PROPYLENE DIMERS | 39370 | 60759 | 43411 | 54947 | 45099 | 59035 | 52800 | 80061 | 45465 | 59429 | 41810 | 52572 | 48943 | 101663 | 54585 | 130656 |
| ETHYL VINYL ACETATE | 165264 | 162033 | 144604 | 141686 | 183348 | 184503 | 178684 | 202884 | 193671 | 212988 | 189581 | 212461 | 182004 | 383881 | 206182 | 406974 |
| NITRILE BUTADIENE RUBBER | 51937 | 44391 | 36451 | 45999 | 40310 | 63203 | 38519 | 73014 | 41179 | 60140 | 158510 | 52408 | 38508 | 78806 | 46436 | 108043 |
| BUTYL RUBBER | 92082 | 126683 | 100984 | 136910 | 111349 | 151035 | 120816 | 200157 | 94067 | 151010 | 90043 | 138841 | 86078 | 156123 | 64839 | 153952 |
| **TOTAL** | **596101** | **612690** | **559919** | **628042** | **607867** | **741750** | **618500** | **851418** | **574832** | **709547** | **747278** | **718860** | **635138** | **1144125** | **673480** | **1320567** |
| **SYNTHETIC DETERGENT INTERMEDIATES** | | | | | | | | | | | | | | | | |
| LINEAR ALKYL BENZENE | 217997 | 176537 | 228092 | 177675 | 205910 | 163748 | 227111 | 210012 | 264026 | 236771 | 265392 | 215927 | 277724 | 333278 | 342695 | 521880 |
| ETHYLENE OXIDE | 100 | 952 | 137 | 1328 | 74 | 785 | 25 | 416 | 32 | 655 | 14 | 331 | 104 | 2882 | 197 | 1674 |
| **TOTAL** | **218097** | **177489** | **228229** | **179003** | **205984** | **164533** | **227136** | **210428** | **264058** | **237426** | **265406** | **216258** | **277828** | **336160** | **342892** | **523554** |
| **PERFORMANCE PLASTICS** | | | | | | | | | | | | | | | | |
| ABS RESIN | 90081 | 100935 | 102685 | 114201 | 98026 | 131230 | 119398 | 173631 | 104643 | 126833 | 98848 | 129553 | 112791 | 210059 | 115165 | 195968 |
| NYLON-6 | 144545 | 218291 | 158810 | 233711 | 175945 | 299915 | 215718 | 430268 | 217382 | 345202 | 0 | 0 | 0 | 0 | 0 | 0 |
| POLYMETHYL METHACRYLATE | 20309 | 30401 | 27175 | 35588 | 29994 | 47445 | 29540 | 55142 | 29331 | 45525 | 31774 | 44980 | 25928 | 51293 | 33196 | 65329 |
| STYRENE ACRYLONITRILE | 9569 | 9061 | 8542 | 8299 | 9430 | 10630 | 9188 | 11431 | 10452 | 11103 | 13347 | 14631 | 20468 | 29048 | 23791 | 32202 |

| PRODUCT | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | | 2021-22 | | 2022-23 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL |
| (1) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) |
| POLYESTER CHIPS/PET CHIPS | 122206 | 74948 | 117996 | 68960 | 266358 | 113614 | 307111 | 199059 | 375865 | 233917 | 151926 | 85030 | 120110 | 80693 | 116151 | 87603 |
| POLYTETRAFLUOROETHYLENE(PTFE) | 2086 | 12211 | 2234 | 11511 | 2939 | 18213 | 2896 | 22190 | 2904 | 19880 | 3063 | 19623 | 3226 | 23817 | 4013 | 33234 |
| **TOTAL** | **388796** | **445847** | **417442** | **472270** | **582692** | **621047** | **683851** | **891721** | **740577** | **782460** | **298958** | **293817** | **282523** | **394910** | **292316** | **414336** |
| **OLEFINS** | | | | | | | | | | | | | | | | |
| BUTADIENE | 994 | 706 | 2105 | 1657 | 2859 | 3104 | 1048 | 1363 | 14 | 82 | 29 | 108 | 24 | 138 | 8803 | 9232 |
| ETHYLENE | 21050 | 14753 | 80917 | 57116 | 39119 | 32795 | 60583 | 50604 | 64816 | 43283 | 39902 | 28526 | 62387 | 49807 | 76690 | 85887 |
| PROPYLENE | 3354 | 4718 | 431 | 1878 | 8813 | 7384 | 8069 | 5879 | 11027 | 7646 | 3944 | 5324 | 29469 | 26248 | 8738 | 7720 |
| **TOTAL** | **25398** | **20177** | **83453** | **60651** | **50791** | **43283** | **69700** | **57846** | **75857** | **51011** | **43875** | **33958** | **91880** | **76193** | **94231** | **102839** |
| **AROMATICS** | | | | | | | | | | | | | | | | |
| BENZENE | 0 | 5 | 0 | 8 | 60 | 66 | 22264 | 12820 | 11153 | 5330 | 19212 | 8254 | 4195 | 2724 | 11073 | 7764 |
| MIXED XYLENE | 108 | 96 | 113 | 125 | 2424 | 1200 | 641 | 433 | 122 | 139 | 524 | 293 | 40 | 60 | 2077 | 1865 |
| ORTHO-XYLENE | 34502 | 16871 | 26275 | 14609 | 15730 | 8337 | 22974 | 15464 | 16382 | 9962 | 25136 | 11309 | 16390 | 11452 | 50955 | 49532 |
| TOLUENE | 343662 | 163765 | 392749 | 183101 | 414144 | 194854 | 438055 | 235492 | 464497 | 238119 | 601835 | 238357 | 500323 | 315330 | 584524 | 514839 |
| PARAXYLENE | 826053 | 452311 | 1195515 | 667002 | 888660 | 504091 | 836490 | 646003 | 835381 | 519284 | 653779 | 283883 | 603417 | 412965 | 597100 | 549727 |
| **TOTAL** | **1204325** | **633048** | **1614652** | **864845** | **1321018** | **708548** | **1320424** | **910212** | **1327535** | **772834** | **1300486** | **542096** | **1124365** | **742531** | **1245729** | **1123727** |
| **OTHER PETRO-BASED CHEMICALS** | | | | | | | | | | | | | | | | |
| ETHYLENE DICHLORIDE | 600033 | 104976 | 503987 | 86304 | 713334 | 108450 | 581677 | 141440 | 780433 | 182591 | 632881 | 150504 | 625955 | 379706 | 663234 | 262323 |
| BUTANOL | 62512 | 31380 | 57959 | 26234 | 53679 | 30719 | 48955 | 35342 | 58865 | 33488 | 43270 | 27054 | 29060 | 35970 | 39170 | 35136 |
| OXO ALCOHOL | 1270 | 4347 | 3186 | 6713 | 2272 | 6324 | 2696 | 7376 | 2873 | 6210 | 2798 | 4355 | 3088 | 5707 | 2283 | 7831 |
| 2-ETHYL HEXANOL | 109095 | 66012 | 66867 | 37312 | 58129 | 39652 | 54107 | 44522 | 81656 | 56216 | 56250 | 38505 | 13840 | 19050 | 54665 | 63018 |
| VINYL CHLORIDE MONOMER | 349371 | 167169 | 344423 | 177368 | 484390 | 247256 | 457532 | 252913 | 511166 | 280807 | 479876 | 315306 | 581809 | 552782 | 537183 | 410677 |
| EPICHLOHYDRINE | 43383 | 37643 | 48112 | 34563 | 56024 | 51446 | 65013 | 83311 | 61163 | 72337 | 55202 | 58174 | 66405 | 118899 | 71546 | 121208 |
| ISO BUTYLENE | 15853 | 10526 | 20051 | 14133 | 48702 | 36009 | 44558 | 40254 | 10787 | 7475 | 1806 | 1231 | 54 | 143 | 13 | 81 |
| METAXYLENE | 3064 | 2755 | 2667 | 2600 | 2078 | 2064 | 2943 | 3306 | 1910 | 1991 | 2711 | 2492 | 4726 | 4208 | 3033 | 4713 |
| METHYL ISOBUTYL KETONE | 27576 | 22104 | 22487 | 17388 | 34684 | 31270 | 33932 | 29589 | 29977 | 18245 | 30744 | 31945 | 37198 | 62842 | 31195 | 36790 |
| PIB | 14367 | 17322 | 16034 | 16949 | 15041 | 16964 | 16287 | 20089 | 16125 | 19857 | 16396 | 18107 | 18485 | 24889 | 19902 | 33102 |
| POLYCARBONATE | 138535 | 207756 | 138365 | 204195 | 158944 | 256209 | 190435 | 369272 | 175692 | 263317 | 179111 | 267899 | 211794 | 475954 | 224233 | 503033 |
| PROPYLENE OXIDE | 25552 | 25697 | 23064 | 21699 | 23446 | 23594 | 26800 | 30694 | 20160 | 20127 | 17361 | 22038 | 20504 | 32293 | 24821 | 34135 |
| PROPYLENE GLYCOL | 54045 | 46881 | 51339 | 39956 | 57333 | 49579 | 66498 | 69089 | 67372 | 54615 | 59532 | 55321 | 62175 | 129778 | 69814 | 105480 |
| POLYVINYL ACETATE RESIN | 3209 | 5941 | 3043 | 3829 | 3448 | 5059 | 2713 | 3894 | 3578 | 4955 | 3818 | 4871 | 4451 | 7998 | 5402 | 11596 |
| UNSATURATED POLYSTER RESIN | 30303 | 36568 | 39975 | 42255 | 49888 | 53751 | 42954 | 59992 | 48616 | 58735 | 49482 | 58712 | 48099 | 98713 | 54046 | 114548 |
| ETHYL BENZENE | 150 | 146 | 308 | 267 | 351 | 320 | 719 | 806 | 463 | 471 | 500 | 490 | 947 | 1247 | 666 | 1050 |
| CELLULOSE ACETATE BUTYRATE | 2 | 12 | 3 | 18 | 3 | 10 | 0 | 0 | 12 | 18 | 19 | 14 | 57 | 106 | 4 | 254 |
| CELLULOSE ACETATE SHEET | 1295 | 775 | 1066 | 564 | 1346 | 921 | 1516 | 1122 | 1356 | 1013 | 1311 | 1059 | 1645 | 1632 | 1572 | 1649 |
| CELLULOSE NITRATE SHEET | 88 | 260 | 75 | 250 | 99 | 327 | 106 | 396 | 75 | 270 | 1243 | 538 | 521 | 366 | 134 | 276 |
| MELAMINE MOULDING POWDER | 11872 | 13961 | 12997 | 15304 | 14699 | 16993 | 15280 | 20127 | 14945 | 18772 | 11992 | 15425 | 13559 | 23132 | 15827 | 28395 |
| POLYACETAL RESIN | 35212 | 34173 | 37883 | 37829 | 43672 | 43617 | 48759 | 59046 | 47673 | 53004 | 49011 | 56158 | 48878 | 72046 | 61732 | 121350 |
| PHTHALIC ANHYDRIDE | 79803 | 44118 | 92058 | 53567 | 130440 | 86282 | 144801 | 107477 | 174482 | 110039 | 140781 | 80887 | 121211 | 91699 | 94250 | 88182 |
| STYRENE | 717696 | 516539 | 729627 | 557571 | 789273 | 654655 | 817779 | 744118 | 876922 | 610879 | 738149 | 459419 | 888499 | 799875 | 1093429 | 1015028 |
| VINYL ACTATE MONOMER | 141649 | 88260 | 162004 | 87159 | 184964 | 117193 | 171353 | 135851 | 162866 | 98977 | 138364 | 88247 | 178958 | 252872 | 211731 | 281602 |
| ISOPROPANOL | 87606 | 47646 | 97262 | 55519 | 110464 | 71816 | 141113 | 98531 | 154095 | 83539 | 186792 | 164736 | 135446 | 112481 | 145915 | 122885 |
| POLYOL | 186239 | 243011 | 175766 | 225387 | 218541 | 281622 | 248491 | 350672 | 239755 | 330380 | 169499 | 228580 | 174008 | 352016 | 0 | 0 |
| **TOTAL** | **2739780** | **1775978** | **2650608** | **1764933** | **3255244** | **2232102** | **3227017** | **2709229** | **3543017** | **2388328** | **3068899** | **2152067** | **3291372** | **3656404** | **3425800** | **3404342** |
| **TOTAL IMPORT OF MAJOR PETRO-CHEMICALS** | **11665712** | **8170211** | **12128783** | **8523103** | **12843131** | **9495959** | **12356030** | **10825921** | **12222311** | **9101336** | **10210873** | **7159554** | **11731702** | **12009342** | **14889805** | **14886880** |

***Source:*** *DGCIS, Kolkata, M/o Commerce and Industry*

**Table 26: Net Imports of Major Petrochemicals (Product-wise) 2015-16 to 2022-23**

[QTY in MT & VAL in Rs. Lakh]

| PRODUCT | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | | 2021-22 | | 2022-23 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL |
| (1) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) |
| **SYNTHETIC FIBRES** | | | | | | | | | | | | | | | | |
| ACRYLIC FIBRE | -8673 | -5157 | -11561 | -15666 | -7029 | -5678 | -5457 | -542 | 15811 | 25115 | 16359 | 19663 | 11421 | 32517 | -31124 | -65668 |
| NYLON FILAMENT YARN | 27333 | 48249 | 29206 | 46890 | 18717 | 31206 | 17465 | 33200 | 16728 | 27309 | 10960 | 19038 | 15944 | 31499 | 21263 | 24563 |
| NYLON INDUSTRIAL YARN/TYRE CORD | 3289 | 5332 | 6267 | 8375 | 4946 | 7831 | 6213 | 13496 | 3269 | 6686 | 5163 | 9235 | 6133 | 22228 | -4452 | -3816 |
| POLYESTER FILAMENT YARN | -562194 | -538278 | -663670 | -598344 | -634930 | -629526 | -612714 | -721510 | -596149 | -621304 | -301970 | -348533 | -466764 | -623628 | -456369 | -791090 |
| POLYESTER STAPLE FIBRE | -82094 | -55772 | -114094 | -80203 | -138451 | -98311 | -163680 | -135360 | -166981 | -110147 | -207126 | -107626 | -305393 | -251247 | -359252 | -360727 |
| POLYPROPYLENE FILAMENT YARN | -2147 | -2877 | -1382 | -1840 | 474 | 598 | 868 | 1294 | -50 | -11 | 26 | 413 | -483 | -322 | -1867 | -2167 |
| POLYPROPYLENE STAPLE FIBRE | -5646 | -4888 | -7739 | -6586 | -6216 | -5285 | -4559 | -4583 | -6731 | -6006 | -6048 | -5352 | -7910 | -9815 | -19546 | -26057 |
| Elastomeric/Spandex Filament Yarn | 15548 | 65976 | 17226 | 68349 | 21068 | 84262 | 21815 | 95353 | 21355 | 84254 | 7290 | 36823 | 5183 | 38401 | 3589 | 37417 |
| **TOTAL** | **-614584** | **-487415** | **-745747** | **-579025** | **-741421** | **-614903** | **-740049** | **-718652** | **-712748** | **-594104** | **-475346** | **-376339** | **-741869** | **-760367** | **-847758** | **-1187545** |
| **FIBRE INTERMEDIATES** | | | | | | | | | | | | | | | | |
| ACRYLONITRILE | 157879 | 119560 | 139703 | 108153 | 158264 | 170807 | 180362 | 240984 | 172879 | 197451 | 126697 | 112897 | 173807 | 294757 | 209749 | 271221 |
| CAPROLACTUM | 44577 | 45291 | 51896 | 49734 | 58360 | 75872 | 66420 | 99207 | 67791 | 74929 | 51424 | 50881 | 60036 | 93828 | 22633 | 36392 |
| DIMETHYL TEREPHTHALATE | 2215 | 1399 | 1760 | 1050 | 2256 | 1520 | 1454 | 1135 | 1807 | 1198 | 1766 | 982 | 1973 | 1567 | 1817 | 1991 |
| MONO EHYLENE GLYCOL | 1039343 | 487608 | 1173186 | 558906 | 929015 | 494196 | 342131 | 196267 | 636273 | 230788 | 295792 | 120602 | 846583 | 422841 | 1421514 | 592104 |
| PURIFIED TEREPHTHALIC ACID | 523865 | 250874 | 152588 | 71719 | 309172 | 148867 | 407334 | 243370 | 806533 | 431506 | 490482 | 201234 | 1416745 | 813751 | 1587589 | 1152886 |
| **TOTAL** | **1767879** | **904732** | **1519133** | **789562** | **1457067** | **891262** | **997701** | **780963** | **1685283** | **935872** | **966161** | **486596** | **2499144** | **1626744** | **3243302** | **2054594** |
| **POLYMERS** | | | | | | | | | | | | | | | | |
| LOW DENSITY POLYETHYLENE | 350754 | 287016 | 364592 | 302804 | 356334 | 310562 | 176921 | 177676 | 212350 | 184375 | 216845 | 172688 | 173244 | 202257 | 133141 | 131812 |
| HIGH DENSITY POLYTHYLENE | 805629 | 701087 | 852315 | 706549 | 787275 | 685115 | 444849 | 507485 | 301072 | 318409 | 411808 | 400878 | 629138 | 670315 | 1488330 | 1500040 |
| POLYESTYRENE | -43776 | -24937 | -38168 | -21258 | -17024 | -3228 | -7678 | 5767 | 4760 | 19620 | 33414 | 54073 | 21170 | 68976 | 34270 | 84626 |
| POLYPROPYLENE (INC. CO-POLYMER) | -34496 | 71141 | 206954 | 229204 | 386996 | 364439 | 136775 | 240390 | 455570 | 467274 | -7313 | 184674 | 590289 | 743730 | 997769 | 1130486 |
| EXPANDABLE POLYESTYRENE | -781 | -1012 | 82 | 6 | -475 | -528 | -1823 | -2207 | -1708 | -1578 | 3790 | 3413 | 4567 | 5430 | -2985 | -3549 |
| POLY VINYL CHLORIDE | 1498257 | 875551 | 1696368 | 1009708 | 1839634 | 1117723 | 2035437 | 1352333 | 926316 | 586073 | 402324 | 292513 | 457815 | 505244 | 588690 | 531999 |
| LINEAR LOW DENSITY POLYTHYLENE | 574190 | 445311 | 415860 | 339829 | 196160 | 172066 | -231822 | -152096 | -83631 | -30142 | 91992 | 65964 | 156659 | 142612 | 396387 | 357732 |
| PVC COMPOUND | 65906 | 45834 | 42131 | 32956 | 14345 | 11366 | -7685 | -2910 | 0 | 0 | 0 | 0 | -12544 | -13866 | -18927 | -21523 |
| **TOTAL** | **3215683** | **2399991** | **3540134** | **2599798** | **3563245** | **2657515** | **2544974** | **2126438** | **1814729** | **1544031** | **1152860** | **1174203** | **2020338** | **2324698** | **3616675** | **3711623** |
| **SYNTHETIC RUBBER (ELASTOMERS)** | | | | | | | | | | | | | | | | |
| STYRENE BUTADIENE RUBBER | 141749 | 131645 | 122420 | 128013 | 92285 | 124919 | 76831 | 113415 | 57809 | 80821 | 112616 | 120313 | 133903 | 218464 | 92890 | 202305 |
| POLY BUTADIENE RUBBER | 68658 | 59202 | 79796 | 88122 | 87760 | 115297 | 91496 | 123004 | 77389 | 88032 | 91632 | 98438 | 87429 | 138961 | 129710 | 225915 |
| ETHYL PROPYLENE DIMERS | 36645 | 51877 | 40129 | 45416 | 42582 | 51339 | 50337 | 72103 | 43173 | 52145 | 40439 | 49297 | 47514 | 98225 | 52451 | 124212 |
| ETHYL VINYL ACETATE | 163990 | 160523 | 143110 | 139935 | 182447 | 183189 | 178154 | 201633 | 192672 | 211374 | 188539 | 210811 | 180623 | 380530 | 196371 | 389002 |
| NITRILE BUTADIENE RUBBER | 51537 | 43421 | 36000 | 44907 | 39883 | 62075 | 38012 | 71698 | 40460 | 58824 | 154687 | 48082 | 31374 | 69524 | 30243 | 91079 |
| BUTYL RUBBER | 90834 | 123594 | 100260 | 135262 | 111021 | 150342 | 120120 | 198869 | 89293 | 145286 | 64328 | 112498 | 64359 | 126599 | 30956 | 93153 |
| **TOTAL** | **553413** | **570262** | **521715** | **581655** | **555978** | **687161** | **554950** | **780722** | **500796** | **636482** | **652241** | **639439** | **545202** | **1032303** | **532621** | **1125666** |
| **SYNTHETIC DETERGENT INTERMEDIATES** | | | | | | | | | | | | | | | | |
| LINEAR ALKYL BENZENE | 208741 | 169503 | 221652 | 172859 | 204980 | 162939 | 226788 | 209645 | 263833 | 236518 | 264466 | 214971 | 271322 | 325816 | 340426 | 519688 |
| ETHYLENE OXIDE | -278 | 218 | -481 | 203 | -409 | 126 | -700 | -751 | -819 | -571 | -936 | -652 | -985 | 1643 | -2578 | -2348 |
| **TOTAL** | **208463** | **169721** | **221171** | **173062** | **204571** | **163065** | **226088** | **208894** | **263014** | **235947** | **263530** | **214319** | **270337** | **327459** | **337848** | **517340** |
| **PERFORMANCE PLASTICS** | | | | | | | | | | | | | | | | |
| ABS RESIN | 89616 | 100253 | 102391 | 113728 | 97753 | 130785 | 118949 | 173009 | 104315 | 126235 | 98441 | 128880 | 111047 | 207862 | 114379 | 194209 |

| PRODUCT | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | | 2021-22 | | 2022-23 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL |
| (1) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) |
| NYLON-6 | 129968 | 192970 | 141154 | 204118 | 154592 | 265141 | 195974 | 391303 | 196168 | 304347 | 0 | 0 | 0 | 0 | 0 | 0 |
| POLYMETHYL METHACRYLATE | 11151 | 19860 | 18618 | 25358 | 26431 | 43861 | 25217 | 49924 | 24699 | 39939 | 28478 | 40206 | 21824 | 44512 | 26433 | 55128 |
| STYRENE ACRYLONITRILE | 8990 | 8602 | 7871 | 7849 | 8251 | 9948 | 8801 | 11051 | 9992 | 10741 | 13117 | 14419 | 19651 | 28058 | 18580 | 26970 |
| POLYESTER CHIPS/PET CHIPS | -660900 | -385839 | -819255 | -488225 | -748230 | -541712 | -736275 | -690632 | -555117 | -384264 | -50371 | -32930 | -142019 | -141117 | -210228 | -225096 |
| POLYTETRAFLUOROETHYLENE(PTFE) | -3996 | -17736 | -6087 | -27008 | -6653 | -34247 | -9101 | -61707 | -8271 | -53548 | -7849 | -55501 | -11702 | -98091 | -20704 | -212008 |
| **TOTAL** | **-425171** | **-81890** | **-555308** | **-164180** | **-467856** | **-126224** | **-396435** | **-127052** | **-228214** | **43450** | **81816** | **95074** | **-1199** | **41224** | **-71540** | **-160797** |
| **OLEFINS** | | | | | | | | | | | | | | | | |
| BUTADIENE | -128814 | -66255 | -104733 | -95611 | -100567 | -70267 | -135143 | -112526 | -174238 | -103834 | -166780 | -72164 | -144071 | -89748 | -233828 | -163616 |
| ETHYLENE | 15931 | 10964 | 80890 | 57093 | -97307 | -64532 | -132650 | -90068 | -87414 | -36672 | -62993 | -29186 | -49115 | -34190 | -4174 | 24213 |
| PROPYLENE | -11108 | -587 | -10069 | -2573 | -11932 | -1722 | -31221 | -16261 | 1369 | 3417 | -11340 | -794 | 29469 | 26248 | 8738 | 7717 |
| **TOTAL** | **-123991** | **-55878** | **-33912** | **-41091** | **-209806** | **-136521** | **-299014** | **-218855** | **-260283** | **-137089** | **-241113** | **-102144** | **-163717** | **-97690** | **-229264** | **-131686** |
| **AROMATICS** | | | | | | | | | | | | | | | | |
| BENZENE | -914875 | -371283 | -789425 | -366814 | -1286263 | -662342 | -1628859 | -809232 | -1397324 | -629973 | -1488414 | -551300 | -1918756 | -1385444 | -2892204 | -2306178 |
| MIXED XYLENE | 100 | 47 | 47 | 15 | 2006 | 922 | -340 | -235 | -288 | -158 | -11 | -37 | -6 | 3 | 1823 | 1531 |
| ORTHO-XYLENE | -199884 | -90750 | -128072 | -60152 | -169945 | -78544 | -202729 | -107270 | -160885 | -90988 | -284414 | -116625 | -217938 | -136769 | -191650 | -166586 |
| TOLUENE | 338394 | 160451 | 386906 | 179337 | 410041 | 192082 | 424454 | 225991 | 456373 | 232555 | 584001 | 228566 | 482519 | 301498 | 555096 | 484249 |
| PARAXYLENE | -52553 | -8224 | 396023 | 227323 | -937862 | -498568 | -1823013 | -1279341 | -1841818 | -1076010 | -2171472 | -873193 | -1656010 | -1034792 | -1547353 | -1154699 |
| **TOTAL** | **-828818** | **-309759** | **-134521** | **-20291** | **-1982023** | **-1046450** | **-3230487** | **-1970087** | **-2943942** | **-1564574** | **-3360310** | **-1312589** | **-3310191** | **-2255504** | **-4074288** | **-3141683** |
| **OTHER PETRO-BASED CHEMICALS** | | | | | | | | | | | | | | | | |
| ETHYLENE DICHLORIDE | 584194 | 101873 | 503971 | 86296 | 668473 | 101940 | 562496 | 136962 | 699576 | 162457 | 595469 | 141899 | 620053 | 376485 | 662335 | 261608 |
| BUTANOL | 62317 | 31218 | 55667 | 25045 | 52816 | 30016 | 48503 | 34687 | 58583 | 33201 | 42238 | 25766 | 28483 | 35083 | 37917 | 33574 |
| OXO ALCOHOL | 688 | 3782 | 1915 | 5982 | 1382 | 5642 | -239 | 5871 | 1545 | 5064 | 2058 | 2334 | 2100 | 117 | -304 | -6363 |
| 2-ETHYL HEXANOL | 108349 | 65358 | 64812 | 35875 | 55493 | 37951 | 50932 | 41741 | 81610 | 56162 | 54842 | 37093 | 10377 | 14040 | 53157 | 60810 |
| VINYL CHLORIDE MONOMER | 349371 | 167169 | 344423 | 177368 | 484390 | 247256 | 457532 | 252910 | 511166 | 280807 | 479876 | 315305 | 581803 | 552774 | 537132 | 410573 |
| EPICHLOHYDRINE | 43355 | 37610 | 48058 | 34508 | 55975 | 51370 | 64965 | 83221 | 61057 | 72154 | 55144 | 57868 | 66377 | 118624 | 61049 | 100252 |
| ISO BUTYLENE | 15825 | 10277 | 20050 | 14130 | 48702 | 36007 | 44558 | 40253 | -7298 | -1553 | -4242 | -1362 | -18534 | -12823 | -28138 | -25835 |
| METAXYLENE | 3018 | 2615 | 2603 | 2383 | 2074 | 1801 | 2928 | 3024 | 1875 | 1404 | 2693 | 1635 | 4706 | 3532 | 2950 | 3290 |
| METHYL ISOBUTYL KETONE | 27289 | 21838 | 21569 | 16600 | 33744 | 30392 | 31894 | 27772 | 27812 | 16720 | 30077 | 31063 | 35848 | 60161 | 29578 | 34248 |
| PIB | 8239 | 10122 | 13797 | 14501 | 12421 | 14253 | 11990 | 15301 | 10297 | 14018 | 6667 | 10010 | 12158 | 17135 | -2480 | 3043 |
| POLYCARBONATE | 133745 | 203159 | 134375 | 200911 | 154018 | 250839 | 187003 | 364667 | 172361 | 259696 | 174664 | 262214 | 207191 | 469391 | 218273 | 490474 |
| PROPYLENE OXIDE | 25552 | 25697 | 23064 | 21698 | 23446 | 23594 | 26800 | 30694 | 20160 | 20126 | 17361 | 22037 | 20504 | 32290 | 24821 | 34133 |
| PROPYLENE GLYCOL | 53514 | 46157 | 50474 | 38843 | 56216 | 47866 | 64801 | 66670 | 61438 | 48042 | 56278 | 51390 | 60469 | 124591 | 63464 | 90791 |
| POLYVINYL ACETATE RESIN | -8050 | -5474 | -5724 | -5098 | -3510 | -1463 | -5797 | -4728 | -5470 | -2812 | -4357 | -2487 | -5076 | -7021 | -13091 | -24839 |
| UNSATURATED POLYSTER RESIN | 18191 | 21543 | 23712 | 23703 | 35452 | 35539 | 28287 | 38324 | 33118 | 36041 | 32039 | 31168 | 26028 | 56042 | 6835 | 18709 |
| ETHYL BENZENE | 150 | 144 | 308 | 267 | 351 | 320 | 719 | 806 | 463 | 471 | 500 | 490 | 947 | 1247 | 666 | 1050 |
| CELLULOSE ACETATE BUTYRATE | -4 | -69 | -5 | -12 | 2 | -8 | -1 | -15 | 12 | 18 | 10 | -25 | 57 | 104 | 4 | 254 |
| CELLULOSE ACETATE SHEET | 1261 | 659 | 981 | 386 | 1287 | 776 | 1494 | 1043 | 1323 | 907 | 1286 | 957 | 1632 | 1593 | 1563 | 1620 |
| CELLULOSE NITRATE SHEET | 85 | 255 | 56 | 236 | 97 | 322 | 99 | 372 | 70 | 261 | 1239 | 507 | 519 | 353 | 130 | 255 |
| MELAMINE MOULDING POWDER | 3879 | 11420 | 2873 | 12232 | -55 | 13246 | -1298 | 15369 | -6746 | 12277 | -9808 | 8730 | -18972 | 11561 | -68812 | -5775 |
| POLYACETAL RESIN | 34900 | 33790 | 37496 | 37390 | 43531 | 43338 | 48483 | 58644 | 47339 | 52464 | 48421 | 55077 | 47242 | 68490 | 58638 | 112909 |
| PHTHALIC ANHYDRIDE | 39355 | 21740 | 50025 | 27607 | 92571 | 61126 | 118306 | 88521 | 145584 | 92063 | 117485 | 68219 | 88719 | 66170 | 52766 | 46828 |
| STYRENE | 716903 | 515870 | 724539 | 553395 | 784749 | 650813 | 811248 | 737428 | 872556 | 607553 | 720788 | 452338 | 847159 | 757652 | 1017347 | 937971 |
| VINYL ACTATE MONOMER | 139954 | 86872 | 150249 | 80874 | 163703 | 103973 | 163009 | 129228 | 159432 | 96717 | 136530 | 87016 | 174413 | 246556 | 207496 | 276051 |

| PRODUCT | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | | 2021-22 | | 2022-23 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL | QTY | VAL |
| (1) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) |
| ISOPROPANOL | 83890 | 44841 | 89877 | 50413 | 99460 | 63966 | 134832 | 93195 | 143653 | 75766 | 178494 | 155169 | 124346 | 100942 | 124354 | 100391 |
| POLYOL | 165140 | 216251 | 147308 | 192627 | 195114 | 242614 | 226175 | 307510 | 213930 | 253370 | 161679 | 168529 | 160525 | 311500 | 0 | 0 |
| **TOTAL** | **2611110** | **1674717** | **2506473** | **1648160** | **3061902** | **2093489** | **3079719** | **2569470** | **3305446** | **2193394** | **2897431** | **1982940** | **3079074** | **3406589** | **3047650** | **2956022** |
| **TOTAL IMPORT OF MAJOR PETRO-CHEMICALS** | **6363984** | **4784481** | **6839138** | **4987650** | **5441657** | **4568394** | **2737447** | **3431841** | **3424081** | **3293409** | **1937270** | **2801499** | **4197119** | **5645456** | **5555246** | **5743534** |

***Source:*** *DGCIS, Kolkata, M/o Commerce and Industry*

**Table 27: Top Five Export Destinations of selected Petrochemicals during 2022-23**

| PRODUCT | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| ACRYLIC FIBRE | KENYA | 13939.0 | 19917.9 |
| | U ARAB EMTS | 10447.9 | 21210.4 |
| | SOUTH AFRICA | 4208.0 | 14724.4 |
| | ETHIOPIA | 3875.0 | 5325.8 |
| | TURKEY | 2393.5 | 4485.3 |
| | **Product Total** | **34863.3** | **65663.9** |
| NYLON FILAMENT YARN | U ARAB EMTS | 2588.6 | 8519.1 |
| | U S A | 1922.6 | 7315.4 |
| | TURKEY | 1489.0 | 3905.0 |
| | AUSTRALIA | 1305.3 | 4089.1 |
| | BRAZIL | 1183.8 | 3745.2 |
| | **Product Total** | **8489.2** | **27573.7** |
| NYLON INDUSTRIAL YARN/TYRE CORD | U S A | 3794.2 | 8377.8 |
| | SPAIN | 1387.2 | 2280.7 |
| | MEXICO | 890.7 | 1600.1 |
| | GERMANY | 863.2 | 1668.1 |
| | U ARAB EMTS | 809.4 | 1935.3 |
| | **Product Total** | **7744.8** | **15862.0** |
| POLYESTER FILAMENT YARN | TURKEY | 359685.2 | 463441.9 |
| | BRAZIL | 110452.1 | 123832.6 |
| | MOROCCO | 56341.5 | 73674.1 |
| | U S A | 45942.3 | 74122.9 |
| | ARGENTINA | 33391.7 | 45193.2 |
| | **Product Total** | **605812.8** | **780264.8** |
| POLYESTER STAPLE FIBRE | U S A | 101514.6 | 110589.4 |
| | NEPAL | 77916.9 | 68857.1 |
| | TURKEY | 39019.3 | 37821.2 |
| | BELGIUM | 31999.6 | 31945.8 |
| | SPAIN | 19942.4 | 19676.3 |
| | **Product Total** | **270392.8** | **268889.7** |
| POLYPROPYLENE FILAMENT YARN | U ARAB EMTS | 416.4 | 559.2 |
| | NEPAL | 276.3 | 488.0 |
| | MEXICO | 175.0 | 283.6 |
| | MALAYSIA | 171.1 | 342.4 |
| | NIGERIA | 136.0 | 301.9 |
| | **Product Total** | **1174.8** | **1975.1** |
| POLYPROPYLENE STAPLE FIBRE | U S A | 17596.3 | 22866.1 |
| | SAUDI ARAB | 3491.5 | 5035.2 |
| | SLOVENIA | 1344.1 | 1563.3 |
| | HUNGARY | 470.3 | 549.8 |
| | GERMANY | 409.3 | 508.0 |
| | **Product Total** | **23311.5** | **30522.4** |
| Elastomeric/Spandex Filament Yarn | TURKEY | 2196.1 | 9265.9 |
| | SRI LANKA DSR | 708.7 | 5113.0 |
| | BANGLADESH PR | 380.8 | 1857.3 |
| | EGYPT A RP | 279.7 | 1145.9 |
| | BRAZIL | 271.5 | 1080.6 |
| | **Product Total** | **3836.8** | **18462.8** |
| | U ARAB EMTS | 23996.8 | 31071.6 |
| | BANGLADESH PR | 10.2 | 20.3 |

| PRODUCT | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| **ACRYLONITRILE** | BELGIUM | 3.0 | 26.9 |
| | CHINA P RP | 0.0 | 17.9 |
| | FRANCE | 0.0 | 0.0 |
| | **Product Total** | **24010.0** | **31136.7** |
| **CAPROLACTUM** | U S A | 55.5 | 135.7 |
| | SPAIN | 40.0 | 60.3 |
| | INDONESIA | 18.0 | 39.0 |
| | MEXICO | 10.0 | 25.4 |
| | UGANDA | 0.0 | 0.1 |
| | **Product Total** | **123.5** | **260.4** |
| **DIMETHYL TEREPHTHALATE** | GERMANY | 116.4 | 221.3 |
| | JAPAN | 0.3 | 1.8 |
| | **Product Total** | **116.7** | **223.2** |
| **MONO EHYLENE GLYCOL** | EGYPT A RP | 33822.5 | 15480.6 |
| | INDONESIA | 17908.0 | 22690.7 |
| | KOREA RP | 10184.9 | 13751.4 |
| | TAIWAN | 8052.0 | 10893.9 |
| | CHINA P RP | 2293.1 | 3047.6 |
| | **Product Total** | **72260.4** | **65864.2** |
| **PURIFIED TEREPHTHALIC ACID** | U S A | 4740.1 | 12240.3 |
| | U ARAB EMTS | 2068.0 | 1616.9 |
| | SAUDI ARAB | 1056.0 | 857.4 |
| | EGYPT A RP | 672.0 | 593.7 |
| | MEXICO | 192.0 | 136.1 |
| | **Product Total** | **8728.2** | **15444.4** |
| **LOW DENSITY POLYETHYLENE** | U ARAB EMTS | 39740.1 | 33437.0 |
| | EGYPT A RP | 27963.4 | 48377.9 |
| | TURKEY | 13744.2 | 22617.7 |
| | ALGERIA | 11222.7 | 17708.2 |
| | SAUDI ARAB | 7359.0 | 11886.4 |
| | **Product Total** | **100029.4** | **134027.2** |
| **HIGH DENSITY POLYTHYLENE** | NEPAL | 37316.6 | 39565.4 |
| | U ARAB EMTS | 20358.5 | 25678.9 |
| | VIETNAM SOC REP | 14341.2 | 11972.2 |
| | EGYPT A RP | 11066.1 | 23067.3 |
| | BANGLADESH PR | 9732.1 | 9976.5 |
| | **Product Total** | **92814.4** | **110260.3** |
| **POLYESTYRENE** | BANGLADESH PR | 13941.0 | 12568.8 |
| | EGYPT A RP | 8449.0 | 10734.5 |
| | NEPAL | 5749.7 | 4343.3 |
| | U ARAB EMTS | 5157.1 | 5777.2 |
| | TURKEY | 4719.8 | 4835.3 |
| | **Product Total** | **38016.7** | **38259.2** |
| **POLYPROPYLENE (INC. CO-POLYMER)** | CHINA P RP | 146807.0 | 109288.4 |
| | TURKEY | 93242.0 | 90358.2 |
| | VIETNAM SOC REP | 66377.2 | 56582.5 |
| | NEPAL | 63567.7 | 61557.5 |
| | BANGLADESH PR | 47362.2 | 38679.3 |
| | **Product Total** | **417356.1** | **356465.8** |
| | U ARAB EMTS | 1295.1 | 1357.0 |
| | EGYPT A RP | 1100.0 | 1797.9 |

| PRODUCT | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| **EXPANDABLE POLYESTYRENE** | QATAR | 756.0 | 1014.3 |
| | KUWAIT | 752.0 | 764.2 |
| | NEPAL | 360.7 | 538.0 |
| | **Product Total** | **4263.8** | **5471.3** |
| **POLY VINYL CHLORIDE** | NEPAL | 465.8 | 378.7 |
| | KENYA | 317.4 | 314.4 |
| | SRI LANKA DSR | 225.7 | 267.0 |
| | GHANA | 213.1 | 641.4 |
| | GERMANY | 195.6 | 154.8 |
| | **Product Total** | **1417.6** | **1756.3** |
| **LINEAR LOW DENSITY POLYTHYLENE** | KENYA | 22362.8 | 21930.2 |
| | U ARAB EMTS | 8378.3 | 8294.2 |
| | TANZANIA REP | 4915.8 | 4567.7 |
| | NIGERIA | 4754.3 | 4584.3 |
| | CHINA P RP | 4594.3 | 3303.5 |
| | **Product Total** | **45005.4** | **42679.9** |
| **PVC COMPOUND** | NIGERIA | 8040.0 | 8920.4 |
| | NEPAL | 2784.1 | 2730.2 |
| | KENYA | 1807.3 | 1993.3 |
| | BANGLADESH PR | 1513.4 | 2001.3 |
| | U ARAB EMTS | 1081.9 | 1381.4 |
| | **Product Total** | **15226.7** | **17026.7** |
| **STYRENE BUTADIENE RUBBER** | U ARAB EMTS | 8450.6 | 8261.8 |
| | VIETNAM SOC REP | 7800.9 | 8307.8 |
| | BANGLADESH PR | 6485.2 | 10691.2 |
| | THAILAND | 6216.8 | 7033.8 |
| | EGYPT A RP | 6154.9 | 5169.1 |
| | **Product Total** | **35108.4** | **39463.9** |
| **POLY BUTADIENE RUBBER** | SRI LANKA DSR | 2592.6 | 4414.2 |
| | THAILAND | 1085.4 | 1243.2 |
| | CHINA P RP | 535.5 | 572.5 |
| | BANGLADESH PR | 466.6 | 673.3 |
| | BRAZIL | 175.2 | 257.7 |
| | **Product Total** | **4855.4** | **7160.8** |
| **ETHYL PROPYLENE DIMERS** | U ARAB EMTS | 671.0 | 1772.1 |
| | BANGLADESH PR | 387.4 | 354.8 |
| | VIETNAM SOC REP | 336.4 | 1394.4 |
| | U S A | 141.6 | 1055.4 |
| | RUSSIA | 114.0 | 357.4 |
| | **Product Total** | **1650.3** | **4934.1** |
| **ETHYL VINYL ACETATE** | CHINA P RP | 5545.6 | 8824.2 |
| | NEPAL | 1581.5 | 2936.4 |
| | RUSSIA | 1074.5 | 2148.9 |
| | U ARAB EMTS | 762.0 | 1928.3 |
| | BANGLADESH PR | 449.5 | 1092.1 |
| | **Product Total** | **9413.2** | **16930.0** |
| **NITRILE BUTADIENE RUBBER** | THAILAND | 5750.3 | 3938.0 |
| | SRI LANKA DSR | 4145.9 | 3233.8 |
| | MALAYSIA | 3884.2 | 3451.0 |
| | U S A | 893.6 | 2870.3 |
| | U ARAB EMTS | 393.0 | 765.8 |

| PRODUCT | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| | **Product Total** | **15067.2** | **14258.8** |
| **BUTYL RUBBER** | U S A | 10508.8 | 18556.0 |
| | CHINA P RP | 9595.2 | 16284.5 |
| | INDONESIA | 3041.3 | 5147.5 |
| | BANGLADESH PR | 2684.2 | 5294.5 |
| | THAILAND | 1853.3 | 3025.6 |
| | **Product Total** | **27682.8** | **48308.1** |
| **LINEAR ALKYL BENZENE** | U ARAB EMTS | 1001.5 | 479.7 |
| | CHINA P RP | 616.6 | 683.4 |
| | YEMEN REPUBLC | 400.0 | 605.5 |
| | NEPAL | 125.5 | 177.8 |
| | QATAR | 33.9 | 88.4 |
| | **Product Total** | **2177.5** | **2034.8** |
| **ETHYLENE OXIDE** | THAILAND | 947.0 | 1622.8 |
| | MALAYSIA | 860.4 | 951.0 |
| | VIETNAM SOC REP | 541.7 | 588.0 |
| | INDONESIA | 286.7 | 311.8 |
| | BANGLADESH PR | 46.5 | 101.3 |
| | **Product Total** | **2682.2** | **3574.9** |
| **ABS RESIN** | CHINA P RP | 178.3 | 411.0 |
| | NEPAL | 155.7 | 309.8 |
| | POLAND | 82.8 | 189.3 |
| | U ARAB EMTS | 82.1 | 161.0 |
| | KENYA | 58.2 | 78.6 |
| | **Product Total** | **557.2** | **1149.8** |
| **POLYMETHYL METHACRYLATE** | NEPAL | 4059.0 | 3908.9 |
| | BANGLADESH PR | 546.4 | 832.7 |
| | GERMANY | 455.9 | 1711.0 |
| | TAIWAN | 288.9 | 277.5 |
| | AUSTRALIA | 225.0 | 238.7 |
| | **Product Total** | **5575.2** | **6968.8** |
| **STYRENE ACRYLONITRILE** | NIGERIA | 4417.6 | 4147.9 |
| | ETHIOPIA | 400.0 | 450.3 |
| | U ARAB EMTS | 130.0 | 277.9 |
| | SRI LANKA DSR | 89.3 | 87.9 |
| | KOREA RP | 78.6 | 72.7 |
| | **Product Total** | **5115.5** | **5036.7** |
| **POLYESTER CHIPS/PET CHIPS** | BAHARAIN IS | 62966.0 | 59556.7 |
| | POLAND | 54860.4 | 52567.2 |
| | U ARAB EMTS | 51174.1 | 48681.4 |
| | MEXICO | 39676.4 | 38332.3 |
| | EGYPT A RP | 19732.0 | 19276.8 |
| | **Product Total** | **228408.9** | **218414.3** |
| **POLYTETRAFLUOROETHYLENE(PTFE)** | U S A | 8491.9 | 84384.4 |
| | GERMANY | 6597.1 | 63514.3 |
| | ITALY | 2996.7 | 26939.8 |
| | U K | 1139.2 | 13073.0 |
| | TURKEY | 995.8 | 9428.0 |
| | **Product Total** | **20220.8** | **197339.6** |
| | MALAYSIA | 103977.0 | 72235.5 |
| | KOREA RP | 74412.2 | 52851.6 |

| PRODUCT | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| **BUTADIENE** | INDONESIA | 30349.0 | 19324.2 |
| | TAIWAN | 22338.9 | 17303.3 |
| | CHINA P RP | 5919.1 | 3228.2 |
| | **Product Total** | **236996.2** | **164942.8** |
| **ETHYLENE** | INDONESIA | 47250.0 | 33391.4 |
| | QATAR | 27300.0 | 23362.2 |
| | BANGLADESH PR | 6300.0 | 4827.3 |
| | TANZANIA REP | 13.6 | 85.9 |
| | KOREA RP | 0.2 | 5.1 |
| | **Product Total** | **80863.8** | **61672.0** |
| **PROPYLENE** | JAPAN | 0.0 | 2.6 |
| | **Product Total** | **0.0** | **0.0** |
| **BENZENE** | SAUDI ARAB | 1862012.1 | 1459370.4 |
| | KUWAIT | 281032.8 | 211956.5 |
| | BELGIUM | 194405.4 | 180078.6 |
| | CHINA P RP | 110246.7 | 79511.1 |
| | SINGAPORE | 87722.1 | 67593.5 |
| | **Product Total** | **2535419.1** | **1998510.1** |
| **MIXED XYLENE** | GABON | 154.8 | 157.3 |
| | BAHARAIN IS | 28.0 | 29.8 |
| | KENYA | 22.9 | 27.9 |
| | QATAR | 17.9 | 20.0 |
| | CONGO D. REP. | 7.2 | 9.1 |
| | **Product Total** | **230.8** | **244.2** |
| **ORTHO-XYLENE** | BELGIUM | 75958.9 | 71036.9 |
| | ITALY | 64199.6 | 60041.9 |
| | TAIWAN | 41619.5 | 31944.2 |
| | NETHERLAND | 36094.8 | 35214.2 |
| | CHINA P RP | 20242.0 | 13569.5 |
| | **Product Total** | **238114.6** | **211806.7** |
| **TOLUENE** | JORDAN | 3766.3 | 3758.5 |
| | KENYA | 3645.3 | 4007.5 |
| | U S A | 2996.8 | 3542.0 |
| | EGYPT A RP | 2949.1 | 2648.2 |
| | SOUTH AFRICA | 2884.1 | 2607.3 |
| | **Product Total** | **16241.6** | **16563.6** |
| **PARAXYLENE** | MALAYSIA | 719132.2 | 585620.4 |
| | CHINA P RP | 346850.5 | 283527.4 |
| | INDONESIA | 339624.1 | 253737.2 |
| | U S A | 265543.3 | 205015.7 |
| | PORTUGAL | 148790.3 | 116790.8 |
| | **Product Total** | **1819940.3** | **1444691.6** |
| **ETHYLENE DICHLORIDE** | EGYPT A RP | 500.0 | 388.1 |
| | SAUDI ARAB | 160.0 | 128.3 |
| | U ARAB EMTS | 100.0 | 46.7 |
| | THAILAND | 87.5 | 64.2 |
| | KUWAIT | 39.2 | 16.2 |
| | **Product Total** | **886.7** | **643.5** |
| **BUTANOL** | U ARAB EMTS | 503.3 | 471.4 |
| | NEPAL | 201.5 | 231.3 |
| | KENYA | 98.4 | 126.4 |

| PRODUCT | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| BUTANOL | ARGENTINA | 97.7 | 132.2 |
| | BELGIUM | 79.2 | 188.7 |
| | **Product Total** | **980.1** | **1150.0** |
| **OXO ALCOHOL** | NETHERLAND | 2126.3 | 4017.9 |
| | U S A | 254.1 | 3336.9 |
| | BANGLADESH PR | 118.7 | 34.6 |
| | JAPAN | 55.1 | 121.2 |
| | GERMANY | 7.8 | 2725.9 |
| | **Product Total** | **2562.0** | **10236.5** |
| **2-ETHYL HEXANOL** | U ARAB EMTS | 1012.0 | 1297.4 |
| | IRAN | 299.2 | 511.3 |
| | BANGLADESH PR | 66.3 | 96.8 |
| | QATAR | 49.0 | 77.3 |
| | NEPAL | 26.2 | 37.3 |
| | **Product Total** | **1452.6** | **2020.1** |
| **VINYL CHLORIDE MONOMER** | NETHERLAND | 50.0 | 96.8 |
| | EGYPT A RP | 0.5 | 5.9 |
| | RUSSIA | 0.2 | 0.9 |
| | NEPAL | 0.1 | 0.3 |
| | **Product Total** | **50.0** | **96.8** |
| **EPICHLOHYDRINE** | BELGIUM | 5133.1 | 6589.7 |
| | U S A | 2420.9 | 7923.0 |
| | GERMANY | 1647.7 | 3431.9 |
| | NETHERLAND | 611.9 | 1344.1 |
| | ITALY | 299.8 | 566.8 |
| | **Product Total** | **10113.4** | **19855.4** |
| **ISO BUTYLENE** | SAUDI ARAB | 16600.0 | 14792.7 |
| | MALAYSIA | 4200.0 | 3921.2 |
| | THAILAND | 4200.0 | 3889.3 |
| | OMAN | 3150.0 | 3311.9 |
| | NEPAL | 1.4 | 0.6 |
| | **Product Total** | **28151.4** | **25915.7** |
| **METAXYLENE** | NEPAL | 59.5 | 64.0 |
| | DENMARK | 12.0 | 1291.6 |
| | BELGIUM | 9.5 | 56.0 |
| | SPAIN | 1.7 | 10.1 |
| | OMAN | 0.0 | 0.6 |
| | **Product Total** | **82.8** | **1422.3** |
| **METHYL ISOBUTYL KETONE** | U ARAB EMTS | 844.2 | 1108.3 |
| | NEPAL | 184.1 | 256.4 |
| | BANGLADESH PR | 103.3 | 149.0 |
| | NIGERIA | 100.3 | 146.9 |
| | SAUDI ARAB | 96.0 | 144.4 |
| | **Product Total** | **1327.9** | **1804.9** |
| **PIB** | CHINA P RP | 10787.1 | 13009.0 |
| | SINGAPORE | 4177.4 | 5149.1 |
| | U ARAB EMTS | 1320.5 | 2442.1 |
| | THAILAND | 1190.5 | 1614.3 |
| | INDONESIA | 1023.5 | 1346.4 |
| | **Product Total** | **18499.0** | **23560.8** |
| | KOREA RP | 1671.0 | 2150.3 |

| PRODUCT | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| POLYCARBONATE | BELGIUM | 669.5 | 984.9 |
| | ITALY | 588.0 | 822.9 |
| | GERMANY | 410.7 | 549.9 |
| | MEXICO | 386.0 | 607.4 |
| | **Product Total** | **3725.2** | **5115.4** |
| PROPYLENE OXIDE | THAILAND | 0.1 | 1.9 |
| | RUSSIA | 0.0 | 0.1 |
| | **Product Total** | **0.1** | **2.0** |
| PROPYLENE GLYCOL | U ARAB EMTS | 1457.8 | 1723.7 |
| | IRAN | 1238.4 | 2050.9 |
| | U S A | 1007.6 | 1103.8 |
| | NEPAL | 466.4 | 959.5 |
| | IRELAND | 436.8 | 4015.8 |
| | **Product Total** | **4607.0** | **9853.7** |
| POLYVINYL ACETATE RESIN | U S A | 6303.7 | 15280.3 |
| | TURKEY | 2365.5 | 5370.8 |
| | BELGIUM | 1278.0 | 2658.1 |
| | GHANA | 1176.2 | 1286.6 |
| | BRAZIL | 984.9 | 2198.6 |
| | **Product Total** | **12108.3** | **26794.4** |
| UNSATURATED POLYSTER RESIN | QATAR | 4858.0 | 8102.9 |
| | SPAIN | 4091.6 | 5246.8 |
| | NEPAL | 3978.6 | 5049.5 |
| | BANGLADESH PR | 3873.1 | 7118.8 |
| | OMAN | 3790.5 | 5107.6 |
| | **Product Total** | **20591.7** | **30625.7** |
| ETHYL BENZENE | RUSSIA | 0.0 | 0.2 |
| | SRI LANKA DSR | 0.0 | 0.0 |
| | **Product Total** | **0.0** | **0.2** |
| CELLULOSE ACETATE SHEET | THAILAND | 7.9 | 22.9 |
| | NEPAL | 0.4 | 3.1 |
| | U ARAB EMTS | 0.4 | 0.8 |
| | MALDIVES | 0.3 | 0.7 |
| | BHUTAN | 0.1 | 1.1 |
| | **Product Total** | **9.0** | **28.6** |
| CELLULOSE NITRATE SHEET | KENYA | 3.0 | 14.7 |
| | TANZANIA REP | 0.5 | 2.3 |
| | CAMEROON | 0.4 | 2.9 |
| | AUSTRALIA | 0.0 | 0.1 |
| | CANADA | 0.0 | 0.0 |
| | **Product Total** | **3.9** | **20.1** |
| MELAMINE MOULDING POWDER | NEPAL | 66771.2 | 14101.6 |
| | GABON | 3970.6 | 2109.8 |
| | GHANA | 3475.1 | 2680.1 |
| | COTE D' IVOIRE | 2356.0 | 1829.9 |
| | U S A | 1705.0 | 3465.3 |
| | **Product Total** | **78277.9** | **24186.6** |
| POLYACETAL RESIN | U ARAB EMTS | 938.4 | 2142.8 |
| | THAILAND | 482.2 | 1367.8 |
| | MALAYSIA | 462.1 | 1394.2 |
| | INDONESIA | 450.4 | 1391.3 |

| PRODUCT | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| | CANADA | 224.5 | 769.4 |
| | **Product Total** | **2557.6** | **7065.6** |
| **PHTHALIC ANHYDRIDE** | U ARAB EMTS | 14602.0 | 14469.8 |
| | EGYPT A RP | 11952.0 | 11762.3 |
| | ALGERIA | 3648.0 | 3447.3 |
| | SAUDI ARAB | 3602.0 | 3695.7 |
| | TUNISIA | 3482.0 | 3665.2 |
| | **Product Total** | **37286.0** | **37040.3** |
| **STYRENE** | U ARAB EMTS | 60156.4 | 59883.3 |
| | IRAN | 9564.9 | 9553.5 |
| | SRI LANKA DSR | 2233.6 | 2451.8 |
| | NIGERIA | 1520.0 | 1963.9 |
| | KENYA | 1299.8 | 1672.6 |
| | **Product Total** | **74774.6** | **75525.2** |
| **VINYL ACTATE MONOMER** | U ARAB EMTS | 1569.1 | 1927.7 |
| | ETHIOPIA | 818.8 | 921.3 |
| | SRI LANKA DSR | 692.7 | 1041.6 |
| | NEPAL | 673.9 | 1029.8 |
| | **KENYA** | **298.9** | **313.2** |
| **ISOPROPANOL** | U ARAB EMTS | 12962.8 | 11596.5 |
| | JORDAN | 1110.8 | 1257.7 |
| | IRAN | 997.8 | 1195.7 |
| | BANGLADESH PR | 863.0 | 1269.5 |
| | NEPAL | 695.5 | 965.5 |
| | **Product Total** | **16630.0** | **16284.9** |

***Source:*** *DGCIS, Kolkata, M/o Commerce and Industry*

**Table 28: Top Five Import Destinations of selected Petrochemicals during 2022-23**

| PRODUCT | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| ACRYLIC FIBRE | THAILAND | 9938.21 | 19036.09 |
| | JAPAN | 3922.64 | 8542.04 |
| | CHINA P RP | 3813.86 | 8616.45 |
| | NEPAL | 3014.12 | 8405.89 |
| | TURKEY | 1949.35 | 4363.45 |
| | **Product Total** | **22638.18** | **48963.92** |
| NYLON FILAMENT YARN | CHINA P RP | 34889.00 | 70387.44 |
| | VIETNAM SOC REP | 1204.51 | 2521.59 |
| | TAIWAN | 996.85 | 3188.76 |
| | MEXICO | 314.24 | 298.42 |
| | SRI LANKA DSR | 272.52 | 1359.03 |
| | **Product Total** | **37677.13** | **77755.24** |
| NYLON INDUSTRIAL YARN/TYRE CORD | CHINA P RP | 7145.29 | 15859.73 |
| | TURKEY | 317.69 | 750.55 |
| | U K | 311.26 | 986.35 |
| | KOREA RP | 207.19 | 180.93 |
| | U S A | 156.43 | 1433.78 |
| | **Product Total** | **8137.86** | **19211.34** |
| POLYESTER FILAMENT YARN | CHINA P RP | 416628.77 | 442385.85 |
| | INDONESIA | 22146.91 | 31605.48 |
| | VIETNAM SOC REP | 13658.93 | 16167.24 |
| | TAIWAN | 8970.16 | 9596.01 |
| | KOREA RP | 7158.71 | 11826.47 |
| | **Product Total** | **468563.48** | **511581.05** |
| POLYESTER STAPLE FIBRE | CHINA P RP | 44827.22 | 45604.20 |
| | THAILAND | 16583.51 | 14307.07 |
| | KOREA RP | 9901.91 | 11288.68 |
| | INDONESIA | 7787.37 | 6900.42 |
| | MALAYSIA | 5099.36 | 4944.66 |
| | **Product Total** | **84199.36** | **83045.02** |
| POLYPROPYLENE FILAMENT YARN | SAUDI ARAB | 91.36 | 143.97 |
| | TURKEY | 28.48 | 52.07 |
| | CHINA P RP | 25.98 | 49.28 |
| | PORTUGAL | 13.36 | 57.40 |
| | U S A | 4.03 | 745.14 |
| | **Product Total** | **163.20** | **1047.87** |
| POLYPROPYLENE STAPLE FIBRE | CHINA P RP | 2348.51 | 3010.42 |
| | SAUDI ARAB | 2228.50 | 2747.56 |
| | KOREA RP | 79.00 | 107.28 |
| | SOUTH AFRICA | 14.04 | 19.20 |
| | TURKEY | 10.80 | 36.26 |
| | **Product Total** | **4680.85** | **5920.71** |
| Elastomeric/Spandex Filament Yarn | CHINA P RP | 2446.47 | 15053.25 |
| | KOREA RP | 2395.37 | 13749.41 |
| | VIETNAM SOC REP | 1297.51 | 8133.23 |
| | SINGAPORE | 1076.17 | 10418.99 |
| | THAILAND | 912.66 | 7554.65 |
| | **Product Total** | **8128.18** | **54909.53** |

| PRODUCT | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| ACRYLONITRILE | CHINA P RP | 77380.53 | 101431.89 |
| | TAIWAN | 70032.19 | 86414.58 |
| | KOREA RP | 59620.35 | 80993.98 |
| | NETHERLAND | 11024.29 | 13678.51 |
| | BRAZIL | 6704.10 | 8041.35 |
| | **Product Total** | **224761.46** | **290560.31** |
| CAPROLACTUM | RUSSIA | 6875.00 | 10664.37 |
| | KOREA RP | 6256.00 | 11274.33 |
| | TURKEY | 4970.00 | 7609.98 |
| | CHINA P RP | 2624.00 | 3706.46 |
| | THAILAND | 1792.00 | 3005.43 |
| | **Product Total** | **22517.00** | **36260.57** |
| DIMETHYL TEREPHTHALATE | TURKEY | 699.00 | 790.32 |
| | KOREA RP | 666.00 | 837.23 |
| | GERMANY | 288.00 | 293.82 |
| | U ARAB EMTS | 140.00 | 149.12 |
| | CANADA | 80.15 | 64.44 |
| | **Product Total** | **1873.16** | **2134.93** |
| MONO EHYLENE GLYCOL | KUWAIT | 776565.70 | 338203.02 |
| | SAUDI ARAB | 405689.51 | 180001.25 |
| | SINGAPORE | 121762.09 | 56441.72 |
| | OMAN | 54694.50 | 26076.67 |
| | U ARAB EMTS | 40213.86 | 19117.18 |
| | **Product Total** | **1398925.66** | **619839.84** |
| PURIFIED TEREPHTHALIC ACID | CHINA P RP | 925400.83 | 675869.58 |
| | TAIWAN | 333962.39 | 246075.47 |
| | THAILAND | 315979.40 | 232269.38 |
| | MALAYSIA | 11592.00 | 7805.77 |
| | INDONESIA | 8980.00 | 6194.30 |
| | **Product Total** | **1595914.62** | **1168214.49** |
| LOW DENSITY POLYETHYLENE | U S A | 50721.77 | 52120.44 |
| | SAUDI ARAB | 45008.09 | 43409.58 |
| | U ARAB EMTS | 42230.42 | 37479.69 |
| | BELGIUM | 23148.67 | 38949.41 |
| | THAILAND | 22755.50 | 28874.97 |
| | **Product Total** | **183864.44** | **200834.09** |
| HIGH DENSITY POLYTHYLENE | U ARAB EMTS | 656764.91 | 650107.37 |
| | SAUDI ARAB | 240502.98 | 230604.12 |
| | QATAR | 126636.02 | 131717.75 |
| | U S A | 121085.17 | 122023.05 |
| | OMAN | 118436.86 | 108578.47 |
| | **Product Total** | **1263425.94** | **1243030.75** |
| POLYESTYRENE | KOREA RP | 25263.45 | 45773.09 |
| | CHINA P RP | 24662.24 | 31078.43 |
| | TAIWAN | 19211.00 | 26326.56 |
| | SINGAPORE | 9889.67 | 13786.48 |
| | THAILAND | 9772.00 | 13046.26 |
| | **Product Total** | **88798.34** | **130010.82** |
| | SAUDI ARAB | 438464.52 | 401854.62 |

| PRODUCT | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| POLYPROPYLENE (INC. CO-POLYMER) | U ARAB EMTS | 435427.95 | 397899.77 |
| | SINGAPORE | 314254.05 | 363010.14 |
| | CHINA P RP | 101941.53 | 117810.43 |
| | OMAN | 97823.21 | 87542.79 |
| | **Product Total** | **1387911.26** | **1368117.76** |
| EXPANDABLE POLYESTYRENE | TAIWAN | 881.54 | 1274.21 |
| | SAUDI ARAB | 321.75 | 258.26 |
| | U S A | 166.38 | 171.06 |
| | GERMANY | 116.06 | 375.08 |
| | CHINA P RP | 90.97 | 127.15 |
| | **Product Total** | **1576.70** | **2205.75** |
| POLY VINYL CHLORIDE | CHINA P RP | 177845.61 | 168380.15 |
| | THAILAND | 114148.31 | 101920.03 |
| | JAPAN | 71184.65 | 64163.52 |
| | TAIWAN | 63983.47 | 61155.26 |
| | KOREA RP | 47020.97 | 41117.32 |
| | **Product Total** | **474182.99** | **436736.29** |
| LINEAR LOW DENSITY POLYTHYLENE | OMAN | 104325.56 | 95156.87 |
| | U ARAB EMTS | 79661.88 | 70767.83 |
| | SAUDI ARAB | 71346.38 | 66970.16 |
| | QATAR | 46088.34 | 43104.45 |
| | SINGAPORE | 42805.68 | 41438.94 |
| | **Product Total** | **344227.83** | **317438.26** |
| PVC COMPOUND | CHINA P RP | 25.00 | 18.21 |
| | SINGAPORE | 1.20 | 5.06 |
| | U S A | 0.13 | 1.21 |
| | HONG KONG | 0.06 | 4.95 |
| | U K | 0.01 | 0.02 |
| | **Product Total** | **26.39** | **29.45** |
| STYRENE BUTADIENE RUBBER | KOREA RP | 48725.62 | 80741.37 |
| | POLAND | 33580.46 | 56611.75 |
| | CHINA P RP | 12622.63 | 22075.42 |
| | SINGAPORE | 9340.91 | 20878.32 |
| | THAILAND | 8915.52 | 18904.07 |
| | **Product Total** | **113185.14** | **199210.92** |
| POLY BUTADIENE RUBBER | KOREA RP | 37062.22 | 67569.16 |
| | SAUDI ARAB | 20619.52 | 32088.53 |
| | RUSSIA | 14339.58 | 24299.86 |
| | GERMANY | 14285.47 | 25740.99 |
| | U ARAB EMTS | 12922.80 | 17186.42 |
| | **Product Total** | **99229.59** | **166884.95** |
| ETHYL PROPYLENE DIMERS | KOREA RP | 18313.37 | 44334.04 |
| | SAUDI ARAB | 9207.12 | 18703.57 |
| | JAPAN | 8507.27 | 21666.71 |
| | U S A | 7527.87 | 19725.88 |
| | MALAYSIA | 2840.52 | 4606.22 |
| | **Product Total** | **46396.15** | **109036.43** |
| | KOREA RP | 97784.90 | 196247.67 |
| | SAUDI ARAB | 62277.95 | 102977.83 |

| PRODUCT | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| **ETHYL VINYL ACETATE** | JAPAN | 7627.26 | 19166.77 |
| | THAILAND | 7390.00 | 14189.33 |
| | BELGIUM | 6638.82 | 13313.45 |
| | **Product Total** | **181718.92** | **345895.05** |
| **NITRILE BUTADIENE RUBBER** | KOREA RP | 20660.07 | 42333.84 |
| | CHINA P RP | 6434.27 | 11640.61 |
| | JAPAN | 5142.10 | 13273.57 |
| | TAIWAN | 4165.32 | 9762.71 |
| | THAILAND | 2515.13 | 6336.31 |
| | **Product Total** | **38916.89** | **83347.03** |
| **BUTYL RUBBER** | SINGAPORE | 40329.39 | 96189.74 |
| | CHINA P RP | 5882.05 | 12444.30 |
| | U K | 3613.58 | 9947.37 |
| | RUSSIA | 3397.23 | 5529.67 |
| | JAPAN | 3173.33 | 8275.44 |
| | **Product Total** | **56395.57** | **132386.52** |
| **LINEAR ALKYL BENZENE** | SAUDI ARAB | 159716.22 | 259361.75 |
| | THAILAND | 40235.40 | 60731.99 |
| | SPAIN | 35189.60 | 52166.63 |
| | QATAR | 34777.26 | 49154.85 |
| | IRAN | 28460.00 | 38494.07 |
| | **Product Total** | **298378.48** | **459909.30** |
| **ETHYLENE OXIDE** | CHINA P RP | 178.93 | 1083.41 |
| | U S A | 17.30 | 573.79 |
| | ARGENTINA | 0.45 | 14.62 |
| | GERMANY | 0.01 | 1.20 |
| | U K | 0.00 | 1.09 |
| | **Product Total** | **196.69** | **1674.11** |
| **ABS RESIN** | KOREA RP | 70218.41 | 125461.26 |
| | TAIWAN | 24710.24 | 35578.43 |
| | THAILAND | 6030.15 | 10339.31 |
| | SAUDI ARAB | 5049.89 | 7244.57 |
| | MALAYSIA | 3943.92 | 6549.84 |
| | **Product Total** | **109952.60** | **185173.41** |
| **POLYMETHYL METHACRYLATE** | KOREA RP | 14815.47 | 32128.81 |
| | SAUDI ARAB | 6723.14 | 9328.75 |
| | SINGAPORE | 6718.65 | 11649.04 |
| | CHINA P RP | 1352.94 | 2251.05 |
| | NETHERLAND | 920.39 | 2862.59 |
| | **Product Total** | **30530.59** | **58220.23** |
| **STYRENE ACRYLONITRILE** | KOREA RP | 7059.92 | 10014.54 |
| | JAPAN | 4454.56 | 6032.83 |
| | THAILAND | 3770.60 | 4346.54 |
| | CHINA P RP | 2520.18 | 3362.91 |
| | SAUDI ARAB | 2137.44 | 1763.01 |
| | **Product Total** | **19942.70** | **25519.83** |
| **POLYESTER CHIPS/PET CHIPS** | CHINA P RP | 34538.18 | 33004.05 |
| | TAIWAN | 13945.91 | 13135.39 |
| | U S A | 11370.13 | 5147.65 |

| PRODUCT | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| POLYESTER CHIPS/PET CHIPS | VIETNAM SOC REP | 7859.80 | 8484.77 |
| | BANGLADESH PR | 6495.17 | 4384.03 |
| | **Product Total** | **74209.18** | **64155.89** |
| POLYTETRAFLUOROETHYLENE(PTFE) | CHINA P RP | 1545.62 | 11428.12 |
| | RUSSIA | 673.68 | 3617.54 |
| | KOREA RP | 296.71 | 1687.47 |
| | TURKEY | 287.58 | 1619.29 |
| | U S A | 282.17 | 4140.24 |
| | **Product Total** | **3085.76** | **22492.65** |
| BUTADIENE | SAUDI ARAB | 6759.30 | 7706.96 |
| | SINGAPORE | 1970.93 | 1319.58 |
| | CHINA P RP | 69.00 | 160.71 |
| | GERMANY | 3.96 | 44.91 |
| | **Product Total** | **8803.19** | **9232.16** |
| ETHYLENE | U ARAB EMTS | 34411.39 | 36169.03 |
| | TAIWAN | 15931.87 | 17053.28 |
| | SINGAPORE | 13906.45 | 14441.08 |
| | MALAYSIA | 6655.07 | 6464.34 |
| | KOREA RP | 3509.89 | 3771.76 |
| | **Product Total** | **74414.67** | **77899.49** |
| PROPYLENE | SAUDI ARAB | 6299.53 | 4752.69 |
| | THAILAND | 2332.49 | 2554.82 |
| | CHINA P RP | 68.46 | 303.30 |
| | JAPAN | 24.00 | 70.12 |
| | ITALY | 10.94 | 28.80 |
| | **Product Total** | **8735.42** | **7709.74** |
| BENZENE | MALAYSIA | 6066.95 | 4185.61 |
| | GREECE | 5005.80 | 3527.32 |
| | GERMANY | 0.11 | 5.80 |
| | U S A | 0.02 | 12.74 |
| | CHINA P RP | 0.02 | 28.66 |
| | **Product Total** | **11072.91** | **7760.13** |
| MIXED XYLENE | TAIWAN | 1902.35 | 1643.35 |
| | U ARAB EMTS | 140.54 | 160.76 |
| | KOREA RP | 27.14 | 37.53 |
| | EGYPT A RP | 6.13 | 6.63 |
| | JAPAN | 0.27 | 7.42 |
| | **Product Total** | **2076.42** | **1855.68** |
| ORTHO-XYLENE | SINGAPORE | 22910.51 | 21259.42 |
| | TAIWAN | 7644.75 | 7621.66 |
| | THAILAND | 6851.21 | 6830.42 |
| | MALAYSIA | 4098.25 | 4512.03 |
| | CHINA P RP | 2929.07 | 2736.64 |
| | **Product Total** | **44433.79** | **42960.18** |
| TOLUENE | KOREA RP | 220024.44 | 194466.12 |
| | THAILAND | 104139.14 | 93432.79 |
| | CHINA P RP | 95284.10 | 89027.46 |
| | U ARAB EMTS | 41335.86 | 36154.26 |
| | MALAYSIA | 34769.59 | 31101.80 |

| PRODUCT | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| | **Product Total** | **495553.13** | **444182.43** |
| **PARAXYLENE** | JAPAN | 206727.70 | 186779.40 |
| | SAUDI ARAB | 102631.77 | 94142.40 |
| | SINGAPORE | 86280.19 | 81024.71 |
| | OMAN | 78811.72 | 69385.99 |
| | KUWAIT | 69387.00 | 64527.16 |
| | **Product Total** | **543838.39** | **495859.64** |
| **ETHYLENE DICHLORIDE** | SAUDI ARAB | 230375.04 | 80981.21 |
| | U S A | 187603.24 | 80056.20 |
| | QATAR | 119382.03 | 48398.24 |
| | INDONESIA | 30056.81 | 11722.04 |
| | TAIWAN | 22999.03 | 11532.47 |
| | **Product Total** | **590416.14** | **232690.16** |
| **BUTANOL** | MALAYSIA | 13469.30 | 11838.33 |
| | SAUDI ARAB | 7434.95 | 5479.15 |
| | TAIWAN | 6962.48 | 6089.32 |
| | SOUTH AFRICA | 6940.02 | 6834.20 |
| | U S A | 3153.20 | 3478.33 |
| | **Product Total** | **37959.95** | **33719.33** |
| **OXO ALCOHOL** | THAILAND | 965.09 | 3387.90 |
| | SINGAPORE | 475.68 | 1508.84 |
| | INDONESIA | 392.10 | 1336.97 |
| | MALAYSIA | 253.87 | 858.01 |
| | CHINA P RP | 102.68 | 493.61 |
| | **Product Total** | **2189.43** | **7585.34** |
| **2-ETHYL HEXANOL** | TAIWAN | 15805.34 | 18405.33 |
| | MALAYSIA | 13855.85 | 16924.29 |
| | KOREA RP | 10223.82 | 11662.68 |
| | CHINA P RP | 9602.26 | 11015.08 |
| | U S A | 2973.14 | 2743.32 |
| | **Product Total** | **52460.41** | **60750.71** |
| **VINYL CHLORIDE MONOMER** | QATAR | 327473.98 | 245497.87 |
| | JAPAN | 94483.01 | 75268.38 |
| | INDONESIA | 32401.98 | 25407.64 |
| | FRANCE | 31213.34 | 23746.07 |
| | CHINA P RP | 19140.72 | 14270.31 |
| | **Product Total** | **504713.03** | **384190.27** |
| **EPICHLOHYDRINE** | THAILAND | 52024.33 | 85408.21 |
| | CHINA P RP | 9419.19 | 18275.60 |
| | KOREA RP | 5244.73 | 8309.18 |
| | TAIWAN | 3156.64 | 5683.15 |
| | SAUDI ARAB | 1007.92 | 2088.90 |
| | **Product Total** | **70852.80** | **119765.04** |
| **ISO BUTYLENE** | CHINA P RP | 12.86 | 52.11 |
| | U S A | 0.24 | 27.89 |
| | POLAND | 0.02 | 0.33 |
| | PHILIPPINES | 0.00 | 0.11 |
| | JAPAN | 0.00 | 0.06 |
| | **Product Total** | **13.12** | **80.50** |

| PRODUCT | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| METAXYLENE | JAPAN | 1758.63 | 3082.89 |
| | U S A | 1274.01 | 1627.93 |
| | GERMANY | 0.04 | 2.15 |
| | **Product Total** | **3032.68** | **4712.97** |
| METHYL ISOBUTYL KETONE | KOREA RP | 24581.15 | 29596.90 |
| | SOUTH AFRICA | 6314.21 | 6757.37 |
| | JAPAN | 163.50 | 196.12 |
| | SPAIN | 76.24 | 81.33 |
| | TAIWAN | 26.40 | 28.17 |
| | **Product Total** | **31161.50** | **36659.89** |
| PIB | KOREA RP | 13775.83 | 21602.33 |
| | MALAYSIA | 2374.56 | 4082.01 |
| | U ARAB EMTS | 1919.48 | 2072.96 |
| | FRANCE | 701.01 | 1704.62 |
| | JAPAN | 308.62 | 1052.88 |
| | **Product Total** | **19079.50** | **30514.79** |
| POLYCARBONATE | THAILAND | 94785.58 | 198980.50 |
| | KOREA RP | 49718.81 | 117178.44 |
| | SAUDI ARAB | 20527.39 | 38012.34 |
| | SPAIN | 14827.25 | 38003.10 |
| | CHINA P RP | 12306.24 | 29863.85 |
| | **Product Total** | **192165.27** | **422038.23** |
| PROPYLENE OXIDE | SAUDI ARAB | 10989.78 | 13996.78 |
| | SINGAPORE | 7231.30 | 9476.34 |
| | CHINA P RP | 4036.94 | 6373.93 |
| | THAILAND | 1329.53 | 2536.58 |
| | TAIWAN | 944.53 | 1301.34 |
| | **Product Total** | **24532.08** | **33684.98** |
| PROPYLENE GLYCOL | SINGAPORE | 21645.49 | 32921.53 |
| | SAUDI ARAB | 18654.42 | 24828.75 |
| | CHINA P RP | 12757.97 | 18943.03 |
| | THAILAND | 7676.39 | 13500.36 |
| | KOREA RP | 5942.54 | 10329.28 |
| | **Product Total** | **66676.80** | **100522.94** |
| POLYVINYL ACETATE RESIN | GERMANY | 3053.95 | 5817.48 |
| | CHINA P RP | 1120.80 | 2888.37 |
| | BELGIUM | 470.10 | 1023.44 |
| | NETHERLAND | 384.38 | 786.29 |
| | INDONESIA | 110.85 | 177.81 |
| | **Product Total** | **5140.08** | **10693.39** |
| UNSATURATED POLYSTER RESIN | CHINA P RP | 30858.03 | 51461.03 |
| | TAIWAN | 10192.93 | 20914.99 |
| | MALAYSIA | 4923.86 | 11653.48 |
| | KOREA RP | 3086.22 | 8867.84 |
| | GERMANY | 1138.88 | 6964.94 |
| | **Product Total** | **50199.93** | **99862.28** |
| ETHYL BENZENE | CHINA P RP | 314.26 | 483.91 |
| | U S A | 273.30 | 410.56 |
| | NETHERLAND | 60.24 | 125.04 |

| PRODUCT | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| ETHYL BENZENE | KOREA RP | 18.21 | 26.42 |
| | U K | 0.30 | 3.07 |
| | **Product Total** | **666.30** | **1049.00** |
| **CELLULOSE ACETATE BUTYRATE** | U S A | 2.99 | 248.91 |
| | CHINA P RP | 0.60 | 4.80 |
| | **Product Total** | **2.99** | **248.91** |
| **CELLULOSE ACETATE SHEET** | CHINA P RP | 851.25 | 1093.85 |
| | ITALY | 666.61 | 342.91 |
| | HONG KONG | 46.84 | 100.71 |
| | TAIWAN | 6.83 | 45.91 |
| | U S A | 0.18 | 66.12 |
| | **Product Total** | **1571.70** | **1649.50** |
| **CELLULOSE NITRATE SHEET** | CHINA P RP | 134.30 | 273.49 |
| | NETHERLAND | 0.19 | 2.01 |
| | U K | 0.00 | 0.19 |
| | GERMANY | 0.00 | 0.01 |
| | U S A | 0.00 | 0.01 |
| | **Product Total** | **134.49** | **275.70** |
| **MELAMINE MOULDING POWDER** | CHINA P RP | 6458.22 | 9052.81 |
| | THAILAND | 4871.94 | 7892.32 |
| | JAPAN | 865.10 | 1778.81 |
| | TAIWAN | 844.64 | 1659.20 |
| | INDONESIA | 680.90 | 1965.97 |
| | **Product Total** | **13720.79** | **22349.11** |
| **POLYACETAL RESIN** | MALAYSIA | 16779.35 | 30848.45 |
| | KOREA RP | 15284.97 | 33050.07 |
| | THAILAND | 10895.00 | 22138.76 |
| | U S A | 5287.70 | 9793.94 |
| | CHINA P RP | 2679.40 | 4902.99 |
| | **Product Total** | **50926.42** | **100734.20** |
| **PHTHALIC ANHYDRIDE** | TAIWAN | 29691.00 | 28608.98 |
| | CHINA P RP | 24218.09 | 20745.30 |
| | KOREA RP | 18588.00 | 18358.83 |
| | THAILAND | 9454.10 | 9177.21 |
| | JAPAN | 5640.02 | 5379.24 |
| | **Product Total** | **87591.21** | **82269.56** |
| **STYRENE** | SINGAPORE | 399556.67 | 339123.69 |
| | KUWAIT | 217485.35 | 197832.84 |
| | SAUDI ARAB | 178047.13 | 166306.96 |
| | KOREA RP | 140259.23 | 143071.39 |
| | CHINA P RP | 75135.84 | 85958.48 |
| | **Product Total** | **1010484.23** | **932293.35** |
| **VINYL ACTATE MONOMER** | SINGAPORE | 107589.92 | 148864.76 |
| | SAUDI ARAB | 70845.98 | 88707.29 |
| | CHINA P RP | 25410.32 | 33730.95 |
| | KOREA RP | 6335.56 | 8860.95 |
| | TAIWAN | 1538.96 | 1393.21 |
| | **Product Total** | **211720.73** | **281557.16** |
| | CHINA P RP | 79001.65 | 65294.20 |

| PRODUCT | COUNTRY | QUANTITY (MT) | VALUE (RS. LAKHS) |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| ISOPROPANOL | TAIWAN | 24670.60 | 21731.79 |
| | KOREA RP | 15833.82 | 12924.26 |
| | U S A | 14666.08 | 12420.65 |
| | SOUTH AFRICA | 6888.00 | 5604.81 |
| | **Product Total** | **141060.15** | **117975.70** |

***Source:*** *DGCIS, Kolkata, M/o Commerce and Industry*

**Table 29: Exchange Rates of Indian Rupee vis-a-vis US$**

| MONTH | RS./US$ |
|---|---|
| (1) | (2) |
| March 2023 | 82.29 |
| February 2023 | 82.61 |
| January 2023 | 81.90 |
| December 2022 | 82.46 |
| November 2022 | 81.81 |
| October 2022 | 82.34 |
| September 2022 | 80.23 |
| August 2022 | 79.56 |
| July 2022 | 79.60 |
| Jun 2022 | 78.07 |
| May 2022 | 77.32 |
| April 2022 | 76.17 |
| March 2022 | 76.24 |
| February 2022 | 75.00 |
| January 2022 | 74.44 |
| December 2021 | 75.37 |
| November 2021 | 74.50 |
| October 2021 | 74.92 |
| September 2021 | 73.56 |
| August 2021 | 74.18 |
| July 2021 | 74.53 |
| June 2021 | 73.56 |
| May 2021 | 73.27 |
| April 2021 | 74.47 |
| March 2021 | 72.79 |
| February 2021 | 72.76 |
| January 2021 | 73.11 |
| December 2020 | 73.59 |
| November 2020 | 74.22 |
| October 2020 | 73.46 |
| September 2020 | 73.48 |
| August 2020 | 74.67 |
| July 2020 | 74.99 |
| June 2020 | 75.73 |
| May 2020 | 75.66 |
| April 2020 | 76.24 |

***Note:*** *Worked out on the basis of average daily exchange rates, as notified by RBI.*

***Source: 1.*** *https://www.rbi.org.in/scripts/ReferenceRateArchive.aspx*

***2.*** *https://www.fbil.org.in*

**Table 30: World Exports of Chemicals by top 10 countries - 2022**

**Trade value in Million US$**

| | | | Rank | | | | | | | | | | World Export |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **Ist** | **2nd** | **3rd** | **4th** | **5th** | **6th** | **7th** | **8th** | **9th** | **10th** | |
| **HS Code** | 28 | Country | China | USA | Germany | Rep. of Korea | Chile | Japan | Australia | Netherlands | Canada | France | |
| | | Trade Value | 39407 | 16838 | 15648 | 15643 | 11357 | 10342 | 7216 | 7066 | 5523 | 5473 | 214357 |
| | 29 | Country | China | USA | Ireland | Germany | Switzerland | Rep. of Korea | Netherlands | India | Belgium | Japan | |
| | | Trade Value | 101887 | 51063 | 46390 | 34788 | 30960 | 24724 | 24129 | 21877 | 17817 | 17145 | 502470 |
| | 30 | Country | Germany | Switzerland | USA | Belgium | Ireland | Italy | France | Netherlands | Spain | United Kingdom | |
| | | Trade Value | 126671 | 98031 | 83493 | 76203 | 75564 | 47643 | 37530 | 28574 | 28098 | 27852 | 814011 |
| | 31 | Country | Canada | China | USA | Morocco | Germany | Netherlands | Qatar | Egypt | Belgium | Israel | |
| | | Trade Value | 13717 | 11380 | 8472 | 7688 | 4688 | 4002 | 3577 | 3533 | 3354 | 3075 | 97926 |
| | 32 | Country | Germany | China | USA | Netherlands | Japan | Italy | India | Spain | France | United Kingdom | |
| | | Trade Value | 13505 | 10522 | 8643 | 4990 | 4540 | 3814 | 3608 | 3556 | 3482 | 3401 | 90119 |
| | 38 | Country | China | USA | Germany | Netherlands | France | Japan | Belgium | Italy | Rep. of Korea | Indonesia | |
| | | Trade Value | 47496 | 41189 | 36203 | 22648 | 14973 | 14257 | 9349 | 9237 | 8908 | 8534 | 319157 |
| | 39 | Country | China | USA | Germany | Rep. of Korea | Netherlands | Italy | Japan | France | Belgium | Other Asia, nes | |
| | | Trade Value | 143529 | 83283 | 73482 | 41158 | 32600 | 27026 | 26882 | 25391 | 24129 | 22890 | 771148 |
| | 4002 | Country | Rep. of Korea | Thailand | USA | Japan | Viet Nam | Germany | China | Other Asia, nes | France | Singapore | |
| | | Trade Value | 3113 | 3014 | 2938 | 2431 | 2157 | 1849 | 1722 | 1235 | 986 | 985 | 26510 |
| | 54 | Country | China | Other Asia, nes | Rep. of Korea | Italy | India | Türkiye | Japan | USA | Viet Nam | Germany | |
| | | Trade Value | 29584 | 2573 | 2508 | 2062 | 2061 | 1883 | 1855 | 1633 | 1554 | 1412 | 58637 |
| | 55 | Country | China | USA | Indonesia | Türkiye | India | Rep. of Korea | Thailand | Austria | Germany | Italy | |
| | | Trade Value | 14513 | 2320 | 2103 | 1946 | 1887 | 1491 | 1389 | 1298 | 1297 | 1063 | 38977 |
| **All Chemicals@** | | **Country** | **China** | **Germany** | **USA** | **Belgium** | **Switzerland** | **Ireland** | **Netherlands** | **Rep. of Korea** | **France** | **Italy** | |
| | | **Trade Value** | **414045.8186** | **309541** | **299873** | **141077** | **139883** | **130923** | **126270** | **107389** | **104834** | **103228** | **2933311** |
| **All Chemicals excluding Pharmaceuticals** | | **Country** | **China** | **USA** | **Germany** | **Rep. of Korea** | **Netherlands** | **Japan** | **France** | **Belgium** | **Italy** | **Ireland** | |
| | | **Trade Value** | **400040.9222** | **216380** | **182871** | **100757** | **97696** | **78658** | **67305** | **64873** | **55585** | **55359** | **2119300** |

**@**-Includes all products covered under the HS code 28, 29, 30, 31, 32, 38, 39, 4002, 54 and

**Chapter 28:** Inorganic Chemicals; Organic or Inorganic Compounds of Precious Metals, of Rare-Earth Metals, of Radioactive Elements or of Isotopes;

**Chapter 29:** Organic Chemicals; **Chapter30:** Pharmaceutical products; **Chapter 31:** Fertilizers ;

**Chapter 32:** Tanning or Dyeing Extracts; Tannins and their Derivatives; Dyes, Pigments and Other Colouring Matter; Paints and Varnishes; Putty and other Mastics Inks;

**Chapter 38:** Miscellaneous Chemical Products; **Chapter 39:** Plastics and articles thereof;

**4002:** Synthetic rubber and factice derived from oils, in primary forms or in plates, sheets or strip; mixtures of any pro;

**Chapter 54:** Man-made Filaments and **Chapter 55:** Man-made staple fibres

**Source:** http://comtrade.un.org./ (UN Comtrade Database)

**Table 31: World Imports of Chemicals by top 10 countries - 2022**

**Trade value in Million US$**

| | | | Rank | | | | | | | | | | World Import |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Ist | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th | 9th | 10th | |
| HS Code | 28 | Country | China | Rep. of Korea | USA | India | Japan | Germany | France | Canada | Poland | Netherlands | Total 28 |
| | | Trade Value | 25924 | 20021 | 19422 | 12714 | 11999 | 10815 | 6888 | 5773 | 5758 | 5568 | 221811 |
| | 29 | Country | USA | Germany | China | India | Belgium | Italy | Brazil | Ireland | Netherlands | France | Total 29 |
| | | Trade Value | 75919 | 67007 | 58074 | 29810 | 26172 | 23168 | 19232 | 19164 | 19075 | 18839 | 586973 |
| | 30 | Country | USA | Germany | Switzerland | Belgium | China | Japan | Italy | United Kingdom | France | Netherlands | Total 30 |
| | | Trade Value | 164993 | 81747 | 48686 | 48339 | 39909 | 39038 | 34710 | 32883 | 32360 | 24197 | 826356 |
| | 31 | Country | Brazil | India | USA | China | France | Australia | Indonesia | Mexico | Canada | Thailand | Total 31 |
| | | Trade Value | 26759 | 17260 | 13248 | 4954 | 4801 | 4432 | 3665 | 3514 | 3219 | 3121 | 148376 |
| | 32 | Country | Germany | USA | China | France | Italy | Netherlands | Mexico | Canada | Türkiye | India | Total 32 |
| | | Trade Value | 7033 | 5909 | 5195 | 4205 | 3501 | 3189 | 3101 | 2897 | 2751 | 2658 | 90200 |
| | 38 | Country | USA | China | Germany | Netherlands | France | Italy | Japan | Brazil | United Kingdom | Mexico | Total 38 |
| | | Trade Value | 29508 | 27871 | 25081 | 17690 | 13463 | 10470 | 10015 | 9996 | 9949 | 9568 | 327770 |
| | 39 | Country | USA | China | Germany | Mexico | France | Italy | India | United Kingdom | Canada | Netherlands | Total 39 |
| | | Trade Value | 89880 | 75189 | 57145 | 32721 | 30971 | 30258 | 22716 | 22634 | 22472 | 21367 | 791669 |
| | 4002 | Country | China | USA | Germany | India | Thailand | Türkiye | Viet Nam | Malaysia | Brazil | Italy | Total 4002 |
| | | Trade Value | 8927 | 2103 | 1494 | 1429 | 1350 | 1063 | 1008 | 979 | 877 | 863 | 31239 |
| | 54 | Country | Viet Nam | Türkiye | USA | China | Indonesia | Italy | Brazil | India | Germany | Egypt | Total 54 |
| | | Trade Value | 4056 | 2882 | 2723 | 2293 | 1944 | 1935 | 1788 | 1684 | 1663 | 1388 | 46223 |
| | 55 | Country | Viet Nam | Türkiye | USA | Germany | China | Italy | India | Cambodia | Brazil | Indonesia | Total 55 |
| | | Trade Value | 2625 | 2256 | 2143 | 1753 | 1561 | 1333 | 1244 | 1200 | 1155 | 1148 | 35751 |
| **All Chemicals@** | | **Country** | **USA** | **Germany** | **China** | **France** | **Italy** | **Belgium** | **Japan** | **India** | **Netherlands** | **United Kingdom** | |
| | | **Trade Value** | **405847** | **256403** | **249898** | **113756** | **111752** | **107202** | **102622** | **100355** | **94332** | **90872** | **3106368** |
| **All Chemicals excluding Pharmaceuticals** | | **Country** | **USA** | **China** | **Germany** | **India** | **France** | **Brazil** | **Italy** | **Netherlands** | **Mexico** | **Rep. of Korea** | |
| | | **Trade Value** | **240853** | **209989** | **174656** | **97624** | **81396** | **77592** | **77042** | **70135** | **69531** | **65908** | **2280012** |

**@**-Includes all products covered under the HS code 28, 29, 30, 31, 32, 38, 39, 4002, 54 and 55

**Chapter 28:** Inorganic Chemicals; Organic or Inorganic Compounds of Precious Metals, of Rare-Earth Metals, of Radioactive Elements or of Isotopes;

**Chapter 29:** Organic Chemicals; **Chapter30:** Pharmaceutical products; **Chapter 31:** Fertilizers ;

**Chapter 32:** Tanning or Dyeing Extracts; Tannins and their Derivatives; Dyes, Pigments and Other Colouring Matter; Paints and Varnishes; Putty and other Mastics Inks;

**Chapter 38:** Miscellaneous Chemical Products; **Chapter 39:** Plastics and articles thereof;

**4002:** Synthetic rubber and factice derived from oils, in primary forms or in plates, sheets or strip; mixtures of any pro;

**Chapter 54:** Man-made Filaments and **Chapter 55:** Man-made staple fibres

**Source:** http://comtrade.un.org./ (UN Comtrade Database)

**Table 32: India's share in World Exports and Imports of Chemicals - 2022**

Value in Million US$

| HS Code | Commodity | Export | | | | Import | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Trade Value | | % of World Export | Rank in the World | Trade Value | | % of World Import | Rank in the World |
| | | India | World | | | India | World | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| 28 | INORGANIC CHEMICALS | 3180 | 214357 | 1.5 | **17** | 12714 | 221811 | 5.7 | **4** |
| 29 | ORGANIC CHEMICALS | 21877 | 502470 | 4.4 | **8** | 29810 | 586973 | 5.1 | **4** |
| 30 | PHARMACEUTICAL PRODUCTS | 19753 | 814011 | 2.4 | **12** | 2730 | 826356 | 0.3 | **40** |
| 31 | FERTILISERS. | 117 | 97926 | 0.1 | **56** | 17260 | 148376 | 11.6 | **2** |
| 32 | TANNING OR DYEING | 3608 | 90119 | 4.0 | **7** | 2658 | 90200 | 2.9 | **10** |
| 38 | MISCELLANEOUS CHEMICAL PRODUCTS. | 8068 | 319157 | 2.5 | **12** | 8110 | 327770 | 2.5 | **14** |
| 39 | PLASTIC AND ARTICLES THEREOF | 8236 | 771148 | 1.1 | **23** | 22716 | 791669 | 2.9 | **7** |
| 4002 | SYNTHETIC RUBBER AND FACTICE | 143 | 26510 | 0.5 | **25** | 1429 | 31239 | 4.6 | **4** |
| 54 | MAN-MADE FILAMENTS | 2061 | 58637 | 3.5 | **5** | 1684 | 46223 | 3.6 | **8** |
| 55 | MAN-MADE STAPLE FIBRES | 1887 | 38977 | 4.8 | **5** | 1244 | 35751 | 3.5 | **7** |
| **All Chemicals @** | | **68929** | **2933311** | 2.3 | **14** | **100355** | **3106368** | 3.2 | **8** |
| **Chemicals (excluding Pharmaceutical Products)** | | **49177** | **2119300** | 2.3 | **11** | **97624** | **2280012** | 4.3 | **4** |
| **Total of All HS Code Commodities** | | **452684** | **22736027** | 2.0 | **17** | **732566** | **23941685** | 3.1 | **7** |

# Section - IV

## Foreign Direct Investment (FDI)

**Table 33: Sectors Attracting Highest FDI Equity Inflows during 2020-21 to 2022-23**

*Amount in Rupees Crores/ in USD Million*

| Ranks | Sector | Amt. in Rupees Crores/ Amt. in USD Million | 2020-21 | 2021-22 | 2022-23 |
|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) |
| 1 | SERVICES SECTOR ** | Rupees Crores | 37,542 | 53,165 | 69,852 |
| | | USD Million | 5,060 | 7,131 | 8,707 |
| 2 | COMPUTER SOFTWARE & HARDWARE | Rupees Crores | 1,94,291 | 1,07,762 | 74,718 |
| | | USD Million | 26,145 | 14,461 | 9,394 |
| 3 | TRADING | Rupees Crores | 19,349 | 33,779 | 38,060 |
| | | USD Million | 2,608 | 4,538 | 4,792 |
| 4 | TELECOMMUNICATIONS | Rupees Crores | 2,884 | 4,980 | 5,469 |
| | | USD Million | 392 | 668 | 713 |
| 5 | AUTOMOBILE INDUSTRY | Rupees Crores | 12,115 | 51,624 | 15,184 |
| | | USD Million | 1,637 | 6,994 | 1,902 |
| 6 | CONSTRUCTION (INFRASTRUCTURE) ACTIVITIES | Rupees Crores | 58,240 | 24,178 | 13,588 |
| | | USD Million | 7,875 | 3,248 | 1,703 |
| 7 | CONSTRUCTION DEVELOPMENT: Townships, housing, built-up infrastructure and construction-development projects | Rupees Crores | 3,117 | 932 | 1,196 |
| | | USD Million | 422 | 125 | 146 |
| 8 | DRUGS & PHARMACEUTICALS | Rupees Crores | 11,015 | 10,552 | 16,654 |
| | | USD Million | 1,490 | 1,414 | 2,058 |
| 9 | CHEMICALS (OTHER THAN FERTILIZEINR) | Rupees Crores | 6,300 | 7,202 | 14,662 |
| | | USD Million | 847 | 966 | 1,850 |
| 10 | METALLURGICAL INDUSTRIES | Rupees Crores | 10,002 | 16,783 | 1,764 |
| | | USD Million | 1,340 | 2,272 | 219 |

Note:*(i)** Services sector includes Financial, Banking, Insurance, Non-Financial / Business, Outsourcing, R&D, Courier, Tech. Testing and Analysis, Other*

*(ii) %age worked out in USD terms & FDI inflow received through Government Route + Automatic Route + acquisition of existing shares only.*

*(iii) FDI Sectoral data has been revalidated / reconciled in line with the RBI, which may reflect minor changes in the FDI figures (increase/decrease) as compared to the earlier published sectoral data.*

*(iv) Figures are provisional.*

(v) Source: *https://dpiit.gov.in/publications/fdi-statistics*

# Section - V

## Index of Industrial Production (IIP)

**Table 34: Monthly Production Growth in 'Chemicals and Chemical Products' vis-a-vis Manufacturing Sector during April 2022 to March 2023 (Based on Index of Industrial Production with Base year: 2011-12)**

| Period | Chemicals and chemical products | Manufacturing | General |
|---|---|---|---|
| **Weight** | **7.87** | **77.63** | **100.00** |
| **Index of Industrial Production (Base Year : 2011-12=100)** | | | |
| Mar - 2022 | 121.1 | 145.3 | 148.8 |
| Apr - 2022 | 123.3 | 131.6 | 134.5 |
| May - 2022 | 135.6 | 134.6 | 137.8 |
| Jun - 2022 | 133.5 | 136.8 | 138.3 |
| Jul - 2022 | 137.2 | 135.0 | 134.4 |
| Aug - 2022 | 131.9 | 131.3 | 131.5 |
| Sep - 2022 | 131.2 | 134.6 | 133.8 |
| Oct - 2022 | 122.1 | 128.5 | 129.5 |
| Nov - 2022 | 124.6 | 137.5 | 137.7 |
| Dec - 2022 | 129.5 | 144.9 | 145.9 |
| Jan - 2023 | 130.2 | 145.5 | 147.4 |
| Feb - 2023 | 122.8 | 137.6 | 139.3 |
| Mar - 2023 | 130.1 | 147.5 | 151.7 |
| **Production Growth (%)** | | | |
| Apr - 2022 | 1.8 | -9.4 | -9.6 |
| May - 2022 | 10.0 | 2.3 | 2.5 |
| Jun - 2022 | -1.5 | 1.6 | 0.4 |
| Jul - 2022 | 2.8 | -1.3 | -2.8 |
| Aug - 2022 | -3.9 | -2.7 | -2.2 |
| Sep - 2022 | -0.5 | 2.5 | 1.7 |
| Oct - 2022 | -6.9 | -4.5 | -3.2 |
| Nov - 2022 | 2.0 | 7.0 | 6.3 |
| Dec - 2022 | 3.9 | 5.4 | 6.0 |
| Jan - 2023 | 0.5 | 0.4 | 1.0 |
| Feb - 2023 | -5.7 | -5.4 | -5.5 |
| Mar - 2023 | 5.9 | 7.2 | 8.9 |

***Source:*** *Ministry of Statistics and Programme Implementation(MoSPI)*

**Table 35: Annual Production Growth in Chemicals and Chemical Products Vis -a-Vis Manufacturing Sector during 2016-17 to 2022-23 (Based on Index on Industrial Production with Base year: 2011-12)**

| Years | Chemicals and Chemical Products | Manufacturing | General |
|---|---|---|---|
| **Weight** | **7.87** | **77.63** | **100.00** |
| **Index of Industrial Production ( Base Year: 2011-12=100)** | | | |
| 2015-16 | 113.7 | 115.9 | 114.7 |
| 2016-17 | 116.5 | 121.0 | 120.0 |
| 2017-18 | 116.1 | 126.6 | 125.3 |
| 2018-19 | 119.0 | 131.5 | 130.1 |
| 2019-20 | 118.5 | 129.6 | 129.0 |
| 2020-21 | 116.0 | 117.2 | 118.1 |
| 2021-22 | 121.0 | 131.0 | 131.6 |
| 2022-23 | 129.3 | 137.1 | 138.5 |
| **Production Growth (%)** | | | |
| 2016-17 | 2.5 | 4.4 | 4.6 |
| 2017-18 | -0.3 | 4.6 | 4.4 |
| 2018-19 | 2.5 | 3.9 | 3.8 |
| 2019-20 | -0.4 | -1.4 | -0.8 |
| 2020-21 | -2.1 | -9.6 | -8.4 |
| 2021-22 | 4.3 | 11.8 | 11.4 |
| 2022-23 | 6.9 | 4.7 | 5.2 |

***Source:*** *Ministry of Statistics and Programme Implementation*

**Table 36: Weights of Products Covered Under Chemical and Chemical Products (Industry Division 20 of NIC- 2008) in the Index of Industrial Production for Manufacting Sector.**

| NIC 2008, 5-Digit | Item groups | Weights (in %) | Name of Source Agencies |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| 20111 | Oxygen | 0.0423 | DPIIT |
| 20112 | Acetic Acid | 0.0191 | DCPC |
| 20112 | Phosphoric acid | 0.0157 | DPIIT |
| 20112 | Purified Terephthalic Acid (PTA) | 0.3512 | DCPC |
| 20112 | Sulphuric Acid | 0.0479 | DPIIT |
| 20114 | Dyes and pigments | 0.2355 | DCPC |
| 20115 | ABS resin | 0.0188 | DCPC |
| 20116 | Calcium Carbonate | 0.0572 | DCPC |
| 20116 | Caustic soda (sodium hydroxide) | 0.1638 | DCPC |
| 20116 | Ethyl acetate | 0.0571 | DCPC |
| 20116 | Isopropyl alcohol | 0.0178 | DCPC |
| 20116 | Monoethylene glycol, MEG | 0.0413 | DCPC |
| 20116 | Soda ash/ washing soda | 0.1200 | DCPC |
| 20116 | Titanium dioxide | 0.0362 | DCPC |
| 20116 | Zinc sulphate | 0.0150 | DPIIT |
| 20118 | Aromatic Chemicals | 0.0806 | DPIIT |
| 20119 | Aniline | 0.0154 | DCPC |
| 20119 | Butadiene | 0.0335 | DCPC |
| 20119 | Catalyst, chemical | 0.0415 | DPIIT |
| 20119 | Expandable Polystyrene , EPS (thermocol) | 0.0521 | DCPC |
| 20119 | Fatty Acid | 0.0254 | DPIIT |
| 20119 | Linear Alkyl Benzene | 0.0563 | DCPC |
| 20119 | Liquid chlorine | 0.0595 | DCPC |
| 20119 | Phthalic anhydride, PAN | 0.0353 | DCPC |
| 20119 | Polyol | 0.0636 | DCPC |
| 20119 | Sodium Silicate | 0.0204 | DPIIT |
| 20121 | Urea | 0.5590 | D/o Fertilizers |
| 20122 | NPK fertilizers | 0.3897 | D/o Fertilizers |
| 20123 | Ammonia | 0.2101 | DPIIT |
| 20123 | Ammonium nitrate | 0.0118 | DPIIT |
| 20123 | Ammonium sulphate | 0.0261 | DPIIT |
| 20123 | Formaldehyde | 0.0121 | DCPC |
| 20123 | Nitric Acid | 0.0181 | DPIIT |
| 20129 | Diammonium Phosphate (DAP) | 0.0761 | D/o Fertilizers |
| 20129 | Superphosphate | 0.0332 | D/o Fertilizers |
| 20131 | Polyester chips or Polyethylene terepthalate(PET) chips | 0.1108 | DCPC |
| 20131 | Polymers (incl. Polyethylene, PVC, Poly propylene) | 0.5954 | DCPC |
| 20131 | PTFE (TEFLON) | 0.0244 | DCPC |
| 20132 | Caprolactam | 0.0457 | DCPC |
| 20132 | Synthetic rubber (incl. PBR, SBR) | 0.0295 | DCPC |
| 20211 | Detergent powder and washing powder | 0.2578 | DPIIT |
| 20211 | Pesticides-technical grade | 0.2116 | DCPC |
| 20221 | Paints (all types) | 0.3874 | DPIIT |
| 20221 | Varnish (all types) | 0.0209 | DPIIT |
| 20223 | Printing ink | 0.0795 | DPIIT |
| 20229 | Thinner | 0.0110 | DPIIT |
| 20231 | Toilet soap (excl. baby soap)- incl. liquid soap and foam | 0.6078 | DPIIT |
| 20232 | Organic surface active agents/ surfactants, except soap (incl. dishwashing soaps, wetting and cleansing agents) | 0.1378 | DPIIT |

| NIC 2008, 5-Digit | Item groups | Weights (in %) | Name of Source Agencies |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| 20233 | Detergent cake, washing soap cake/ bar | 0.4607 | DPIIT |
| 20235 | Tooth paste | 0.3223 | DPIIT |
| 20236 | Hair dye | 0.0468 | DPIIT |
| 20236 | Hair oil | 0.0556 | DPIIT |
| 20236 | Hair shampoo | 0.0929 | DPIIT |
| 20237 | Creams and lotions for topical application | 0.1255 | DPIIT |
| 20238 | Agarbatti | 0.1706 | DPIIT |
| 20291 | Safety matches (match box) | 0.0638 | DPIIT |
| 20292 | Fire works/pyrotechnic articles | 0.0366 | DPIIT |
| 20292 | Gun powder, detonators/ prepared explosives | 0.0397 | DPIIT |
| 20293 | Fragrances & Oil essentials | 0.1967 | DPIIT |
| 20295 | Adhesive formulations other than natural gum | 0.3985 | DPIIT |
| 20295 | Gelatin | 0.0233 | DPIIT |
| 20297 | Methanol | 0.0291 | DCPC |
| 20299 | Hydrogen Peroxide | 0.0500 | DCPC |
| 20299 | Mosquito coil | 0.0215 | DPIIT |
| 20302 | Man-made fibres (incl. Viscose and Artificial Fibres) | 0.1614 | DCPC & O/o Textile Commissioner |

***Source:*** *Ministry of Statistics and Programme Implementation*

***DPIIT:*** *Department for Promotion of Industry and Internal Trade*

***DCPC:*** *Department of Chemicals and Petrochemicals*

# Section - VI

## Inflation Based on Wholesale Price Index (WPI)

**Table 37: Annual Inflation of Chemicals & Chemical products vis-à-vis other commodities during 2016-17 to 2022-23 (Based on Wholesale Price Index with base year: 2011-12)**

| Year | All Commodities | Food Articles | Manufactured Products | Chemicals & Chemical Products |
|---|---|---|---|---|
| **Weight (%)** | **100.00** | **15.26** | **64.23** | **6.47** |
| **Wholesale Price Index (Base Year: 2011-12=100)** | | | | |
| 2015-16 | 109.70 | 134.90 | 109.20 | 112.60 |
| 2016-17 | 111.60 | 140.30 | 110.70 | 111.00 |
| 2017-18 | 114.90 | 143.20 | 113.80 | 112.50 |
| 2018-19 | 119.80 | 143.70 | 117.90 | 119.10 |
| 2019-20 | 121.80 | 155.80 | 118.30 | 117.50 |
| 2020-21 | 123.40 | 160.70 | 121.50 | 118.20 |
| 2021-22 | 139.40 | 167.30 | 135.00 | 133.50 |
| 2022-23 | 152.50 | 179.50 | 142.60 | 145.40 |
| **Inflation (%)** | | | | |
| 2016-17 | 1.7 | 4.0 | 1.4 | -1.4 |
| 2017-18 | 3.0 | 2.1 | 2.8 | 1.4 |
| 2018-19 | 4.3 | 0.3 | 3.6 | 5.9 |
| 2019-20 | 1.7 | 8.4 | 0.3 | -1.3 |
| 2020-21 | 1.3 | 3.1 | 2.7 | 0.6 |
| 2021-22 | 13.0 | 4.1 | 11.1 | 12.9 |
| 2022-23 | 9.4 | 7.3 | 5.6 | 8.9 |

***Source:*** *Office of the Economic Advisor (http://eaindustry.nic.in)*

**Table 38:- Monthly Inflation of Chemicals & Chemical Products vis-a-vis Other Commodities during April-2022 to March-2023 (Based on Wholesale Price Index with base year: 2011-12)**

| Month | All Commodities | Food Articles | Manufactured Products | Chemicals & Chemical Products |
|---|---|---|---|---|
| **Weight (%)** | **100.00** | **15.26** | **64.23** | **6.47** |
| **Wholesale Price Index (Base Year: 2011-12)** | | | | |
| Mar - 2022 | 148.9 | 169.6 | 142.3 | 142.3 |
| Apr - 2022 | 152.3 | 175.3 | 144.7 | 145.7 |
| May - 2022 | 155.0 | 178.4 | 145.0 | 147.0 |
| Jun - 2022 | 155.4 | 182.5 | 143.9 | 148.3 |
| Jul - 2022 | 154.0 | 178.9 | 143.2 | 147.8 |
| Aug - 2022 | 153.2 | 182.0 | 143.2 | 146.6 |
| Sep - 2022 | 151.9 | 182.2 | 142.2 | 146.0 |
| Oct - 2022 | 152.9 | 186.1 | 141.9 | 146.3 |
| Nov - 2022 | 152.5 | 181.0 | 141.3 | 145.2 |
| Dec - 2022 | 150.5 | 174.9 | 141.1 | 144.0 |
| Jan - 2023 | 150.7 | 176.6 | 141.4 | 143.3 |
| Feb - 2023 | 150.9 | 176.9 | 141.6 | 142.8 |
| Mar - 2023 | 151.0 | 178.8 | 141.3 | 142.2 |
| **Inflation (%)** | | | | |
| Apr - 2022 | 2.3 | 3.4 | 1.7 | 2.4 |
| May - 2022 | 1.8 | 1.8 | 0.2 | 0.9 |
| Jun - 2022 | 0.3 | 2.3 | -0.8 | 0.9 |
| Jul - 2022 | -0.9 | -2.0 | -0.5 | -0.3 |
| Aug - 2022 | -0.5 | 1.7 | 0.0 | -0.8 |
| Sep - 2022 | -0.8 | 0.1 | -0.7 | -0.4 |
| Oct - 2022 | 0.7 | 2.1 | -0.2 | 0.2 |
| Nov - 2022 | -0.3 | -2.7 | -0.4 | -0.8 |
| Dec - 2022 | -1.3 | -3.4 | -0.1 | -0.8 |
| Jan - 2023 | 0.1 | 1.0 | 0.2 | -0.5 |
| Feb - 2023 | 0.1 | 0.2 | 0.1 | -0.3 |
| Mar - 2023 | 0.1 | 1.1 | -0.2 | -0.4 |

***Source:*** *Office of the Economic Advisor (http://eaindustry.nic.in)*

**Table 39 :- WPI (Base year 2011-12) of Chemicals & Chemical Products (Group Wise) during 2017-18 to 2022-23**

| Description | Weight | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 |
|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| **Chemicals and Chemical Products** | **6.47** | **112.50** | **119.10** | **117.50** | **118.20** | **133.50** | **145.40** |
| (a) Basic Chemicals | **1.43** | 111.20 | 125.00 | 119.90 | 118.60 | 143.80 | 159.20 |
| (b) Fertilizers and Nitrogen Compounds | **1.48** | 117.10 | 121.10 | 123.10 | 123.60 | 129.60 | 144.80 |
| (c) plastic and synthetic rubber in primary form | **1.00** | 113.00 | 117.60 | 112.40 | 116.70 | 140.30 | 143.20 |
| (d) Pesticides and Other Agrochemical Products | **0.45** | 115.30 | 120.20 | 122.60 | 124.40 | 132.10 | 143.40 |
| (e.) paints, Varnishes and Similar Coatings, Printing Ink and Mastics | **0.49** | 108.60 | 112.70 | 114.70 | 114.90 | 130.40 | 145.00 |
| (f) Soap and Detergents, Cleaning and Polishing Preparations, Perfumes and Toilet Preparations | **0.61** | 115.20 | 116.80 | 118.60 | 120.60 | 128.10 | 140.80 |
| (g) Other Chemical Products | **0.69** | 110.10 | 116.60 | 114.20 | 115.10 | 130.30 | 142.10 |
| (h) Man-Made Fibres | **0.30** | 97.50 | 104.00 | 97.90 | 93.70 | 106.60 | 110.70 |

***Source:*** *Office of the Economic Advisor (http://eaindustry.nic.in)*

# Section - VII

## Miscellaneous

**Tabe 40: Growth Rates of Core Industries from 2017-18 to 2022-23 (Base Year: 2011-12)**

| Sector | Weight (%) | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 |
|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Coal (%) | **10.33** | 2.6 | 7.4 | -0.4 | -1.9 | 8.5 | 14.8 |
| Crude Oil (%) | **8.98** | -0.9 | -4.1 | -5.9 | -5.2 | -2.6 | -1.7 |
| Natural Gas (%) | **6.88** | 2.9 | 0.8 | -5.6 | -8.2 | 19.2 | 1.6 |
| Refinery Products (%) | **28.04** | 4.6 | 3.1 | 0.2 | -11.2 | 8.9 | 4.8 |
| Fertilizers (%) | **2.63** | 0.0 | 0.3 | 2.7 | 1.7 | 0.7 | 11.3 |
| Steel (%) | **17.92** | 5.6 | 5.1 | 3.4 | -8.7 | 16.9 | 9.3 |
| Cement (%) | **5.37** | 6.3 | 13.3 | -0.9 | -10.8 | 20.8 | 8.7 |
| Electricity (%) | **19.85** | 5.3 | 5.2 | 0.9 | -0.5 | 8.0 | 8.9 |
| **Overall Index** | **100.00** | **4.3** | **4.4** | **0.4** | **-6.4** | **10.4** | **7.8** |

***Source:*** *Office of the Economic Advisor (http://eaindustry.nic.in)*

**Table 41: Index of Core Industries from 2017-18 to 2022-23 (Base year 2011-12)**

| Sector | Weight (%) | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 |
|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Coal | **10.33** | 124.9 | 134.1 | 133.6 | 131.1 | 142.3 | 163.5 |
| Crude Oil | **8.98** | 93.7 | 89.8 | 84.5 | 80.1 | 77.9 | 76.6 |
| Natural Gas | **6.88** | 68.4 | 69.0 | 65.1 | 59.8 | 71.3 | 72.4 |
| Refinery Products | **28.04** | 125.2 | 129.1 | 129.4 | 114.9 | 125.1 | 131.2 |
| Fertilizers | **2.63** | 106.6 | 107.0 | 109.8 | 111.6 | 112.4 | 125.1 |
| Steel | **17.92** | 140.5 | 147.7 | 152.6 | 139.4 | 163.0 | 178.1 |
| Cement | **5.37** | 129.7 | 147.0 | 145.7 | 130.0 | 156.9 | 170.6 |
| Electricity | **19.85** | 149.2 | 156.9 | 158.4 | 157.6 | 170.1 | 185.2 |
| **Overall Index** | **100.00** | **125.7** | **131.2** | **131.6** | **123.2** | **136.1** | **146.7** |

***Source:*** *Office of the Economic Advisor (http://eaindustry.nic.in)*

**Table 42: Consumption of Naphtha, Natural Gas and Fuel Oil from 2018-19 to 2022-23**

| Name of Product | Description | Unit | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23* |
|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (5) | (6) | (7) | (8) | (9) |
| **Naphtha** | Production | K Tonnes | 19786 | 20679 | 19403 | 19994 | 17036 |
| | Import | K Tonnes | 2082 | 1662 | 1199 | 237 | 897 |
| | | Value in Rs. Crore | 9665 | 6678 | 3844 | 1499 | 4781 |
| | Export | K Tonnes | 6963 | 8897 | 6509 | 6861 | 5714 |
| | | Value in Rs. Crore | 28893 | 31509 | 18643 | 37231 | 33357 |
| | Availability | K Tonnes | 14904 | 13444 | 14093 | 13370 | 12219 |
| | Consumption | K Tonnes | 14131 | 14268 | 14100 | 13246 | 12158 |
| **Natural Gas[1]** | Gross Production | MMSCM | 32873 | 31184 | 28673 | 34024 | 34450 |
| | Net Production | MMSCM | 32054 | 30257 | 27784 | 33116 | 33648 |
| | Import $ | MMSCM | 28547 | 32352 | 33198 | 31028 | 26304 |
| | | Value in Rs. Crore | 73888 | 68467 | 58329 | 100521 | 137210 |
| | Availability | MMSCM | 60796 | 64144 | 60981 | 64159 | 59969 |
| | Consumption ** | MMSCM | 53840 | 56492 | 56117 | 61491 | 58702 |
| **Fuel Oil** | Production | K Tonnes | 10032 | 8609 | 7242 | 8327 | 9242 |
| | Import | K Tonnes | 1419 | 4583 | 6454 | 8980 | 8563 |
| | | Value in Rs. Crore | 4782 | 11791 | 14312 | 32815 | 33474 |
| | Export | K Tonnes | 2197 | 1527 | 1177 | 1757 | 1841 |
| | | Value in Rs. Crore | 6537 | 3811 | 2318 | 6633 | 7834 |
| | Availability | K Tonnes | 9255 | 11665 | 12519 | 15550 | 15964 |
| | Consumption | K Tonnes | 6564 | 6302 | 5587 | 6262 | 6954 |
| **Naphtha** | Fertilizers Sector | K Tonnes | 352 | 150 | 66 | 0 | 0 |
| | Petrochemical Sector | K Tonnes | 10602 | 10874 | 11339 | 11904 | 10434 |
| **Natural Gas[2]** | Fertilizer Industries | MMSCM | 14987 | 16115 | 17781 | 18079 | 19400 |
| | Petrochemicals Industry | MMSCM | 3386 | 3569 | 3072 | 2864 | 1959 |
| **Fuel Oil (Furnace Oil + LSHS)** | Chemicals & allied | K Tonnes | 309 | 253 | 237 | 239 | 205 |

***** Provisional ****** Sectorial Sales **$** Imports of LNG

[1] Data of Natural gas is reconciled due to change in nomenclature, rationalisation and classification of reporting.

[2] The reasons for the variation between the consolidated availability and the consumption can be attributed to stock changes, conversion factor (volume/energy), Flaring/Losses (in case of Natural gas) and the provisional data reported by the companies.

**Net Production=Gross Production - Flared/Losses**

**Source:** *Ministry of Petroleum and Natural Gas(M/o PNG)*

**Table 43: Important indicators of Industry Division 20 & 21 (Unincorporated Sector) in 2015-16 (July 2015 - June 2016)**

| Description | Rural | Urban | Rural + Urban |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| Estimated number of workers in Industry Division 20 (Unincorporated) of NIC 2008 | 204480 | 167540 | 372020 |
| Estimated number of workers in Industry Division 21 (Unincorporated ) of NIC 2008 | 12692 | 9454 | 22146 |
| Estimated number of workers in Unincorporated Manufacturing sector | 18655607 | 17385712 | 36041319 |
| Estimated number of workers in Unincorporated sector ( All activities) # | 49867273 | 61403553 | 111270826 |
| Estimated number of enterprises in Industry Division 20 (Unincorporated) of NIC 2008 | 105985 | 66721 | 172706 |
| Estimated number of enterprises in Industry Division 21 (Unincorporated) of NIC 2008 | 2935 | 3410 | 6345 |
| Estimated number of enterprises in Unincorporated manufacturing sector | 11414431 | 8250444 | 19664875 |
| Estimated number of enterprises in Unincorporated sector ( All activities) # | 32489670 | 30902305 | 63391974 |
| Estimated GVA of Industry Division 20 (Unincorporated) (in Rs. Crore ) | 780 | 1552 | 2332 |
| Estimated GVA of Industry Division 21 (Unincorporated) (in Rs. Crore ) | 130 | 143 | 273 |
| Estimated GVA of Manufacturing Sector (Unincorporated) (in Rs. Crore ) | 89829 | 178233 | 268062 |
| Estimated GVA of Unincorporated sector (All activities) (in Rs. Crore ) | 344872 | 807437 | 1152309 |
| Share of GVA from Industry Division 20 (Unincorporated) in GVA Unincorporated sector (All activities) ( in %) | 0.2 | 0.2 | 0.2 |
| Share of GVA from Industry Division 21 (Unincorporated) in GVA Unincorporated sector (All activities) ( in %) | 0.0 | 0.0 | 0.0 |
| Share of GVA from Manufacturing sector (Unincorporated) in GVA Unincorporated sector (All activities) ( in %) | 26.0 | 22.1 | 23.3 |
| GVA per worker of Industry Division 20 (Unincorporated) sector (in Rs.) | 38146 | 92635 | 62685 |
| GVA per worker of Industry Division 21 (Unincorporated) sector (in Rs.) | 102427 | 151259 | 123273 |
| GVA per worker of Manufacturing sector (Unincorporated) (in Rs.) | 48151 | 102517 | 74376 |
| GVA per worker of unincorporated sector (All Activities) in Rs. | 69158 | 131497 | 103559 |
| GVA per enterprise of Industry Division 20 (Unincorporated) sector (in Rs.) | 73595 | 232610 | 135027 |
| GVA per enterprise of Industry Division 21 (Unincorporated) sector (in Rs.) | 442930 | 419355 | 430260 |
| GVA per enterprise of Manufacturing Sector (Unicorporated) (in Rs.) | 78698 | 216028 | 136315 |
| GVA per enterprise of Unincorporated Sector (All activities) (in Rs.) | 106148 | 261287 | 181775 |

*# including Manufacturing activities, Noncaptive electricity generation , trading activities and other services (non agricultural enterprises excluding constructions)*

***Source:*** *NSS Report (No.582: Economic Characteristics of Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India) of Ministry of Statistics & Programme Implementation*

**Table 44: Employment in Chemicals and Chemicals products (Industry Division 20, NIC-2008) during 2016-17 to 2021-22**

| S.No. | Industry | Number of Persons Engaged | | | | | |
|---|---|---|---|---|---|---|---|
| | | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| 1 | Chemicals and Chemicals products (Industry Division 20, NIC 2008) | 790263 | 828315 | 887240 | 932428 | 958839 | 1026380 |
| 2 | Industries Other than Chemicals and Chemicals products | 14120926 | 14786304 | 14120926 | 15691863 | 15130861 | 16188970 |
| 3 | All Industries | 14911189 | 15614619 | 16280211 | 16624291 | 16089700 | 17215350 |
| 4 | **Share in Employment (%)** | | | | | | |
| | (a) Share of Chemicals and Chemicals products | 5.3 | 5.3 | 5.4 | 5.6 | 6.0 | 6.0 |
| | (b) Share of Other than Chemicals and Chemicals products | 94.7 | 94.7 | 86.7 | 94.4 | 94.0 | 94.0 |
| 5 | **Growth in Employment (%)** | | | | | | |
| | (a) Chemicals and Chemicals products | 4.3 | 4.8 | 7.1 | 5.1 | 2.8 | 7.0 |
| | (b) Industries Other than Chemicals and Chemicals products | 2.9 | 4.7 | -4.5 | 11.1 | -3.6 | 7.0 |
| | (c) All Industries | 3.0 | 4.7 | 4.3 | 2.1 | -3.2 | 7.0 |

***Note:*** *As per NIC - 2008, Chemical & Chemical products are covered under the Industry Division 20.*

***Source:*** *Annual Survey of Industries (ASI) Results, Ministry of Statistics & Programme Implementation*

**Table 45: Gross Value Added from Chemical and Chemical products (Industry Division 20: NIC 2008) and Pharmaceutical; medicinal chemicals and botanical product (Industry Division 21: NIC 2008) vis-a-vis Manufacturing sector and all Economic Activities**

*At Current Prices* *(Rs. in Crore)*

| Description | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Industry Division 20: Chemical and chemical products (Corporate) | 207565 | 223172 | 247860 | 264075 | 283853 | 308932 |
| Industry Division 20:Chemical and chemical products (Household) | 1029 | 1423 | 2173 | 1673 | 1604 | 2271 |
| Industry Division 20: Chemical and chemical products (Corporate +Household) | *208593* | *224595* | *250032* | *265747* | *285458* | 311203 |
| **Growth over previous year (%)** | ***7.6*** | ***7.7*** | ***11.3*** | ***6.3*** | ***7.4*** | ***9.0*** |
| Industry Division 21:Pharmaceutical; medicinal chemicals and botanical products (Corporate) | 157237 | 165019 | 190831 | 202381 | 223911 | 256098 |
| Industry Division 21:Pharmaceutical; medicinal chemicals and botanical products (Household) | 667 | 585 | 606 | 726 | 851 | 1133 |
| Total Pharmaceutical; medicinal chemicals and botanical products (Industry Division 21) | *157904* | *165604* | *191437* | *203107* | *224762* | *257231* |
| **Total Chemical and chemical products including Pharmaceutical; medicinal chemicals and botanical products (Industry Division 20 and 21)** | **366497** | **390199** | **441470** | **468854** | **510220** | **568434** |
| **Growth over previous year (%)** | ***8.2*** | ***6.5*** | ***13.1*** | ***6.2*** | ***8.8*** | ***11.4*** |
| Manufacturing (Corporate) | 2042040 | 2248880 | 2459081 | 2363718 | 2456813 | 2960021 |
| Manufacturing (Household) | 291682 | 317743 | 353479 | 341383 | 346681 | 432584 |
| **Manufacturing (Corporate +Household)** | **2333721** | **2566623** | **2812560** | **2705101** | **2803495** | **3392605** |
| **Growth over previous year (%)** | ***8.7*** | ***10.0*** | ***9.6*** | ***-3.8*** | ***3.6*** | ***21.0*** |
| GVA at basic prices for All Economic activities | 13965200 | 15505665 | 17175128 | 18381117 | 18210997 | 21635584 |
| **Growth over previous year (%)** | ***11.1*** | ***11.0*** | ***10.8*** | ***7.0*** | ***-0.9*** | ***18.8*** |
| Share of GVA of Manufacturing sector in GVA for All Economic Activities | *16.7* | *16.6* | *16.4* | *14.7* | *15.4* | *15.7* |
| Share of GVA of Chemical and chemical products **excluding** Pharmaceutical; medicinal chemicals and botanical products (Industry Division 20 )in GVA for All Economic Activities | 1.5 | 1.4 | 1.5 | 1.4 | 1.6 | 1.4 |
| Share of GVA of Chemical and chemical products **including** Pharmaceutical; medicinal chemicals and botanical products (Industry Division 20 and 21) in GVA for All Economic Activities | 2.6 | 2.5 | 2.6 | 2.6 | 2.8 | 2.6 |
| Share of GVA of chemical and chemical products (Industry Division 20 )in GVA for Manufacturing Sector | 8.9 | 8.8 | 8.9 | 9.8 | 10.2 | 9.2 |
| Share of GVA of chemical and chemical products **including** Pharmaceutical; medicinal chemicals and botanical products (Industry Division 20 and 21)in GVA for Manufacturing Sector | 15.7 | 15.2 | 15.7 | 17.3 | 18.2 | 16.8 |

***Source:*** *National Accounts Statistics, Ministry of Statistics & Programme Implementation.*

**Table 46: Gross Value Added from Chemical and Chemical products (Industry Division 20: NIC 2008) and Pharmaceutical; medicinal chemicals and botanical product (Industry Division 21: NIC 2008) vis-a-vis Manufacturing sector and all Economic Activities**

*At Constant Price (2011-12)* *(Rs. In Crore)*

| Description | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Industry Division 20: Chemical and chemical products (Corporate) | 122965 | 126099 | 145051 | 172538 | 190147 | 231410 |
| Industry Division 20:Chemical and chemical products (Household) | 927 | 1265 | 1824 | 1424 | 1357 | **1701** |
| Industry Division 20: Chemical and chemical products (Corporate +Household) | *123892* | *127364* | *146876* | *173961* | *191504* | *233111* |
| **Growth over previous year (%)** | ***2.9*** | ***2.8*** | ***15.3*** | ***18.4*** | ***10.1*** | ***21.7*** |
| Industry Division 21:Pharmaceutical; medicinal chemicals and botanical products (Corporate) | 131359 | 136154 | 154519 | 158980 | 171055 | **188446** |
| Industry Division 21:Pharmaceutical; medicinal chemicals and botanical products (Household) | 557 | 483 | 491 | 570 | 650 | **834** |
| Total Pharmaceutical; medicinal chemicals and botanical products (Industry Division 21) | *131916* | *136637* | *155010* | *159550* | *171705* | *189280* |
| **Total Chemical and chemical products including Pharmaceutical; medicinal chemicals and botanical products (Industry Division 20 and 21)** | **255808** | **264001** | **301885** | **333511** | **363210** | **422390** |
| Growth over previous year (%) | ***10.7*** | ***3.2*** | ***14.4*** | ***10.5*** | ***8.9*** | ***16.3*** |
| Manufacturing (Corporate) | 1803931 | 1941557 | 2039878 | 1981512 | 2049824 | 2244755 |
| Manufacturing (Household) | 250834 | 267871 | 289114 | 278193 | 279336 | **316278** |
| **Manufacturing (Corporate +Household)** | **2054764** | **2209428** | **2328992** | **2259706** | **2329160** | **2561033** |
| **Growth over previous year (%)** | ***7.9*** | ***7.5*** | ***5.4*** | ***-3.0*** | ***3.1*** | ***10.0*** |
| GVA at basic prices for All Economic activities | 11328285 | 12034171 | 12733798 | 13236100 | 12687345 | **13876840** |
| **Growth over previous year (%)** | ***8.0*** | ***6.2*** | ***5.8*** | ***3.9*** | ***-4.1*** | ***9.4*** |
| Share of GVA of Manufacturing sector in GVA for All Economic Activies | *18.1* | *18.4* | *18.3* | *17.1* | *18.4* | *18.5* |
| Share of GVA of Chemical and chemical products **excluding** Pharmaceutical; medicinal chemicals and botanical products (Industry Division 20 )in GVA for All Economic Activies | 1.1 | 1.1 | 1.2 | 1.3 | 1.5 | 1.7 |
| Share of GVA of Chemical and chemical products **including** Pharmaceutical; medicinal chemicals and botanical products (Industry Division 20 and 21) in GVA for All Economic Activies | 2.3 | 2.2 | 2.4 | 2.5 | 2.9 | 3.0 |
| Share of GVA of chemical and chemical products (Industry Division 20 ) in GVA for Manufacturing Sector | 6.0 | 5.8 | 6.3 | 7.7 | 8.2 | 9.1 |
| Share of GVA of chemical and chemical products, **including** Pharmaceutical; medicinal chemicals and botanical products (Industry Division 20 and 21)in GVA for Manufacturing Sector | 12.4 | 11.9 | 13.0 | 14.8 | 15.6 | 16.5 |

***Source:*** *National Accounts Statistics, Ministry of Statistics & Programme Implementation.*

**Table 47: Value of Output from Chemicals and Chemical products ( Industry Division 20: NIC 2008) and Pharmaceutical; medicinal chemicals and botanical products (Industry Division 21: NIC 2008) vis-a-vis Manufacturing sector**

*At Current prices* *(Rs. In crore)*

| Description | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Manufacturing (Corporate) | 8162260 | 9032405 | 10845743 | 10827558 | 10637200 | 14481692 |
| Manufacturing (Household) | 824799 | 936733 | 1058116 | 1028602 | 1056610 | 1290560 |
| **Manufacturing (Corporate +Household)** | **8987059** | **9969138** | **11903859** | **11856161** | **11693810** | **15772252** |
| Chemical and chemical products (Corporate) (Industry Division 20) | 662125 | 729330 | 950939 | 968502 | 953211 | 1285083 |
| Chemical and chemical products (Household) (Industry Division 20) | 5137 | 7104 | 10848 | 8352 | 8011 | 11339 |
| **Total Chemical and chemical products excluding Pharmaceutical; medicinal chemicals and botanical products (Industry Division 20)** | **667262** | **736434** | **961786** | **976854** | **961222** | **1296422** |
| Pharmaceutical; medicinal chemicals and botanical products --Corporate (Industry Division 21) | 318143 | 325755 | 399906 | 436614 | 503296 | 606488 |
| Pharmaceutical; medicinal chemicals and botanical products --Household (Industry Division 21) | 3330 | 2922 | 3026 | 3623 | 4250 | 5657 |
| **Total Pharmaceutical; medicinal chemicals and botanical products (Industry Division 21)** | **321472** | **328677** | **402932** | **440237** | **507547** | **612145** |
| **Total Chemical and chemical products including Pharmaceutical; medicinal chemicals and botanical products (Industry Division 20 and 21)** | ***988734*** | ***1065111*** | ***1364718*** | ***1417091*** | ***1468768*** | **1908568** |

***Source:*** *National Accounts Statistics, Ministry of Statistics & Programme Implementation.*

**Table 48: Value of Output from Chemicals and Chemical products ( Industry Division 20: NIC 2008) and Pharmaceutical; medicinal chemicals and botanical products (Industry Division 21: NIC 2008) vis-a-vis Manufacturing sector**

*At constant prices (2011-12)* *(Rs. In crore)*

| Description | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Manufacturing (Corporate) | 7675612 | 8200088 | 9401296 | 9407744 | 9065404 | 10869880 |
| Manufacturing (Household) | 712666 | 791191 | 865740 | 836055 | 845787 | 935942 |
| **Manufacturing (Corporate +Household)** | **8388278** | **8991280** | **10267035** | **10243798** | **9911191** | ***11805823*** |
| Chemical and chemical products (Corporate) (Industry Division 20) | 596509 | 648293 | 798437 | 824257 | 806439 | 962609 |
| Chemical and chemical products (Household) (Industry Division 20) | 4628 | 6315 | 9108 | 7108 | 6778 | 8494 |
| **Total Chemical and chemical products excluding Pharmaceutical; medicinal chemicals and botanical products (Industry Division 20)** | **601137** | **654608** | **807545** | **831365** | **813216** | **971103** |
| Pharmaceutical; medicinal chemicals and botanical products --Corporate (Industry Division 21) | 265783 | 268775 | 323811 | 342981 | 384489 | 446275 |
| Pharmaceutical; medicinal chemicals and botanical products --Household (Industry Division 21) | 2782 | 2411 | 2450 | 2846 | 3247 | *4163* |
| **Total Pharmaceutical; medicinal chemicals and botanical products (Industry Division 21)** | **268565** | **271185** | **326261** | **345827** | **387736** | **450438** |
| **Total Chemical and chemical products including Pharmaceutical; medicinal chemicals and botanical products (Industry Division 20 and 21)** | ***869702*** | ***925793*** | ***1133806*** | ***1177192*** | ***1200953*** | **1421541** |

***Source:*** *National Accounts Statistics, Ministry of Statistics & Programme Implementation.*

**Table 49:- All India Estimate of Selected Characteristics of Factory Sector for Chemical and Chemical products (Industry Division 20: NIC 2008) , Pharmaceutical; medicinal chemicals and botanical product (Industry Division 21: NIC 2008) and Maufacture of Megnetic and Optical Media (industry Division 268)**

| Description | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) |
| **Industry Division 20: Chemical and chemical products** | | | | | |
| No of factories (no.) | 12568 | 12902 | 13459 | 13770 | 13522 |
| No of workers (no.) | 614733 | 666623 | 693865 | 706478 | 767657 |
| Total Output (Rs. crore) | 661499 | 821126 | 793096 | 781482 | 1097908 |
| Total Inputs (Rs. crore) | 517336 | 661207 | 627208 | 595683 | 875273 |
| Gross Value Added (Rs. crore) | 144163 | 159919 | 165888 | 185799 | 222636 |
| **Industry Division 21: Pharmaceutical; medicinal chemicals and botanical products** | | | | | |
| No of factories (no.) | 5051 | 5161 | 5326 | 5319 | 5228 |
| No of workers (no.) | 454024 | 483238 | 516095 | 533391 | 577128 |
| Total Output (Rs. crore) | 285014 | 342227 | 348658 | 406291 | 486178 |
| Total Inputs (Rs. crore) | 182832 | 224274 | 226275 | 262166 | 314070 |
| Gross Value Added (Rs. crore) | 102182 | 117953 | 122382 | 144124 | 172108 |
| **Industry Division 268: Maufacture of Megnetic and Optical Media** | | | | | |
| No of factories (no.) | 10 | 15 | 15 | 4 | 7 |
| No of workers (no.) | 529 | 1970 | 1053 | 740 | 962 |
| Total Output (Rs. Lakh) | 75141 | 375859 | 87974 | 29890 | 67757 |
| Total Inputs (Rs. Lakh) | 61256 | 283135 | 79865 | 23594 | 44525 |
| Gross Value Added (Rs. Lakh) | 13885 | 92724 | 8109 | 6296 | 23232 |

***Source** : Annual Survey of Industries (ASI) Results, Ministry of Statistics & Programme Implementation*

**Table 50: State wise Estimate of Selected Characteristics of Factory Sector for Industry Division 20: NIC 2008: Chemicals and Chemical Products**

| State | No. of Factories | | | | GVA (Rs. Lakh) | | | | Total Output (Rs Lakh) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| Andhra Pradesh | 394 | 499 | 450 | 473 | 446176 | 391354 | 680931 | 727361 | 2509301 | 2684412 | 2854817 | 3970052 |
| Assam | 133 | 173 | 180 | 137 | 223202 | 337713 | 453712 | 491976 | 757604 | 857461 | 1138784 | 1158120 |
| Bihar | 52 | 52 | 51 | 51 | 16415 | 27091 | 23409 | 21096 | 84900 | 128635 | 131254 | 158933 |
| Chhattisgarh | 110 | 124 | 139 | 153 | 8010 | 18916 | 32114 | 56648 | 201584 | 246128 | 187989 | 469208 |
| Goa | 36 | 39 | 51 | 36 | 72231 | 77919 | 98724 | 109356 | 747163 | 426077 | 490954 | 565023 |
| Gujarat | 2757 | 2861 | 3018 | 2993 | 5481852 | 5583012 | 6430276 | 8020952 | 29156214 | 27084554 | 25990446 | 38331607 |
| Haryana | 362 | 431 | 495 | 405 | 371391 | 397801 | 490844 | 502725 | 1831951 | 1930161 | 2191507 | 2528703 |
| Himachal Pradesh | 225 | 220 | 215 | 221 | 528976 | 685132 | 539098 | 470492 | 1480706 | 1675243 | 1595976 | 1561608 |
| Jammu & Kashmir | 134 | 135 | 143 | 105 | 235599 | 230321 | 528406 | 290756 | 975425 | 932792 | 1551604 | 972678 |
| Jharkhand | 88 | 94 | 84 | 95 | 82897 | 46901 | 55507 | 67167 | 317377 | 217142 | 265238 | 402994 |
| Karnataka | 659 | 657 | 640 | 641 | 464619 | 629721 | 549464 | 674908 | 2079037 | 3079683 | 2100452 | 3215584 |
| Kerala | 127 | 173 | 219 | 199 | 376499 | 317489 | 227448 | 263483 | 1019809 | 942693 | 892076 | 1111925 |
| Madhya Pradesh | 314 | 315 | 325 | 345 | 276016 | 266235 | 208689 | 385407 | 1451534 | 1909243 | 1614403 | 2538375 |
| Maharashtra | 1772 | 1827 | 1892 | 1974 | 2404081 | 2315109 | 2650282 | 3769611 | 13079364 | 11162926 | 12470588 | 17591190 |
| Meghalya | 4 | 3 | 3 | 5 | 1171 | 1124 | 2195 | 1903 | 4997 | 2710 | 3979 | 4966 |
| Mizoram | 0 | 4 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 30 | 0 | 0 |
| Odisha | 97 | 99 | 114 | 101 | 553716 | 657505 | 312979 | 409146 | 1478344 | 1531407 | 1249776 | 2312431 |
| Punjab | 165 | 204 | 191 | 227 | 104209 | 142836 | 161014 | 258930 | 815753 | 877849 | 876109 | 1457698 |
| Rajasthan | 372 | 401 | 361 | 406 | 453739 | 509303 | 708173 | 761264 | 3441389 | 2875300 | 3354013 | 4211306 |
| Sikkim | 3 | 3 | 0 | 0 | 10771 | 8510 | 0 | 0 | 32609 | 16984 | 0 | 0 |
| Tamil Nadu | 2679 | 2704 | 2706 | 2626 | 694678 | 685097 | 820713 | 1010948 | 3582598 | 4091296 | 3792586 | 6338824 |
| Tripura | 9 | 8 | 7 | 7 | 1 | 44 | 179 | 635 | 78 | 427 | 314 | 4790 |
| Uttar Pradesh | 721 | 759 | 750 | 802 | 883256 | 934417 | 1025826 | 1157842 | 5049876 | 5448955 | 4704933 | 6931558 |
| Uttarakhand | 233 | 238 | 228 | 200 | 880498 | 895746 | 786279 | 769675 | 2563120 | 2319208 | 2145639 | 2316209 |
| West Bengal | 355 | 352 | 382 | 358 | 445340 | 440481 | 639647 | 658515 | 3360107 | 3568921 | 2770482 | 4034102 |
| Dadra & N Haveli &Daman & Diu | 370 | 315 | 342 | 342 | 504212 | 536944 | 694297 | 891629 | 4268552 | 3567053 | 3963429 | 5159314 |
| Chandigarh | 0 | 3 | 3 | 3 | 0 | 833 | 956 | 1107 | 0 | 7735 | 9298 | 10401 |
| Delhi | 95 | 69 | 86 | 57 | 21751 | 29318 | 19403 | 19183 | 192024 | 164725 | 130663 | 157075 |
| Puducherry | 99 | 106 | 114 | 114 | 270689 | 207665 | 226480 | 234201 | 606063 | 549701 | 557272 | 863531 |
| Telangana | 532 | 585 | 576 | 439 | 178966 | 214042 | 207106 | 227915 | 1016178 | 1009569 | 1100171 | 1388628 |
| **All India** | **12897** | **13453** | **13765** | **13515** | **15990961** | **16588594** | **18574151** | **22254831** | **82103657** | **79309020** | **78134752** | **109766833** |

*Source : Annual Survey of Industries (ASI) Results, Ministry of Statistics & Programme Implementation*

**Table 51: Production, Import, Export, Consumption of Major Chemicals and Petrochemicals and Export as Percentage (%) of Production and Import as Percentage (%) of Consumption**

*(In Thousand Tonnes)*

| Group | Description | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 |
|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| **Major Chemicals** | Production | **9884** | **10234** | **11069** | **11589** | **11943** | **11243** | **12743** | **13039** |
| **Major Petrochemicals** | | | | | | | | | |
| A. Basic major Petrochemicals | | 14905 | 15510 | 15670 | 16269 | 19041 | 17938 | 19371 | 18135 |
| B. Intermediates | | 18690 | 18743 | 19063 | 19057 | 22119 | 21903 | 22686 | 19646 |
| C. Other Petro-based Chemicals | | 2159 | 2174 | 2080 | 2192 | 2364 | 2318 | 2531 | 2511 |
| **Total Major Chemicals and Petrochemicals** | | **45638** | **46661** | **47882** | **49108** | **55467** | **53402** | **57332** | **53331** |
| **Major Chemicals** | Exports | **1138** | **1484** | **1496** | **1579** | **1698** | **1905** | **2339** | **4627** |
| **Major Petrochemicals** | | | | | | | | | |
| A. Basic major Petrochemicals | | 2743 | 2956 | 3293 | 4095 | 3719 | 2681 | 2505 | 3200 |
| B. Intermediates | | 2430 | 2190 | 3915 | 5377 | 4842 | 5421 | 4818 | 5756 |
| C. Other Petro-based Chemicals | | 129 | 144 | 193 | 147 | 238 | 171 | 212 | 378 |
| **Total Major Chemicals and Petrochemicals** | | **6440** | **6773** | **8897** | **11198** | **10497** | **10179** | **9874** | **13961** |
| **Major Chemicals** | Imports | **5360** | **5400** | **5937** | **6379** | **6557** | **5983** | **6385** | **6878** |
| **Major Petrochemicals** | | | | | | | | | |
| A. Basic major Petrochemicals | | 5681 | 5938 | 6408 | 6284 | 5356 | 4356 | 4597 | 6768 |
| B. Intermediates | | 3245 | 3540 | 3180 | 2845 | 3323 | 2786 | 3843 | 4696 |
| C. Other Petro-based Chemicals | | 2740 | 2651 | 3255 | 3227 | 3543 | 3069 | 3291 | 3426 |
| **Total Major Chemicals and Petrochemicals** | | **17025** | **17529** | **18780** | **18735** | **18780** | **16194** | **18117** | **21768** |
| **Major Chemicals** | Consumption$ | **14106** | **14150** | **15510** | **16389** | **16802** | **15321** | **16789** | **15290** |
| **Major Petrochemicals** | | | | | | | | | |
| A. Basic major Petrochemicals | | **17842** | **18492** | **18785** | **18458** | **20678** | **19613** | **21464** | **21703** |
| B. Intermediates | | **19505** | **20094** | **18328** | **16525** | **20600** | **19268** | **21711** | **18586** |
| C. Other Petro-based Chemicals | | **4770** | **4680** | **5142** | **5272** | **5670** | **5216** | **5610** | **5558** |
| **Total Major Chemicals and Petrochemicals** | | **56223** | **57416** | **57765** | **56645** | **63751** | **59418** | **65575** | **61137** |
| **Major Chemicals** | Exports as % of Production | 11.5 | 14.5 | 13.5 | 13.6 | 14.2 | 16.9 | 18.4 | 35.5 |
| **Major Petrochemicals** | | | | | | | | | |
| A. Basic major Petrochemicals | | 18.4 | 19.1 | 21.0 | 25.2 | 19.5 | 14.9 | 12.9 | 17.6 |
| B. Intermediates | | 13.0 | 11.7 | 20.5 | 28.2 | 21.9 | 24.7 | 21.2 | 29.3 |
| C. Other Petro-based Chemicals | | 6.0 | 6.6 | 9.3 | 6.7 | 10.0 | 7.4 | 8.4 | 15.1 |
| **Total Major Chemicals and Petrochemicals** | | 14.1 | 14.5 | 18.6 | 22.8 | 18.9 | 19.1 | 17.2 | 26.2 |
| **Major Chemicals** | Imports as % of Consumption | 38.0 | 38.2 | 38.3 | 38.9 | 39.0 | 39.1 | 38.0 | 45.0 |
| **Major Petrochemicals** | | | | | | | | | |
| A. Basic major Petrochemicals | | 31.8 | 32.1 | 34.1 | 34.0 | 25.9 | 22.2 | 21.4 | 31.2 |
| B. Intermediates | | 16.6 | 17.6 | 17.4 | 17.2 | 16.1 | 14.5 | 17.7 | 25.3 |
| C. Other Petro-based Chemicals | | 57.4 | 56.6 | 63.3 | 61.2 | 62.5 | 58.8 | 58.7 | 61.6 |
| **Total Major Chemicals and Petrochemicals** | | **30.3** | **30.5** | **32.5** | **33.1** | **29.5** | **27.3** | **27.6** | **35.6** |

***$*** *Derived consumption as Production+ Imports-Exports*

**Table 52: Exports of all Chemicals as Percentage (%) of Value of output and Imports of all Chemicals as Percentage (%) of Consumption**

*(Rs. In Crore)*

| Item | Code | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|
| (1) | (2) | (4) | (5) | (6) | (7) | (8) |
| Exports of Pharmaceutical products | HS code 30 | 85447 | 103240 | 115473 | 143738 | 144581 |
| Exports of Fertilizers | HS code 31 | 685 | 1038 | 837 | 779 | 630 |
| Exports of all Chemicals (including Pharmaceutical products and Fertilizers) | HS codes 28,29,30,31,32,38,39,4002,54 and 55 | 305413 | 387853 | 391604 | 423855 | 513807 |
| Imports of Pharmaceutical products | HS code 30 | 12241 | 14581 | 16530 | 18934 | 25603 |
| Imports of Fertilizers | HS code 31 | 30108 | 46457 | 47397 | 51034 | 95329 |
| Imports of all Chemicals (including Pharmaceutical products and Fertilizers) | HS codes 28,29,30,31,32,38,39,4002,54 and 55 | 360205 | 455872 | 423587 | 443683 | 665047 |
| Value of Output of Chemicals and Chemical products (at current prices ) | Industry Division 20 and 21: NIC 2008 | 1065111 | 1364718 | 1417091 | 1468768 | 1908568 |
| Consumption of Chemicals and Chemical products | Value of Output + Imports - Exports | **1119903** | **1432737** | **1449075** | **1488597** | **2059807** |
| Exports of all Chemicals as % of Value of Output | | 28.7 | 28.4 | 27.6 | 28.9 | 26.9 |
| Imports of all Chemicals as % of Derived Consumption | | 32.2 | 31.8 | 29.2 | 29.8 | 32.3 |

***Chapter 28:*** *Inorganic Chemicals; Organic or Inorganic Compounds of Precious Metals, of Rare-Earth Metals, of Radioactive Elements or of Isotopes;* ***Chapter 29:*** *Organic Chemicals; Chapter30: Pharmaceutical products;* ***Chapter 31:*** *Fertilizers ;* ***Chapter 32:*** *Tanning or Dyeing Extracts; Tannins and their Derivatives; Dyes, Pigments and Other Colouring Matter; Paints and Varnishes; Putty and other Mastics; Inks;* ***Chapter 38:*** *Miscellaneous Chemical Products;* ***Chapter 39:*** *Plastics and articles thereof;* ***4002:*** *Synthetic rubber and factice derived from oils, in primary forms or in plates, sheets or strip; mixtures of any pro* ***Chapter 54:*** *Man-made Filaments and* ***Chapter 55:*** *Man-made staple fibres*

***Note: 1.*** *Data source in recspect of Imports, Exports (Chapter-wise) is DGCIS Portal.*

***2*** *: Data Source in respect of value of output is National Account Statistics, Ministry of Statistics & Programme Implementation*

# Team

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