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Leading position globally
- Indian chemical industry stood as 3rd largest producer in Asia in 2011 in terms of volume

High GDP share
- The chemical industry in India is a key constituent of Indian economy, accounting for about five per cent of the GDP

Global dye supplier
- India accounts for approximately 7 per cent of the world production of dyestuff and dye intermediates, particularly for reactive acid and direct dyes

Global player in specialty chemicals
- India is currently the world’s third largest consumer of polymers and fourth largest producer of agrochemicals

Source: TATA Strategic Management Group, Planning Commission, Department of Industrial Policy and Promotion (DIPP), Aranca Research
Notes: PCPIR - Petroleum, Chemicals and Petrochemical Investment Regions; E - Estimated,
The engineering sector is delicensed; 100 per cent FDI is allowed in the sector.

Due to policy support, there was cumulative FDI of USD14.0 billion into the sector over April 2000 – February 2012, making up 8.6 per cent of total FDI into the country in that period.

Growing demand
Source: TATA Strategic Management Group, Planning Commission, Department of Industrial Policy and Promotion (DIPP), Aranca Research
Notes: PCPIR - Petroleum, Chemicals and Petrochemical Investment Regions; E – Estimated.

A large population, dependence on agriculture, and strong export demand are the key growth drivers for the chemicals industry.

Per-capita consumption of chemicals in India is lower relative to Western peers and there exists a large latent demand.

Attractive opportunities
- Polymers and agrochemicals industries in India present immense growth opportunities
- The size of India’s construction chemical market stood at USD591 million in 2011, which accounted for only 2 per cent of global demand, thereby representing ample growth opportunity.

Increasing investments
- Lured by the size and returns of the Indian market, foreign firms have strengthened their presence in India.
- From April 2000 to March 2013, total FDI inflows into the Indian chemicals industry (excluding fertilisers) were USD8.9 billion.

Policy support
- 100 per cent FDI is permissible in the Indian chemicals sector; manufacturing of most chemical products is de-licensed.
- The government has been encouraging R&D in the sector.
- Setting up of PCPIRs.
CHEMICALS

EVOLUTION OF THE INDIAN CHEMICAL INDUSTRY

Basic needs (1950-72)
- Chemical products to protect crops
- Agrochemicals, dyes, pharmaceuticals

Establishment (1972-80)
- Public sector companies were set up to develop the petrochemical industry
- Plastic and fibres, petrochemical products

Consolidation (1980-92)
- Consolidation started from largely fragmented firms with small capacities and high cost structures
- Paints, dyes, pharmaceuticals and detergents

Liberalisation (1992-95)
- Major investment plans by both Indian firms and MNCs
- Lower tariff barriers
- Diminishing role of public sector companies
- Petrochemicals, engineering plastic, specialty fibres

Expansion (1995 onwards)
- Alliances and partnerships to achieve scale
- Branding as a means of differentiation
- Licensing requirements removed except in the case of hazardous chemicals
- Setting up of PCPIR
- Increasing investments by foreign players in India through mergers & acquisition and joint ventures

Source: KPMG, Aranca Research
Notes: MNC – Multinational Corporation

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MAJOR SEGMENTS OF THE INDIAN CHEMICAL INDUSTRY

- **Base chemicals**
  - Petrochemicals, man-made fibres, industrial gases, fertilisers, chlor-alkali, and other organic and inorganic chemicals

- **Specialty chemicals**
  - Dyes and pigments, leather chemicals, construction chemicals, personal care ingredients and other specialty chemicals

- **Pharmaceuticals**
  - Active Pharmaceutical Ingredients (APIs) and formulations

- **Agrochemicals**
  - Insecticides, herbicides, fungicides and other crop protection chemicals

- **Biotechnology**
  - Bio-pharma, bio-agri, and bio-industrial products

*Source: TATA Strategic Management Group, Aranca Research*
# CHEMICALS

## PRODUCT-WISE CLASSIFICATION OF THE INDIAN CHEMICAL INDUSTRY

<table>
<thead>
<tr>
<th>Alkali chemicals</th>
<th>Inorganic chemicals</th>
<th>Organic chemicals</th>
<th>Pesticides &amp; Insecticides</th>
<th>Dyes &amp; Dyestuffs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soda ash</td>
<td>Aluminum fluoride</td>
<td>Acetic acid</td>
<td>Dichlorodiphenyltrichloroethane (DDT)</td>
<td>Azo dyes</td>
</tr>
<tr>
<td>Caustic soda</td>
<td>Calcium carbide</td>
<td>Acetone</td>
<td>Malathion</td>
<td>Disperse dyes</td>
</tr>
<tr>
<td>Liquid</td>
<td>Carbon black</td>
<td>Phenol</td>
<td>Parathion</td>
<td>Fast colour bases</td>
</tr>
<tr>
<td>Chlorine</td>
<td>Potassium chloride</td>
<td>Methanol</td>
<td>Ethicon</td>
<td>Ingrain dyes</td>
</tr>
<tr>
<td></td>
<td>Titanium dioxide</td>
<td>Ortho Nitro Chlorobenzene (ONCB)</td>
<td>Endosulphan</td>
<td>Napthols</td>
</tr>
<tr>
<td></td>
<td>Red phosphorus</td>
<td>Chlorobenzene</td>
<td>Phosalone</td>
<td>Vat dyes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(PNCB)</td>
<td>Phorate</td>
<td>Reactive dyes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ethyl</td>
<td>Acephate</td>
<td>Pigment Emulsion</td>
</tr>
</tbody>
</table>

*Source: Aranca Research*
The industry has changed over time to meet the dynamic needs of an emerging economy:

- Strong economic growth and rise in per-capita income has meant a steady increase in demand for chemicals
- The industry has left behind a low-growth and regulated environment to emerge more mature
- There is strong government support towards R&D; this would benefit the sector

Source: KPMG International 2011, Aranca Research
Notes: R&D – Research and Development
Total production in the Indian chemical industry was 8,374 MT in FY12, a 2.5 per cent rise over FY11.

During H1FY13, total chemical production stood at 4,041 MT.

Favourable demographics and strong economic growth are driving demand for chemicals.

External demand and specialty chemicals have also contributed strongly to the growth of the industry.

India’s growing per capita consumption and demand for agriculture-related chemicals offers huge scope of growth for the sector in the future.

**Total production of major chemicals (000’ MT)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Production (MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 07</td>
<td>7,605</td>
</tr>
<tr>
<td>FY 08</td>
<td>7,823</td>
</tr>
<tr>
<td>FY 09</td>
<td>7,423</td>
</tr>
<tr>
<td>FY 10</td>
<td>7,651</td>
</tr>
<tr>
<td>FY 11</td>
<td>8,170</td>
</tr>
<tr>
<td>FY 12</td>
<td>8,374</td>
</tr>
<tr>
<td>H1FY13</td>
<td>4,041</td>
</tr>
</tbody>
</table>

*Source: Department of Chemicals and Petrochemicals, Aranca Research*

*Note: MT - Metric Tonne, 1HFY13 - Data up to September 2012*
∗ With 74 per cent of the total production share, alkali chemicals form the largest segment in the Indian chemical industry

∗ During H1FY13, alkali chemicals’ production stood at 2,973MT, nearly half of FY12 levels

**Production of major chemicals (000’ MT)**

- **Alkali chemicals**: 1,973 MT
- **Inorganic chemicals**: 1,000 MT
- **Organic chemicals**: 800 MT
- **Pesticides**: 600 MT
- **Dyes & dyestuffs**: 400 MT

**Production share of major chemicals during H1FY13**

- Alkali chemicals: 74%
- Inorganic chemicals: 7%
- Organic chemicals: 16%
- Pesticides: 1%
- Dyes & dyestuffs: 2%

**Source**: Department of Chemicals and Petrochemicals, Aranca Research

Note: MT - Metric Tonne, 1HFY13 - Data up to September 2012, Kg - Kilo gram, CAGR - Compound Annual Growth Rate
Base chemicals account for three fourth (74 per cent) of the Indian chemical industry, followed by pharmaceuticals (16.8 per cent) and biotechnology (7.7 per cent)

Agrochemicals and specialty chemicals are the minor components of the sector, accounting for 0.5 per cent and 0.9 per cent, respectively, of the total production in 1HFY12

Specialty chemicals are relatively high valued; their demand is rapidly growing, catering to a diverse end-product market

**Shares in production in H1FY12**

- Base chemicals: 74.0%
- Biotechnology: 7.7%
- Pharmaceuticals: 16.8%
- Specialty chemicals: 0.9%
- Agrochemicals: 0.5%

**Production of chemicals in FY10 (USD billion)**

- Base: 43.3
- Pharma: 20.0
- Specialty: 15.0
- Biotechnology: 2.5
- Agrochemicals: 2.0

*Source: Department of Chemicals and Petrochemicals, Aranca Research
Note: 1HFY12 – First six months of FY12 (Apr – Sep)*

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Chemicals constituted 5.3 per cent of India’s total exports in FY12.

Total exports of chemicals grew from USD3.5 billion in FY03 to USD16.1 billion in FY12, a CAGR of 18.7 per cent.

Exports of the Indian chemical industry stood at USD12.3 billion for the first nine months of FY13 (Apr–Dec 2012).

Source: Ministry of Commerce, Aranca Research
Note: FY13* - Data for FY13 is up to December 2012.
CAGR - Compound Annual Growth Rate
India has been a major importer of chemicals; the sector made up 5 per cent of India’s total imports in FY12.

Total imports of chemicals grew from USD3.7 billion in FY03 to USD24.0 billion in FY12, a CAGR of 23 per cent.

Total imports of chemicals reached USD18.4 billion in the first three quarters of FY13.

Source: Ministry of Commerce, Aranca Research
Note: FY13* - Data for FY13 is up to December 2012,
CAGR - Compound Annual Growth Rate
During FY13, organic chemicals constituted 70 per cent of India’s total chemical exports, followed by dyes & dyestuff at 11 per cent.

Over FY03–13, organic chemicals exports rose at a CAGR of 19.6 per cent, followed by pesticides at a rate of 18.9 per cent during same period.

Exports of inorganic chemicals and dyes & dyestuff grew at a CAGR of 14.6 and 13.1 per cent, respectively, during FY03–13.

**Shares in exports of chemicals in FY13**

- **70%** Organic chemicals
- **10%** Inorganic chemicals
- **11%** Dyes & dyestuffs
- **9%** Pesticides

*Source: Department of Chemicals and Petrochemicals, Aranca Research*

*Note: CAGR - Compound Annual Growth Rate*
Organic chemicals also dominate imports, with a share of 68 per cent, followed by inorganic chemicals at 23 per cent in FY13.

Over FY03–13, pesticides imports rose at a CAGR of 28.8 per cent, followed by organic chemicals at a rate of 21.7 per cent.

Imports of dyes & dyestuff and inorganic chemicals grew at a CAGR of 18.1 and 16.4 per cent, respectively, during FY03–13.

Shares in imports of chemicals in FY13

- Organic chemicals: 68%
- Inorganic chemicals: 23%
- Dyes & dyestuffs: 6%
- Pesticides: 3%

Source: Department of Chemicals and Petrochemicals, Aranca Research
Note: CAGR - Compound Annual Growth Rate
CHEMICAL INDUSTRY HOLDS A SIGNIFICANT POSITION IN THE ECONOMY

- 5 per cent of national GDP
- 20 per cent contribution to national tax Revenue*
- 3rd largest chemical industry in Asia
- India’s chemicals industry (2013)
- 5.3 per cent of total exports and 5 per cent of total imports
- One of the most diversified sectors, covering more than 70,000 commercial Products*
- 10 per cent of overall industrial index Production (IIP)

Source: Ministry of Environment and Forests, Central Pollution Control Board, Aranca Research
Note: Figures mentioned above is taken from Dept. of Chemicals and Petrochemicals; * Data for 2011
Contribution to global chemical industry would increase

**2011**
- Global chemical industry: USD3.4 trillion
- India chemical industry: USD108 billion

**2017E**
- Global chemical industry: USD5 trillion
- India chemical industry: USD290 billion

Source: TATA Strategic Management Group, Planning Commission, Aranca Research, CAGR - Compound Annual Growth Rate
Though the sector is spread across the country, there is relatively high concentration along the West coast due to proximity to raw materials and ports.

Gujarat alone is estimated to contribute about 53 per cent of the total production in the country.

Gujarat and Maharashtra emerged as the most favoured zones for the industry, mainly because of government policies, strategic location, and availability of raw material.

Regional concentration of basic chemical industry (FY11)

- Gujarat: 53%
- Maharashtra: 21%
- Tamil Nadu: 6%
- Madhya Pradesh: 6%
- UP: 5%
- Others: 9%

Source: India-Chem, TATA Strategic Management Group, Planning Commission, Aranca Research
Note: MoU - Memorandum of Understanding
WIDESPREAD CHEMICAL INDUSTRY INFRASTRUCTURE ACROSS INDIA … (2/2)

Source: D&B, Aranca Research

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With the presence of world class manufacturing facilities of Indian and multinational chemical manufacturers, Gujarat houses 53 per cent of India’s manufacturing capacity of chemicals.

Reliance Industries, ONGC, Dow Chemicals, Cheminova, Lanxess, Gujarat State Fertilisers & Chemicals Ltd (GSFC), Gujarat Alkalis & Chemicals Ltd (GACL) and many other companies have their production facilities in Gujarat.

Government support, world class infrastructure, strategic location, availability of skilled workforce and raw material makes Gujarat a preferred location for chemical plants.

The Dahej PCPIR has been the most successful one; it is spread over an area of around 453 sq km and has attracted investments of around USD25 billion.

Badische Anilin- und Soda-Fabrik (BASF), a German chemical major aims to invest USD183.7 million for setting up a new manufacturing facility at Dahej in Gujarat by March 2014.
## Key Domestic and International Players in Indian Chemical Industry … (1/2)

<table>
<thead>
<tr>
<th>Domestic company</th>
<th>Sales in FY13 (USD billion)</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tata Chemicals Limited (TCL)</td>
<td>2.8</td>
<td>Soda ash, salt, marine chemicals, caustic soda, cement, etc.</td>
</tr>
<tr>
<td>United Phosphorus Limited (UPL)</td>
<td>1.7</td>
<td>Agrochemicals</td>
</tr>
<tr>
<td>Nirma Ltd</td>
<td>1.2*</td>
<td>Alkyl benzene, alfa olefin sulphonate, sulfuric acid, soda ash</td>
</tr>
<tr>
<td>Gujarat Heavy Chemicals Ltd (GHCL)</td>
<td>0.45</td>
<td>Soda ash</td>
</tr>
<tr>
<td>Gujarat Alkalies and Chemicals Ltd (GACL)</td>
<td>0.35*</td>
<td>Caustic soda</td>
</tr>
</tbody>
</table>

Source: Company Annual Reports, Aranca Research
Note: * - FY12,
<table>
<thead>
<tr>
<th>International Company</th>
<th>Sales in 2012 (USD billion)</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASF</td>
<td>92.8</td>
<td>Chemicals, plastics, performance and nutrition products</td>
</tr>
<tr>
<td>The Dow Chemicals</td>
<td>56.8</td>
<td>Specialty chemicals, agrochemicals and plastics</td>
</tr>
<tr>
<td>Bayer</td>
<td>19.3*</td>
<td>Agrochemicals, pharmaceuticals, polymers, technology services</td>
</tr>
<tr>
<td>E. I. du Pont de Nemours and Company</td>
<td>34.8</td>
<td>Specialty and fine chemicals</td>
</tr>
<tr>
<td>INEOS ABS India</td>
<td>16*</td>
<td>PVC films and specialty resins</td>
</tr>
<tr>
<td>AkzoNobel</td>
<td>21*</td>
<td>Coatings, decorative paints and specialty chemicals</td>
</tr>
<tr>
<td>Evonik Industries</td>
<td>17.3</td>
<td>Specialty chemicals</td>
</tr>
<tr>
<td>Lanxess</td>
<td>9.1</td>
<td>Plastics, rubber, specialty chemicals and intermediates</td>
</tr>
<tr>
<td>Wacker Chemie</td>
<td>6.0</td>
<td>Silicone, polymer, specialty and fine chemicals</td>
</tr>
</tbody>
</table>

Source: Company ANR, Aranca Research
Note: * Sales data for 2011
GROWTH DRIVERS OF THE INDIAN CHEMICAL INDUSTRY

- Huge growth potential for the domestic market
- Rise in GDP and purchasing power
- Skilled science professionals and English speaking workforce
- World class engineering and strong R&D capabilities
- Low-cost manufacturing

Source: Aranca Research
ECONOMIC EXPANSION WOULD CONTINUE TO DRIVE GROWTH IN THE CHEMICAL INDUSTRY

* Being largely an intermediate product, strong economic growth is an important factor in sustaining demand for chemical products

* Per capita consumption of most of the finished products under chemicals sector is far below the world average; this points to the vast potential for growth in the industry

* As in a number of other industries in India, strong growth in discretionary income and changing lifestyles are counted as a few of the other major growth drivers of the chemicals sector

Real GDP growth

Per capita GDP growth

Source: IMF, Aranca Research
FDI in chemicals (other than fertilisers) stood at USD292 million in FY13; cumulative FDI for the period April 2000–March 2013 stood at USD8.9 billion.

Procedures relating to FDI have been simplified; most of the items in the chemicals sector fall under the automatic approval route for FDI/NRI/OCB investment up to 100 per cent.

The USD7.2 billion deal between Reliance Industries Limited and British Petroleum is the most significant deal in Indian chemical sector.

Annual FDI inflow to the chemical industry (excluding fertiliser)

<table>
<thead>
<tr>
<th>Year</th>
<th>FDI Inflow (USD million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY05</td>
<td>198</td>
</tr>
<tr>
<td>FY06</td>
<td>447</td>
</tr>
<tr>
<td>FY07</td>
<td>205</td>
</tr>
<tr>
<td>FY08</td>
<td>229</td>
</tr>
<tr>
<td>FY09</td>
<td>749</td>
</tr>
<tr>
<td>FY10</td>
<td>362</td>
</tr>
<tr>
<td>FY11</td>
<td>2,354</td>
</tr>
<tr>
<td>FY12</td>
<td>4,041</td>
</tr>
<tr>
<td>FY13</td>
<td>292</td>
</tr>
</tbody>
</table>

Share of chemical industry in total FDI inflow (excluding fertiliser)

<table>
<thead>
<tr>
<th>Year</th>
<th>Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY06</td>
<td>6.2%</td>
</tr>
<tr>
<td>FY07</td>
<td>4.8%</td>
</tr>
<tr>
<td>FY08</td>
<td>2.5%</td>
</tr>
<tr>
<td>FY09</td>
<td>2.5%</td>
</tr>
<tr>
<td>FY10</td>
<td>2.3%</td>
</tr>
<tr>
<td>FY11</td>
<td>10.6%</td>
</tr>
<tr>
<td>FY12</td>
<td>11.3%</td>
</tr>
<tr>
<td>FY13</td>
<td>1.3%</td>
</tr>
</tbody>
</table>

Source: Department of Industrial Policy & Promotion, Ministry of Commerce and Industry, Aranca Research.
GOVERNMENT SUPPORT TO THE SECTOR IS INCREASING … (1/2)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Project based support to PSUs</td>
<td>29.1</td>
<td>4.3</td>
<td>0.0</td>
<td>5.4</td>
<td>1.9</td>
</tr>
<tr>
<td>Support to autonomous bodies</td>
<td>19.2</td>
<td>0.1</td>
<td>0.2</td>
<td>8.3</td>
<td>27.2</td>
</tr>
<tr>
<td>Other ongoing schemes</td>
<td>44.2</td>
<td>165.8</td>
<td>183.4</td>
<td>292.8</td>
<td>195.6</td>
</tr>
<tr>
<td>New schemes initiated in XI plan</td>
<td>25.0</td>
<td>17.9</td>
<td>10.1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>117.5</strong></td>
<td><strong>188.1</strong></td>
<td><strong>193.7</strong></td>
<td><strong>306.5</strong></td>
<td><strong>224.7</strong></td>
</tr>
</tbody>
</table>

All figures are in USD million

Source: Department of Chemicals and Petrochemicals, Aranca Research
Note: * - Revised estimate, FY14* - Budget estimate
### All figures are in USD million

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Secretariat</td>
<td>2.21</td>
<td>2.52</td>
<td>2.79</td>
<td>2.3</td>
<td>2.4</td>
</tr>
<tr>
<td>Central Institute of Plastics Engg. &amp; Technology (CIPET)</td>
<td>0.63</td>
<td>0.10</td>
<td>0.10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bhopal Gas Leak Disaster</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>17.5</td>
<td>23.3</td>
</tr>
<tr>
<td>Institute of Pesticide Formulation Technology (IPFT)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Others</td>
<td>0.50</td>
<td>0.54</td>
<td>0.63</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3.34</strong></td>
<td><strong>3.16</strong></td>
<td><strong>3.52</strong></td>
<td><strong>20.4</strong></td>
<td><strong>26.3</strong></td>
</tr>
</tbody>
</table>

Source: Department of Chemicals and Petrochemicals, Aranca Research
CHEMICALS

GROWTH, COMPETITIVENESS AND PROCESS INITIATIVES

- The government has announced a number of measures to improve competitiveness in the sector
- Industrial licensing has been abolished for most sub-sectors (except a small list of hazardous chemicals)
- Approval is granted for FDI up to 100 per cent in the chemicals sector
- The government is continuously reducing the list of reserved chemical items for production in the small-scale sector, thereby facilitating greater investment in technology up-gradation and modernisation
- Policies have been initiated to set up integrated Petroleum, Chemicals and Petrochemicals Investment Regions (PCPIR). PCPIR will be an investment region spread across 250 square kilometres for manufacturing of domestic and export-related products of petroleum, chemicals and petrochemicals
- New initiatives are likely to attract large investments, both domestic and foreign, with requisite improvements in infrastructure and competition

Industry-level initiatives

- The Indian Chemical Council (ICC) is the nodal agency/signatory representing India under the ‘Responsible Care Initiative’
- ICC has prepared codes and guidance for implementation of process safety, employee health and safety, pollution prevention, emergency response, and product safety
- Member companies of ICC are encouraged to interact with local communities and groups such as students, teachers, fire/polic personnel

Firm-level initiatives

- Indian chemical firms have strived to increase their market share through global presence
- They have in place technical agreements with multinational firms to keep abreast of technological progress in the global chemical industry

Source: EXIM Bank of India, Aranca Research, PCPIR - Petroleum, Chemicals and Petrochemicals Investment Regions

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## MILESTONES PROPOSED FOR 12th FIVE-YEAR PLAN

<table>
<thead>
<tr>
<th>Infrastructure</th>
<th>Feedstock</th>
<th>R&amp;D and Technology</th>
<th>Sustainability</th>
<th>Regulations</th>
</tr>
</thead>
</table>
| • Make PCPIRs a reality  
• Provide infrastructure support to the industry by constructing roads, ports and other similar facilities | • Implementation of strategy for sourcing and allocation of feedstock | • Setting up of technology upgradation fund of USD100 million  
• Allocation of 10 per cent share of the USD1 billion National Innovation Fund to chemicals | • Development of the first set of chemical usage standards for the industry addressing key issues related to water supply, environmental impact, raw materials supply, safety over lifecycle, and energy use | • Committee to frame regulatory structure and eliminate redundancies  
• Rationalisation of taxes and duties for the sector (to be implemented by 2014)  
• Setting up of a national chemical inventory |

**Source:** Aranca Research  
**Note:** PCPIR - Petroleum, Chemicals and Petrochemicals Investment Regions
## RECENT MAJOR M&A DEALS IN THE INDIAN CHEMICAL INDUSTRY … (1/2)

<table>
<thead>
<tr>
<th>Date</th>
<th>Acquirer</th>
<th>Target/ JV partner</th>
<th>Valuation</th>
<th>Synergies/ drivers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inbound</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>September-12</td>
<td>Chemtura Corporation</td>
<td>Solaris Chemtech Industries</td>
<td>USD142 million</td>
<td>Increase in bromine production capacity</td>
</tr>
<tr>
<td>March-11</td>
<td>Bain Capital</td>
<td>Himadri Chemicals</td>
<td>USD89 million</td>
<td>Investments</td>
</tr>
<tr>
<td>April-11</td>
<td>Huntsman Corp</td>
<td>Laffans Petrochemicals</td>
<td>NA</td>
<td>To acquire ethylene oxide facility</td>
</tr>
<tr>
<td>July-10</td>
<td>Abott laboratories</td>
<td>Piramal’s domestic formulations business</td>
<td>USD3.7 billion</td>
<td>Abott: Increased market share; Piramal: Focus on core business</td>
</tr>
<tr>
<td><strong>Outbound</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>November-12</td>
<td>Gulf Oil Corp Ltd</td>
<td>Houghton International Inc</td>
<td>USD1.1 billion</td>
<td>Specialty chemicals</td>
</tr>
<tr>
<td>April-12</td>
<td>Kanoria Industries Ltd</td>
<td>APAG Holding</td>
<td>USD1.6 million</td>
<td>Diversification into designing and engineering</td>
</tr>
<tr>
<td>July-11</td>
<td>United Phosphorus</td>
<td>DVA Agro- Brazil</td>
<td>USD150 million</td>
<td>Producing and marketing crop protection products</td>
</tr>
<tr>
<td>June-11</td>
<td>BASF India</td>
<td>Cognis chemicals</td>
<td>USD2.9 million</td>
<td>Specialty chemicals</td>
</tr>
<tr>
<td>April-11</td>
<td>Tata Chemicals</td>
<td>Gabon (Government project)</td>
<td>USD290 million</td>
<td>Access to huge potash reserves</td>
</tr>
<tr>
<td>Jun-10</td>
<td>United phosphorus</td>
<td>DuPont’s fungicide Business</td>
<td>NA</td>
<td>UPL: Access to South and Central America</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DuPont: Focus on core business</td>
</tr>
<tr>
<td>May-10</td>
<td>Piramal</td>
<td>BioSyntech, Canada</td>
<td>USD3.7 million</td>
<td>Piramal: Access to technology</td>
</tr>
</tbody>
</table>

*Source: Department of Chemicals and Petro Chemicals, Aranca Research*

For updated information, please visit [www.ibef.org](http://www.ibef.org)
### RECENT MAJOR M&A DEALS IN THE INDIAN CHEMICAL INDUSTRY … (2/2)

<table>
<thead>
<tr>
<th>Acquirer</th>
<th>Target/ JV partner</th>
<th>Valuation</th>
<th>Synergies/ drivers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Domestic</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>April 11</td>
<td>Aditya Birla Group</td>
<td>USD172 million</td>
<td>Increase in caustic soda capacity</td>
</tr>
<tr>
<td>May-10</td>
<td>Piramal</td>
<td>USD21 million</td>
<td>Piramal: Brand extension</td>
</tr>
</tbody>
</table>

Source: Department of Chemicals and Petro Chemicals, Aranca Research
Tata Chemicals Limited (TCL) is one of the leading chemical companies in India, with significant operations in India and Africa.

Second-largest soda ash producer in the world and the largest in India.

A market leader in edible salt; largest STPP player in the country.

Most energy-efficient urea fertiliser manufacturer in India; amongst the most efficient globally.

1/3rd stake holder in IMACID, Morocco, assured supply of key inputs.
TATA CHEMICALS: DIVERSIFYING THEIR WAY TO SUCCESS … (2/3)

- **2009**
  - Acquires controlling stake in Rallis India Limited

- **2010**
  - Acquires South Africa’s Grown Energy

- **2011**
  - Tata Chemicals Europe Ltd acquires British Salt, producing approximately half of the UK’s pure salt

- **2012**
  - India’s first iodine plus iron fortified salt launched by Tata Chemicals

- **2013**
  - Tata Chemicals wins two awards at the Brand Leadership Award 2013 for ‘Emerging Brand’ and ‘50 Most Talented Brand Leaders of India’

Source: Company Website, Aranca Research
### Geographical Diversification (FY12)

<table>
<thead>
<tr>
<th>Region</th>
<th>FY12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>16%</td>
</tr>
<tr>
<td>Europe</td>
<td>11%</td>
</tr>
<tr>
<td>Africa</td>
<td>1%</td>
</tr>
<tr>
<td>America</td>
<td>1%</td>
</tr>
<tr>
<td>Others</td>
<td>71%</td>
</tr>
</tbody>
</table>

### Turnover over the years (USD billion)

<table>
<thead>
<tr>
<th>Year</th>
<th>Turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY07</td>
<td>0.5</td>
</tr>
<tr>
<td>FY08</td>
<td>0.9</td>
</tr>
<tr>
<td>FY09</td>
<td>1.0</td>
</tr>
<tr>
<td>FY10</td>
<td>1.1</td>
</tr>
<tr>
<td>FY11</td>
<td>1.2</td>
</tr>
<tr>
<td>FY12</td>
<td>1.6</td>
</tr>
<tr>
<td>FY13</td>
<td>1.7</td>
</tr>
</tbody>
</table>

**CAGR: 22.6%**

**Source:** Company Website, Aranca Research

CAGR - Compounded Annual Growth Rate

CAGR is calculated in Indian Rupee term
**CHEMICALS**

**UNITED PHOSPHORUS LIMITED (UPL): AN AGROCHEMICAL SUCCESS … (1/2)**

- UPL is mainly engaged in the business of agrochemicals, other industrial chemicals, and chemical intermediates.

- Agrochemicals account for 80 per cent of the total sales of the company, while the industrial chemicals and intermediates segments together account for 19 per cent.

- UPL has 23 manufacturing sites – nine in India, four in France, two in Spain, three in Argentina, and one each in UK, Vietnam, Netherlands, Italy and China.

- The company has also strengthened its distribution reach and access to new markets through strategic alliances with agrochemical manufacturers in other countries.

- The company is planning to launch innovative technology, farming solutions, and new products through its other arms such as Advanta and Golden Seeds.

**Total sales (USD billion)**

<table>
<thead>
<tr>
<th>FY07</th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>0.9</td>
<td>1.0</td>
<td>1.1</td>
<td>1.2</td>
<td>1.6</td>
<td>1.7</td>
</tr>
</tbody>
</table>

Source: United Phosphorus Limited (UPL) Annual Reports, Aranca Research

Note: CAGR - Compound Annual Growth Rate
With over 1000 registrations for its products worldwide, exports accounted for 52 per cent of UPL’s total sales in FY12.

In June 2012, UPL has acquired 100 per cent stake in Dutch company Agrichem, a subsidiary of Punjab Chemicals.

UPL acquired DVA-Agro of Brazil in July 2011 for USD150 million; along with this and various other successful acquisitions, the company has gained access to global markets and is in a position to offer an extensive and balanced product portfolio to its customers worldwide.

**Income by region - FY12**

- North America: 32%
- India: 22%
- Europe: 25%
- Rest of world: 21%

**EBIDTA (USD billion)**

- FY07: 0.12
- FY08: 0.18
- FY09: 0.21
- FY10: 0.22
- FY11: 0.26
- FY12: 0.23
- FY13: 0.24

CAGR: 12.3%

Notes: EBIDTA - Earnings Before Interest, Taxes, Depreciation and Amortisation
In 1942, Asian Paints started manufacturing in a Mumbai garage; now, with total installed capacity of nearly 1 million kilo-litre, Asian Paints is amongst the largest paint manufacturing companies in the world.

Asian Paints has grown at an excellent pace over the years; a CAGR of 20.7 per cent from FY08–13.

The company’s seventh and largest decorative paint manufacturing plant with an installed capacity was commissioned in February 2013.

The company has a wide presence across all home decorative products across geographies; the company featured in Forbes Asia’s Fab 50 List (2012).
Established in 1983, India Glycols is the only company that manufactures green technology-based bulk, specialty and performance chemicals and natural gums, spirits, industrial gases, sugar and nutraceuticals in India.

The company operates in five segments, including Chemicals which form the largest segment.

The company exports to more than 40 countries including the US, Japan, and countries in Europe and Latin America.

During FY08–13, the company’s sales have grown at a CAGR of 13.4 per cent to USD625.3 million.

**India Glycols Limited sales (USD million)**

- FY08: 334.2
- FY09: 224.5
- FY10: 252.9
- FY11: 386.9
- FY12: 566.9
- FY13: 625.3

CAGR: 13.4%

*Source: Company Annual report, Aranca Research; Note: CAGR - Compound Annual Growth Rate*
Critical size of the domestic market

Established process know-how and strong R&D capability

Availability of reliable and competitive feedstock supply

Customised application development

Sources: KPMG International 2011, Aranca Research
SPECIALTY CHEMICALS: LUCRATIVE OPPORTUNITIES IN THIS SEGMENT

- Specialty chemicals market has expanded at a CAGR of about 13 per cent over FY07–11; the figure is expected to rise to 20 per cent over the next five years to reach USD38 billion by FY17.
- The Indian middle-class household is expected to grow from 31 million in 2008 to 148 million by 2030, leading to a huge demand for specialty chemicals in automotives, water treatment and construction.
- Compared to developed markets, current usage of specialty chemicals in India is very low, with an increased focus on improving products and usage intensity of specialty chemicals, the industry is poised for strong growth in future.
- During the 12th Five-Year Plan, an investment of USD7–10 billion is estimated in this segment.

Specialty chemical growth outlook (USD billion)

- CAGR: 20%

Major sub-segments and their growth outlook by FY17 (USD billion)

- Paints and coatings: FY11 - 3.6, FY17* - 8.2
- Speciality polymers: FY11 - 2.3, FY17* - 5.3
- Construction chemicals: FY11 - 0.6, FY17* - 1.4
- Textile chemicals: FY11 - 0.8, FY17* - 1.5
- Water chemicals: FY11 - 0.6, FY17* - 1.1

Source: Dept. of Chemicals and Petrochemicals, Planning Commission, Aranca Research, Note: * - Estimates
The size of India’s construction chemical market stood at USD591 million in 2011, which accounted for only 2 per cent of the global demand, thereby representing ample growth opportunity.

With the construction sector expected to pace ahead due to strong economic growth, the fundamentals for construction chemicals are sound.

By 2015, the construction chemicals sector is set to touch USD800 million, up from USD400 million in 2010.

India’s construction chemical sector consists of a variety of products ranging from admixtures to sealants. Admixtures form the largest segment with a 45 per cent share, followed by water proofing chemicals (14 per cent).

Source: TATA Strategic Analysis, Aranca Research
Consortium industry in India has been registering a CAGR of about 16 per cent over the last few years and is likely to gather momentum in the near future. Adoption of advanced coating, ceiling and polymer-based reinforcing material in construction will drive the demand for related chemicals.

Automotive sector in India has been expanding at a CAGR of 10 per cent over the last five years. Automotive sector growth will drive demand for automotive components and consequently for plastics, paints and coatings used in their production.

Water treatment chemicals are widely used in purification of water and also in large power plants, refineries and fertiliser factories.

Source: Aranca Research
Colourant chemicals

* Indian colourants industry is valued at USD3.4 billion, with exports accounting for nearly 68 per cent

* India accounts for 12.5 per cent of the global share and is expected to increase further as production in the traditional markets has been declining in recent years

* The Indian pigment market size stands at USD20.5 million, with a production capacity of 0.7 million tonnes per annum in FY10

* Carbon black and TiO2 account for the 90 per cent of the total pigment demand

Source: India Chem., Aranca Research
Polymer chemicals

- India is currently the world’s third largest consumer of polymers, behind China and the US, with a global share of 5.7 per cent in the 2011; an increase from 3.5 per cent share during 2000

- The Indian polymer chemical market has expanded at a CAGR of 10.5 per cent in the last five years

- Polymer market is expected to expand at a CAGR of 11.7 per cent over 2005-15 to USD 500 million

- The sector is expected to grow at a higher rate due to growth in plastic demand resulting from increased usage in packaging, construction and automotive sectors

- Due to increasing environmental concerns and cost, replacement of wood, metal and glass by plastic will also augment demand

Polymer chemical growth outlook (USD million)

Source: TATA Strategic Analysis, Aranca Research
Note: E - Estimates, CAGR - Compound Annual Growth Rate
India is the fourth largest producer of agrochemicals globally.

Agrochemical industry in India is set to grow at a significant pace; increasing population, decreasing per capita availability of arable land and focus on increasing agricultural yield will fuel the demand for agrochemicals.

India’s per hectare agrochemical consumption is set to rise in the coming years, given the above-mentioned factors.

India exports about 50 per cent of its current production; exports are likely to remain a key component of the industry.

Insecticides India Ltd, a leading agrochemical company plans to invest USD22.9 million in the next two years to expand its production capacity.

Agrochemical industry growth outlook (USD billion)

Average crop protection consumption (kg/ha)

Source: India Chem, Aranca Research

Note: E - Estimates, CAGR - Compound Annual Growth Rate
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Sir Vithaldas Chambers, 16-Mumbai Samachar Marg,
Mumbai – 400023
Phone: 91 22 22047649/ 22846852
Fax: 91 22 22048057
Website: www.icmaindia.com

Alkali Manufacturers Association of India
3rd Floor, Pankaj Chambers, Preet Vihar Commercial Complex,
Vikas Marg, New Delhi – 110092
Phone: 91 11 22432003, 22410150, 55253401
Fax: 91 11 22468249
Website: www.ama-india.org

Indian Specialty Chemical Manufacturers' Association
1156, Bole Smruti, Suryavanshi Kshatriya Sabhagriha Marg,
Off. Veer Savarkar Marg, Dadar (West)
Mumbai – 400 028
Tel: 91 22 2446 5003
Website: www.iscma.in
* **OCB**: Overseas Corporate Bodies
* **NRI**: Non-resident Indian
* **FY**: Indian financial year (April to March)
  * So FY10 implies April 2009 to March 2010
* **NA**: Not Available
* **STPP**: Sodium tripolyphosphate
* **MT**: Metric tonnes
* **USD**: US Dollar
* Wherever applicable, numbers have been rounded off to the nearest whole number
## Exchange Rates

### Exchange Rates (Fiscal Year)

<table>
<thead>
<tr>
<th>Year</th>
<th>INR equivalent of one USD</th>
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<td>2004-05</td>
<td>44.95</td>
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<tr>
<td>2005-06</td>
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<td>2006-07</td>
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<td>2009-10</td>
<td>47.41</td>
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<tr>
<td>2010-11</td>
<td>45.57</td>
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<tr>
<td>2011-12</td>
<td>47.94</td>
</tr>
<tr>
<td>2012-13</td>
<td>54.31</td>
</tr>
</tbody>
</table>

### Exchange Rates (Calendar Year)

<table>
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<tr>
<th>Year</th>
<th>INR equivalent of one USD</th>
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<tbody>
<tr>
<td>2005</td>
<td>45.55</td>
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<tr>
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<td>2011</td>
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<tr>
<td>2012</td>
<td>54.69</td>
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<tr>
<td>2013</td>
<td>54.45</td>
</tr>
</tbody>
</table>

Average for the year
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