



**Indian Petrochemical Industry**

**Review of 2012 & Outlook for 2013**

**APIC 2013**

**Country Paper from India**

Prepared by  
**Chemicals & Petrochemicals Manufacturers' Association**  
Flat No 708, 7<sup>th</sup> Floor, Kailash Building,  
26, Kasturba Gandhi Marg,  
New Delhi – 110001, INDIA  
Phone: 91-11-43612198, Fax: 91-11-43598338,  
Website: [cpmai@airtelmail.in](mailto:cpmai@airtelmail.in)



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## Section 1

### **The Indian Economy**



## The Indian Economy: Review of 2012 & Outlook for 2013

### The Indian Economy Snapshot

The economy of India is the tenth-largest in the world by nominal GDP and the third largest by purchasing power parity (PPP). The country is one of the G-20 major economies and a member of BRICS. On a per capita income basis, India ranked 140th by nominal GDP and 129th by GDP (PPP) in 2011, according to the IMF. India is the nineteenth largest exporter and tenth largest importer in the world.

India currently accounts for 1.5% of world trade as of 2007 according to the World Trade Statistics of the WTO in 2006, which valued India's total merchandise trade (counting exports and imports) at \$294 billion and India's services trade at \$143 billion. Thus, India's global economic engagement in 2006 covering both merchandise and services trade was of the order of \$437 billion, up by a record 72% from a level of \$253 billion in 2004. India's total trade in goods and services has reached a share of 43% of GDP in 2005–06, up from 16% in 1990–91.[22] In the year 2010–11 India's total merchandise trade (counting exports and imports) stands at \$ 606.7 billion and is currently the 9th largest in the world. During 2011–12, India's foreign trade grew by an impressive 30.6% to reach \$ 792.3 billion (Exports-38.33% & Imports-61.67%).

### Review of 2012

Following the slowdown induced by the global financial crisis in 2008-09, the Indian economy responded strongly to fiscal and monetary stimulus and achieved a growth rate of 8.6 per cent and 9.3 per cent respectively in 2009-10 and 2010-11, but due to a combination of both external and domestic factors, the economy decelerated growing at 6.2 percent and an estimated 5 percent in 2011-12 and 2012-13 respectively.

Question arises that why has the economy slowed down so rapidly despite recovering strongly from the global financial crisis? There are number of reasons responsible for slowdown. First, the boost to demand given by monetary and fiscal stimulus following the crisis was large. Final consumption grew at an average of over 8 per cent annually between 2009-10 and 2011-12. The result was strong inflation and a powerful monetary response that also slowed consumption demand. Second, starting in 2011-12, corporate and infrastructure investment started slowing both as a result of investment bottlenecks as well as the tighter monetary policy. Thirdly, even as the economy slowed, it was hit by two additional shocks: a slowing global economy, weighed down by the crisis in the Euro area and uncertainties about fiscal policy in the United States, and a weak monsoon, at least in its initial phase.

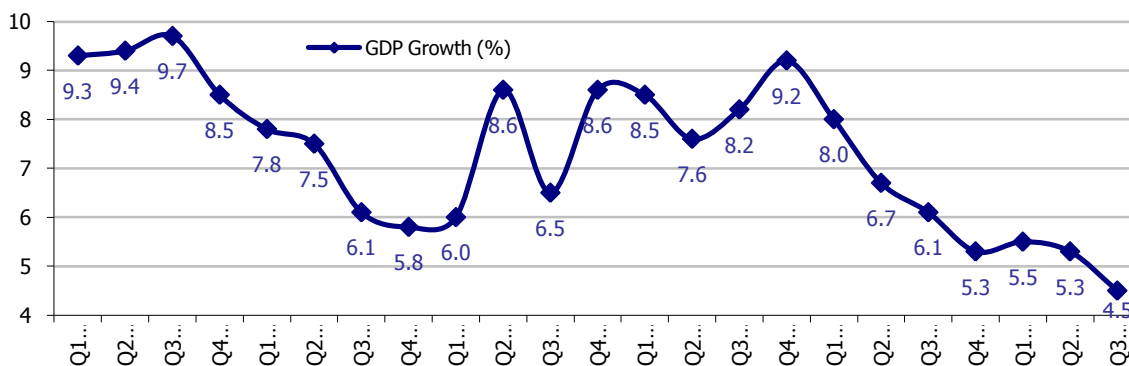
The third quarter of 2012 has seen a positive approach from the government to restore the economy to 7–8 per cent growth rate. The government is committed to fiscal consolidation. This along with demand compression and augmented agricultural production should lead to lower inflation, giving the RBI the requisite flexibility to



reduce policy rates. Lower interest rates could provide an additional fillip to investment activity for the industry and services sectors, especially if some of the regulatory, bureaucratic, and financial impediments to investment are eased. It is hoped that the government will carry out reforms including fiscal consolidation and regaining investor confidence.

Quarterly GDP growth rate in India declined in each of the successive quarters between the fourth quarter of 2010-11 and the fourth quarter of 2011-12. Growth in H1 of the current year works out to 5.4 per cent, while the CSO's Advance Estimate for growth for 2012-13 is 5.0 per cent. Let us now analyse some of the key elements of aggregate demand to see why the economy has slowed.

**Figure 1: Quarterly Estimate of GDP Growth (year-on-year in per cent)**



Source: Economic Survey 2012-13

**Private Final Consumption Expenditure** has slowed considerably, from 8 per cent in 2011-12 to 4.1 per cent in 2012-13. The rate of growth of production of a large number of consumer durables and consumer durables for mass consumption declined significantly as higher inflation reduced real disposable income of households.

The growth rate of the economy has strong correlation with investment rate. As per the 1st revised estimates released by the CSO in January 2013, **Gross Domestic Capital Formation** as a ratio of GDP at current market prices (investment rate) is estimated to be 35.0 per cent in 2011-12 as against 36.8 per cent in 2010-11. Investment by the private corporate sector registered a sharper decline which could be attributed to a number of factors like increase in policy rates (to combat inflation and inflationary expectations) thus raising the cost of borrowings in a bid to reduce demand. Another reason for lower private investment could be lower demand for Indian exports from the rest of the world. A third possible reason for lower corporate investment is policy bottlenecks (such as obtaining environmental permissions, fuel linkages, or carrying out land acquisition).

Although **Agriculture & Allied Activities**, accounted for only 14.1 per cent of the GDP at constant (2004-5) prices in 2011-12, its role in the country's economy is much bigger with its share in total employment according to the 2001 census, continuing to be as high



as 58.2 per cent. The performance of Indian agriculture is still heavily dependent on rainfall and south west monsoon (June to September), comprising 75 per cent of total annual rainfall, substantially affects production and productivity of agriculture. During 2011-12, total food grains production reached an all-time high of 259.32 million tonnes. However, the production of 2012-13 kharif crops is likely to be adversely affected by deficiency in the south-west monsoon and the resultant acreage losses. Output is expected to decline in all major crops.

Overall **Industrial performance**, as reflected by the IIP continued to moderate from Q1 of 2011-12 with growth turning negative in Q1 of 2012-13, before improving to 2.1 per cent in Q3 of 2012-13. The Mining sector contraction in 2012-13 was largely because of decline in natural gas and crude petroleum output. Manufacturing, which is the dominant sector in industry, also witnessed deceleration in growth, as did the electricity sector. There was, however, a sharp pick-up in growth in October 2012 with manufacturing growth improving to 9.8 per cent, the highest recorded since June, 2011.

Country estimates for 2012 show a deceleration in **Services** growth in some major countries. For example, in 2012 it decelerated to 0.5 per cent from 0.9 per cent (in 2011) in the USA; 8.1 per cent in 2012 from 9.4 per cent (in 2011) in China; and 6.6 per cent in FY 2012-13 from 8.2 per cent (in FY 2011-12) in India.

The share of services in India’s GDP at factor cost (at current prices) increased from 33.3 per cent in 1950-1 to 56.5 per cent in 2012-13 as per Advance Estimates. Including construction, the share would increase to 64.8 per cent in 2012-13. With an 18 per cent share - trade, hotels, and restaurants as a group is the largest contributor to GDP among the various services sub-sectors, followed by financing, insurance, real estate, and business services with a 16.6 per cent share. Both these services showed perceptible improvement in their shares over the years. Community, social, and personal services with a share of 14 per cent is in third place. Construction, a borderline services inclusion, is at fourth place with an 8.2 per cent share.

The **Net Invisibles Balance** (in which net service exports and remittances are prominent) usually offsets the trade deficit. However, it also declined in dollar terms in H1 of 2012-13 relative to H1 of 2011- 12. The increased outflow of investment income to foreigners has also played a part in reducing net invisibles. As a result of the widening of the trade deficit and moderation in net invisibles surplus, the CAD worsened to 4.6 per cent of GDP during H1 of 2012-13 as compared to 4.0 per cent of GDP in H1 of 2011-12.

**Table 1: Estimated Growth of the Indian Economy in 2011-12**

Unit: Percentage	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
<b>Year-on Year Growth Rates</b>				<b>2R</b>	<b>1R</b>	<b>AE</b>
Agriculture & Allied Activities	5.8	0.1	0.8	7.9	3.6	1.8
Mining & Quarrying	3.7	2.1	5.9	4.9	-0.6	0.4
Manufacturing	10.3	4.3	11.3	9.7	2.7	1.9





Electricity, gas & water supply	8.3	4.6	6.2	5.2	6.5	4.9
Construction	10.8	5.3	6.7	10.2	5.6	5.9
Trade, Hotels, Transport & Communication	10.9	7.5	10.4	12.3	7.0	5.2
Finance, Insurance, Real Estate & Business Services	12.0	12.0	9.7	10.1	11.7	8.6
Community, Social & Personal Services	6.9	12.5	11.7	4.3	6.0	6.8
<b>GDP at factor Cost (%)</b>	<b>9.3</b>	<b>6.7</b>	<b>8.6</b>	<b>9.3</b>	<b>6.2</b>	<b>5.0</b>
Capital Formation Rate (% of GDP)	38.1	34.3	36.5	36.8	35.0	na
IIP (Growth %)	15.5	2.5	5.3	8.2	2.9	0.7
Inflation CPI (IW) (Average)	6.2	9.1	12.4	10.4	8.4	10.0
Foreign Exchange Reserves (US\$ Billion)	309.7	252.0	279.1	304.8	294.4	295.5
Exchange Rate ~ Rs/US\$	40.26	45.99	47.44	45.56	47.92	<b>54.47</b>
Gross Fiscal Deficit (% of GDP)	2.5	6.0	6.5	4.8	5.7	<b>5.1</b>
<i>Source: Economic Survey 2012-13, *: At end January, 2013.</i>						

## The Balance of Payment

India's **External Sector** exhibited resilience during the global financial crisis of 2008. The balance of payments however has been under increasing stress recently. India's growing external exposures can also be attributed to the increasing integration of the Indian economy with the rest of the world, which is reflected in both current and capital account transactions. Therefore, while the globalization of Indian economy has helped raise growth, it has also meant greater vulnerability to external shocks. A focus on domestic macroeconomic rebalancing will help reduce vulnerability

India's **BoP** was under stress during 2011-12, as the trade and current account deficit widened. Though capital inflows increased, it fell short of fully financing current account deficit, resulting in drawdown of foreign exchange reserves. The trade deficit increased to US\$ 189.8 billion (10.2 per cent of GDP) in 2011-12 as compared to US\$ 127.3 billion (7.4 per cent of GDP) during 2010-11. This increase of 49.1 per cent in trade deficit in 2011-12 was primarily on account of higher increase in imports relative to exports.

India's current account deficit (**CAD**) widened from 5.4 per cent in Q2 2012-13 to a record high of 6.7 per cent of GDP in Q3 2012-13, driven mainly by larger trade deficit. During April-December 2012, CAD stood at US\$ 71.7 billion accounting for 5.4 per cent of GDP as against US\$ 56.5 billion (4.1 per cent of GDP) in the same period of 2011.

**Table 2: Balance of Payments Summary**

Unit: US\$ billion	2007-08	2008-09	2009-10	2010-11 PR	2011-12 P	2011-12 (H1 - A-S) PR	2012-13 (H1 - A-S)P
Exports	166.2	189.0	182.4	256.2	309.8	158.2	<b>146.6</b>
Imports	257.6	308.5	300.6	383.5	499.5	247.7	<b>237.2</b>



Trade Balance	-91.5	-119.5	-118.2	-127.3	-189.8	-89.5	-90.7
Net Invisibles	75.7	91.6	80.0	79.3	111.6	53.1	51.7
<b>Current Account Balance</b>	<b>-15.7</b>	<b>-27.9</b>	<b>-38.2</b>	<b>-48.1</b>	<b>-78.2</b>	<b>-36.4</b>	<b>-39.0</b>
Foreign Investment	43.3	8.3	50.4	42.1	39.2	17.1	18.6
FDI (net)	15.9	22.4	18.0	11.8	22.1	15.7	12.8
Portfolio (net)	27.4	-14.0	32.4	30.3	17.2	1.3	5.8
<b>Capital Account Balance</b>	<b>106.6</b>	<b>7.4</b>	<b>51.6</b>	<b>63.7</b>	<b>67.8</b>	<b>43.5</b>	<b>40.0</b>
<b>Overall Balance</b>	<b>92.2</b>	<b>-20.1</b>	<b>13.4</b>	<b>13.1</b>	<b>-12.8</b>	<b>-5.8</b>	<b>.36</b>
Source: Economic Survey 2012-13. A-S → April to September, PR : Partially Revised, P : Preliminary.							

During 2011-12, **Exports** crossed the US\$ 300 billion mark for the first time. The rate of growth however, declined to 20.9 per cent to US\$ 309.8 billion against 40.5 per cent (US\$ 256.2 billion) in 2010-11. Exports at US\$ 158.2 billion performed well in first half (H1–April–September 2011) of 2011-12 vis-a-vis exports of US\$112.0 billion in H1 of 2010-11. There was, however, significant deceleration in exports during second half (H2–October 2011 – March 2012) of 2011-12 to US\$ 151.6 billion (US\$ 144.2 billion in H2 of 2010-11). This was on account of deterioration in global trading conditions reflecting weakening of world demand inter-alia caused by euro zone crisis.

**Imports** valued at US\$ 499.5 billion, recorded 30.3 per cent increase in 2011-12 over US\$ 383.5 billion in 2010-11. The growth in imports during 2011-12 was mainly due to higher growth in imports of petroleum, oil and lubricants (POL), gold and silver and machinery. Oil imports grew by about 47 per cent, while gold and silver registered a growth of 49 per cent in 2011-12. Imports of oil and precious metal (gold and silver) together accounted for nearly 45 per cent of total imports in 2011-12.

The **Net Invisible Balances** showed significant improvement, registering 40.7 per cent increase to US\$ 111.6 billion during 2011-12 from US\$ 79.3 billion in 2010-11, due to increase in invisibles receipts while invisible payments witnessed a decline. The invisible receipts increased by 15.1 per cent to US\$ 219.2 billion in 2011-12 as compared to US\$ 190.5 billion during 2010-11, mainly driven by services exports.

Beginning from a low level of US\$ 5.8 billion at end-March 1991, India's **Foreign Exchange Reserves** increased gradually to US\$ 279.1 billion at end-March 2010. In fiscal 2010-11, the reserves again showed an increasing trend, reaching US\$ 304.8 billion at end-March 2011. In fiscal 2011-12, they reached all-time high of US\$ 322.0 billion at end-August 2011. However, they declined thereafter and stood at US\$ 294.4 billion at end-March 2012. In 2012-13, the reserves increased marginally by US\$ 0.4 billion from US\$ 294.4 billion at end-March 2012 to US\$ 294.8 billion at end- September 2012.

On an annual average basis, **Rupee Depreciated** in fiscal 2011-12. The annual average exchange rate of rupee was 45.56 per US dollar in 2010-11 that depreciated by 4.9 per cent to 47.92 per US dollar in 2011-12. The sharp fall in value of rupee can be explained by the supply-demand imbalance in the domestic foreign exchange market on account of



slowdown in FII inflows, strengthening of US dollar in the international market due to the safe haven status of US Treasuries and heightened risk aversion and deleveraging due to the euro area crisis that impacted financial markets across emerging market economies. Apart from the global factors, there were several domestic factors that have added to the weakening trend of the rupee, which include increasing current account deficit, high inflation.

The room to increase exports in the short run is limited, as they are dependent upon the recovery and growth of partner countries, especially in industrial economies. This may take time. The main focus has to be on curbing imports, mainly by making oil prices more market determined, and curbing imports of gold. At the same time, further measures to ease the inflow of remittances and steps to diversify software exports could help reduce financing needs. Greater emphasis on FDI including opening up sectors further can help increase the quantum of safe financing.

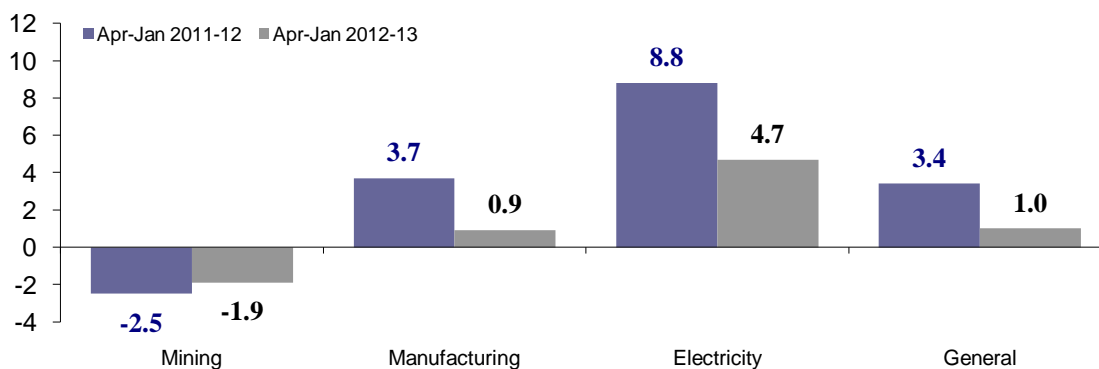
**Industrial Performance**

The index of industrial production (IIP) with 2004-5 as base is the leading indicator for industrial performance in the country. Overall industrial performance, as reflected by the IIP continued to moderate from Q1 of 2011-12 with growth turning negative in Q1 of 2012-13, before improving to 2.1 per cent in Q3 of 2012-13. The moderation in industrial growth, particularly in the manufacturing sector, is largely attributed to sluggish growth of investment, squeezed margins of the corporate sector, deceleration in the rate of growth of credit flows and the fragile global economic recovery.

India's industrial output expanded for the first time in three months in January 13, lifted by higher consumer goods output, mainly non-durables. The data corroborates broad expectations that the consumption demand is showing signs of bottoming out, though the third consecutive monthly decline in capital goods production does not bode well for investment sentiments.

The cumulative growth in the three sectors: Mining, Manufacturing and Electricity during April-January 2012-13 over the corresponding period of 2011-12 has been (-) 1.9%, 0.9% and 4.7% respectively.

**Figure 2: Infrastructure Performance (% Growth)**





## Outlook for 2013: India

Indian economy was bogged down by the global slowdown in 2012 but is expected to come back on growth path with the help of government policies and reforms. The government is committed to fiscal consolidation. This along with demand compression and augmented agricultural production should lead to lower inflation, giving the RBI the requisite flexibility to reduce policy rates. Lower interest rates could provide an additional fillip to investment activity for the industry and services sectors, especially if some of the regulatory, bureaucratic, and financial impediments to investment are eased.

Given such a scenario, where all the three major sectors of the economy perform better in 2013- 14 as compared to 2012-13, the overall economy is expected to grow in the range of 6.1 to 6.7 per cent in 2013-14.

The existence of well-developed and efficient financial markets is critical for achieving real economic growth. The country now has a vibrant and transparent financial market in terms of market efficiency, transparency, and price discovery process.

Economic growth though important cannot be an end in itself. The Twelfth Five Year Plan, with its focus on 'Faster, More Inclusive and Sustainable Growth', puts the growth debate in the right perspective. The government's targeted policies for the poor, with the prospect of fewer leakages, can help better translate outlays into outcomes.

With the Twelfth Plan's focus on 'environmental sustainability', India is on the right track. However, the challenge for India is to make the key drivers and enablers of growth – be it Infrastructure, the transportation sector, housing, or sustainable agriculture – grow sustainably. This leads us to the most vital issue of raising additional resources for meeting the need for economic growth with greater environmental sustainability.

**Table 3: India's GDP Growth Projection – 2013 - 14**

<b>Agencies</b>	<b>2013-14</b>
Economic Survey 2012-13	6.1% - 6.7%
IMF-WEO - Jan 2013	5.9%
World Bank	6.0%
United Nations	6.1%
Moody's – Mar 2013	6.2%
CRISIL – Jan 2013	6.7%
Credit Suisse – Feb 2013	6.7%



## Section 2

### **Indian Petrochemical Industry**

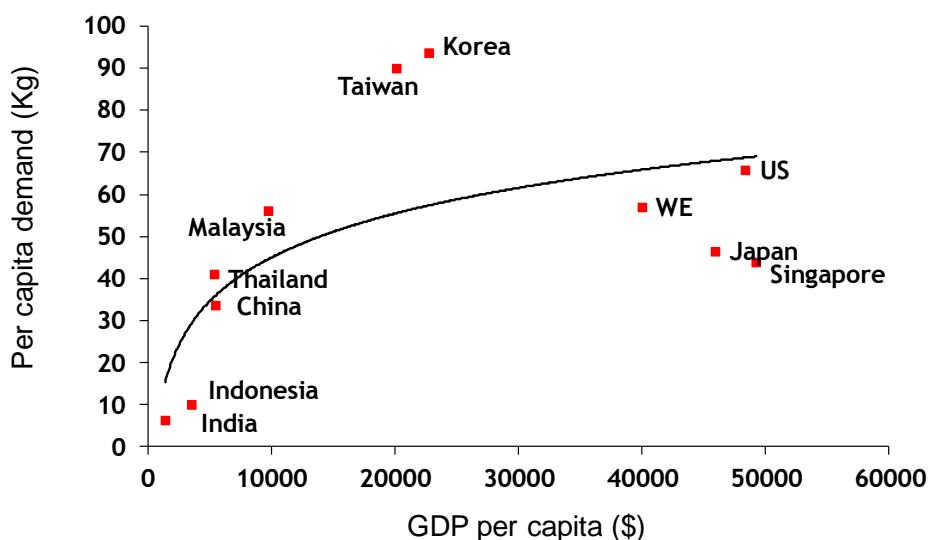


## Petrochemical Industry in India

Petrochemicals play a vital role in the functioning of virtually all key sectors of economy which includes agriculture, infrastructure, healthcare, textiles and consumer durables. Polymers provide critical inputs which enable other sector to grow. Petrochemical products cover the entire spectrum of daily use items ranging from clothing, housing, construction, furniture, automobiles, household items, toys, agriculture, horticulture, irrigation, and packaging to medical appliances.

Per capita consumption of polymer has reached saturation level in US. India has the advantage of high population and expected to maintain high economic growth. This should propel India's polymer consumption to new levels in coming year.

**Figure 3: Per capita Polymer Consumption Vs per capita GDP ~ 2011**



The domestic polymer industry (like global industry) is dominated by Polyolefin's (PE & PP), representing about 72% of all commodity resins consumed in 2011. Polymers registered demand growth of 4.6% in 2011 against growth of 12% in 2010. The demand for polymer is likely to grow by 12% & 8% approx. in 2012 & 2013 and is expected to reach 8950 Kt & 9672 Kt respectively.

Net trade deficit declined substantially from 1313 Kt in 2010 to 957 Kt in 2011 but is expected to increase to 1172 Kt and 1344 Kt in 2012 & 2013 respectively. Domestic demand is expected to outpace domestic production. New capacities of HMEL & MRPL are expected in 2012 & 2013 respectively.

Indian petrochemical industry has unrealized potential. Demand is expected to grow by 7-8% in 2013 with a healthy growth in the relevant industries such as clothing, automobiles etc. Government and the industry players will have to work in tandem to achieve ambitious targets for the industry.



## Petrochemical Industry Review of 2012 & Outlook for 2013

### Polymers

Polymers registered demand growth of 6.5% in 2012, as the economy slowed down in 2012 due to monetary & fiscal tightening by government for controlling inflation and weakness in global growth. The main drivers of polymer demand in India are packaging, automobiles, construction, health care, etc.

The Indian packaging industry is estimated to be growing at 11% annually. Plastics raffia or the woven sack sector is dependent on end-use consumers for packaging applications viz. cement, fertilisers, food grains, sugar, sand / minerals / chemicals / petrochemicals, tarpaulin, geotextiles etc.

Indian Automobile sector has been hit hard by the on the back of expensive loans and high fuel prices. It is expected that with the easing of inflation, the interest rates will start coming down and the sentiment will improve. Similar impact has been seen on other sector also, indirectly affecting the polymer demand.

The Planning Commission is of the view that "India has not been able to fully leverage the opportunities provided by the dynamics of globalisation that resulted in a dramatic shift of manufacturing to developing countries over the last decade." Once this opportunity is leveraged, the industry is expected to grow at much healthy rate.

**Table 4: Polymer Demand Supply**

Polymers (Kt)	2010 A	2011 A	2012 A	2013 E	2014 E
Capacity	7905	8467	8907	9447	9875
Production	6358	7102	7434	8116	8867
<b>Op Rate (%)</b>	<b>80%</b>	<b>84%</b>	<b>83%</b>	<b>86%</b>	<b>90%</b>
Import	2104	2099	2552	2793	3136
Exports	792	1089	1027	996	965
Net Trade	-1313	-1010	-1525	-1797	-2171
Demand	7670	8113	8959	9913	11037
<b>Demand Growth %</b>	<b>11.9%</b>	<b>5.8%</b>	<b>10.4%</b>	<b>10.6%</b>	<b>11.3%</b>
Source: Industry Estimates. A: Actual, E: Estimate					

We expect the demand for polymers to grow at 10% - 11% in 2013 & 2014.

In 2012, there was PP capacity addition of 440 Kt of PP by HMEL.

MRPL is expected to commence its PP production of 440 Kt by 2013.



RIL, Chemplast & DCW is expected to debottleneck its PVC capacity to the tune of 100 Kt in 2013 and further by 100 Kt in 2014.

Operating rate is expected to increase from 83% in 2012 to 86% in 2013 and expected to touch 90% remain in 2014.

Import dependency remained high at 28% in 2012 and is expected to remain at same level for next two years. PP exports was around 837 Kt in 2012, PE and PVC imports were very high. PE imports in 2012 were approx. 1323 Kt and PVC imports remained high at 989 Kt in 2012.

In 2012 there was net trade deficit of 1525 Kt. Trade deficit is expected to be 1797 Kt in 2013 and 2171 Kt in 2014. Trade deficit is expected to increase from 2012 levels as domestic demand is in excess of domestic production capacity especially for PVC and PE.

**Polyolefins**

Comprising PE & PP, Polyolefins constituted 80% of the total polymer capacity and production in India in 2012.

All PE registered demand growth of 12% in 2012. It is expected that PE will continue growing at 12% approx. in 2013 and 2014. HMEL added 440 Kt of PP in 2012.

**Table 5: Polyolefin Demand in India Actual & Projected**

(Kt)	Actual		Projected		% Change year on year		
	2011	2012	2013	2014	2012	2013	2014
LDPE+EVA	499	550	623	690	10%	13%	11%
LLDPE	1055	1237	1358	1504	17%	10%	11%
HDPE	1552	1692	1901	2173	9%	12%	14%
PP	2682	3072	3304	3717	15%	8%	13%
<b>Total PO</b>	<b>5788</b>	<b>6551</b>	<b>7185</b>	<b>8083</b>	<b>13%</b>	<b>10%</b>	<b>12%</b>

Source: Industry Estimates. A: Actual, E: Estimate

PP registered demand growth of 15% in 2012 and growth is expected to slow down to 8% in 2013 and is expected to rebound to 13% growth rate in 2014. MRPL is expected to commence its production of 440 Kt PP in current year - 2013.

Polyolefins registered demand growth of 13% in 2012. It is expected to grow at 10% & 12% in 2012 & 2013 respectively.

Indian petrochemical capacity addition lags the consumption growth. Indian demand for petrochemical is robust and growing fast. New investment and capacity addition required to meet the ever growing domestic demand.





## Vinyl's: PVC

The demand for PVC increased by 3% in 2012 and is expected to grow at 14% & 8% in 2013 and 2014 to reach 2415 Kt & 2610 Kt respectively. As the economy is expected to perform well with the easing of monetary policy and various PVC end use sectors performance improving, PVC demand is expected to be robust in coming years.

**Table 6: PVC Demand Supply**

(Kt)	2010 A	2011 A	2012 A	2013 E	2014 E
Capacity	1300	1300	1300	1400	1500
Production	1216	1285	1135	1315	1425
Imports	659	780	989	1100	1185
Exports	0.0	0.0	0.0	0.0	0.0
Apparent Demand	1875	2065	2124	2415	2610
<b>Demand Growth%</b>	<b>9.9%</b>	<b>10.1%</b>	<b>2.9%</b>	<b>13.7%</b>	<b>8.1%</b>

Source: Industry Estimates. A: Actual, E: Estimate

There was no new capacity addition in 2012. PVC capacity is expected to touch 1400 Kt in 2013 and further to 1500 Kt in 2014. Chemplast, DCW and Reliance are expected to debottleneck their capacity.

PVC import was 780 Kt in 2011, increased to 989 Kt in 2012 and is expected to increase further to 1100 Kt in 2013 & 1185 Kt in 2014. India's import dependency on PVC is expected to increase in future as there is no new capacity coming up or planned but at the same time PVC consumption is expected to go up in construction, agriculture sector and other end use applications.

## Styrenics

### A. Polystyrene

In 2012, demand for PS increased by 10% to reach 264 Kt, as shown in table 7. Demand for PS is expected to maintain the same rate in 2013 & 2014.

**Table 7: Polystyrene Demand Supply**

(Kt)	2010 A	2011 A	2012 A	2013 E	2014 E
Capacity	452	452	452	452	452
Production	260	260	275	290	300
Imports	24	22	24	29	44
Exports	49	23	14	6	0
Apparent Demand	236	259	284	313	344
<b>Demand Growth%</b>	<b>12%</b>	<b>10%</b>	<b>10%</b>	<b>10%</b>	<b>10%</b>

Source: Industry Estimates. A: Actual, E: Estimate



## B. Acrylonitrile-Butadiene-Styrene (ABS)

The status of the ABS production in India is shown in table 8. Demand for ABS registered a growth of 8.2% in 2011 but slowed down to approx. 5% in 2012. The slowdown in PS demand is fallout of economic slowdown. Demand for consumer durable good declined affecting the PS demand. As shown in the table below, demand for ABS is expected to grow approx. at the rate of 5% in 2013 & 2014. Industry capacity is likely to remain unaltered at 87 KT till 2014.

**Table 8: ABS Demand Supply**

(Kt)	2010 A	2011 A	2012 A	2013 E	2014 E
Capacity	87	87	87	87	87
Production	85	85	85	85	85
Imports	35	44	50	57	65
Exports	1.0	0.5	0.0	0.0	0.0
Apparent Demand	119	129	135	142	150
<b>Demand Growth%</b>	<b>10%</b>	<b>8.2%</b>	<b>5.1%</b>	<b>5.2%</b>	<b>5.3%</b>

Source: Industry Estimates. A: Actual, E: Estimate

## C. Styrene-Acrylonitrile (SAN)

After registering a robust demand growth of 15% in 2010, demand for SAN declined to 9.5% and grew at same rate in 2012. It is expected to grow at same rate in 2013 and 2014. There is no capacity addition till 2013.

**Table 9: SAN Demand Supply**

(Kt)	2010 A	2011 A	2012 A	2013 E	2014 E
Capacity	96	96	96	96	96
Production	70	75	80	85	90
Imports	12	15	19	23	28
Exports	0.0	0.0	0.0	0.0	0.0
Apparent Demand	82	90	99	108	118
<b>Demand Growth%</b>	<b>15%</b>	<b>9.5%</b>	<b>9.6%</b>	<b>9.5%</b>	<b>9.3%</b>

Source: Industry Estimates. A: Actual, E: Estimate

Import is expected to increase from 19 Kt in 2012 to 23 Kt in 2013 and further to 28 Kt in 2014, to meet the domestic consumption demand.



## Olefins (including Butadiene, Styrene, EDC & VCM)

### A. Ethylene & Propylene

Ethylene Capacity increased from 3826 Kt in 2010 to 4080 Kt in 2011. It remained at same level in 2012. There is no capacity addition expected in 2013. Ethylene capacity is expected to expand by 1100 Kt, capacity addition by OPAL.

Propylene capacity increased from 3939 Kt in 2010 to 4114 Kt in 2011. It further increased to 4481 Kt in 2012, capacity addition of 367 Kt by HMEL in 2012. MRPL is expected to add 440 Kt of propylene capacity, partially in 2013 and rest in 2014, total capacity addition of 440 Kt.

**Table 10: Ethylene & Propylene net availability**

	2010 A	2011 A	2012 A	2013 E	2014 E
<b>Ethylene (Kt)</b>					
Capacity	3826	4080	4080	4080	5180
Production	2827	3355	3744	3735	4421
Imports	109	36	23	50	25
Exports	0.0	0.0	0.0	0.0	0.0
<b>Net Availability</b>	<b>2936</b>	<b>3391</b>	<b>3767</b>	<b>3785</b>	<b>4446</b>
<b>Propylene (Kt)</b>					
Capacity	3939	4114	4481	4664	5394
Production	3132	3397	3495	3937	4419
Imports	0.0	0.0	0.0	0.0	0.0
Exports	23.8	9.0	14.6	0.0	0.0
<b>Net Availability</b>	<b>3108</b>	<b>3388</b>	<b>3480</b>	<b>3937</b>	<b>4419</b>

In 2012, production of ethylene and propylene was 3744 Kt and 3495 Kt respectively as shown in Table 10. Ethylene Production is expected to remain at approx. same level in 2013 and increase in 2014, keeping in line with the capacity addition made by OPAL. Propylene production is expected to increase by 442 Kt in 2013 and 482 Kt in 2014 as new capacity comes on stream.



## B. Butadiene

The demand for butadiene registered a negative growth of -2.7% in 2012. Demand is expected to register a robust growth of 52% in 2013 and further grow at 82% in 2014, on back of new SBR & PBR plants of RIL coming up in 2013. IOCL is adding 70 Kt of Butadiene capacity in 2013 which will reach to 140 Kt in 2014. OPAL is expected to add 86 Kt in 2014.

Production is expected to increase in line with the new capacity addition taking place and is expected to increase from 230 Kt in 2012 to 268 Kt in 2013 and 431 Kt in 2014.

**Table 11: Butadiene Demand Supply**

Butadiene (Kt)	2010 A	2011 A	2012 A	2013 E	2014 E
Capacity	295	295	295	365	521
Production	266	264	230	268	431
Imports	0.0	0.0	1.9	2.0	2.0
Exports	149	146	117	95	108
Apparent Demand	117	118	115	175	325
<b>Demand Growth%</b>	<b>3.8%</b>	<b>0.8%</b>	<b>-2.7%</b>	<b>52%</b>	<b>86%</b>

Source: Industry Estimates. A: Actual, E: Estimate

There was an exportable surplus of 146 Kt in 2011, which declined to 117 Kt in 2012. Export is expected to be approx. 95 Kt in 2013 & 108 Kt in 2014.

## C. Styrene

India does not have any capacity for styrene and is fully dependent upon imports as shown in Table 12. For 2011, India's total demand for Styrene was 525 Kt and growth in styrene demand was at 11%. In 2012, India's total demand for Styrene was 585 Kt and growth in styrene demand was at 11%. Demand for Styrene is projected to grow at a rate of 11% to reach 650 Kt & 720 Kt respectively in 2013 & 2014.

**Table 12: Styrene Demand Supply**

Styrene (Kt)	2010 A	2011 A	2012 A	2013 E	2014 E
Imports	472	525	585	650	720
Exports	0.0	0.0	0.0	0.0	0.0
Apparent Demand	-472	-525	-585	-650	-720
<b>Demand Growth%</b>	<b>9.8%</b>	<b>11%</b>	<b>11%</b>	<b>11%</b>	<b>11%</b>

Source: Industry Estimates. A: Actual, E: Estimate



## D. EDC & VCM

Almost the entire production of EDC and VCM in India are consumed captively by the polymer manufacturers for production of PVC and hence, PVC manufacturers who do not have facilities for captive production of EDC and VCM have to rely entirely on imports to meet their demand for PVC building blocks viz. EDC and VCM.

**Table 13: EDC & VCM Import into India**

EDC (Kt)	2010 A	2011 A	2012 A	2013 E	2014 E
Capacity	365	365	365	365	365
Production	365	365	365	365	365
Imports	239	263	290	365	400
Exports	0.0	0.0	0.0	0.0	0.0
Apparent Demand	604	628	655	730	765
<b>Growth (%)</b>	<b>3.7%</b>	<b>4.0%</b>	<b>4.4%</b>	<b>11.5%</b>	<b>4.8%</b>
VCM (Kt)	2010 A	2011 A	2012 A	2013 E	2014 E
Capacity	856	856	856	961	961
Production	840	870	870	966	966
Imports	375	385	395	450	500
Exports	0.0	0.0	0.0	0.0	0.0
Apparent Demand	1215	1255	1265	1416	1466
<b>Growth (%)</b>	<b>27.9%</b>	<b>3.3%</b>	<b>0.8%</b>	<b>11.9%</b>	<b>3.5%</b>
Source: Industry Estimates. A: Actual, E: Estimate					

EDC & VCM registered nominal growth of 4.4% & 0.8% in 2012, in line with the PVC growth of 3% in 2012. EDC & VCM is expected to register demand growth of approx. 12% in 2013 and then further decline to approx. 4% - 5% in 2014.

For the year 2012, while imports of EDC increased to 290 Kt, VCM imports increased to 395 Kt, as shown in Table 13. EDC imports expected to increase to 365 Kt & 400 Kt in 2012 & 2013 respectively. VCM imports expected to reach 500 Kt by 2013.

## Fibre Intermediates

In 2012, the combined production of fibre intermediates viz. ACN, Caprolactum, PTA and MEG reached 4919 Kt of which PTA and MEG constituted 76% and 21% respectively with ACN and Caprolactum together accounting for the remaining 4% as shown in Table 14.

PTA and MEG constituted 49% and 53% of the total 1515 Kt fibre intermediates imported in to India in 2012. Fibre intermediates exported from India in 2012 was 74 Kt and is expected to remain approx. same in 2013. Fibre intermediate export is expected to



jump to 311 Kt in 2014, with the commissioning of new PTA plant by RIL at Dahej in 2014.

**Table 14 : Fibre Intermediate Demand Supply (Kt)**

<b>ACN</b>	<b>2010 A</b>	<b>2011 A</b>	<b>2012 A</b>	<b>2013 E</b>	<b>2014 E</b>
Capacity	38	38	38	38	38
Production	38	38	38	38	38
Imports	85	85	85	88	90
Exports	0.0	1.5	0.0	0.0	0.0
Demand	123	122	123	126	128
<b>Demand Growth (%)</b>	<b>2.1%</b>	<b>-1.2%</b>	<b>1.2%</b>	<b>2.4%</b>	<b>1.6%</b>
<b>Caprolactum</b>	<b>2010 A</b>	<b>2011 A</b>	<b>2012 A</b>	<b>2013 E</b>	<b>2014 E</b>
Capacity	120	120	120	120	120
Production	120	120	112	115	120
Imports	8	8	20	15	12
Exports	9	7	10	6	6
Demand	119	121	122	124	126
<b>Demand Growth (%)</b>	<b>1.7%</b>	<b>1.7%</b>	<b>0.8%</b>	<b>1.6%</b>	<b>1.6%</b>
<b>PTA</b>	<b>2010 A</b>	<b>2011 A</b>	<b>2012 A</b>	<b>2013 E</b>	<b>2014 E</b>
Capacity	3850	3850	3930	4237	5481
Production	3570	3497	3736	4079	5259
Imports	369	656	749	650	0.0
Exports	30	0.0	0.0	0.0	240
Demand	3909	4153	4485	4729	5019
<b>Demand Growth (%)</b>	<b>20%</b>	<b>6.2%</b>	<b>8.0%</b>	<b>5.4%</b>	<b>6.1%</b>
<b>MEG</b>	<b>2010 A</b>	<b>2011 A</b>	<b>2012 A</b>	<b>2013 E</b>	<b>2014 E</b>
Capacity	1275	1175	1175	1175	1175
Production	840	989	1033	1075	1080
Imports	750	632	661	710	850
Exports	28	60	64	65	65
Demand	1562	1561	1630	1720	1865
<b>Demand Growth (%)</b>	<b>11%</b>	<b>-0.1%</b>	<b>4.4%</b>	<b>5.5%</b>	<b>8.4%</b>

Source: Industry Estimates. A: Actual, E: Estimate

However, among the fibre intermediates produced in India in 2012, India's import dependency was highest for ACN where the quantum of imports of 85 Kt was more than double the 38 Kt produced domestically.

The fibre intermediate sector registered a demand growth of 6.8% in 2012 and is expected to grow at 5.3% & 6.6% in 2013 & 2014 respectively. Acrylonitrile and Caprolactum expected to register a nominal growth rate of approx. 2%. PTA and MEG expected to grow in the range of 6% to 8% in 2013 & 2014.



## Synthetic Fibres

In 2012, the combined production of synthetic fibre (PSF, ASF, PPSF, PFY, PPFY, VFY, VFS & NFY) reached 4004 Kt against demand of 3473 Kt. The demand growth was at 2.4% in 2011 and remained at approx. same level in 2012. ASF registered highest growth among all fibres of 23% in 2012 followed by 13% growth in case of PPSF. VSF & VFY registered negative demand growth of approx. 9% & 15% respectively in 2012.

**Table 15: Demand Supply Balance of Synthetic Fibre (Kt)**

	2010 A	2011 A	2012 A	2013 E	2014 E
<b>PSF</b>					
Capacity	1265	1265	1325	1365	1495
Production	1036	1013	1070	1100	1180
Imports	30	44	35	42	52
Exports	204	211	222	210	230
Demand	862	846	883	932	1002
<b>Demand Growth (%)</b>	<b>14.0%</b>	<b>-1.9%</b>	<b>4.4%</b>	<b>5.5%</b>	<b>7.5%</b>
<b>ASF</b>	<b>2010 A</b>	<b>2011 A</b>	<b>2012 A</b>	<b>2013 E</b>	<b>2014 E</b>
Capacity	153	155	155	155	155
Production	82	74	74	78	82
Imports	19	19	29	29	29
Exports	20.4	15.2	7.8	7.8	7.8
Demand	80	78	96	100	104
<b>Demand Growth (%)</b>	<b>-14.1%</b>	<b>-3.1%</b>	<b>23.0%</b>	<b>3.9%</b>	<b>3.9%</b>
<b>PPSF</b>	<b>2010 A</b>	<b>2011 A</b>	<b>2012 A</b>	<b>2013 E</b>	<b>2014 E</b>
Capacity	8.7	8.7	9.6	9.6	9.6
Production	3.7	4.0	4.5	5.0	5.5
Imports	0.1	0.3	0.3	0.3	0.3
Exports	0.6	0.7	0.7	0.7	0.8
Demand	3.2	3.7	4.2	4.5	5.0
<b>Demand Growth (%)</b>	<b>10.7%</b>	<b>13.7%</b>	<b>12.8%</b>	<b>9.5%</b>	<b>9.3%</b>
<b>PFY</b>	<b>2010 A</b>	<b>2011 A</b>	<b>2012 A</b>	<b>2013 E</b>	<b>2014 E</b>
Capacity	2935	3238	3642	3968	4295
Production	2199	2323	2425	2600	2864
Imports	2	3	2	2	2
Exports	220	260	300	350	400
Demand	1981	2066	2127	2252	2466
<b>Demand Growth (%)</b>	<b>20%</b>	<b>4.3%</b>	<b>3.0%</b>	<b>5.9%</b>	<b>9.5%</b>
<b>PPFY</b>	<b>2010 A</b>	<b>2011 A</b>	<b>2012 A</b>	<b>2013 E</b>	<b>2014 E</b>
Capacity	18	18	18	18	18
Production	14	13	14	15	15



	2010 A	2011 A	2012 A	2013 E	2014 E
Imports	1.4	1.5	1.7	1.7	1.7
Exports	1.1	1.2	2.3	2.3	2.3
Demand	14	14	13	14	15
<b>Demand Growth (%)</b>	<b>-11%</b>	<b>-2.2%</b>	<b>-2.0%</b>	<b>5.2%</b>	<b>5.2%</b>
<b>VSF</b>	<b>2010 A</b>	<b>2011 A</b>	<b>2012 A</b>	<b>2013 E</b>	<b>2014 E</b>
Capacity	419	419	419	419	419
Production	304	321	331	341	351
Imports	14	22	14	14	14
Exports	57	70	96	96	96
Demand	261	273	249	259	269
<b>Demand Growth (%)</b>	<b>4.4%</b>	<b>4.6%</b>	<b>-8.8%</b>	<b>4.0%</b>	<b>4.0%</b>
<b>VFY</b>	<b>2010 A</b>	<b>2011 A</b>	<b>2012 A</b>	<b>2013 E</b>	<b>2014 E</b>
Capacity	80	76	76	76	76
Production	41	42	43	43	43
Imports	13	12.3	5.1	5.1	5.1
Exports	5.4	6.2	6.5	6.5	6.5
Demand	49	49	41	41	41
<b>Demand Growth (%)</b>	<b>2.1%</b>	<b>-0.6%</b>	<b>-15.3%</b>	<b>0.3%</b>	<b>0.3%</b>
<b>NFY</b>	<b>2010 A</b>	<b>2011 A</b>	<b>2012 A</b>	<b>2013 E</b>	<b>2014 E</b>
Capacity	54	63	63	71	71
Production	45	41	42	46	51
Imports	15.0	20.0	20.0	18.0	15.0
Exports	2.0	2.0	2.0	3.0	3.0
Demand	58	59	60	61	63
<b>Demand Growth (%)</b>	<b>3.6%</b>	<b>1.7%</b>	<b>1.7%</b>	<b>1.7%</b>	<b>3.3%</b>

Source: Industry Estimates. A: Actual, E: Estimate

It is expected that the fibre demand growth will be approx. 5% to 8% in 2013 & 2014. Expected import dependency of fibre is approx. 3%.

There was 465 Kt of capacity addition/expansion/debottlenecking in Fibres in 2012. Further there is capacity increase of 374 Kt and 457 Kt in 2013 & 2014 respectively.

### Aromatics – Paraxylene

PX demand declined by approx. 5% after hitting a high of 21% in 2011. PX demand is expected to pick up again in 2013 and register a demand growth of 4.5%.

PX capacity remained unchanged in 2012, at 2554 Kt. 900 Kt of capacity will be added in 2013 and it will take India's PX capacity to 3454 Kt. This will help in reducing India's import dependency considerably.



**Table 16: Paraxylene Demand Supply**

(Kt)	2010 A	2011 A	2012 A	2013 E	2014 E
Capacity	2408	2554	2554	3454	3454
Production	2068	2417	2400	2517	3301
Imports	350	592	527	427	177
Exports	421	584	622	534	0
Apparent Demand	1997	2424	2305	2410	3478
<b>Demand Growth%</b>	<b>4.4%</b>	<b>21%</b>	<b>-4.9%</b>	<b>4.5%</b>	<b>44%</b>

Source: Industry Estimates. A: Actual, E: Estimate

PX import was at 527 Kt in 2012 and it is expected to come down to 427 Kt in 2013 and further down to 177 Kt in 2014. PX export increased from 584 Kt in 2011 to 622 Kt in 2012. Export is expected to decrease significantly and become negligible in 2014 with startup of new capacity and increased production.

### Surfactants

Demand for key surfactants LAB and EO increased by 4.2% and 5.9% respectively in 2012 which was lower than what was achieved in 2011. Demand growth for LAB is expected to be 5% in 2013 and 2014 as shown in table 17.

LAB capacity is expected to remain unchanged till 2014. LAB import is expected to increase from 123 Kt in 2012 to 127 Kt in 2013 and further to 135 Kt in 2014, as domestic consumption increases. On the other hand exports expected to decline from 75 Kt in 2012 to 55 Kt in 2014, to meet increase in domestic consumption.

**Table 17: Demand & Supply of LAB & EO (Kt)**

LAB	2010 A	2011 A	2012 A	2013 E	2014 E
Capacity	520	520	520	520	520
Production	460	446	450	459	470
Imports	89	117	123	127	135
Exports	100	85	75	63	55
Demand	449	478	498	523	550
<b>Demand Growth (%)</b>	<b>4.3%</b>	<b>6.4%</b>	<b>4.2%</b>	<b>5.0%</b>	<b>5.2%</b>
EO	2010 A	2011 A	2012 A	2013 E	2014 E
Capacity	166	200	207	217	251
Production	146	159	167	175	181
Imports	28	29	32	33	33
Exports	0.0	0.0	0.0	0.0	0.0
Demand	174	188	199	208	214
<b>Demand Growth (%)</b>	<b>15%</b>	<b>8.0%</b>	<b>5.9%</b>	<b>4.5%</b>	<b>2.9%</b>

Source: Industry Estimates. A: Actual, E: Estimate



EO capacity increased form 200 Kt in 2011 to 207 Kt in 2012 and further to 217 Kt in 2013. Debottlenecking of EO capacity by RIL in 2012 happened and further debottlenecking expected in 2013 and 2014.

Demand growth for EO is expected to be at 4.5% & 2.9% in 2013 and 2014.

### Synthetic Rubber

In 2012, synthetic rubber demand grew at 12% and is expected to grow at 6% - 7% in 2013 and 2014.

**Table 18: Demand Supply Balance of PBR, SBR, NBR & EPDM (Kt)**

<b>PBR</b>	<b>2010 A</b>	<b>2011 A</b>	<b>2012 A</b>	<b>2013 E</b>	<b>2014 E</b>
Capacity	74	74	74	114	114
Production	77	78	78	83	118
Imports	58	81	89	93	73
Exports	0.6	0.6	0.1	0.3	4.8
Demand	134	158	167	176	186
<b>Demand Growth (%)</b>	<b>9.5%</b>	<b>18%</b>	<b>5.4%</b>	<b>5.3%</b>	<b>6.0%</b>
<b>SBR</b>	<b>2010 A</b>	<b>2011 A</b>	<b>2012 A</b>	<b>2013 E</b>	<b>2014 E</b>
Capacity	20	20	20	280	280
Production	18	18	18	77	300
Imports	152	170	204	175	69
Exports	0	0	0	18	120
Demand	170	188	222	234	249
<b>Demand Growth (%)</b>	<b>15%</b>	<b>11%</b>	<b>18%</b>	<b>5.6%</b>	<b>6.2%</b>
<b>NBR</b>	<b>2010 A</b>	<b>2011 A</b>	<b>2012 A</b>	<b>2013 E</b>	<b>2014 E</b>
Capacity	20	20	20	20	20
Production	17	17	17	17	17
Imports	11	14	16	18	21
Exports	0	0	0	0	0
Demand	28	31	33	35	38
<b>Demand Growth (%)</b>	<b>12%</b>	<b>11%</b>	<b>6.5%</b>	<b>6.1%</b>	<b>8.6%</b>
<b>EPDM</b>	<b>2010 A</b>	<b>2011 A</b>	<b>2012 A</b>	<b>2013 E</b>	<b>2014 E</b>
Capacity	10	10	10	10	10
Production	0	0	0	0	0
Imports	25	29	33	36	40
Exports	0	0	0	0	0
Demand	25	29	33	36	40
<b>Demand Growth (%)</b>	<b>42%</b>	<b>19%</b>	<b>14%</b>	<b>8.1%</b>	<b>11%</b>

Source: Industry Estimates. A: Actual, E: Estimate



As shown in Table 18 above, SBR demand registered a robust growth of 18% in 2012, followed by EPDM demand growth of 14%. PBR/NBR/SBR demand is expected to grow at 6% in 2013 and 2014. EPDM demand is expected to grow at 8.1% and 11% respectively in 2013 and 2014.

Public sector petroleum refining company Indian Oil Corporation (IOC) plans to set up a 120 Kt styrene butadiene rubber (SBR) manufacturing facility at Panipat in partnership with Taiwan's TSRC Corporation and Japan's Marubeni Corporation in 2013. Reliance is expected to add PBR capacity of 40 Kt and SBR capacity of 150 Kt in 2013.

This will help in meeting domestic consumption which was earlier dependent on imports, thus bringing down imports considerably from 204 Kt in 2012 to 69 Kt in 2014.

### Carbon Black Feedstock & Carbon Black

Carbon black is used mainly as a reinforcing material in the rubber industry. Other user areas include inks, paints, plastic and paper. At present, there are 6 units manufacturing rubber grade oil furnace carbon black, in India.

CBFS registered a growth of 10% in 2012 and is expected to continue growing at same rate. CBFS demand is expected to increase from 1545 Kt in 2012 to 1865 Kt in 2014.

In 2010, Reliance doubled its CBFS capacity from 720 Kt to 1440 Kt. ESSAR is added 100 Kt of CBFS capacity in 2012 and further expand it to 300 Kt by 2013.

Carbon black registered a demand growth of 7% in 2012 and is expected to grow at same rate in 2013 and 2014.

**Table 19: Demand Supply Balance of CBFS & Carbon Black (Kt)**

<b>CBFS</b>	<b>2010 A</b>	<b>2011 A</b>	<b>2012 A</b>	<b>2013 E</b>	<b>2014 E</b>
Capacity	1495	1495	1595	1795	1795
Production	1495	1495	1595	1595	1595
Imports	988	1000	1000	900	870
Exports	1295	1095	1050	800	600
Demand	1188	1400	1545	1695	1865
<b>Demand Growth (%)</b>	<b>6.3%</b>	<b>18%</b>	<b>10%</b>	<b>10%</b>	<b>10%</b>
<b>Carbon Black</b>	<b>2010 A</b>	<b>2011 A</b>	<b>2012 A</b>	<b>2013 E</b>	<b>2014 E</b>
Capacity	858	948	1028	1238	1238
Production	679	752	840	900	900
Imports	60	70	68	20	30
Exports	102	132	170	130	85
Demand	637	690	738	790	845
<b>Demand Growth (%)</b>	<b>7.2%</b>	<b>8.3%</b>	<b>6.9%</b>	<b>7.0%</b>	<b>7.0%</b>

Source: Industry Estimates. A: Actual, E: Estimate



Phillips Carbon Black Ltd is expected to expand its capacity by 80 Kt in 2013. Himadri Chemicals & Industries Limited acquired SNF plant at Vapi, commissioned production of Carbon Black (50 Kt) in 2009 and further added 40 Kt capacity in 2010. It is expected to further add 50 Kt capacity in 2013. Continental is expected to add 80 Kt capacity in 2012 & 2013, thus taking its total capacity from 65 Kt in 2011 to 225 Kt in 2013.

In line with the increase in capacity, domestic production of Carbon Black is expected to increase from 840 Kt in 2012 to 900 Kt in 2013.

### Other Key Petrochemicals

In 2012, other key petrochemicals registered positive growth in the range of 6% ~ 12% as shown in Table 20.

Benzene demand grew at 10% in 2012 and is expected to grow at 10% in 2013 and 2014. Exports increased from 428 Kt in 2011 to 520 Kt in 2012. It is expected that export will increase to 627 Kt by 2014.

**Table 20: Demand Supply Balance of Benzene, Toluene, MX & OX**

(Kt)	2010 A	2011 A	2012 A	2013 E	2014 E
<b>Benzene</b>					
Capacity	1310	1344	1344	1479	1614
Production	962	989	1150	1200	1400
Imports	82	57	50	50	50
Exports	495	428	520	502	627
Demand	549	618	680	748	823
<b>Demand Growth (%)</b>	<b>10%</b>	<b>13%</b>	<b>10%</b>	<b>10%</b>	<b>10%</b>
<b>Toluene</b>					
Capacity	290	290	290	290	290
Production	140	140	140	140	140
Imports	210	230	251	274	297
Exports	0.0	0.0	0.0	0.0	0.0
Demand	350	370	391	414	437
<b>Demand Growth (%)</b>	<b>5.6%</b>	<b>5.7%</b>	<b>5.7%</b>	<b>5.8%</b>	<b>5.7%</b>
<b>MX</b>					
Capacity	90	110	110	110	110
Production	62	65	65	68	68
Imports	15	18	28	35	46
Exports	3.0	0.0	0.0	0.0	0.0
Demand	74	83	93	103	114
<b>Demand Growth (%)</b>	<b>8.2%</b>	<b>12%</b>	<b>12%</b>	<b>11%</b>	<b>11%</b>



(Kt)	2010 A	2011 A	2012 A	2013 E	2014 E
<b>OX</b>					
Capacity	474	474	474	474	474
Production	380	390	420	435	450
Imports	25	25	20	20	20
Exports	188	180	187	183	177
Demand	217	235	253	272	293
<b>Demand Growth (%)</b>	<b>-13%</b>	<b>8.0%</b>	<b>7.9%</b>	<b>7.5%</b>	<b>7.7%</b>
Source: Industry Estimates. A: Actual, E: Estimate					

IOCL debottlenecked its benzene capacity by 24 Kt in 2011. OPAL is expected to add Benzene capacity of 135 Kt in 2013. MRPL is expected to add further 275 Kt of Benzene in 2014.

Toluene demand registered growth of 5.7% in 2012. Toluene demand is expected to maintain the same growth rate in 2013 and 2014. Toluene import was at 251 Kt in 2012 and is expected to increase to 274 Kt in 2013 and 297 Kt in 2014.

MX demand grew at 12% in 2012 and is expected to grow at 11% 2013 and 2014. There is no new capacity addition and production is expected to fall short to meet domestic demand. The increase in domestic demand is expected to be met by imports. Imports expected to be 46 Kt by 2014.

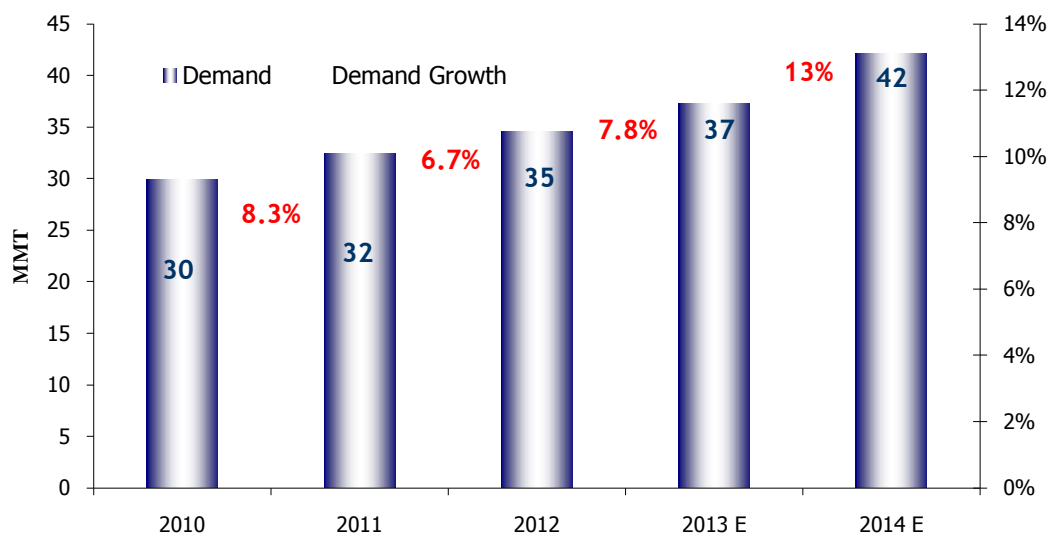
OX demand registered a negative growth rate of 8% in 2012. There is no new capacity addition. Demand is expected to increase from 253 Kt in 2013 to 293 Kt in 2014.



## Outlook for the Overall Indian Petrochemical Industry

India's aggregated demand for petrochemicals increased by 6.7% in 2012 over 2011. Combining the demand for all the key segments in the petrochemical industry aggregate demand for the entire petrochemical sector in India is likely to increase from 35 MMT in 2012 to 37 MMT in 2013 and further to 42 MMT in 2014 as depicted in Figure 4. At the aggregate level, therefore, demand for petrochemicals in India is expected to grow at 8% and 13% per annum in 2013 and 2014, respectively.

**Figure 4: Aggregate Petrochemical Demand (All key segments – MMT)**



Polymers are likely to register growth rate of 11% in 2013 and 2014.

Olefins are expected to grow at 9% and 15% in 2013 & 2014, with the startup of new capacities.

Fibre Intermediates are projected to grow in the range of 5% to 7% in 2013 and 2014.

Synthetic fibre demand expected to register growth in the range of 5% to 8% in next two years.

Surfactants are projected to grow at approx. 5% in 2013 and 2014.

Carbon Black / CBFS to grow at approx. 9% in 2013 and 2014.

Elastomers expected to register demand growth in the range of 6% to 7% in next two years.

Other Key petrochemicals expected to grow at approx. 8.5% in 2013 and 2014.



India's demand from the automobiles, packaging, agriculture and infrastructure sector is expected to grow at healthy rate with easing of governments monetary policy. This optimism is based on the expectation that India's GDP would again grow at 6% plus in 2013 after hitting a low of 5% in 2012.

Segment-wise detail is given in Table 21.

**Table 21: Segment-wise Demand for Petrochemicals (Kt)**

Segment	Products	Actual		Projected		Growth (%)		
		2011	2012	2013	2014	2012	2013	2014
<b>Polymers</b>	LDPE, LLDPE, HDPE, PP, PVC, PS	8113	8959	9913	11037	10%	11%	11%
<b>Olefins</b>	Ethylene, Propylene, Butadiene, Styrene, EDC & VCM	8070	8633	9362	10810	7.0%	8.5%	15%
<b>Fibre Intermediates</b>	ACN, Caprolactum, PTA & MEG	5957	6360	6699	7138	6.8%	5.3%	6.6%
<b>Synthetic Fibres</b>	PSF,ASF,PPSF,PFY, PPFY, VSF,VFY & NFY	3388	3473	3663	3965	2.5%	5.5%	8.2%
<b>Para-Xylene</b>	PX	2424	2305	2410	3478	-4.9%	4.5%	44%
<b>Surfactants</b>	LAB, EO	666	697	731	764	4.7%	4.9%	4.5%
<b>Elastomers</b>	SBR, PBR, NBR & EPDM	406	455	481	513	12%	5.7%	6.7%
<b>CB &amp; CBFS</b>	CB & CBFS	2090	2283	2485	2710	9.2%	8.8%	9.1%
<b>Other Key Petrochemicals</b>	Benzene, Toluene, MX, OX	1305	1417	1537	1667	8.6%	8.4%	8.5%
<b>Total Demand</b>		<b>29930</b>	<b>32418</b>	<b>34582</b>	<b>37280</b>	<b>6.7%</b>	<b>7.8%</b>	<b>13%</b>



## Section 3

### **Statistical Appendix**





## Demand Supply Balance: Polymers (Kt)

	2010 A	2011 A	2012 A	2013 E	2014 E
<b>LDPE</b>					
Capacity	205	205	205	205	205
Production	178	203	186	204	204
Imports	147	175	240	285	342
Exports	0	0	0	0	0
Apparent Demand	325	378	426	489	546
<b>Demand Growth%</b>	<b>-8.7%</b>	<b>16%</b>	<b>13%</b>	<b>15%</b>	<b>12%</b>
<b>EVA</b>					
Capacity	12.5	12.5	12.5	12.5	12.5
Production	7.5	9.3	12	13	14
Imports	106	112	112	121	130
Exports	0	0	0	0	0
Apparent Demand	114	121	124	134	144
<b>Demand Growth%</b>	<b>12%</b>	<b>6.9%</b>	<b>2.2%</b>	<b>8.1%</b>	<b>7.1%</b>
<b>LLDPE</b>					
Capacity	887	1020	1020	1020	1020
Production	698	725	720	867	940
Imports	385	353	522	512	589
Exports	7	23	5	21	25
Apparent Demand	1076	1055	1237	1358	1504
<b>Demand Growth%</b>	<b>16%</b>	<b>-2.0%</b>	<b>17%</b>	<b>9.8%</b>	<b>11%</b>
<b>HDPE</b>					
HDPE Capacity	1513	1740	1740	1740	1900
LLD/HD Capacity	847	1007	1007	1007	1175
<b>Total Capacity</b>	<b>2360</b>	<b>2747</b>	<b>2747</b>	<b>2747</b>	<b>3075</b>
Production	1108	1462	1414	1464	1588
Imports	449	332	449	536	646
Exports	88	242	171	100	61
Apparent Demand	1469	1552	1692	1901	2173
<b>Demand Growth%</b>	<b>9.5%</b>	<b>5.7%</b>	<b>9.0%</b>	<b>12%</b>	<b>14%</b>
<b>All PE</b>					
Capacity	2578	2965	2965	2965	3293
Production	1992	2399	2332	2548	2746
Imports	1087	972	1323	1455	1707
Exports	95	265	176	121	86
Apparent Demand	2984	3106	3479	3881	4366
<b>Demand Growth%</b>	<b>9.4%</b>	<b>4.1%</b>	<b>12%</b>	<b>12%</b>	<b>12%</b>



<b>PP</b>					
Capacity	3575	3750	4190	4630	4630
Production	2890	3158	3692	3963	4396
Imports	334	325	217	210	200
Exports	648	801	837	869	879
Apparent Demand	2576	2682	3072	3304	3717
<b>Demand Growth%</b>	<b>16%</b>	<b>4.1%</b>	<b>15%</b>	<b>7.6%</b>	<b>13%</b>
<b>Polyolefins</b>					
Capacity	6153	6715	7155	7595	7923
Production	4882	5557	6024	6511	7142
Imports	1421	1297	1540	1665	1907
Exports	743	1066	1013	990	965
Apparent Demand	5560	5788	6551	7185	8083
<b>Demand Growth%</b>	<b>13%</b>	<b>4.1%</b>	<b>13%</b>	<b>9.7%</b>	<b>13%</b>
<b>PVC</b>					
Capacity	1300	1300	1300	1400	1500
Production	1216	1285	1135	1315	1425
Imports	659	780	989	1100	1185
Exports	0	0	0	0	0
Apparent Demand	1875	2065	2124	2415	2610
<b>Demand Growth%</b>	<b>9.9%</b>	<b>10%</b>	<b>2.9%</b>	<b>14%</b>	<b>8.1%</b>
<b>PS</b>					
Capacity	452	452	452	452	452
Production	260	260	275	290	300
Imports	24	22	24	29	44
Exports	49	23	14	6	0
Apparent Demand	236	259	284	313	344
<b>Demand Growth%</b>	<b>12%</b>	<b>10%</b>	<b>10%</b>	<b>10%</b>	<b>10%</b>
<b>Polymers</b>					
Capacity	7905	8467	8907	9447	9875
Production	6358	7102	7434	8116	8867
<b>OR (%)</b>	<b>80%</b>	<b>84%</b>	<b>83%</b>	<b>86%</b>	<b>90%</b>
Imports	2104	2099	2552	2793	3136
Exports	792	1089	1027	996	965
<b>Net Trade</b>	<b>-1313</b>	<b>-1010</b>	<b>-1525</b>	<b>-1797</b>	<b>-2171</b>
Apparent Demand	7670	8113	8959	9913	11037
<b>Demand Growth%</b>	<b>12%</b>	<b>5.8%</b>	<b>10%</b>	<b>11%</b>	<b>11%</b>
Source: Industry Estimates. A: Actual, E: Estimate					



## Demand Supply Balance: Olefins (Kt)

<b>Ethylene</b>	<b>2010 A</b>	<b>2011 A</b>	<b>2012 A</b>	<b>2013 E</b>	<b>2014 E</b>
Capacity	3826	4080	4080	4080	5180
Production	2827	3355	3744	3735	4421
Imports	109	36	23	50	25
Exports	0	0	0	0	0
<b>Net Availability</b>	<b>2936</b>	<b>3391</b>	<b>3767</b>	<b>3785</b>	<b>4446</b>
<b>Propylene</b>					
Capacity	3939	4114	4481	4664	5394
Production	3132	3397	3495	3937	4419
Imports	0	0	0	0	0
Exports	23.8	9	14.6	0	0
<b>Net Availability</b>	<b>3108</b>	<b>3388</b>	<b>3480</b>	<b>3937</b>	<b>4419</b>
<b>Butadiene</b>					
Capacity	295	295	295	365	521
Production	266	264	230	268	431
Imports	0	0	1.9	2.0	2.0
Exports	149	146	117	95	108
Apparent Demand	117	118	115	175	325
<b>Demand Growth%</b>	<b>3.8%</b>	<b>0.8%</b>	<b>-2.7%</b>	<b>52%</b>	<b>86%</b>
<b>Styrene</b>					
Imports	472	525	585	650	720
Exports	0	0	0	0	0
Net Trade	-472	-525	-585	-650	-720
<b>Demand Growth%</b>	<b>9.8%</b>	<b>11%</b>	<b>11%</b>	<b>11%</b>	<b>11%</b>
<b>EDC</b>					
Capacity	365	365	365	365	365
Production	365	365	365	365	365
Imports	239	263	290	365	400
Exports	0	0	0	0	0
Apparent Demand	604	628	655	730	765
<b>Demand Growth%</b>	<b>3.7%</b>	<b>4.0%</b>	<b>4.4%</b>	<b>12%</b>	<b>4.8%</b>
<b>VCM</b>					
Capacity	856	856	856	961	961
Production	840	870	870	966	966
Imports	375	385	395	450	500
Exports	0	0	0	0	0
Apparent Demand	1215	1255	1265	1416	1466
<b>Demand Growth%</b>	<b>28%</b>	<b>3.3%</b>	<b>0.8%</b>	<b>12%</b>	<b>3.5%</b>

Source: Industry Estimates. A: Actual, E: Estimate



## Demand Supply Balance: ABS, SAN, PX &amp; Surfactants (Kt)

	2010 A	2011 A	2012 A	2013 E	2014 E
<b>ABS</b>					
Capacity	87	87	87	87	87
Production	85	85	85	85	85
Imports	35	44	50	57	65
Exports	1.0	0.5	0	0	0
Apparent Demand	119	129	135	142	150
<b>Demand Growth%</b>	<b>10%</b>	<b>8.2%</b>	<b>5.1%</b>	<b>5.2%</b>	<b>5.3%</b>
<b>SAN</b>					
Capacity	96	96	96	96	96
Production	70	75	80	85	90
Imports	12	15	19	23	28
Exports	0	0	0	0	0
Apparent Demand	82	90	99	108	118
<b>Demand Growth%</b>	<b>15%</b>	<b>9.5%</b>	<b>9.6%</b>	<b>9.5%</b>	<b>9.3%</b>
<b>PX</b>					
Capacity	2408	2554	2554	3454	3454
Production	2068	2417	2400	2517	3301
Imports	350	592	527	427	177
Exports	421	584	622	534	0
Apparent Demand	1997	2424	2305	2410	3478
<b>Demand Growth%</b>	<b>4.4%</b>	<b>21%</b>	<b>-4.9%</b>	<b>4.5%</b>	<b>44%</b>
<b>LAB</b>					
Capacity	520	520	520	520	520
Production	460	446	450	459	470
Imports	89	117	123	127	135
Exports	100	85	75	63	55
Apparent Demand	449	478	498	523	550
<b>Demand Growth%</b>	<b>4.3%</b>	<b>6.4%</b>	<b>4.2%</b>	<b>5.0%</b>	<b>5.2%</b>
<b>EO</b>					
Capacity	166	200	207	217	251
Production	146	159	167	175	181
Imports	28	29	32	33	33
Exports	0	0	0	0	0
Apparent Demand	174	188	199	208	214
<b>Demand Growth%</b>	<b>15%</b>	<b>8.0%</b>	<b>5.9%</b>	<b>4.5%</b>	<b>2.9%</b>
Source: Industry Estimates. A: Actual, E: Estimate					



## Demand Supply Balance: Fibre Intermediates (Kt)

	2010 A	2011 A	2012 A	2013 E	2014 E
<b>ACN</b>					
Capacity	38	38	38	38	38
Production	38	38	38	38	38
Imports	85	85	85	88	90
Exports	0	1.5	0	0	0
Apparent Demand	123	122	123	126	128
<b>Demand Growth%</b>	<b>2.1%</b>	<b>-1.2%</b>	<b>1.2%</b>	<b>2.4%</b>	<b>1.6%</b>
<b>Caprolactum</b>					
Capacity	120	120	120	120	120
Production	120	120	112	115	120
Imports	8	8	20	15	12
Exports	9	7	10	6	6
Apparent Demand	119	121	122	124	126
<b>Demand Growth%</b>	<b>1.7%</b>	<b>1.7%</b>	<b>0.8%</b>	<b>1.6%</b>	<b>1.6%</b>
<b>PTA</b>					
Capacity	3850	3850	3930	4237	5481
Production	3570	3497	3736	4079	5259
Imports	369	656	749	650	0
Exports	30	0	0	0	240
Apparent Demand	3909	4153	4485	4729	5019
<b>Demand Growth%</b>	<b>20%</b>	<b>6.2%</b>	<b>8.0%</b>	<b>5.4%</b>	<b>6.1%</b>
<b>MEG</b>					
Capacity	1275	1175	1175	1175	1175
Production	840	989	1033	1075	1080
Imports	750	632	661	710	850
Exports	28	60	64	65	65
Apparent Demand	1562	1561	1630	1720	1865
<b>Demand Growth%</b>	<b>11%</b>	<b>-0.1%</b>	<b>4.4%</b>	<b>5.5%</b>	<b>8.4%</b>

Source: Industry Estimates. A: Actual, E: Estimate



Demand Supply Balance: Synthetic Fibres (Kt)

<b>PSF</b>	<b>2010 A</b>	<b>2011 A</b>	<b>2012 A</b>	<b>2013 E</b>	<b>2014 E</b>
Capacity	1265	1265	1325	1365	1495
Production	1036	1013	1070	1100	1180
Imports	30	44	35	42	52
Exports	204	211	222	210	230
Apparent Demand	862	846	883	932	1002
<b>Demand Growth%</b>	<b>14%</b>	<b>-1.9%</b>	<b>4.4%</b>	<b>5.5%</b>	<b>7.5%</b>
<b>ASF</b>					
Capacity	153	155	155	155	155
Production	82	74	74	78	82
Imports	19	19	29	29	29
Exports	20.4	15.2	7.8	7.8	7.8
Apparent Demand	80	78	96	100	104
<b>Demand Growth%</b>	<b>-14%</b>	<b>-3.1%</b>	<b>23%</b>	<b>3.9%</b>	<b>3.9%</b>
<b>PPSF</b>					
Capacity	8.7	8.7	9.6	9.6	9.6
Production	3.7	4.0	4.5	5.0	5.5
Imports	0.1	0.3	0.3	0.3	0.3
Exports	0.6	0.7	0.7	0.7	0.8
Apparent Demand	3.2	3.7	4.2	4.5	5.0
<b>Demand Growth%</b>	<b>11%</b>	<b>14%</b>	<b>13%</b>	<b>9.5%</b>	<b>9.3%</b>
<b>PFY</b>					
Capacity	2935	3238	3642	3968	4295
Production	2199	2323	2425	2600	2864
Imports	2	3	2	2	2
Exports	220	260	300	350	400
Apparent Demand	1981	2066	2127	2252	2466
<b>Demand Growth%</b>	<b>20%</b>	<b>4.3%</b>	<b>3.0%</b>	<b>5.9%</b>	<b>9.5%</b>
<b>PPFY</b>					
Capacity	18	18	18	18	18
Production	14	13	14	15	15
Imports	1.4	1.5	1.7	1.7	1.7
Exports	1.1	1.2	2.3	2.3	2.3
Apparent Demand	14	14	13	14	15
<b>Demand Growth%</b>	<b>-11%</b>	<b>-2.2%</b>	<b>-2.0%</b>	<b>5.2%</b>	<b>5.2%</b>
<b>VSF</b>					
Capacity	419	419	419	419	419
Production	304	321	331	341	351



Imports	14	22	14	14	14
Exports	57	70	96	96	96
Apparent Demand	261	273	249	259	269
<b>Demand Growth%</b>	<b>4.4%</b>	<b>4.6%</b>	<b>-8.8%</b>	<b>4.0%</b>	<b>4.0%</b>
<b>VFY</b>					
Capacity	80	76	76	76	76
Production	41	42	43	43	43
Imports	13	12.3	5.1	5.1	5.1
Exports	5.4	6.2	6.5	6.5	6.5
Apparent Demand	49	49	41	41	41
<b>Demand Growth%</b>	<b>2.1%</b>	<b>-0.6%</b>	<b>-15%</b>	<b>0.3%</b>	<b>0.3%</b>
<b>NFY</b>					
Capacity	54	63	63	71	71
Production	45	41	42	46	51
Imports	15.0	20.0	20.0	18.0	15.0
Exports	2.0	2.0	2.0	3.0	3.0
Apparent Demand	58	59	60	61	63
<b>Demand Growth%</b>	<b>3.6%</b>	<b>1.7%</b>	<b>1.7%</b>	<b>1.7%</b>	<b>3.3%</b>
Source: Industry Estimates. A: Actual, E: Estimate					



## Demand Supply Balance: Elastomers (Kt)

<b>PBR</b>	<b>2010 A</b>	<b>2011 A</b>	<b>2012 A</b>	<b>2013 E</b>	<b>2014 E</b>
Capacity	74	74	74	114	114
Production	77	78	78	83	118
Imports	58	81	89	93	73
Exports	0.6	0.6	0.1	0.3	4.8
Apparent Demand	134	158	167	176	186
<b>Demand Growth%</b>	<b>9.5%</b>	<b>18%</b>	<b>5.4%</b>	<b>5.3%</b>	<b>6.0%</b>
<b>SBR</b>					
Capacity	20	20	20	280	280
Production	18	18	18	77	300
Imports	152	170	204	175	69
Exports	0.0	0.0	0.0	18.0	120.0
Apparent Demand	170	188	222	234	249
<b>Demand Growth%</b>	<b>15%</b>	<b>11%</b>	<b>18%</b>	<b>5.6%</b>	<b>6.2%</b>
<b>NBR</b>					
Capacity	20	20	20	20	20
Production	17	17	17	17	17
Imports	11	14	16	18	21
Exports	0.0	0.0	0.0	0.0	0.0
Apparent Demand	28	31	33	35	38
<b>Demand Growth%</b>	<b>12%</b>	<b>11%</b>	<b>6.5%</b>	<b>6.1%</b>	<b>8.6%</b>
<b>EPDM</b>					
Capacity	10	10	10	10	10
Production	0.0	0.0	0.0	0.0	0.0
Imports	25	29	33	36	40
Exports	0.0	0.0	0.0	0.0	0.0
Apparent Demand	25	29	33	36	40
<b>Demand Growth%</b>	<b>42%</b>	<b>19%</b>	<b>14%</b>	<b>8.1%</b>	<b>11%</b>
Industry Estimates. A: Actual, E: Estimate					





## Demand Supply Balance: Carbon Black &amp; CBFS (Kt)

	2010 A	2011 A	2012 A	2013 E	2014 E
<b>Carbon Black</b>					
Capacity	858	948	1028	1238	1238
Production	679	752	840	900	900
Imports	60	70	68	20	30
Exports	102	132	170	130	85
Apparent Demand	637	690	738	790	845
<b>Demand Growth%</b>	<b>7.2%</b>	<b>8.3%</b>	<b>6.9%</b>	<b>7.0%</b>	<b>7.0%</b>
<b>CBFS</b>					
Capacity	1495	1495	1595	1795	1795
Production	1495	1495	1595	1595	1595
Imports	988	1000	1000	900	870
Exports	1295	1095	1050	800	600
Apparent Demand	1188	1400	1545	1695	1865
<b>Demand Growth%</b>	<b>6.3%</b>	<b>18%</b>	<b>10%</b>	<b>10%</b>	<b>10%</b>
Industry Estimates. A: Actual, E: Estimate					



## Demand Supply Balance: Other Key Petrochemicals (Kt)

	2010 A	2011 A	2012 A	2013 E	2014 E
<b>Benzene</b>					
Capacity	1310	1344	1344	1479	1614
Production	962	989	1150	1200	1400
Imports	82	57	50	50	50
Exports	495	428	520	502	627
Apparent Demand	549	618	680	748	823
<b>Demand Growth%</b>	<b>10%</b>	<b>13%</b>	<b>10%</b>	<b>10%</b>	<b>10%</b>
<b>Toluene</b>					
Capacity	290	290	290	290	290
Production	140	140	140	140	140
Imports	210	230	251	274	297
Exports	0.0	0.0	0.0	0.0	0.0
Apparent Demand	350	370	391	414	437
<b>Demand Growth%</b>	<b>5.6%</b>	<b>5.7%</b>	<b>5.7%</b>	<b>5.8%</b>	<b>5.7%</b>
<b>MX</b>					
Capacity	90	110	110	110	110
Production	62	65	65	68	68
Imports	15	18	28	35	46
Exports	3	0	0	0	0
Apparent Demand	74	83	93	103	114
<b>Demand Growth%</b>	<b>8.2%</b>	<b>12%</b>	<b>12%</b>	<b>11%</b>	<b>11%</b>
<b>OX</b>					
Capacity	474	474	474	474	474
Production	380	390	420	435	450
Imports	25	25	20	20	20
Exports	188	180	187	183	177
Apparent Demand	217	235	253	272	293
<b>Demand Growth%</b>	<b>-13%</b>	<b>8.0%</b>	<b>7.9%</b>	<b>7.5%</b>	<b>7.7%</b>
Industry Estimates. A: Actual, E: Estimate					