



## **TRENDS - STORY**

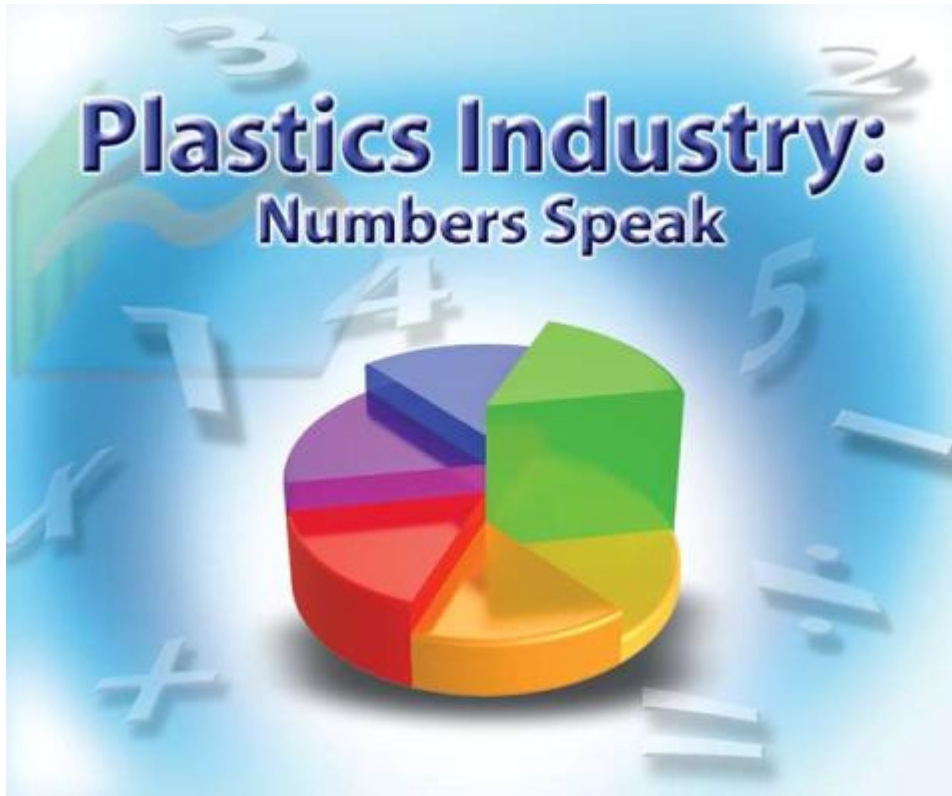
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### **Trends**

#### **Plastics Industry: Numbers Speak**

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### **Global Scenario**

Last few years have been tumultuous for plastics and petrochemical sector due to steep rise in oil prices, which has adversely affected the global economies. However, considering the feed stock advantage and abundance of oil reserves, newer petrochemical complexes are being established in Middle-east countries. i.e. Oman, Saudi Arabia, UAE etc.

It is projected that by the end of 2010, Ethylene capacity in Middle-East would reach to about 35 million tons per annum and Polypropylene (PP) capacity to touch about 7 million tons per annum<sup>1</sup>.

The US Petrochemical sector may lose export competitiveness as most of the Ethylene capacities in USA are Ethane based, which are not cost competitive and are capable to produce only Polyethylene (PE). Similarly, the revamping of European Petrochemical Complexes would be imperative as they are based on old and expensive technology and are not cost competitive with the Middle-East companies having the biggest advantage of raw material at their door-step. China, Middle-East and **India** would be the major global players, where expansion and augmentation of existing petrochemical capacity would take place in the next 5 years.

Worldwide Plastics Industry witnessed a steady growth in the year 2007 which is reflected in the increased consumption figures of all types of Plastics materials.

Asia has been world's largest plastics consumer for several years, accounting for about 30% of the global consumption excluding Japan, which has a share of about 6.5%. Next to Asia is North America with 26% share, then Western Europe with 23% share in the global consumption<sup>2</sup>.

The key growth segment remains 'Packaging' which accounted for over 35% of the global consumption. Amongst the individual plastics materials, polyolefin accounted for 53% of the total consumption (PE with 33.5%, PP with 19.5%) followed by PVC – 16.5%, PS - 8.5%, PET & PU - 5.5%, styrene copolymers (ABS, SAN etc.) – 3.5%, other engineering and high performance & specialty plastics, blends, alloys, thermosetting plastics – 13%.

In recent years, significant aspect of

plastics material growth globally has been the innovation of newer application areas for plastics such as increasing plastics applications in automotive field, rail, transport, defence & aerospace, medical and healthcare, electrical & electronics, telecommunication, building & infrastructure, furniture etc.

**Table 1: Global Per capita Consumption of Plastics (in Kgs)**

World Average	30
North America	90
West Europe	65
East Europe	10
China	30
India	6
South East Asia	15
L. America	18

Plastics have become the key drivers of innovations & application development. Polymer-electronics is one such area which has opened up new avenues for plastics; from organic light emitting diodes to electro-optical and bio-electrical complements, from lowcost plastic chips to flexible solar cells. New plastics can conduct electricity and emit light. While polymers will not replace silicon as semiconductors, they do offer completely new opportunities for low-priced mass-manufactured products. Radio-frequency identification (RFID) tags in smartcards for identification and access control, payment and ticket systems, price labels, product tracking systems in the logistics chain or packaging that monitors product quality – many things are in offing. Growth-trend of plastics has proved that there has been a quiet ‘Plastics – revolution’ taking place in the material – sector.

Worldwide, the plastics and polymer consumption will have an average growth rate of 5% and it will touch a figure of 227 million tons by 2015. Globally, it is projected that PET (bottle grade) will have the highest growth rate of about 11% AAGR<sup>3</sup>.

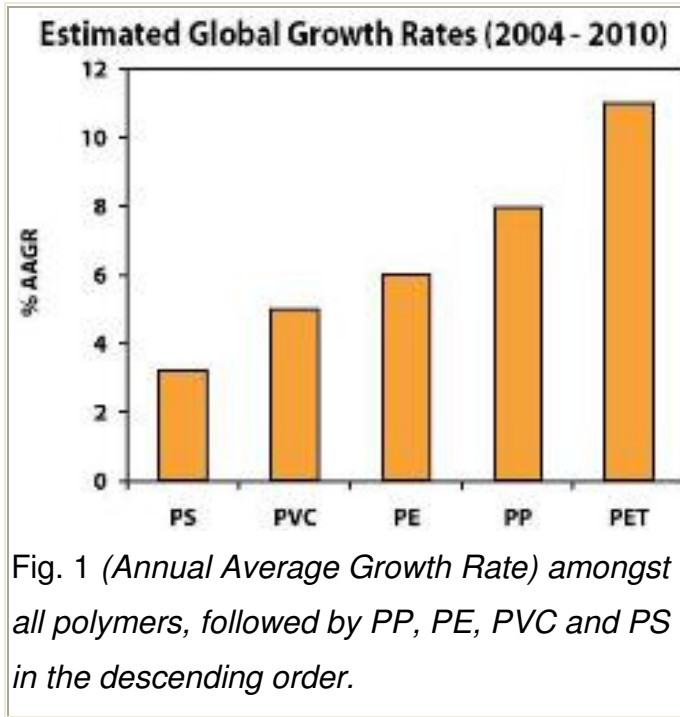


Fig. 1 (Annual Average Growth Rate) amongst all polymers, followed by PP, PE, PVC and PS in the descending order.

Furthermore, the grades of PE (HDPE, LLDPE, LDPE) are expected to grow at about GDP growth annually up to 2020. The forecast about global polyethylene demand is as follows:

- Global polyethylene demand is estimated to grow an average of 4.4% annually through 2020. This is about 1% above the expected global GDP growth.
- LLDPE is expected to experience the fastest growth, with an average annual growth rate of 6.2%. This comes at the

expense of LDPE, which is expected to grow only 1.8% during the same period.

- HDPE growth is estimated to average of 4.6%.

Similarly, Polyethylene (PE) dominates the future capacity addition amongst different polymers by 2008, which is evident from the Global Commodity Polymer Capacity Additions between 2003 and 2008<sup>3</sup>.

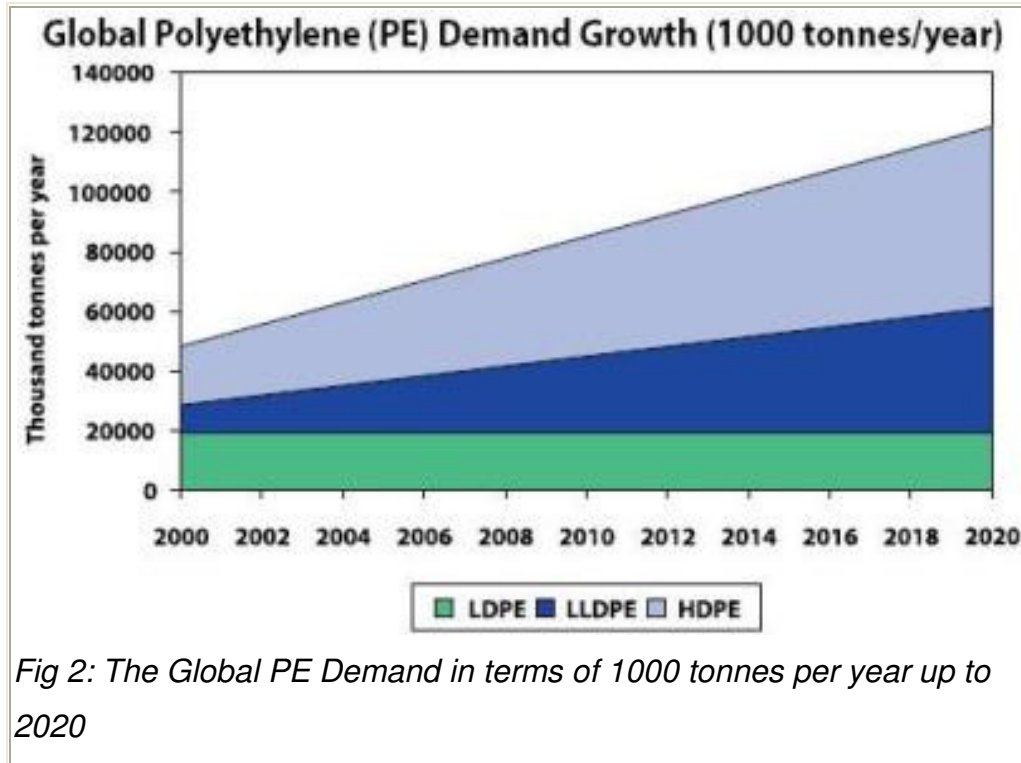
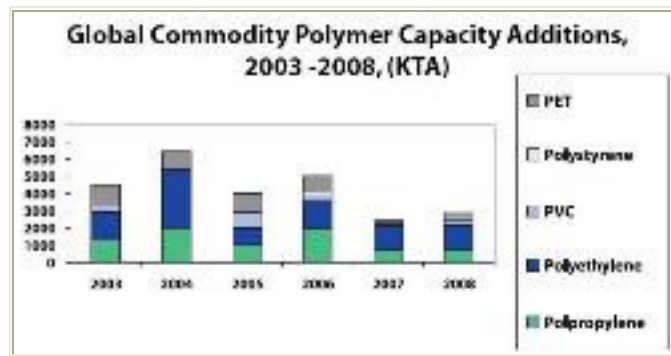


Fig 2: The Global PE Demand in terms of 1000 tonnes per year up to 2020

### Indian Plastics Industries – Perspective

Over the years, **India** has made significant progress in the industrial world with healthy economic growth. On purchase power parity basis, it is one of the top five global economics and is



expected to be the third largest by the turn of this decade. Plastics, one of the fastest growing industries in **India**, have a vital role to play. Indian Plastics Industry is expanding at a phenomenal pace. Major international companies from various sectors such as automobiles, electronics, telecommunications, food processing, packing, healthcare etc. have set-up large manufacturing bases in **India**. Therefore, demand for plastics is rapidly increasing and soon **India** will emerge as one of the fastest growing markets in the world.

**Table 2: Current Indian Petrochemicals Capacities (in KT)<sup>4</sup>**

Producer & Location	PP	HDPE	LDPE	HD/LL	PTA	PS	PVC
RIL, Hazira	400	-	-	450	-	-	355
RIL, Jamnagar	1930	-	-	-	800	-	-
RIL, Patalganga	-	-	-	-	300	-	-
RIL, Nagothane	120	-	110	240	-	-	-
RIL, Vadodara	160	-	95	-	-	-	60
RIL, Gandhar	-	160	-	-	-	-	225
GAIL, Auriya	-	100	-	160	-	-	-
HPL, Haldia	270	200	-	260	-	-	-
Finolex, Pisanpar	-	-	-	-	-	-	270
LG Poly, Vizag	-	-	-	-	-	80	-
Supreme, Mumbai	-	-	-	-	-	240	-
Chem Plast, Metturdam	-	-	-	-	-	-	60
DCW, Sahapuram	-	-	-	-	-	-	60
DCM, Shriram, Kota	-	-	-	-	400	-	35
RPRL, Abu	-	-	-	-	-	16	-
BASF Styrenics, Bharuch	-	-	-	-	-	60	-
<b>Total</b>	<b>2880</b>	<b>460</b>	<b>205</b>	<b>1110</b>	<b>1500</b>	<b>396</b>	<b>1065</b>
<b>Grand Total</b>	<b>7616</b>						

The next two decades are expected to offer unprecedented opportunities for the Plastics Industry in [India](#). This would necessitate industry initiatives to foster investments, grow the market, upgrade quality standards, enhance global participation, encourage Indian industry to adopt and adapt to world class technology and manufacturing practices.

**Table 3: Typical Polymer Consumption Pattern of Different Polymers (in KT)**

Polymer		Total Consumption
LDPE/EVA	300	
LLDPE	846	2405
HDPE	1259	
PP & all Co. PP grades		1800
PVC		1400
PS		225
PET	Film	150
	Bottle	100
		250
SAN/ABS		90
Polyamide	35	
Polycarbonate	72	
Polyacetal	8	125
PET/PBT	7	
Others	3	
Thermoset		100
<b>Total</b>		<b>6395</b>

Despite instability in International prices of polymer materials in 2006 - 07, Plastics Industry in the country has consolidated its performance by consuming about 5 million tons of polymers, as compared to Chinese consumption of about 30 million tons in 2007. Indian Plastics Industries are enthusiastic about the acceleration of the growth engine in the next 3 to 5 years due to capacity expansion of existing petrochemical complexes and setting up of new crackers in the country currently. Reliance Industries Ltd. is **India's** leading petrochemical player followed by medium sized capacity of Gas Authority of **India** Ltd. (GAIL) and Haldia Petrochemicals Ltd. (HPL).

Reliance Industries Ltd. has added a capacity of 900 KT of polypropylene at

Jamnagar this year. The plant has already been commissioned and started production. Indian Oil Corporation (IOC) has planned an 800 K tons naphtha cracker at Panipat at an investment of Rs.6300 crores to produce 800 KT of PE and PP each at Panipat. These positive factors of availability of polymeric materials would infallibly be harbinger in accelerating the growth of plastics sector in the near future. The capacities of current petrochemicals producers are given in Table 2.

To manufacture finished products, polymers are processed through various types of techniques namely extrusion, injection moulding, blow moulding and rotomoulding. Various products manufactured through these processes are highlighted in Table 4. The

polymer consumption in [India](#) according to various processes is provided in Table 5.

**Table 4: Classification of Plastic Products by Type of Process Used**

Plastic Products	Extrusion	Films and Sheets, Fibre and Filaments Pipes, Conduits and profiles, Miscellaneous applications
	Injection Moulding	Industrial Injection Moulding, Household Injection Moulding and Thermo-ware/ Moulded luggage
	Blow Moulding	Bottles, Containers, Toys and Housewares
	Rotomoulding	Large circular tanks such as water tanks

**Table 5: Polymer Consumption in India According to Various Processes**

Process	(%) Share in Total consumption in India
Extrusion	60.0
Injection Moulding	25.0
Blow Moulding / Stretch Moulding	06.0
Rotomoulding	01.0
Other Processes	08.0

The Indian Plastics Processing industry is highly fragmented and comprises of 25000 units. Barring 10% - 15% of the firms, which can be classified as medium scale operations, all the units operate on a small-scale basis.

The top 100 players account for just 20% of the industry turnover. The total number of players in the sector is over 25,000. However, the degree of fragmentation, worldwide, is large and despite the small size of operations of the players, they are able to operate profitably. Further, the high growth in demand ensures that the market is able to absorb the excess capacity in quick time. Overall, the degree of competition can be considered high in the Indian Plastics Processing Industry.

The sector has a significant presence of the unorganised sector, which accounts for over 70% of the industry turnover. Over 95% of the firms in the industry are partnership,

proprietorship or private limited companies. Further, these small companies get significant advantages in taxes. These firms thus provide significant level of competition to the organised sector companies, which combined together are making losses. The organised sector companies thus need to build up significant brand image to survive against the competition from the unorganised sector.

## Statistics of Plastics Industries in Indian

Current Status		By 2011 – 2012	
Major Raw Material Producers	15 nos.	Demand Potential	12.5 MMT
Processing Units	25,000 nos.	Additional Employment	4.0 million
Turnover (Processing Industry)	Rs.55,000 crores	Investment Potential	Rs.84,000 crores
Capital Asset (Polymer Industry)	Rs.85,000 crores	<b>Vision 2015 – Indian Plastics Industry</b>	
Raw Material Produced (approx.)	7.6 MMT	Consumption of Polymers @ 15% CARG	18.9 MMT
Raw Material Consumed (approx.)	6.4 MMT	Turnover of Plastics Industries	Rs.1,33,245 crores
Employed Direct/Indirect	3.3 million	Additional Employment Generation	7 million
Export Value (approx.)	US \$ 1.90 billion	Requirement of Additional Plastics Processing Machines	68113 nos.
Revenue to Government (approx.)	Rs.8,000 crores	Additional Capital Investment in Machines (2004-2015)	Rs.45,000 crores

## References

- 1 (Source: Petrochemical sector reports of ICRA , reports of Plastics industry associations like SPI, Plastindia Foundation,AIPMA etc.)
- 2 (Source: Sector Reports of Global Plastics Industry).
- 3 (Source: Reports of Chemsystem, ICRA ,Working group on petrochemicals)
- 4 (Source: Business [India](#) & Ministry Reports)