



PLASTINDIA FOUNDATION®

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Plastindia Foundation In-House Journal

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Vol - 41

Over 25 Years of Service

The Growth Story *Continues*.....



INDIAN PLASTICS INDUSTRY 2013-2016



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The fact that we, Ferromatik Milacron India, make a High Quality Injection Moulding Machine is very meaningful and it means a lot to our success.

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- Industrial Moulding

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Subhash K. Kadakia

Dear Colleagues,

I feel privileged and truly honoured as I write this note and would like to thank the Managing Committee and the Industry for providing me the opportunity to serve our foundation.

The past few months have been action packed and genuinely eventful as the Foundation initiated, executed and completed a whole host of initiatives designed to benefit the industry and indeed enhance the global image of the Indian plastics industry.

A key initiative was the development, tabling and publication of the Plastics Industry Status Report (PISR), for which we owe a round of applause to the PISR committee headed ably by Mr J.R Shah. This report presented us with a forecast, outlook and direction for the industry over the next 3 years and I am confident it will work as an excellent route map for all of us. The Foundation was also instrumental in continuing efforts to have Technology Upgradation Fund Scheme (TUF'S) implemented for the plastics industry in order to provide more opportunities for the MSME (especially SSI units). Plastindia Foundation was honoured to host DCPC Secretary on December 12, 2013, which was a significant step forward to this end.

I must applaud our team for its unprecedented success at the recently concluded K 2013. The total participation through Plastindia Foundation was 61 exhibitors occupying a total area of 921 sqm, i.e. 44 exhibitors in the Machinery section occupying an area of 699.5 sqm and 17 exhibitors in the Raw Material section occupying an area of 221.50 sqm. The Indian presence was truly significant this year and most importantly, our promise to the industry about continuing dialogues with the Wiintech cluster initiative at K was duly honoured by the landmark signing of the MOU between PIF & Wiintech Cluster. Wiintech is an initiative by Plastindia for exploring business collaboration and trade opportunities in Europe. Plastindia Foundation reached out globally to provide technical expertise under the able guidance of our International Committee Chairman Mr Lalit Singh.

I would also like to compliment the whole team of the In-House Journal headed by Mr Achal Thakkar for bringing you periodic information on the Plastics Industry and presenting the essence of the 'Plastics Industry Status Report' in this issue.

The wait is finally over! Our flagship event Plastindia 2015, returns to its original venue. Please mark the dates February 5-10, 2014 on your calendar. We promise to bring to you a show larger, not just in size, but facilities, show management, allied services and vision. The formal launch functions will commence from the end of January 2014 and I sincerely look forward to the wholehearted support from every member of our fraternity in making this trade show the most important platform for our industry in the region.

"YOUR HORIZON IS LIMITED TO HOW MUCH YOU ARE WILLING TO SEE....."

INVITING YOU TO EXPAND YOUR HORIZONS AT PLASTINDIA 2015"

As I sign off, I am filled with optimism and faith for our industry. I do hope you feel the same way.

Sincerely

Subhash K. Kadakia





Rajeev Chitalia

Friends,

I feel privileged to have assumed the office of the Vice President of the Foundation and thank the Managing Committee and the industry for giving me this opportunity.

With my active association with the Foundation as a Managing Committee members and the nominee of The Plastics Export Promotion Council or Plexconcil, I wish to add value to the activities of the Foundation. While I acknowledge and appreciate the immense efforts of industry for bettering the Plastindia showcase edition after edition, I also intend to put my core strengths to better the show so that more benefits accrue to the Indian plastics industry.

Whenever discussions on trade promotion takes place on any platform, China always figures in our discussions. We always talk about our capabilities vis-a-vis what China has outdone. If we actually analyse, we find that the plastic processing industry has a lot of opportunities to add value to the plastic raw materials that we both produce locally and import. In making a more detailed study we find that in most sectors of the plastic processing industry, save for a few, we lack the economies of scales in production.

One of the deterrents that has led to this situation is the potential domestic markets with which the plastic process industries were set up. With cheap imports coming from countries like China, we feel threatened in sustaining the local industry. It is, therefore, high time that we think of upgrading ourselves to service both the local and overseas markets by achieving economies of scale. Given that plastic processing sector is dominated by the MSME (particularly SSI), facilitation of technological up-gradation is the need of the hour. Creation of technological up-gradation fund (TUF) similar to that granted to the textile industry is one such effective measure. I must mention here that Plexconcil took up this matter with an Inter ministerial Committee under the Chairmanship of the then Finance Secretary and the Department of Chemicals & Petrochemicals (DCPC) has been entrusted with the task of formulating the same. The DCPC has already sprung into action towards the same and I hope that something fruitful emerges very soon.

I hope we all can work together fruitfully to make the plastic processing industry globally renowned toward making India a major sourcing hub for plastics. Let us all jointly work towards this end to build the plastic industry in India

With kind regards

Rajeev Chitalia
Vice President



From the Editor's Desk



Achal Thakkar

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Dear Friends,

Plastindia PISR committee, lead by Sh. J.R. Shah, has prepared a detailed report on the current status and the growth of the Indian Plastics Industry in next 3 years. The team has compiled an exhaustive survey of current demand of all types of polymers, additives and compounds, processing machinery along with projection of demand estimates for the next three years. The report also encompasses processing capacity utilization & recycling sector size & growth. A synopsis of this report along with a well-articulated analysis by Mr. Shekhar Balakrishnan is printed in this current issue. We bring you the details of the launch function held on release of this survey. Along with the synopsis is valuable feedback from industry leaders with their views and opinions.

Details have been unveiled regarding Plastindia Foundation's announcement to hold Plastindia 2015, it's 9th International Exhibition & Conference at Pragati Maidan, New Delhi, in February 2015. Plastindia is planning this event on a scale & scope larger than it's predecessors, with focus on exhibitor & visitor satisfaction.

Details of the newly constituted Managing Committee of Plastindia Foundation are provided along with a brief introduction to our new Vice President, Mr. Rajeev Chitalia.

Several events of the past quarter are summarized for our readers including participation at K 2013 in October, the industry meet on National Policy on Petrochemicals regarding Technology Up gradation Fund for Plastics Industry held at Mumbai in December 2013, signing of MOU with Wiintech Cluster, etc.

The current committee comprising of Mrs. Kavita Shah, Prof. M.A. Shenoy & myself welcome Mr. E. Sundaresan as new member of the Publication Committee.

Lastly, I wish to thank Subhash Kadakia, the previous Chairman of Publication Committee and current President of Plastindia Foundation, for this opportunity to serve as editor of Plastindia In-house magazine.

Achal Thakkar
Chairman – Publication Committee
Plastindia Foundation



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From the **NEC Chairman's Desk**



J R Shah
Chairman – National Executive Council

Dear Readers,

Welcome to the 9th Edition of Plastindia 2015, the most awaited event of the Indian Plastics Industry.

After a long deliberation and preference of our Domestic & International Exhibitors, the Foundation has decided to hold Plastindia 2015 at Pragati Maidan, New Delhi from 5th – 10th February'2015. This show will encompass the International Exhibition & Conference; 4th edition of Proplast (The display of Processed Plastic Products); the Platicon Awards, 25th Asian Plastic Forum (APF) along with seminar on recycling jointly with the delegations of British Plastic Federation and several B2B engagements.

Plastindia 2015 will cover enhanced exhibition space of about 1,25,000 sqm with 2000 exhibitors and will witness the flow of 1,50,000 business visitors from 40 countries across the globe.

The exhibition space of Plastindia 2015 will be marketed internationally by our business partners namely Messe Dusseldorf GmbH, Adsale Exhibition Services Ltd & Pilatus International Company Ltd.

The event is also supported by EUROMAP, The European Plastics & Rubber Machinery Manufacturers Association.

To execute the event successfully, NEC has formed several committee's with involvement of more than 100 dedicated individuals of the plastics fraternity.

Through, Plastindia 2015 our key endeavors is to introduce one of the world biggest future market for Plastics, latest know how, state of art designs and above all highest level of entrepreneurship to take business at the next level.

Plastindia 2015 is what we can do together to Expand Our Horizon.....

Welcome to Plastindia 2015.

J R Shah
Chairman – National Executive Council
Plastindia 2015

The Growth Story Continues... Indian Plastics Industry 2013-2016



Based on report prepared by Plastindia Foundation's 2013 PISR Committee

Polymer Consumption

The economic growth of India is leading to rising living standards and increasing consumption of consumer goods, packaged foods, automobiles, etc. This, in addition to large investments in infrastructure and agriculture, is leading to inherent demand for petrochemicals. On the back of strong economy, favourable demography, growing middle class and rising disposable income, India offers growth opportunity in all sectors of plastic industry. This is aided by policy thrust for export plan, agriculture and infrastructure and retail revolution in organised retail.

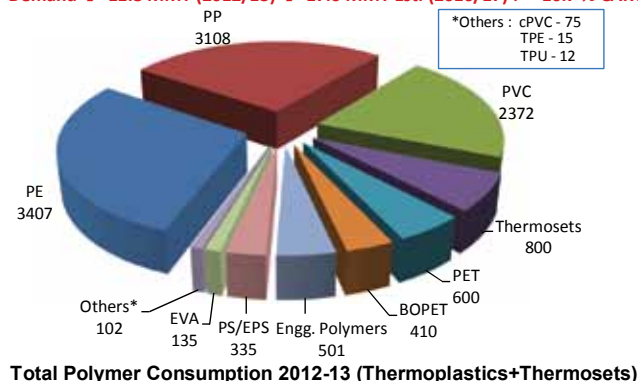
The Indian Plastics industry is one of the fastest growing in the world offering great investment opportunities. The demand for polymers has been consistently growing at a healthy 10% CARG in the last decade and during many years, 2 to 3 percentage points above the GDP growth rate. It is estimated to grow @ 10.7% during the 12th Five-Year Plan with a consumption of 17.6 MMT of Plastics (virgin) by the end of plan period, i.e., 2016-17 from the current level of 11.8 MMT (2012-13). If we consider recycled plastics, the consumption would increase by another 30%

Current per capita consumption of Polymers in India is approximately 9.7 kg vis-à-vis global average of 28 kg, Singapore's 43kg, China's 45kg, Thailand's 50kg, Japan's 56kg, Malaysia's 58kg and Taiwan's 67kg. This is an indication of substantial un-tapped potential in our country.

The total virgin polymer consumption consisting of all Thermoplastics and Thermosets is shown in the chart below:

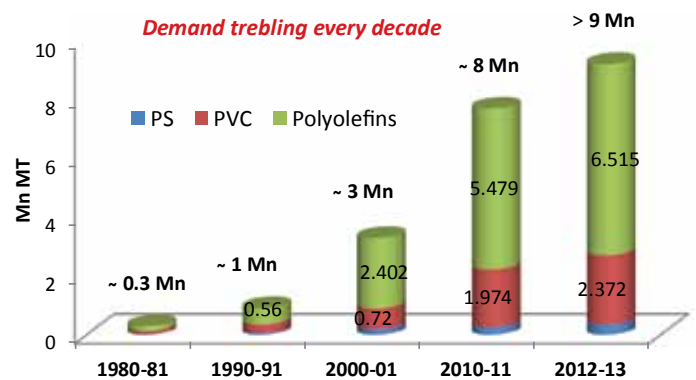
PISR – Plastics Industry Status Report 2013

Demand → 11.8 MMT (2012/13) → 17.6 MMT Est. (2016/17) : ~ 10.7 % CARG



A wide variety of plastic raw materials are produced from petrochemicals to meet the material needs of different sectors of the economy. These polymeric materials are broadly categorized as commodity, engineering, specialty plastics and thermosets.

Since 1992-93, the Indian Plastics Industry has invested nearly Rs 350 billion, coming a long way with global sized plants operating in few product categories not only meeting local demand but also exporting products to global markets. The Commodity polymer consumption in India has shown an exponential growth rate and the demand has been trebling every decade since the 1980's.



Historic Demand Growth of Commodity Polymers



Mr M P Taparia
Managing Director
The Supreme Industries Ltd.

"We believe that the export of plastics products has a great opportunity for the country. Our country has great potential to increase export of plastics products due to appreciation of Chinese currency and depreciation of Indian Rupee in the last two years and increased labour cost in China.

We believe that PIF may launch a comprehensive survey of international markets for different Plastics Products. This will serve our economy in a meaningful manner by opening additional job opportunities and boosting export of the country."

The Growth Story Continues...

Indian Plastics Industry 2013-2016

Polymer Manufacturing Capacities

Commodity polymers are the major products that account for bulk of the petrochemical industry. India has significant production capacity and demand for commodity polymers and has been growing at a healthy rate.

The current installed capacity for commodity polymers is about 10.5 MMT. Reliance Industries Ltd., with a share of 48.5%, is the most important and influential player considering its size, diversity, strength and efficiency. RIL is the only company producing all commodity polymers except PS (Installed Capacity of 4.86 MMT). It produces LDPE, EVA, LLDPE, HDPE, PP, PVC and PET resin. The other major producers are IOC with a capacity of 1.25 MMT (12% share), HPL - 1.1 MMT and GAIL - 0.5 MMT.

Installed Capacity :

Company/Polymer (KTA)	LDPE	LLDPE	HDPE	PP	PVC	PS/EPS	PET	Capacity 2012-13	% Share	Capacity by 2015-16	% Share
RIL	205	445	515	2700	650	---	350	4865	48.5%	6565	44.8%
IOC	---	175	475	600	---	---	---	1250	11.9%	1250	8.5%
Haldia	---	220	500	390	---	---	---	1110	10.6%	1110	7.6%
GAIL	---	150	355	---	---	---	---	505	4.8%	975	6.7%
HMEL	---	---	---	440	---	---	---	440	4.2%	440	3.0%
Dhunseri Petrochem	---	---	---	---	---	---	400	400	3.8%	400	2.7%
Supreme Petrochem	---	---	---	---	---	342	---	342	3.3%	342	2.3%
Finolex	---	---	---	---	270	---	---	270	2.6%	270	1.8%
Chemplast Sanmar	---	---	---	---	250	---	---	250	2.4%	250	1.7%
JBF Industries	---	---	---	---	---	---	150	150	1.4%	250	1.7%
LG Polymers India	---	---	---	---	---	130	---	130	1.2%	130	0.9%
Styrolutions ABS (I) Ltd.	---	---	---	---	---	105	---	105	1.0%	105	0.7%
DCW	---	---	---	---	90	---	---	90	0.9%	90	0.6%
DSCIL	---	---	---	---	61	---	---	61	0.6%	61	0.4%
Futura Polyesters Ltd	---	---	---	---	---	---	60	60	0.6%	60	0.4%
OPaL	---	---	---	---	---	---	---	---	---	1400	9.6%
MRPL	---	---	---	---	---	---	---	---	---	440	3.0%
BCPL	---	---	---	---	---	---	---	---	---	280	1.9%
Micropet	---	---	---	---	---	---	---	---	---	220	1.5%
Others	---	---	---	---	5	430*	---	5	---	675*	---
Total	205	990	1845	4130	1321	582	1390	10463	100%	15313	100%

* For BOPET Film

Polymer Manufacturing Capacity: 2012-13 / 2016-17

Manufacturing Capacity is being continuously augmented to meet increasing demand. Reliance Industries Limited has lined up an investment of US \$12 billion (Rs. 68,400 crore) in its mega petrochemicals complex in Jamnagar. Major capacity addition would be in Polyethylenes (950KT) by 2015/16 & PET resin (650 KT) by 2014. Other major new capacity coming up is that of ONGC Petro additions Ltd (1.4 MMT of PE & PP) at Dahej, Gujarat. GAIL is augmenting its installed capacity further by putting up new plants of HDPE/LLDPE by 470 KTA at Pata (Uttar Pradesh), which is targeted to be operational during FY 2013-14. GAIL has also formed a Joint venture company by the name of M/s Bhrmaputra Cracker and Petrochemicals Ltd. (BCPL) to accelerate the GOI's only authorized petrochemical project in the North East

of India (at Lepetkata, Assam, India). The BCPL, a JV between the Government of Assam, GAIL (I) Ltd., OIL (India) Ltd. & NRL, will have polymer manufacturing capacity of 280 KT (PE & PP).

HPCL has planned to set up a 9 MMTPA refinery-cum-petrochemical complex at an investment of Rs. 37,230 crore in Barmer district in association with Rajasthan State Refinery Ltd (RSRL) and others and is planned to go on stream in about four years.

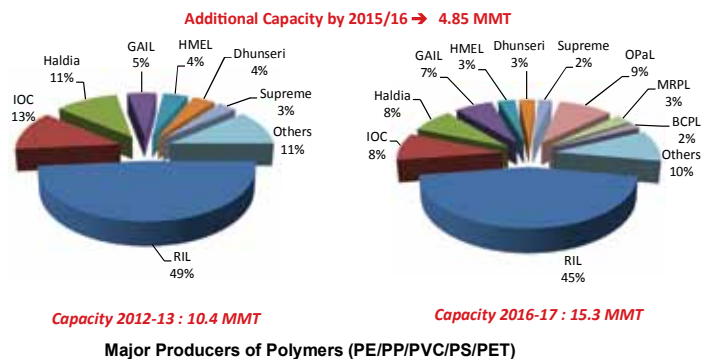
Capacity Additions :

Company/ Polymer	LDPE	LLDPE	HDPE	PP	PVC	PS	PET Resin	Total (KTA)
RIL	400	350	200	---	100	---	650	1700
OPaL	---	340	720	340	---	---	---	1400
GAIL	---	260	210	---	---	---	---	470
MRPL	---	---	---	440	---	---	---	440
BCPL	---	65	155	60	---	---	---	280
Micropet	---	---	---	---	---	---	220	220
JBF Inds	---	---	---	---	---	---	100	100
Others	---	---	---	---	---	5	240*	245
Total	400	1015	1285	840	100	5	1210	4855

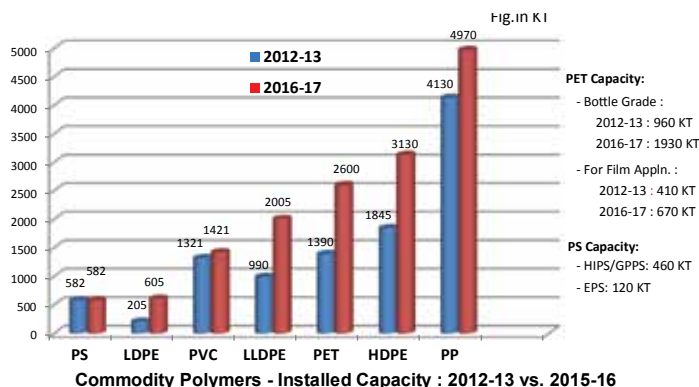
* For BOPET Film

Commodity Polymers - Capacity additions planned: 2013-14 / 2015-16

Close to 5 MMT of additional Polymer capacity is expected to go on stream in the next 3 years. RIL will continue to be the market leader with a share of 45% of total capacity.



Major Producers of Polymers (PE/PP/PVC/PS/PET)



Commodity Polymers

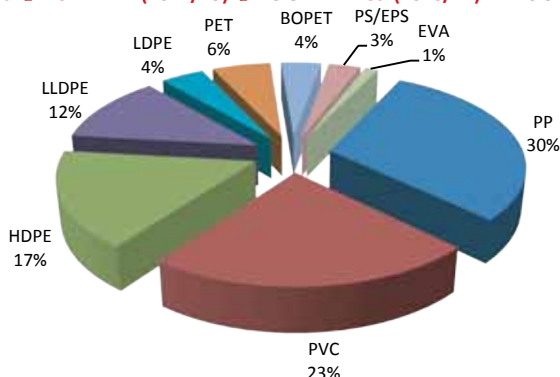
Commodity plastics are the major polymers that account for bulk of the petrochemical industry. Among the commodity polymers, reflecting global pattern, **Polyethylene (PE)** continues to be the largest commodity with **LLDPE** experiencing the fastest growth in this category. LDPE was the first polymer to be commercialized, but over a period of time, HDPE and subsequently LLDPE, overtook the demand of LDPE. LDPE has excellent transparency, good sealing properties & low glass transition temp. Due to its inherent strength and its nature of helping in processibility, LDPE is extensively used as a blend with other polymers. LDPE finds application in general purpose film, heavy duty film, liquid packaging, injection moulding, extrusion coating, wire & cables, adhesive lamination. Flexible Packaging constitutes more than 80% of LDPE consumption. The consumption of LDPE during 2012-13 was 440 KT.

LLDPE has better mechanical properties at high and low temperatures than LDPE, is more resistant to environmental stress cracking and is stronger and tougher. Almost 60% of LLDPE share comes from Butene film, followed by Octene & Metallocene LLDPE film. Metallocene LLDPE grades are in demand due to its properties like better strength, high dart, higher linespeed, better sealing, downsizing of the film etc. LLDPE is the major constituent of flexible packaging growing at more than 17%. LLDPE finds application in mono and multi-layered films, roto-moulding, wire & cables and high flow LLDPE is used in master batch, compounds etc. Demand is likely to increase from 1.23MMT (2012-13) to 1.87MMT (2016-17), a CARG of 11%.

HDPE is a strong and stiff material with good rigidity, tensile strength, chemical resistance and low permeability. It finds major application in Raffia, Blow Moulding, Film, Pipes and Injection Moulding. HDPE consumption has been growing at more than 10% p.a. The consumption during 2012-13 was 1.73 MMT and expected to reach 2.44 MMT by the end of 12th plan period. Total polyethylene consumption is forecast to grow at a CARG of 9.7% to reach a volume of 4.9 MMT in 2016/17 against 3.4 MMT in 2012-13.

PP today is the second largest and fastest growing commodity plastics. Due to its versatile property profile, PP had initially been replacing HDPE and Polystyrene and has now begun replacing engineering polymers in many applications in automotive and appliance sector. Its lower density, balanced properties and competitive cost structure has made the material a preferred option in various demanding applications. PP has been growing at 11% p.a. in the last 5 years and the consumption by 2016/17 is forecast to be 4.9 MMT.

Demand → 10.4 MMT (2012/13) → 15.8 MMT Est. (2016/17) : ~ 10.9 % CARG



Commodity polymer - Consumption 2012-13

Amongst commodity polymers, **PVC** is one of the major polymer where capacity growth in past had been significantly lagging demand growth. PVC demand has been growing at 9% p.a. in India as the market is largely driven by the infrastructure sector requiring pipes, profiles, floorings and cables & agriculture sector which uses pipes for drainage and irrigation. Low pace of capacity addition in PVC is going to see widening gap between demand and supply of PVC during the 12th plan period. During 2012-13, the consumption was 2.4 MMT and it is estimated that the demand will reach 3.3 MMT by 2016-17 leading to almost 2 MMT

The Growth Story Continues...

Indian Plastics Industry 2013-2016

of imports as no new capacity is planned till then. There is, thus, an opportunity for a large scale PVC plant in India which requires competitively priced energy for production and supply of Chlorine and adequate supply of Ethylene.

Polyethylene Terephthalate (PET) is one of the most commonly used food grade packaging polymer due to its chemical inertness and appealing physical properties. Its properties as a lightweight, tough material with excellent optical properties and adequate gas barrier performance makes it attractive for various applications such as mineral water, soda drinks, APET sheets, pharma applications etc. It is also used for flexible packaging film due to its high clarity, low permeability and excellent printability. Bottle grade PET has registered a CARG of 17% in the last 6 years and is expected to grow at 20% p.a. during the 12th plan when consumption is estimated to reach 1.25 MMT in 2016-17 against 0.6 MMT in 2012-13. The demand for film grade PET (for BOPET film) was 430 KT in 2012-13 and is expected to grow @ 12% p.a. during the 12 plan period.

The **Polystyrene** market is the smallest among all commodity polymers. India has large capacity of PS and EPS between three major producers. However, all these facilities are based on imported monomer since there is no local production of Styrene. The demand growth has been relatively slower as compared to PE & PP since some of its application areas were converted to PP and due to the fragmented nature of the processing industry for moulded products. Anticipated demand growth rate of 6% is driven by packaging, disposables, consumer electronic, household products and EPS & XPS insulation applications.

Demand supply Gap

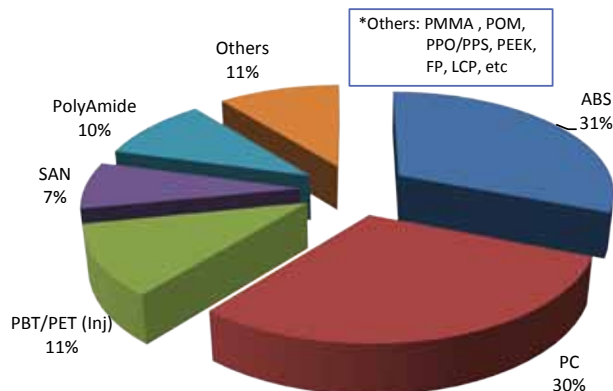
During 2012-13, 250 KT of LDPE was imported to meet the demand supply gap. In case of LLDPE, the imports were to the tune of 520 KT as demand exceeded domestic capacity. In case of HDPE, even though capacity was in excess of demand, 450 KT was imported due to shortfall in production and easy availability of imported material. PVC capacity is not being augmented in the near future and imports will necessarily be required to meet the demand. The imports which were 1 MMT during 2012-13 will go up to almost 2 MMT by 2016-17 as growth in PVC consumption is anticipated to be 9% CARG.

Products (KTA)	Demand		Capacity		Gap	
	2012-13	2016-17	2012-13	2016-17	2012-13	2016-17
LDPE	443	625	205	605	-238	-20
LLDPE	1233	1873	990	2005	-243	132
HDPE	1731	2443	1840	3130	109	687
PP	3108	4891	4130	4970	1022	79
PVC	2372	3325	1321	1421	-1051	-1904
PS+EPS	335	423	582	582	247	159
PET Resin *	600	1250	960	1930	360	680

* Bottle Grade

Commodity Polymer Demand Capacity Gap

Demand → 500 KT (2012/13) → 680 KT (2016/17) : ~ 8% CARG



Engineering Polymer Consumption: 2012-13

Engineering/Speciality Polymers

ABS is the largest engineering polymer where the market has been consistently growing. Due to its wide ranging usages in consumer electronics, appliances and automotive, both ABS and SAN have been witnessing healthy growth. SAN is a co-polymer of styrene and acrylonitrile. SAN is used for injection moulded products where transparency and impact strength is required. The demand for ABS and SAN is about 200 KT out of which ABS constitutes almost 80%. There are two manufacturers for ABS, viz., Bhansali Engineering Polymers and Styrolutions ABS India Ltd with capacities of 140 KT and 50 KT respectively. The major sectors consuming ABS/SAN are appliances, electronics and automotive. In the appliance sector, it is used for components in refrigerators, washing machines and other domestic appliances. In the electronics sector, it finds application in phone backings, TV covers and other electronic items because of its toughness, high impact strength and high gloss. ABS is used in the automotive sector for bumpers,

interiors, dash boards and trims. Due to competition from cheaper PP Compounds, growth is limited in this sector. ABS/SAN is expected to grow @ 8% during the 12th Plan period.

Polycarbonate is a durable material having properties like toughness, optical transparency, rigidity and strength apart from high impact-resistant, heat-resistant and flame-retardant properties. It is used in optical media, electrical goods, appliances, automotive and construction sheets. Demand has been growing @ 9% p.a. in the last 5 years, the consumption being 150 KT during 2012-13. Electronics and optical media sector has 70% share. Moser Baer is the biggest consumer of polycarbonate as it produces about 3 billion pieces of CD/DVD's. This sector which has been growing at 10% p.a. has now peaked and is expected to taper off due to technological advancement leading to lesser demand for CD/DVD's. However, the demand growth in other sectors like mobile phone components, building & construction sheets, and automotive applications is expected to compensate the loss of demand in optical media sector. The anticipated CAGR during the 12th plan period is 8%. India has no producers for Polycarbonate and depends on imports.

Polybutylene terephthalate, (PBT), is thermoplastic polyester, semi-crystalline material which can be moulded at lower temperature and can achieve faster injection moulding cycle time compared to most other polymers. Due to PBT's good dimensional and thermal stability, it finds application in components for automotive, electronic components like plugs, switches, lighting accessories, and



Mr Ajay Shah
Sector Head – Polymer &
Cracker
Reliance Industries Limited

“ Plastics have become an essential part of the modern life style. It has taken a dominant role in water supply, distribution, electricity and food packaging. Without plastics we

will not be able to enjoy flat screen TV's, touch screen smart phones or modern fuel efficient cars. So there is a need to cover the impact of plastics industry on the Indian economy, employment generation and ecology.

electrical components for electrical appliances, electrical fans and air conditioning units. There are no domestic manufacturers for PBT resin. However, PBT compounding facilities are available with Laxness, BASF and Ester Industries. The demand for PBT and its compound is about 55 KT and is expected to grow @ 11% p.a.

Polyamide is a tough, light weight material with properties of high mechanical strength, stiffness, impact resistance, heat resistance and abrasion resistance. These properties are further improved by compounding polyamide with glass and fillers. The main type of polyamides used are Nylon 6 and Nylon 6,6. The largest application for Polyamide is in the automotive sector (mainly engine parts) followed by electronic industry and electrical appliances sector (CFL's) and multilayer-high barrier food packaging film. SRF & GSFC are the major producers of PA. The consumption was 50 KT during 2012-13 and is expected to grow @ 10%

PMMA (Polymethyl Methacrylate) or acrylic is a hard clear material used as an alternative for glass due to its low density, toughness and transparency. The consumption was about 22 KT during 2012-13 (PMMA resin and PMMA in sheet form). GSFC is the only producer for PMMA resins and cast sheets with a capacity of 3.5 KT. PMMA Cast sheet finds application in advertising signage and sanitary ware. Extruded sheet is used in lighting application and building (roofing). Injection moulded applications are light covers and indicators in automobiles and components in electronic products & domestic appliances and toy parts. Sheets for flat screen TV's are imported. Anticipated growth rate is 10% for PMMA.

Polyacetals, also known as polyoxymethylene (POM) is a versatile engineering polymer with properties like high rigidity, high mechanical strength and low friction. Hence it is a preferred material for mechanical components like gears. The largest market is in electrical and electronics applications like audio-visual equipment, medical devices and components for household appliances apart from components for the automotive industry. There are no local producers for POM but there are many compounders making polyacetal compounds, the major being Dupont and BASF. The domestic consumption was about 17 KT during 2012-13 and is expected to grow at 10% p.a.

There are other speciality/high performance polymers like PEEK, FP, LCP, PPS, PPA, PA 46, PI, PAI, PEI, PES, PSU whose consumption is estimated to be about 15 KT during 2012-13.

The Growth Story Continues...

Indian Plastics Industry 2013-2016

Thermosets

Thermosetting polymers are generally stronger than thermoplastic polymers due to their three dimensional network of bonds (cross-linking), and are also better suited to high-temperature applications. However, they are more brittle. Since their shape is permanent, they are not recyclable as a source for newly made plastic. Some examples of thermosets are:

- Phenolic resins form the major portion of thermosets and its estimated consumption during 2012-13 was 360KT. It is used in electrical, electronics, power insulation and other automotive applications
- Polyester fibreglass systems: sheet moulding compounds and bulk moulding compounds
- Polyurethanes: insulating foams, mattresses, coatings, adhesives, car parts, print rollers, shoe soles, flooring, synthetic fibres, etc.
- Urea-formaldehyde foam used in plywood
- Melamine resin used on worktop surfaces
- Epoxy resin used as the matrix component in many fibre reinforced plastics such as glass-reinforced plastics and graphite-reinforced plastics)
- Polyimides used in printed circuit boards and in body parts of modern aircraft

Each type of thermosetting plastic has a unique set of properties. Epoxies, for example, exhibit elasticity and exceptional chemical resistance, and are relatively easy to cure. Phenolic resin, while fairly simple to mould, are brittle, strong and hard. Because of their wide range of characteristics, thermosetting plastics find use in an extensive variety of applications, from electrical insulators to car bodies. Some methods of moulding thermosets are:

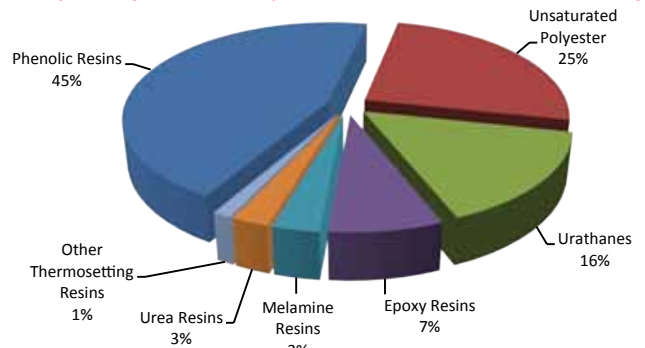
- Reactive injection moulding
- Extrusion moulding (used for making pipes, threads of fabric and insulation for electrical cables)
- Compression moulding (used to shape most thermosetting plastics)
- Spin casting (used for producing fishing lures and jigs, gaming miniatures, emblems.

Based on the discussions with the industry, the estimated consumption of thermosetting polymers during 2012-13 was arrived at 800 KT. This includes virgin resin as well as compounds

based on these resins. Based on industry expectations, the current year's projections for growth of the thermosetting sector is approximately 7 to 9%. Phenolic resins constitute major portion of

Demand → 800* KT (2012/13) → 1100 KT (2016/17) : ~ 8 % CARG

*** In terms of Moulding Powders in case of Phenolic, Urea etc. the Quantum will be much higher**



Source for Unsaturated Polyester Resin : Indian FRP Institute, Chennai

Thermosetting Polymer Consumption, 2012-13 : 800 KT

thermosets with a consumption of 360 KT followed by Unsaturated polyester resins of 200 KT. Unsaturated polyester resins include FRP, SMC, DMC, BMC, Buttons, Putty, etc.

Thermoplastic Elastomers can be broadly classified as:

- Styrenic Block Copolymers (SBCs, TPE-S)
- Thermoplastic Polyolefins (TPO/TPV)
- Thermoplastic Polyurethanes (TPU, TPE-U)
- Copolyester Elastomers (COPE, TPE-E)
- Polyamide Elastomers (TPE-A, PEBA, COPA)
- Others (including Super TPV, ETPV etc.)

The consumption of TPU/TPE during 2012-13 was estimated at 37 KT.

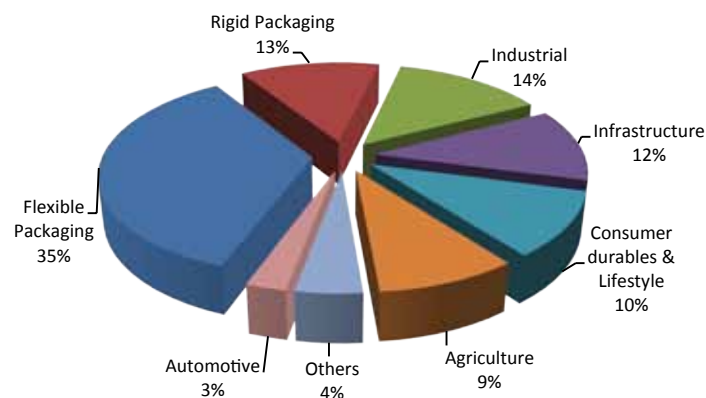
Sector wise Consumption

Packaging accounts for 48% of all commodity polymer consumption and is growing at 15% annually. The main application areas are Multilayer films, BOPP Films, Shrink & Stretch wraps, Thin wall moulding, Thermoforming, Blow Moulded Containers.

Flexible packaging sector is mainly accounted for by PE films used for applications like multilayer film for milk, oil and other liquid packaging, carrier bags, garbage bags, shrink and stretch films and other forms of food packaging. PE accounts for more than 1.5 MMT of virgin polymer consumption. Raffia going for woven sacks application for packing cement, fertilizer, chemicals, polymers, food grain, sugar, FIBC etc are considered as Flexible Packaging

application and accounts for more than 1 MMT of PP and 100 KT of PE. BOPP films find application in food packaging, textile packaging, over wrap for tobacco and products like detergents, shampoo, soap etc., which are packed in metallized BOPP film. BOPP film accounts for about 350 KT of PP consumption. Food packaging is expected to be the major growth driver in the near future for polymer consumption as the retail sector flourishes. India would be one among the top ten packaging consumers by 2016 with demand set to reach \$24 Bn.

Rigid packaging growth is also driven by growth in food packaging as polymers are replacing glass and metal. The major share is that of PET with a demand of 485 KT as carbonated soft drinks, mineral water, fruit juices and liquor are being packed with PET bottles. 75 KT PET demand goes for non-food applications. About 350 KT of polyethylenes go for applications like carboys, jerry cans and 15 litre/ 5 litre containers for packing edible oils and lube oils. Paint pails (including lubes) is another growing sector where about 100 KT is the current demand for PP. Pharmaceuticals and personal care products packaging is also growing due to its light weight and safety thereby replacing glass. Total consumption in rigid packaging is estimated to be 1.4 MMT in 2012-13.



Polymer Consumption - Application wise 2012-13

Industrial sector generated about 1.5 MMT of polymer demand for major applications like telecom ducts (225 KT), gas pipes (100 KT), Master Batches (115 KT), Tarpaulin (100 KT), pallets (55 KT), Wire and Cables (170 KT of PVC) and 350 KT of Engineering Polymers in various industrial applications. Industrial sector contributes to about 14% of polymer consumption.

Infrastructure sector (1.3 MMT of polymer consumption) and **Agriculture** sector (1 MMT of polymer consumption) account for

almost one - fourth of polymer demand. PVC is the major polymer used for pipes accounting for 85% of plastic water and sewerage pipes. Also, pipes and fittings used in the infrastructure and Agriculture sector account for 75 % of total PVC consumption. The 12th plan envisages investment of ~ \$ 43 bn for water management; \$ 92bn for irrigation sector; \$ 220bn for power generation. The major growth drivers in this sector are building and construction, public utilities services, mega highway projects and rural electrification projects and the application areas are pipes (gas, water supply, sewerage), storage tanks, septic tank & manholes, profiles and geotextiles, wire & cables and telecom ducts.

Consumer durables & Lifestyle sector consumes almost 1.2 MMT of polymers. Applications include thermoware & houseware with 200KT of polymer consumption; furniture requiring 150 KT, footwear (175 KT of PVC and EVA), appliances like cabinets, washing machines, refrigerators (60 KT), thermoformed products (75 KT), buckets (40 KT), etc. apart from other household products like storage containers, bottles, disposable cutlery and plates, brushes and trays. The major growth drivers are - healthy economic growth, higher per capita income and greater disposable income.

Agriculture accounts for about 9% of all Polymer consumption. The use of plastics in agriculture, horticulture, water management and allied areas offer benefits like water savings- 60 - 70% ; productivity enhancement by 50-60%; enhanced quality of agricultural & horticultural produce; reduction in post-harvest losses of 30 - 35%; optimum utilization of seeds, fertilizers, pesticides, etc; and conserving soil fertility. As per the projections estimated, the proposed area coverage under micro irrigation during 12th Five Year Plan period (2012-2017) is 100 lakh hectares of land covering 47 Lakh hectares under drip irrigation system and 53 Lakh hectares under sprinkler irrigation system. The projected coverage of micro irrigation would require polymers to the tune of 1.5 MMT and funds requirement to the tune of Rs. 44,000 crores. The major growth drivers for polymer consumption in Agriculture are advanced agricultural technology, government spending, retailer-farmer joint initiatives, distribution channel / refrigerated storage. The application areas are greenhouse films, low tunnels, micro irrigation: drip / sprinkler, mulch Films, crates and pallets.

Automotive Sector: Plastics have enabled auto manufacturers to produce lightweight vehicles at an economical cost, enhancing

The Growth Story Continues...

Indian Plastics Industry 2013-2016

safety, strength, reliability & comfort in addition to fuel economy. The fuel economy resulting from replacement of metals with plastics has been a key consideration for the switch over to plastic auto components. Replacement of metal with plastics to make fuel tank & battery boxes reduces the weight of the components by 40% & 70% respectively making the vehicle more fuel-efficient. About 300 KT of polymers are used in the automotive sector.

Healthcare sector: Polymers play a major role in healthcare like blood bags, disposable syringes, masks and gloves, implants and packaging of medicines. High absorbing materials and polymer non-woven films are vital ingredients for Feminine Hygiene, Diapers, and Incontinence pads, bed & pillow covers. The major Growth Drivers are Private investments in medical services, India a Medical Tourism destination, Wide acceptance of Medical Insurance, double digit growth in consumption of Syringes and I.V. Fluid Bottles.

Polyethylene

The Film sector consumes 1.53 MMT of virgin polyethylene accounting for almost 45% of total PE consumption. Food packaging is expected to be the primary driver for growth as at present it is estimated that only 5% of food is packaged and only 10% of retail is in the organised sector. Monolayer and coextruded film for liquid packaging is the major application in the film sector consuming 580KT. Industrial liners, sack liners, garbage bags and other Speciality Films-Stretch & Cling film accounts for 140 KT and Adhesive Lamination accounts for 150 KT. Film application in

agriculture is another growth area where mulch film, green house film and canal/pond lining films are in demand.

Blow Moulding sector is the next largest sector consuming about 500 KT of PE where the major applications are Carboys, & Jerry Cans, 15 lit. & 5 lit.edible Oil containers, L Ring drums and small bottles where HDPE is used. HDPE blow moulded fuel tanks for automotive application is one of the fast growing sector growing at 18% p.a. Injection moulded products like crates,pallets and buckets made from HDPE account for 275 KT consumption. Raffia application for woven sacks, tarpaulin,monofilament consumes 250 MT HDPE.

Water pipes, gas pipes&telecom ducts are one of the fastest growing sector During 2012-13, large consumption of PE for telecom ducts was witnessed due to implementation of telecom projects.

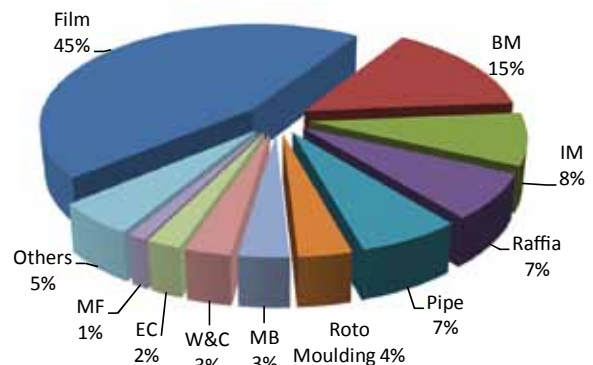
Rotomoulding is a simple & low cost process used for producing water storage tanks. Other rotomoulding applications are automotive parts, chemical storage tanks, garbage bins, road furniture, pallets, etc.The consumption of LLDPE inrotomoulding is about 117 KT of virgin polymer out of which 75% goes for water storage tanks. The industry also consumes another 80 KT of recycled material. 80% of the tanks demand is for less than 2000 litre capacity. Indian water tank market is world's largest market where 90% of the industry is in the SSI sector consuming 10% of the total raw material consumption. The major growth areas are water management, agriculture and infrastructure - manhole and traffic furniture.



Mr Nirmal Thakkar
Chairman
Tipco Industries Limited

"I am pleased at the leaps & bound growth of our Indian Plastics Industry. We have finally crossed the 10kgs per capita plastics consumption. The last decade has shown us that we can consistently grow at more than two times India's GDP. I will not be surprised that the growth projected in the Plastindia Report will be surpassed by the time 2017 rolls around."

PE Demand → 3.4 MMT (2012/13) → 4.9 MMT (2016/17) : ~ 9.6%



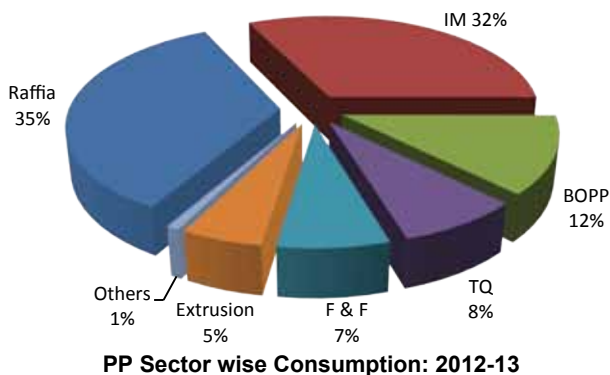
PE Sector wise Consumption: 2012-13

Polypropylene

PP has been one of the fastest growing commodity polymers with a consumption of 3.4 MMT during 2012-13. Raffia sector is the largest consumer with almost 1.1 MMT followed by IM sector, BOPP and TQ. Raffia is used for making woven sacks for packing cement, fertilizer, chemicals, polymers, foodgrain and sugar; and for making FIBC, ropes and strappings. The next largest sector is the IM sector which constitutes 32% of PP consumption estimated at 1 MMT during 2012-13. The major applications are housewares&thermo ware(200KT), Automotive (190KT), Furniture (150 KT), Paint pails inclusive of lubes (90 KT), appliance (60KT). Other IM applications are Caps & Closures, luggage, Medicare (bottles and syringes), crates, etc. The automotive sector is set to grow at a faster rate as PP has the ability to replace costlier engineering polymers. Since polymer consumption in passenger cars is currently half that of global average of 120kg.,and PP contributes 50% of all polymers, PP consumption is expected to grow at a higher rate in automotive sector. There is growing opportunity for PP moulded components in washing machines, air conditioners and electrical home appliances as penetration of these products, at present, is quite low compared to other nations.

The film sector constitutes 20% of PP consumption which is in the form of BOPP film (385 KT) and TQ film (250 KT) during 2012-13. BOPP film is best suited for food packaging applications and there is big demand for small laminated and metallised pouches to pack detergents, soap, etc. TQ film sector is still significantly large in India for applications like food and textile packaging but its growth is expected to slow down as BOPP film growth surges. The other sectors are F&F (Nonwoven for infrastructure &health care) and compounding &masterbatch. PP is expected to grow at 10 to 12%, leading to a consumption of 4.9 MMT in 2016-17 from current 3.1 MMT.

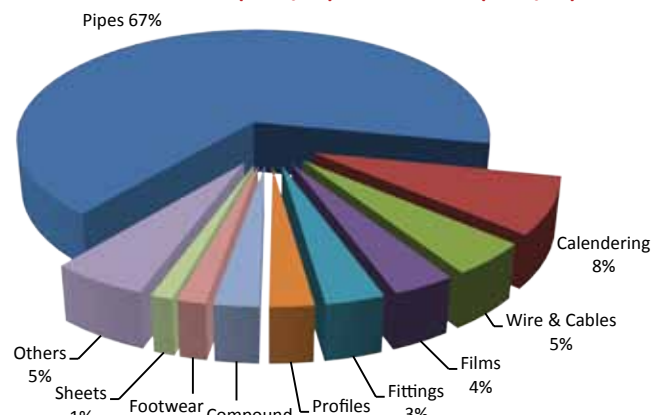
PP Demand → 3.1 MMT (2012/13) → 4.9 MMT (2016/17) : ~ 12% CARG



PVC

Pipes and fittings account for 70% of PVC consumption in India. The demand for pipes and fittings is seasonal and depends on weather conditions as it is widely used in construction and agriculture. Rigid pipes account for 85% of all pipes. Due to greater emphasis on improving rural water supplies and agricultural irrigation projects and government's plan to invest more than US \$ 100 billion during the 12th plan period, the demand for PVC pipes is set to grow. Calendaring process consumes 190 KT of PVC and is the second largest sector after pipes, main application being blister packaging. PVC profiles for door and window frames are developing as environmental concerns over deforestation is leading to discouragement of use of wood. Wire and cables account for 5% of PVC consumption and is driven by investment in infrastructure and construction projects. Other applications include medical products like blood bags and tubing, consumer goods like footwear, toys and flooring. Consumption of PVC is set to grow at close to 9% during the 12th plan period.

PVC Demand → 2.37 MMT (2012/13) → 3.33 MMT (2016/17) : ~ 9%



PVC Sector wise Consumption: 2012-13

PET

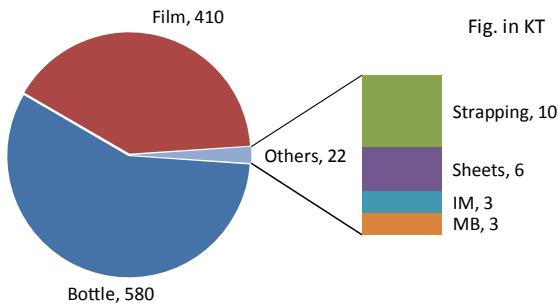
PET consumption during 2012-13 was 600 KT of bottle grade and 410 KT for BOPET film application. The per capita consumption is only 0.5 kg against world average of 2.7 kg and USA's 6.7 kg. Hence, there is tremendous growth potential and demand is expected to grow @17% p.a. during the 12th plan period. The largest application for PET is in bottled water which contributes for 21% of total demand. Carbonated soft drinks is the second largest market accounting for 17% of the demand followed by alcoholic

The Growth Story Continues...

Indian Plastics Industry 2013-2016

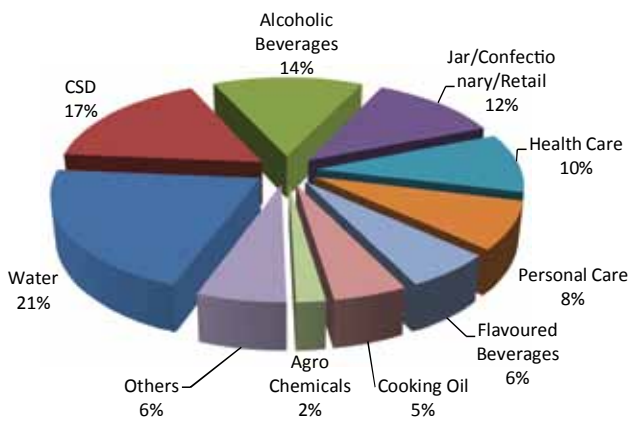
beverages with 14%, The other sectors are jar/confectionary/retail, health care, personal care, flavoured beverages, cooking oil and agrochemicals. PET sheet is a fast growing sector for packaging. It is used for folded boxes, blister packaging and thermoformed products like cups, trays, pharmaceuticals & home care products and food containers.

PET Demand → 1 MMT (2012/13) → 2 MMT (2016/17) : ~ 17 % CARG



PET Sector wise Consumption: 2012-13

PET (Bottle grade) Demand → 0.6 MMT (2012/13) → 1.25 MMT



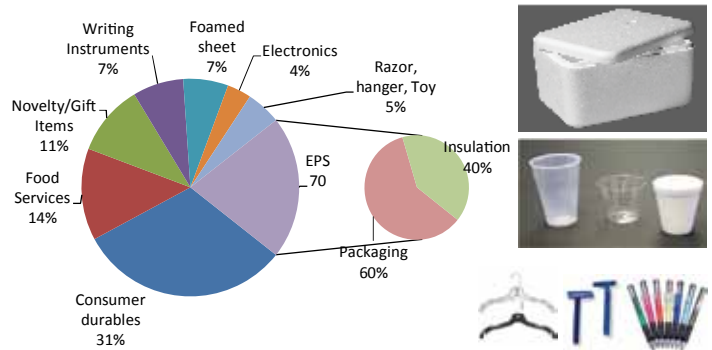
PET (Bottle grade) Sector wise Consumption: 2012-13

PS/EPS

General purpose (GPPS) & High impact Polystyrene (HIPS) accounted for 79% of PS consumption and EPS accounted for 21% during 2012-13. The packaging sector is the largest consisting of both thermoformed and IM containers used in food packing. This sector is expected to grow with the emerging retail organised sector. The second largest market is that of domestic appliances, electrical housing and refrigerator liners.

Other applications are food services, novelty/gift items, writing instruments, foamed sheet, electronics, razor, hanger, toys. EPS has application in building insulation, protective and insulated packaging, disposable fast food packaging, disposable cups. Extruded Polystyrene (XPS) insulation board finds application in building insulation. The consumption during 2012-13 for PS/EPS was 335 KT. The growth of PS is expected to be lower than other polymers at 4% whereas, EPS and XPS board is expected to see stronger growth of 7 to 8%. The slower growth projected for PS is due to the unstable & fluctuating nature of its price, competition from imported finished products especially China, replacement of PP in many of PS applications, and environmental pressures on the use of disposables.

PS/EPS Demand → 335 KT (2012/13) → 470 KT (2016/17) : ~ 6 % CARG



PET (Bottle grade) Application wise Consumption: 2012-13



Mr Raju Desai
Director
Intercontinental Polymers
Pvt Ltd

"First of all my compliments on compiling such informative report.

I think few things need to be covered on wider spectrum.

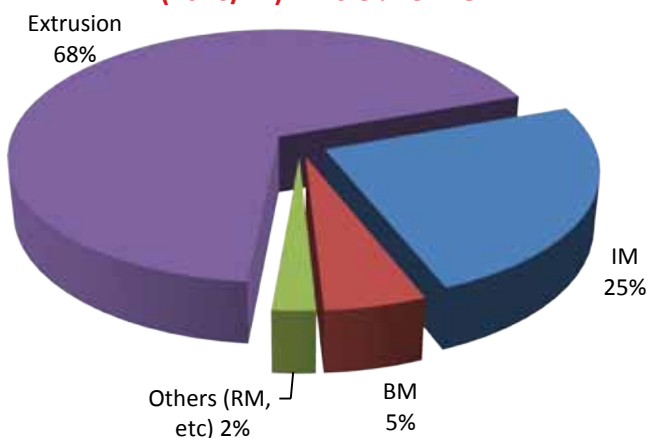
we need to throw some more light on market demand of engineering plastic & its demand in sectorial growth.

Downstream Plastic Processing Industry

The Indian plastics industry made a promising beginning in 1957 with the production of polystyrene. However, major growth in plastic processing took place only in the 1990's after the government deregulated and relicensed the industry. Large number of first generation entrepreneurs entered the plastic processing sector and is now dominated by tiny, small and medium scale industry. The increase in investment limits in the small scale industry up to Rs. 5 crore in plant and machinery has contributed significantly to the upgradation of the industry. Currently, the Indian plastics industry is spread across the country, employing about 4 million people and over 2,000 exporters. Due to the fragmented nature of the Plastic processing industry, it is difficult to estimate the exact number of processors. Based on industry sources, it is estimated that the industry operates about 30,000 processing units, of which 85 to 90 per cent are micro, small and medium enterprises (MSMEs). The top 100 processors contribute to about 30% of polymer consumption. The MSMEs are the primary users of recycled resins accounting for an additional volume equivalent to about 30% of total virgin resin consumption.

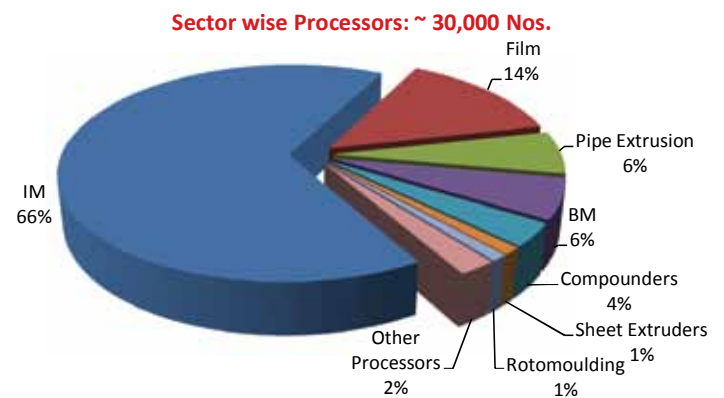
The domestic downstream industry covers three key categories viz. Injection moulding, Blow moulding and Extrusion and caters to the requirements of a wide array of applications like packaging, automobile, consumer durables, healthcare, agriculture, infrastructure etc. Virgin thermoplastic polymer consumption during 2012-13 was estimated to be 11 MMT, with 68% accounted by Extrusion, 25% by Injection Moulding Sector, 5% by Blow Moulding & 2% by other sectors like Rotomoulding, etc.

Polymer Demand: 11 MMT (2012/13) → 16.5 MMT Est. (2016/17) ~ 10.8 % CARG



Process wise Polymer Consumption: 2012-13 - 11 MMT

Even though Extrusion process is the largest sector for polymer consumption, Injection Moulding is the most prevalent process. It is estimated that there are about 19,000 processors in the IM sector consuming only about 25% of the total polymer consumption with more than 72,000 IM machines of varying sizes and total installed capacity of 9.4 MMT. This sector has the largest number of small and unorganised units. The estimated number of processors in different sectors is shown in the below chart.



The plastic processing industry has shown tremendous growth but it is still relatively underdeveloped and has huge potential for further investment and growth. However, the small processing units which are operating with old and inefficient machines, lack access to capital to invest in new and modern equipment. This is hindering them from becoming internationally competitive as they are not able to reduce operating costs and improve performance. Due to slowdown in global economy, international demand for goods has been affected. India's GDP growth rate too has been affected, but to a lesser extent. However, polymer consumption is expected to grow well ahead of GDP growth as demand exists for plastic products in various applications driven by government spending on infrastructure projects and rising consumer demand. With various government reforms taking place, Polymer consumption is expected to grow @ 10 to 11% p.a. during the 12th plan period.

In spite of various hurdles, the Indian plastic industry has achieved global laurels like having world's largest integrated clean room FIBC manufacturing facility, world's largest CD/DVD manufacturing facility, global headquarters for largest Lamitube manufacturer and one of the largest BOPP line in India.

The Growth Story Continues...

Indian Plastics Industry 2013-2016

Steady Growth in Exports

India is one of the most promising exporters of plastic products among developing countries. The Indian plastic industry produces and exports a wide range of raw materials, plastic moulded/extruded goods, polyester films, laminates, moulded/soft luggage items, writing instruments, plastic woven sacks and bags, PVC leather cloth and sheeting, packaging material, consumer goods, sanitary fittings, electrical accessories, laboratory/medical surgical ware and travel ware, among other products. Exports of plastic finished goods have more than trebled in the last 7 years from US \$1Bn to US\$ 3.5 Bn, an impressive growth of 17% CARG. But fierce competition from countries such as China, Indonesia, Taiwan and other South Asian countries is restricting growth. Due to technological advances in sectors like FIBC, India has become a leader in FIBC exports.

Exports of Finished Plastic Goods								
Year	2005-06	2006-07	20'07-08	2008-09	2009-10	2010-11	2011-12	2012-13
Value (Mn USD)	1078	1177	1812	2029	2104	2323	3110	3251
% Growth (YoY)		9%	54%	12%	4%	10%	34%	5%

Source : Plexconcil

The Plastics Export Promotion Council (PLEXCONCIL), the apex government body for the promotion of exports by the Indian plastics industry, has members comprising of large/medium/small-scale manufacturers and exporters. It facilitates exporters through various export promotion activities such as participating in international trade fairs, exploring newer markets, organising buyer seller meets both in India and overseas, and other need based activities. This has aided in India becoming a net exporter of



Mr Jigish N Doshi
Chairman & Managing Director
Vishakha Polyfab Pvt Ltd

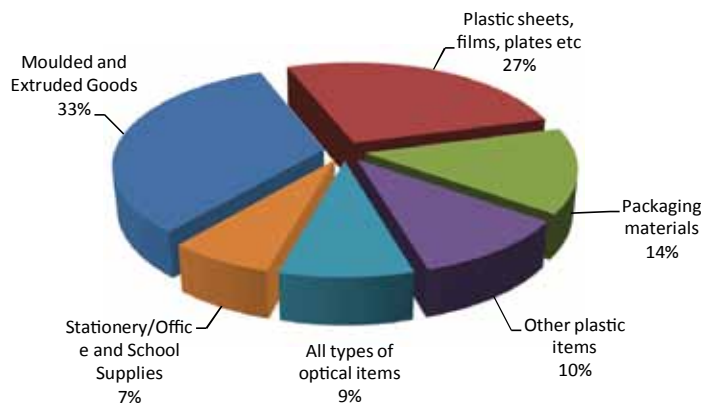
"It's a fantastic report - It shows present & future and also encourage processing industry, to explore more opportunity. It's a very good beginning to approach government & find out some better policy for the growth of plastic processing industry."

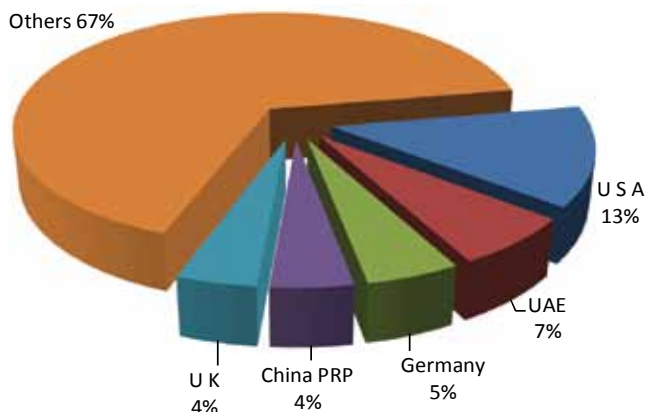
plastic converted products. Imports of Plastic converted products during 2012-13 was about 1MMT valued at US \$1.93 Bn against exports of US \$ 3.25 Bn. To increase growth in exports, the downstream processing industry needs further investment and FDI which would increase value addition.

Imports – Converted Products – 2012/13

Product	(Apr 12 - Mar 13)	
	KT	USD (Mn)
Self adhesive plates, sheets, film, foil, tape, etc	462	856
Articles for packing goods; stoppers, lids, caps & closures	106	196
Tubes, pipes, hoses and fittings	59	109
Sanitary ware - Baths, sinks, wash-basins, bidets, laboratory pans, seats & covers, flushing cisterns	30	55
Builders' ware of plastics	27	50
Table ware, kitchen ware & other household articles	17	31
Floor, wall & ceiling coverings	16	29
Monofilament (> 1mm dia), profile shapes of plastics	9	16
Other articles of plastics	317	586
Total	1041	1928

Exports of Finished Plastic Goods : 2012-13 - US \$ 3.25 Bn





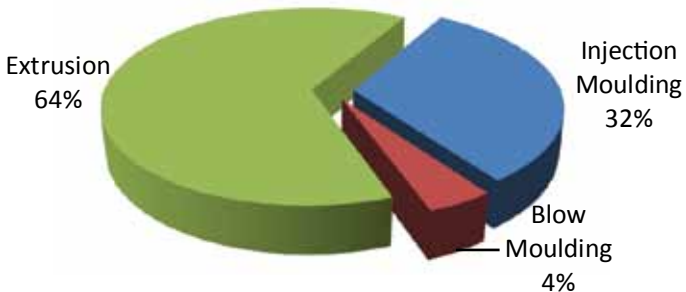
Source : Plexconcil

Country wise Exports of plastic products, 2012-13 : USD 3.25 Bn

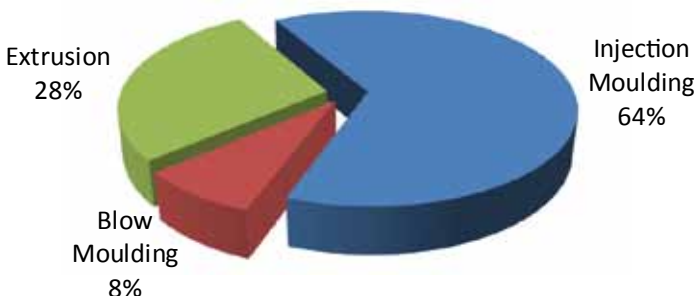
Machinery - Capacity addition & Technological Advancements

As of 2012-13, the total number of machines installed in major processing sectors was 113,000. In terms of number of machines, about 64% was Injection Moulding machines followed by 28% in Extrusion and 8% in Blow Moulding. In terms of Capacity, Extrusion accounts for 64% of total capacity, Injection Moulding 32%, and Blow Moulding 4%.

Total Installed Capacity Upto 2012-13 : 30.4 MMT



Total No. of Machines Upto 2012-13 : 1,13,000



Processing capacity has grown @ 13% CARG in the last decade from 8.9 MMT in 2002-03 to 30.4 MMT in 2012 -13. There was a fourfold increase in investment in machinery from Rs. 600 crores during 2002-03 to 2600 cr in 2012-13, a CARG of 16%. Also, the average installed capacity per machine has increased from 238 MT/ annum/machine to 354 MT/annum/machine for new machines installed in the year 2012-13, reflecting that more higher-output, high-technology machines are being installed. The current status of the Plastic processing machinery excluding mortality is shown in the table below.

Upto 2012-13	No. of Machines Installed	Installed Capacity (KT)
Injection Moulding	72250	9450
Blow Moulding	9000	1300
Extrusion Total	31600	19700
Monolayer Film	9370	1625
Multilayer	1290	1050
BOPP	33	600
PPTO Film	2950	640
Raffia	1760	2690
PO Pipes	1395	1560
RPVC Pipe	5200	5390
Others	9580	5380
Total	112850	30450

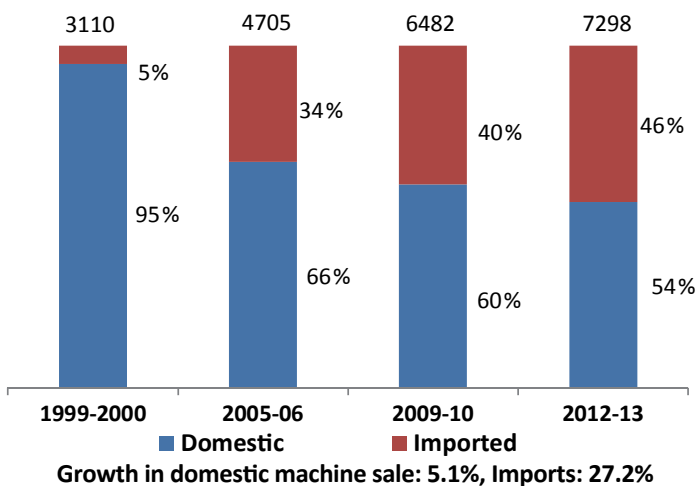
35,500 machines were added at an investment cost of Rs. 13,000 crores in the last 5 years out of which 25,300 were injection moulding machines accounting for around 69% of all machines, while extrusion machines accounted for 24% and the rest 7% were blow moulding machines. Indian plastic processing industry invested around Rs. 3100 crores in machinery during 2012-13. The year was not a good year for Indian Economy and Plastics machinery also experienced 10% decline in demand for machines and the installed capacity and investment during the year decreased by 7% & 9% respectively in comparison to previous year. However, the industry is expected to overcome the slowdown in the coming years and machinery demand is projected to grow at a CARG of 8.6%. The number of machines required by the year 2016-17 is estimated at 10150 with an investment requirement of Rs. 6,150 crores.

The Growth Story Continues...

Indian Plastics Industry 2013-2016

Status of Plastic Processing Machinery				
	Total Upto 10-11	11-12	12-13	Total Upto 12-13
No. of Machines				
IM	61047	5942	5248	72237
BM	8020	536	450	9006
Extrusion	28404	1620	1600	31624
	97471	8098	7298	112867
Capacity (KT)				
IM	7356	1102	980	9438
BM	1062	124	107	1293
Extrusion	16650	1549	1496	19695
	25068	2775	2584	30427
Investment (Rs Cr)				
IM	13663	2288	2012	17963
BM	805	115	97	1017
Extrusion	10654	1272	980	12906
	25122	3675	3088	31886
Excludes Mortality				

There are about 200 registered machinery manufacturers out of which the top 20 manufacturers account for 80 - 85% of the capacity. Imports of machinery have been increasing in the recent past. Currently, imported machinery accounts for about 46% of overall sales from just 7% in 2000-01. In the Injection moulding machinery sector, out of sales of around 5600 machines, domestic manufacturers are estimated to have 50% share while imports accounts for rest. There are more than 50 global manufacturers from China, Taiwan, Japan, Europe and America who have footprint in Indian plastic machinery market currently. All the leading Indian machinery manufactures have



expanded their production capacities as well as portfolio range to meet the challenge.

Although recent injection moulding machines offer advantages like latest technology with low maintenance cost and energy efficiency, the cost of new machines is still high. Hence, market for imported used Injection Moulding machinery has been steadily growing.

Due to the boom in auto sector, renewed investment in consumer goods, house ware sector etc., the economy of scale will force the processing industry to go for higher investment in larger size & energy efficient machines. For example, all electric injection moulding machines are increasingly becoming popular due to their energy efficiency, greater cleanliness, quick start up, better repeatability, and quiet operations. However, cost of these machines are higher by 50 - 200% compared to conventional hydraulic machines. In spite of the higher costs, the industry has been investing in these machines. Domestic manufacturers have also started supplying All Electric machines in recent years.

Consumption of plastics in high growth sectors like Infrastructure, Agriculture, Material Handling & Packaging, Automobiles, White & Brown goods, etc., is growing at more than 13 % p.a. leading to tremendous opportunities for plastic machinery manufacturers. The demand for plastic processing machinery is projected to increase annually by 8.6% to reach 10150 machines by 2016-17, the end of the 12th Five year Plan. This demand will also be due to factors such as advances in new technology, high output machines,



Mr Mukesh Shah
Marketing Director
Fine Organic Industries Pvt Ltd
(Fine Organics)

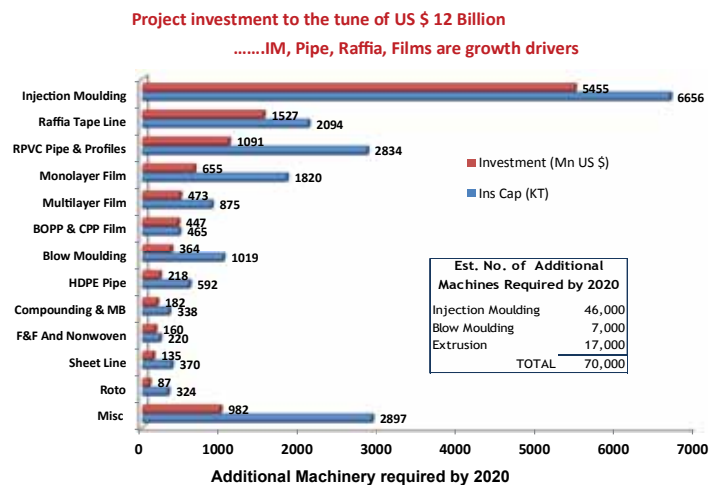
"This report covers all information very precisely. From raw materials to compounds and machinery... and final products demands/growth potential etc... and this report also

describes history of polymer industry in India to current status, new projects and additional capacities coming up till 2016. I am sure that entire Plastics industry fraternity will be benefited by this report."

energy efficiency, replacement of old machines and investment by new entrepreneurs. However, the current downturn in domestic machinery business which is prevailing since the last two years needs to be reversed by taking measures to compete with imported machines. A subsidy like the Textile Upgradation Fund

No. of Machines						2016-17 (Forecast)	
	2008-09	2009-10	2010-11	2011-12	2012-13	Nos.	Value in Rs Cr
IMM	3,446	4,236	5,667	5,942	5,248	7,300	3,920
Extrusion	1,714	1,816	1,902	1,620	1,600	2,150	2,060
BMM	387	430	570	536	450	700	170
Total	5,547	6,482	8,139	8,098	7,298	10,150	6,150

Scheme (TUFs) for plastics processors, could boost demand for machinery and thereby polymer consumption and growth.



It is anticipated that by 2020, the industry will require 70,000 machines at an investment of USD 12 Bn (Project cost).

To highlight some of the advancements in Indian plastic processing technology, we have in the Extrusion sector - Multilayer film plant with 9 layers, 7 layers Multilayer blown film line with PVdC processing, 3 layer PVC cast film line, HDPE pipe plant with capacity to manufacture 1600 mm pipe, Corrugated pipe >1400 mm PVC pipe – both foam & plain –largest dia. 630 mm, Drip irrigation plant having capacity of 150 mts/min, Slit tape plant with capacity of 1000 Kg./hr for woven fabric; in the Injection Moulding sector, machines having 3800T clamping force, All Electrical Machines of 1600T; and the Blow Moulding sector boasts of 6 layer blow moulding machine for fuel tank &

specialty products and Rotomoulding machines to produce tanks of capacity 35,000 litres.

Auxiliary Equipment in Plastics Processing Industry

Auxiliary Equipment Business is, as a general rule, estimated at 15-20% of the Machinery Business. Injection Moulding, Blow Moulding and Extrusion Industry generated an estimated business of Rs 600 Crores during 2012-13. The current status of Auxiliary Equipments in Plastic Processing Industry is estimated as follows:

Population of Auxiliary Equipments in Plastics Industry (Includes Import/Export Business)	
Product	Units
Chilling plant	4500
Mould temp. Contrller	1000
Drying System	
- Hot Air Dryer	3500
- Dehumidified Air Dryer	600
Raw Material Conveying System	
- Hopper Loader	6000
- Central Conveying System (incl. powder conveying)	50
Volumetric/Gravimetric Blending System	600
Conveyor Belt with Counting System	400
Granulator	3500
Robot (Imported from China, Taiwan, Japan, Korea, Europe)	100
Hot Runners	800

Plastics Recycling

India has made significant technological progress in the area of manufacturing of plastics products in almost all sectors of applications. However when it comes to the recycling of plastics, the performance is insignificant in a way that this activity is mostly accomplished in an unorganised sector without the application of modern day technology. This is mainly because of the reason that India has very cheap workforce which is involved in segregation and cleaning operation of the plastics waste in the Municipality Solid Waste (MSW) stream for mechanical recycling and there are smaller recycling plants operated by cheap but skilled workforce.

In the Rigid category, almost 100% waste is recycled in India whether it is from the packaging or from other sectors of application with the exception of Expanded Polystyrene (EPS) which has a low recycling rate. In the Flexible category, collection

The Growth Story Continues...

Indian Plastics Industry 2013-2016

rate of laminated/multilayered plastic film, contaminated/mixed plastics waste from MSW stream is low and recycling of these waste has remained low. New technologies have been set up to recycle this category of plastics waste also.

As in the rest of the world, Mechanical Recycling has remained the most adopted methods of recycling in India too. Except PET bottle recycling, which is in the organised sector, most of other Mechanical Recycling activities in India are in the unorganised and small scale sector. While most of the Mechanical Recycling activities deal with homogeneous mixtures of same family of plastics waste, there has been some development in the area of recycling of contaminated / mixed plastics through mechanical recycling process for manufacturing compressed boards/roof sheets and plastic 'lumbers'. Among the non-conventional recycling technologies, some initiatives in the Feedstock Recycling and Energy Recovery have been taken in the country in the last few years. Manufacturing of Industrial Fuel from mixed plastics waste and co-processing of mixed plastics waste in cement kilns have started in India, in a small way. Use of waste plastics for heat & power generation and its use as reducing agent in the blast furnace and conversion to monomer are not visible in India as on date.

In an innovative technology, use of plastics waste in the construction of asphalt road has been demonstrated in the country in the past decade. All types of mixed flexible plastics packaging waste, without elaborate cleaning, find use in this application.

Although Plastics recycling activities are popular near major urban cities, some specific clusters in different zones of the country have emerged. These recycling clusters are located at Dhoraji in Gujarat, Daman, Vapi in Gujarat, Malegaon (Dyana), Sholapur in Maharashtra, Dharavi and Bhandup area in Mumbai, Indore in Madhya Pradesh & at Delhi, NCR.

Out of around 11 MMT of plastics consumed in India, 60% or 6.6 MMT are used for long term applications and hence do not require recycling on year to year basis. Out of the balance 40% or 4.4 MMT, which go for packaging applications, most of the rigid are recycled with the exception of EPS, which has a low recycling rate. Quantum of PET recycling, which is carried out in the organised sector, is estimated to be around 400 KT out of total consumption of about 600 KT, 100 KT of which are considered to

remain in circulation for reusing and the 100 KT remaining still to be collected from remote and other areas.

As per the last sample study published in 2008, the status of Plastics Recycling in India stood as stated below:

- Numbers of Organised Recycling Units: 3500
- Numbers of Unorganised Recycling Units: 4000
- Major Types of Plastics Recycled: PET, HDPE, PVC, LDPE/LLDPE, PP, PS & others like ABS, PMMA etc.
- Manpower directly involved in Plastics Recycling: around 6 lakhs
- Manpower indirectly involved in Plastics Recycling: around 10 lakhs
- Quantum of Plastics Recycled per annum: 3.6 Million Tons

The total quantum of recycling comprised of plastics products which went for recycling including the ones from applications like household, furniture etc. Considering the overall growth of the plastics industry and its increased usage pattern, the total recycling could very well be estimated at around 4 MMT.

Source for Plastics recycling : ICPE

Masterbatch & Additives

Masterbatch is a high concentration of pigment/additive dispersed in a carrier medium which can then be used directly by the processor in small quantities to pigment or modify the virgin polymer. Most processes require the polymers they use to be coloured or modified in some way, for example, the addition of additives such as flame retardants or UV light stabilisers. Masterbatch can be divided into white, black, colour, additive and filler masterbatch. The consumption of White/black/colour masterbatch and additive masterbatch was about 255 KT during 2012-13. The total consumption of Masterbatch and additives was estimated to be 770 KT during 2012-13.



Mr Raj Kumar Lohia
Managing Director
Lohia Group

"Extremely well compiled report. Reading this report was a great pleasure. Please accept my best compliments".

Masterbatch	Demand (KT)	
	2012-13	2016-17 (Est.)
White/Black/Colour + Additive	255	400
Filler Masterbatch	515	800
Total	770	1200

Masterbatch has been the fastest growing segment of the compounding industry and constitutes the largest share of the compounding industry's output. Anti-fibrillation masterbatch used in the manufacture of raffia bags and sacks is the largest. They are also used in film extrusion and to a small extent in IM packaging. The major demand is for film and fibre application followed by the IM sector driven by growth in automotive, consumer goods and packaging. The domestic masterbatch production growth is significant in recent times as it has been able to find a place in the export market also. Demand for additive masterbatch has grown rapidly especially for slip and antiblock application due to rapid growth in BOPP film production.

The production of masterbatch is fragmented as there are more than 180 manufacturers. The industry has developed and is now in a position to compete on an international scale. The largest producer is Plastiblends, a part of the Kolsite group, which has a capacity of 75 KT for compounds and masterbatch. The other major producers are Alok Industries, Poddar Pigment, Plasticchemix, Tipco Industries, SCJ Plastics, Rajiv Plastic Ind., Multibase, Ampacet, etc. Major multinationals who have manufacturing facilities in India are Clariant & Polyone Corporation..

The major growth drivers are new specific applications like cling film (cling masterbatch for stretch wrap film), anti-bacterial film, foaming agents and PPA masterbatch for high speed extrusion. The other growth drivers leading to increased demand for masterbatch are growth in consumption of LLDPE lamination film, milk film, higher consumption of black masterbatch in pipes, increased usage in moulding sector, boom in raffia market and high polymer price levels triggering enhanced usage.

The different types of Additive Masterbatch are Anti Oxidant, PPA, Anti-Static, Slip, Cling, Anti-Block, UV Stabilisers, Anti-Fogging, Anti-Microbial and Optical Brighteners. Additive MBs are used for blown films, extruded sheets, raffia tapes, profiles, wire & cable, injection & blow moulding.

Type	Filler / Additive	Properties	Applications
Colour	Carbon Black / TiO2 / Pigments	Imarts Colour, Better Aesthetics	HM Film, HM Pipes, Household articles, Consumer Durables, Carry bags etc
Antifibrillation	CaCO3	Increasing Density, Lower Shrinkage, Increasing hardness and surface quality	Raffia, Furniture
Additive	UV / Nucleating Agent/ Antiblock / Slip	Enhancing Physical & Processing property	Argiculture Films, Rotomoulded products, BOPP films

The typical loading of masterbatch in the plastic processing industry is as follows:

Additive MB	Typical Additive loading	Filler MB	Typical Filler Loading
Antioxidant	10%	Calcium Carbonate (Antifibrillation)	70%
Antiblock	40%	Mixture of Talc & CaCO3 (For furniture)	70%
Polymer Processing Aid	5%		
UV Stabilizer MB	10%		
Slip MB	10%		
Optical Brightener	5 - 10%		
Nucleating Agent	10%		

Additives are integral components in plastics and contribute to the success of plastics not only in processability but also in property modification and performance. Additives offer innovative solutions for qualities like durability, aesthetics, low-maintenance, and biodegradability. Additives, used at only 5-7%,

The Growth Story Continues...

Indian Plastics Industry 2013-2016

provide immense benefits. Plastics additives can be classified into five broad categories: modifiers, property extenders, plasticizers, fillers and process aids. Plasticizers, mainly used in flexible PVC, are the single largest type of plastics additives with a demand of 380 KT during 2012-13. Additive demand is estimated as follows:

Anti Oxidants	2012-13	2016-17
Phenolic AO	4000	6294
Phosphite AO	4700	7396
Trioesters	350	551
UV - Absorbers	1500	2360
	10550	16600
Stabilizers		
PVC Heat Stabilisers	57000	80500
Modifiers		
Impact Modifiers	7120	10050
Processing Aids	5650	7975
	12770	18000
Flame Retardants		
Brominated	640	839
Phosphite	1530	2006
Antimony Oxide	1600	2097
ATH	9600	12584
Others	1020	1337
	14390	18900
Plastisizers		
Primary Plastisizers	225000	306110
Epoxy Plastisizers	30000	40815
Chlorinated Paraffins	125000	170061
	380000	517000

Indian plastic industry - the early days

The distinction of being the first and pioneering manufacturer of plastics in India goes to Shri Bapulal Mansukhlal Thakkar when he set up Phenolic Resin manufacturing facility, the local version of "Bakelite", during the mid-1940's.. He went on to establish India's largest manufacturing unit of Phenolic Resins, Moulding

Compounds & Thermoplastics in Mumbai. However, it was only during the mid-sixties that the Petrochemical Industry had a beginning when the first 20 KTA Naphtha Cracker was established in Mumbai by Union Carbide closely followed by 60KTA cracker by NOCIL and first HDPE plant by PIL. Prior to that small polymer plants were operated based on ethanol derived from molasses, the LDPE plant of the then ICI at Rishra near Kolkata, and the PS plant of Polychem was based on imported monomers. In spite of the introduction of polymer manufacturing and processing in the 1950's, the actual growth and development took place only in the 1990's after the government deregulated and relicensed the industry which allowed investments in petrochemical industry and downstream plastic processing. Plastics have now entered into a high-growth phase in India and its usage is rapidly multiplying on all the fronts and its consumption by volume has overtaken steel, glass and paper.

The first integrated petrochemical complex was set up by IPCL at Vadodara in the year 1978. This gave the early impetus to the initial growth of this industry. However, the main thrust came with liberalization and in post reform period when large capacity came on stream in the private sector when RIL set up large integrated complex with PE & PP plants at Hazira, Gujarat in 1992/93

Conclusion

Plastic converting industry has tremendous potential for future growth. Indian economic fundamentals are robust despite current gloom and continuing uncertainty in global economy. Huge growth opportunities for plastics exist in India due to lower per capita consumption as compared to world average. Large and rapidly growing domestic market for end products supported by the presence of a vibrant entrepreneur base should help India reach polymer consumption of 20 MMT by 2020. However, some hiccups like low focus on value added exports of "articles of plastics", inadequate infrastructure for exports, inadequate availability of quality power, and high capital cost (CAPEX, cost of energy, cost of interest) needs to be addressed. TUFs in the textile industry has enabled India to become a global player. Similar facility would also enable plastic converting industry to enhance exports and make it possible to reach an export target of US\$ 6 billion, for articles of plastics, by the end of the 12th plan. Interim support under CLCSS with enhanced limit would add to strengthening of the industry.

Setting up of SEZs would help in overcoming bottlenecks of infrastructure and create business friendly policies. Implementation of the announced setting up of Plastic Parks in the states of Punjab, Haryana, Rajasthan, Utter Pradesh, Odisha and Andhra Pradesh would encourage MSMEs to set up units to form Plastic Clusters.

This growth of Plastic industry, as anticipated in this report, will have a far reaching impact on sectors critical for India's growth, like Agriculture, Infrastructure, growth of Processed Food sector, proper material handling & reduction of waste and Energy conservation.

Disclaimer

This report contains forward-looking statements which may be identified by their use of words like "plans," "expects," "will," "anticipates," "believes," "intends," "projects," "estimates" or other words of similar meaning. Forward-looking statements are based on certain assumptions and expectations of future events. The Committee referred to in this presentation cannot guarantee that these assumptions and expectations are accurate or will be realized. The actual results, performance or achievements, could thus differ materially from those projected in any such forward-looking statements. These companies assume no responsibility to publicly amend, modify or revise any forward looking statements, on the basis of any subsequent developments, information or events, or otherwise. The information contained was obtained from various sources believed to be reliable and we do not guarantee its accuracy. Neither Plastindia Foundation or any of the members of the Committee accepts any liability whatsoever for any direct or consequential damages or losses arising from any use of this report or its contents. Complete or partial reproduction of this report is restricted and requires written permission from Plastindia Foundation.



Mr Shekhar Balkrishnan
Sr. General Manager
Reliance Industries Limited

Special Thanks to Mr Shekhar Balkrishnan for compiling this article for Plastindia Foundation's In-House Journal based on the PISR Report.



On the dais(L to R) : Mr Francis Pinto, Mr J R Shah, Mr Subhash Kadakia, Mr Lalit Singh, Mr Rajiv Raval

The Plastindia Foundation officially released the 2013-2016 PISR at a press meet held on November 29, 2013 at the Marine Plaza Hotel, Mumbai.

Founder Members Activities



INDIAN PLASTICS INSTITUTE

Mumbai Chapter

Shri V. Chinnaswamy Endowment Lecture

Shri V. Chinnaswamy Endowment Lecture was organized in Mumbai at AIPMA Auditorium, AIPMA, Mumbai and hosted by IPI Mumbai Chapter on 4th October 2013. The speakers were Mr. Nikunj Patel, Asst. Manager, Sales Project Engineering, M/s. Ferromatik Milacron India Pvt. Ltd. and Mr. Uday Shah, Area Manager – West, Madhu Machines & Systems Pvt. Ltd.

Mr Pankaj Shah, Chairman IPI Mumbai Chapter gave the welcome address and a short overview of IPI Mumbai Chapter Activities.

Mr Nikunj Patel gave an very interesting presentation on Advances

in Injection Moulding, while Mr Uday Shah spoke on Advances in Tooling Solutions – Hot runners & Mold Parts.

This was followed by a lively Q and A Session and vote of thanks by Dr S. T. Mhake, Hon. Treasurer IPI Mumbai Chapter. Members of the Mumbai Chapter and Managing Committee Members were present in the Meeting.

There were over 60 participants with participation of companies like SABIC, Larsen & Toubro, Branson, Pidilite Industries, Bry-Air, CHEP India, etc. besides IPI members from Mumbai and other invitees. The meeting ended with vote of thanks.



Mr. Pankaj Shah Presenting flower bouquet to Mr. Nikunj Patel



Mr. Umang Shah, presenting flower bouquet to Mr. Uday Shah



L to R Mr. Pankaj Shah, Mr. Umang Shah, Mr. Nikunj Patel and Mr. Uday Shah

Chennai Chapter

Rajoo Engineers Endowment Lecture

We are pleased to inform that Chennai Chapter conducted the Rajoo Engineers Endowment Lecture on 10-12-13 at Hotel Raj Park Chennai.

Welcome Address and brief activities of IPI Chennai Chapter delivered by our Chennai Chapter Chairman Mr. V. Sekar.

History and Brief Profile of the Rajoo Engineers, delivered by Mr. Manish A. Vasavada, Vice President, Sales and Marketing, Rajoo Engineers Ltd.

Mr Cherian Kenneth Thomas gave an very interesting presentation on The Journey & (Not Just) Learning at Essel Propack & Packaging India Pvt. Ltd., while Mr Juergen Selig from Lanxees, Hongkong

spoke on High Performance Material Solutions for Automotive Industry, and Mr. Lieven Huysentruyt, Executive & Mr M. R. Babu, Sales Manager, BMS Vision, Belgium jointly delivering a presentation on Real Time Monitoring Systems from BMSVision, Belgium.

The occasion graced by our Vice Chairman and Endowment Committee Chairman Dr. E. Sundaresan.

More than 70 delegates participated in Rajoo Engineers Endowment Lecture Meeting

This was followed by Q and A Session and Honoured by Sponsors and vote of thanks delivered by Mr. T. C. N. Sairam, Hon. Treasurer IPI Chennai Chapter. Members of the Chennai Chapter and Managing Committee membes were present in the Endowment lecture Meeting.



L to R –Mr. V. Hari Narayanan, Mr. Manish Vasavada, Mr. M. R. Babu, Mr. Cherian Thomas, Mr Juergen Selig, Mr. T. C. N Sairam, and Mr. S. G. Mahadevan



Mr T M S Mani handing over the Memento to Dr. E. Sundaresan



Dr. E. Sundaresan presenting Memento to Mr. Cherian Thomas

Founder Members Activities

Pune Chapter

Technical Lecture Meeting

Indian Plastics Institute Pune Chapter along with Colour Publication organised a one day Course on Scientific Process Development and Defect Trouble Shooting in Injection Moulding on 20-12-13 at Hotel Sun and Sand Pune.

Welcome Address and brief activities of IPI Pune Chapter delivered by Dr. S. Radhakrishnan, Chairman IPI Pune Chapter.

The Speaker Mr Suhas Kulkarni, President, FIMMTECH, USA who is in Expert Consultant in the field on Injection Moulding,

with an experience of over 22 year. Mr Suhas Kulkarni gave a very interesting technical information and presentation on Scientific Process Development and Defect Trouble Shooting in Injection Moulding.

More than 30 delegates participated in one day Course.

This was followed by Q and A Session and vote of thanks delivered by Mr. Sunil Khokharle IPI Pune Chapter. Members of the Pune Chapter and Managing Committee Members were present in the Meeting.



L to R - Mr. Sunil Khokarale, Dr. S. Radhakrishnan, Mr. Suhas Kulkarni, Mr. Sameer Joshi and Mr. Ranjit Jadhav.



The 54th Annual General Meeting of Indian Plastics Federation was held on 20th September, 2013. The following new Office - Bearers were elected for the term 2013-14.

President



Pradip Nayyar
Mobile: 93308 62742
E-mail: pradip.nayyar@ipfindia.org

Hon Secretary



Ashok Jajodia
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Vice President



Ramesh Kr. Rateria
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Hon. Jt. Secretary



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Hon. Treasurer



B L Tak
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Indian Plastics Federation is going to start the construction of the "IPF Knowledge Centre" the dream project on 1.02 acre of land at Poly Park, Sankrail, Howrah, near Kolkata very soon.



A view of IPF Knowledge Centre

satellite

RECYCLING
MACHINERY



CORRUGATORS



DOWNSTREAM
EQUIPMENT
FOR PIPES



THEMOFORMING
EQUIPMENT



BRUSH MAKING
MACHINES



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GAMMA MECCANICA, SICA
& BORGHI ITALY

MORE THAN
500 MACHINES SOLD

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SPARE PARTS

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satellite plastic industries

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E-mail: rajiv.satellite@gmail.com, Website: www.satelliteindia.com



Plastivision India 2013 evokes good response, garnered business worth Rs 1500 crores

- Over 100,000 visitors attended
- Participation from over 1225 exhibitors from 30 countries
- Uttar Pradesh, Madhya Pradesh, Karnataka, Gujarat Industry players with attractive incentives

- Plastics in Medical Pavilion
- Job & Career Fair

The Pavilion which created history was Job & Career Fair which is first of its kind in any exhibition.

There were B2B Meetings with US, China and Korea.

Talking about the show, Mr. Anand Oza, President – AIPMA said “apart from covering the plastic industry comprehensively at Plastivision India 2013, our aim is to highlight the demands with the government and motivate policy changes that will lead to betterment & growth of the industry. We appeal for Technology Upgradation Fund (TUF) like status for the plastic industry from the government”.

Mr. Anand Oza further informed that The All India Associations Conclave was historic and was attended by more than 45 Association Heads with valuable inputs. AIPMA propose to organize such conclave in regular intervals in times to come, for the benefit of the Plastic Industry

The chief Guest of the day Hon’ble Shri Indrajit Pal, Secretary Department of Chemicals & Petrochemicals (DCPC), Ministry of Chemicals & Fertilizers, Government of India emphasized on Government encouraging the setting up of Plastics Parks in various states to help the growth of the plastics industry, which is so important for the economy as well as employment generation. The Ministry has already cleared two plastics parks, one in the state of Madhya Pradesh and one in Orissa and some funds have already been disbursed. Some more parks are under consideration to facilitate the growth of the plastics industry.

Plastivision India 2013 witnessed a grand response from the plastics industry, where more than 100,000 visitors attended the exhibition and recorded a participation from more the 1225 exhibitors from over the world. The fair showcased various innovations and technologies from the plastics industry. The five-day trade fair exhibited a dedicated section for solar energy to create awareness of the optimum use of solar power in Plastics industry. The event has a special focus on recycling for which the fair created a GREEN PAVILLION for people to understand how plastics can be environment friendly.

Speaking on the five-day international event, Mr. Raju Desai, Chairman of the Plastivision India 2013, said “We are humbled by the positive response that we have received this year at the exhibition and are very optimistic about the growth reaching new heights. The event has successfully generated a business of Rs 1500 crore this time, bringing 50% growth when compared with business of Rs 1,000 crore recorded at the previous Plastivision. We are hopeful to receive all the required support from the government that would facilitate the further growth of the plastics industry”.

Other Heights of Plastivision India 2013 were on focused Pavilions

- Plastics in Agriculture
- Green Pavilion
- Solar Energy Pavilion

Founder Members Activities



From L to R: Mr. Kailash Murarka – Co-Chairman PVI 2013, Mr. Saif Mohammed Al Midfa – CEO Sharjah Expo Centre, Mr. Raju Desai – Chairman PVI 2013, Shri Indrajit Pal – Secretary DCPC, Mr. Anand Oza – President AIPMA, Mr. Avinash Joshi – Joint Secretary DCPC.



From L to R: Shri Indrajit Pal – Secretary DCPC, Mr. Anand Oza – President AIPMA, Mr. Avinash Joshi – Joint Secretary DCPC, Mr. Arvind Mehta – Chairman Advisory Board



From L to R: Mr. Kailash Murarka – Co-Chairman PVI 2013, Mr. Saif Mohammed Al Midfa – CEO Sharjah Expo Centre, Mr. Raju Desai – Chairman PVI 2013, Shri Indrajit Pal – Secretary DCPC, Mr. Anand Oza – President AIPMA, Mr. Avinash Joshi – Joint Secretary DCPC, Mr. Arvind Mehta - Chairman Advisory Board.



Ribbon cutting at the hands of Mr Indrajit Pal Secretary DCPC



Inaugural Function of APPTC, Balasore

Advanice Plastics Processing Technology Centre (APPTC), Balasore, Odisha was inaugurated and formally dedicated to the Nation on 26th July 2013 by Shri. Srikant Kumar Jena, Hon'ble Minister of State (Independent Charge) for Chemicals & Fertilizers, Statistics & Programme Implementation, Govt. of India in the presence of Shri. Pratap Keshari Deb, Hon'ble Minister for Food Supplies & Consumer Welfare, Employment & Technical Education & Training and Information Technology, Govt. of Odisha along with MLA's and Collector, Balasore.



Ribbon Cutting of the APPTC Building by Shri. Srikant Kumar Jena, Hon'ble Minister of State (Independent Charge) for Chemicals & Fertilizers, Statistics & Programme Implementation, Govt. of India and Shri. Pratap Keshari Deb, Hon'ble Minister for Food Supplies & Consumer Welfare, Employment & Technical Education & Training and Information Technology, Govt. of Odisha.



Address by Shri. Indrajit Pal, I.A.S., Secretary, Deptt. of Chemicals & Petrochemicals, Govt. of India & President - CIPET Governing Council



Welcome address by Prof.(Dr.) S.K Nayak, Director General CIPET



Inaugural address by Shri Srikant Kumar Jena, Hon'ble Minister of State (Independent Charge) for Chemicals & Fertilizers, Statistics & Programme Implementation, Govt. of India

Founder Members Activities



Address by Shri Pratap Keshari Deb, Hon'ble Minister for Food Supplies & Consumer Welfare, Employment & Technical Education & Training and Information Technology, Govt of Odisha.

CIPET Stall at IPLEX- 2013 Exhibition

IPLEX – 2013 International Plastic Exposition was held at Chennai convention centre from 27th to 30th June, 2013. The International Plastics Exposition was jointly organized by TAPMA, APPMA, KPMA, KSPA and Central Institute of Plastics Engineering & Technology (CIPET) and international delegates, Technocrats, Industrialists, Ministry officials and other dignitaries from State, Central Govts., and plastics fraternities had visited this mega event.



Shri V. K. Subburaj, I.A.S., - Additional Secretary & Financial Advisor, Ministry of Chemicals and Fertilizers, Govt. of India inaugurated the CIPET stall.

CIPET Stall at Poly India 2013 Exhibition

Poly India 2013 - 2nd International Exhibition will be held at Chennai convention Centre from 25th to 27th April, 2013. The International Exhibition is being organized by Federation of Indian chambers of commerce and industry (FICCI), Central Institute of Plastics Engineering & Technology (CIPET), coordination with our administrative ministry. The visitors to the event includes international delegates, Technocrats, Industrialists, Ministry officials and other dignitaries from State, Central Govts., and plastics fraternities.



Shri INDRAJIT PAL, I.A.S., Secretary, Dept. of Chemicals & Petrochemicals, Ministry of Chemicals & Fertilizers, Govt. Of India and president - CIPET Governing Council inaugurated the CIPET stall.

Technical Seminar on Plastics Recycling & Waste Management

CIPET was organised an One day technical seminar on "Plastics Recycling & Waste Management" in a different locations across the country with the support from Department of Chemicals & Petrochemicals, Ministry of Chemicals & Fertilizers, Govt. of India. Poster & Slogan writing competition for the Government School students was conducted at the locations where Seminar was held for the awareness.



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The Plastics Export Promotion Council Export Award Winners for 2012-13

PRODUCT CATEGORY	WINNER	Runner Up
BOPP Film	Garware Polyester Ltd.	Vacmet India Ltd.
Decorative Laminates	Greenply Industries Limited	Merino Industries Ltd.
Drip Irrigation Systems	Jain Irrigation Systems Ltd.	-
Electrical Accessories of Plastics	RLC Engineers Pvt. Ltd.	Brilliant International
Engineering Components of plastics	Shaily Engineering Plastic Ltd.	PradipPolyfils Private Limited
FIBCs (Jumbo Woven Bags)	Flexituff International Ltd.	Shankar Packagings Limited
Fishnets/Fishing Line of plastics	Garware Wall Ropes Limited	Chidambaram Fishnets Pvt. Ltd.
Fittings for Pipes & Hoses (of plastics)	The Supreme Industries Limited	Prince Industries
Floor Coverings (of predominantly plastic materials)	. RMG Polyvinyl India Ltd.	Premier Polyfilm Ltd
FRP/GRP Products	Kemrock Industries & Exports Limited	Pentair Water India Pvt. Ltd.
Gifts/Novelties, Statuettes & Other Ornamental Articles, Of Plastic	Champs Corporation	Viva Global
Hair combs/brushes of plastics	Crystal Plastics & Metallizing Pvt. Ltd.	-
Hard Resilene Lenses	Essilor Manufacturing India Pvt. Ltd.	-
Houseware (other than thermoware/insulated ware)	Princeware International Pvt. Ltd.	Family Plastics and Thermoware Pvt. Ltd.
Human Hair & its products	Srinivasa Hair Industries	Gupta Enterprises
Masterbatches	PrayagPolytechPvt. Ltd.	Plastiblends India Limited
Metallised Polyester Film	Vacmet India Ltd	-
Moulded/Extruded packaging items like Boxes, Cases, Crates, Carboys & Similar Articles Of Plastic	Alkon Plastics Pvt. Limited	-
Other Brushes/brooms of plastics (other than hair brushes & tooth brushes)	Jewel Consumer Care Pvt. Ltd.	-
Parts of Writing Instruments	Cri Limited	-
Pipes & Hoses of plastics	Jain Irrigation Systems Ltd.	The Supreme Industries Limited
Plastic footwears and components thereof	Condor Footwear (India) Limited	-
Plastic Furniture	Prima Plastics Ltd.	Nilkamal Ltd.
Plastic Mats	Sapana Polyweave Pvt. Ltd.	Streamflow Polyweave Pvt. Ltd.
Plastic Medical Disposables/ surgical items (incl syringes)	Poly Medicure Ltd.	Terumo Penpol Limited
Plastic Polymers	Reliance Industries Ltd.	Dhunseri Petrochem & Tea Ltd.
Plastic Shopping/Carrier/ garbage Bags	Narendra Plastic Pvt. Ltd.	KulodayTechnopackPvt. Ltd.
Plastic Stationery (excluding writing instruments)-mathematical instruments, files, plastic covers etc	Pelicans Automotive & Promotional Products Pvt. Ltd.	Allied Instruments Pvt. Ltd.
Plates/Sheets/Films/Etc of plastics (Other than polyester/PET/BOPP)	Sheela Foam Pvt. Ltd.	The Supreme Industries Limited
Polyester Film	Garware Polyester Ltd.	Vacmet India Ltd.
PVC Foam Board/Sheets	Jain Irrigation Systems Ltd.	First
PvcLeathercloth/Artificial Leather	Manish Vinyls (Prop. Kumar Ashis Projects Ltd.)	Polynova Industries Ltd.
Ropes/Cordage	Tufropes Pvt. Ltd.	India Nets
Self-Adhesive Tapes	Powerband Industries Private Limited	Hindustan Adhesives Ltd.
Sunglasses/Spectacle Frames	Styl Rite Optical Industries	-
Tarpauline	The Supreme Industries Limited	-
Thermoware/insulated ware	Tokyo Plast International Limited	Cello International Pvt. Ltd.
Tooth Brushes, incl dental plate brushes	Jewel Consumer Care Pvt. Ltd.	Jhs Svendgaard Laboratories Ltd
Top Merchant Exporter (Eastern Region)	SreeMaa Enterprises	-
Top Merchant Exporter (Northern Region)	DCS International Trading Co Pvt. Ltd.	-
Top Merchant Exporter (Southern Region)	Gupta Hair Products Pvt. Ltd.	-
Woven Sacks/Bags/Fabric (Other than FIBCs)	Mayur Wovens Private Limited	Kandoi Fabrics Private Limited
Writing Instruments (excluding parts)	Cello Pens & Stationery Pvt. Ltd.	Luxor International Pvt. Ltd.

23rd Asia Plastic Forum (APF) from September 24 - 27, 2013 at Taizhou Intel' Convention and Exhibition Centre, Taizhou, China



PI 2015 NEC Chairman, Mr J R Shah, NEC Vice Chairman Mr L K Singh and Ms Mamta Oza Chief marketing & Exhibition Manager to attended the two day APF forum. PIF extended invitation to APF to attend PI 2015.

PPS (Polymer Processing Society) Conference - Jointly organised by IIT Bombay, IIT Delhi, PPA from December 4-7, 2013 at Hotel Ramada, Powai, Mumbai India



Plastindia at PPS Conference

CHINA PEC' 2013, The 13th China Plastics Exhibition and Conference from September 25 - 28, 2013 at Taizhou Intel' Convention and Exhibition Centre, Taizhou, China

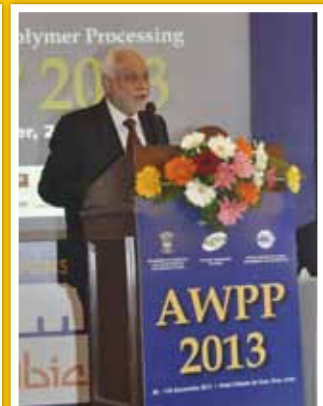


PI 2015 NEC Chairman, Mr J R Shah at China Pec 2013. PIF has extended invitation to APF to attend PI 2015.

Asian Workshop on Polymer Processing - AWPP 2013 from December 8-11, 2013 Hotel Cidade Goa, Goa



Mr Subhash Kadakia, President PIF inaugurating the workshop on Polymer Processing at Goa



Speech by Mr Subhash Kadakia President PIF at AWPP 2013, Goa

Cluster In One World, The 3rd Global Economic Summit (GES) from September 23 - 25, 2013 at World Trade Centre, Mumbai, India



Ms Sonam Monga General Manager PIF at Global Economic Summit. Plastindia made a strong case for plastic cluster development at GES Mumbai

Plastivision 2013 from 12-16, December 2013 at NSE grounds, Mumbai



Ms Sonam Monga General Manager PIF and Ms Mamta Oza Chief Marketing & Exhibition Manager at Plastivision 2013

Plastindia Foundation Managing Committee Members 2012-15



Mr. Subhash Kadakia - President



Mr. Rajeev Chitalia - Vice President



Mr. Rajiv Raval - Hon. Treasurer



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OEM UPDATE

Events & Happenings

Brief Introduction to our President

Subhash Kadakia was born in Mumbai in September 1947 and is a graduate in B.E. (Mech.) from Bangalore University.

Hailing from a business community (his family has been involved in steel trading since 1939), Mr. Kadakia started his own company, **Kadakia Plastics Industries** in 1971, focusing on manufacturing of PVC Compounds. Since its inception, the company has grown and has till date achieved an installed capacity of 15000 MTS with a current turnover exceeding INR 400 million per year.

Kadakia Plastics enjoys a sterling reputation as a company that has developed several Polymer Compounds while displaying an impressively resilient character through an ever changing business climate. The company has also diversified into the Wine business over the past five years.

Mr. Kadakia has served the Indian Plastics Institute (IPI) in various capacities over the past 38 years including that of its President. The IPI is a professional body with major activities in education, training, conducting seminars and lecture meetings for the benefit of the Plastic Industry.

Mr. Kadakia has also served Plastindia Foundation as a Hon. Treasurer from 2003 – 2006, and at present holds the post of President for the period 2012 -2015.

Mr. Kadakia and his wife Ujwala are both actively involved in various capacities, on benefiting the community as members of the Lions Club of Andheri and the National Society for Clean City. They are proud parents to their son Vishal, a polymer engineer from University of Massachusetts, Lowell USA.

Brief Introduction to our Vice President

Rajeev Chitalia a commerce graduate, at the age of 21 joined the family business of manufacturing and exporting of Electrical items from India.

Born on 22nd October, 1968 Rajeev Chitalia completed his schooling from Mumbai and during his graduation years from the Mumbai university started travelling on business to Far East and Africa.

His extensive travelling and meeting customers from various countries helped him to develop full understanding of the international business.

He was instrumental in successful implementation of quality control measures and international standards both in production and administration within his company. Soon, business under his leadership diversified and new market including the quality conscious European countries were included.

His company Precious International an ISO 9001:2008 certified company exports their products to 23 countries worldwide. In the year 2008 Mr. Chitalia established an Pvt. Ltd company M/s Electrofocus Electricals Pvt. Ltd. an ISO 9001:2008 certified company, introducing an entire new range of products that catered to the electrical contracting as well as electrical utility companies worldwide.

Right from the early age he was involved with export promotion council serving as regional committee member in The Plastics Export Promotion Council and The Engineering Export Promotion Council. He was active in solving problems of the exporters being in the grievance committee of the council.

He was elected as the Vice Chairman of The Plastics Export Promotion Council in the year 2009 and after serving his term for 2 years took over as the Chairman of The Plastic Export Promotion Council for the years 2011 - 2013.

Plastindia 2015 launched amidst optimism to be the biggest-ever trade fair in India

Plastindia Foundation, which has worked ceaselessly over the past 25 years announced the launch of the 9th edition of Plastindia 2015 with the vision of taking the Industry forward on its path as one of the fastest growing sectors in the Industry. The plastics industry was present in full strength at the launch, reflecting optimism that the resilience displayed in the past 25 years will ensure success and see it reach new heights of the exhibition and meet and overcome future challenges. Each of them believed that India is one of the fastest growing markets for Plastics in the World.

Plastindia 2015, which is among the top three international platforms for the Plastics Industry, was formally launched by Mr. Avinash Joshi, IAS, Joint Secretary-Petrochemicals Division, Department of Chemicals & Petrochemicals, Ministry of Chemical and Fertilizers - Government of India in the presence of the Guest of Honour Mr. Nirmal Thakkar (Chairman Tipco Industries). Also present on the dais were Mr. Subhash Kadakia, President Plastindia Foundation; Mr. J.R. Shah, Chairman, National Executive Council, Mr. L. K. Singh, Co-Chairman - National Executive Council, Mr. Rajeev Chitalia,, Vice President and Mr. Rajiv Raval, Hon. Treasurer.

The ninth edition of Plastindia 2015 to be held from February 5-10, 2015 at Pragati Maidan, New Delhi, is supported by the Ministry of Chemicals and Fertilizers and will be one of the three largest shows in the plastics industry globally. With strong international participation Plastindia 2015, to be spread over 125,000 sq. meters of area, targeted to have over 2000 exhibitors from over 40 countries and over 150,000 business visitors.

In his welcome address Mr Subhash Kadaki said "The 9th edition of this event will be bigger, better and aspire to achieving much greater ambitions, Exchange in Abundance – Expanding Horizons. This is the biggest business platform for our industry and I invite you to join us in our continued quest towards becoming responsible global leaders in plastics.

Launching the latest edition, Mr. Avinash Joshi, said the Industry has unlimited potential to be a world leader if it continues to believe in itself as it has done so far. Plastindia 2015 would bring in a lot of opportunity to the various stakeholders as it will be among the biggest in the world,

Elaborating this view, Mr J.R. Shah said "This will be an eye-opener to many and emphasize India's position as the world's sourcing hub for plastics finished products."

The six-day mega event, Plastindia 2015 will bring under one roof major global and Indian Plastics Industry innovators, highlighting the exhibition.

Key attractions for this exhibition:

- 24th ASEAN Plastics Forum
- Proplast 2015 - finished goods section, This will showcase the forays made by the Indian processed plastics sector.
- PLASTICON Awards to encourage and recognize innovation and growth in all facets of Indian Plastic Industry and to honor significant contribution made by Indian business enterprises, Institutions, NGOs and individuals who have excelled in their endeavor.
- Wiintech – Worldwide Intercluster Initiative for New Materials and processes focused on Clean Technology – The European Gateway to develop business and technology opportunities.



On the Dais (L-R) : Mr Sunil Jain, Mr Rajeev Chitalia, Vice President, PIF, Mr Subhash Kadakia, President, PIF, Mr Nirmal Thakkar, Guest of Honour, Mr Avinash Joshi, Jt. Sec DCPC, Chief Guest, Mr J R Shah, Chairman NEC, Mr Lalit Singh, CO-Chairman, NEC, Mr Rajiv Raval, Hon. Treasurer, PIF

Foundation Activities



National Anthem (L-R) : Mr Rajeev Chitalia, Mr Subhash Kadakia President PIF, Mr Nirmal Thakkar, Mr Avinash Joshi Jt Sec DCPC, Mr J R Shah, Mr Lalit Singh, Mr Rajiv Raval
Photo Courtesy : Chrysolite Media Pvt Ltd



Address by Mr Subhash Kadakia, President PlastIndia Foundation



Address by Mr Nirmal Thakkar, Guest of Honour



View of Audience



Lighting of the Lamp (L-R) Mr Subhash Kadakia, President, PIF, Mr Rajeev Chitalia, Vice President, PIF, Mr J R Shah, Chairman, NEC, Mr Avinash Joshi, Jt. Sec DCPC, Mr Lalit Singh, CO-Chairman, NEC, Mr Rajiv Raval, Hon. Treasurer, PIF, Mr Nirmal Thakkar
Photo Courtesy : Chrysolite Media Pvt Ltd



Mr Rajeev Chitalia presenting memento to Chief Guest Mr Avinash Joshi



PI 2015 Logo



Mr Nirmal Thakkar, Guest of Honour and Mr J R Shah, NEC Chairman



Mr Rajiv Raval Hon. Treasurer offering bouquet of flowers to Chief Guest Mr Avinash Joshi , Jt. Sec. DCPC.

Foundation Activities



The Formal Launch of PI 2015 by Chief Guest, Mr Avinash Joshi, Jt. Sec. DCPC



View of Audience that include industry leaders and stalwarts

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PLASTINDIA HOSTS INDUSTRY MEET TO DISCUSS NATIONAL POLICY ON PETROCHEMICALS REGARDING TUFs IN MUMBAI

The Plastindia Foundation held an industry meet on December 12, 2013 at the Foundation Office in Mumbai in the presence of Shri Indrajit Pal, Secretary of our parent Department to discuss the impact and implications of Technology Upgradation Fund Scheme (TUFs)

The TUFs is an integral part of the National Policy on Petrochemicals. The Indian Plastics Industry has been consistently and unanimously requesting for TUFs.

Plastindia team interacted with the Department on Nov. 20, 2013 and it was advised to once again take up this matter.

The meet was chaired by Mr. Indrajit Pal, Secretary of our parent Department in presence of Joint Secretary Mr. Avinash Joshi. Accompanying him were:

- Mr. Subhash Kadakia – President Plastindia Foundation
- Mr. Rajiv Raval – Honorary Treasurer Plastindia Foundation
- Mr. J R Shah – Chairman NEC, PIF 2015
- Mr. L K Singh – Co-Chairman NEC, PIF 2015
- Mr. Surender Choudhary – Chairman, Co-ordination & Public Relation Committee, PIF
- Mr. Sapan Ray – Chairman, International conference committee, NEC, PI 2015

The TUFs is a scheme that aims at technology upgradation through the provision of up front capital subsidies to SSI units that will help modernize their equipment and processes. The ceiling on the subsidy is Rs 1 crore and the rate of the subsidy is 15%.

TUFs for the Plastic industry will cover existing SSI units registered with the State Directorate of Industries and also newly registered SSI units that have set up their facilities using appropriate and proven technology duly approved by the Governing and Technology Approval Board (GTAB)



A view of the audience



On the Dais (L to R) : Mr Subhash Kadakia –PIF President, Mr Indrajit Pal, secretary to Government of India – DCPC, Mr Avinash Joshi, Joint Secretary – DCPC.

Foundation Activities

Review of K – 2013

K2013, held from October 16 to October 23, 2013 at Dusseldorf, Germany was spread over 19 Halls with 3219 exhibitors from 59 countries, occupying Net exhibition space of 168000 sqms.

India Pavilion and Plastindia at K:

The total participation through Plastindia Foundation was 61 exhibitors occupying a total area of 921 sqm, i.e. 44 exhibitors in the Machinery section occupying an area of 699.5 sqm (incl. Plastindia Foundation's info booth) and 17 exhibitors in the Raw Material section occupying an area of 221.50 sqm.

Plastindia pavilions were located at prominent locations in Hall No. 12 blocks C32, C33; D23 & D05 i.e. in the Machinery section and Hall No. 5 block B03 & B05 in the Raw Material Hall.

Visitor Profile :

The show attracted nearly 218,000 Nos. of trade visitors from 120 countries, out of which 1,26,000 were international visitors. Groups of visitors came from Angola, Burkina Faso, The Falkland Islands, the Yemen, Malawi, Nepal, New Caledonia, Oman, Peru and Turkmenistan. Trade visitors from Asia i.e. nearly 30000 Nos. came from South, East and Central Asia as well as Middle East. Among the Asian countries India provided the largest contingent of business visitors. 11000 No. of visitors from Latin America and 8100 No. of visitors were seen from USA and Canada.

Total number of visitors was more than seen at K 2010. Almost 8000 visitors were from India alone. India's exhibition participation was excellent- with 145 exhibitors and over 5200 sq. mtr area ranked 3rd after China. Lohia and Reliance lead the glitter, with vibrant young Indian exhibitors putting their best and pushing exports a scenario to relish. Prannoy Sharma Director Government of India Dept. of Chemical & Petrochemicals, GIDC Chairman, Mr. Swain, Mr. M.P. Taparia, MD Supreme attended. With the AIPMA delegation, 30 delegates were there from UNIDO & CIPET, members of National

Programme for developing plastics manufacturing industry in India. Three factory visits were organized for them in Germany. Networking dinner of Reliance, SPI for launch of NPE 2015, Lowell reception, exhibition gala night and CIPAD meets were excellent.

The next K Duesseldorf will be held from October 19 – 26, 2016.

(Inputs from Mr. Arvind Mehta)



Mr Subhash Kadakia – President Plastindia Foundation at K -2013
Photo Courtesy : Chrysolite Media Pvt Ltd

PIF signs landmark MOU with Wiintech Cluster at K 2013

In March 2013, PIF had arranged an interactive platform for Indian plastic manufacturers to interact with members of the Wiintech cluster to discuss opportunities for the SME members of the industry through access to global technological advances and opportunity creation for Indian manufacturers with their European counterparts.

The enthusiastic response to that platform indicated the need for

a more structured and concrete effort in strengthening the Indian Plastics Industry's association with their European counterparts and in particular with the Wiintech cluster.

The yeoman efforts of the Foundation finally bore fruit at K 2013 which witnessed the landmark signing of an MOU between the PIF and Wiintech Cluster to formalize a business relationship that will help enhance business associations, trade opportunities, joint R&D programs and also route inward investment into the Indian Plastics industry.

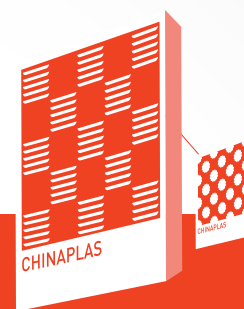


The landmark signing of MOU between PIF and Wiintech Cluster at K 2013 in Dusseldorf, Germany.



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Upcoming Exhibitions



Sr No.	Name of the Exhibition	Dates	Venue
1	Oman Plast 2014	Feb 11 2014 - Feb 13 2014	Muscat - Oman
2	Saudi Print/Pack/Plas/Petrochem 2014 Trade Show	Feb 17 2014 - Feb 19 2014	Riyadh - Kingdom of Saudi Arabia
3	Plastivision Arabia	Feb 17 2014 - Feb 20 2014	Sharjah - UAE
4	IPF Bangladesh 2014	Feb 20 2014 - Feb 23 2014	Dhaka - Bangladesh
5	DieMould India 2014	April 17 2014-April 20 2014	Mumbai - India
6	CHINAPLAS 2014	Apr 23 2014 - Apr 26 2014	Shanghai - China
7	4th Vinyl India - 2014	May 08 2014 - May 09 2014	Mumbai - India
8	Interpack 2014	May 08 2014 - May 14 2014	Dusseldorf - Germany
9	Kenya Plast 2014	Jun 06 2014 - Jun 08 2014	Nairobi - Kenya
10	Compack 2014	Jun 18 2014 - Jun 20 2014	CHENNAI - India
11	Pack Plus South 2014	Jun 25 2014 - Jun 28 2014	Hyderabad - India
12	Print Fair 2014	Jul 02 2014 - Jul 05 2014	Hyderabad - India
13	2nd Injection Moulding & Blow Moulding International Conference - 2014	Aug 21 2014 - Aug 22,2014*	Mumbai - India
14	India International Printing & Packaging	Aug 23 2014 - Aug 26,2014	New Delhi - India
15	Pack Plus South 2014	Sep 17 2014- Sep 20 2014	Hyderabad - India
16	3rd Speciality Films & Flexible Packaging Global Conference - 2014	Sep 25 2014- Sep 26 2014*	Mumbai - India
17	India Chem 2014	Oct 9 2014 - Oct 11 2014	Mumbai - India
18	2nd International Chemical Downstream Conference - 2014	Oct 14 2014 - Oct 15 2014*	Mumbai - India

* Date Tentative

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