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FOR PLASTICS IN
THE ENVIRONMENT

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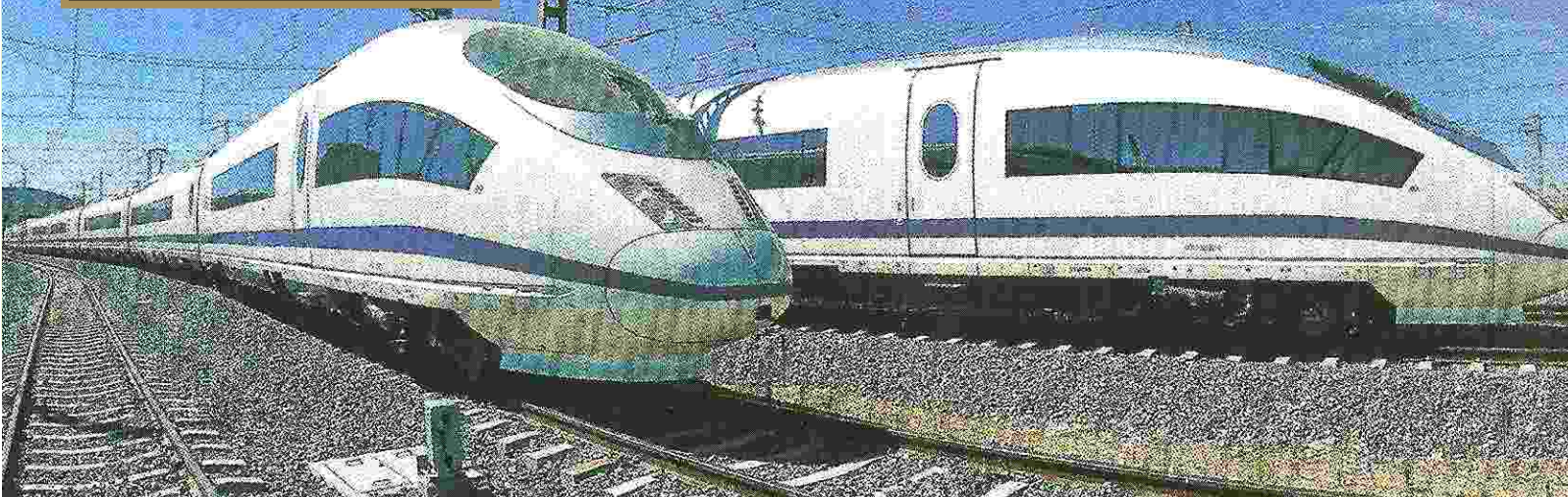
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DCPC Meeting

ICPE - GC Meeting



**Plastics
Take Us Ahead
With Full Speed**



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**ICPE Mumbai
moves to
new location**

Editorial



During the period of this edition of Eco Echoes, the issue of plastic carry bag / plastic bag has come up once more. This time it is in two parts of the country one in the capital city area of Delhi and the other in the State of Kerala. A brief account has been published in this edition.

ICPE has been bringing forward to its readers, apart from the techno-commercial advantages, the environmental benefits of plastics, the issues and the solutions.

In this edition, we have published an article on Plastic Carry Bags / Plastic Bags and tried to analyse the "Real Issues" on the subject.

ICPE understands that Mass Awareness on "How to handle our waste at home" is very important to keep our environment clean. Keeping this in mind and also to impart this awareness among the young ones, ICPE has increased its awareness programme among the school / college students in cooperation with the Plastics Associations and Chapters of Indian Plastics Institute, all over the country. Our aim is to upload this Education Programme Module in ICPE website in the near future for the benefit of larger section of the society.

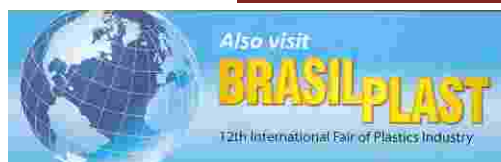
Eco - Echoes continued to receive the support of publishers of foreign magazines for the common cause of mass education on the benefits of plastics.

Any comment or suggestions are welcome from the readers.

T. K. Bandopadhyay

Editor

Forthcoming Events



04 -08 May, 2009
Anhembi Exhibition,
Sao Paulo



The 23rd International Exhibition on Plastics & Rubber Industries

18 - 21 May, 2009
China Import & Export Fair
Pazhou Complex,
Guangzhou, CHINA

PLASTICS: THE KEY TO LIGHTER FLIGHTS

How many times have you gazed at a large commercial jet flying overhead and wondered how they get its hulking, bolted aluminum body off the ground and keep it up there? What you may not realize is, more and more, that body is not fully metallic, but rather consists of lighter-weight, plastic-based composites, held together not by bolts but by high-strength, resin-based adhesives.





Less weight, less fuel

The next generation of commercial airliners—including Boeing's 300-plus-passenger 787 Dreamliner, scheduled to enter service in 2009, and Airbus' slightly larger A350-XWB, due in 2013 - will use composites in about half of their structural components. *The New York Times* reports the 787 will have a one-piece, all-composite fuselage and the A350 will be made of 52 percent composites.

One may wonder why aluminum components, once the norm for aircraft manufacturing, are being replaced by materials based on plastics. There are several reasons, but they all relate to conserving resources and reducing costs.

High fuel price are pushing airlines to demand better performance and longer range from the new planes they buy. Plastic-based components reduce weight significantly, meaning less fuel is required to get airplanes off the ground and keep them in the air, resulting also in fewer carbon emissions being

released.

According to Boeing, the 787 will burn about "20 percent less fuel for comparable missions than today's similarly sized airplane." The A350 is expected to achieve comparable levels of fuel efficiency.

By manufacturing an entire section of fuselage in one piece, Boeing is eliminating 1,500 aluminum sheets and 40,000 to 50,000 fasteners.

"There is no going back," says Howard Wheeldon, an aviation industry strategist in London, England. "Plastic has finally made its mark in the big toys."

A new way to fly

Greater use of plastic composites also benefits passengers. Airlines can significantly increase cabin pressure because the composites are stronger and stiffer than aluminum. And composites' resistance to corrosion means the humidity inside the cabin—typically 10 to 20 percent today—could be kept at a higher level. Together, these improvements will mean less fatigue for travelers on long-haul flights.

"Within the next decade, we could see a 100-percent composite aircraft," predicts Paul Everett, Director of Communications for the Society of British Aerospace Companies. "This technology will absolutely be the key differentiator for major aircraft

programs of the future."

Plastic composites are combinations of two or more components, with one material (generally the plastic part) serving as the matrix, which holds everything together, and the other providing reinforcement, in the form of fibers embedded in the matrix. The resultant material exhibits the best properties of each component and has additional qualities that the individual materials do not possess alone.

In the aerospace industry, the reinforcements are usually non-metallic fibers, such as carbon, fiberglass, or aramid. A composite material like carbon fiber is stronger and stiffer than aluminum, titanium, or steel, with a relative weight per volume that is half of aluminum's and one-fifth of steel's.

The adhesives that bond composite parts together are made from various resins, including epoxy and phenolic composites.

It is little wonder that in commemorating the 100th anniversary of the birth of flight in 2003, the U.S. Centennial of Flight Commission described plastic - based composites as "the most important materials to be adapted for aviation since the use of aluminum in the 1920s."

Now, the sky's the limit.

Courtesy: americanchemistry. July / August 2008

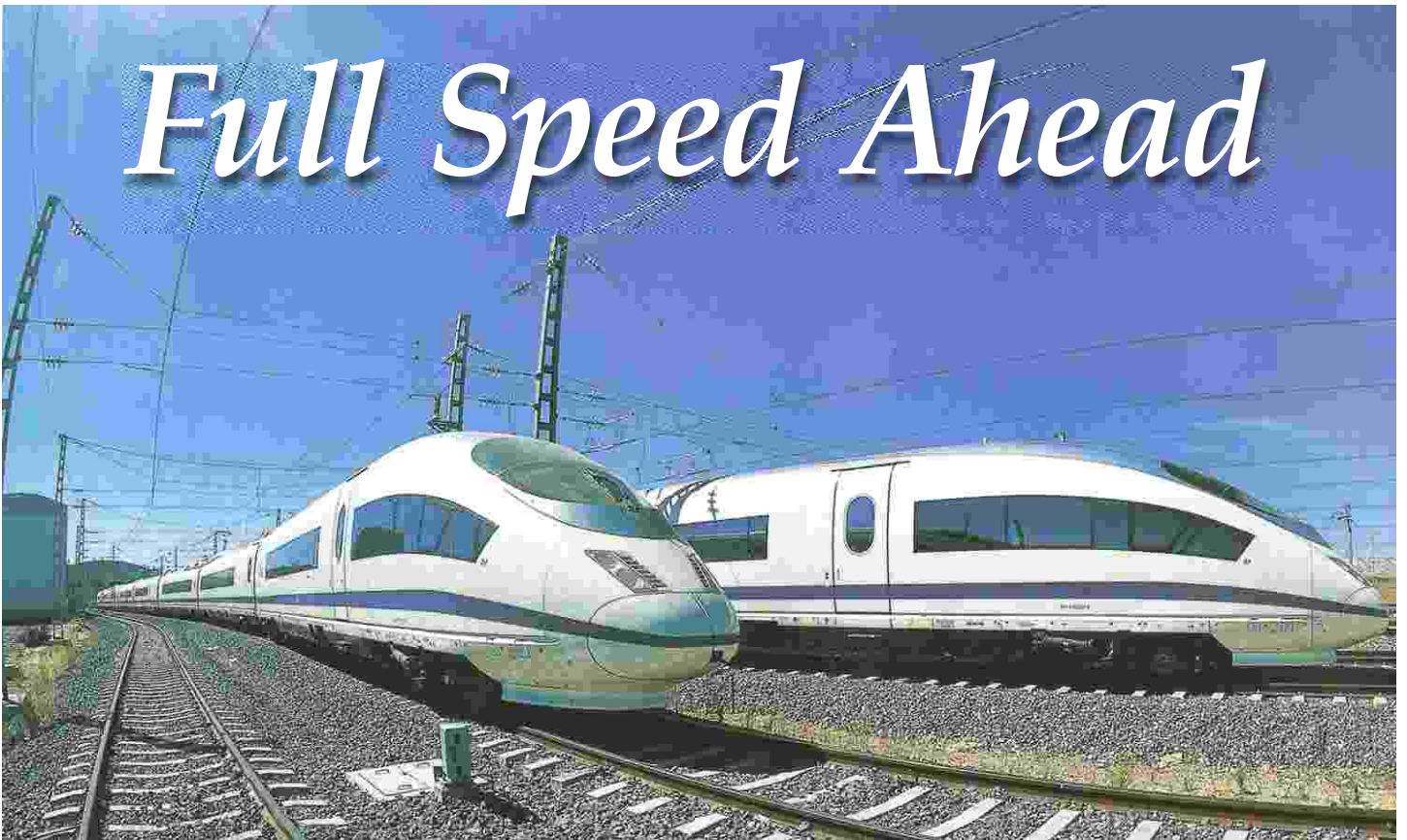


Boeing's 300-plus-passenger 787 Dreamliner, shown in this rendering, will burn 20 percent less fuel than other similarly sized airplanes, due in large part to the benefits of its one-piece, all-composite fuselage.



The Airbus A350 - XWB, scheduled to begin service in 2013, will be made of 52 percent composites.

Full Speed Ahead



In Spain, a high-speed train that debuted earlier this year can travel from Madrid to Barcelona in 2½ hours. Conventional trains needed more than six hours to make this 386-mile trip. Taking an airplane is still theoretically faster, at 70 minutes, but that does not count time for checking in, going through security, etc.

In China, new high-speed trains are being rolled out in time for the Olympics. Five trains manufactured by Tangshan Locomotive & Rolling Stock Works, based on Velaro technology from Germany-based Siemens, will begin providing service for visitors to the Games in August.

And in 2009, Siemens will begin delivering high-speed trains to

Russia, where they will run between Moscow and St. Petersburg. Each train will be able to accommodate more than 600 passengers.

These projects and others around the world show how in an era of multiple modes of transportation, trains remain a vital and popular service. And with ongoing developments in technology, they have been able to hold their own as viable alternatives to airplanes, cars and buses.

For many passengers today, time is money. High-speed trains have been able to offer significant advantages on medium-distance travel of up to almost 500 miles.

The AVE S 103 train that travels between Madrid and Barcelona, for example, does so at speeds up to 186

miles per hour. It is not pulled by locomotive; rather, its traction power of 8,800 kW is provided by motors distributed all along the train.

‘High-speed’ is a relative term, but since the end of the 1980s, modern trains—including France’s train a grande vitesse (TGV) and Siemens’ Velaro—have been constructed and approved for speed much higher than 186 miles per hour (a Velaro can even reach 217 miles per hour).

While high-speed train technologies have existed for decades, for the most part they have only gradually been built out into broad railway networks. One reason is they require their own infrastructure—high speeds are generally not possible on routes that see mixed use by both



High-quality products of chemistry are critical to the safety and service life of high-speed trains.

commuter and freight trains, for safety reasons. High speeds also put great demands on the trains and tracks, which must be kept in pristine condition.

High-quality materials, the product of chemistry, are critical. The contact strips between the train and the power network are made of very thin graphitic carbon. These 1.2-inch thick strips have a service life of up to more than 62,000 miles.

Another option is magnetic levitation (maglev) technology. As the name suggests, levitation magnets pull the train along its route, causing it to hover. Guidance magnets provide lateral stability to keep the train on the track—or more accurately, over the track.



A Japan Railways (JR) maglev train set a Guinness World Record in 2003 by reaching a speed of 361 miles per hour.

While maglev technology has been developed since the 1960s, few trains using it have ever been operated commercially at high speeds. One notable exception is the Transrapid service to the airport in Shanghai, China. It is a relatively short route, where the train achieves a top speed of 268 miles per hour and averages 150 miles per hour.

This line, which has carried more than 7 million passengers since 2003, is an example of transportation better meeting environmental concerns. The train produces 75 percent less carbon dioxide (CO₂) than a medium-range aircraft, even when it is zooming along at its top speed. And noise pollution is a non-issue, as the train is very quiet.

Maglev trains can potentially reach faster speeds than any other rail-bound means of mass transportation. A record of 361 miles per hour was set in Japan in 2003, narrowly beating the TGV's all-time record of 357 miles per hour.

Japan is particularly famous for its networks of high-speed rail lines and 'bullet trains.' The country is home to the world's busiest high-

speed line—its oldest, the Tokaido Shinkansen, which carries 375,000 passengers each day between Tokyo and Osaka. It opened in 1964, timed to coincide with Japan's Summer Olympics.

In the U.S., high-speed rail travel is for the most part still in the conceptual stage, as the country has not encountered the same factors that contributed to the broad growth of such transportation in France and Japan decades earlier. However, its time may well be coming.

The only true high-speed train routes in the U.S. are along the Northeast Corridor, where Amtrak's Acela Express operates between Washington, D.C., and Boston, Mass. Along the way, it serves Baltimore, Md., Philadelphia, Penn., New York, N.Y., and Providence, R.I., among other stops.

While high-speed trains have not yet become common in geographically expansive countries, Acela began service in 2000 and has quickly become very popular, with some estimates suggesting it has captured more than half the travelers commuting between New York and

Washington. And Amtrak has accomplished this without seeking to break speed records—its Acela trains generally operate between 75 and 150 miles per hour.

*With files from Siemens.
For more information,
visit www.siemens.com.*



Amtrak's Acela Express connects the Northeast Corridor, at speeds up to 150 miles per hour.



Transrapid in Shanghai, China, operates one of the few commercial maglev train services in the world, taking passengers from the city to the airport at speeds up to 268 miles p.h.



The all-time speed record for France's train a grande vitesse (TGV), which does not use maglev technology, is still very high at 357 miles per hour.

Accelerating Plans for California

In California, a high-speed rail authority was established in 1996 with responsibility for planning, constructing, and operating a high-speed train system between the state's major metropolitan areas, using contracts with private firms for all environmental, planning, and engineering work.

A state-wide, final program-level Environmental Impact Report (EIR) and Environmental Impact Statement (EIS) have been certified, and the authority has begun implementation of an 800-mile system serving Sacramento, the San Francisco Bay Area, the Central Valley, Los Angeles, the Inland Empire, Orange Country, and San Diego.

The state plans to operate its high-speed trains at maximum speeds of 220 miles per hour, with a trip from San Francisco to Los Angeles expected to take two hours and 40 minutes. With current forecast, the system has the potential by 2030 to carry more than 100 million passengers per year.

A key step in this project will come later this year, as a \$ 9.95-billion bond measure is on the November 2008 ballot, comprising \$ 9 billion for implementing the high-speed train system and \$950 million for improvements to other rail services that connect to it. This bond measure will require a simple majority vote for approval.

Source: [americanchemistry](http://americanchemistry.com), July / August 2008.

Italian Technologies For Recycling of Plastics

September 9, 2008 Mumbai



Ms. Neelkamal Darbari, Jt. Secretary, DCPC, addressing the gathering. Members of Indian and Italian delegation are seen on the dias.

Italian Trade Commission Mumbai & Rome and Asso-comaplast Plastics and Rubber Machinery Manufacturers' Association of Italy, in co-operation with ICPE, had organised a Technical Seminar on Italian Technologies for Recycling of Plastics on 9th September, 2008 at Hyatt Regency, Mumbai. Italian Consulate and Asso-comaplast and an expert from Italy had deliberated on the Technologies available in Italy for plastics recycling, which could be implemented in major cities in India.

Representatives from Plastics Associations, Recyclers, Processors, NGO's, and Policy makers attended the seminar to take advantage of the opportunity of knowing more about the advanced technology in the field. On the invitation of ICPE, the Jt. Secretary Petrochemicals, Department of Chemicals and Petrochemicals, had attended the seminar and addressed the partici-

pants assuring necessary assistance from the Government.

Technical Expert from Italy had deliberated on the whole process of recycling technologies as practised in Italy, which covered recycling technologies of PET bottle waste and other commodity plastics waste. A CD containing the complete presentation was distributed.

Prior to the Technical Seminar,

Members of ICPE Team had an exclusive meeting with the Italian Delegation to discuss, among other points, possibility of co-operation between ICPE and the Italian Association in establishing State of the Art Plastics Recycling Plants in India. Members from Italian Consulate indicated that Italian Government would be interested in establishing long term Technical Collaboration with India in the field. Italian Team comprised of

- Dr. Ms. Erica Di Giovancarlo, Italian Trade Commissioner
- Mr. Bernard Prevete, Deputy Trade Commissioner of Italy
- Mr. Maggiani Asso-comaplast
- Mr. Gianmarco Cortivo Italian Expert

Following members attended the meeting on behalf of ICPE:

- Mr. Arvind Mehta
- Mr. Vijay Merchant
- Mr. Rajiv Tolat
- Mr. S. V. Kabra
- Mr. T. K. Bandopadhyay



Mr. Bernard Prevete, Dy. Trade Commissioner of Italy is addressing the gathering.



Italian and Indian Delegation Members.



Seminar in Progress.

Salient points discussed in the meeting were:

- Italian Team claimed that they offer high quality and high output machines at cheapest cost for processing of virgin plastics as well recycling of plastics waste.

- One such high output machine is capable of recycling all plastics waste generated in the city of Mumbai (Mr. Cortivo). The plant

ensures zero emission of any pollutant.

- They do not have smaller pilot plant for demonstration purpose. Minimum output would be about 1 MT per hour. They are ready to install and operate such plant under a Trade agreement, which could be discussed.

- In Italy, all packaging waste (paper / glass / metal / plastics etc) is

considered in one group and the waste generator has to pay tax on the basis of waste generated.

- Italian trade Commission is ready to organize for technical training for Indian Entrepreneurs.

- Italian Trade Commission would facilitate exchange of information on plastics Waste management and Recycling and they would like to be associated with ICPE.

China - Shoppers Rejects "Green" Plastic Bags

Shoppers reject 'green' plastic bags. No significant drop in the use of ordinary plastic bags since the ban on Free bags' distribution in supermarkets and stores

By Cai Wenjun Thursday, 4 September, 2008.

SHOPPERS have rejected biodegradable plastic bags at local supermarkets because of their higher price compared with ordinary plastic bags.

Under a national plan to promote the Olympics and environmental awareness, Wal-Mart offered biodegradable bags at five Olympic host cities early last month. Three outlets in Shanghai offered the bags.

Since ordinary plastic bags ranging from 0.1 yuan (1.4 US cents) to 0.3 yuan were not available during this time, many costumers turned to non-plastic woven bags costing 1 yuan to 2.5 yuan instead of the environment-friendly plastic bags which cost more than 0.69 yuan each.

"The biodegradable bags are too

expensive, as we always need several plastic bags during one shopping. I prefer woven ones, which can be used many times and have a good appearance," said a male customer surnamed Hu while shopping at Wal-Mart's Wujiaochang outlet in Yangpu district. "Anyway, my top choice is still the ordinary plastic bags, which are the cheapest and can used as trash bags back home.

"Hu Minghua, a local Wal-Mart official, admitted that it may take a long time for local customers to accept biodegradable bags given their high cost. But he said it was a useful trial to promote environmental protection.

He said biodegradable bags could be completely broken down

within nine months and posed no harm to the environment.

Wal-Mart said it never planned profit from selling biodegradable bags. They said the cost of the bags was high because of the complicated technology required to produce them.

Officials said the supermarket may cooperate with the bag producer to drop costs byimproving the manufacture process.

Shanghai Public Sanitary Bureau officials hailed the introduction of biodegradable bags.

Officials said there had not been a significant drop in the use of ordinary plastic bags since the nation ordered a halt of free bags in supermarkets and stores.

Down Stream Plastics Processing Markets in India



Mr. Arvind Mehta, at the 10th International Conference - Petrochem 2008.

Need for R&D in areas as capital goods, moulds, dies & tools; a Technology Up-gradation Fund (TUF) which needs to be put in place, AND a special attention for meeting the rising manpower needs and creation of plastic parks will help in international competitiveness of the downstream sector.



Mr. Arvind Mehta

President,
Plastindia Foundation,
Mumbai

Indian Petrochem 2008, an annual 2 day conference, was a well attended, thoughtfully laid out conference where several stalwarts of the Petrochemical Industry participated at the conference held on 17th - 18th November 2008 at the Intercontinental-Grand, Mumbai.

The 2 day conference, witnessed papers being presented by a wide spectrum of speakers from the Petrochem fraternity. Speakers from UK, USA, Germany, Italy, Singapore amongst others presented a variety of papers on the subject.

With over 250 delegates from across the world assembled from the petrochemical and related industries, the platform was ideal for promotion of Plastindia 2009. Papers presented during the conference included topics like Crude Prices, Feedstock Market Dynamics, Challenges and Innovations in the Petrochem Industry, Project execution strategies Global outlook on the Petrochem Industry, Maximising Market Value with value addition and the latest Polyolefin Processes etc.

Plastindia Foundation was invited to participate in this Conference, where President, Mr. Arvind Mehta made a presentation

on the Down Stream Plastics Processing Markets in India. Plastindia Foundation also took a booth and screened the Plastindia 2009 promotion film to the elite audience.

The presentation by Mr. Arvind Mehta, dwelt on the traits in the downstream plastics industry in India, the numbers that go along with it and the downstream economy drivers.

Speaking on the opportunities in the down stream industry, he emphasized "Sophisticated higher capacity machines with enhanced design capabilities is a must. Technological know-how; intelligent manufacturing & global practices in production should be encouraged".

Speaking on the future trends in the industry, he said "While, quality, design, innovation & technology & Consultancy will find great need in the coming years if India has to be at par with the growth rate that is being witnessed in the industry".

Mr. Mehta also touched upon the issues that are of concern to the downstream industry and need to be addressed. These included "Need for R&D in areas as capital goods, moulds, dies & tools; a Technology Up-gradation Fund (TUF) which

needs to be put in place, special attention for meeting the rising manpower needs and Creation of plastic parks will help in international competitiveness of the downstream sector."

ECONOMIC DRIVERS & OPPORTUNITIES IN THE DOWNSTREAM PLASTICS INDUSTRY IN INDIA

- The downstream plastic processing sector - highly labour intensive and currently provides employment to 3.3 million people. It has the potential to generate 3.7 million new jobs by 2011-12.
- Downstream plastic industries provide entrepreneurial development, vital for the economy.
- Plastics can boost agricultural growth from existing level of 2% through plasticulture.
- Plastics reduce losses and wastages through packaging of agricultural produce saving Rs 23,000 crores annually.

Concluding his presentation, Mr. Mehta urged those present to visit Plastindia 2009, where there would be a lot to see as regards the progress made in the downstream Plastics Industry where there was a dedicated pavilion "PROPLAST" being hosted.

Awareness Programmes for School / College Students

Environmental Education has been introduced in the Syllabus in all educational institutes as a compulsory subject with effect from recent past. This policy has been taken due to the fact that environmental pollution has become a threat to the very existence of human life on earth. The scientific study on the cause and effects of environmental pollution has revealed that human activities, which have caused the environmental degradation, can be arrested to a great extent by appropriate recourse.

ICPE has been conducting mass awareness programmes on the major reasons of environmental pollution and finding solutions to some of the causes. Appropriate methods of segregation of different types of solid

wastes at the source are propagated among the students. ICPE also share its knowledge on the position of Plastics in the Environment its benefits, issues and the solutions.

To share the experience, ICPE organise awareness programmes in schools, colleges and various other institutes including Corporate Houses to brief them about their responsibilities towards this cause. ICPE organises these programmes free of cost. The programme is for about one hour duration comprising of:

- A Power-point Presentation
- Screening of Audio Visuals
- Discussion and Interaction Session with Students and Teachers

Presently the programme is intended for the students of Senior Classes - from Class VIII and above. Suitable programme for Primary Standard Students also is being designed. The ideal place for conducting the programme is the school auditorium / hall where few hundred students can be assembled. Printed booklets on common causes of environmental pollution and the solutions are distributed among the school children- free of cost.

Plastics Associations all over the country, with active support from ICPE, extends this facility at various locations. Educational Institutes may like to take advantage of this service in their respective schools/ colleges.



Indian Plastics Federation, Kolkatta, had organised Awareness Programme at J.D. Birla Institute. From l to r are: Mr. P. K. Chopra, Mr. R. A. Lohia, Dr. V. Chakravorty, Mr. A. Chakrobarty, Mr. D. K. Chaterjee & Mr. A. Bagade on dias. 250 students participated.



Lady Irvin Senior Secondary School, Delhi. Awareness Programme was held on 20 th Sept. 2008. More than 250 senior students participated.



The Awareness Programme being conducted at N P Co. Education Model S S School, Delhi on 24 th Sept, 2008.



School Programme at Anand Niketan School, Ahemedabad on 1st Aug., 2008. Around 960 students participated. The programme was organised by Gujarat State Plastics Manufacturers' Association.

Do You Know? Facts about Plastic Carry Bags.

● Plastic Carry Bags are generally made out of polyethylene (polythene) which is used in contact with food stuffs, pharmaceuticals and drinking water and its use in these critical areas is approved by the regulatory authorities across the world including that in India like Bureau of Indian Standards (BIS) ¹.

¹Refer BIS Specification IS 10146:1982 Reaffirmed on Feb-2003

● Plastic Carry bags have contributed significantly in creating a sustainable, cost effective, energy efficient, hygienic and environmental friendly packaging system and for carrying, storing and packing various types of commodities / products including food products. The attributes, which have made the use of plastics safe and popular as a packaging material in general and as a carry bag in particular, are:

- Non toxic characteristics, inertness and chemical resistance.
- Excellent barrier properties and water-proof characteristics.
- Safe in handling due to non-breakability and light in weight
- Transparency, allowing easy visibility of content being carried/stored/packed
- Can also be opaque to protect the content from exposure to sunlight, when required

- Resistance to bacterial and other microbial growth.

- Pilfer proof characteristics etc.

Plastic carry bags due to the above-mentioned properties ensure that the products of mass consumption are delivered to the consumers in the best, hygienic and economic fashion. Plastic carry bags being inert in nature do not pose any health hazard. All plastics in general meet the requirements of both National and International standards like BIS, FDA etc.

Plastic carry bags and ancillary products add convenience to day-to-day life. Plastic bags are essential for packaging of bread, confectionery items, all range of Farsan / Namkeen and bakery products in view of its superior properties and cost effectiveness. All these products are very sensitive to moisture and loose taste and quality within no time. Hygroscopic edible products like sugar, salt, jaggery and many other food items susceptible to moisture cannot be effectively packed in alternative materials without sacrificing the quality or cost of packaging. Over years Plastics packaging have played a major role in protecting and increasing the shelf life of these products. For carrying fish, meat, poultry and other wet

food products, plastic bags are most suitable and no other alternative packaging can substitute them.

● Plastic bags generate 60% less greenhouse gas emissions than uncomposted paper bags and 79% less greenhouse gas emissions than composted paper bags. The plastic bags generate 3,097 tons of CO₂ equivalents per 100 million bags, while uncomposted paper bags generate 7,621 tons, and composted paper bags generate 14,558 tons, per 100 million paper bags.²

² Life Cycle Inventories for Packaging, Vol. 1, SAFEL, 1998.

● Plastic grocery bags consume 40% less energy during production and generate 80% less solid waste after use than paper bags.³

³USEPA

● Paper sacks generate 70% more air pollutants and 50 times more water pollutants than plastic bags do.⁴

⁴USEPA

● It takes 91% less energy to recycle a kilogram of plastic than a kilogram of paper.⁵

⁵USEPA

● Transporting 150,000 nos. plastic carry bags of minimum stipulated size (20 X 30 cms) of 40 micron thickness (weighing ~600 kgs) would require one small tempo, whereas similar size and number of

Plastic Bags generate 60-79% less greenhouse emission than paper bags.

The ULS Report



paper bags would require more than 10 such tempos for delivering the bags! Consider the extra fuel and cost it would need!

A scientific comparison between paper & polyethylene is shown in table 1.

Moreover production of paper is dependent on availability of wood pulp for which trees have to be felled causing further environmental concern.

Plastic and Jute Bags

A comparison of Plastic Bags with Jute Bags in terms of Life Cycle Analysis reveals that

- Energy Saving during manufacture of raw materials, production and transportation of plastic bags compared to jute bags is 81%.

- Environmental Burden with respect to Air and Water pollution during Production of Raw Material and Bags for Plastic Bags and Jute bags are given in table 2.

The environmental burden during transportation of the finished bags are as table 3

Plastic and Textile Bags

When plastics and textile are compared, following data is revealed:

- Plastics manufacturing consumes 400 kwh/mt while composite textile mills consume 1310 kwh/mt

- Textile contributes 30% Sox (Second Highest by Any Sector) and 23% NOx (Highest by Any Sector)

(Source : Warmer Bulletin, July 01)

Millions of KW of energy is saved and the atmosphere is less polluted when Plastic Carry bags are used in place of Textile bags.

Biodegradable / Compostable Plastic Bags

Biodegradation/Composting, by definition releases CO₂ and CH₄ - both Green House Gases, in to the atmosphere. Moreover, process takes place only when suitable environment is available. Use of biodegradable/composting plastics is thus restricted to specific applications worldwide.



Environmental burden	Polyethelen	Paper
Energy (GJ) for manufacture	29.00	67.00
Air Pollution		
SO ₂	9.9	28.1
NO _x	6.8	10.8
CH _x	3.8	1.5
CO	1.0	6.4
Dust	0.5	3.8
Waste water burden		
COD	0.5	107.8
BOD	0.02	43.1

Table 1: Source: Fabbri, A in Scott, G and Gilead, D., editors, Degradable Polymers, Principles and Application, Chapman & hall, 1995, Chapt.

Environmental Burden		Jute Bag	Plastic Bag
Air Emission			
CO	kg	54.3	0.6
CO ₂	kg	6610.2	760.0
SO _x	kg	134.8	5.2
NO _x	kg	68.1	4.8
CH ₄	kg	39.5	3.2
HCl	kg	5.3	0.0
Dust	kg	67.6	1.4
Water Emission			
Suspended Solids	kg	352.3	0.2
Chlorides	kg	4535.5	0.1

Table 2

Emission	gm/km	Excess emission for Jute bags	Plastic Bags
CO ₂	781.0	11107.3	Taken as Basis
CO	4.5	64.0	Taken as Basis
HC	1.1	15.6	Taken as Basis
NO _x	8	113.8	Taken as Basis
Particulates	0.36	5.1	Taken as Basis
Total regulated tail pipe emission	13.96	198.5	Taken as Basis

Table 3. The values are for packaging of one lac Mts of Atta. Source - Report by Centre for Polymer Science and Engineering, IIT, Delhi.

Consider the enormous environmental burden generated by Jute bags, which are not visible to naked eyes though, in comparison to Plastic Bags!

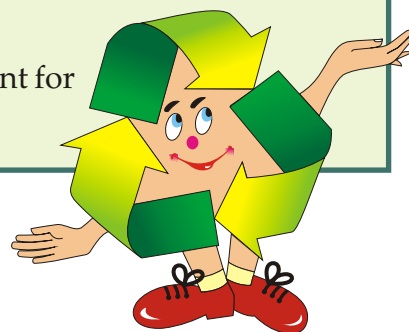
What is the Real Issue?

Our poor littering habits coupled with insufficient infrastructure for waste management has created the disposal problem of solid waste, including the plastic waste in the urban areas. However, available data reveals that the MSW in major cities in India contains around 5 % plastics waste, balance being Paper, Compostable Matters, Sand, Silt, Sanitary Diapers and Construction Debris etc. Hence Plastic Bags cannot be singled out as the sole reason for clogging of drains.

Discontinuation of Plastic bags is no solution and will rather multiply the problem many fold. This will add to the woes of common man as the so called alternatives are unviable, costly and place greater burden on the environment.

To discourage illogical use and to encourage the waste pickers for collection and recycling process, the regulatory bodies have already specified the minimum thickness and size of Plastic Carry Bags. Therefore, the challenge facing us is to improve the solid waste management system and address littering habits of masses by educating them and creating awareness.

The solution lies in Segregation of Waste at Source and arrangement for Recycling of all recyclable waste. Plastics Bags are 100% recyclable.



Let us be responsible citizens. Let us not litter.

India Chem 2008



INDIA CHEM 2008, Entrance.



ICPE Stall in INDIA CHEM 2008.

ICPE participated in INDIA CHEM 2008 Exhibition, organised by Department of Chemicals and Petrochemicals, Department of Pharmaceuticals and FICCI at Bombay Exhibition Centre during October, 20 - 22, 2008. Through Dynamic Scroller, ICPE communicated the message on importance of proper waste management methods in keeping our environment clean. The environmental benefits of plastics were also communicated among the general mass.

Affirmative Initiatives on National Environment Policy 2006 on 10th October 2008 at Hotel Trident, Mumbai.



The Meeting is in progress with Jt. Sec., DCPC, Ms. Neelkamal Darbari in Chair.

A meeting was organised by the Department of Chemicals and Petrochemicals (DCPC), Government of India, with the Industry Members to discuss the Actions Taken to implement the National Environment Policy 2006 with special emphasis on points related to Plastics Waste Management. The meeting was held on October 10, 2008 at Hotel Trident, Mumbai.

A brief note on the points of discussion is given below:

Environment Issues and Actions

■ While the National Policy on Petrochemical 2007 confirms that *"Plastics are not harmful to Environment"* and *"aim at increasing the use of plastics"* at the same time some of the Government Departments are out with anti-plastics propaganda alleging that - **'Plastic Kills', Plastics are Chocking our Environment!** There are conflicting campaign against plastics packaging in general and plastics carry bag in particular.

■ Many local authorities / State Governments are imposing restriction on plastic packaging in general creating lot of confusion and hardship to the industry.

■ Various States have different rules so far as thickness and sizes of carry bags are concerned whereas MoEF has its own Rule. Though it would not be possible to make uniform rule for the entire country as the matter is in the Concurrent List, Industry Association guided by ICPE and supported by DCPC should persuade State Government to be reasonable and practicable while prescribing any restrictions on use of plastics.

■ At the same time, local authorities are required to be persuaded for implementing the directions of the Hon'l Supreme Court on Municipal Solid Waste Management.

■ Industry Association would support authorities on plastic waste management initiatives as a PPP.

Awareness Programme

■ Industry Associations are unanimous regarding organising more awareness programme among School, Pollution Control Boards and Government Officials, NGOs, Local Authorised and general public.

■ An improved common Module is to be used by all Associations Members in their respective areas. ICPE is preparing the Module and All Associations would use the module for conducting the programme in their respective areas.

■ The message of two-bin culture / segregation of waste at source would be widely propagated among the communities / general mass.

■ Electronic Media is one of the most effective tools to reach the general mass across the country. However it is a costly alternative. DCPC's support is requested for using this tool for Mass Awareness.

Projects aimed at Waste Management and Recycling

■ Initiated a project with Cement industry, in consultation with Central and State Pollution Control Board, to Co-Process all types of Plastics Waste in Cement kilns for the dual purpose of recovering energy out of the waste and at the same time scientifically disposing of the waste without creating any pollution problem. Though the process is popular

in the developed and many developing countries, in India it is the first initiative.

■ More than one technology of using plastics waste in the construction of asphalt road has been developed and used in the country. CRRI - a CSIR - laboratory and some other academic institutions had taken initiatives in developing the technologies. ICPE has successfully propagated the same to some important State. Large scale adoption of the technology by other State would solve part for the plastics waste management problem while improving the quality of tar roads.

■ ICPE has widely and successfully propagated the advantage of the technology of conversion of plastics waste to industrial fuel invented by an Indian scientist and also by some corporate houses.

■ ICPE is in dialogue with Industry and Government authorities for setting up of Model Recycling Plant at major city / cities to facilitate Mechanical Recycling in an environment friendly manner. ICPE requests DCPC to extent its cooperation and co-sponsor the project.

There is a need for Government intervention / support for encouraging recycling. This includes:

■ Providing basic infrastructure like land, power and water at subsidized rates at identified areas, which may be called recycling parks in each big city. Bigger cities may have more than one such park.

■ Common Effluent Treatment Plants in such parks.

■ Tax benefits to recycling units.

■ Duty Relief for high technology recycling plants.

■ Mandate for use of recycled products for specific non-critical applications in Government Departments, educational institutes and in different commercial applications.

■ Subsidy for manufacture / purchase of specific recycled products, viz. school benches, railway platforms benches, etc.

ICPE and Industry would work jointly with DCPC to achieve the goal.

Industry/Association Meet on Plastics Carry Bag Issue in India



Mr. Amar Seth, Mr. K.G. Ramanathan, Mr. Arvind Mehta and Mr. Vijay Merchant addressing the meeting.



A Section of the Industry Representatives

An Industry Meet was convened by Shri K.G. Ramanathan, President Governing Council ICPE, on September 25, 2008 at Plastindia Foundation, to discuss the various issues regarding Plastic Carry Bags in India including the recent Court Orders and Notifications on either prohibiting or restricting the use of plastic carry bags and related issues amongst the Industry leaders. About 40 Members of major Associations from all over India and Industry representatives attended the Meeting.

The Members discussed, among other matters, need to counter the campaign against plastic bags / plastic carry bags and to bring out the real issues associated with solid waste management problem in general and plastics waste management in particular and finding solutions to those problems to resolve the same. It was decided that Plastic Associations would take a proactive role in co-operating with the Municipalities to tackle the plastic waste problem in their respective areas. The PPP model started in West Bengal was cited as an example.

Delhi Court Order Passed on a PIL

On Issues related to Plastics & Solid Waste Management in the Capital

The High Court allowed the petitions in part and to the following extent:

- 1) The respondents Government of NCT of Delhi shall issue a proper notification fixing the minimum thickness of plastic bags at 40 microns in place of 20 microns currently stipulated.
- 2) The respondents, Government of Delhi, the Pollution Control Committee of Delhi and the civic agencies shall take immediate steps for closure of unlicensed recycling units operating from non-conforming areas by using unsound methods for recycling of plastic bags.
- 3) Government of India shall expedite the constitution of the committee for verifying protocols for degradable and biodegradable plastics in India if the same has not already been done.
- 4) Government of NCT of Delhi shall issue an appropriate notification forbidding use of plastic bags in the main markets and local shopping centres apart from hotels, hospitals and malls where use of such bags is already forbidden.
- 5) The other recommendations referred to in the report made by the Committee appointed by this Court and extracted above shall be examined by the Government of NCT of Delhi as also the civic agencies and appropriate actions taken in accordance with law wherever such recommendations are found feasible.

Kerala high court stays plastic ban order

Kerala Government had issued a Notification banning the Use of Plastic Carry Bags and all plastic packaging materials below 50 micron thickness (earlier there was ban for plastic carry bags less than 30 micron thickness). Plastic Dealers Association and others moved court against the Government Notification. During the sitting of the Court on Friday the 4th July, 2008, the Hon'ble Court observed that Kerala State Pollution Control Board had no substantial proof to impose the new rule of 50 micron thickness for all plastic packaging materials and bags. The Hon'ble High Court in its Order dated 4th July 2008 stayed the Government of Kerala Notification and directed Secretary, Ministry of Environment and Forests, Government of India to file an Affidavit detailing the Environmental problems due to plastic.