



Plastics Industry

By
Anam Ayesha Mubashir

Draft Report II

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Introduction

The plastics processing industry is prominent in every aspect of modern life, e.g. transportation (aerospace, automotive, aircraft, marine), building and construction (building material), Furniture (bedding, house furnishing) and consumer goods (cutlery, luggage, lawn and garden). As new polymers and composite materials were introduced by the chemical industry due to research and development¹, so the industry was constantly refining and adding products to those that have been made over many decades. In its early years, the plastics industry greatly benefited from the substitution of plastic for other materials including various metals, wood, paper, glass, cardboard and natural fibers, etc. However, as a mature industry, the possibilities for substitution are limited, leading to greater dependence on economic growth and the expansion of demand in plastic's existing markets. The industry is also vulnerable to volatility in the global price of oil and gas feed stocks, used by the chemical industry to produce its raw and semi-finished materials.

The Plastic industry chain can be classified into two primary segments, these are; the **Upstream** which is the manufacturing of polymers and the **Downstream** which is the conversion of polymers into plastic articles. The upstream Polymer manufacturers have commissioned globally competitive size plants with imported state-of-art technology from the world leaders. The upstream petrochemicals industries have also witnessed consolidation to remain globally competitive. The downstream plastic processing industry is highly fragmented and consists of micro, small and medium units. Presently, 75% are in the small-scale sector. The small-scale sector, however, accounts for only about 25% of polymer consumption. The industry also consumes recycled plastic, which constitutes about 30% of total consumption.

Classification of Plastic Products by Type of process used

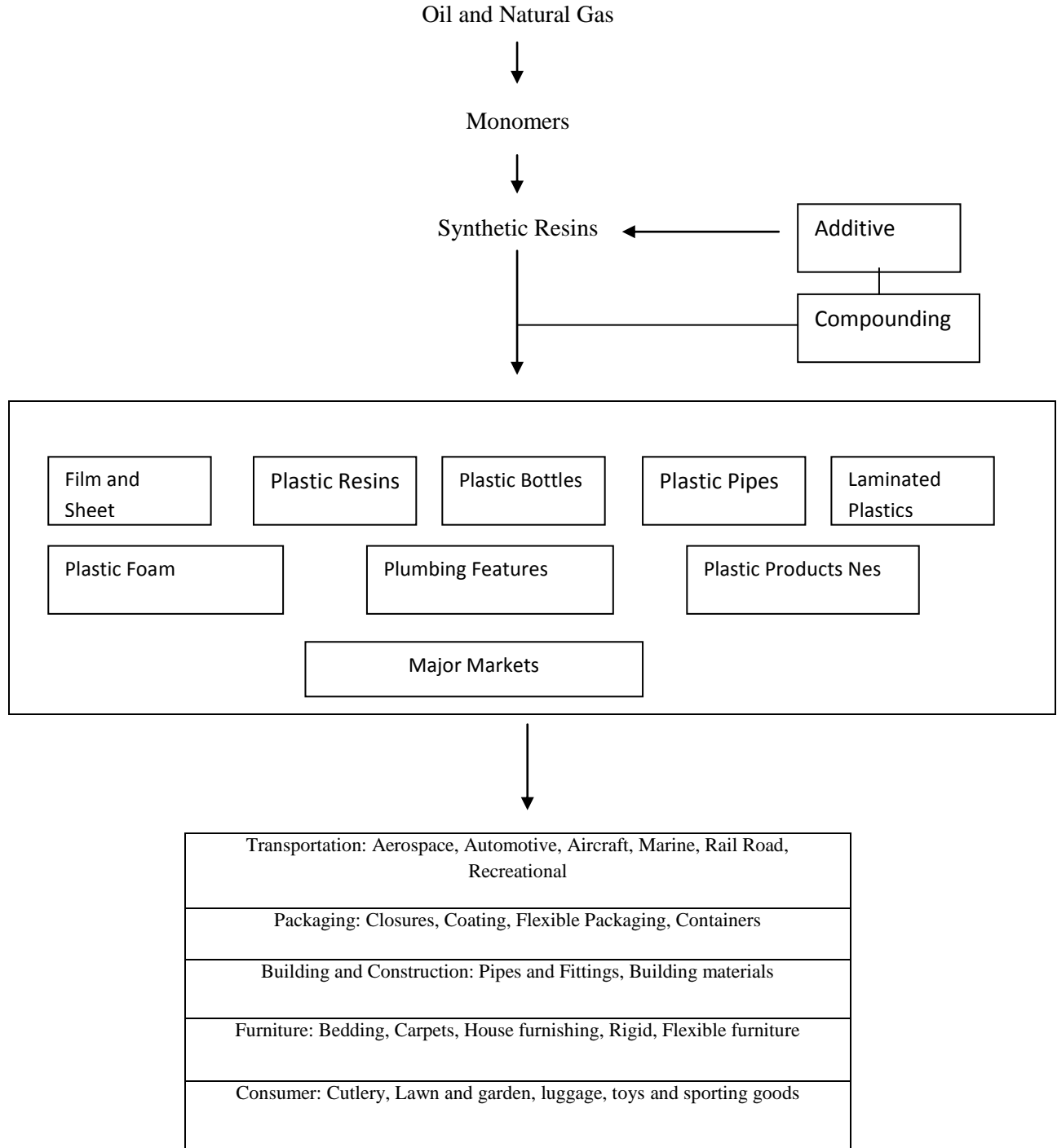
Table 1

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

Source: Central Institute of Plastics Engineering and Technology

¹<http://dartways.com/sectors/11>

Plastics Production Process



Source: *Plastipedia*

Objectives

Pakistan had been conducting its trade with India on a positive list approach before 26th of March, 2012. Recently, steps have been taken to liberalize trade from positive list to negative list. In the wake of this liberalization, there would be challenges and opportunities by opening up the new sectors of the economy to competition from India. In the light of above, this study has been done with the following objectives:

1. Identification of segments of industry which are not competitive vis a vis Indian plastic industry.
2. Identification of Pakistan's export potential, for the sector, in India.
3. Identify the comparative tariffs of Pakistan and India for the particular product range
4. Identify the threats and opportunities to plastic sector by using Revealed Comparative Advantage (RCA) Index.
5. Identification of NTBs that need to be addressed to facilitate exports, of the specific sector, to India.
6. Identification of trade defense laws if (any) used in this sector.

Scope and Methodology

The scope of this report is limited to analyzing Pakistan and India plastic sector as new challenges and opportunities would arise by liberalizing trade with India. The analysis has been done up to the year 2010 as trade figures of the post liberalization period are not available. This report is based primarily on desk research. Due to time, resource and budgetary constraints interaction with stakeholders was not possible.

The methodology adopted in this report is based on descriptive statistics obtained from secondary sources. In addition comparative analysis has also been done on the plastics sectors of Pakistan and India. The structure of the report is as follows:

Section I deals with the trade analysis. A detailed analysis of bilateral trade between Pakistan and India is conducted for plastics. Furthermore, in this section, the status of the products falling

under plastics sector has been determined in the pre-liberalization phase (positive list approach era), post-liberalization phase (negative list regime) and under SAFTA trading arrangement. In addition, the MFN and preferential tariff are also being presented. This section also deals with the identification of Pakistan's and India's comparative position with respect to products of this sector. This analysis is done at the HS 6 digit level using Revealed Comparative Advantage (RCA) Index. The results are mapped according to Pakistan's plastics sectors opportunities and threats.

Section II and III of this report illustrates market size of plastics industry domestic demand of plastics and polyesters and polymers in India and Pakistan respectively. The information for this part is obtained from secondary sources.

Section I: Trade Analysis

The leading markets for plastics are in packaging, building and construction and the automotive/transport industries. However, in Pakistan, a number of other industries which used some form of plastic, e.g. the textile, clothing, electrical, electronic, mechanical engineering and agricultural industries, had experienced a profound downturn in demand, as they struggle to adjust to changes in the market for their products and against a rising tide of imports from Turkey, China, US, UK, Italy etc.

USA, China, Italy, Japan, Korea, UK and Germany are the major players in the world of plastic products and the export growth of USA in this specific sector has increased by 185% followed by UK, China, Germany and Korea with growth rates 31%, 456% and 28% during 2005-2010.

1.1 Pakistan's Imports from India

Table 2 presents the bilateral trade analysis between India and Pakistan. The analysis on the bilateral trade between India and Pakistan for the year 2010 shed light on the potential exports of plastic products to India.

Table 2: Pakistan's Major imports from India in 2010

Product Code	Description	Imported Value in 2010 (\$ 000)
'390210	Polypropylene	25209
'391000	Silicones in primary forms	2701
'390319	Polystyrene nes	1323
'392069	Film and sheet etc, non-cellular etc, of polyesters nes	1095
'390110	Polyethylene having a specific gravity of less than 0.94	857
'391290	Cellulose derivatives nes, in primary forms	755
'392690	Articles of plastics or of other materials of Nos 39.01 to 39.14 nes	711
'390720	Polyethersnes	694
'390690	Acrylic polymers nes, in primary forms	635
'391231	Carboxymethylcellulose and its salts	608
'390730	Epoxide resins	513

Source: Trade Map

When we see the imported products of plastics sector, the major import item from India is Polypropylene with traded value of \$ 25 million. Table 2 shows that Pakistan is importing raw materials from India. If the negative list is analyzed, polypropylene, polyethylene, films and sheets of polyester and articles of plastics are included in that list. It means that these products are sensitive and to protect the domestic industry, Pakistan has included these items in the negative list.

1.2 Pakistan's Exports to India and Potential Products of Pakistan in Indian Market

Major exports of Pakistan to India include Polyethylene, PVC film and sheets of polymers, table ware and kitchen ware etc. while Pakistan's major exports to world include PET, Film and sheets of polymers of propylene, tubes, pipes of plastics and plates, sheets, films, foils, polymers of vinyl.

Table 3: Pakistan's Exports to India in 2010

HS Codes	Description	Exported Value in 2010
'390120	Polyethylene having a specific gravity of 0.94 or more	6155
'390110	Polyethylene having a specific gravity of less than 0.94	5718
'390410	Polyvinyl chloride, not mixed with any other substances	1669
'392020	Film and sheet etc, non-cellular etc, of polymers of propylene	1522

'392390	Articles for the conveyance or packing of goods nes, of plastics	1270
'392410	Tableware and kitchenware of plastics	950
'390210	Polypropylene	445
'392051	Film and sheet etc, non-cellular etc, of polymethyl methacrylate	329
'392490	Household and toilet articles nes, of plastics	274
'392112	Film and sheet etc, cellular of polymers of vinyl chloride	177

Source: Trade Map

Table 4 indicates the products in which Pakistan has potential in Indian market. The data is obtained for the year 2010 and the traded values are in US \$ '000'. Pakistan has potential in Polyethylene terephthalate, articles of conveyance of plastics, polyesters in primary forms, polystyrene, household and toilet articles, polyethylene, PVC, films and sheets of plastics, tubes and pipes of plastics, table and kitchenware etc. Pakistan is already exporting plastics products to Turkey, Afghanistan, Italy and China. India is the 6th largest export market for Pakistan in plastic products.

Table 4: Potential Products of Pakistan in Indian Market

Codes	Description	Pak Exports to World	Pak Exports to India	India Imports from World
'390760	Polyethylene terephthalate	196120	1	40733
'390319	Polystyrene nes	22978	1	16329
'392390	Articles for the conveyance or packing of goods nes, of plastics	17623	1270	32153
'391590	Plastics waste and scrap nes	17577	0	41043
'392490	Household and toilet articles nes, of plastics	17438	274	11853
'390120	Polyethylene having a specific gravity of 0.94 or more	17432	6155	446355
'390110	Polyethylene having a specific gravity of less than 0.94	16342	5718	902846
'390799	Polyesters nes, in primary forms	15977	0	109512
'392690	Articles of plastics or of other materials of Nos 39.01 to 39.14 nes	9997	5	349956
'390410	Polyvinyl chloride, not mixed with any other substances	8708	1669	95111
'392321	Sacks and bags (including cones) of polymers of ethylene	8240	0	12442
'392020	Film and sheet etc, non-cellular etc, of polymers of propylene	7612	1522	50400
'391722	Tubes, pipes and hoses, rigid; of polypropylene	7454	0	353
'392329	Sacks and bags (including cones) of plastics nes	6505	2	13105
'391510	Polyethylene waste and scrap	4397	0	4889
'391890	Floor, wall and ceiling coverings etc, of plastics nes	3311	0	6593
'392410	Tableware and kitchenware of plastics	2815	950	11051
'392330	Carboys, bottles, flasks and similar articles of plastics	2684	0	13798
'392340	Spools, cops, bobbins and similar supports, of plastics	2384	0	3727
'390690	Acrylic polymers nes, in primary forms	2358	22	129562

Source: Trade Map

1.3 Plastics Sector—Threats and Opportunities

Table 5 identifies products in which both countries are competitive by using RCA index². It is observed that there are 6 product lines in which both countries having RCA greater than 1. Before liberalization between India and Pakistan, these products were not allowed from India and now again these tariffs lines have been placed in the negative list implying sensitive products. The RCA criteria show that these six product lines are threat for Pakistan as India is also competitive in these tariff lines. Out of these six product lines, two are now allowed from India and these are Polystyrene and Articles for the conveyance of packing of plastics.

Table5: Product lines in which both Pakistan and India are Competitive

Product code	Product label	RCA-Pak	RCA-India	MFN Tariffs	SAFTA Tariffs	Appendix G	Negative List
390319	Polystyrene nes	3	1			0	0
391610	Monofilaments >1 mm, profile shapes etc of polymers of ethylene	2	1	20	5	0	3916.1
391721	Tubes, pipes and hoses, rigid; of polyethylene	1	1	20		0	3917.21
391890	Floor, wall and ceiling coverings etc, of plastics nes	4	2	25		0	3918.9
392020	Film and sheet etc, non-cellular etc, of polymers of propylene	1	1	20		0	3920.201
392329	Sacks and bags (including cones) of plastics nes	1	2	25		0	3923.29
392390	Articles for the conveyance or packing of goods nes, of plastics	2	1			0	0

Source: Author's own calculations

Table 6 presents products in which Pakistan is competitive and India is not. There are eleven products which are an opportunity for Pakistan because in these product lines Pakistan has comparative advantage and India is not competitive. In addition we also observed that before trade liberalization these items were banned from India and now six tariff lines have again been placed in the negative list indicating that this sector is highly sensitive for Pakistan' domestic industry.

² $RCA_{pg} = [X_{pg} / X_p] / [X_{wg} / X_w]$ Where: X_{pg} = Exports of Good g by Pakistan, X_p = Total exports of Pakistan, X_{wg} = World exports of good g, X_w = Total World Exports

If $RCA > 1$: Country has comparative advantage in that product

If $RCA < 1$: Country has comparative disadvantage in that product

Table 6: Products lines in which Pakistan is Competitive and India is not Competitive

Product code	Product label	RCA-Pak	RCA-India	MFN Tariffs	SAFTA Tariffs	Appendix G	Negative List
390120	Polyethylene having a specific gravity of 0.94 or more	1	0	5	5	3901.2	0
390410	Polyvinyl chloride, not mixed with any other substances	1	0			0	0
390799	Polyesters nes, in primary forms	2	0	20		0	3907.99
391510	Polyethylene waste and scrap	2	0	25	5	0	0
391590	Plastics waste and scrap nes	3	0	25	5	0	0
391729	Tubes, pipes and hoses, rigid; of plastics nes	1	0	20		0	3917.29
391733	Tubes, pipes and hoses nes, plastic, not reinforced etc, with fittings	1	0	20		0	3917.33
392051	Film and sheet etc, non-cellular etc, of polymethyl methacrylate	1	0	20		0	3920.51
392321	Sacks and bags (including cones) of polymers of ethylene	1	0	25		0	3923.21
392340	Spools, cops, bobbins and similar supports, of plastics	2	0	25		0	3923.4
392490	Household and toilet articles nes, of plastics	3	0	25		0	0

Source: Author's own calculations

1.4 Anti-dumping Duty on Phthalic Anhydrate:

The National Tariff Commission (NTC) has imposed anti-dumping duty @ 10.94% price on dumped imports of Phthalic Anhydride ("PA") from India to Pakistan. The anti-dumping duty was imposed for a period of five years effective from February 13, 2006. However, in terms of Section 58(3) of the Ordinance, a definitive anti-dumping duty shall not expire if the Commission determines in a review that the expiry of such anti-dumping duty may likely to lead to continuation or recurrence of dumping of the investigated product and resulting in injury to the domestic industry. The Commission has also imposed definitive anti-dumping duties ranging from 5.87% to 27.28% on imports of PA from Brazil, China, Indonesia, Korea and Taiwan on September 30, 2010 for period of five years.

There were no imports of PA from India during last three years mainly because it was subject to 10.94% anti-dumping duty and this led to increase in imports from other sources. However, imposition of anti-dumping duties on dumped imports of PA from Brazil, China, Indonesia, Korea and Taiwan on September 30, 2010 for period of five years, led to decrease in imports from other sources also. In case anti-dumping duty imposed on India is terminated, it is likely that dumping would recur. Therefore, NTC concluded after the detailed analysis that there is relationship between likely recurrence of dumping of PA and likely recurrence of material injury

to the domestic industry if anti-dumping duty imposed on imports of PA from India is terminated. This product is highly sensitive and importing from India, Brazil, China, Indonesia, Korea and Taiwan will damage the domestic industry of Pakistan.

1.5 Non Tariffs Barriers to Trade applied by India³

India maintains restrictive trade regime for the import of Plastic products and according to PVC Floorings Scrap Policy, the following are the import licensing notes for an Indian importer:

1.5.1 PVC floorings scrap (scrap denotes industrial trimmings and rejects only) with the following specifications shall be permitted for imports:

- i. The PVC flooring scrap shall consist of thoroughly blended composition of thermoplastic binder, fillers and pigments. The thermoplastic binder shall consist substantially of one or both of the following namely (a) Vinyl Chloride polymer and (b) Vinyl Chloride co-polymer.
- ii. The density shall be < 0.925.
- iii. Ash content shall be < 21 to 30%.
- iv. Final Waste PVC scrap (i.e. unconverted to floor coverings etc.) shall not exceed 5% of the quantity imported and shall be disposed of in landfills.

The restrictions in the PVC flooring policy which are hurdles to exporters are further evident in the following conditions:

- (i) Only industrial, trimmings and rejects of PVC flooring scrap shall be allowed to be imported.
- (ii) Post consumer PVC flooring scrap and waste shall not be allowed to be imported.
- (iii) Imports shall only be allowed to actual users. In case the actual users hire export/import houses they could do so on receipt of specific request from actual users for specific quantities based on the installed capacity of the plant only.

³ Import Licensing Note retrieve from exim guru

(<http://www.eximguru.com/notes/default.aspx?noteid=200&Path1=Customs+Duty&Path2=%28Chapter+39+-+40+%29+-+Section+VII-Plastics+and+Articles+thereof%3B+Rubber+and+Articles+Thereof&Path3=Chapter+39%3A+plastics+and+articles+thereof>)

(iv) The concerned Pollution Control Boards (PCB)/Pollution Control Committees (PCCs) shall monitor the use of PVC scrap imported by the units.

(v) The units/PVC scrap users shall file a return of imports made during a calendar year to the concerned PCB/PCCs; and

(vi) The product so manufactured should meet the BIS specifications for unbacked flexible PVC floorings.

1.5.2 Import of waste, Parings and Scrap of Plastics

Similarly, India also maintained restrictive trade regime on import of waste, parings and scrap of plastics for an Indian importer. The DGFT (DG Foreign Trade) withdrew its move to put all plastic waste in the category of beef tallow whose import is not allowed under any circumstances. Plastic waste can now be imported freely subject to the condition that the waste is derived in the process of manufacture of virgin material.

1.5.2.1 Procedure relating to import of plastic waste/scrap

The matter relating to grant of licenses for import of such plastic wastes/scrap has been examined in consultation with the Department of Chemicals & Petrochemicals and other Ministries and it has been decided to prescribe the following guidelines for consideration of applications for import of plastic wastes/scrap.

- i. Import of plastic wastes/scrap (except PET bottle waste/scrap) shall be permitted only against a license.
- ii. Such new Plastic scrape shall be permitted for import in the following forms i.e. compressed, films in cut condition, cut tape soft waste, flakes, powders, pieces of irregular shape.
- iii. Applications for import licenses would be received in the Headquarter of the DGFT as per procedure prescribed in this regard. DGFT would obtain comments on each application from the Deptt. of Chemicals & Petrochemicals and Ministry of Environment & Forests. Based on the comments of Deptt. of Chemicals & Petrochemicals and the

Ministry of Environment & Forests, the individual cases shall be put up to the Special Licensing Committee (SLC) of DGFT for consideration.

- iv. The plastic scrape would be permitted only to the actual users who have the required facility for recycling such scrap and who are duly registered with the competent State authority and also possess clear pollution clearance certificate from the concerned State Pollution Board where the unit is located, as well as a capacity assessment certificate.
- v. Each consignment of plastic scrap imported against an import license issued in this regard shall be accompanied with a certificate from the factory in which it was generated.
- vi. Before the clearance of the plastic waste/scrap, all imported consignments of such plastic scrap shall be subjected to scrutiny and testing of samples.
- vii. Special Licensing Committee while considering import take into account, the quantity and value of plastic scrap imported by the applicant during the previous licensing years.

The guidelines and conditions shall also be applicable to the imports made under the Duty Exemption Scheme against Advance License. Applications for Advance Licenses for the import of plastic wastes and scrap shall in this case be considered by the Advance Licensing Committee DGFT (H.Q.). While imports of plastic wastes and scrap shall continue to be governed by the provisions of Export and Import Policy. Import of Plastic Waste/Scrap (except PET Bottle Waste/Scrap) and animal dung or animal excreta shall not, be permitted, except against a license.

Section II: Plastic Industry of India

The per capita consumption of plastic products in India is growing and is moving towards 2.5 times GDP growth⁴. The Plastic industry in India symbolizes a promising industry and is creating new employment opportunities for the people of India. The Government of India is trying to set up the economic reforms to elevate and boost the plastic industry by joint venturing, foreign investments and entrepreneurs are trying to provide high quality plastic products, so that it has become a booming industry.

- The growth of the plastics industry has seen the number of processing units grow from 25,000 in the year to 2010 to 30,000 units in 2011. The exponential growth anticipated over the next three years will see this number go up to 40,000 units. As of today, just about 10-15% of these units

⁴ SME Business Service Limited (<http://www.sme.in/CurrentNews.aspx?NewsID=1586>)

can be classified as medium scale operations and the rest all operate on a small scale basis. Over 70% of the industry is in the unorganized sector⁵.

- The overall turnover of the plastics processing industry in 2011 stands at Rs.85,000 crore and is expected to touch Rs. 100,000 crore in the year 2012 on the basis of the expected growth of the demand potential to 12.50 million tons from 9 million tons in 2011⁶.
- Independent studies show that the industry hired more than 3 million people in 2011, directly and indirectly, is expected to employ close to 4 million people in 2012 and 7 million people by the year 2015⁷

Despite the industry's high growth spanning over a period of over 2 decades and crossing several milestones, Indian plastics industry is yet to realize its full potential. The per capita consumption of plastics in India, at 5 kgs, is the lowest in the world. The average global per capita consumption is 26 kgs. The low level of per capita plastics consumption in India is indicative of the massive growth potential of the plastic industry. India has the advantage of high population and is expected to maintain high economic growth. This should propel India's plastics consumption to new levels in coming years. The next two decades are expected to offer unprecedented opportunities for the plastic industry in India⁸. According to a CRISIL Report, the world trade in Plastics is expected to reach 140 million tons in 2012 and provides a lucrative opportunity for India, but with just a 1.5% share in world export volumes, India is not in a position to capture this opportunity. The top three import destinations of India are Korea, China and USA and export destinations are China, UAE, Italy and USA. The Indian Plastic Industry, going forward, needs to consolidate and enhance capacity, upgrade facilities and improve productivity and increase utilization of critical plastic applications.

2.1 Domestic Demand of Polyester and Polymers in India

According to Business Monitor International's (BMI's) latest report, strong growth in domestic petrochemicals demand in 2010 is likely to decrease, owing to slowing down of economic activity, but the

⁵ ibid

⁶Plastmart (<http://chemguide.asia/news/2010/09/28/strong-growth.html>)

⁷ Plastics Industry in India (2011-15), Market Research, 29th Feb, 2012.

⁸ Indian Plastic Industry Growth Drivers

(http://export.gov/build/groups/public/@eg_main/@byind/@manufind/documents/webcontent/eg_main_041066.pdf)

Indian market is strong enough to justify the planned rapid increase in capacities. During 2010 (quarter 2), domestic demand for polyester products increased 10%, owing to increased non-apparel applications like home furnishing and technical textiles. Within the polyester segment, demand for **polyethylene terephthalate (PET)** increased 38% due to increased demand for beverages and bottled water. Polymer products demand remained stable during the quarter. Within the polymer segment, **demand for polypropylene (PP)** increased by 6% due to strong growth in the automobile sector, cement packaging and other industrial applications. Demand for PE and PP is forecast to grow in double digits, with some grades, such as biaxially-oriented polypropylene (BOPP) film for packaging, non-woven PP and pipe grade polyethylene (PE) expected to grow by more than 20%. In 2010, strong demand for low density **PE (LDPE)** and linear low density **PE (LLDPE)** film will suck in imports, while the country will remain self-sufficient in high density **PE (HDPE)** over the short term due to plentiful capacity and relatively poor demand. However, the PP sector in general is in danger of overcapacity. India was a significant PP exporter in 2009, but moderation in growth in global demand at a time of rising capacity will dampen prospects on external markets. Yet, domestic demand has yet to catch up with growing output volumes. As a result, the pressure to differentiate will increase, as competition in the Indian market heats up. R&D and the introduction of higher grades of polymer products are therefore essential to add value⁹.

The domestic demand of the economy will be fuelled by rising private consumption and fixed investment levels, as well as the need to rebuild inventories. This has renewed confidence in the petrochemicals industry. BMI estimates Indian consumption of plastics will grow from 8 million tons in 2009 to 16 million tons by 2016 and 25 million tons by 2020, with a lower rate of growth than the 15-16% seen in recent years. Nevertheless, this should prompt growth in the industry of 9-10% pa. Estimates for the investment needed to cater for the increase in demand for plastics in 2010-2016 has been put at US\$10 billion. Even when bearing in mind the delays and cancellations, India will host a rapidly expanding petrochemical industry¹⁰. The Indian government forecasts domestic polymer demands reaching 11 million tons in 2015, up from 5.8 million tons in 2008. This implies that India will remain a net polymer exporter. However, BMI is doubtful India will come close to increasing the value of its production from the current US\$15-18 billion to US\$30-35 billion by 2012-2014, a level that the Tata Strategic Management Group (TSM) says is necessary to cover the rate of domestic demand growth. By 2014, BMI estimates that per capita polymer consumption will reach 14 kg. While relatively modest by international levels, it will be far higher than 4.7 kg in 2007, which represented 20% of the global average.

⁹Plastindia 2012

¹⁰ Plastics Industry in India: An Overview, British Plastics Federation

Moreover, it will make India the world's third largest plastics consumer after the US and China. India is ninth on Asia Petrochemicals Business Environment Ratings, with 61.8 points, putting it 16.3 points ahead of Indonesia and 1.6 points behind Australia. India's score has recovered in recent months as a result of the continued expansion of the sector as well as a reduction in negative risks associated with the economic downturn and international financial crisis.

The one critical factor that plagues the Indian Plastic industry is the common perception that plastic is not environmentally friendly. This primarily is due to the low awareness about the energy saving property of plastics and the benefits to industries that utilize plastics. It is a little known fact that, while India has the lowest per capita consumption in the world, it is the highest recycler of plastics. India recycle 60% from both industry and urban waste as compared to the world average of 20-25%¹¹. Last but not the least, the various associations need to come together and put in a concerted effort to join hands to enhance the image and the growth of the Indian Plastic industry, create opportunities to demonstrate the industry's capabilities, educate all segments of the society about the benefits of plastics. The associations need to create a positive policy framework with all statutory entities and increase per capita consumption of plastics, encourage exports thereby significantly contributing to national growth.

Section III: Plastics Industry of Pakistan

Pakistan's plastic industry is thriving at an average annual growth rate of 15% with a total estimated production capacity of 624,200 M/T per annum¹². The industry attracted investment amounting to more than US\$ 260 billion¹³, almost half of which was foreign direct investment (FDI), and as a result export growth has increased to 35%¹⁴. Pakistan has established successful export markets for its plastic goods. In foreign markets including countries like Australia, South Africa, Saudi Arabia, West Indies, UAE, Kuwait, Taiwan, Nigeria and Zimbabwe; Pakistan is strategically well placed to target the all important local and international buyers in one of the world's largest trading regions. Particular growth is being seen in exports of plastic components for the automobile industry. This growth happened, besides entrepreneurial efforts, due to simplified tax policy on local production and reduction in import tariff on plastic raw materials. The industry is contributing more than Rs7.5 billion annually to the national

¹¹ ibid

¹² Evolution of plastics Industry in Pakistan, Mr. F. Chaudhry (2010)

¹³ http://www.ecgateway.net/download/PPPAsia_Brochure.pdf

¹⁴ ibid

exchequer in shape of custom duty, sales tax and income tax. Its contribution to the gross domestic product (GDP) was 1.69%¹⁵.

It is a high technology industry and most of modern plastic processing machinery is imported from Japan, Korea, Italy, Taiwan, Hong Kong, England, China and Germany. However, locally manufactured machinery is also being used. Raw material is also imported.

The capacity utilization has been in between 43 to 95%. Plastics industry in the un-organized sector is totally self-financed and during the last decade, the unorganized sector has grown much more rapidly. The per capita consumption of plastic in Pakistan is 3.1 kilograms. There are some 6,000 plastic products manufacturers in the country and 600,000 people are directly and indirectly engaged with this business. Pakistan imports 80-90 percent raw material for plastic making from different countries. The total consumption of raw material used in the plastic industry in the country is around 450,000 tonnes. The country imports raw material from UAE and Far Eastern countries and special grade raw material is imported from Germany and USA¹⁶.

3.1 Plastic Resin Industry of Pakistan

The plastic resin industry produces resins which are further treated in plastics processing facilities and sold largely to the building and construction, packaging and consumer markets. Plastic resins are generally categorized into two types: thermoplastics and thermosets. Globally, thermoplastic resins dominate plastic resin sales and production.

Pakistan possesses a narrow petrochemical base producing limited number of polymers including Polystyrene (PS), Polyvinyl Chloride (PVC), Polyethylene Terephthalate (PET) and Urea/Melamine Formaldehyde. An attempt to set up the first PVC plant in Pakistan was made by the Federal Chemicals and Ceramics Corporation Limited (FCCCL) when it planned to set up a 20,000 tons per annum capacity plant in Kala Shah Kaku way back in 1994¹⁷. This plant, unfortunately, did not come online. Later in 1999, Engro Chemicals through a joint venture with Japanese company set up the first PVC plant in Pakistan.

¹⁵ ibid

¹⁶ Plastics Product Cluster, Lahore;Hamid Minhas (Regional Business Coordinator), SMEDA

¹⁷ ibid

At present, no facilities for the production of two basic polymers polyethylene and polypropylene exist in the country with the result that these two constitute the bulk of Pakistan plastic resins imports. Import of PE and PP during 2009 stood at 0.424 tons valuing \$700 million constituting 76% of total plastics raw material imports¹⁸. Pakistan annual consumption of plastic resins is over one million tons and demand may further grow on the back of new developments in plastic technologies and a rapidly expanding market for plastics due to its wider use and application in the building and construction, transportation, packaging, electrical and electronics, furniture and furnishings and household appliances industries.

Table 6: Types of Plastic Resins and their uses

Plastic Resins and Codes	Uses
1. Polyethylene Terephthalate (PETE)	<ul style="list-style-type: none"> • Soda Bottles • Water Bottles • Shampoo Bottles • Mouth wash Bottles • Peanut butter jars
2. High Density Polyethylene (HDPE)	<ul style="list-style-type: none"> • Milk, Water and Juice Jugs • Detergent Bottles • Yogurt and Margarine tubs • Grocery Bags
3. Vinyl (V)	<ul style="list-style-type: none"> • Clear Food Packaging • Shampoo Bottles
4. Low Density Polyethylene	<ul style="list-style-type: none"> • Bread Bags • Frozen Food Bags • Squeezable Bottles (mustard, honey)
5. Polypropylene	<ul style="list-style-type: none"> • Ketchup Bottles • Yogurt and Margarine Bottles
6. Polystyrene	<ul style="list-style-type: none"> • Meat Trays • Egg Cartons • Cups and Plates
7. Other	<ul style="list-style-type: none"> • 3 & 5 gallon bottles • Ketchup • Small juice Bottles

Source: (<http://dartways.com/print.php?pg=sectors&s=11>)

¹⁸ Trade Map

Plastics raw material production in Pakistan is at low scale and does not meet the required demand. Presently, the total combined annual production capacity of four leading plastic resins producers stands at a little over 0.5 million tons¹⁹ while Pakistan total imports of all plastics raw material, as per Trade Map data, reached 0.525 million tons valuing US\$ 913 million in 2009²⁰. Pakistan was meeting its entire plastics raw material needs through imports till 1994. Pakistan has now started exporting PVC, PET resin and Polystyrene on a limited scale to Turkey, UAE, Italy, South Africa and Iran. Total exports of these three polymers stood at US\$ 176 million²¹. Table 7 depicts leading plastic resins manufacturers covering their products and production capacities:

Table 7: Resins Manufacturers and their Production Capacity in Pakistan

Company	Product	Capacity (Tons)
Novaltex	PET	235,000
Engro Polymer and Chemicals Ltd.	PVC	150,000
Pak Petrochemicals Industries Ltd.	HIPS & PS	90,000
Dynea Pakistan Ltd.	Urea & Melamine Formaldehyde	34,000

Source: (<http://dartways.com/print.php?pg=sectors&s=11>)

The brief description of plastic resins being manufactured in Pakistan, major producers and potential for growth in each segment is presented in the following section²²:

3.1.1 PET Resin (Polyethylene Terephthalate)

The only producer of Polyethylene Terephthalate (PET bottle grade resin) is Novatex, a sister concern of Gatron Industries. Gatron was established in 1984 as a producer of texturized and flat polyester filament yarn. The company diversified into PET bottle grade resin to cater to the increasing demand of the bottling industry. The company, with an annual production capacity of 235,000 tons of PET Resin (bottle grade), is not only meeting country's demand but has also entered into export market. Gatron has its Polymerization Plant and Technology from Zimmer AG, Germany while the Solid State Polycondensation Plant and Technology has been acquired from Sinco Engineering, Italy. Presently there is a huge potential for growth as demand is increasing due to high consumer usage in Pakistan.

¹⁹ <http://dartways.com/print.php?pg=sectors&s=11>)

²⁰ ibid

²¹ ibid

²² Dartways (<http://dartways.com/sectors/11>)

3.1.2 PVC (Polyvinyl Chloride)

Engro Polymer & Chemicals Limited, a subsidiary of Engro Corporation, is the only producer of PVC in Pakistan. The plant has annual production capacity of 150,000 metric tons. The company now has an integrated PVC facility after expansion and backward integration in 2009 for the manufacture of Ethylene Di Chloride (EDC), Chlor-alkali and Vinyl Chloride Monomer (VCM). The company was able to export 10,000 tons of PVC in 2009. At present only traditional PVC items are being manufactured i.e. pipes and fittings, shoes, cables, water conservation and compounding etc. With increased application of PVC in other products, there is good potential for growth in PVC consumption.

3.1.3 Polystyrene (PS)

Pak Petrochemicals Industries is the only producer of polystyrene in Pakistan. The company was established in 1994. Pak Petrochemicals annual production capacity is 90,000 tons producing GPPS and HIPS. About 60% of this is domestically consumed while the rest is exported to Germany, South Africa, Lebanon, Egypt and Turkey. Due to increased demand, the Company plans to start local production of ABS in the near future. The company is planning to increase its polystyrene capacity by 40% initially and subsequently by 100%.

3.1.4 MethanolUrea (Melamine)

Dynea Pakistan Limited produces urea resin for use in industries like particleboard, chipboard, veneer board and melamine resin for lamination industry. Together with its wholly owned subsidiary, Visionite (Pvt.) Limited, it is also Pakistan's largest producer of molding compound used for manufacturing dinner sets and electrical accessories. Manufacturing of formaldehyde and amino-plast resins and of molding compound were both pioneering ventures introduced for the first time in Pakistan. Now only a small quantity of molding compound is imported into the country and there are no imports of formaldehyde or liquid resins.

3.2 Domestic Demand of Polymers in Pakistan

The growth in Pakistan's polymer consumption is being curtailed by a severe shortage of power. Persistent power cuts by the state-owned power companies, lasting 6-10 hours a day, have badly hit

production at plastic processing units in the country. Pakistan's demand for polyolefins is growing at around 10%/year, but growth could be even higher were it not for the power cuts.

The country consumes around 300,000 tons/year of **polypropylene (PP)** and 280,000 tons/year of **polyethylene (PE)**, its almost entire demand is met by imports, as Pakistan has very small PP or PE production. The strongest demand for PP is in the automotive sector, followed by packaging and household appliances. Automotive production in Pakistan is around 250,000 cars/year, rising by 15% every year²³.

Biaxially oriented PP (BOPP) film for packaging was also a fast growing segment, with consumption at 40,000 tons/year²⁴.

PE demand was mainly fuelled by the packaging industry and blow molding applications for both small containers and large drums for petroleum and diesel storage.

The Middle East and India are major exporters of PP to Pakistan, while the Middle East is a major source of Pakistan's PE imports. Lately, Iran has emerged as a popular supplier to Pakistan. Indian PP was also in high demand. India is the second-largest trading partner of Pakistan after China.

Conclusion

Domestic production of plastics in Pakistan is at low scale and does not meet the required demand. Presently, the total combined annual production capacity of four leading plastic resins producers stands at a little over 0.5 million tons while Pakistan total imports of all plastics raw material, as per Trade Map data, reached 0.525 million tons valuing \$ 913 million in 2009. Pakistan was meeting its entire plastics raw material demand through imports till 1994 but now has started exporting PVC, PET resin and Polystyrene on a limited scale to Turkey, UAE, Italy, South Africa and Iran. Total exports of these three polymers stood at \$176 million. The consumption of polymers in Pakistan is condensed by power shortages. Similarly the production processing units of polymers is also affected due to power cuts in the country as plastic industry is energy consuming industry. One of the important polymers which is used in

²³ Petrochemical Plants and Chemicals database

²⁴ ibid

plastics production is polyolefins; its demand is increasing but again power shortage is the major obstacle in the growth of this sub segment of the industry.

India was a significant PP exporter in 2009, but moderation in growth in global demand at a time of rising capacity will dampen prospects on external markets. In India, petrochemicals and polymers domestic demand has increased in the year 2010 in the following sub categories:

- Polyester
- Polyethylene terephthalate (PET)
- Polypropylene (PP)
- Low density PE (LDPE)
- Linear low density PE (LLDPE)

Pakistan's top three import destinations of PP are Middle East, India and Iran. Pakistan also imports PE from Middle East. Pakistan's second largest trading partner after China is India. Pakistan has imposed an antidumping duty of 10.94% on India during the years 2008-2010 on imports on PA and this results in decrease of imports of PA from India.

It has been seen that Pakistan is the major exporter of PET, films and sheets of polymers of propylene, tubes and pipes of plastics and plates, sheets, film and foil made of plastics to the world. Exports to India include Polyethylene, PVC film and sheets of polymers, table ware and kitchen ware etc. PET has been in the negative list in order to protect the domestic industry. The report has also analyzed the threats and opportunities for Pakistan in plastics sector by using RCA index. Pakistan has an opportunity in Indian market in the following product lines:

- Polyethylene
- Polyvinyl chloride
- Polyesters
- Tubes, pipes and hoses of plastics
- Film and sheets of polymethyl methacrylate
- Sacks and bags of polymers
- Spools, cops, bobbins of plastics
- Household and toilet articles of plastics

Due to India's competitiveness, Pakistan is threatened by these product lines:

- Polystyrene
- Monofilaments of polymers
- Tubes and pipes of polyethylene
- Floor, wall and ceiling coverings of plastics
- Films and sheets of polypropylene
- Sacks and bags of plastics
- Articles for conveyance of goods of plastics

Recommendations

- Government should establish a hydro cracking plant (Hydro-cracking is a catalytic cracking process assisted by the presence of an elevated partial pressure of hydrogen gas), which will ensure cheap raw material for Pakistani plastic industry. Government was working on setting up such a plant for the last two decades, but no breakthrough has occurred. GoP may devise an incentive regime through trade policy instruments for establishing Hydro-cracking plant.
- Polyethylene (HS 3901) imports from India were banned but industry was importing indirectly via Dubai. Therefore, the import of this product should be allowed from India as it would result in cost savings for the industry. Pakistan was already a net importer of this product and hence allowing import of the same from India would simply lead to trade diversion.
- One of the important plastic resins is ABS (Acrylonitrile butadiene styrene), which is currently not being produced in Pakistan. This is raw material used for plastic production, Pakistan is currently importing ABS and as a result cost of production increases. Demand of ABS is growing; therefore, GoP should provide incentive to industry in the form of duty free import of plant and equipment for manufacturing ABS.

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Appendix

Revealed Comparative Advantage of India and Pakistan for the year 2010

HS Codes	Description	RCA_PAK_2010	RCA_IND_2010
390110	Polyethylene having a specific gravity of less than 0.94	0	0
390120	Polyethylene having a specific gravity of 0.94 or more	1	0
390130	Ethylene-vinyl acetate copolymers	0	0
390190	Polymers of ethylene nes, in primary forms	0	0
390210	Polypropylene	0	3
390220	Polyisobutylene	0	1
390230	Propylene copolymers	0	0
390290	Polymers of propylene nes or of olefins nes, in primary forms	0	0
390311	Polystyrene, expansible	0	0
390319	Polystyrene nes	3	1
390320	Styrene-acrylonitrile (SAN) copolymers	0	0
390330	Acrylonitrile-butadiene-styrene (ABS) copolymers	0	0
390390	Polymers of styrene nes, in primary forms	0	0
390410	Polyvinyl chloride, not mixed with any other substances	1	0
390421	Polyvinyl chloride nes, not plasticised	0	0
390422	Polyvinyl chloride nes, plasticised	0	0
390430	Vinyl chloride-vinyl acetate copolymers	0	0
390440	Vinyl chloride copolymers nes	0	0
390450	Vinylidene chloride polymers	0	0
390461	Polytetrafluoroethylene	0	2
390469	Fluoro-polymers nes	0	0
390490	Polymers of vinyl chloride nes, or of other halogenated olefins	0	0
390512	Polyvinyl acetate, in aqueous dispersion	0	1
390519	Polyvinyl acetate nes	0	0
390521	Vinyl acetate copolymers in aqueous solution	0	0
390529	Vinyl acetate copolymers, except aqueous solutions	0	1
390530	Polyvinyl alcohol (incl. w. unhydrolysed acetate g)	0	0
390591	Copolymers of vinyl	0	0
390599	Polymers of vinyl acetate, vinyl esters, nes	0	0
390610	Polymethyl methacrylate	0	1
390690	Acrylic polymers nes, in primary forms	0	0
390710	Polyacetals	0	0
390720	Polyethers nes	0	0
390730	Epoxide resins	0	0
390740	Polycarbonates	0	0
390750	Alkyd resins	0	0
390760	Polyethylene terephthalate	13	3

390770	Polylactic acid, in primary forms	0	0
390791	Polyesters nes, unsaturated	0	0
390799	Polyesters nes, in primary forms	2	0
390810	Polyamide-6, -11, -12, -6,6, -6,9, -6,10 or -6,12	0	0
390890	Polyamides nes, in primary forms	0	0
390910	Urea resins; thiourea resins	0	0
390920	Melamine resins	0	0
390930	Amino-resins nes	0	0
390940	Phenolic resins	0	1
390950	Polyurethanes in primary forms	0	0
391000	Silicones in primary forms	0	0
391110	Petroleum resins,coumarone,indene/coumarone-indene resins&polyterpenes	0	1
391190	Polysulphides, polysulphones & other products of Note 3 Chap 39, nes	0	0
391211	Cellulose acetates, non-plasticised	0	0
391212	Cellulose acetates, plasticised	0	1
391220	Cellulose nitrates (incl collodions)	0	2
391231	Carboxymethylcellulose and its salts	0	1
391239	Cellulose ethers nes, in primary forms	0	0
391290	Cellulose derivatives nes, in primary forms	0	1
391310	Alginic acid, its salts and esters	0	0
391390	Natural polymers, modified natural polymers nes, in primary forms	0	0
391400	Ion-exchangers basd on polymers of Nos 39.01 to 39.13 in primary forms	0	2
391510	Polyethylene waste and scrap	2	0
391520	Polystyrene waste and scrap	0	0
391530	Polyvinyl chloride waste and scrap	0	0
391590	Plastics waste and scrap nes	3	0
391610	Monofilaments >1 mm, profile shapes etc of polymers of ethylene	2	1
391620	Monofilaments >1 mm, profile shapes etc of polymers of vinyl chloride	0	0
391690	Monofilaments >1 mm, profile shapes etc of plastics nes	0	1
391710	Sausage casings of hardened protein or of cellulosic materials	0	0
391721	Tubes, pipes and hoses, rigid; of polyethylene	1	1
391722	Tubes, pipes and hoses, rigid; of polypropylene	6	0
391723	Tubes, pipes and hoses, rigid; of polyvinyl chloride	0	1
391729	Tubes, pipes and hoses, rigid; of plastics nes	1	0
391731	Tubes,pipes&hoses,flexible,plastic,minimum burst pressure of 27.6 MPa	0	1
391732	Tubes,pipes and hoses nes,plastic,not reinforced etc,without fittings	0	0
391733	Tubes, pipes and hoses nes, plastic, not reinforced etc, with fittings	1	0
391739	Tubes, pipes and hoses nes, plastic	0	0
391740	Fittings, plastic	0	0
391810	Floor, wall and ceiling coverings etc, of polymers of vinyl chloride	0	1
391890	Floor, wall and ceiling coverings etc, of plastics nes	4	2

391910	Self-adhesive plates,sheets,film etc,of plastic in rolls <20 cm wide	0	0
391990	Self-adhesive plates, sheets, film etc, of plastic nes	0	0
392010	Film and sheet etc, non-cellular etc, of polymers of ethylene	0	0
392020	Film and sheet etc, non-cellular etc, of polymers of propylene	1	1
392030	Film and sheet etc, non-cellular etc, of polymers of styrene	0	0
392043	Plates, sheets, film, foil and strip, of non-cellular polymers of vinyl	0	0
392049	Plates, sheets, film, foil and strip, of non-cellular polymers of vinyl	0	1
392051	Film and sheet etc, non-cellular etc, of polymethyl methacrylate	1	0
392059	Film and sheet etc, non-cellular etc, of acrylic polymers nes	0	0
392061	Film and sheet etc, non-cellular etc, of polycarbonates	0	0
392062	Film and sheet etc, non-cellular etc, of polyethylene terephthalates	0	2
392063	Film and sheet etc, non-cellular etc, of unsaturated polyesters	0	1
392069	Film and sheet etc, non-cellular etc, of polyesters nes	0	5
392071	Film and sheet etc, non-cellular etc, of regenerated cellulose	0	1
392073	Film and sheet etc, non-cellular etc, of cellulose acetate	0	0
392079	Film and sheet etc, non-cellular etc, of cellulose derivatives nes	0	0
392091	Film and sheet etc, non-cellular etc, of polyvinyl butyral	0	0
392092	Film and sheet etc, non-cellular etc, of polyamides	0	0
392093	Film and sheet etc, non-cellular etc, of amino-resins	0	0
392094	Film and sheet etc, non-cellular etc, of phenolic resins	0	1
392099	Film and sheet etc, non-cellular etc, of plastics nes	0	0
392111	Film and sheet etc, cellular of polymers of styrene	0	0
392112	Film and sheet etc, cellular of polymers of vinyl chloride	0	0
392113	Film and sheet etc, cellular of polyurethane	0	0
392114	Film and sheet etc, cellular of regenerated cellulose	0	0
392119	Film and sheet etc, cellular of plastics nes	0	0
392190	Film and sheet etc, nes of plastics	0	1
392210	Baths, shower-baths and wash basins, of plastics	0	0
392220	Lavatory seats and covers of plastics	0	0
392290	Bidets,lavatory pans,flushing cisterns & similar plastic sanitary ware	0	0
392310	Boxes, cases, crates & similar articles of plastic	0	0
392321	Sacks and bags (including cones) of polymers of ethylene	1	0
392329	Sacks and bags (including cones) of plastics nes	1	2
392330	Carboys, bottles, flasks and similar articles of plastics	0	0
392340	Spools, cops, bobbins and similar supports, of plastics	2	0
392350	Stoppers, lids, caps and other closures of plastics	0	0
392390	Articles for the conveyance or packing of goods nes, of plastics	2	1
392410	Tableware and kitchenware of plastics	0	1
392490	Household and toilet articles nes, of plastics	3	0
392510	Reservoirs, tanks, vats etc of a capacity exceeding 300 l, of plastics	0	0
392520	Doors, windows and their frames and thresholds for doors, of plastics	0	0

392530	Shutters,blinds (incl Venetian) & similar articles & parts of plastics	0	0
392590	Builders' ware nes, of plastics	0	0
392610	Office or school supplies, of plastics	0	0
392620	Apparel and clothing accessories (incl gloves) of plastic	0	0
392630	Fittings for furniture, coachwork or the like, of plastics	0	0
392640	Statuettes and other ornamental articles, of plastics	0	0
392690	Articles of plastics or of other materials of Nos 39.01 to 39.14 nes	0	0