

Polyethylene Terephthalate (PET) Resin From
Canada, China, India and Oman
INV. 701-TA-531-533 and 731-TA-1270-1273
USITC Final Investigation Commission Hearing
March 1 ,2016

**PRESENTATION OF RELIANCE INDUSTRIES
LTD.**

What is PET resin?



PLASTIC RESIN CODES



<p>Polyethylene Terephthalate</p> <p>soda bottles</p> <p>water bottles</p> <p>shampoo bottles</p> <p>mouthwash bottles</p> <p>peanut butter jars</p>	<p>High Density Polyethylene</p> <p>milk, water and juice jugs</p> <p>detergent bottles</p> <p>yogurt and margarine tubs</p> <p>grocery bags</p>	<p>Vinyl</p> <p>clear food packaging</p> <p>shampoo bottles</p>	<p>Low Density Polyethylene</p> <p>bread bags</p> <p>frozen food bags</p> <p>squeeze bottles (laundry, ketchup)</p>	<p>Polypropylene</p> <p>ketchup bottles</p> <p>yogurt and margarine tubs</p>	<p>Polystyrene</p> <p>meat trays</p> <p>egg cartons</p> <p>cups and plates</p>	<p>Other</p> <p>ketchup</p> <p>3 & 5 gallon water bottles</p> <p>some juice bottles</p>
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Types of Plastics



LDPE



Consumer Products Using HDPE

- HDPE Plastic #2
- Yogurt & Margarine Tubs
- Juice Jugs
- Milk Jugs
- Cereal Box Liners
- Food Jars
- Detergent Bottles
- Water Jugs
- Bottles from Household Cleaners

HDPE



Polystyrene



PET

© CRGT Netherlands

What is PET resin?

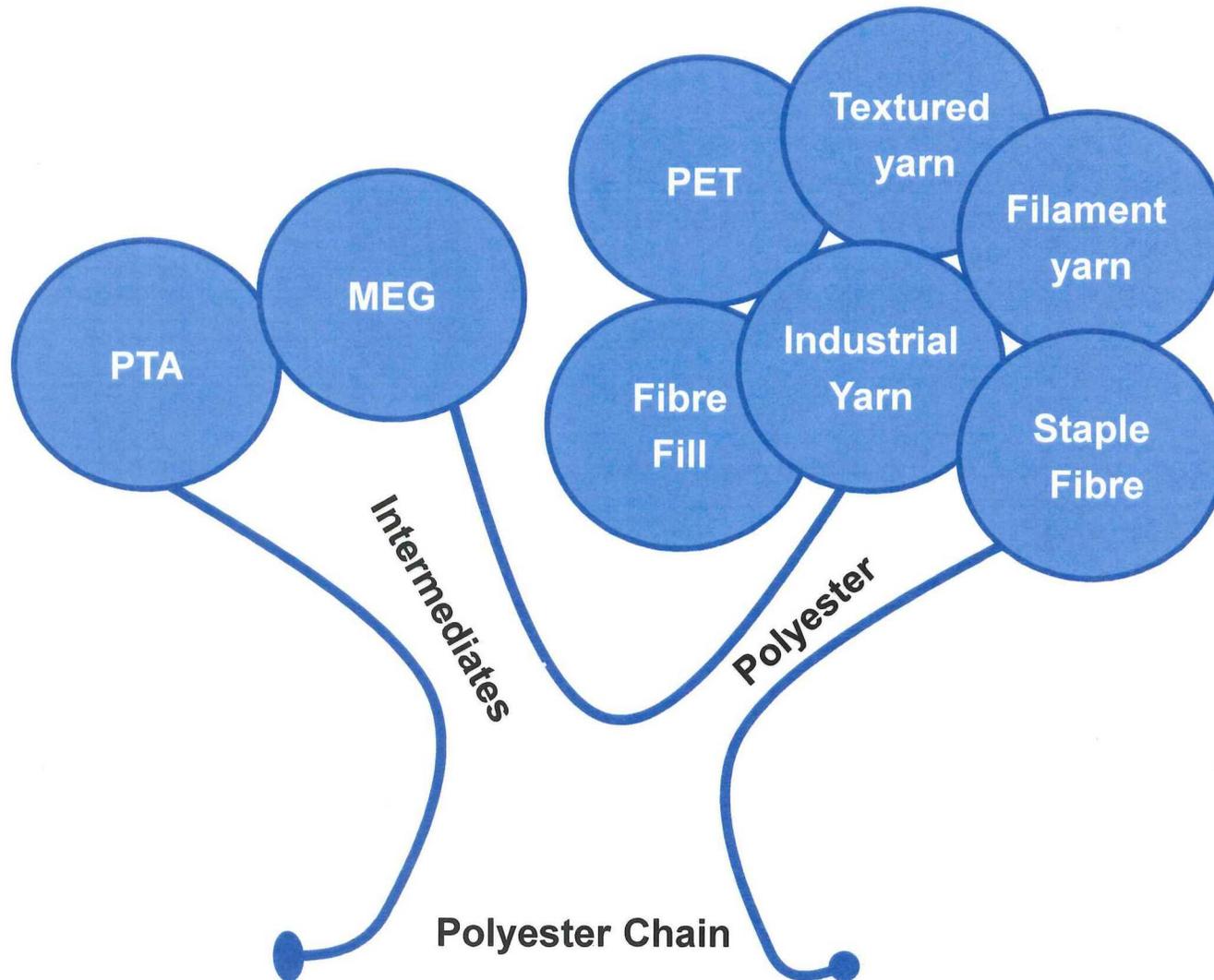
- *polyethylene terephthalate*, is a clear, strong and lightweight plastic belonging to the polyester family.
- The basic building blocks of PET are monoethylene glycol and terephthalic acid, which are combined to form pellets of PET. These resin pellets are then heated to a molten liquid that can be easily extruded or molded into items of practically any shape.



PET Chips



Polyester Chain



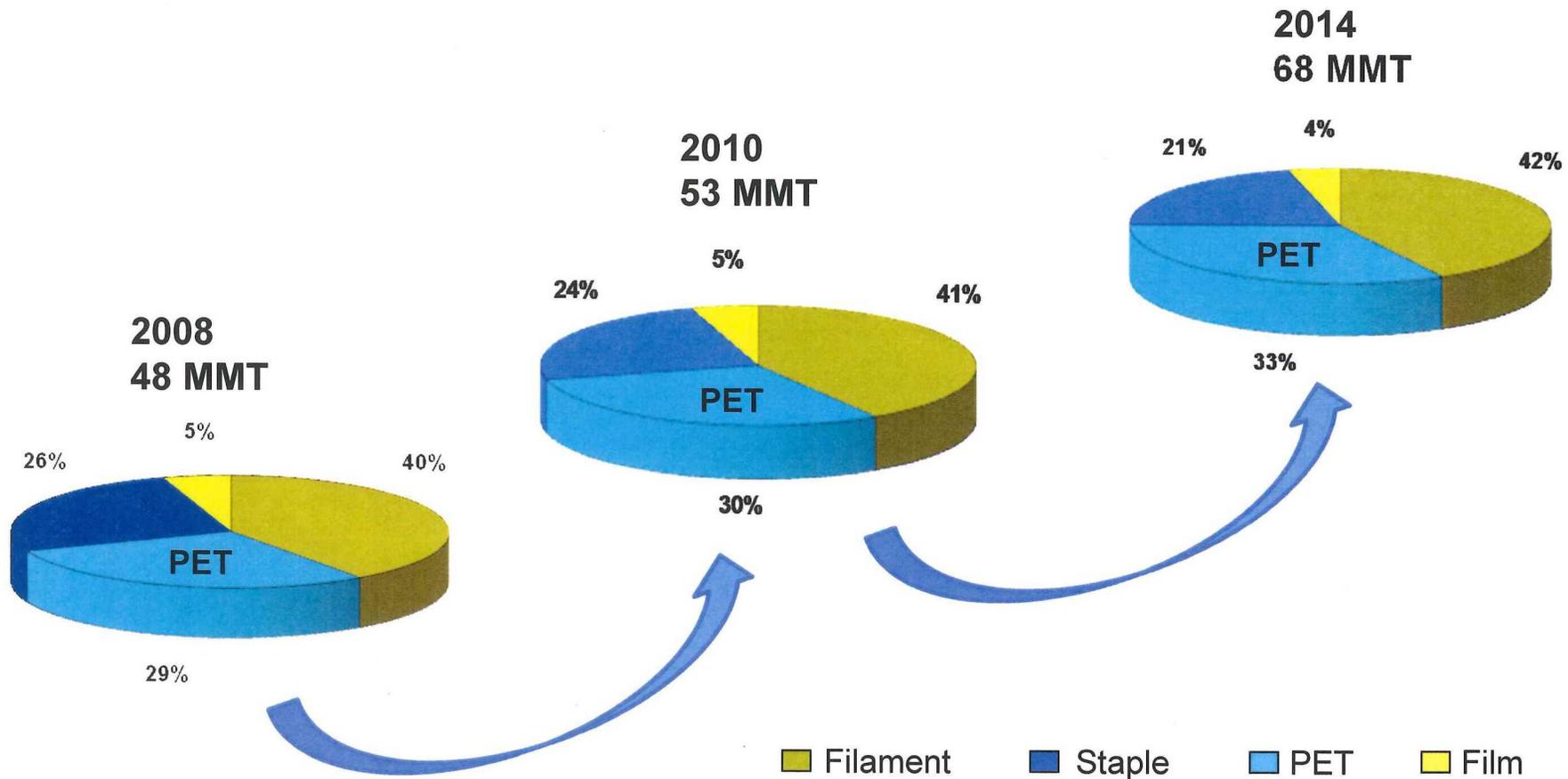
TYPES OF PET



	IV range and general uses	Remarks
Fiber grade	0.40–0.70 Textile 0.72–0.98 Technical, <u>tire</u> cord	
Film grade	0.60–0.70 BoPET (biaxially oriented PET film) 0.70–1.00 Sheet grade for thermoforming	RIL produces only sheet-grade for thermoforming
Bottle grade	0.70–0.78 Water bottles (flat) 0.78–0.85 Carbonated soft drink grade (in scope)	RIL Produces all types of bottle grade PET Chips Strapping grade - -0.84—1.0

RIL focuses on bottle grades which has major sub grades like: General Purpose; Hot Filled; Quick Re-heat; Film Grade – for food grade packing Recycled – PET for non- food application.

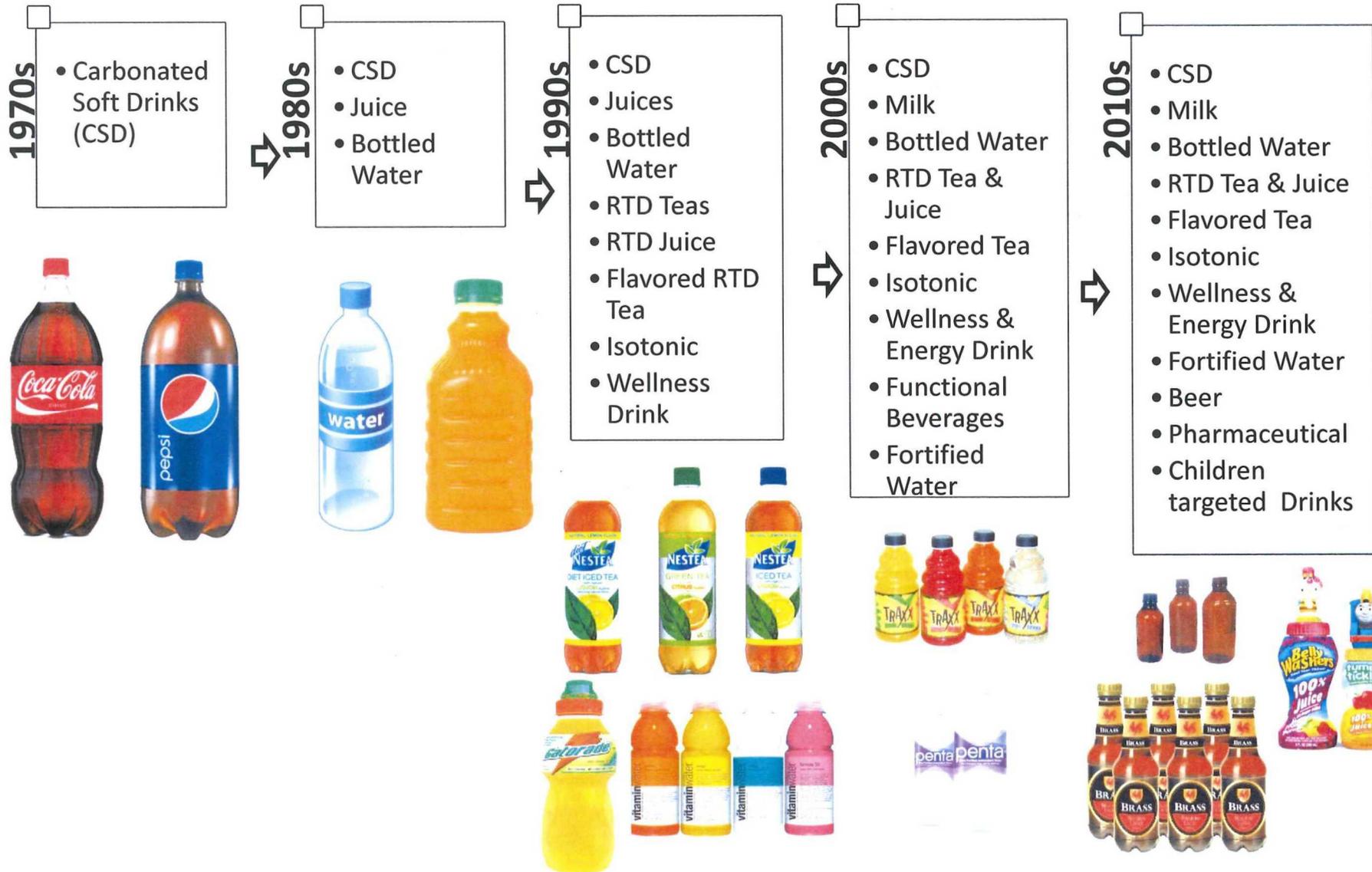
PET - Market Share in Polyesters



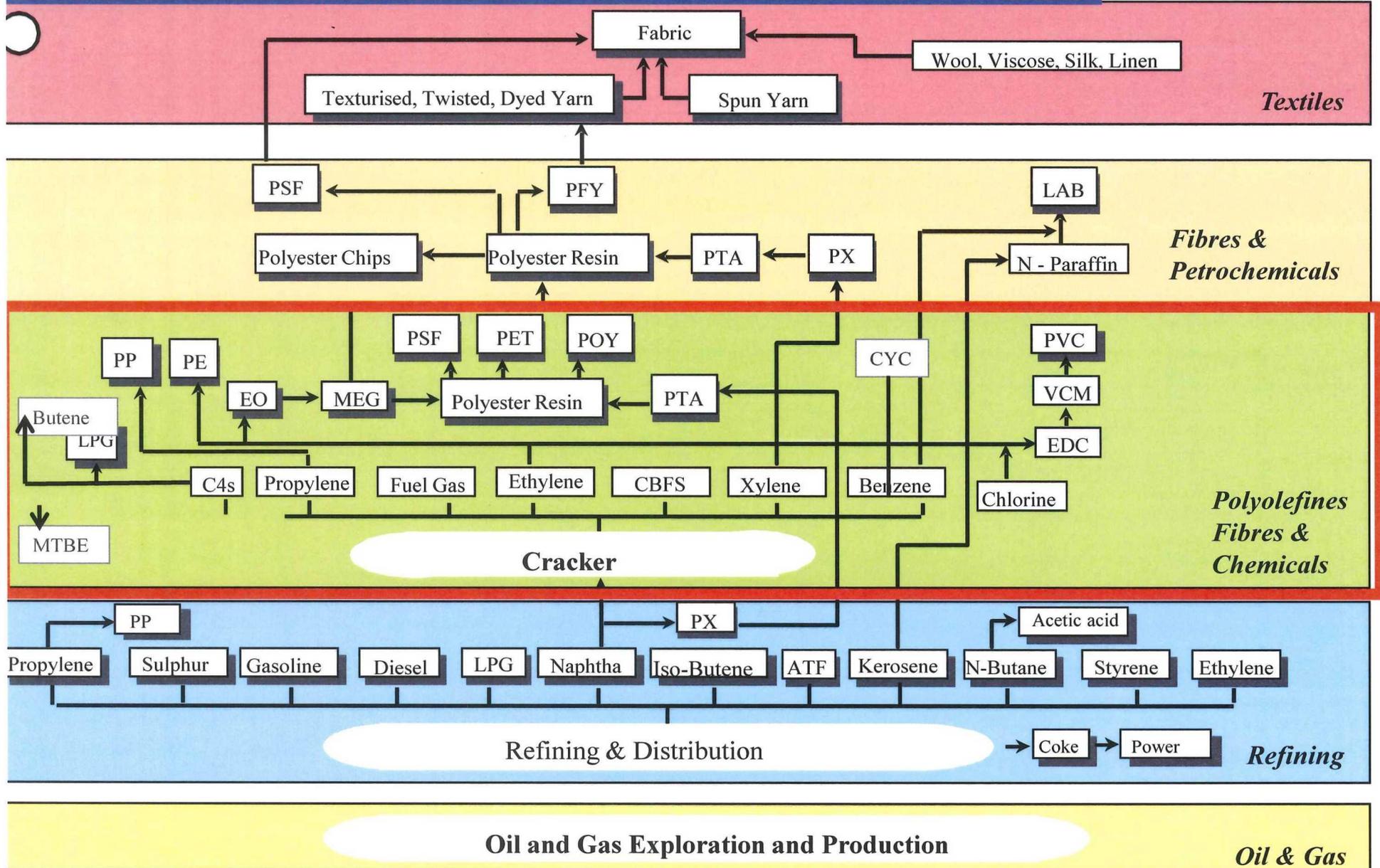
Source: PCI

PET is the fastest growing polymer in the world.

Transition in PET Utility and Customers



PET MANUFACTURING



RIL Production Location - Hazira -



PET Production Site



SOME PET Products

PET/PETE GRANULES



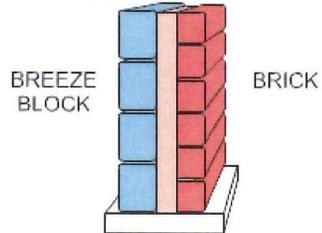
DRINKING BOTTLES



ASSORTED CONTAINERS



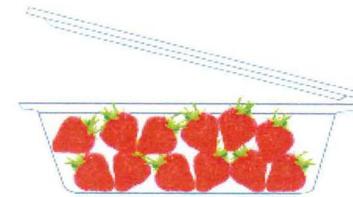
WALL INSULATION



MICROWAVABLE TRAYS



FRUIT CONTAINERS



SYNTHETIC CLOTHES



SYNTHETIC CARPET



Type 1 - PETE Polyethylene Terephthalate (PET)

SELECTED PRICING PRODUCTS



Water bottles



Carbonated



HOT FILL



Strapping

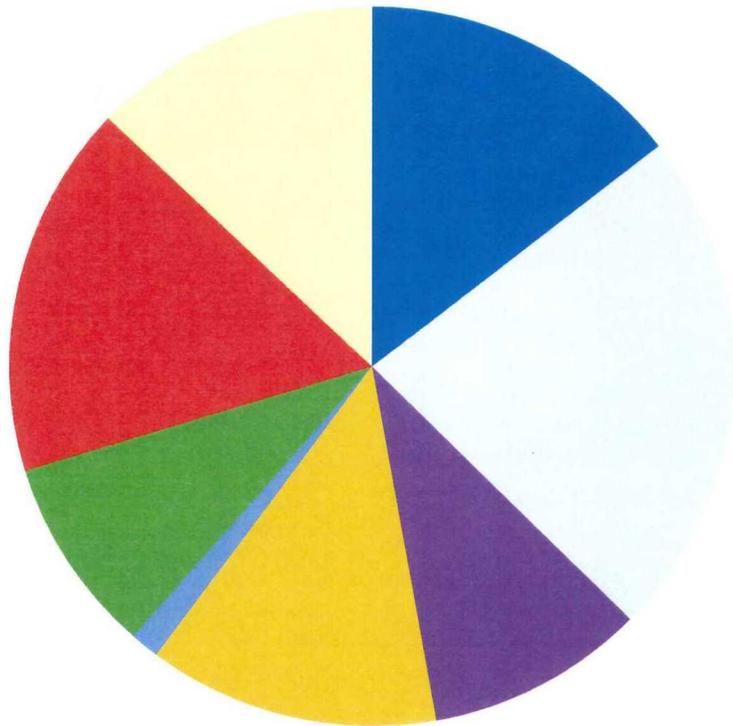


sheet

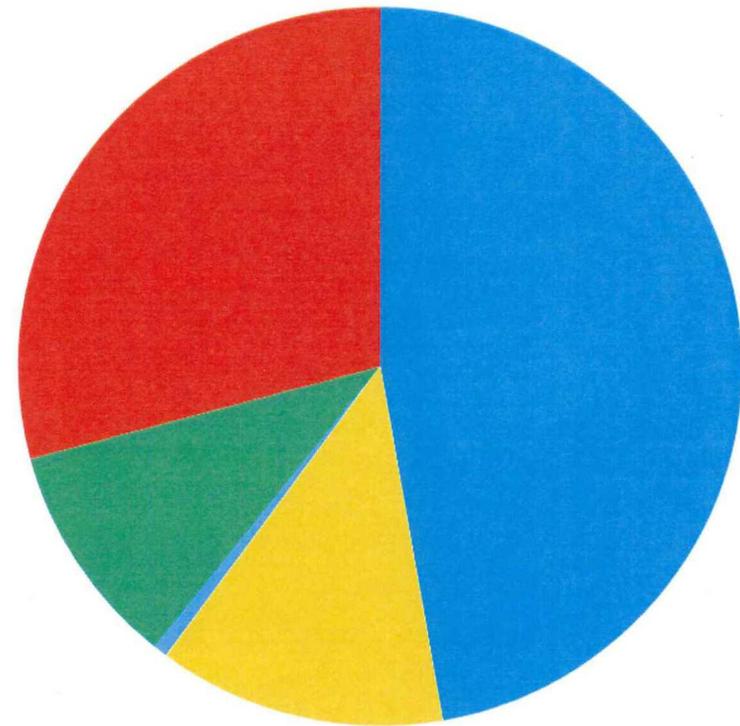
PET Markets

The PET Resin Industry Has Undergone Tremendous Consolidation Since 2010, Resulting in an Extremely Concentrated Market

2010



2014



■ DAK

■ Eastman

■ Invista

■ Nan Ya Plastics

■ PET Processors

■ Mossi & Ghisolfi

■ Indorama

■ Wellman

Shares of Total Domestic Bottle-Grade PET Resin Capacity in millions of pounds. Source: Chemical Data, L.P.

4 US Producers

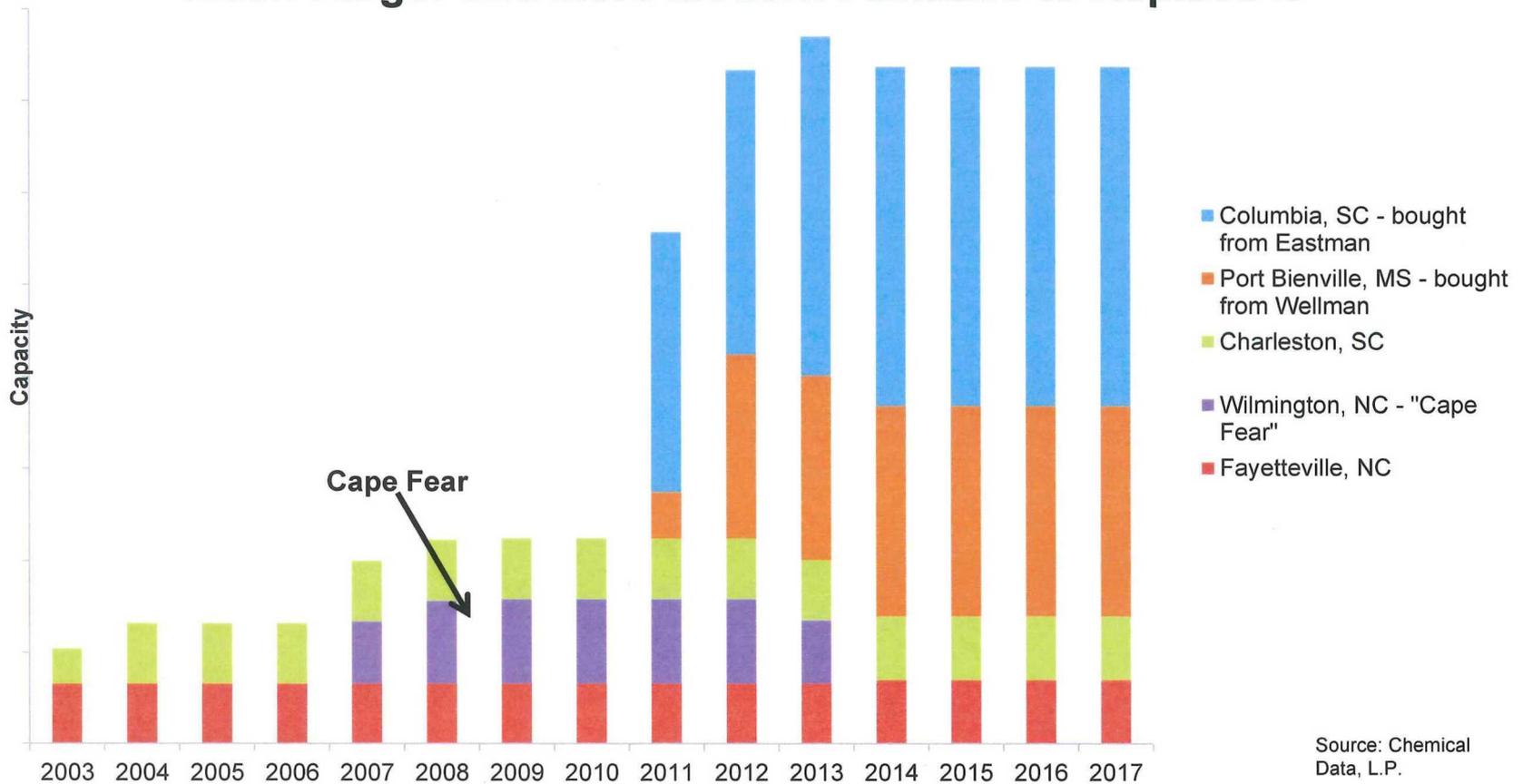


- DAK Americas: subsidiary of Alfa S.A.B. de CV in Mexico (Alfa Group); affiliated production site in Mexico, Argentina
- M&G Chemicals: part of Italy's Mossi & Ghisolfi, affiliated production site in Mexico (590,000 tons) and Brazil (650,000 tons)
- Nan Ya Plastics: part of Formosa Plastics in Taiwan
- Indorama (non-petitioner): part of Indonesian Indorama Group, the largest producer of PET in the world.
- Together these four producers account for 100% of U.S. production of all PET and over 80% of the US market. Adding in their foreign supply sources, the percentage is even higher. Essentially they control the North American market.

DAK Expansion



DAK's Cape Fear Plant Was Not Closed Due to Subject Imports, But Because DAK Purchased and Invested in Much Larger and More Modern Facilities to Replace It



PET Import Sources/Volume

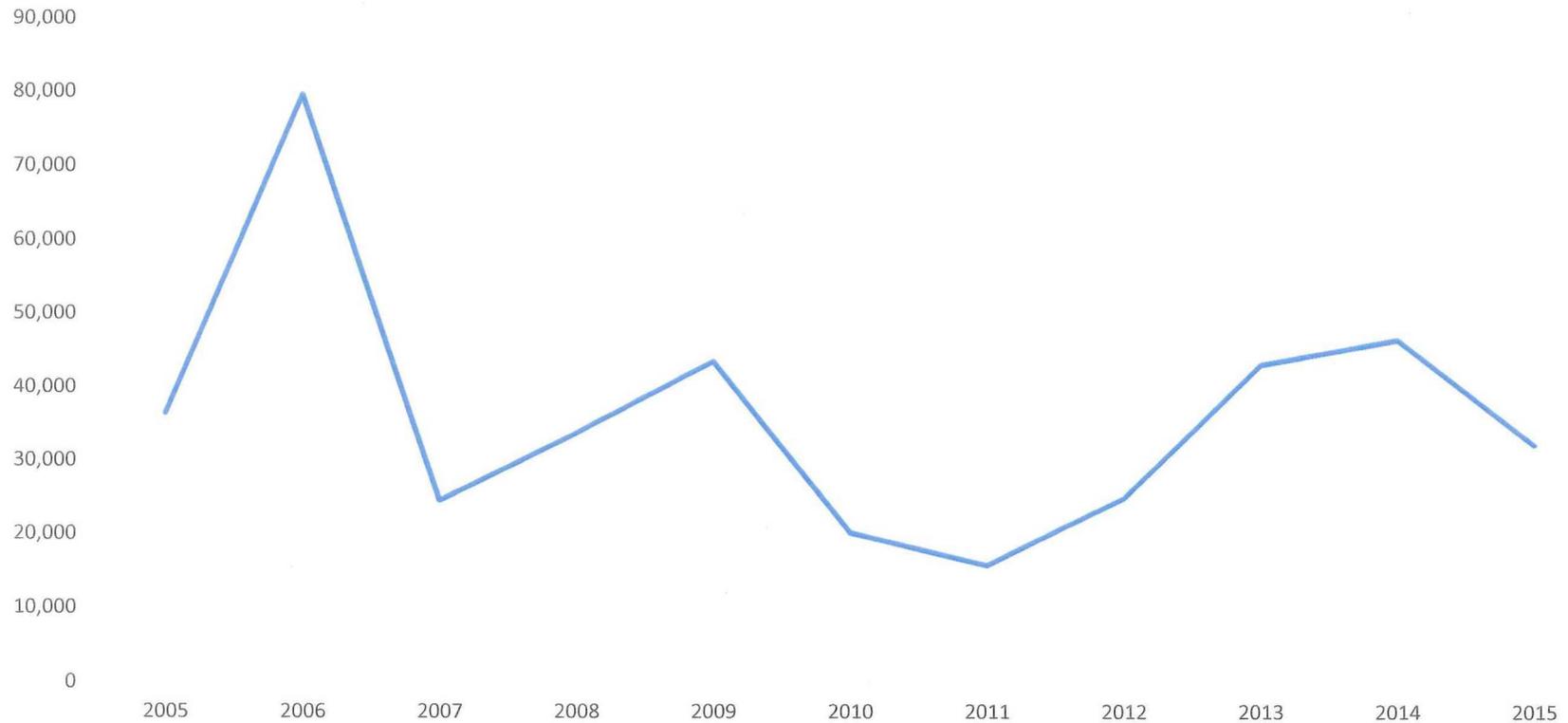


Country	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Percent Change 2014 - 2015
	<i>In 1,000 Units of Quantity</i>											
First Unit of Quantity where quantities are collected in kilograms												
Oman	0	0	0	0	12,770	15,504	9,995	16,212	61,486	89,139	68,497	-23.20%
India	36,421	79,537	24,449	33,728	43,465	20,117	15,701	24,860	43,051	46,466	32,177	-30.80%
India & Oman	36,421	79,537	24,449	33,728	56,235	35,621	25,696	41,072	104,537	135,605	100,674	
Mexico	240,232	255,296	236,060	186,264	187,189	182,561	218,544	190,487	162,280	228,945	252,807	10.40%
Korea	52,925	42,254	40,117	23,804	30,737	31,121	33,008	40,793	58,022	54,105	55,670	2.90%
Taiwan	22,887	9,025	30,888	16,872	16,281	31,865	14,560	37,786	40,630	38,621	106,885	176.80%
Indonesia	53,373	68,098	90,799	116,327	94,602	68,279	40,092	18,753	18,000	22,369	21,349	-4.60%
Pakistan	0	43	681	17,525	17,351	15,529	11,722	16,785	34,031	13,302	18,791	41.30%
Peru	2,518	3,826	7,357	9,783	4,440	9,183	8,757	5,866	4,401	18,030	18,335	1.70%
Total non subject	371,935	378,542	405,902	370,575	350,600	338,538	326,683	310,470	317,364	375,372	473,837	
Total Imports kilograms	805,082	878,642	817,649	743,981	647,306	536,599	603,119	660,831	722,331	869,990	869,773	
India %	4.52%	9.05%	2.99%	4.53%	6.71%	3.75%	2.60%	3.76%	5.96%	5.34%	3.70%	
India and Oman %					8.69%	6.64%	4.26%	6.22%	14.47%	15.59%	11.57%	
Mexico %	29.84%	29.06%	28.87%	25.04%	28.92%	34.02%	36.24%	28.83%	22.47%	26.32%	29.07%	
Sources: Data on this site have been compiled from tariff and trade data from the U.S. Department of Commerce and the U.S. International Trade Commission.												

U.S. PET Imports From India

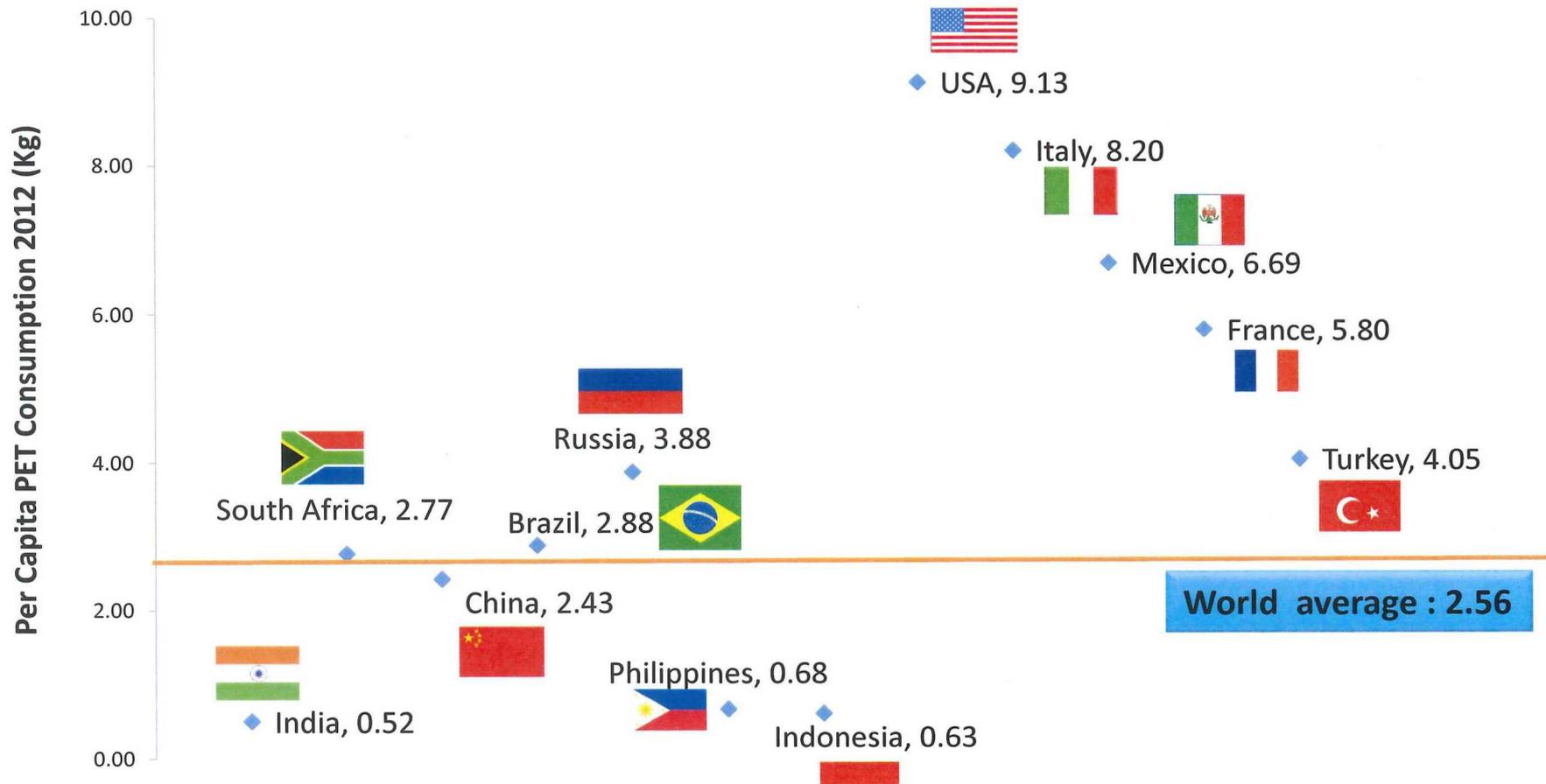


Import Quantity from India (1000 kg)



Source: Trade Data from USITC DATAWEB (Census Bureau)

PET – per capita consumption



Source: PCI/IMF

Tremendous growth potential for Indian PET market.

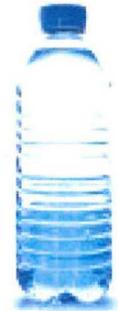
Growth Drivers for PET Business in India



Increasing growth of PET market in India

Domestic Consumption Pattern

KTA	FY'14	FY'15	FY'16	FY'17	FY'18	CAGR	(KT)
CSD	170	190	230	255	285	14%	
Alcoholic Beverages	95	100	125	155	170	17%	
Non- Alcoholic Beverages	180	205	240	270	290	13%	
Food & Oil	75	80	95	103	125	14%	
FMCG/ Health Care	115	130	153	188	230	19%	
Others /APET Sheets	5	5	7	9	15	14%	
Total	640	710	850	978	1115	15%	



- **Key growth drivers : CSD/ Beverages**
- **Unique growth segment : Alcoholic Beverages & Healthcare formulations**
- **Emerging trend : Edible oil, Milk, Barrier PET, FMCG, APET, Barrier APET**



Beverages – The growth driver, Tuned with world trend

Jumbo Bag Pallet



New Initiative under evaluation and development

THANK YOU