

PAGEV TURKISH POLYETHYLENE REPORT 2015



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TURKISH POLYETHYLENE MARKET REPORT

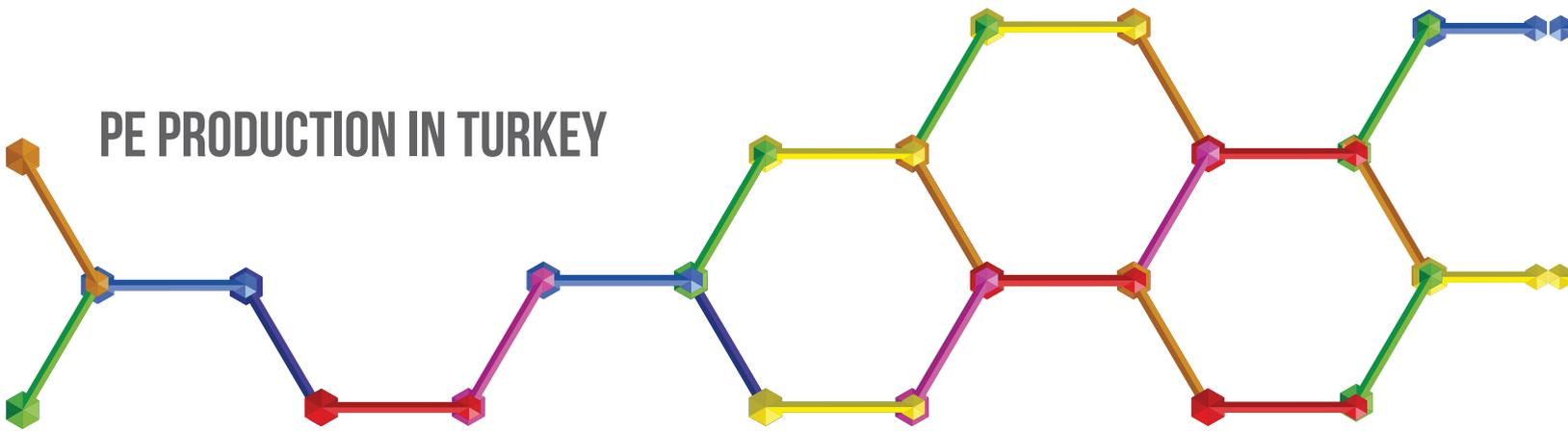
Polyethylene all over the World has the biggest share of production, consumption and foreign trade among the plastics raw materials. polyethylene has a share of % 30 within total imports and % 31 within total exports of World plastics raw materials.

The world PE foreign trade volume has reached total of 95 million Tonns and USD billion of 156 with an avarage annual growth rate of % 5,2 on unit base and % 13,6 on volume bas efor the last 5 years.

Estimations shows that Turkey in 2020 will be the sixth biggest PE importer country sharing % 5 of total World PE imports.

Turkey is one of the world's major importers of polyethylene countries. Rapid growth in the plastics industry, leads to a rapid increase in domestic demand of polyethylene. However, domestic production is not sufficiant to meet this demand.

PE PRODUCTION IN TURKEY



PETKİM is the only company in Turkey, producing PE annual installed capacity of which is to produce 189 thousand Tonss of LDPE, 160 thousand Tons of LDPE – T and 96 thousand Tonss of HDPE.

Sheet 1:
PETKİM Annual
Production
Capacity of PE

	LDPE	LDPE - T	HDPE
Start Up Date	1985	2005	1985
Start up Production Capacity	165.000 Tons / Years	120.000 Tons / Years	44.000 Tons / Years
Expansion Date	1992	2011	1993-2001
Capacity after Expansion	190.000 Tons / Years	160.000 Tons / Years	96.000 Tons / Years

PETKİM's total production of PE, realised between 1990 – 2014 period is summarised in the table below.

Company's total PE production has reached its maximum level of 410 thousand tons in 2010. PETKİM total production of PE has been shared by % 42 of LDPE, % 36 of LDPE – T and % 22 of HDPE In 2014.

	1000 TONS				SHARE IN TOTAL PRODUCTION (%)		
	LDPE	LDPE-T	HDPE	TOTAL	LDPE	LDPE-T	HDPE
1990	168.0	0.0	44.7	212.6	79	0	21
1995	196.0	0.0	71.6	267.6	73	0	27
2000	216.0	0.0	70.0	286.0	76	0	24
2005	151.0	45.0	68.0	264.5	57	17	26
2010	190.0	138.0	82.0	410.0	46	34	20
2011	189.0	106.0	90.0	385.0	49	28	23
2012	156.0	104.0	87.0	383.0	41	37	23
2013	148.0	121.0	85.0	354.0	42	34	24
2014	148.0	121.0	85.0	354.0	42	34	24

Sheet 2: PETKİM's Total PE Production By Years (1000 Tons)

LLDPE MARKET IN TURKEY

Since the linear low density polyethylene (LLDPE) is not yet produced in Turkey the demand as a whole is met by imports.

LLDPE domestic consumption has increased by % 5,9 of average annual growth rate between the years of 2010 - 2014 average by 5.9% per year and reached to 323 thousand tons. And imports of LLDPE has grown over the domestic consumption by % 5,8 annual rate reached to 325 thousand tons in 2014 and negligible amount of imports has been exported.

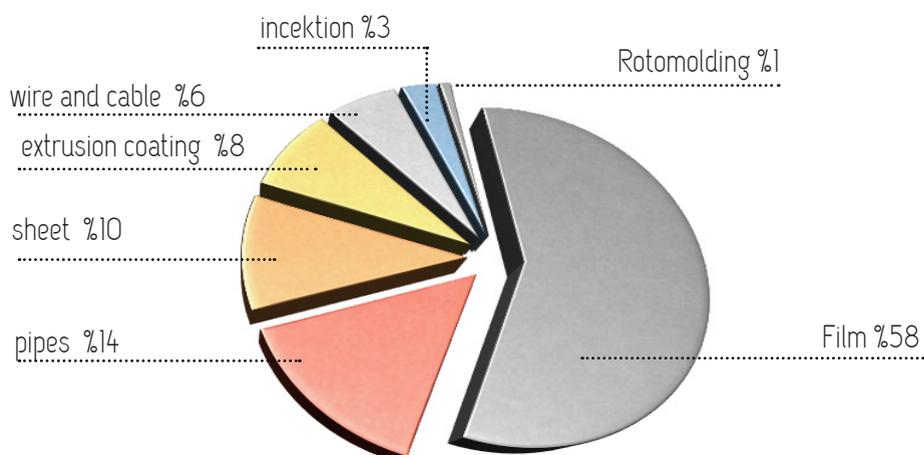
Due to the lack of formal investment announcement to produce LLDPE, total consumption which is expected to grow annually by % 6, is estimated to be met wholly by imports and some imported part of LLDPE will be reexported.

Expectations based on the last 5-year growth trend shows that domestic consumption in 2020 will increase to 455 thousand tons, total imports will be 457 thousand tons and 2,000 tons part of total imports will be reexported and since there is no local production, import dependency will continue as % 100. In order to reduce the import dependency Turkey must invest a local production facilities of at least 500 thousand tons of LLDPE production till 2020

	2010	2014	CAGR (%)	2015	2020
PRODUCTION	0.0	0.0	0.0	0.0	0.0
IMPORTS	259.6	325.0	5.8	344	457
EXPORTS	2.8	2.1	-7.2	2.0	2.0
DOMESTIC CONSUMPTION	256.7	322.9	5.9	342	455
IMPORT / TOTAL SUPPLY (%)	100	100		100	100
EXPORTS/PRODUCTION (%)	0.0	1.0		0.0	1.0
IMPORTS/ DOM. CONSUMPTION (%)	101.1	101.7		100.6	100.4
EXPORTS /IMPORTS (%)	1.1	0.1		0.6	0.4

Sheet 3: LLDPE Supply and Demand Equilibrium and 2020 Estimations(1000 Tons)

Total consumption of LLDPE by the main process types constitutes as ; % 58 film, % 14 pipes, % 10 sheet, % 8 extrusion coating, % 6 wire and cable, % 3 injection and % 1 rotomolding.



Form 1: LLDPE Consumption by Process Types in Turkey

LDPE MARKET IN TURKEY

LDPE domestic production has increased by % 0,5 of average annual growth rate between the years of 2010 - 2014 and reached to 477 thousand tons.

And imports of LDPE has grown over the domestic consumption by % 7 annual rate while PETKİM's domestic production decreased by % 5 and declined to 269 thousand tones, import growth rate has been realised as % 7. % 16-17 of total production has been exported during this period and % 53 of domestic consumption was met by imports in 2014. The export coverage ratio of LDPE is about % 18.

reached to 325 thousand tons in 2014 and negligible amount of imports has been exported.

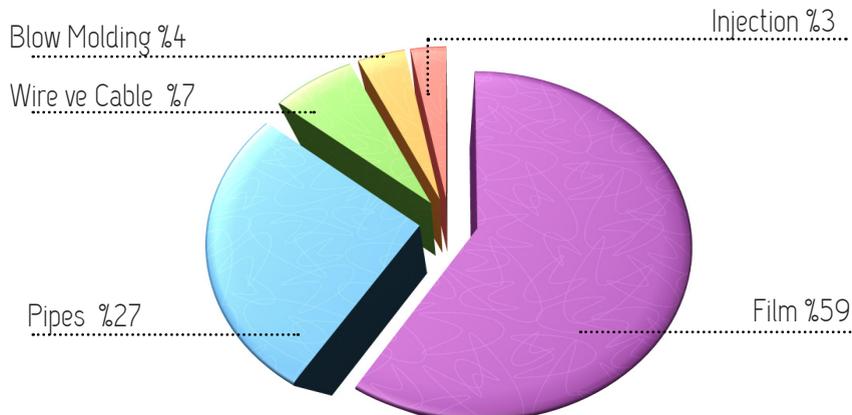
Expectations based on the last 5-year growth trend shows that LDPE domestic consumption in 2020 will increase to 556 thousand tons, as PETKİM operates at % 85 capacity usage and exports % 15 of production, total imports will increase to 301 thousand tons and will meet only 46 % of total consumption.

Due to the lack of formal investment announcement to produce LDPE, in order to reduce the import dependency of consumption which is expected to be 490 thousand tons in 2020, Turkey must increase local production capacity at least 250 - 300 thousand tons till 2020.

	2010	2014	CAGR (%)	2015	2020
PRODUCTION	328.0	269.0	-4.8	269	269
IMPORT	194.4	255.0	7.0	260	271
EXPORT	53.9	46.9	-3.4	50	50
DOMESTIC CONSUMPTION	468.5	477.1	0.5	479	490
IMPORT / TOTAL SUPPLY (%)	37.2	48.7		49	50
EXPORT / PRODUCTION (%)	16.4	17.4		19	19
IMPORT / DOMESTIC CONSUMPTION (%)	41.5	53.4		54	55
EXPORT / IMPORT (%)	27.7	18.4		19	18

Sheet 4: LDPE supply and demand equilibrium and 2020 estimations (1000 Tons)

Total consumption of LDPE by the main process types constitutes as ; % 59 film, % 27 pipes, % % 7 wire and cable, % 4 blow molding and % 3 injection.



Form 2: LDPE Consumption by process Types in Turkey

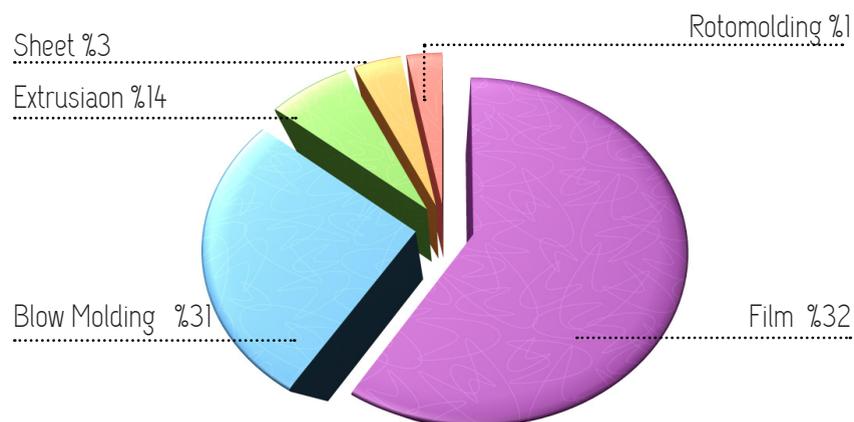
HDPE MARKET IN TURKEY

While HDPE domestic production has increased by % 0,9 of average annual growth rate between the years of 2010 - 2014 domestic consumption reached to 730 thousand tons by increasing % 4,5 annually . Since the production can not meet demand imports increased to 536 thousand tons by increasing % 5 annually. Expectations based on the last 5-year growth trend shows that HDPE domestic consumption in 2020 will increase to 949 thousand tons, as PETKİM operates at % 88 capacity usage and exports % 10 of production, total imports will increase to 872 thousand tons and will meet only 8 % of total consumption. Due to the lack of formal investment announcement to produce HDPE, in order to reduce the import dependency Turkey must increase local production capacity at least 900 thousand tons till 2020.

	2010	2014	CAGR (%)	2015	2020
PRODUCTION	82	85	0.9	85	85
IMPORT	536	652	5.9	686	872
EXPORT	5	7	6.5	9	9
DOMESTIC CONSUMPTION	613	730	4.5	763	949
IMPORT / TOTAL SUPPLY (%)	87	88		89	91
EXPORT / PRODUCTION (%)	7	8		10	10
IMPORT / DOM. CONSUMPTION (%)	87	89		90	92
EXPORT / IMPORT (%)	1	1		1	1

Sheet 5: HDPE Supply and Demand Equilibrium and 2020 Estimations (1000 Tons)

Total consumption of HDPE by the main process types constitutes as ; % 32 film, % 31 blow molding, % 19 injection, % 14 extrusion coating, % 3 sheet and % 1 rotomolding.



Form 3: HDPE Consumption by process Types in Turkey

TOTAL POLYETHYLENE MARKET IN TURKEY

Turkey in the last 5 years, the total production of polyethylene decreased by 3.5% per year, the domestic consumption of 3.2% and 8.2% of imports. It is observed that exports has increased by an annual average of 5.5%.

As 76 % of domestic demand was met by imports in 2010, import dependency appeared as 84 % in 2014. 15 % of domestic production was exported in 2010, but the share of exports in total production realised as 20% in 2014. Export coverage ratio dropped to 5% in 2014.

Turkey's total polyethylene supply and demand estimates shows that ; Total polyethylene domestic demand will be 2.9 million tonnes, in case of 20 % of production to be exported and the current production capacity stays at the same level, import dependency will increase to at least % 89 in 2020.

Taking rapid increasing trend in domestic demand and of imports into account, the export-import ratio estimated to decrease to 3%.

Turkey is one of the world's major importers of polyethylene countries. Rapid growth in Turkish plastics industry, leads to a rapid increase in domestic demand of polyethylene. However, domestic production of polyethylene is unable to meet this increasing demand.

Domestic consumption estimates shows that : import dependency in 2020 will be % 100 for LLDPE, % 55 for LDPE, % 92 for HDPE and % 89 for total PE. This indicates that Turkey has an important potential market for the existing and potential polyethylene manufacturers.

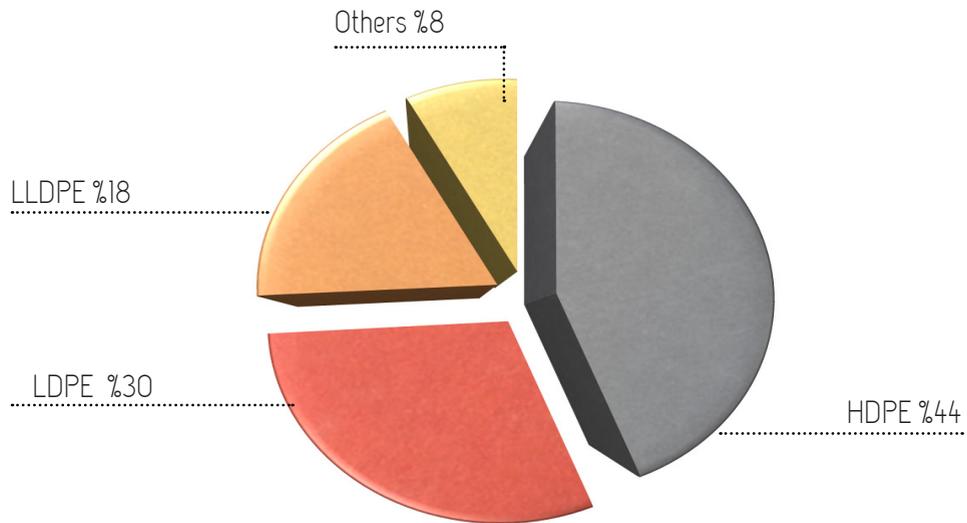
	2010	2014	CAGR (%)	2015	2020
PRODUCTION	410	355	-3.5	385	385
IMPORT	1.093	1.499	8.2	1.677	2.562
EXPORT	63	72	3.2	72	77
DOMESTIC CONSUMPTION	1.440	1.782	5.5	1.990	2.871
IMPORT DOMESTIC CONS. (%)	76	84		84	89
EXPORT / PRODUCTION (%)	15	20		19	20
EXPORT / IMPORT (%)	6	5		4	3

Sheet 6: TOTAL PE Supply and Demand Equilibrium and 2020 Estimations (1000 Tons)

In parallel with the rapid development of the plastics industry in Turkey, polyethylene consumption showed a trend of rapid growth and in the last 5 years covering 2010 -2014 has increased by 5.5% compound growth rate.

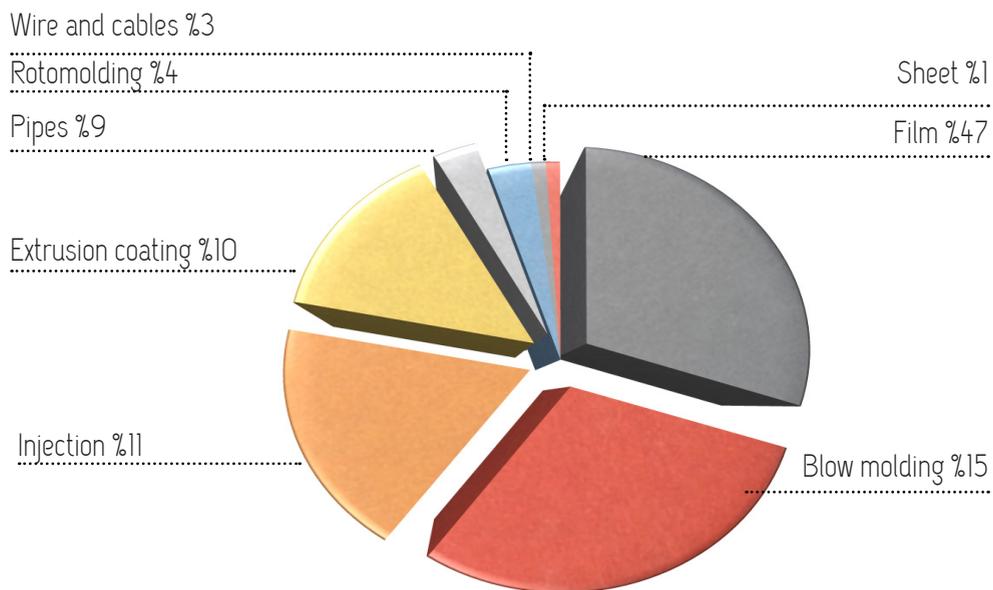
During the 2010 - 2014 period, HDPE shared 44 %, LDPE 30 %, LLDPE% 18 and other PE received % 8 of total polyethylene consumption.

TOTAL POLYETHYLENE MARKET IN TURKEY



Form 4: Total PE Consumption by Types in Turkey 2010-14 average

Total consumption of polyethylene by the main process types constitutes as ; % 47 film, % 15 blow molding, % 11 injection, % 10 extrusion coating, % 9 pipes, % 4 rotomolding, %3 wire and cables and % 1 sheet.



Form 5: Total PE consumption by process Types in Turkey

MAJOR POLYETHYLENE USES IN TURKEY



THE FOLLOWING MANUFACTURING ISSUES, ARE THE MAIN AREAS OF THE POLYETHYLENE USED IN TURKEY

Packaging films

Greenhouse covers

Irrigation pipes

Barrels, drums tubes, bottle production

Bottle of detergent and cosmetics (non-transparent)

Household goods

Heavy duty bags

Cable sleeving

Toys

Pressurized water and gas pipe hoses

Fabric and metal coatings

Sheets

Boxes

Automotive parts

Rotation and molding materials

MANUFACTURING COMPANIES IN TURKISH PLASTICS INDUSTRY

According to the Turkish Statistics Department sources, the number of companies operating in Turkish plastics industry is 18 698. It is observed that all provinces have plastics manufacturing companies except Tunceli. 6583 of the total establishments (35.2%) are located in Istanbul. The provinces having more than 500 establishments other than Istanbul are İzmir, Bursa, Ankara, Antalya, Bursa and Kocaeli.

According to the Turkish Statistics Department sources, % 53 of tge establishments are operating in plastics construction materials industry. The share of the companies operating in other sub sectors vary between % 1 and % 14. The all companies operating in sub sectors other than machineries use PE.

Tablo 7: Distribution of Companies in Turkish Plastics Industry, By Manufacturing Subjects

NACE2 CODE	NACE DESCRIPTION	TOTAL	%
2223	Plastics Construction Materials	9.899	52.9
2229	Other Plastics Products	2.569	13.7
2222	Packaging materials of bags, sacks, boxes, carboys, bottles, drums and so on.	2.397	12.8
2221	Plastics plates, sheets, tubes and profiles	1.943	10.4
2016	Plastics raw materials in primary forms.	1.713	9.2
2896	Plastics and rubber processing machineries	177	0.9
	TOTAL	18.698	100.0

On the other hand, according to the survey study handled by the associations, there are about 6.500 manufacturing companies in Turkish plastics industry. The all companies operating in sub sectors other than machineries use PE in different ratios.

INDUSTRIES	NUMBER OF COMPANIES	% SHARE
Construction	1500	23.1
PACKAGING	1433	22.0
HOUSEHOLDAPPLIANCES	613	9.4
MACHINERY	598	9.2
TEXTILE	427	6.6
ELEKTRIC - ELEKTRONIC	399	6.1
AUTOMOTIVE	348	5.4
RAW MATERIALS	334	5.1
RUBBER	203	3.1
SHOES - SPORTS	121	1.9
MEDICAL	112	1.7
TOYS	72	1.1
STATIONERY	57	0.9
WHITE GOODS	56	0.9
AGRICULTURE	43	0.7
FURNITURE	16	0.2
DEFENCE	3	0.0
OTHERS"	164	2.5
TOPLAM	6499	100.0

Tablo 8: Distribution of Companies in Turkish Plastics Industry, By Manufacturing Subjects

CONNECTIVE POWER OF PLASTIC INDUSTRY



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