



**PAGEV**

# **TURKISH POLYETHYLENE INDUSTRY FOLLOW-UP REPORT 2017**



## **PREFACE**

The plastic industry is one of the most important actors of the Turkish economy. Today, the contribution of the plastics industry to the country's economy is gradually increasing with the total production exceeding 9 million tons, and 35 billion dollars' worth of turnover, the approaching direct exports of 5 billion dollars and the annual growth of 12% for the last 10 years.

Our industry, with its production capacity, has reached the second place in Europe and the sixth place in the world. As PAGEV, we continue to lead the industry successfully in the framework of the "Unifying Power" mission of the Turkish Plastics Industry.

We also know that having the right and reliable data and information is the most important part of the solution when we sign the indispensability of Plastics in our lives and sign our work to tackle our industrial problems with concrete steps based on scientific evidence. In this direction we constantly investigate, collect new data, compile and report them. We present our reports that we believe are important for the development of our industry and our booklets containing important information to the plastics industry representatives, stakeholders and public institutions.

As PAGEV, we prepared a report set that will contribute to the industry in a serious way in the face of our long and dedicated researches. With our reports, we made booklets with the comments of our expert reporters about the point where the Turkish Plastics Industry is in the right and reliable light, common problems and what should be the search for concrete solutions. We believe that our reports and information set will benefit all of our stakeholders, especially our members, and will guide the plastics world. At the same time, we are pleased that our public institutions have reached the most up-to-date and accurate information about the plastics industry.

On the other hand, with our sector reports in English, we think that our colleagues will be able to share the potential of our country's plastics industry with the most up-to-date business partners in the global marketplace.

Hereby, presenting our current reports and information files relating with our industry, we would like to thank all of our colleagues who have contributed to this day's achievement of our industry, who has taken a position as a locomotive mission in the development of our country.

**Best regards,**

**Yavuz EROĞLU**  
**PAGEV President**



**CONTENTS**

<b>1. PLASTIC RAW MATERIALS COVERED BY THE REPORT.....</b>	<b>3</b>
<b>2. PRODUCTION CAPACITY.....</b>	<b>3</b>
<b>3. PRODUCTION AND CAPACITY UTILIZATION.....</b>	<b>5</b>
<b>4. FOREIGN TRADE.....</b>	<b>6</b>
<b>4.1. IMPORTS.....</b>	<b>6</b>
<b>4.2. EXPORTS.....</b>	<b>9</b>
<b>4.3. FOREIGN TRADE DEFICIT.....</b>	<b>11</b>
<b>4.4. IMPORTS BY COUNTRIES.....</b>	<b>12</b>
<b>4.5. EXPORTS BY COUNTRIES.....</b>	<b>13</b>
<b>4.6. IMPORT AND EXPORT PRICES.....</b>	<b>13</b>
<b>5. DOMESTIC CONSUMPTION.....</b>	<b>14</b>
<b>6. SUPPLY AND DEMAND.....</b>	<b>15</b>
<b>7. PAGEV PROJECTS.....</b>	<b>16</b>

**1. PLASTIC RAW MATERIALS COVERED BY THE REPORT**

HS code of 39.01.10.10.00.00 Linear Low Density Polyethylene - LLDPE, 3901.10.90.00.11 Low Density Polyethylene – LDPE, 3901.20.90.00.11 High Density Polyethylene - HDPEE and analyzed separately and all other ethylene polymers in HS Code of 3901 are considered as other polyethylene.

HS Code	Description
39.01	Ethylene polymers (in the first form):
3901.10	- Polyethylene with a specific gravity of less than 0.94:
3901.10.10.00.00	- - Linear polyethylene
	- - Others
3901.10.90.00.11	- - - Low density polyethylene
3901.10.90.00.12	- - - Polyethylene compounds
3901.10.90.00.19	- - - Others
3901.20	- Polyethylene with a specific gravity of 0.94 or more:
3901.20.10.00.00	- - Polyethylene (one of the forms indicated in note 6 (b) of this chapter, at 23 ° C Specific mass of 0.958 or more, - 50 mg / kg. Or less aluminum, - 2 mgr. /kg. Or less calcium, - 2 mgr. /kg. Or less chromium, - 2 mgr. /kg. Or less iron, - 2 mgr. /kg. Or less nickel, - 2 mgr. /kg. Or less titanium - 8 mg / kg. Or less chlorosulphated polyethylene containing vanadium imingle Special
3901.20.90.00.11	- - Others
3901.20.90.00.12	- - - High density polyethylene
3901.20.90.00.19	- - - Polyethylene feeds
3901.30.00.00.00	- - - Others
3901.90	- Ethylene-vinyl acetate copolymers
3901.90.30.00.00	- Others - - Ethylene terpolymer salt with isobutyl acrylate and meth acrylic acid containing ionomer rosin ; A-B-A block copolymer of polystyrene, ethylene-butylene copolymer And polystyrene (containing 35% or less by weight styrene) (Which is one of the forms specified in note 6 (b) of this Chapter)
3901.90.90.00.11	
3901.90.90.00.12	- - Others
3901.90.90.00.19	- - - Ethylene propylene copolymer

**Table 1: Plastics Raw Materials Covered by the Report**

Source: Turk Stat and ITC Trade Statistics

**2. PRODUCTION CAPACITY**

PETKİM is the only company in Turkey, producing polyethylene (PE). Total installed capacity of PETKİM is to produce 446 thousand tons of polyethylene (PE) a year 190 thousand tons of which is for low density polyethylene (LDPE), 160 thousand tons of low density polyethylene tabular (LDPE – T) and 96 thousand tons for high density polyethylene (HDPE).

	LDPE (Low Density polyethylene)	LDPE - T (Low Density polyethylene Tabular)	HDPE ( High Density polyethylene)
<b>Date of Operation</b>	19.04.1985	24.05.2005	23.07.1985
<b>Initial Capacity</b>	165.000 Ton/Year	120.000 Ton/Year	44.000 Ton/Year
<b>History of Extension</b>	1992	2011	1993,2001
	190.000 Ton/Year	160.000 Ton/Year	96.000 Ton/Year
<b>After Extension Capacity</b>	Ethylene	Ethylene, Propylene, Propane	Ethylene
<b>Main Entries</b>	LDPE (F2-12, G03-5, H2- 8,S07-21A)	LDPE - T (G03-21T, G08-21T, G08-21TA, F2-21T, H2- 21T, H2-26T, H5-21T, F5-21T, I22-19T, I10-19T)	HDPE Injection ( I668 (UV), I668 ) Blow Molding ( S0464, S0452, S00356 ) Trench ( B0153, B00552 ) Film ( F00556, F00756 )

**Table 2: PETKİM Annual Production Capacity of Polyethylene**

Source: PETKİM Annual Reports

PETKİM started to produce low density polyethylene (LDPE) in 1985 with a capacity of 165.000 tons and increased its production capacity to 190.000 tons in 1992. The main uses of LDPE produced by the company are; Heavy duty pouch, greenhouse cover, packaging film, cable sheathing, household goods, toys, pipes, hoses, tubes, bottles, fabric and metal coatings, rotations and molding materials.

In 2005, PETKİM by establishing a new factory, started the production of low density polyethylene tabular (LDPE – T) with a capacity of 120.000 tons/year and invested to increase the production capacity to 160.000 tons in 2011. The main uses of LDPE - T manufactured by the company are: heavy duty bag, greenhouse cover, packaging film, cable sheathing, household goods, toys, pipes, hoses, tubes, bottles, fabric and metal coatings, rotations and molding materials.

PETKİM started producing HDPE with a capacity of 44.000 tons/year in 1985 and increased production capacity of HDPE by 96.000 tons/year with the investments realized in 1993 and 2001. The main uses of HDPE produced by PETKİM are: Household goods, toys, packaging films, pressurized water and natural gas pipes, detergents and cosmetics bottles (non-transparent), water, gas etc. Canister, sheet, casing paper, fabric and metal coverings, forming rotational molding.

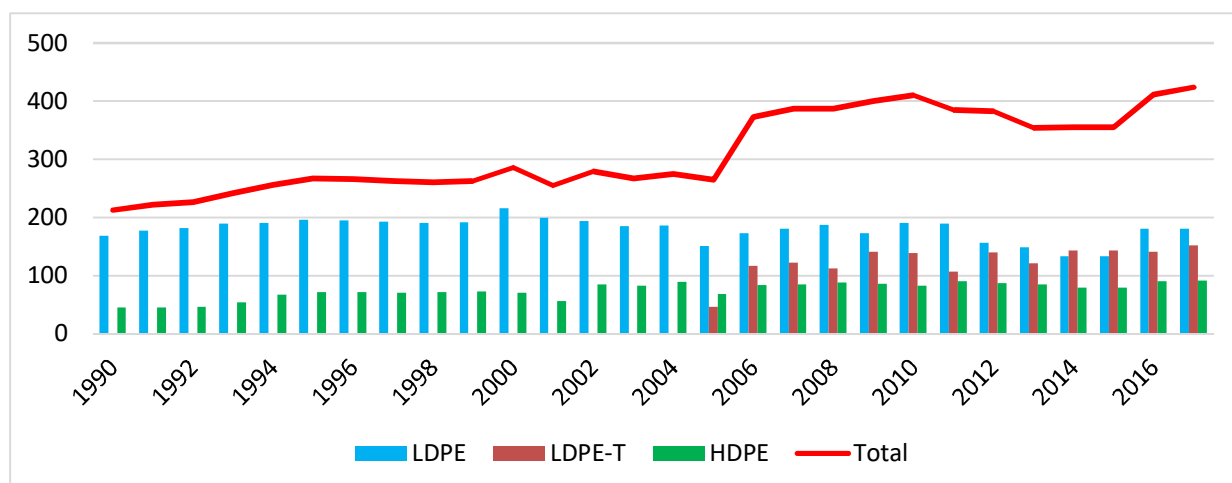
### 3. PRODUCTION AND CAPACITY UTILIZATION

The production of polyethylene by PETKİM in the period of 2013 - 2017 are given in table and graphic below. The company's polyethylene production reached to 424 thousand tons in 2017. The share of LDPE realized as 45%, LDPE –T as 33% and HDPE as 22% in total polyethylene production in 2017.

	1000 Tons				Share in Total PE Production (%)		
	LDPE	LDPE-T	HDPE	TOTAL	AYPE	AYPE-T	YYPE
2013	148	121	85	354	42	34	24
2014	133	143	79	355	37	40	22
2015	133	143	79	355	37	40	22
2016	162	136	82	379	43	36	22
2017	181	152	91	424	43	35	22

**Table 3: PETKİM PE Production (1000 Tons)**

Source: PETKİM Annual Reports



**Graphic 1: PETKİM PE Production**

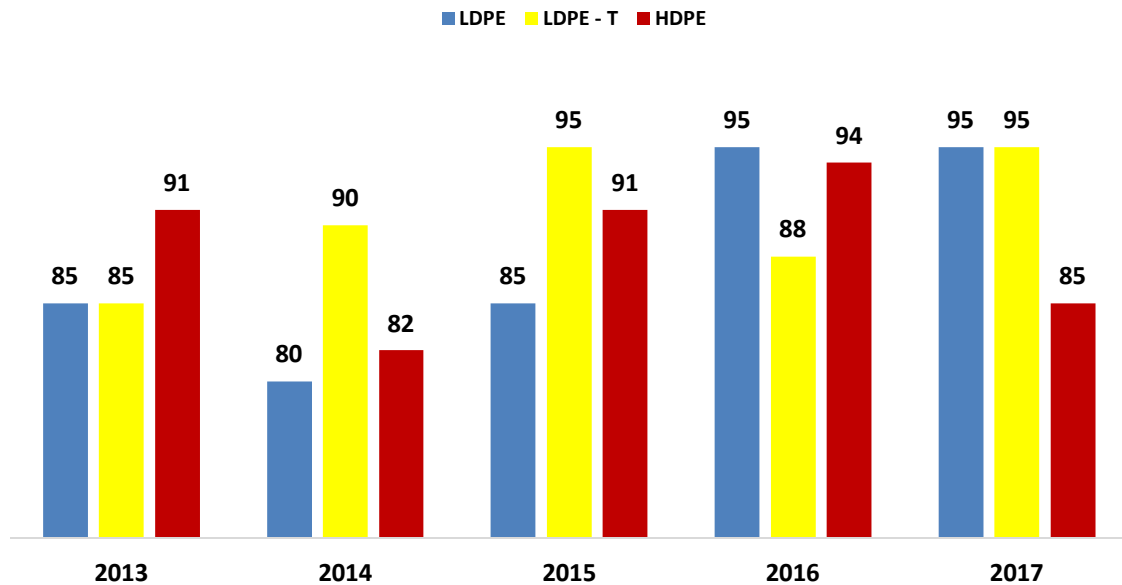
Source: PETKİM Annual Reports

Capacity utilization of PETKİM for the last 5 years is shown in the following table. Capacity utilization realized as 95% for LDPE, 85% for LDPE – T and 91% for HDPE in 2017.

	LDPE	LDPE-T	HDPE
2013	85	85	91
2014	80	90	82
2015	85	95	91
2016	95	88	94
2017	95	95	95

**Table 4: PETKİM’s Capacity Utilization for PE Production (%)**

Source: PETKİM Annual Reports



**Graphic 2: PETKİM's Capacity Utilization for PE Production (%)**

Source: PETKİM Annual Reports

#### 4. FOREIGN TRADE

##### 4.1. IMPORTS

Total polyethylene imports of Turkey realized in the last 5 years covering 2013 - 2017, have increased by 4.8% per annum and reached to 1 million 814 thousand tons from 1 million 505 thousand tons. Total imports increased by 6.1% in 2017 compared to 2016.

The import of LLDPE, which increased by an average of 9.1% per annum between 2013 and 2017 reached to 462 thousand tons.

The import of LDPE, which increased by an average of 1.8% per annum between 2013 and 2017 reached to 315 thousand tons.

The import of HDPE, which increased by an average of 3.1% per annum between 2013 and 2017 reached to 835 thousand tons.

For the other polyethylene types other than LLDPE, LDPE and HDPE, the annual compound growth rate of imports have been as high as 8.7% in the last 5 years. Imports of these products decreased by 21.8% in 2017 compared to 2016.

	2013	2016	2017	CAGR % 2013- 2017	% Increase (2017/2016)
LLDPE	326	360	462	9.1	28.4
LDPE	294	306	315	1.8	2.9

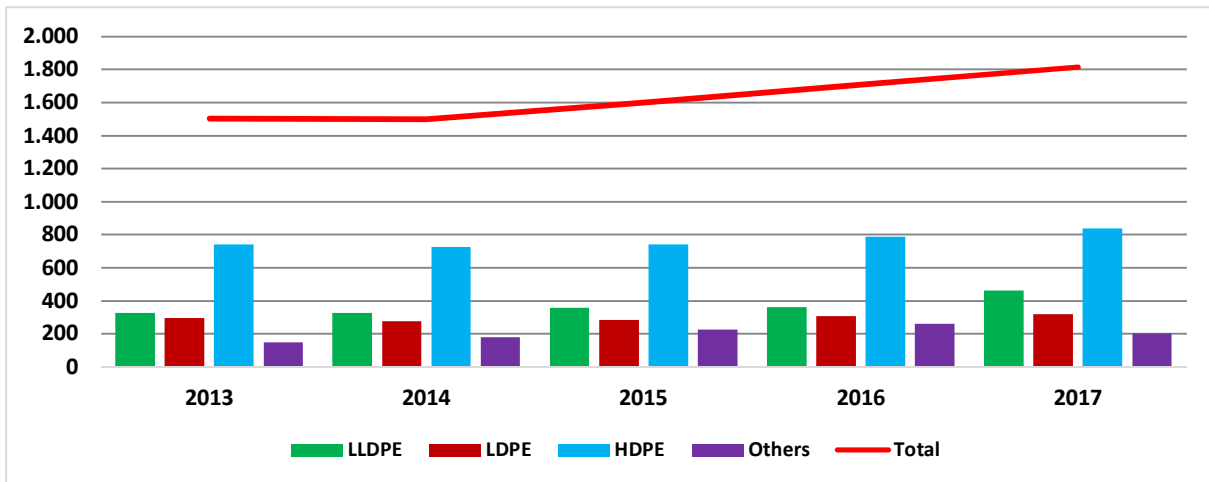




<b>HDPE</b>	740	786	835	3.1	6.3
<b>Others</b>	144	258	202	8.7	-21.8
<b>Total Imports</b>	<b>1,505</b>	<b>1,710</b>	<b>1,814</b>	<b>4.8</b>	<b>6.1</b>

**Table 5: Turkey’s Imports of PE (1000 Ton)**

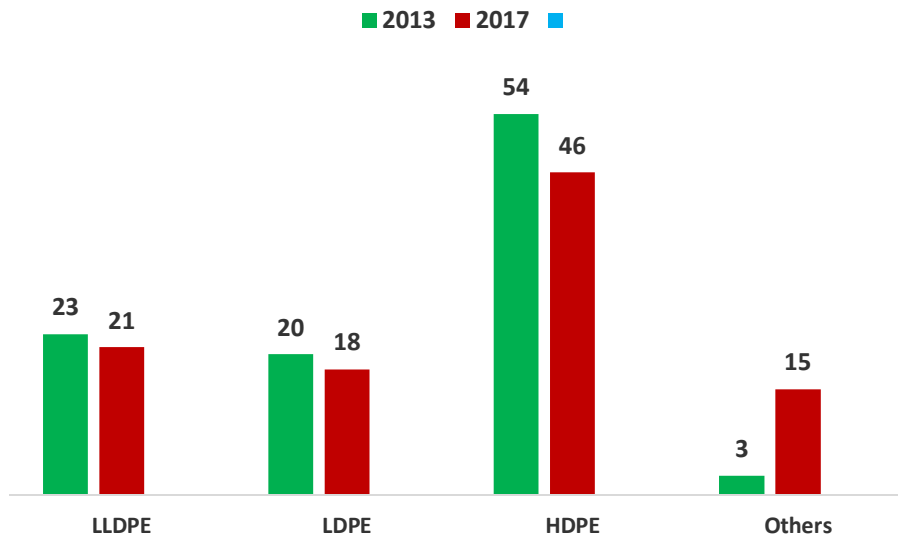
Source: Turk Stat and ITC Trade Statistics



**Graphic 3: Turkey’s Imports of PE (1000 Tons)**

Source: Turk Stat and ITC Trade Statistics

Turkey's total polyethylene imports in 2017 on a quantity basis constituted 21% LLDPE, 18% LDPE, 46% HDPE and 15% other polyethylene grades.



**Graphic 4: PE Imports of Turkey by Grades (Ton - %)**

Source: Turk Stat and ITC Trade Statistics

The total polyethylene imports of Turkey in terms of value in the last 5 years covering 2013 – 2017, decreased by 1,1% per annum and declined to 2 billion 442 million dollars from 2 billion 557 million dollars in 2017. Total imports increased by 4.3% in 2017 compared to 2016.



The import of LLDPE, which annually increased by 2.9% reached to 572 million dollars in 2017 increasing by 4.3% compared to 2016.

The import of LDPE, which annually decreased by 2.4% declined to 504 million dollars in 2017 decreasing by 6.7% compared to 2016.

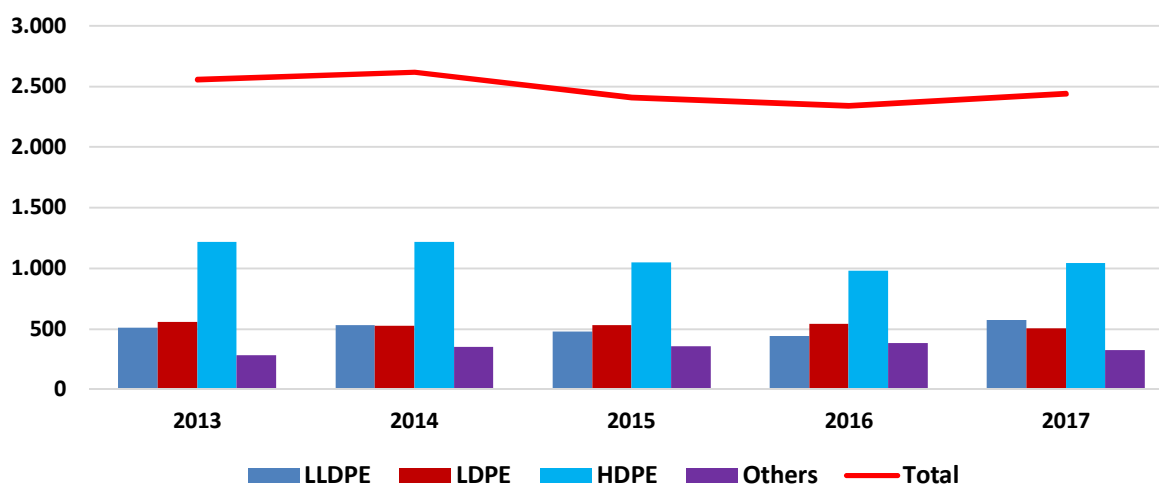
The import of HDPE, which annually decreased by 3.7% increased to 1 billion 43 million dollars in 2017 decreasing by 6.7% compared to 2016.

As in imports on amount basis, for the other polyethylene types other than LLDPE, LDPE and HDPE, the annual compound growth rate of imports is 3.7% in the last 5 years and Imports of these types of polyethylene realized as 324 million dollars in 2017 decreasing by 15.6% with respect to 2016.

	2013	2016	2017	CAGR % 2013- 2017	% Increase (2017/2016)
LLDPE	510	440	572	2.9	30.0
LDPE	554	540	504	-2.4	-6.7
HDPE	1,213	977	1,043	-3.7	6.7
Others	280	384	324	3.7	-15.6
<b>Total Imports</b>	<b>2,557</b>	<b>2,341</b>	<b>2,442</b>	<b>-1.1</b>	<b>4.3</b>

**Table 6: Turkey's Imports of PE (Million \$)**

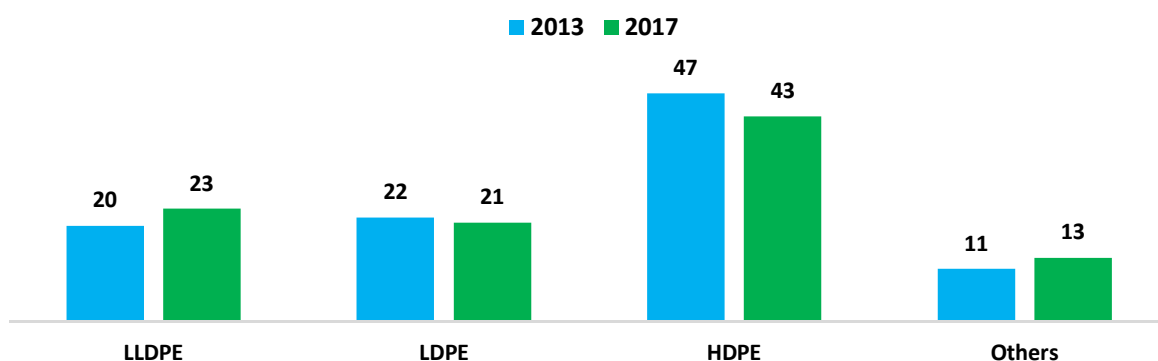
Source: Turk Stat and ITC Trade Statistics



**Graphic 5: Turkey's Imports of PE (Million \$)**

Source: Turk Stat and ITC Trade Statistics

Turkey's total polyethylene imports in 2017 on value basis constituted 43% for HDPE, 23% for LLDPE, 21% for LDPE and 13% other polyethylene grades.



**Graphic 6: PE Imports of Turkey by Grades (\$- %)**

Source: Turk Stat and ITC Trade Statistics

The share of polyethylene imports in total plastic raw material imports was 25% on a quantity basis and 24% on a value basis in 2017. It is observed that in the past years this ratio has been realized at the level of these levels.

	2013	2016	2017
Amount Basis	25	26	25
Value Basis	23	27	24

**Table 7: Share of Polyethylene Imports in Total Plastic Raw Materials Imports (%)**

Source: Turk Stat and ITC Trade Statistics

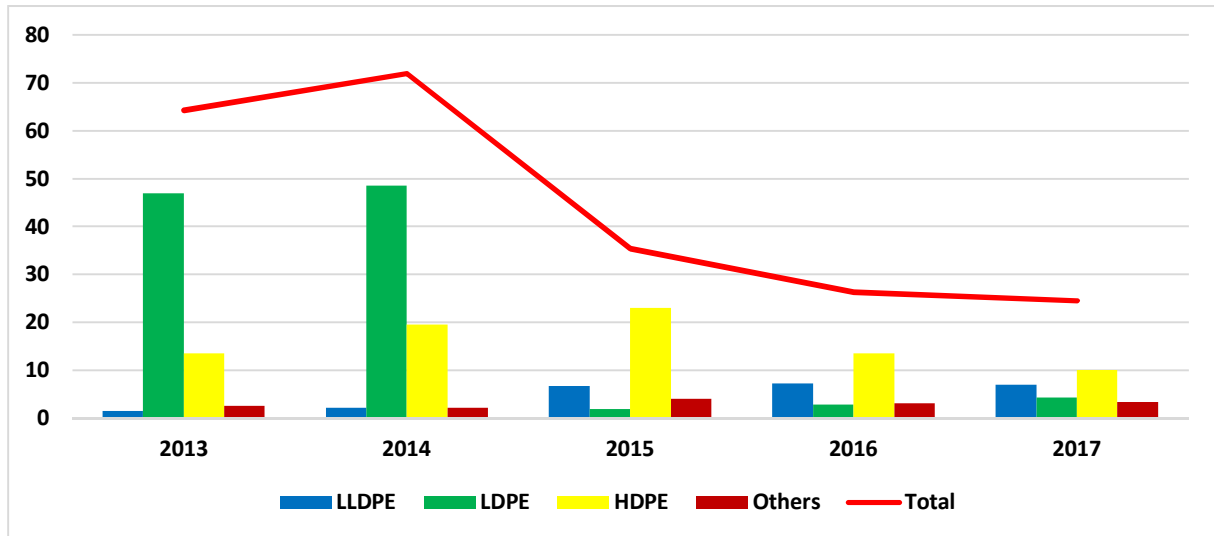
## 4.2. EXPORTS

Turkey's total polyethylene exports, which amounted to 64 thousand tons in 2013, decreased by 21.4% on average annually in the last 5 years, declined to 24 thousand tons in 2017. Exports increased by 7.1% in 2017 compared to 2016.

	2013	2016	2017	CAGR % 2013- 2017	% Increase (2017/2016)
LLDPE	1	7	7	48.1	-2.3
LDPE	47	3	4	-45.0	55.8
HDPE	13	13	10	-7.0	-25.3
Others	3	3	3	6.3	5.3
<b>Total Exports</b>	<b>64</b>	<b>26</b>	<b>24</b>	<b>-21.4</b>	<b>-7.1</b>

**Table 8: Turkey's Polyethylene Exports (1000 Ton)**

Source: Turk Stat and ITC Trade Statistics



**Graphic 7: Turkey's Polyethylene Exports (1000 Ton)**

Source: Turk Stat and ITC Trade Statistics

In 2017, total polyethylene exports consisted of 28% for LLDPE, 17% LDPE, 41% for HDPE and 13% other polyethylene grades.

	2013	2017
LLDPE	2	28
LDPE	73	17
HDPE	21	41
Others	4	13

**Table 9: Total Polyethylene Exports By Grades (Ton - %)**

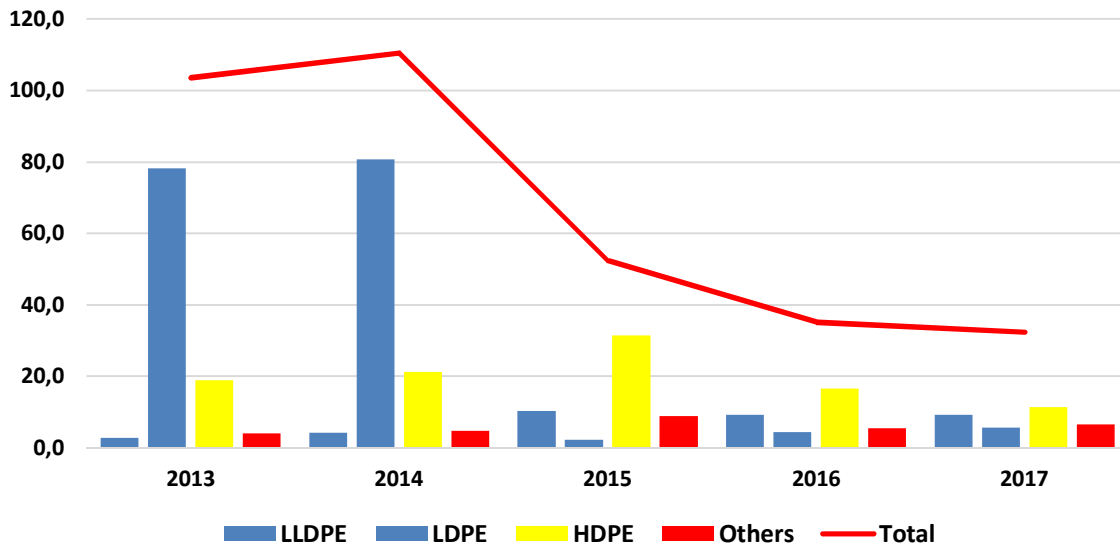
Source: Turk Stat and ITC Trade Statistics

Turkey's total polyethylene exports which was 103 million tons in 2013 decreased by an average of 25.2% per annum in the last 5 years and declined to 32 million dollars in 2017 decreasing by 7.1% compared to 2016.

	2013	2016	2017	CAGR % 2013- 2017	% Increase (2017/2016)
LLDPE	3	9	9	36.2	-0.2
LDPE	78	4	6	-48.3	31.5
HDPE	19	16	11	-12.1	-31.7
Others	4	5	7	13.7	22.7
<b>Total Exports</b>	<b>103</b>	<b>35</b>	<b>32</b>	<b>-25.2</b>	<b>-7.7</b>

**Table 10: Polyethylene Exports of Turkey (Million \$)**

Source: Turk Stat and ITC Trade Statistics



**Graphic 8: Polyethylene Exports of Turkey (Million \$)**

Source: Turk Stat and ITC Trade Statistics

In 2017, total polyethylene exports on value basis consisted of 28% for LLDPE, 17% for LDPE, 35% for HDPE and 20% for other polyethylene grades.

	2013	2017
LLDPE	3	28
LDPE	75	17
HDPE	18	35
Others	4	20
<b>Total Exports</b>	<b>100</b>	<b>100</b>

**Table 11: Exports of Polyethylene by Types (\$ - %)**

Source: Turk Stat and ITC Trade Statistics

The share of polyethylene exports in total plastics raw material exports was 14% on amount and 13% on value basis in 2017.

	2013	2016	2017
Amount Basis	11	10	14
Value Basis	10	10	13

**Table 12: Share of Polyethylene Exports in Total Plastics Raw Materials Exports (%)**

Source: Turk Stat and ITC Trade Statistics

### 4.3. FOREIGN TRADE DEFICIT

Turkey provides foreign trade deficit in polyethylene on both amount and value basis. The polyethylene trade deficit annually increased by 5.1% on amount and decreased by 0.5% for the last 5 years.

	2013	2016	2017	CAGR % 2013- 2017	% Increase (2017/2016)
LLDPE	-325	-353	-455	8.8	29.1
LDPE	-247	-303	-311	5.9	2.5
HDPE	-727	-773	-825	3.2	6.8
Others	-142	-255	-199	8.8	-22.1
<b>Total Deficit</b>	<b>-1,391</b>	<b>-1,594</b>	<b>-1,697</b>	<b>5.1</b>	<b>6.5</b>

**Table 13: Foreign Trade Deficit for Polyethylene in Turkey (1000 Ton)**

Source: Turk Stat and ITC Trade Statistics

In 2017, foreign trade deficit realized by 1 million 687 tons and 2 billion 410 million dollars increasing by 6.5% on amount and 4.5% on value basis compared to 2016.

The highest foreign trade deficit was realized in HDPE with 885 thousand tons and 1 billion 31 million dollars in 2017.

	2013	2016	2017	CAGR % 2013- 2017	% Increase (2017/2016)
LLDPE	-508	-431	-563	2.6	30.6
LDPE	-476	-536	-498	1.1	-7.0
HDPE	-1,194	-961	-1,031	-3.6	7.4
Others	-276	-378	-317	3.5	-16.1
<b>Total Deficit</b>	<b>-2,454</b>	<b>-2,306</b>	<b>-2,410</b>	<b>-0.5</b>	<b>4.5</b>

**Table 14: Foreign Trade Deficit for Polyethylene in Turkey (Million \$)**

Source: Turk Stat and ITC Trade Statistics

#### 4.4. IMPORTS BY COUNTRIES

In 2017, Turkey has realized 70% of total polyethylene imports on amount and 68% on value basis from 10 countries, in this period, S. Arabia, Iran, S. Korea, Singapore and Uzbekistan have made the top 5 polyethylene import partners of Turkey.

	1000 Tons	Million \$	% Share ( Ton )	% Share (\$)
S. Arabia	457	564	25	23
Iran	235	271	13	11
S.Korea	124	171	7	7
Singapore	72	93	4	4
Uzbekistan	71	83	4	3
Spain	69	104	4	4
Belgium	66	106	4	4
Italy	62	91	3	4
Germany	60	101	3	4
Egypt	58	71	3	3
<b>10 Countries Total</b>	<b>1,274</b>	<b>1,655</b>	<b>70</b>	<b>68</b>
<b>Others</b>	<b>540</b>	<b>787</b>	<b>30</b>	<b>32</b>
<b>Total</b>	<b>1,814</b>	<b>2,442</b>	<b>100</b>	<b>100</b>

**Table 15: Polyethylene Imports by Countries (2017)**

Source: Turk Stat and ITC Trade Statistics

#### 4.5. EXPORTS BY COUNTRIES

In 2017, Turkey has realized 49% of its total polyethylene exports on amount and 51% on value basis to 10 countries. Bulgaria, Algeria, Italy, Germany and Iran made up the top 5 polyethylene export partners of Turkey.

	1000 Tons	Million \$	% Share ( Ton )	% Share (\$)
Bulgaria	2,3	2,8	10	9
Algeria	1,7	2,2	7	7
Italy	1,6	1,8	7	6
Germany	1,0	1,6	4	5
Iran	0,6	1,5	2	5
Belgium	1,2	1,5	5	5
France	0,8	1,4	3	4
Egypt	0,8	1,2	3	4
Greece	0,9	1,2	4	4
North Cyprus Turkish Rep.	0,9	1,2	4	4
<b>10 Countries Total</b>	<b>11,9</b>	<b>16,3</b>	<b>49</b>	<b>51</b>
<b>Others</b>	<b>12,6</b>	<b>16,0</b>	<b>51</b>	<b>49</b>
<b>Total</b>	<b>24,5</b>	<b>32,4</b>	<b>100</b>	<b>100</b>

**Table 16: Polyethylene Imports by Countries (2017)**

Source: Turk Stat and ITC Trade Statistics

#### 4.6. AVERAGE IMPORT AND EXPORT PRICES

Turkey's polyethylene average import price, remained above the average export price for all years. During the period 2013-2017, import prices decreased by 5.7% on average and export prices by 4.8%. In 2017, the average import price decreased by 1, 7% and the export price increased by 0.7%, compared to 2016.

	2013	2016	2017	CAGR % 2013- 2017	% Increase (2017/2016)
LLDPE	1,563	1,224	1,238	-5.7	1.2
LDPE	1,887	1,764	1,598	-4.1	-9.4
HDPE	1,639	1,243	1,248	-6.6	0.4
Others	1,940	1,487	1,604	-4.6	7.9
<b>Total</b>	<b>1,700</b>	<b>1,369</b>	<b>1,346</b>	<b>-5.7</b>	<b>-1.7</b>

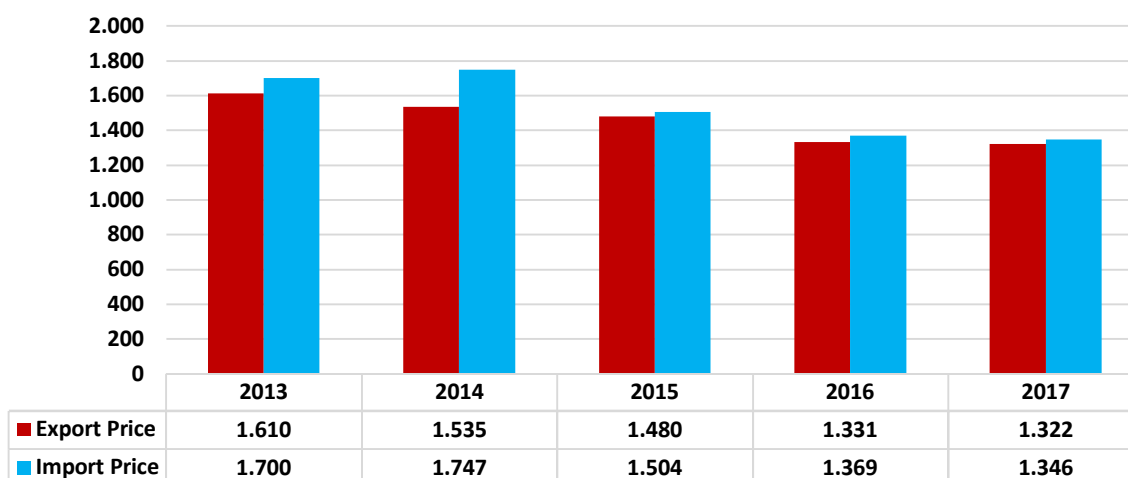
**Table 17: Average Import Prices of Turkey for Polyethylene by Grades (\$/Ton)**

Source: Turk Stat and ITC Trade Statistics

	2013	2016	2017	CAGR % 2013- 2017	% Increase (2017/2016)
LLDPE	1,819	1,275	1,303	-8.0	2.1
LDPE	1,666	1,538	1,298	-6.0	-15.6
HDPE	1,408	1,227	1,122	-5.5	-8.5
Others	1,536	1,731	2,016	7.0	16.5
<b>Total</b>	<b>1,610</b>	<b>1,331</b>	<b>1,322</b>	<b>-4.8</b>	<b>-0.7</b>

**Table 18: Average Export Prices of Turkey for Polyethylene by Grades (\$/Ton)**

Source: Turk Stat and ITC Trade Statistics



**Graphic 9: Polyethylene Average Foreign Trade Prices (\$/kg)**

Source: Turk Stat and ITC Trade Statistics

## 5. DOMESTIC CONSUMPTION

In line with the rapid development in the Turkish plastics industry, the polyethylene consumption of the industry has shown a rapid increase trend and increased by 5% compound growth rate in the period covering 2013-2017. Consumption of 1 million 745 thousand tons in 2013, increased to 2 million 121 thousand tons in 2017.

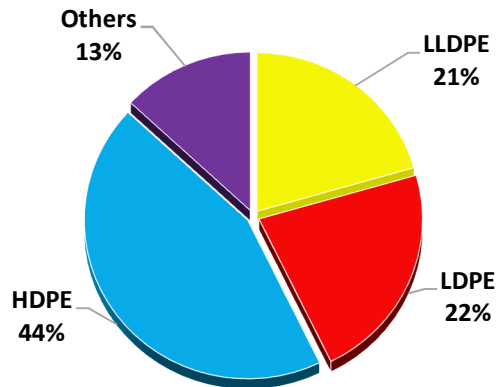
	2013	2016	2017	CAGR % 2013- 2017	% Increase (2017/2016)
LLDPE	325	353	455	8.8	29.1
LDPE	395	465	491	5.6	5.7
HDPE	848	909	977	3.6	7.5
Others	227	337	290	6.3	-13.9
<b>Total Consumption</b>	<b>1,745</b>	<b>1,973</b>	<b>2,121</b>	<b>5.0</b>	<b>7.5</b>

**Table 19: Domestic Consumption of Polyethylene in Turkey (1000 Ton)**

Source: Turk Stat and ITC Trade Statistics

In 2017, HDPE shared 44%, LDPE 22%, LLDPE %21 and other polyethylene received % 13 of total polyethylene consumption.

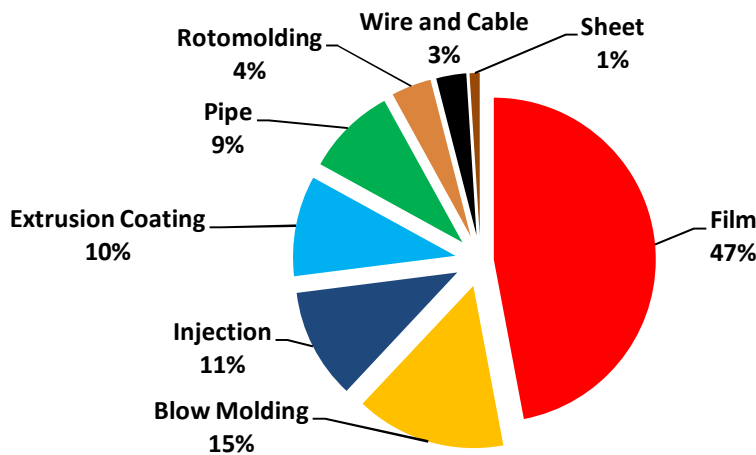




**Graphic 10: Domestic Consumption of Polyethylene by Grades in Turkey (2017)**

Source: Turk Stat and ITC Trade Statistics

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.



**Graphic 11: Total PE Consumption by Process Types**

Source: Turk Stat and ITC Trade Statistics

## 6. SUPPLY AND DEMAND

It is observed that Turkey's total polyethylene production increased by 4,6% per annum, imports by 4.8%, exports by 0.9% and average annual consumption increased by 5% in the last 5 years.

Turkey's import dependency on polyethylene was 86% in 2017. It is observed that 32% of domestic production is exported in 2013, but the share of exports in production falls to 28% in 2017. The import coverage rate of polyethylene exports fell from 8% in 2013 to 6% in 2017.



	2013	2016	2017	CAGR % 2013-2017	% Increase 2017/2016
Production	354	379	424	4.6	11.8
Imports	1,505	1,710	1,814	4.8	6.1
Exports	113	116	117	0.9	0.9
Domestic Consumption	1,745	1,973	2,121	5.0	7.5
Imports/Domestic Consumption (%)	86	87	86		
Exports/Production (%)	32	31	28		
Exports/Imports (%)	8	7	6		

**Table 20: Polyethylene Supply and Demand in Turkey (1000 Ton)**

Source: Turk Stat and ITC Trade Statistics

Turkey is one of the major polyethylene importer countries of the world, The rapid growth trend in the plastics industry has also led to a rapid increase in demand for polyethylene, However, the domestic production of polyethylene is far to meet this demand.

Domestic consumption forecasts indicate that import dependency will reach to 100% in LLDPE, 61% in LDPE, 92% in HDPE and 88% in total polyethylene in 2020.

## **7. PAGEV PROJECTS**

PAGEV which is the “Unifying Power “of the Turkish plastics industry develops different projects aiming to solve the problems outlined above, These are in summary: "Plastic Center of Excellence" and "International Regional Plastics Production Center".

### **7.1. PAGEV PLASTICS CENTER OF EXCELLENCE**

Plastic materials, used in all areas of life, are rapidly taking place of other alternative products, because of their superior properties, in Turkey as well as in all over the world, Plastics, which usage in all sectors Increasing is becoming an indispensable material for the 21<sup>st</sup> century.

Turkish Plastics Industry which is one of the fastest growing sectors in our country despite being young, is the 6<sup>th</sup> in the world and the 2<sup>nd</sup> in Europe, Growing with the goal of leadership in Europe, the Turkish Plastics Sector aims to increase the certification and added value of its products.

PAGEV, "Unifying Power" of the Turkish Plastics industry, is leading the industry with the "PAGEV Plastic Excellence Center" for realizing this purpose. The mission of the PAGEV Center for Plastic Excellence will include the following activities,

- ✓ Research and Development
- ✓ Test and Laboratory Services
- ✓ Certification
- ✓ Training
- ✓ Competent Consulting

With the Center of Excellence, the test and laboratory support that the plastic industry needs; will be provided to the industry. So, many problems that lead to loss of time and energy such as high test costs, overseas shipping, customs clearance and long test times will be removed,

The platforms that will provide information to and knowledge sharing in the industry will be developed by the Center and detailed training programs will be prepared and presented for the benefit of the industry. While working on the newest technologies, the Center of Excellence will work together with industry organizations, universities, research institutes, professional associations and non-governmental organizations to work for the Turkish plastics industry to be the world leader with R & D and innovation based work.

Established with the support of the Ministry of Science, Industry and Technology, PAGEV Plastic Center of Excellence will provide to the plastics industry and Turkish economy, especially the development of industrial skills and capabilities that will form the basis of Turkey's national projects.

By PAGEV Plastic Center of Excellence, which will be established by strategic cooperation, it is aimed to grow the plastic industry faster with its traceable targets, scientific quality and high potential for commercialization.

Upon completion, the Center of Excellence, which will have an area of over 30 thousand m<sup>2</sup>, rises right beside PAGEV Vocational and Technical Anatolian High School in Küçükçekmece, Istanbul. PAGEV Plastic Center of Excellence, which will make Turkey the center of plastic production in the world, will carry out innovative projects.

In addition to this, the Center will create a control mechanism for the products exported abroad. The Center will also contribute to the preservation of the reliability and reputation of the plastic products produced in Turkey. On the other hand, the introduction of poor quality and non-standard goods into the country will be prevented by determining the technical suitability of the plastic products imported from abroad without any definite importation in the laboratories.

With its superior information infrastructure, the Center of Excellence will present the important documents required by the players of the sector more economically and quickly.

By accelerating the development, we will focus on the development of products and production technologies that will increase the competitive power of our firms.

The Center of Excellence, which will develop innovative ideas by following the developments in the world plastic sector, will increase the competitive power of our firms by providing many field consultancy services from the determination of appropriate input materials to the optimization of production process.

## **7.2. INTERNATIONAL REGIONAL PLASTIC MANUFACTURING CENTER**

Although the Turkish Plastics Sector, with its process capacity reaching 9 million tons, has the 6<sup>th</sup> largest plastics production capacity in the world and 2<sup>nd</sup> in Europe, imports more than 85% of the plastic raw material it needs.

One of the most important advantages of the plastics industry in Turkey is that it is located between the Middle East countries which are the main petroleum and plastic raw material producer and the European market which is the main plastic consumer.

PAGEV aims to unify the plastic raw materials potential of Middle East countries with the Turkish plastics industry's competent production capability and experience at the international regional plastic production center, which Turkey aims to establish in South East Anatolia Region.

In the center, to be established with the win - win principle, the plastics raw materials producer countries will be supplying cheap and reliable raw materials having a large volume and reliable market while Turkish plastics industry will have greater competition possibilities in the global markets with its growing production capacity and falling costs.