



**PAGEV**

# **Turkish Polypropylene 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 REPORT.....</b>	<b>3</b>
<b>2. INSTALLED CAPACITY.....</b>	<b>3</b>
<b>3. PRODUCTION AND CAPACITY UTILIZATION.....</b>	<b>4</b>
<b>4. FOREIGN TRADE.....</b>	<b>4</b>
<b>4.1. IMPORTS.....</b>	<b>4</b>
<b>4.2. EXPORTS.....</b>	<b>5</b>
<b>4.3. FOREIGN TRADE DEFICIT.....</b>	<b>7</b>
<b>4.4. IMPORTS BY COUNTRIES.....</b>	<b>7</b>
<b>4.5. EXPORTS BY COUNTRIES.....</b>	<b>8</b>
<b>4.6. IMPORT AND EXPORT PRICES.....</b>	<b>8</b>
<b>5. DOMESTIC CONSUMPTION BY INDUSTRIES.....</b>	<b>9</b>
<b>6. SUPPLY AND DEMAND.....</b>	<b>11</b>
<b>7. PAGEV PROJECTS.....</b>	<b>12</b>

## 1. PLASTIC RAW MATERIALS COVERED BY REPORT

The plastic raw material covered by the analysis is polymers of polypropylene (PP) and other olefins of 3902 GTP, the contents of which are summarized in the following table.

HS Code	Description
39.02	Polymers of propylene and other olefins (in the first form):
3902.10.00.00.00	- Polypropylene (PP)
3902.20.00.00.00	- Polybutylene
3902.30.00.00.00	- Propylene copolymers
3902.90	- Others:
3902.90.10.00.00	- - A-B-A block copolymer of polystyrene, ethylene-butylene copolymer and polystyrene (Containing 35% by weight or less styrene) (6 (b))
3902.90.20.00.00	- - Polybut-1-ene (but-1-ene with 10% or less by weight of ethylene By weight of a copolymer or polybut-1-ene containing 10% by weight or Less polypropylene (PP) and / or 25% or less by weight Polypropylene (PP) mixture) (as specified in note 6 (b) of this chapter) One)
3902.90.90.00.00	- - Others

**Table 1: Polymers of Polypropylene and Other Olefins HS Code of 3902 Covered by the Report**

Source: PETKİM Annual Reports

## 2. INSTALLED CAPACITY

The only plant producing polypropylene in Turkey is PETKİM and its current production capacity is capable of producing 144,000 tons of polypropylene per year.

Date of Operation	1985
Initial Capacity	60.000 Ton/Year
Extension Dates	1993, 2005
After-Capacity	144.000 Ton/Year
Products	PP Fiber (EH-251, EH-241, EH-341, EH-102) Filler (MH-418, MH-220, MH-180) Pipe BC050) Film (FH-250, FH-360, Molding (MH-220N )

**Table 2: PETKİM Production Capacity of Polypropylene Products**

Source: PETKİM Annual Reports

PETKİM started production of polypropylene in 1985 with a capacity of 60.000 tons and increased its production capacity to 144.000 tons with the investments realized in 1993 and 2005.

The intellectual property rights of this report belong to PAGEV and cannot be quoted even partly, without being shown as a source.

The main uses of polypropylene produced by the company are; cloth, sack, carpet yarn, rope, table cloth, mop, filter cloth, felt, cord cloth, pipe, cable sheath, fish net, brush, basin, table, chair, toy, picnic products.

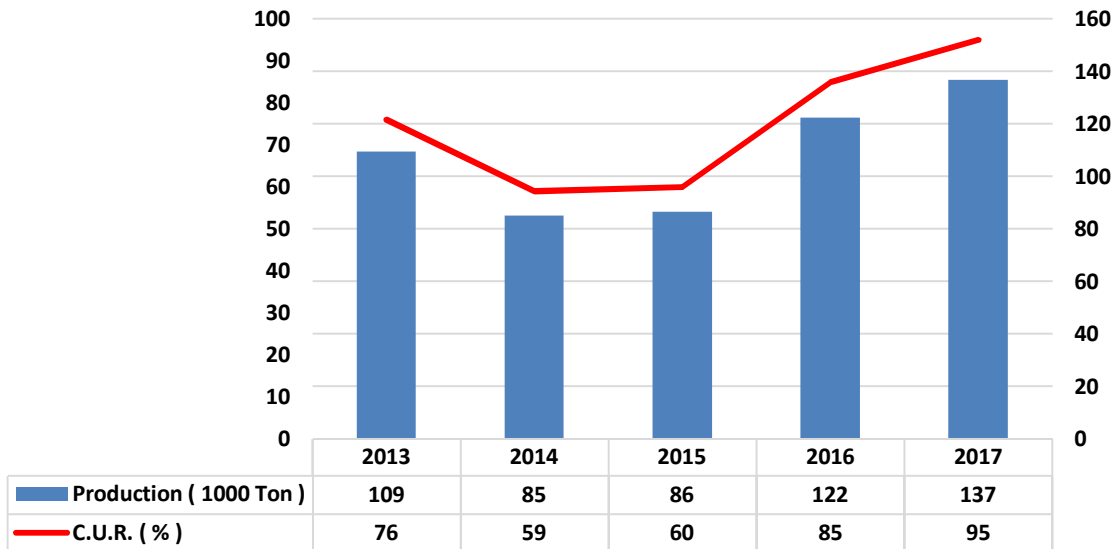
### 3. PRODUCTION AND CAPACITY UTILIZATION

The production of polypropylene produced by PETKİM between 2013-2017 period has been given in the table and graphic below. The production of PETKİM realized as 137 thousand tons and capacity utilization rate as 95% in 2017.

	Production 1000 Ton	C.U.R. %
2013	109	76
2014	85	59
2015	86	60
2016	122	85
2017	137	95

**Table 3: PETKİM Polypropylene Production and Capacity Utilization**

Source: PETKİM Annual Reports



**Graphic 1: PETKİM Polypropylene Production and Capacity Utilization**

Source: PETKİM Annual Reports

### 4. FOREIGN TRADE

#### 4.1. IMPORTS

While total polypropylene imports, realized in 2013-2017 period, decreased by 7.9% per year on amount basis, increased by 11.5% per annum on value basis, reaching to 2 million 136

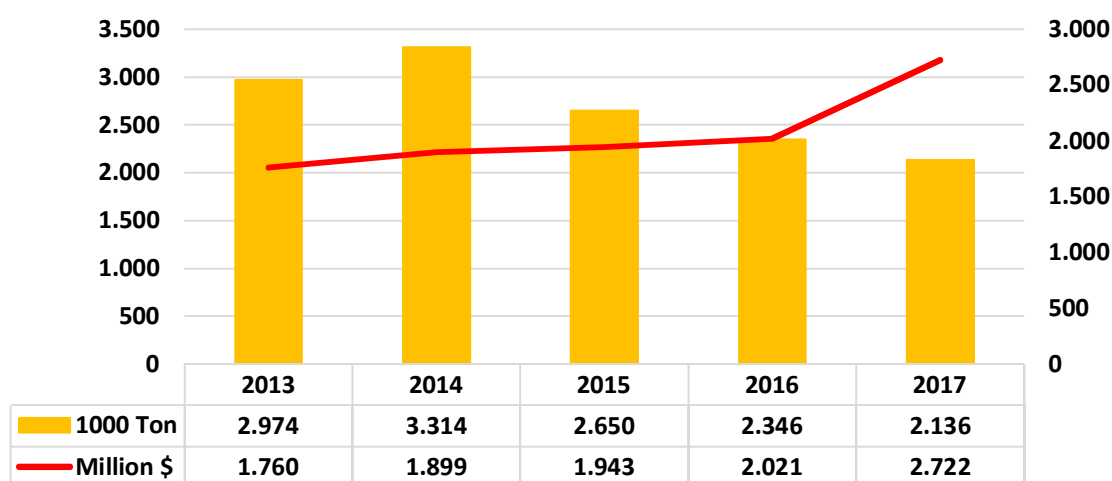
The intellectual property rights of this report belong to PAGEV and cannot be quoted even partly, without being shown as a source.

thousand tons and 2 billion 772 million dollars in 2017. Imports of polypropylene decreased by 8.9% on amount and 34.7% in terms of value in 2017 compared to 2016.

	2013	2016	2017	CAGR (%) 2013 - 2017	% Increase 2017/2016
1000 Ton	2,974	2,346	2,136	-7.9	-8.9
Million \$	1,760	2,021	2,722	11.5	34.7

**Table 4: Polypropylene Imports of Turkey**

Source: Turk Stat and ITC Trade Statistics



**Graphic 2: Polypropylene Imports of Turkey**

Source: Turk Stat and ITC Trade Statistics

In Turkey, imports of polypropylene in primary forms accounted for 81% on amount and 78% on volume basis of total imports in 2017. On the other hand, the primary forms of polypropylene copolymers accounted for 19% of the total imports on amount and 22% on value basis.

	Amount Basis		Value Basis	
	2013	2017	2013	2017
Polypropylene (Primary Form)	76.0	80.6	77.7	77.8
Propylene copolymers (Primary Form)	0.3	0.2	0.2	0.3
Others	23.7	19.3	22.1	21.9
Total	100.0	100.0	100.0	100.0

**Table 5: Polypropylene Imports of Turkey by Grades (2017- %)**

Source: Turk Stat and ITC Trade Statistics

## 4.2. EXPORTS

Total polypropylene exports, realized as 27 thousand tons and 35 million dollars in 2017, decreasing by 6.7% per annum on amount and increasing by 13.7% on a value basis for the

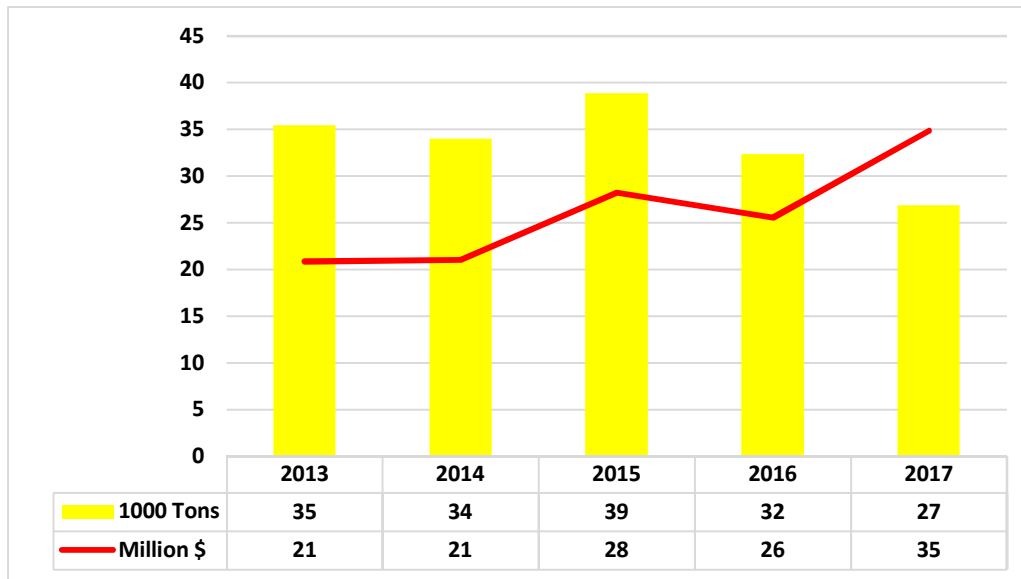


last 5 years covering 2013 – 2017 period. Exports decreased by 17% on amount and 36.6% on value basis in 2017 compared to 2016.

	2013	2016	2017	CAGR (%) 2013 - 2017	% Increase 2017/2016
1000 Tons	35	32	27	-6.7	-17.0
Million \$	21	26	35	13.7	36.6

**Table 6: Polypropylene Exports of Turkey**

Source: Turk Stat and ITC Trade Statistics



**Graphic 3: Polypropylene Exports of Turkey**

Source: Turk Stat and ITC Trade Statistics

In Turkey, polypropylene in primary forms accounted for 71% on amount and 66% on volume basis of total exports in 2017. On the other hand, the primary forms of polypropylene copolymers accounted for 29% of the total exports on amount and 34% on value basis.

	Amount Basis		Value Basis	
	2013	2017	2013	2017
Polypropylene (Primary Form )	70.6	71.3	74.5	65.5
Propylene copolymers (Primary Form)	0.6	0.2	0.3	0.3
Others	28.8	28.5	25.2	34.2
Total	100.0	100.0	100.0	100.0

**Table 7: Polypropylene Exports of Turkey by Grades (2017- %)**

Source: Turk Stat and ITC Trade Statistics

### 4.3. FOREIGN TRADE DEFICIT

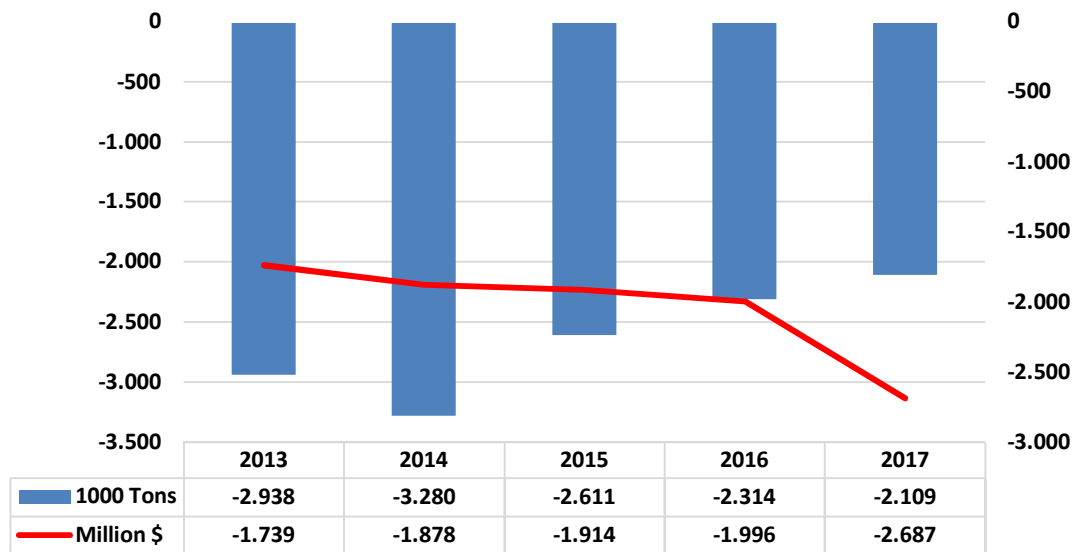
Polypropylene foreign trade always gives a large deficit in terms of both quantity and value in Turkey. The polypropylene trade deficit has increased by 11.5% per annum on amount and 1.4% on value basis in the period of 2013-2017 and realized as 2,11 million tons and 2.69 billion dollars in 2017.

Foreign trade deficit decreased by 8.8% on amount and 34.7% on value basis in 2017 compared to 2016.

	2013	2016	2017	CAGR (%) 2013 - 2017	% Increase 2017/2016
1000 Tons	-2,938	-2,314	-2,109	11.5	-8.8
Million \$	-1,739	-1,996	-2,687	1.4	34.7

**Table 8: Foreign Trade Deficit of Turkey**

Source: Turk Stat and ITC Trade Statistics



**Graphic 4: Foreign Trade Deficit**

Source: Turk Stat and ITC Trade Statistics

### 4.4. IMPORTS BY COUNTRIES

In 2017, Turkey has realized 81% of total polypropylene imports in terms of amount and 80% in value terms from 10 countries. S. Arabia, S. Korea, Egypt, Israel and Belgium have made the top 5 import partners of Turkey.

Countries	1000 Ton	Million \$	% - Ton	% - \$
S. Arabia	623	724	29	27
S.Korea	222	290	10	11

The intellectual property rights of this report belong to PAGEV and cannot be quoted even partly, without being shown as a source.





Egypt	221	270	10	10
Israel	121	157	6	6
Belgium	105	156	5	6
Iran	114	136	5	5
Spain	83	128	4	5
India	105	121	5	4
Germany	62	96	3	4
Greece	71	86	3	3
<b>10 Total</b>	<b>1.727</b>	<b>2.164</b>	<b>81</b>	<b>80</b>
<b>Others</b>	<b>409</b>	<b>558</b>	<b>19</b>	<b>20</b>
<b>Total</b>	<b>2.136</b>	<b>2.722</b>	<b>100</b>	<b>100</b>

**Table 9: Polypropylene Imports of Turkey by Countries - 2017**

Source: Turk Stat and ITC Trade Statistics

#### 4.5. EXPORTS BY COUNTRIES

In 2017, 65% of total polypropylene exports on amount and 69% in value terms destined to 10 countries. Bursa Free Trade Zone, Egypt, Çorlu Free Trade Zone, Iran and Hungary have made the top 5 export partners of Turkey.

Ülkeler	1000 Ton	Million \$	% - Ton	% - \$
Bursa Ser. Bölgesi	6,6	8,3	25	24
Mısır	2,4	3,3	9	10
Çorlu Avr. Ser. Bölgesi	1,5	2,1	5	6
Iran	1,0	2,0	4	6
Hungary	1,2	1,9	5	5
Iraq	1,4	1,8	5	5
China	1,2	1,5	5	4
Germany	0,6	1,2	2	4
Azerbaijan	0,7	1,1	3	3
Romania	0,7	0,9	3	3
<b>10 Countries Total</b>	<b>17,3</b>	<b>24,1</b>	<b>65</b>	<b>69</b>
<b>Others</b>	<b>9,5</b>	<b>10,8</b>	<b>35</b>	<b>31</b>
<b>Total</b>	<b>26,9</b>	<b>34,9</b>	<b>100</b>	<b>100</b>

**Table 10: Polypropylene Export of Turkey by Countries - 2017**

Source: Turk Stat and ITC Trade Statistics

#### 4.6. IMPORT AND EXPORT PRICES

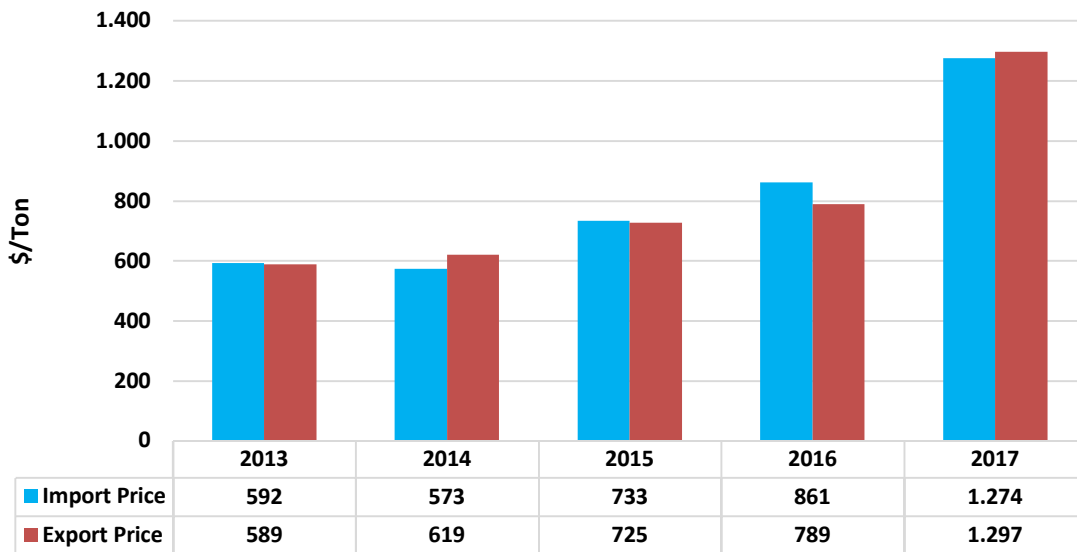
Between 2013 and 2017, the average import prices of polypropylene have increased by an average of 21.1% and export prices by 21.8%. In 2017, the average import price realized as 1.274 \$/Ton and export price as 1.297 \$/Ton and import price increased by 47.9% and export price 64.5% compare to 2016.



	2013	2016	2017	CAGR (%) 2013 - 2017	% Increase 2017/2016
<b>Import Price</b>	592	861	1,274	21.1	47.9
<b>Export Price</b>	589	789	1,297	21.8	64.5

**Table 11: Average Foreign Trade Prices of Polypropylene in Turkey (\$/Ton)**

Source: Turk Stat and ITC Trade Statistics



**Graphic 5: Average Foreign Trade Prices of Polypropylene in Turkey (\$/Ton)**

**5. DOMESTIC CONSUMPTION BY INDUSTRIES**

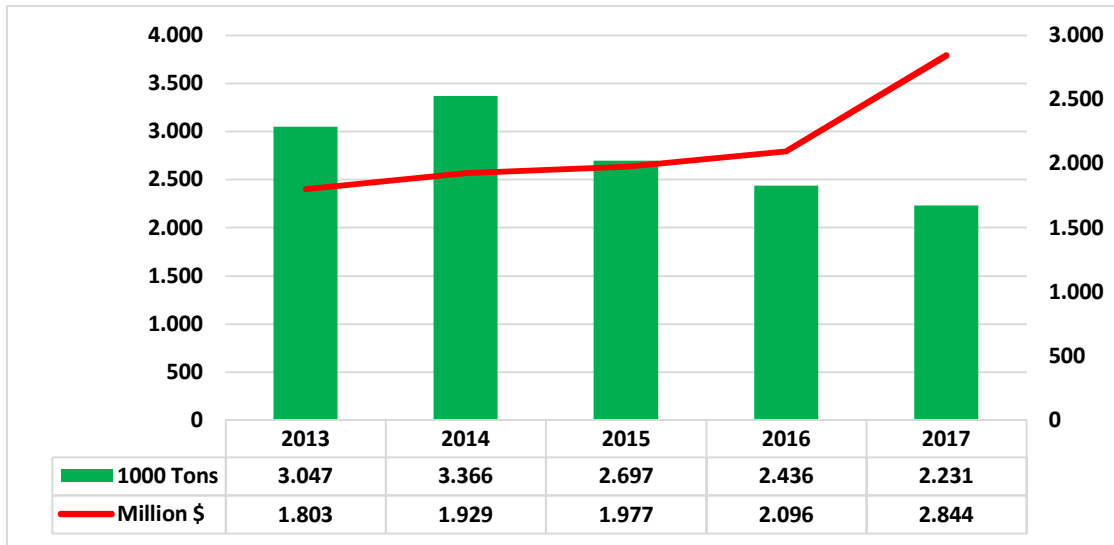
The polypropylene domestic consumption has decreased by an average of 7.5% per annum on amount and increased by 12.1% in the period covering 2013-2017 and realized as 2,23 million tons and 2,84 billion dollars in 2017.

Domestic consumption decreased by 8.4% on amount and increased by 35.7% on value basis in 2017 compared to 2016.

	2013	2016	2017	CAGR (%) 2013 - 2017	% Increase 2017/2016
<b>1000 Tons</b>	3,047	2,436	2,231	-7.5	-8.4
<b>Million \$</b>	1,803	2,096	2,844	12.1	35.7

**Table 12: Domestic Consumption of polypropylene**

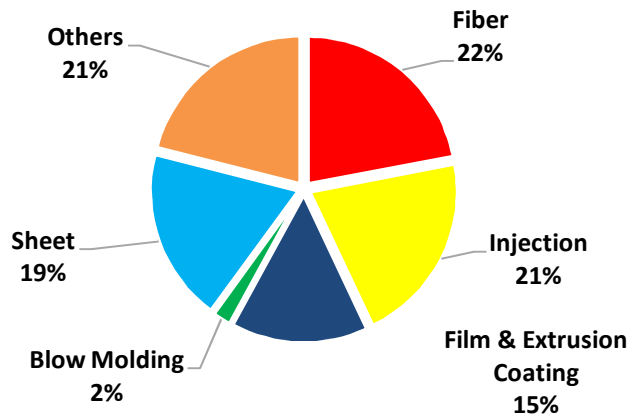
Source: Turk Stat and ITC Trade Statistics



Graphic 6: Domestic Consumption of Polypropylene in Turkey

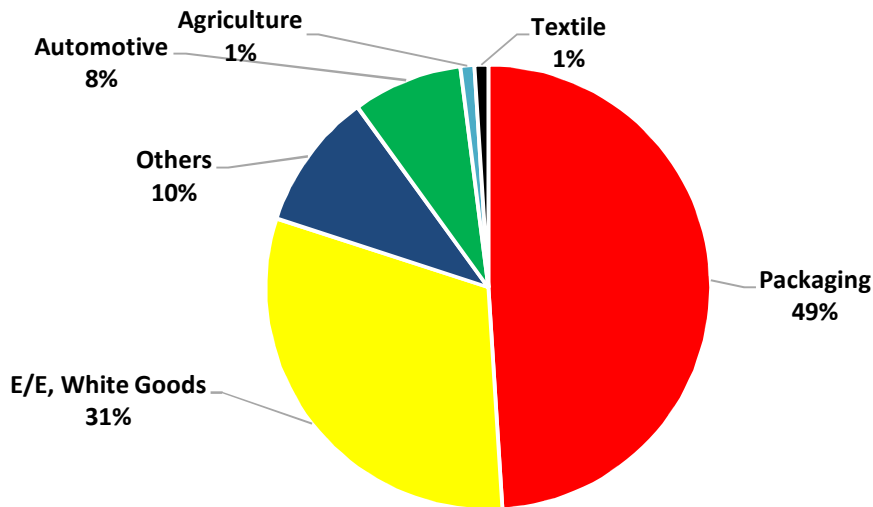
Source: Turk Stat and ITC Trade Statistics

In Turkey, fiber accounts for 22% and injection for 21% of total polypropylene consumption according to process types. The sheets constitutes the third major process type with 19% and the film and extrusion coating with 15%. Blow molding is 2% of total consumption. The total share of all process types other than these is 21%.



Graphic 7: Polypropylene Consumption by Process Types.

In Turkey, 49% of total polypropylene consumption in 2017 constituted packaging, 31% in electricity, electronics and white goods, and 8% in automotive sectors. Agriculture and textile sectors accounted for 1% of total consumption.



Graphic 8: Polypropylene Consumption by Subsectors (%)

## 6. SUPPLY AND DEMAND

In the last 5 years period of 2013-2017, total polypropylene production increased by 5.7% per annum. On the other hand, imports decreased by 7.9% exports by 6.7% and domestic consumption by 7.5%, respectively.

In 2017, 96% of domestic demand was met by imports and 20% of domestic production is exported and the import coverage ratio of exports realized as 1,3%.

It is estimated that, polypropylene production to be 137 thousand tons, imports 2,24 million tons, exports 25 thousand tons domestic consumption 2,36 million tons in 2017. In this period, 95.3% of domestic consumption will be met by imports.

	2013	2016	2017	CAGR (%) 2013 - 2017	% Increase 2017/2016	2018/E
Production	109	122	137	5,7	11,8	137
Imports	2.974	2.346	2.136	-7,9	-8,9	2.243
Exports	35	32	27	-6,7	-17,0	25
Domestic Consumption	3.047	2.436	2.231	-7,5	-8,4	2.355
Imports/Domestic Consumption (%)	97,6	96,3	95,7			95,3
Exports/Production (%)	32,4	26,4	19,6			18,3
Export/Imports (%)	1,2	1,4	1,3			1,1

Table 13: Supply and Demand for Polypropylene in Turkey (1000 Ton)

Source: Turk Stat and ITC Trade Statistics

Turkey is one of the major importers of polypropylene in the world. However, domestic production fails to meet the increasing demand.

The intellectual property rights of this report belong to PAGEV and cannot be quoted even partly, without being shown as a source.

From this point of view, Turkey seems to have an important polypropylene market for existing or possible petrochemical plants for polypropylene production.

## **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: "PAGEV 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.