



PAGEV



TURKISH PLASTICS INDUSTRY
FOLLOW-UP REPORT
2019/6



PREFACE

The plastics 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 over GDP growth rate 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

—EXECUTIVE SUMMARY—

The world economy, which grew by 3.8% in 2017, lost momentum in the second half of 2018 and decreased to 3.6% by the end of 2018. In the said period, average economic growth decreased from 2.4% to 2.2% in developed countries and from 4.8% to 4.5% in developing countries.

Turkey's economy grew by 2.6% in 2018. While high growth was realized in the first half of the year, the transition period after the election, foreign political tensions and financial fluctuations caused by geopolitical risks had a negative impact on the overall economy.

As a result of the strong contraction in domestic demand, the increase in industrial production slowed down and brought the growth down. The decline in industrial capacity utilization had a negative impact on private sector investments.

The share of exports in production in the first 6 months of 2019 was 21% on amount basis in the plastic end products industry and the share of imports in domestic consumption was 7%.

The share of exports in production in the first 6 months of 2019 was 21% on amount basis in the pl In the first 6 months of 2019, on value basis, the share of exports in production rose up to 15% and the share of imports in domestic consumption was 8%.

The significant decline in the plastics industry in the first 6 months of 2019 is expected to continue in the second half of the year.

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1. ECONOMIC SITUATION

1.1. WORLD ECONOMY

- The world economy, which grew by 3.8% in 2017, lost momentum in the second half of 2018 and decreased to 3.6% by the end of 2018. In the said period, average economic growth decreased from 2.4% to 2.2% in developed countries and from 4.8% to 4.5% in developing countries.
- Despite the acceleration loss, supply side and industrial production-based growth continued in the world economy.
- In 2018, despite the protectionism measures in world trade of goods declined in terms of quantity and accelerated in terms of value. As a result of this development, the growth in goods trade decreased from 4.6% to 3%. In terms of value, the growth of goods trade increased from 7.8% to 10%. The main reason for the growth in value is the increase in the prices of tradable energy, commodity and final goods.
- Global industrial performance started the year strongly but lost momentum in the second half. The slowdown in the global industry was most common in the EU and China. As of April, global industrial goods export prices decreased due to the protectionism.
- In the first quarter of 2019, while the global economy outperformed the expectations led by developed countries, the composition of growth indicated that this performance was unsustainable. As a matter of fact, the weakness observed in the leading indicators of the second quarter in the leading economies was remarkable.
- Developments in the trade war between the US and China remain the main agenda item in global markets. Finally, the US and Chinese presidents agreed to continue trade negotiations at the G-20 summit, alleviating trade war concerns.
- According to the final data, the US economy grew by 3.1% yoy in the first quarter, while leading data released in China indicate that the slowdown in economic activity continued in the second quarter of 2019. Meanwhile, the data released on the Euro Area economy presents a weak outlook for the regional economy.
- While worries about the global economy bring down oil prices, rising geopolitical risks in the Middle East put upward pressure on prices. At its meeting held in July, OPEC decided to extend supply shortages for another 9 months.
- In the current conjuncture, where risks related to the global economy are increasing, the expectation that leading central banks will tend to follow policies to support the economy is strengthened.
- The OECD and the World Bank lowered global economic growth forecasts for 2019. Organizations said they have also revised down their growth forecasts for the economy of Turkey.
- While OECD predicted that Turkey's economy will shrink by 2.6% this year, the World Bank estimated the contraction is located at 1% level.
- OECD revised its global economic growth forecast for 2019 from 3.3% to 3.2%. Stating that the loss of speed in the global economy is widespread, the Organization reduced the global trade volume growth forecast from 3.7% to 2.1%, which it shared in the November report.
- The World Bank revised its global growth forecasts downwards. The organization reduced its global growth forecast for 2019 from 2.9% to 2.6%

	2018	2019
World	3.1	3.4
USA	2.8	2.3
Euro Area	1.2	1.4
Germany	0.7	1.2
Japan	0.7	0.6
U.K.	1.2	1.0
China	6.2	6.0
Brazil	1.4	2.3
Turkey	-2.6	1.6

Table 1: OECD Growth Estimates (%)

Source: OECD



1. ECONOMIC SITUATION

1.2. TURKISH ECONOMY

In this period, the main developments that affect and are expected to affect the Turkish economy and therefore the plastics industry are;

- Turkey's economy grew by 2.6% in 2018. While high growth was realized in the first half of the year, the transition period after the election, foreign political tensions and financial fluctuations caused by geopolitical risks had a negative impact on the overall economy.
- As a result of the strong contraction in domestic demand, the increase in industrial production slowed down and brought the growth down. The decline in industrial capacity utilization had a negative impact on private sector investments.
- In addition to the decline in the industrial sector in the second half of the year, the rise in inflation and interest rates, the depreciation of TL adversely affected the financial structure of the industry and these adversities spread to all other sectors.
- In 2018, industrial exports increased relatively with the decline in domestic demand.
- Exchange rates, which affect the financial structures and profitability of industrial firms, continued to increase in 2018 as well.
- Credit interest rates increased by 35.9%.
- Turkey's economy contracted by 2.6% in the first quarter of 2019.
- Industrial production started in the second quarter with a decline above expectations. In April, calendar adjusted industrial production index decreased by 4% compared to the same month of the previous year, above market expectations. Although the manufacturing industry PMI realized as 47.9 in June, the highest level of the last 11 months, it remained below the 50-threshold level.
- Real sector confidence index, which was realized as 98.9 in May, rose to 102.5 in June, above the optimism limit of 100.
- The Central Bank Monetary Policy Committee decided to lower the policy rate by 425 basis points, taking into account all factors affecting the inflation outlook.
- Contraction in the automotive market In May, housing sales declined by 16.4% yoy and by 31.3% yoy in May
- The seasonally adjusted unemployment rate was at its highest level since May 2009, at 13.7% in March. The unemployment rate among the young population increased to 25.7%.
- The calendar adjusted industrial production index contracted by 4% in April compared to the same month of the previous year.
- Industrial production decreased by 4.8% compared to the same quarter of the previous year and production decreased in 13 of the 24 sub-sectors in the manufacturing industry. In June 2019, CPI (2003 = 100) increased by 15.72% compared to the same month of the previous year.
- In the first six months of 2019, total exports realized as 83.7 billion dollars, imports 98.6 billion dollars, foreign trade deficit 14.9 billion dollars and the ratio of exports to imports 84.9%

1. ECONOMIC SITUATION

The OECD predicted that Turkey's economy will shrink by 2.6% this year. On the other hand, the World Bank estimated the contraction at 1% level. On the other hand,

Moody's has reduced Turkey's credit rating to B1. (Sources: T. İş Bank and Akbank Economic Publications, Turk Stat)

		2016	2017	2018	2019	Period
GDP	Billion \$	857	851	784	170	Q1
Growth Rate	%	2.9	7.4	2.6	-2.6	Q1
Inflation	%	8.53	11.92	20.30	15.72	June
Producer's Price Index	%	9.94	15.47	33.64	25.04	June
Unemployment	%	12.0	10.7	12.8	13.7	June
Exports	Billion \$	142.6	157	167.9	83.7	June
Imports	Billion \$	198.6	234	223.0	98.6	June
Foreign Trade Balance	Billion \$	-	-77	-55.1	-14.9	June
Exports / Imports	%	71.8	67	75.3	84.9	June
Total Debt Stock	Billion \$	677.6	890.8	1,067.1	1,222.1	
USD / TL	TL	2.9207	3.7916	5.31999	5.7840	June
EURO / TL	TL	3.1867	4.5530	6.0815	6.5898	June

Table 2 : Turkey's Main Economic Indicators

Source: Turk Stat, T. İş Bank and Akbank Economic Publications, Central Bank of Turkey

2.PLASTICS AND PRODUCTS INDUSTRY

2.1. PRODUCTION

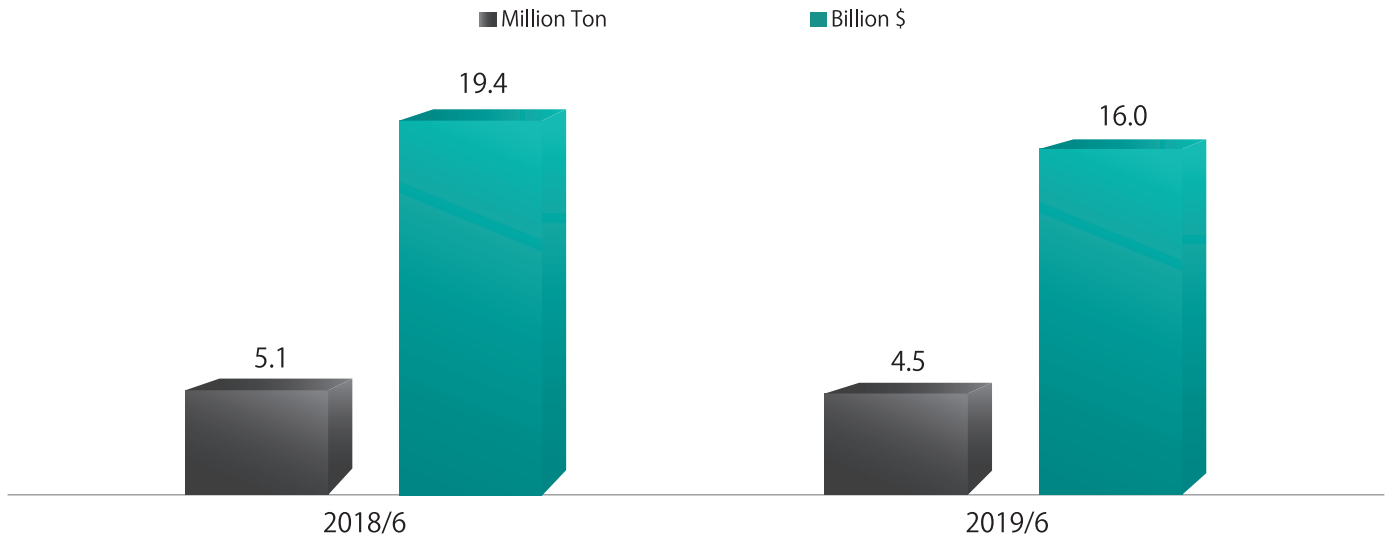
The plastics end product production which was 5 million 52 thousand tons in the first half of 2018, decreased to 4

million 477 thousand tons in the peer period of 2019, decreasing by 11% on amount and 18% on value base.

	2018/6	2018	2019/6	2019/E	% Increase 2019/2018 (6M)	% Increase (E) 2019/2018
1000 Ton	5,052	9,144	4,477	8,955	-11	-2
Million \$	19,375	34,289	15,953	31,907	-18	-7

Table 3: Peer Period Comparison of Plastics End Products Production

Source: Turk Stat and ITC Trade Statistics



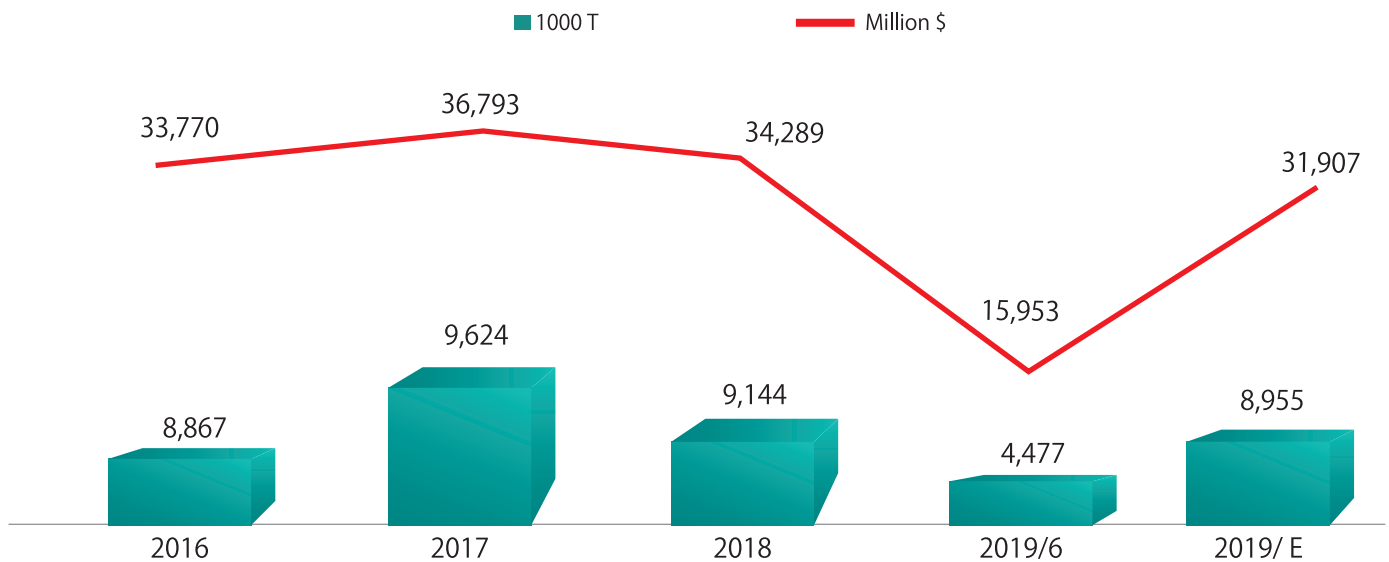
Graphic 1: Peer Period Comparison of Plastics End Product Production

Source: TURK STAT and ITC Trade Statistics

It is estimated that the production of plastic end products will decrease by 2% on amount and 7% on

value basis at the end of 2019 compared to 2018 decreasing to 8.96 million tons and 31.9 billion dollars.

2. PLASTICS AND PRODUCTS INDUSTRY

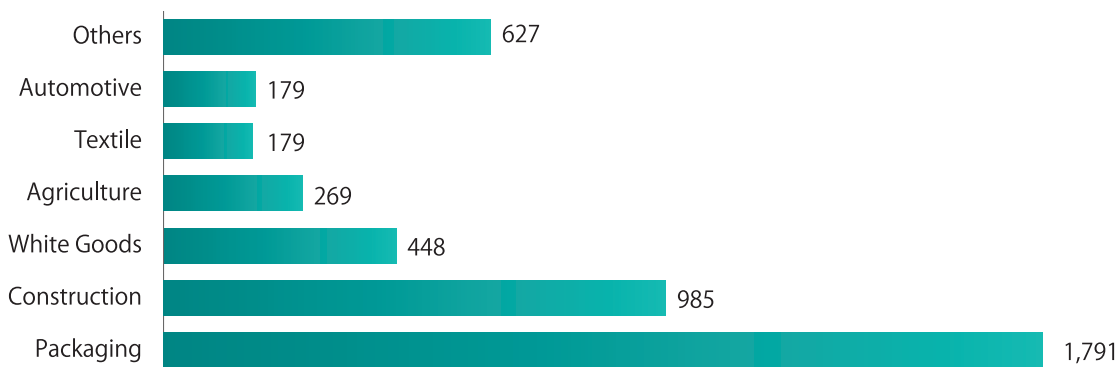


Graphic 2: Plastics End Product Production

Source: Turk Stat and ITC Trade Statistics

In the first 6 months of 2019, plastic packaging materials led the way with approximately 1 million 791

thousand tons in total production of 4.48 million tons, followed by plastic building and construction materials with 985 thousand tons.



Graphic 3: Plastics End Product Production by Subsectors – 2019/6 (1000 Ton)

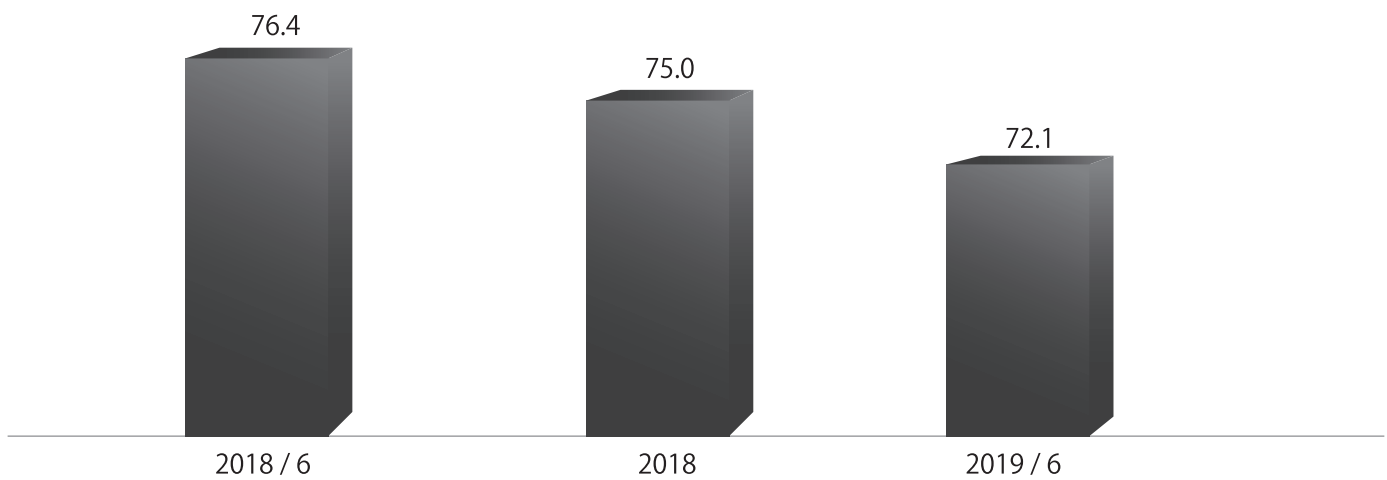
Source: Turk Stat and ITC Trade Statistics

2. PLASTICS AND PRODUCTS INDUSTRY

2.2. CAPACITY UTILIZATION

In the plastics industry, the average capacity utilization was 72.1% in the January - June period of 2019 and

decreased by 4.3 points compared to the peer period of 2018.



Graphic 4: Capacity Utilization in Plastics Industry (%)

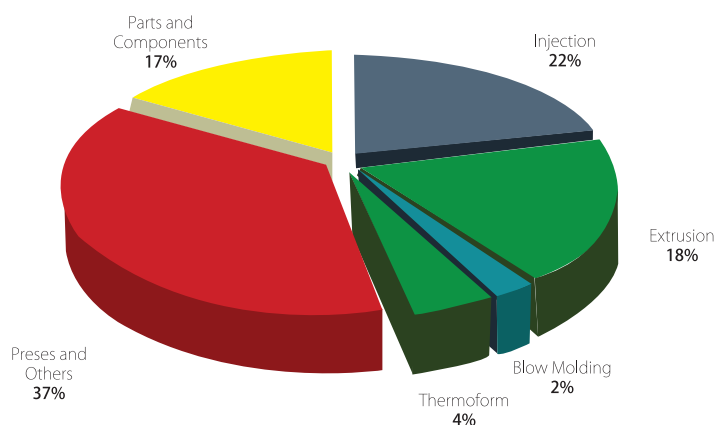
Source: Turk Stat and ITC Trade Statistics

2. PLASTICS AND PRODUCTS INDUSTRY

2.3. MACHINERY INVESTMENTS

In the last 5 years period, covering 2014-2018, an average of 892 million dollars of machinery and equipment investment has been realized in plastics industry, 37% of

total investment is made by presses and other machines, 22% by injection, 18% by extrusion, 4% by thermoform, 2% blow molding and 17% were parts and accessories.



Graphic 5: Breakdown of Machinery Investment in Plastics Industry (2014-2018)

Source: Turk Stat and ITC Trade Statistics

The decline in the plastics production has also adversely affected the plastics processing machinery sector, which supplies machinery and equipment to this sector. As a matter of fact, in the first half of 2019, in the plastics processing machinery sector, production decreased by 20%, imports by 48%, exports by 1% and domestic sales by 42% compared to the same period of 2018.

If the same trend persists in the second half of the year, production is expected to decline by 17%, imports by 45% and exports by 20% by 34% at the end of 2019 compared to 2018.

	2018/6	2018	2019/6	2019/E	% Increase 2019/2018 (6M)	% Increase (E) 2019/2018
Production	286	553	229	457	-20	-17
Import	338	629	174	348	-48	-45
Export	98	242	97	194	-1	-20
Domestic Sales	526	940	306	611	-42	-35

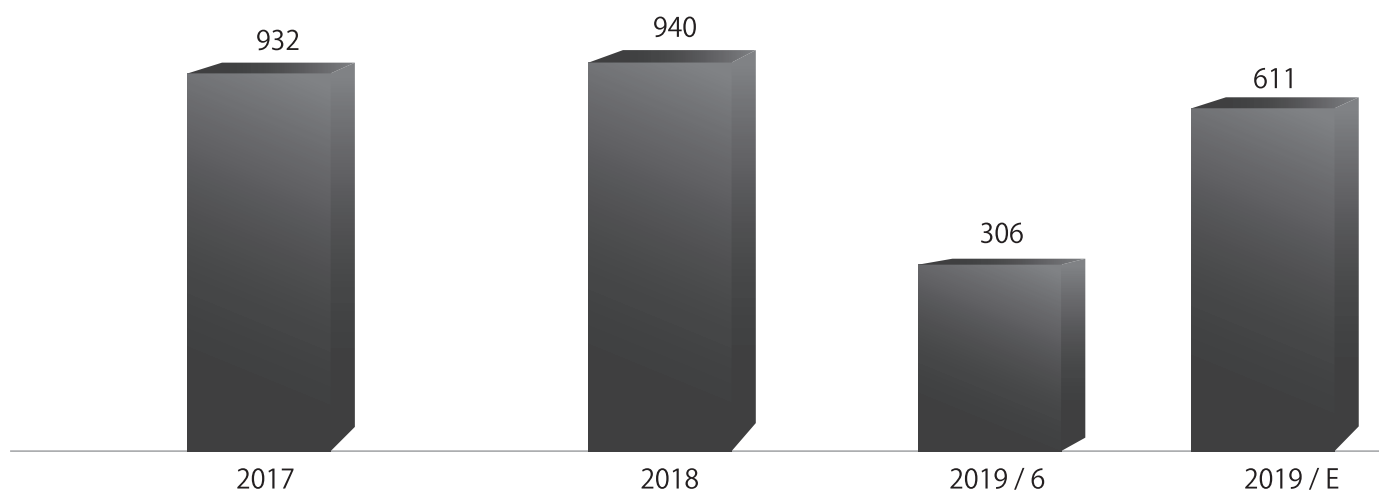
Table 4: Supply and Demand Balance Peer Period Comparison of Plastic Processing Machinery

Source: Turk Stat and ITC Trade Statistics

2.PLASTICS AND PRODUCTS INDUSTRY

Machinery investments in the plastics industry amounted to USD 306 million in January-June period of 2019. With the same trend, it is estimated that the machinery and

equipment investment of the industry will be 611 million dollars at the end of 2019, decreasing by 35% compared to 2018.

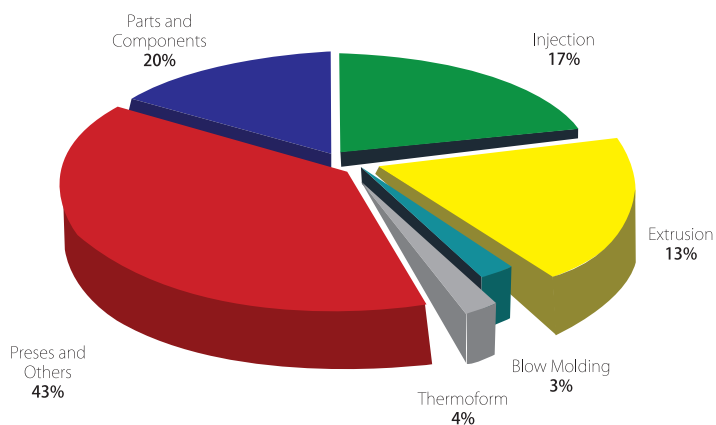


Graphic 6: Machinery and Components Investment of Plastics Industry (Million \$)

Source: Turk Stat and ITC Trade Statistics

In the first six months of 2019, 17% of the total investments of 306 million dollars was made by injection molding, 13% by extrusion, 43% by presses and other

machines and 20% by parts and components. Blow molding machines and thermoforming accounted for 3% and 4% of the total investment, respectively.



Graphic 7: Breakdown of Machinery Investment in Plastics Industry (2019/6)

Source: Turk Stat and ITC Trade Statistics

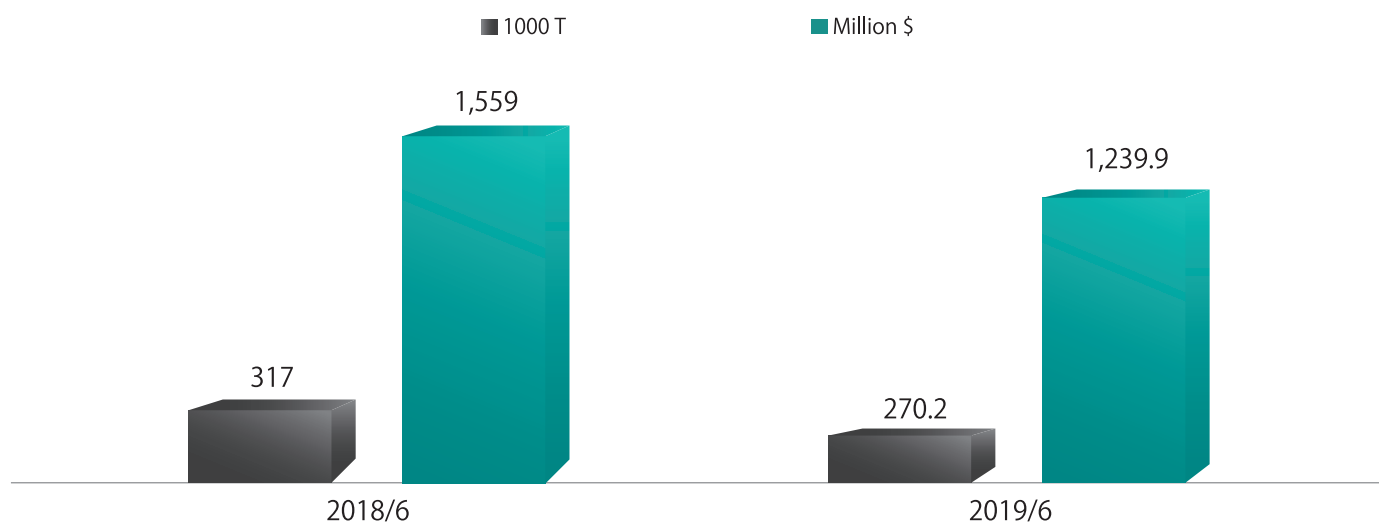
2.PLASTICS AND PRODUCTS INDUSTRY

2.4. FOREIGN TRADE

2.4.1. IMPORTS

In the first 6 months of 2019, 270 thousand tons of plastic end products worth of 1 billion 240 million dollars were imported. Imports of plastic end products decreased by

15% in terms of amount and 20% in terms of value, compared to the peer period of 2018.



Graphic 8: Peer Period comparison of Plastics End Product Imports

Source: Turk Stat and ITC Trade Statistics

With the same trend, it is estimated that the total imports of plastic end products will reach 540 thousand tons and 2

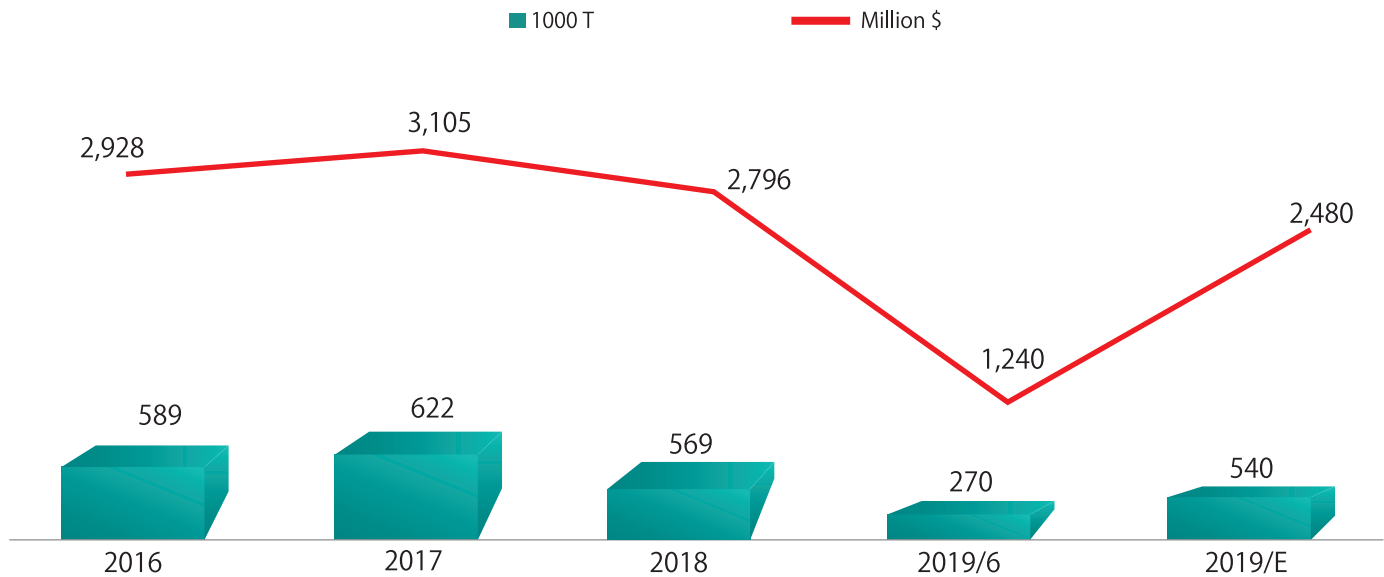
billion 480 million dollars at the end of 2019, decreasing by 5% on amount and 11% on value basis compared to 2018.

	2018/6	2018	2019/6	2019/E	% Increase 2019/2018 (6M)	% Increase (E) 2019/2018
1000 Ton	317	569	270	540	-15	-5
Million \$	1,559	2,796	1,240	2,480	-20	-11

Table 5: Peer Period comparison of Plastics End Products Imports

Source: Turk Stat and ITC Trade Statistics

2.PLASTICS AND PRODUCTS INDUSTRY



Graphic 9: Plastics End Products Imports

Source: Turk Stat and ITC Trade Statistics

In the first 6 months of 2019, the highest imports by amount and value basis were realized in the end product group of 39.20 GTIP (other plates, sheets, pellets, foils and

slides from plastic). The imports of this group accounted for 46% on amount and 30% on value basis of total imports.

HS CODE	PLASTIC PRODUCTS DEFINITIONS	1000 T	% Share MT	Million \$	% Share \$
39.16	Monofilament, bar, profiles from plastic-cross section over 1mm	5	2	21	2
39.17	Tubes, pipes, hoses from plastic; gasket, elbow, union etc.	15	6	117	9
39.18	Floor coverings from plastic – incl. wall and ceiling coverings	8	3	23	2
39.19	adhesive plate, sheet, strip, slide, etc. from plastic; flat	27	10	142	11
39.20	Other plate, sheet, pellicles and slides from plastic	125	46	375	30
39.21	Other plates, sheets, pellicles, foils and slides from plastic	29	11	112	9
39.22	Bathtub, shower, sink, bidet, water-closet pan and hardware from plastic	1	0	9	1
39.23	Plastic products for moving furniture, tap, cap, capsule	27	10	131	11
39.24	Table, kitchen and other household furniture, toiletry form plastic	3	1	18	1
39.25	Construction materials from plastic	2	1	13	1
39.26	Other goods from plastic	27	10	278	22
Total		270	100	1,240	100

Table 6: Plastics End Products Imports by HS Codes (2019/6)

Source: Turk Stat and ITC Trade Statistics

2.PLASTICS AND PRODUCTS INDUSTRY

2.4.2. EXPORTS

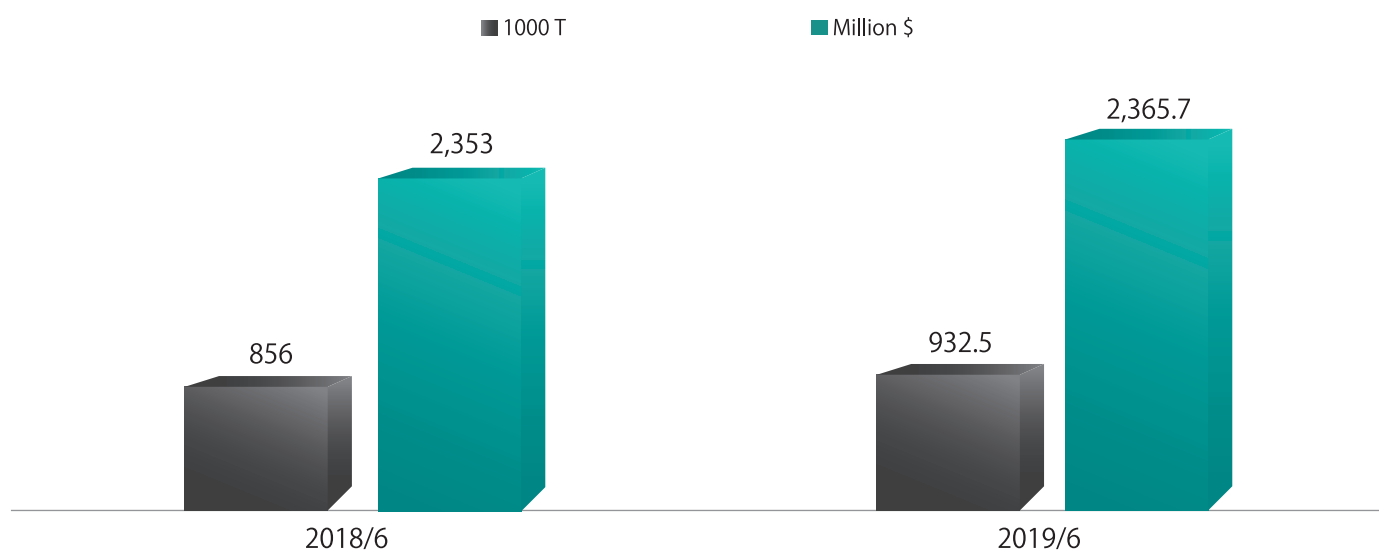
By the end of June 2019, 933 thousand tons and 2 billion 366 million dollars of plastic and products were exported.

Exports increased by 9% on amount and 1% on value basis with respect to the peer period of 2018.

	2018/6	2018	2019/6	2019/E	% Increase 2019/2018 (6M)	% Increase (E) 2019/2018
1000 Ton	856	1,864	933	1,865	9	-
Million \$	2,353	4,823	2,366	4,731	1	-2

Table 7: Peer Period comparison of Plastic End Products Exports

Source: Turk Stat and ITC Trade Statistics



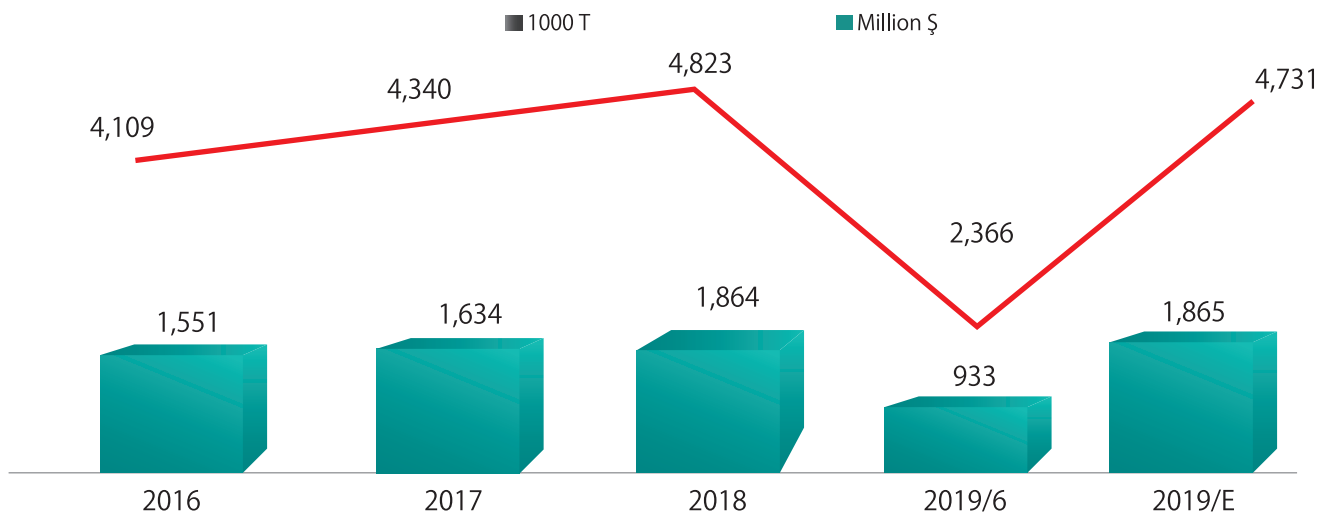
Graphic 10: Peer Period comparison of Plastic End Products Exports

Source: Turk Stat and ITC Trade Statistics

2. PLASTICS AND PRODUCTS INDUSTRY

With the same trend, it is expected that exports of plastic end products will increase to 1 million 865 thousand tons and 4 billion 731 million dollars by the end of the year

decreasing by 2% on value and staying at the same level on amount basis with respect to 2018.



Graphic 11: Plastics End Product Exports

Source: Turk Stat and ITC Trade Statistics

As of the end of June of 2019, the largest exports in terms of quantity and value were 39.20 HS group (other plates, sheets, pellets and slides from plastic) and 39.23 HS group (plastics products, containers, caps, capsules for goods

transport packaging). The total exports of plastic products of these groups are 47% in amount and 44% in value basis.

HS CODE	PLASTIC PRODUCTS DEFINITIONS	1000 T	% Share MT	Million \$	% Share \$
39.16	Monofilament, bar, profiles from plastic-cross section over 1mm	85	9	138	6
39.17	Tubes, pipes, hoses from plastic; gasket, elbow, union etc.	116	12	284	12
39.18	Floor coverings from plastic – incl. wall and ceiling coverings	8	1	14	1
39.19	adhesive plate, sheet, strip, slide, etc. from plastic; flat	10	1	49	2
39.20	Other plate, sheet, pellicles and slides from plastic	226	24	548	23
39.21	Other plates, sheets, pellicles, foils and slides from plastic	78	8	208	9
39.22	Bathtub, shower, sink, bidet, water-closet pan and hardware from plastic	15	2	55	2
39.23	Plastic products for moving furniture, tap, cap, capsule	211	23	508	21
39.24	Table, kitchen and other household furniture, toiletry form plastic	84	9	223	9
39.25	Construction materials from plastic	49	5	120	5
39.26	Other goods from plastic	51	5	219	9
	Total	933	100	2,366	100

Table 8: Exports of Plastics End Products by HS Codes (2019/6)

Source: Turk Stat and ITC Trade Statistics

2. PLASTICS AND PRODUCTS INDUSTRY

2.4.3. IMPORTS AND EXPORTS BY COUNTRIES

Turkey is importing plastics end products from over 100 countries while exporting to more than 200 countries each year.

In the first 6 months of 2019, imports from 10 countries accounted for 65% of total imports on amount and 72% on value basis.

It is seen in this period that, Germany became the country with the highest rate of import of plastic products with a share of 14% on amount and 19% on value basis in total imports of plastic end products, while China became the second largest import market with a share of 25% on amount and 17% on value basis.

Apart from Germany and China, Italy, France and South Korea are the countries where Turkey imports the largest amount of plastic end products.

In the first 6 months of 2019, exports to 10 countries accounted for 51% on amount and 47% on value basis of total exports of plastics end products. In this period, Iraq, Germany, England, Israel and France formed Turkey's biggest export markets for plastic end products.

Imports					Exports				
Countries	1000 T	Million \$	Ton - %	\$ - %	Countries	1000 T	Million \$	Ton - %	\$ - %
Germany	37	232	13.9	18.8	Iraq	112	207	12.0	8.7
China	67	215	24.7	17.3	Germany	47	162	5.0	6.8
Italy	22	110	8.0	8.9	U.K.	59	140	6.3	5.9
France	12	80	4.6	6.4	Israel	60	122	6.5	5.2
S.Korea	12	65	4.4	5.2	France	45	92	4.8	3.9
USA	4	59	1.6	4.8	Romain	28	86	3.0	3.6
U.K.	6	41	2.2	3.3	Italy	35	84	3.7	3.5
Japan	2	32	0.8	2.6	Spain	37	78	3.9	3.3
Belgium	7	31	2.6	2.5	USA	27	77	2.9	3.2
Spain	5	30	1.8	2.5	Libya	30	63	3.2	2.7
10 Countries	174	896	64.5	72.2	10 Countries	479	1,110	51.4	46.9
Others	96	344	35.5	27.8	Others	454	1,256	48.6	53.1
Total	270	1,240	100.0	100.0	Total	933	2,366	100.0	100.0

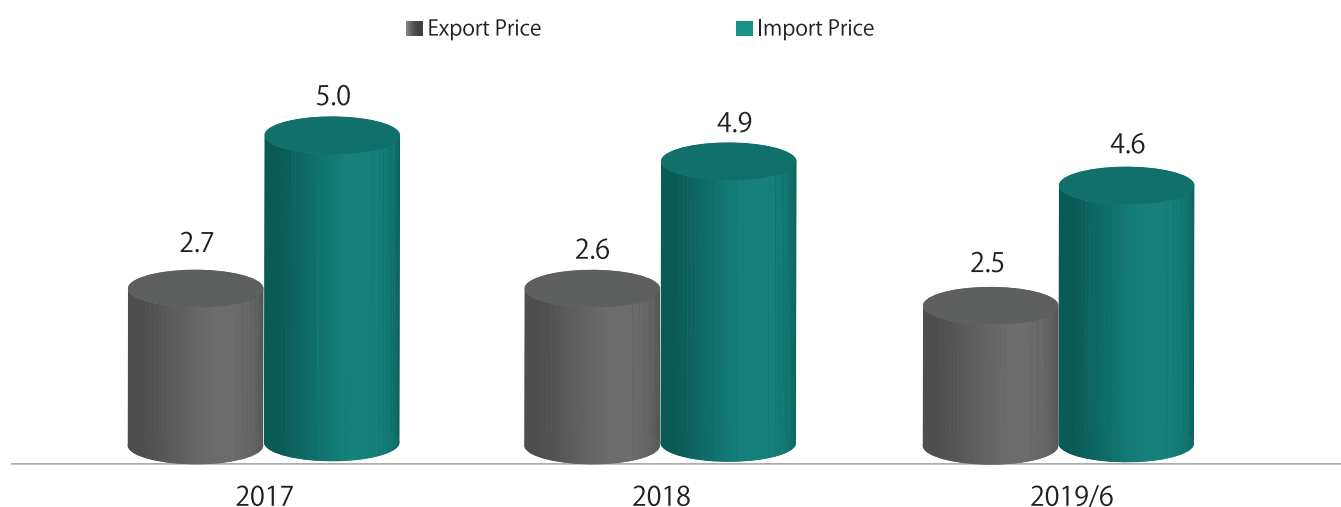
Table 9: Plastic End Products Imports and Exports by Countries (2019/6)

Source: Turk Stat and ITC Trade Statistics

2.PLASTICS AND PRODUCTS INDUSTRY

2.4.4. IMPORT AND EXPORT PRICES

Unit import prices for plastic end products are always above the unit export prices in Turkey.



Graphic 12: Average Unit Foreign Trade Prices for Plastics End Products

Source: Turk Stat and ITC Trade Statistics

As of the end of June 2019, the average import prices of plastic end products were \$ 4.6/kg and the average export prices were \$ 2.5/kg. In this period, average import price

declined 7% and the average export price declined 2% with respect to 2018.

HS CODE	PLASTIC PRODUCTS DEFINITIONS	Import Price			Export Price		
		2018	2019/6	% Increase	2018	2019/6	% Increase
39.16	Monofilament, bar, profiles from plastic-cross section over 1mm	4.53	4.45	-1.8	1.68	1.62	-3.0
39.17	Tubes, pipes, hoses from plastic; gasket, elbow, union etc.	8.25	7.63	-7.5	2.61	2.44	-6.5
39.18	Floor coverings from plastic – incl. wall and ceiling coverings	2.73	2.85	4.4	1.99	1.80	-9.5
39.19	adhesive plate, sheet, strip, slide, etc. from plastic; flat	5.58	5.16	-7.6	5.01	4.88	-2.6
39.20	Other plate, sheet, pellicles and slides from plastic	3.42	3.00	-12.3	2.54	2.42	-4.5
39.21	Other plates, sheets, pellicles, foils and slides from plastic	4.06	3.91	-3.9	2.80	2.65	-5.3
39.22	Bathtub, shower, sink, bidet, water-closet pan and hardware from plastic	6.91	7.03	1.8	3.95	3.76	-4.9
39.23	Plastic products for moving furniture, tap, cap, capsule	4.73	4.84	2.3	2.49	2.40	-3.4
39.24	Table, kitchen and other household furniture, toiletry form plastic	6.80	6.26	-7.9	2.74	2.67	-2.8
39.25	Construction materials from plastic	4.36	5.28	21.2	2.64	2.48	-6.0
39.26	Other goods from plastic	9.95	10.30	3.6	3.04	4.31	42.0
	Average	4.91	4.59	-6.6	2.59	2.54	-1.9

Table 10: Average Unit Foreign Trade Prices for Plastics End Products (USD/Kg)

Source: Turk Stat and ITC Trade Statistics

2.PLASTICS AND PRODUCTS INDUSTRY

2.4.5. FOREIGN TRADE SURPLUS

Turkey always gives foreign trade surplus in plastic end products foreign trade. In the first 6 months of 2019, 662 thousand tons and 1 billion 126 million dollars of

foreign trade surplus were obtained, increasing by 23% on amount and 42% on value basis with respect to 2018.

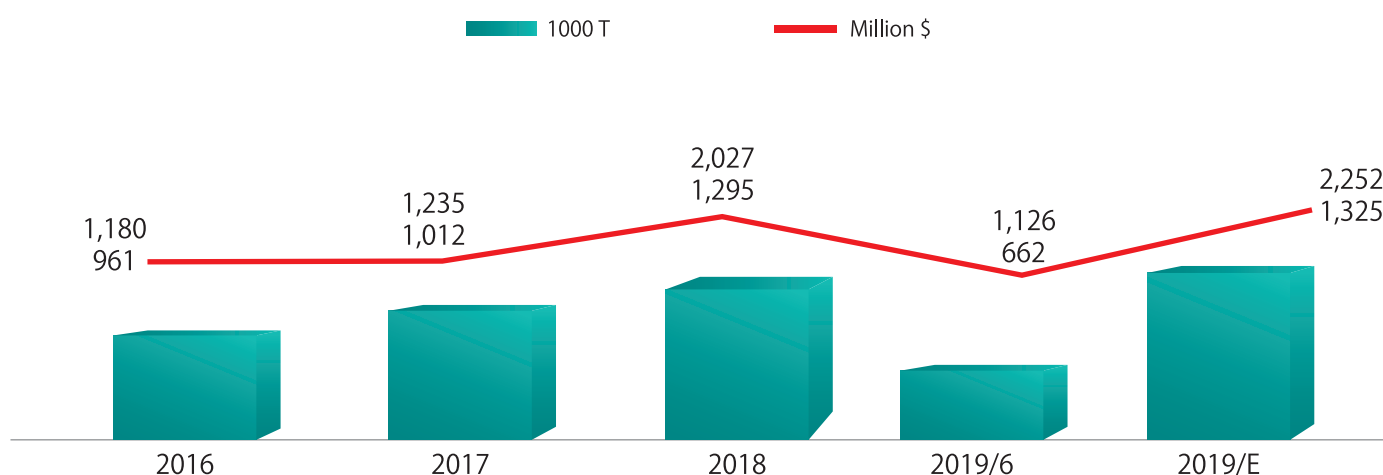
	2018/6	2018	2019/6	2019/E	% Increase 2019/2018 (6M)	% Increase 2019/2018 (E)
1000 Ton	539	1,295	662	1,325	23	2
Million \$	794	2,027	1,126	2,252	42	11

Table 11: Peer Period Comparison of Foreign Trade Equilibrium in Plastics End Products

Source: Turk Stat and ITC Trade Statistics

If the same trend continues, the foreign trade surplus of plastic products is expected to increase by 2% on amount and 11% on value basis in 2019, compared to

2018 and to be realized as 1 million 325 thousand tons and 2 billion 252 million dollars.



Graphic 13: Foreign Trade Surplus of Plastics End Products

Source: Turk Stat and ITC Trade Statistics

2. PLASTICS AND PRODUCTS INDUSTRY

2.5. DOMESTIC CONSUMPTION

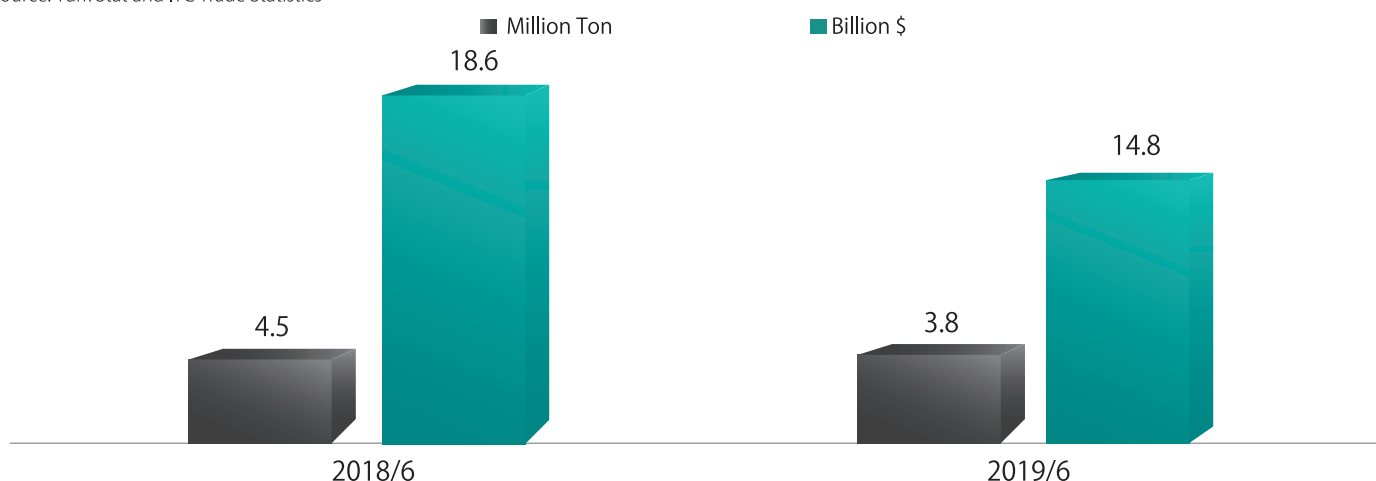
In the first 6 months of 2019, domestic consumption of 3 million 815 thousand tons and 14 billion 828 million dollars was realized in the plastic end products industry,

decreasing by 15% on amount and 20% on value basis compared to the peer period of 2018.

	2018/6	2018	2019/6	2019/E	% Increase 2019/2018 (6M)	% Increase 2019/2018 (E)
1000 Ton	4,513	7,849	3,815	7,630	-15	-3
Million \$	18,581	32,262	14,828	29,655	-20	-8

Table 12: Peer Period Comparison of Domestic Consumption for Plastics End Products

Source: Turk Stat and ITC Trade Statistics

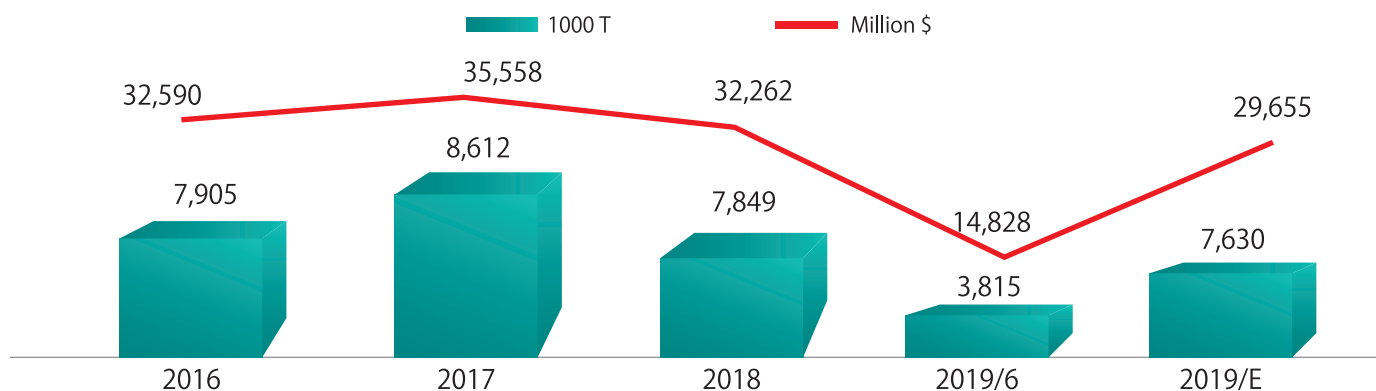


Graphic 14: Peer Period Comparison of Domestic Consumption for Plastics End Products

Source: Turk Stat and ITC Trade Statistics

If the same trend continues, the domestic market consumption of plastic end products is expected to decrease by 3% on amount and 8% on value basis in

2019 compared to 2018 and to reach to 7 million 630 thousand tons and 29 billion 655 million dollars at the end of the year.



Graphic 15: Plastics End Products Domestic Consumption

Source: Turk Stat & ITC Trade Statistics

2.PLASTICS AND PRODUCTS INDUSTRY

In the first 6 months of 2019, approximately 1.9 million tons of total domestic consumption has been exported indirectly by the exporting industries channels such as

automotive, packaging, construction and electronics as finished and semi-finished products. The remaining 1.9 million tons were consumed directly by the consumer.

2.6. SUPPLY AND DEMAND

The share of exports in production in the first 6 months of 2019 was 21% on amount basis in the plastic end

products industry and the share of imports in domestic consumption was 7%.

	2018/6	2018	2019/6	2019/E	% Increase 2019/2018 (6M)	% Increase 2019/2018 (E)
Production	5,052	9,144	4,477	8,955	-11	-2
Imports	317	569	270	540	-15	-5
Exports	856	1,864	933	1,865	9	0
Domestic Consumption	4,513	7,849	3,815	7,630	-15	-3
Foreign Trade Surplus	539	1,295	662	1,325	23	2
Exports / Production (%)	17	20	21	21		
Imports / Domestic Consumption (%)	7	7	7	7		

Table 13: Supply and Demand in Plastics End Products Industry (1000 Ton)

Source: Turk Stat and ITC Trade Statistics

In the first 6 months of 2019, on value basis, the share of exports in production rose up to 15% and the share of imports in domestic consumption was 8%.

	2018/6	2018	2019/6	2019/E	% Increase 2019/2018 (6M)	% Increase 2019/2018 (E)
Production	19,375	34,289	15,953	31,907	-18	-7
Imports	1,559	2,796	1,240	2,480	-20	-11
Exports	2,353	4,823	2,366	4,731	1	-2
Domestic Consumption	18,581	32,262	14,828	29,655	-20	-8
Foreign Trade Surplus	794	2,027	1,126	2,252	42	11
Exports / Production (%)	12	14	15	15		
Imports / Domestic Consumption (%)	8	9	8	9		

Table 14: Supply and Demand in Plastics End Products Industry (Million \$)

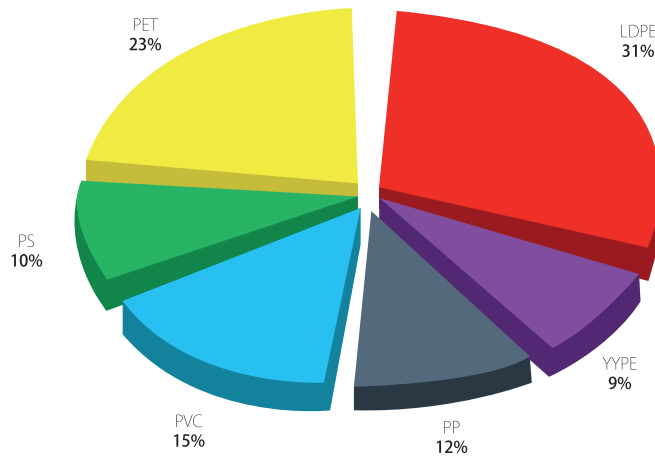
Source: Turk Stat and ITC Trade Statistics

3. PLASTICS RAW MATERIALS INDUSTRY

3.1. PRODUCTION

It is estimated that, in the first 6 months of 2019, the plastics raw materials production realized as 507 thousand tons. In this period, 31% of the total plastic raw materials was LDPE,

9% was HDPE, 15% was PVC, 12% was PP, 10% was PS and 23% was PET.



Graphic 16: Plastics Raw Materials Production (2019/6)

Source : Petkim and Other Producers

3.2. FOREIGN TRADE

3.2.1. IMPORTS

In the first 6 months of 2019, 3 million 499 thousand tons and 4 billion 695 thousand dollars of plastic raw materials were imported. Imports of plastic raw materials

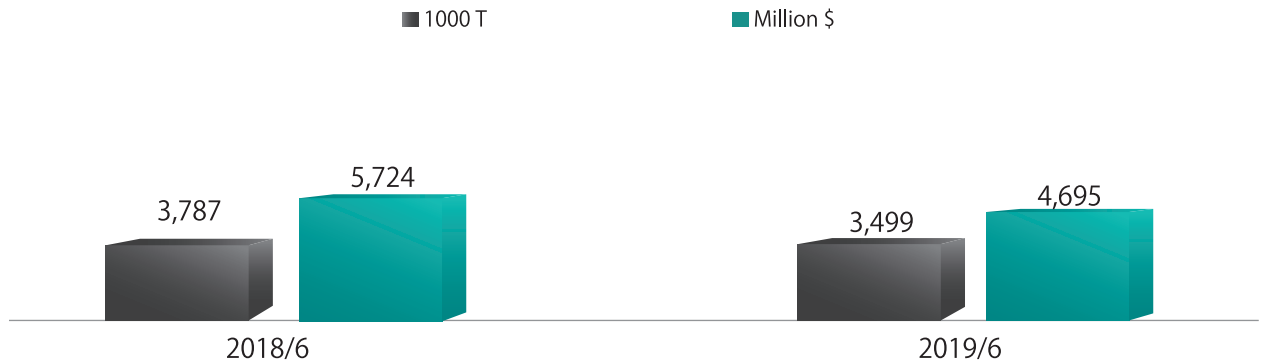
decreased by 7.7% in terms of amount and 18% in terms of value, compared to the peer period of 2018.

	2018/6	2019/6	% Increase
Import (1000 Ton)	3,787	3,499	-7.6
Import (Million \$)	5,724	4,695	-18.0

Table 15 : Plastic Raw Materials Imports Peer Period Comparison

Source: Turk Stat and ITC Trade Statistics

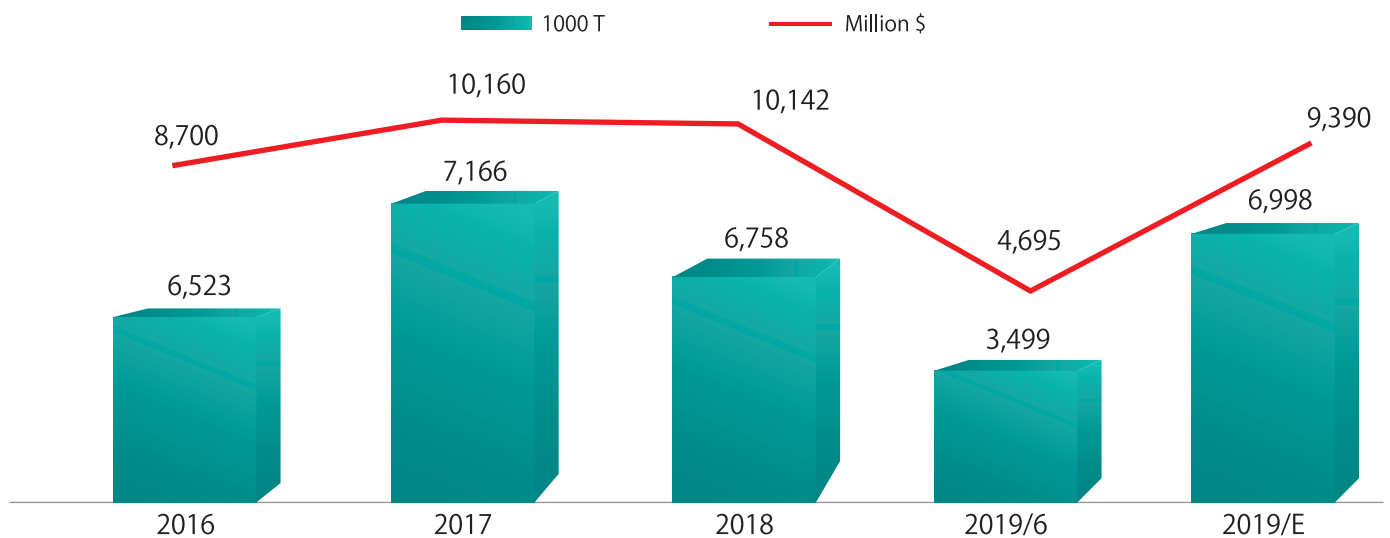
3. PLASTICS RAW MATERIALS INDUSTRY



Graphic 17: Plastic Raw Materials Imports Peer Period Comparison

Source: Turk Stat and ITC Trade Statistics

If the same trend continues in next half period, it is estimated that plastic raw material imports will be 7 million tons and 9,4 billion dollars at the end of 2019.



Graphic 18: Plastics Raw Materials Imports

Source: Turk Stat and ITC Trade Statistics

3. PLASTICS RAW MATERIALS INDUSTRY

By the end of June 2019, the highest imports on amount basis were polyethylene and polypropylene. The imports of these two raw materials have received a 56% share of

total plastic raw material imports on amount 52% on value basis.

HS CODE	CN Description	1000 T	MT - %	Million \$	\$ -%
39.01	Ethylene polymers (initial forms)	801	23	969	21
39.02	Propylene and polymers of other olefins (initial forms)	1,101	31	1,449	31
39.03	Styrene polymers (initial forms)	229	7	339	7
39.04	Other olefin polymers with vinyl chloride/homogenous	353	10	346	7
39.05	Vinyl acetate/polymers of other vinyl esters (initial forms)	22	1	49	1
39.06	Acrylic polymers (initial forms)	117	3	204	4
39.07	Polyacetals, other polyethers, epoxide-alkyd resins (initial forms)	411	12	706	15
39.08	Polyamides (initial forms)	47	1	149	3
39.09	Amino resins, phenolic resins, polyurethanes (initial forms)	109	3	216	5
39.10	Silicones (initial forms)	17	0	74	2
39.11	Petroleum resins, coumarone, indene/coumarone-indene resin, polyterpenes	18	1	51	1
39.12	Cellulose and chemical derivatives (initial form)	19	1	72	2
39.13	Natural polymers, modified natural polymers, derivatives (initial forms)	2	0	13	0
39.14	Polymer based ion exchangers (initial form)	3	0	6	0
39.15	Wastes, residuals and scraps from plastic	251	7	51	1
	Total	3,499	100	4,695	100

Table 16: Plastics Raw Materials Imports by HS Codes (2019/6)

Source: Turk Stat and ITC Trade Statistics

3.2.2. EXPORTS

In the first 6 months of 2019, 494 thousand tons and 651 million dollars of plastic raw materials were exported. Export of plastic raw materials increased by 11.7% in terms

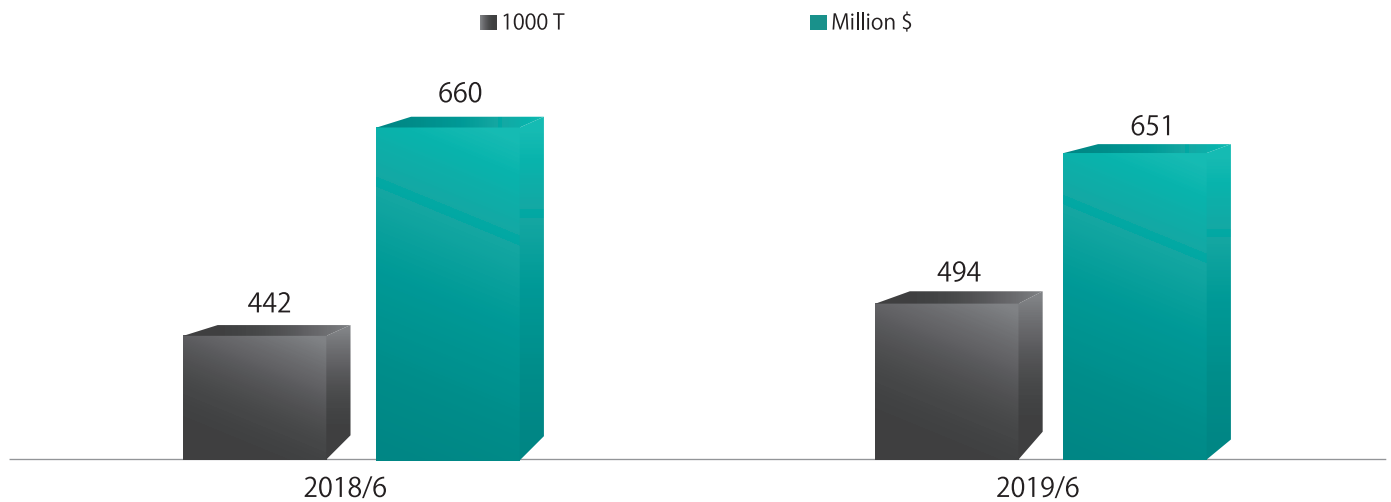
of amount and decreased by 1.3% in terms of value, compared to the peer period of 2018.

	2018/6	2019/6	% Increase
Export (1000 Ton)	442	494	11,7
Export (Million \$)	660	651	-1.3

Table 17: Plastic Raw Materials Exports Peer Period Comparison

Source: Turk Stat and ITC Trade Statistics

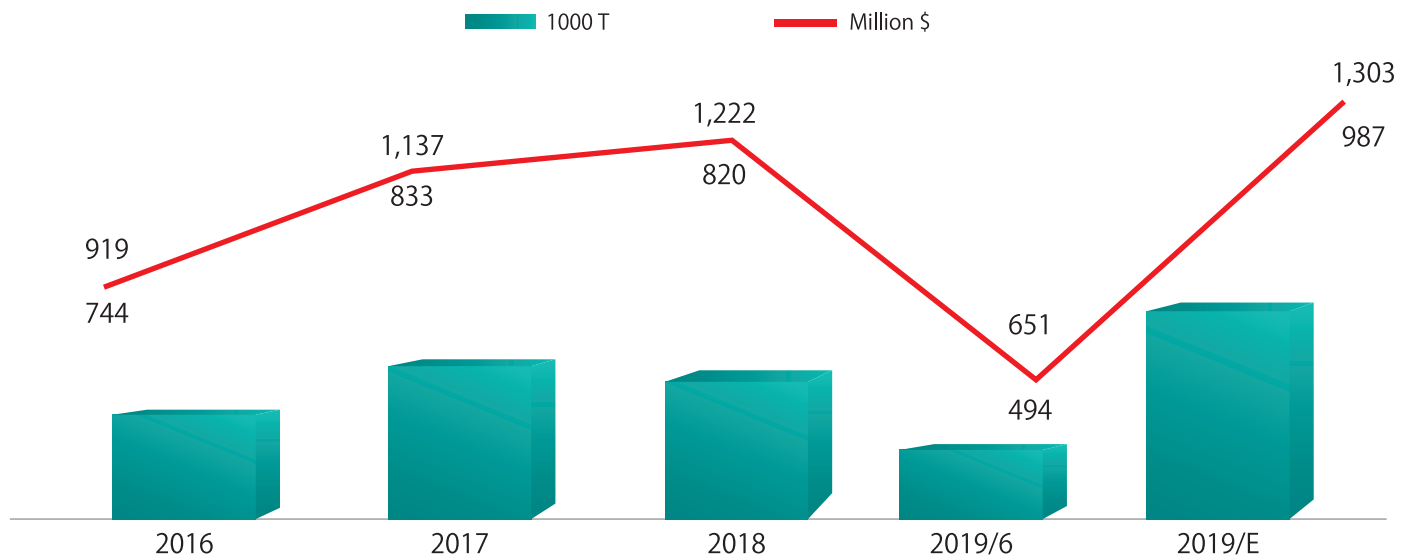
3. PLASTICS RAW MATERIALS INDUSTRY



Graphic 19: Plastic Raw Materials Exports Peer Period Comparison

Source: Turk Stat and ITC Trade Statistics

By the same trend, it is estimated that exports will increase up to 987 thousand tons and 1 billion 303 million dollars by the end of 2019.



Graphic 20: Plastics Raw Materials Exports

Source: Turk Stat and ITC Trade Statistics

Acrylic polymers and polyacetals, which are in the 39.06 and 39.07 HS groups, have the biggest shares in total exports on amount and value basis in the first 6 months

of 2019. The total share of these plastic raw materials realized as 50% on amount and 55% on value basis.

3. PLASTICS RAW MATERIALS INDUSTRY

HS CODE	DESCRIPTION	1000 T	MT - %	Million \$	\$ -%
39.01	Ethylene polymers (initial forms)	31	6	29	4
39.02	Propylene and polymers of other olefins (initial forms)	17	3	20	3
39.03	Styrene polymers (initial forms)	45	9	53	8
39.04	Other olefin polymers with vinyl chloride/homogenous	12	2	15	2
39.05	Vinyl acetate/polymers of other vinyl esters (initial forms)	34	7	29	4
39.06	Acrylic polymers (initial forms)	119	24	135	21
39.07	Polyacetals, other polyethers, epoxide-alkyd resins (initial forms)	128	26	223	34
39.08	Polyamides (initial forms)	8	2	20	3
39.09	Amino resins, phenolic resins, polyurethanes (initial forms)	63	13	71	11
39.10	Silicones (initial forms)	3	1	12	2
39.11	Petroleum resins, coumarone, indene/coumarone-indene resin, polyterpenes	1	0	3	0
39.12	Cellulose and chemical derivatives (initial form)	26	5	35	5
39.13	Natural polymers, modified natural polymers, derivatives (initial forms)	0	0	1	0
39.14	Polymer based ion exchangers (initial form)	0	0	0	0
39.15	Wastes, residuals and scraps from plastic	7	1	6	1
	Total	494	100	651	100

Table 18: Plastics Raw Materials Exports by HS Codes (2019/6)

Source: Turk Stat and ITC Trade Statistics

3.2.3. EXPORTS AND IMPORTS BY COUNTRIES

Turkey imports plastics raw materials from over 100 countries while exports to more than 100 countries each year.

In the first 6 months of 2019, Turkey's imports from 10 countries shared 65% on amount and 67% on value basis. In this period, Saudi Arabia, S. Korea and Germany took the first three places in total plastic raw material imports and the share of these 3 countries in total plastic raw material imports was 35% on amount and 36% on value basis.

Turkey is exporting plastic raw materials to more than 100 countries and 10 countries have received 45% share of total exports on amount and 49% on value basis in the first half of 2019. In this period Germany, Egypt and Iran were the top 3 countries in plastic raw material exports of Turkey. Total share of these export markets realized as 18% on amount and 20% on value basis.

3. PLASTICS RAW MATERIALS INDUSTRY

Imports					Exports				
Countries	1000 T	Million \$	Ton - %	\$ - %	Countries	1000 T	Million \$	Ton - %	\$ - %
S.Arabia	592	714	16.9	15.2	Germany	38	58	7.7	8.9
S.Korea	373	536	10.7	11.4	Egypt	37	39	7.5	6.1
Germany	231	433	6.6	9.2	Iran	16	36	3.2	5.6
Belgium	215	303	6.1	6.4	Russian Fed.	17	34	3.5	5.2
USA	191	229	5.5	4.9	Romain	33	29	6.7	4.4
Egypt	164	199	4.7	4.2	Italy	18	26	3.5	3.9
Netherlands	129	195	3.7	4.2	Algeria	18	26	3.6	3.9
Spain	130	191	3.7	4.1	Uzbekistan	13	24	2.5	3.7
France	132	185	3.8	3.9	Iraq	17	24	3.4	3.7
Italy	99	180	2.8	3.8	Spain	15	22	3.0	3.3
10 Countries	2,256	3,164	64.5	67.4	10 Countries	221	317	44.7	48.6
Others	1,244	1,531	35.5	32.6	Others	273	335	55.3	51.4
Total	3,499	4,695	100.0	1000.0	Total	494	651	100.0	100.0

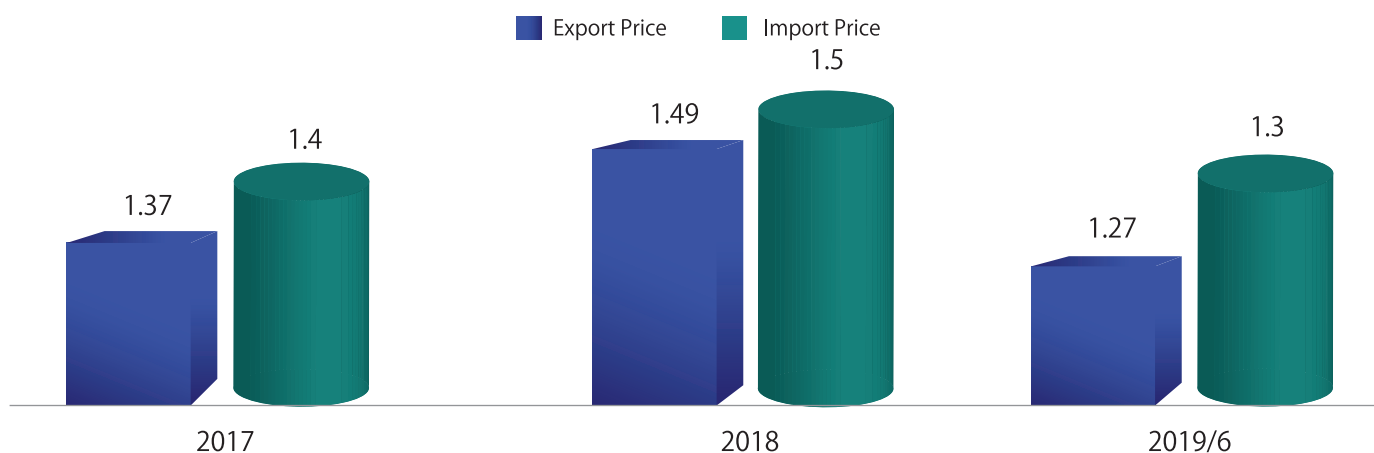
Table 19: Plastics Raw Materials Imports and Exports by Countries (2019/6)

Source: Turk Stat and ITC Trade Statistics

3.2.4. IMPORT AND EXPORT PRICES

In the first half of 2019, the average unit import price of plastic raw materials realized as 1.3 \$/Kg and the average unit export price was 1.27 \$/kg. The import price

decreased by 11% and export price by 15% compared to 2018.



Graphic 21: Plastics Raw Materials Average Foreign Trade Prices (USD/Kg)

Source: Turk Stat and ITC Trade Statistics

3. PLASTICS RAW MATERIALS INDUSTRY

HS CODE	Import Prices			Export Prices		
	2018	2019/6	% Increase	2018	2019/6	% Increase
39.01	1.36	1.21	-10.8	1.17	0.93	-20.5
39.02	1.42	1.32	-7.0	1.32	1.17	-11.6
39.03	1.77	1.48	-16.4	1.49	1.17	-21.1
39.04	1.02	0.98	-4.0	1.10	1.29	17.6
39.05	2.55	2.21	-13.2	0.96	0.85	-11.3
39.06	1.86	1.75	-5.6	1.23	1.14	-7.7
39.07	1.94	1.72	-11.3	1.92	1.75	-8.7
39.08	3.10	3.17	2.5	2.41	2.43	1.0
39.09	2.64	1.98	-25.0	1.41	1.14	-19.1
39.10	4.75	4.27	-10.2	4.07	3.72	-8.7
39.11	3.00	2.85	-4.7	3.10	3.17	2.4
39.12	3.99	3.84	-3.8	1.30	1.31	1.4
39.13	7.13	7.35	3.0	4.66	6.25	34.3
39.14	2.58	2.27	-11.9	2.52	2.55	1.0
39.15	0.27	0.20	-23.7	1.11	0.85	-23.3
Average	1.50	1.34	-10.6	1.49	1.32	14.5

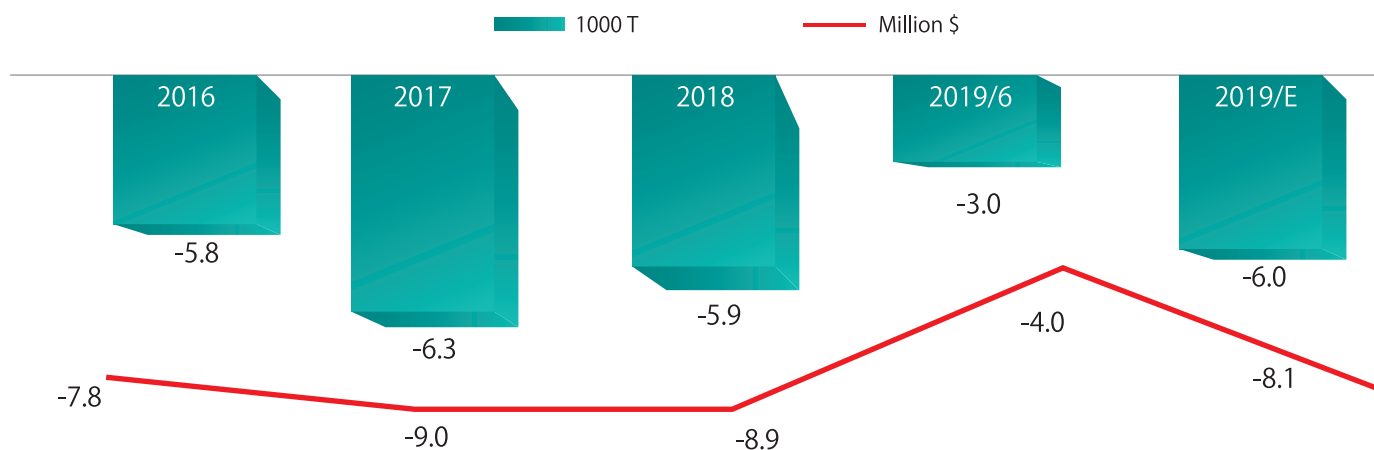
Table 20: Plastics Raw Materials Average Import and Exports Prices by HS Codes (USD/Kg)

Source: Turk Stat and ITC Trade Statistics

3.2.5. FOREIGN TRADE DEFICIT

Turkey is a country that gives deficit in plastics raw materials foreign trade. In the first half of 2019, the plastic raw material foreign trade deficit realized as 3 million tonnes and 4 billion dollars.

It is estimated that plastic raw materials foreign trade deficit will be 6 million tons and 8.1 billion dollars by the end of 2019 if the same trend continuous in the next months of the year.



Graphic 22: Plastics Raw Materials Foreign Trade Deficit

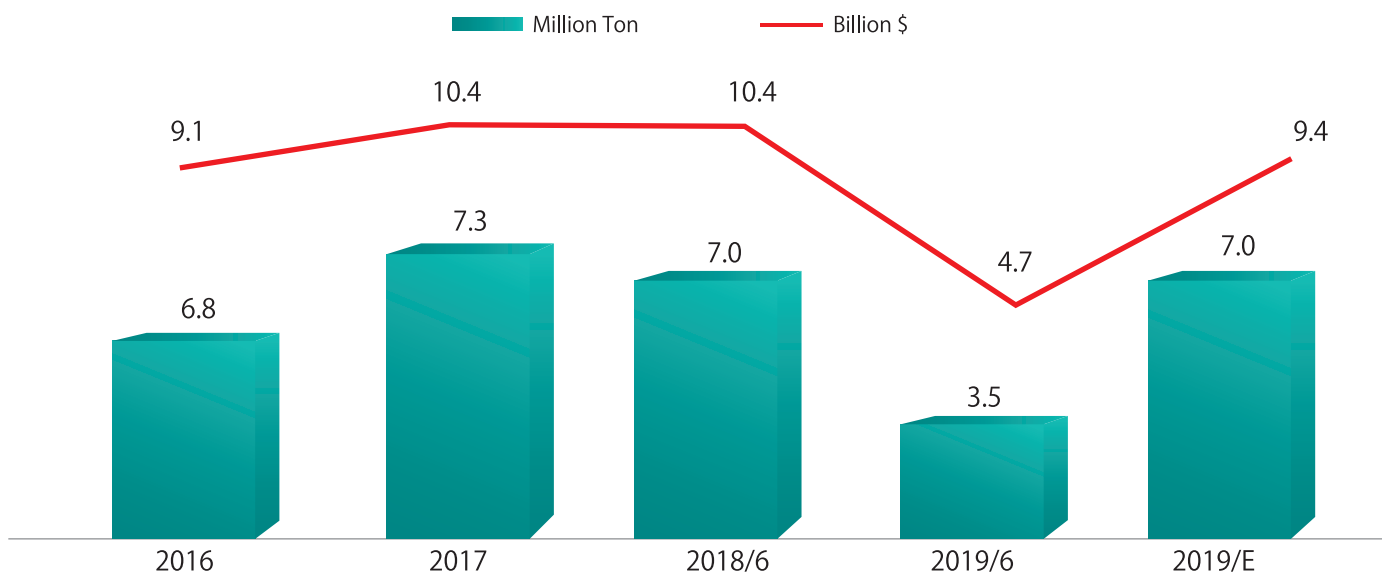
Source: Turk Stat and ITC Trade Statistics

3. PLASTICS RAW MATERIALS INDUSTRY

3.3 DOMESTIC CONSUMPTION

In the first half of 2019, domestic consumption of plastic raw materials was 3.5 million tons and 4.7 billion dollars and it is expected to increase to 7 million tons and 9.4

billion dollars at the end of the year. The same trend continues in the next months of the year.



Graphic 23: Plastics Raw Materials Domestic Consumption

Source: Turk Stat and ITC Trade Statistics

3.4. SUPPLY AND DEMAND EQUILIBRIUM AND 2017 ESTIMATES

In the first 6 months of 2019, plastic raw material imports decreased by 8%, domestic consumption decreased by 9%, foreign trade deficit decreased by 10% and exports increased by 12% compared to the same period of 2018. Parallel to the expectations of the increase in the plastic product sector in 2019, it is estimated that the imports

of plastic raw materials will increase to 6.9 million tons, exports to 987 thousand tons and domestic consumption to 7 million tons in 2019. The share of imports in total supply is expected to remain at 87%.

	2018/6	2018	2019/6	2019/E	% Increase 2019/2018 (6M)	% Increase 2019/2018 (E)
Production	507	1,014	507	1,014	0	0
Imports	3,787	6,758	3,499	6,998	-8	4
Exports	442	820	494	987	12	20
Domestic Consumption	3,852	6,952	3,512	7,025	-9	1
Foreign Trade Surplus	-3,345	-5,938	-3,005	-6,011	-10	1

Table 21: Supply and Demand Equilibrium in Plastics Raw Materials (1000 Ton)

Source: Turk Stat and ITC Trade Statistics



4. CONCLUSION

The important thing is to produce high value-added raw materials in Turkey. Taxes that Turkey pays when importing raw materials purchased by everyone, such as polypropylene and polyethylene that the industry can not meet the domestic demand, negatively affect Turkey's competition. It is known that when we eliminate these negativities, the added value that Turkey's industry provides to the economy will increase even more.

Negative developments in Turkish and the world economy, makes it difficult to compete with the standstill or even declining sales prices and narrow profit margins.

The most important problem of the industry that it can't provide sufficient added value. There are mainly two ways to provide higher value-added production and exports. To produce innovative high value-added products or to increase profit margins by reducing costs without compromising quality. To enhance production and export opportunities in a competitive global market without compromising on quality, the industry must produce environmentally friendly at EU standards.

The companies which can't compete with the change in prices due to increasing global competition, must issue the "Costs of the Competition" to the forefront, to increase profitability. To create a successful competition that makes the difference in cost, it is necessary to implement changes in the changing world beyond the known method of saving techniques.

The work needed for the production of advanced plastic center will facilitate Turkey's lives should be made. The traditional production model that does not provide added value in the industry should be transformed into the production of advanced plastics.

Despite the fact that only 13% of the raw material needs are covered by domestic production, the sector is deprived of the raw material supply facilities with high import prices and tax rates for the protection of domestic production at more economical prices. This reduces competitive export opportunities of sectors in global markets for the protection of the domestic raw material producer. Local producers should be protected by applying incentives to reduce production and investment costs instead of putting taxes on imports of raw materials. If the production of plastic raw materials cannot meet the need, importing obstacles must be removed. The plastic sector should be included in strategic investments regardless of foreign trade data and the minimum investment amount should be determined as 5 million dollars.

Since it is more rational to operate locally in the production of plastic products, the plastic industry should be supported in at least one province in each region. Necessary measures should be taken for the recruitment of qualified personnel in the industry.

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