

## INDUSTRY



### MANUFACTURING INDUSTRY

The factors which give competitive strength to the Turkish manufacturing industry are the abundance of natural resources, its geographical proximity to the export markets, developments in infrastructure and telecommunications systems, the existence of young and trained human resources, a large domestic market and the liberal economic policies in force.

The manufacturing industry has sustained an annual average growth rate of 6% since 1990 up to 1998. In crises years of 1999 and 2001 manu-

facturing industry growth rate declined down to -5.7% and -9.9% respectively. In 2002 economy recovered and manufacturing industry growth rates reached to 9.1% in 2002, to 7.8% in 2003, to 9.4% in 2004 and 6.5 % in 2005.

Regarding their contribution to GDP, the major manufacturing industry sectors are textiles and clothing, food products, chemicals, machinery, iron and steel, motor vehicles, rubber and plastics, ceramics, cement and glass.

In 2005 the industry exports reached US\$ 60 billion with a share of 82 % in total exports. The main export sectors were clothing and textiles, automotive and parts, electrical machinery, iron and steel, food products, chemicals, rubber articles, plastic articles, gold jewellery, ceramics, glass and furniture.

Industry imports reached US\$ 77.6 billion with a share of 67 % in total imports in 2005. The major import articles were machinery, chemicals, motor vehicles, textiles, electronics, food products, rubber and plastics, medical, measurement and optical instruments and paper products.



## Automotive and Autoparts Industries

Vehicle industry production in Turkey dates back to the mid-1950s and the industry gained momentum in the early 1960s. By 1955 trucks, and by 1963 buses were being assembled in Turkey. Then passenger car assembly companies, namely TOFAS (FIAT), OYAK (RENAULT) and OTOSAN (FORD) started operations in the following three years. In 1966 the industry also began to assemble its own cars (OTOSAN). The Turkish-made passenger car of those times "ANADOL" is nostalgia now. The two major producers of cars, TOFAS and OYAK-RENAULT, under Italian and French licenses respectively, established their production lines in 1971. Recently Japanese and South Korean car manufacturers have established joint-ventures in Turkey. In 1999, Turkish truck manufacturer BMC began to export its own design trucks to the United Kingdom, Spain and Portugal. BMC also signed an agreement with Iran for delivering buses and trucks to Iran. As to passenger cars and small commercial vehicles, Turkish manufacturers are becoming world production centers of huge global producers whom they have licence agreements with. Today 15 companies are manufacturing various types of vehicles such as passenger cars, buses, trucks, pickups, mini and midibuses and trailers. Five companies are producing passenger cars (RENAULT, TOFAS (FIAT), TOYOTA, HYUNDAI, HONDA). Nine companies are producing pickups and trucks (ANADOLU ISUZU, BMC, ASKAM, M.A.N., MERCEDES-BENZ, FORD OTOSAN, OTOYOL, TEMSA, TOFAS). Ten companies are producing buses and mini buses (ISUZU, BMC, KARSAN, MERCEDES-BENZ, HYUNDAI, OTOKAR, FORD OTOSAN, OTOYOL, TEMSA, M.A.N.) The Turkish vehicle industry has a total capacity of 1,083,705 vehicles, of which 776,000 is for passenger cars. The total vehicle production in 2005 was 914,359 units which is record for



Turkish automotive industry. The main automotive industry exports were US\$ 7.86 billion in 2005. The automotive industry employs 27,088 people and 131 companies are active in this sector. In 2005, 565,312 vehicles were exported out of a total production of 914,359. Exports were about 61% of production. Turkey exported 337,702 passenger cars, 11,112 buses and 201,569 trucks and LCV's in 2005. The export va-



lue of passenger cars, trucks and buses were US\$ 4.3 billion, US\$ 2.4 billion and US\$ 726 million, respectively. The main export markets for the automotive industry were Italy, France, the United Kingdom, Germany, Spain, Romania, the Russian Federation, Slovenia and the Netherlands. In 2005, 71% of automotive industry exports in value were delivered to EU Countries.



In line with the growing automotive industry, the Turkish autoparts sector has developed rapidly. The Turkish autoparts industry, with its large capacity, wide variety of production and comparatively high standards, supports automotive industry production and the vehicles in Turkey (approximately 11 million vehicles) and also has ample potential for exports. The production value of the autoparts industry was above US\$ 5.3 billion in 2004. The autoparts industry employs 70,157 people and 28,794 companies produce various kinds of autoparts. Turkey's autoparts industry exports are increasing significantly with the focus on replacement components. In 2005 the value of autoparts industry exports was US\$ 3.72 billion. The main autoparts products exported are engine parts, tyres and tubes, road wheels and parts, accessories for bodies, rubber parts

for motor vehicles, transmission shafts and cranks, brakes and servo brakes, seats for motor vehicles and clutches and clutch parts. In fact, Turkey exports many cars, buses and trucks in parts. In terms of breakdown of autoparts exports by province, Bursa, İstanbul, Kocaeli and İzmir have the major share. Number of exporter companies in autoparts industry is above 2400. Turkish autoparts products are destined for a wide range of countries in the world. The main export markets are Germany, Italy, France, the United Kingdom, Poland, Belgium, the United States, Spain, Iran, Romania, the Russian Federation, Austria, Egypt and Iraq. In 2005 about 65% of autoparts exports were directed to the EU Countries. Turkish autoparts exporters follow European and international standards and norms.

### Machinery Industry

Turkey has achieved remarkable success in industrialization and this is considered to be the fundamental factor in Turkey's development.

The initiation of the Turkish machinery industry dates back to the 1950's. In 1950, the first





large-scale industrial investment in the Turkish Republic came through MKEK (Machinery, Chemical Industry Institution), a completely governmental institution.



The private firms in the sector evolved in the 1960's. Although the machinery industry was initiated and established by state enterprises, currently private enterprises dominate in the industry. Only a small number of firms operating in defense and sugar machinery industries are public companies.

Today, share of the machinery manufacturing industry production is 4.5% within overall manufacturing industry. The product range of the Turkish machinery industry consists of internal combustion engines and turbines, boilers and burners, building machinery, heavy industrial machinery, machine tools, milling machines, drilling machines, cutting and bending machines, woodworking machinery, pumps and compressors, hand tools, air



conditioning units, textile machinery, food processing machinery, hoisting and conveying machinery, sewing machines, refrigerators and washing machines (both domestic and industrial), valves, gears and bearings. The Turkish machinery industry is able to produce almost all of the parts and accessories for the above named items with competitive prices and of high quality. The average local input content in the production stage is around 80-85%.

The machinery manufacturing industry has particular importance for Turkey due to its promising export potential. Manufacturing firms in this field made production mainly for the domestic market until 1990. After 1990, rapid developments in the sector were observed and the sector has directed its attention to foreign markets also.

Turkish machinery sector products are competitive in international markets due to relatively flexible production and good engineering skills in Turkey. Turkish machinery industry has recorded a substantial increase in exports compared to Turkey's overall exports. In 2004, the export va-

lue of the machinery industry was US\$ 4.125 billion, indicating a 39% increase compared with 2003 figures. In 2005 total exports of machinery manufacturing industry exceeded US\$ 5.227 billion, up 27% compared with the year before.

In 2005, a breakdown of countries importing machinery from Turkey shows that Germany is the main customer. Germany is followed by the United Kingdom, Italy, France, the United States, Spain, Russian Federation, Iraq, Romania, Poland, Bulgaria, Iran, Greece, Belgium, Algeria, Ukraine and Azerbaijan are the other important markets for Turkish machinery exports.

The most important items in exports were refrigerators, engine and spare parts, washing machines, construction and mining machinery, metal and wood processing machinery, pumps and compressors, machinery components, textile machinery, steam boilers and food processing machinery.

The rapid increase in the population and living standards in Turkey have resulted in the need to produce more and better quality white goods. The sector has been rapidly adapting itself parallel to the consumer preferences by modern production technology. Turkey has about 11 million households which indicate a huge market for white goods. According to the data provided by White Goods Manufacturers' Association, the quantity of refrigerators, washing machines and dish washing machines produced were 5.538 million units, 4.382 million units and 783 thousand units respectively in 2005. Most of the white goods production was for exports, mainly to EU Countries. The exports of the sector are mainly directed to Germany, the United Kingdom, France, Spain, Italy, Iraq, Russian Federation, Romania and Algeria. The major export products in households sector are refrigerators. The exports of refrigerators reached to 3.639 million units and to-

taled to US\$ 913.8 million in 2005. The other promising export products in the sector are washing machines and export of washing machines reached US\$ 491.2 million in 2005. The export value of dish washing machines is US\$ 67 million in 2005.

Strong automotive and auto-parts sector of Turkey resulted in a high production capacity for engine and spare parts. This capacity has been directed to exports and the sector has shown a significant export performance in last year. The engine and spare parts exports were US\$ 733.8 million in 2004 and increased to US\$ 875.4 million in 2005.

Turkish construction sector is one of the major sectors which contributes to GNP and is the driving force for the construction and mining machinery producers. At present, construction and mining machinery industry exports comprise 8.3% of the exports of the Turkish machinery sector and have an increasing trend. Total exports of the sector rose to US\$ 432.5 million in 2005. Main export products are machinery spare parts, lifting, handling, loading and unloading machinery, special purpose motor vehicles for persons and goods, self propelled bulldozers, graders and excavators and derricks and cranes. Among product groups, construction and mining machinery spare parts are the most traded items. Turkish-made construction and mining machinery are exported to almost 130 countries in the world. Major export markets are Germany, the United Kingdom, Italy, Iraq, Algeria, the USA, the Russian Federation, Belgium, France, Iran, Bulgaria, Kazakhstan, Kuwait and Azerbaijan.

Machine tools which are called "machines that produce machines" are another well-established sector in Turkish industry. Today Turkish machine tools manufacturers are capable of meeting the demand of export markets as well as local



market. Turkish machine tools sub-sector has high technology and innovation capability to supply on-demand engineered machine tools to its foreign customers. The export value of machine tools reached US\$ 279.8 million in 2005. In the year 2005, Turkish machine tools industry exported its products to nearly 125 countries worldwide. Main export destinations were Italy, Germany, Russian Federation, Spain, Iran, Bulgaria, Romania, the USA, the United Kingdom, Ukraine, Iraq and Israel.

Pumps and compressors which are vital for industrial and agricultural production constitute another important sector of Turkish non-electrical machinery industry. Necessities of industrialisation process and huge agricultural production of Turkey have helped the emergence of a strong pumps and compressors industry in Turkey. Turkish manufacturing industry and agricultural irrigation rely on mostly Turkish made pumps and compressors. At present, pumps and compressors industry exports comprise about 5% of the exports of the Turkish machinery sector. The to-

tal export value of pumps and compressors rose to US\$ 257 million in 2005. Major export markets were Germany, the USA, Romania, Russian Federation, the United Kingdom, Belgium, France, Iraq and Italy.

The Turkish agricultural machinery industry largely meets domestic demand and exports the surplus. Exports of the sector have an increasing trend. While exporting US\$ 8.5 million in 1995, the value of agricultural machinery, tractors and spare parts exports reached US\$ 207 million in 2005. This remarkably high increase in export value has undoubtedly been achieved due to the recent modernisation and technological improvements realised in the sector. Turkish agricultural machinery industry products are exported to a wide range of countries in the world. Major export markets are: the USA, Australia, Romania, France, Bulgaria, Azerbaijan, Italy and Greece in agricultural machinery; the USA, Austria, Romania, Republic of South Africa, South Korea and Portugal in tractors.

The Turkish textile machinery industry has an

integral role to play in the growth of Turkish textile exports. Besides supplying the Turkish domestic market the textile machinery and equipment industry also has great importance for Turkey due to its promising export potential. Textile machinery and equipment exports have increased rapidly since five years and reached US\$ 162 million with a share of 3 % in total machinery exports in 2005. The sector exports are directed to about 120 countries. Major markets in order of rank are India, Bangladesh, Pakistan, Uzbekistan, Syria, Iran, Germany and Egypt.



Strong agricultural potential and Turkey's food industry, changing lifestyles and tastes due to increased industrialization and urbanization, the increase in family income, and the decrease in available time for preparing meals, have resulted in a strong food processing sector. Accordingly, the large food processing sector has accelerated the development of the food processing machinery



and equipment industry in Turkey. At present, the Turkish food processing machinery and equipment industry is the most modern in the Middle East, North Africa, Balkans, Baltic and Central Asia. Moreover, the recent developments in catering services in Turkey have had a positive effect on demand for industrial kitchenware. Both of these sectors show promising export potential. In the food processing machinery and equipment industry, exports reached US\$ 140 million in 2005. In the food processing machinery and equipment industry, exports were directed to about 100 countries. Major markets in 2005 in order of rank are Saudi Arabia, Kazakhstan, the Russian Federation, Iraq, Azerbaijan, Romania, Tunisia, Syria, Egypt, Iran, Algeria and Morocco which have similar agricultural structure and consumption habits.

The Turkish machinery manufacturers/exporters follow European and international standards and norms. Companies exporting to the European Union, affix the "CE Mark" under the "New Approach" Directives. The obligation to affix the "CE Mark" also started in the Turkish domestic market in 2002.





### Electrical Machinery Industry

The electrical machinery sector, which consists of investment and intermediate goods, has vital importance in Turkey. The Turkish electrical machinery sector vitalised itself in the 1990's by diversifying its products and adopting recent technologies in product design and in production processes. Therefore, the share of the electrical machinery industry increased to 3% of the manufacturing industry exports with a US \$ 2.1 billion in 2005.

Basically Turkey produces almost all kinds of electrical machinery. Major products covered by the industry include electric motors and generators, transformers, electrical distribution and control equipment, cables and wires, accumulators, batteries, lamps and electrical equipment. The Turkish electrical machinery industry is composed of more than 5000 companies with medium and small sized companies dominating the industry. The number of people employed in the

sector is approximately 56 000. The sector has shown a steady growth in both production and export volumes and this situation is expected to continue.

Exports of electrical machinery industry was approximately US\$ 2.1 billion in 2005. In 2005, Iraq was the most important buyer of Turkish electrical machinery. Iraq is followed by the United Kingdom, Germany, Russian Federation, Italy, France, Bulgaria, Israel, S. Arabia and Kazakhstan.

There are approximately 374 firms operational in the cable sector which has the highest share in the production of electrical machinery industry. In the last ten years in particular, by means of foreign capital accompanied with high technology and "know-how" license agreements, the cable sector has recorded substantial progress both in production and in production technology. Today power cables and all types of telecommunication cables are produced in Turkey. The exports of cables and wires showed a considerable







increase and have the largest share in the exports of electrical machinery. Exports of cables and wires rose to US\$ 714.7 million in 2005. It is obvious that producer and exporter firms in cable sector are competitive in international markets with their capacity, technology, service and quality. In spite of the hard competition in international markets, the value of cable exports is expected to increase further.

The value of electrical household appliances export was US\$ 436.3 million in 2005. Electrical ovens are the most exported electrical household items. In 2005, the value of oven exports was US\$ 242.4 million. Major market for exports of electrical household appliances is the EU Countries. In 2005, Germany, the United Kingdom, Russian Federation, Iraq, Greece, France, Belgium and Austria were the major buyers of Turkish electrical household appliances.

The other important exporting subsector in the electrical machinery industry is transformers.

In 2005, the exports of transformers reached to US\$ 262.4 million. The main export markets are Iraq, Saudi Arabia, Germany, Spain, United Arab Emirates, Tunisia and United Kingdom. In Turkey, there are nine important large scale firms and a few medium and small enterprises in transformer production.

It is worth to mention that since most of exports of the sector is directed to the EU, Turkish electrical machinery products comply with technical norms of the EU and all of them carry CE Mark on them. As mentioned before, the obligation to affix the "CE Mark" also started in the Turkish domestic market.

### Electronics Industry

The information and data processing technologies have shown remarkable development in recent years. To take part among the developed countries in the 21st Century, which is called the information age, depends upon Turkey's progress in the electronics and communication sectors and improvement of the competitiveness of the Turkish electronics industry by producing her own technology.

The electronics industry in Turkey has developed sizeable capacity especially in two sub-sectors: consumer electronics and telecommunications. Consumer electronics have the largest share in total production of electronics in Turkey. There are approximately 2033 manufacturing companies in the field of electronics. The number of people employed in this sector is about 30,806. Most of the companies started business through foreign license agreements. A significant number of companies also have foreign capital.

Consumer electronics and telecommunications equipment are the main export items. Turkish electronics industry has been investing more

in R&D in the recent years and is taking elements of non-price competition such as quality and service into account. As a result, exports have increased considerably. The total value of exports of electronics reached about US\$ 4.4 billion in 2005.

Turkish electronics industry is quite strong in consumer electronics. Export value of consumer electronics sub-sector realised as US\$ 3 billion in 2005. The most important consumer electronics product is the colour TV. Colour TV exports were 16.4 million units and US \$ 2.7 billion in 2005. Almost all colour TV exports were destined to the European Union countries in 2005. Turkish colour televisions have about 45% market share in European market. Turkish made colour televisions were exported to almost 98 countries throughout the world in 2005. Germany, the United Kingdom, the Netherlands, Italy, Spain, France, Sweden, Romania, Greece and Hungary are the most important export markets for Turkish made colour televisions.

Positive developments in the telecommunications sub-sector, such as intensive infrastructure investments were reflected in the telecommunications sub-sector exports. In 2005, the export value of the telecommunications sub-sector reached US\$ 765.8 million. Turkey has a large potential for telecommunication cables production. Export of telecommunication cables was US\$ 712.9 million in 2005. At present, the top markets for Turkish telecommunications cables are the United Kingdom, Iraq, Germany, Israel, Bulgaria, Italy and Ethiopia. Most of the fiber optic cables are exported and total export value was US\$ 22.7 million in 2005. At present, major export markets for fiber optic cables are Algeria, Romania, Kazakhstan, Bulgaria, Iran, Iraq, Syria and Uzbekistan.

Turkish manufacturers are closely following



developments in international quality and environmental standards. The obligation to affix the “CE Mark” started in the Turkish domestic market. The export performance of the young but dynamic Turkish electronics industry has been improving, especially over the last few years, with quality high-tech products at reasonable prices. Although present export value is not high on the global scale, it is believed that Turkish electronics will gain significant market shares in world markets with their broad range of products, engineering quality and increasing R&D activities.

### Iron & Steel Industry

As the iron and steel industry has the input within almost all manufacturing sectors, it plays an important role in the industrialization and development of a country.

The foundations of the Turkish industrialization were laid in the 1930s. The first integrated Iron and Steel Works (KARDEMİR) began to



operate in Karabük in 1939, where Turkey produced raw steel for the first time. In order to meet the demand for flat products, the second integrated plant, Ereğli Iron and Steel Works (ERDEMİR) started production in 1965. In 1977, İskenderun Iron and Steel Works (İSDEMİR), Turkey's third integrated steel mill, came on line to meet the demand for long products and semi-products.

As a result of liberalization in economic activities, takeover of İSDEMİR by ERDEMİR on condition that its conversion to flat products was the most important recent development in the Turkish steel sector. Privatization of İSDEMİR, which was last state owned facility, is also important in that, Turkish iron and steel industry is now entirely operated by the private sector.

At present, the Turkish steel industry has 16 electric arc furnaces, with a total installed capacity of over 16.6 million tons per year and three integrated works, (KARDEMİR, ERDEMİR, İSDEMİR) with a total production capacity of nearly 6.3 million tons per year.

In 2005 Turkey had a steel production capacity totaling 24.4 million tons, and of this capacity, 21 million tons, or 86% was for long-steel pro-

ducts which are mostly used in the construction sector. 3 thousand tons, or 12% of the raw steel capacity is directed to flat products, while the remaining 492 thousands tons, or 2% is directed to special steel products.

Raw steel production in Turkey rose to 20.9 million tons and Turkey became the 11th largest steel producing country in the world by the end of 2005. By product type, 83% of total steel production was directed to long products, about 15% was for flat products and 2% was for special steel in 2005. In terms of the production processes, 71% was electric arc furnace steel, 29% was oxygen (BOF) steel were produced. Turkey's share in world raw steel production rose to 2% and consumption rose to 271 kilograms per capita in the same year.

The iron and steel industry has become one of the major driving forces in the development of Turkish exports. After the economic crisis of 2001, with the positive developments in economy in general, the iron and steel sector has shown great performance due to high exports increase and increase in domestic demand. In 2005, steel exports reached about US \$7.6 billion with 1.6% growth.



Classified by product groups, long products accounted in value for 41% of the total steel exports in 2005. The share of steel tube and pipes were 11%, steel billets was 10%, flat products was 9.1% and structural steel and parts were 5.9%.

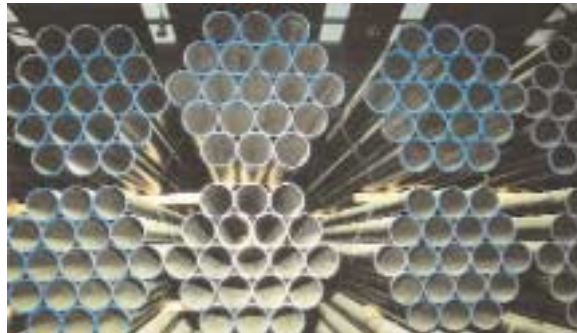
Among the markets that Turkish steel products are exported; the EU is the primary export market, Middle East is the second and the Far East is the third biggest export market. In 2005 steel products were exported to 176 countries in the world. In the same year, major markets for Turkish steel exports were the UAE, the USA, Spain, Italy and Israel.

Developments in the iron and steel sector have also a positive influence on the growth of production in iron or steel articles. At present Turkey produces a wide range of iron and steel articles which meet almost all the domestic demand. Among iron or steel articles, in casting products and steel kitchen products Turkey has build a considerable capacity in recent years

With the continuous demand generated by the Turkish manufacturing industry, the casting and forgings industry of Turkey has experienced booming development both in technology and in market. Today there are 15 large size casting enterprises, 267 medium size foundries and 415 small size casting companies in industry. Turkey has a total production capacity of over 1.2 million tpy. Turkish foundries which are able to produce every kind of alloyed or unalloyed ferrous castings specialise in the production of cast parts for domestic industries.

Where geographical distribution of the sector is concerned, the major foundries, which are all privately-owned, are located in İstanbul, Kocaeli, Bursa, Eskişehir, Bilecik, İzmir and Ankara. Small scale family-owned casting companies are widely spread in almost all regions of Turkey. According

to figures of the Foundrymen's Association of Turkey, 567,000 tons of gray castings, 327,000



tons of ductile iron castings, 125,000 tons of steel castings and 6,500 tons of maleable iron castings were produced in 2005. The total output of the ferrous castings industry reached 1,025,500 tons in 2005. Turkish foundry production ranks fifteenth in the world production and ranks sixth in the EU in 2004. Turkish foundrymen have managed to improve productivity with the use of new technologies and attain low production cost with high quality. Turkish foundry industry is currently in a phase of expansion and at the same time aims production at high standards.

The Turkish foundry industry also showed an outstanding performance in exports between 1990-2005. While in 1990 exports of castings and forgings were valued at US \$22.1 million, in 2005 exports rose to US \$2.5 billion. In recent years the Turkish foundry industry has become an important supplier to Europe that has wide use of castings.

In welded and seamless iron & steel pipes and tubes, which is also a significant sub-sector, production reached 1,656,000 tons in 2004. Over 1,600,000 tons of annual production of the iron & steel pipes and tubes is for welded pipes and tubes. Today, Turkish welded pipe technology has developed quite well and is able to produce its own technology. Turkish iron & steel pipe sector has an important export potential in both production capacity and product quality. Exports of the sector reached US\$ 865 million in 2005.



Haliç (the Golden Horn). After 1969, they were moved to Aydınlı Bay, Tuzla.

In 48 shipyards (2 public sector, 3 military and 43 private), brand new ships, yachts, mega-yachts and sailing boats are being manufactured. In addition to these, repair and maintenance services are provided for the vessels.

At present, Turkish shipyards has

- 10 million DWT repair and maintenance capacity
- 1 million DWT new ship building capacity
- 400 000 ton steel processing capacity
- 35 000 DWT one piece ship building capacity (Source :GİSBİR)

## Shipbuilding

Shipbuilding which is a 600 years - old tradition of Anatolia has become one of Turkey's important manufacturing sectors. The Turkish shipping sector with its fleet, shipbuilding industry and fishing sector has grown significantly during the last ten years.

The first shipyard was established in 1390, during the Ottoman reign in Gelibolu. In 1455, the foundation of the Istanbul Haliç Shipyard, whose stone pools of which have survived to date, was laid by Fatih Sultan Mehmet. By the 16th century, Turkish shipyards were already the largest in the world.

Following the foundation of the Republic, the shipyards were given special importance. They were mostly located around the Bosphorus and

Our shipyards which have one of the greatest floating docks of the world with 80 m length, 355 m width and 300 000 DWT floating capacity also give services with other various floating docks. These docks have floating capacity up to 100 000 DWT.

In 2004, 139 ships -with a total of 659 000 DWT- were delivered. In the first six months of 2005, the number of ships which were delivered is 40 (160 000 DWT). The types and tonnage capacities of these Turkish and foreign flag ships varied: petrol tankers, chromium-nickel tank chemi-



cal ships with coating, container ships, multi- and special-purpose ships, military vessels, fishing vessels, service tankers, bunker barges, tugboats, mega yachts and other types of sailing or motor boats. These vessels were manufactured in accordance with international standards (ISO 9000 and AQAP Quality Certificates) and under the supervision of certain societies.

Being the top manufacturer of low-tonnage chemical tankers in Europe, the Turkish shipyards receive many orders for petrol tankers, chemical tankers and multipurpose container ships.

Mega-yachts manufacturing is another important production area of Turkish shipyards. Turkey has been number four on the world list of mega-yacht (yachts longer than 25m) manufacturers for the last three years.

In addition, repair and maintenance service for ships are provided. Furthermore, many ships were revamped or repaired, including their petrol platforms. Among the services provided by the Turkish shipyards, repair/maintenance plays an important role.

The Turkish shipbuilding industry has important export potential with increasing production capacity. Exports reached US\$ 1.2 billion in 2005 with a 82% increase compared to the previous year. The main export product group was cruise ships, excursion boats, ferryboats, cargo ships, barges and similar vessels for the transport of persons or goods with a value of US\$ 1 billion. In the same year exports of yachts and other vessels for pleasure or sports; rowboats and canoes ranked second with US\$ 104 million. The major markets for the Turkish shipbuilding industry were Spain, the United Kingdom, France, Malta, Italy, the Netherlands and Germany. In 2005 shipbuilding subsidiary industry exports reached US\$2.7 million and are expected to increase further.

## Chemical Industry

Chemicals are indispensable to modern life and the development of the chemical industry has helped to raise the standard of living, which is an indicator of the level of industrialization in a country. Chemical industry products contribute significantly to growth in other industrial sectors.

Turkey has been manufacturing chemicals for very long time, being a producer of many basic and intermediate chemicals, petrochemicals. The production value of the Turkish chemical sector has reached about US \$ 11 billion which includes petrochemicals, inorganic and organic chemicals, fertilizers, paints, pharmaceuticals, soaps and detergents, synthetic fibers, essential oils, cosmetics and personal care products.

Turkish chemical industry developed significantly in terms of quality, productivity and protection of environment. At present the industry is in the process of adopting EU's Technical standards. Besides, the responsible care, the chemical industry's trademarked initiative on environmental, health and safety issues, has been successfully implemented since 1992.

