

Rubber and plastics

7

This chapter refers to the manufacture of rubber and plastics, which are covered by NACE Subsection DH; the subsection is then subsequently broken down into its two constituent NACE groups, with subchapters on rubber (NACE Group 25.1) and plastics (NACE Group 25.2).

Recent legislation within this area has focused on environmental issues, with a key development being the adoption of the revised Waste Framework Directive⁽¹⁾ of the European Parliament and of the Council in November 2008. This sets out the basic concepts and definitions related to waste management and lays down waste management principles such as the 'polluter pays principle' or the 'waste hierarchy'. With regard to the rubber and plastics manufacturing sector, the Directive obliges Member States to take measures to promote high quality recycling and, to this end, set up separate collections of waste. By 2020, the recycling of waste materials such as plastics, among others, from households should be increased to a minimum of 50 % by weight. End-of-waste criteria that provide a high level of environmental protection and an environmental and economic benefit should be laid down for tyres.

(1) Directive 2008/98/EC.

Structural profile

There were 64.9 thousand enterprises throughout the EU-27 for whom the manufacture of rubber and plastics (NACE Subsection DH) was their main activity in 2006, and they employed about 1.9 million persons. These enterprises generated a turnover of EUR 274.6 billion in 2006, of which EUR 78.4 billion or about one quarter (28.5 %) was added value. As a share of the value added generated by the whole of the non-financial business economy (NACE Sections C to I and K), the rubber and plastics sector contributed 1.4 %.

In terms of enterprise numbers, size of workforce and value added generated, the manufacture of plastic products (NACE Group 25.2) subsector was much larger than the manufacture of rubber products subsector (NACE Group 25.1). The plastic products manufacturing subsector comprised 57.2 thousand enterprises in 2006, with a workforce of about 1.4 million persons, and generated EUR 60.0 billion of value added. This contrasted with a rubber products manufacturing sector of 7.7 thousand enterprises, with a workforce of about 0.4 million persons, which generated EUR 18.0 billion of value added.

Table 7.1: Manufacture of rubber and plastic products (NACE Division 25)
Structural profile, EU-27, 2006

	Enterprises		Turnover		Value added		Persons employed	
	(thousand)	(% of total)	(EUR million)	(% of total)	(EUR million)	(% of total)	(thousand)	(% of total)
Rubber and plastic products	64.9	-	274 621	-	78 375	-	1 749.5	-
Rubber products (1)	7.7	11.9	64 946	23.6	18 000	23.0	368.3	21.1
Plastic products (1)	57.2	88.1	209 676	76.4	60 000	76.6	1 381.2	78.9

(1) Rounded estimates based on non-confidential data.

Source: Eurostat (SBS)

Table 7.2: Manufacture of rubber and plastic products (NACE Division 25)
Structural profile: ranking of top five Member States, 2006

	Highest value added (1)			Largest number of persons employed (1)			Most specialised: share in the non-financial business economy (%) (2)	
	Country	(EUR million)	(% of EU-27)	Country	(thousand)	(% of EU-27)	Value added	Persons employed
1	Germany	21 489	27.4	Germany	378.7	21.6	Luxembourg (3.2)	Luxembourg (2.9)
2	France	11 428	14.6	France	231.2	13.2	Czech Republic (2.7)	Czech Republic (2.4)
3	United Kingdom	10 932	13.9	United Kingdom	208.2	11.9	Slovenia (2.6)	Slovenia (2.3)
4	Italy	9 650	12.3	Italy	201.0	11.5	Poland (1.9)	Slovakia (2.2)
5	Spain	5 709	7.3	Poland	142.1	8.4	Germany (1.9)	Poland (1.9)

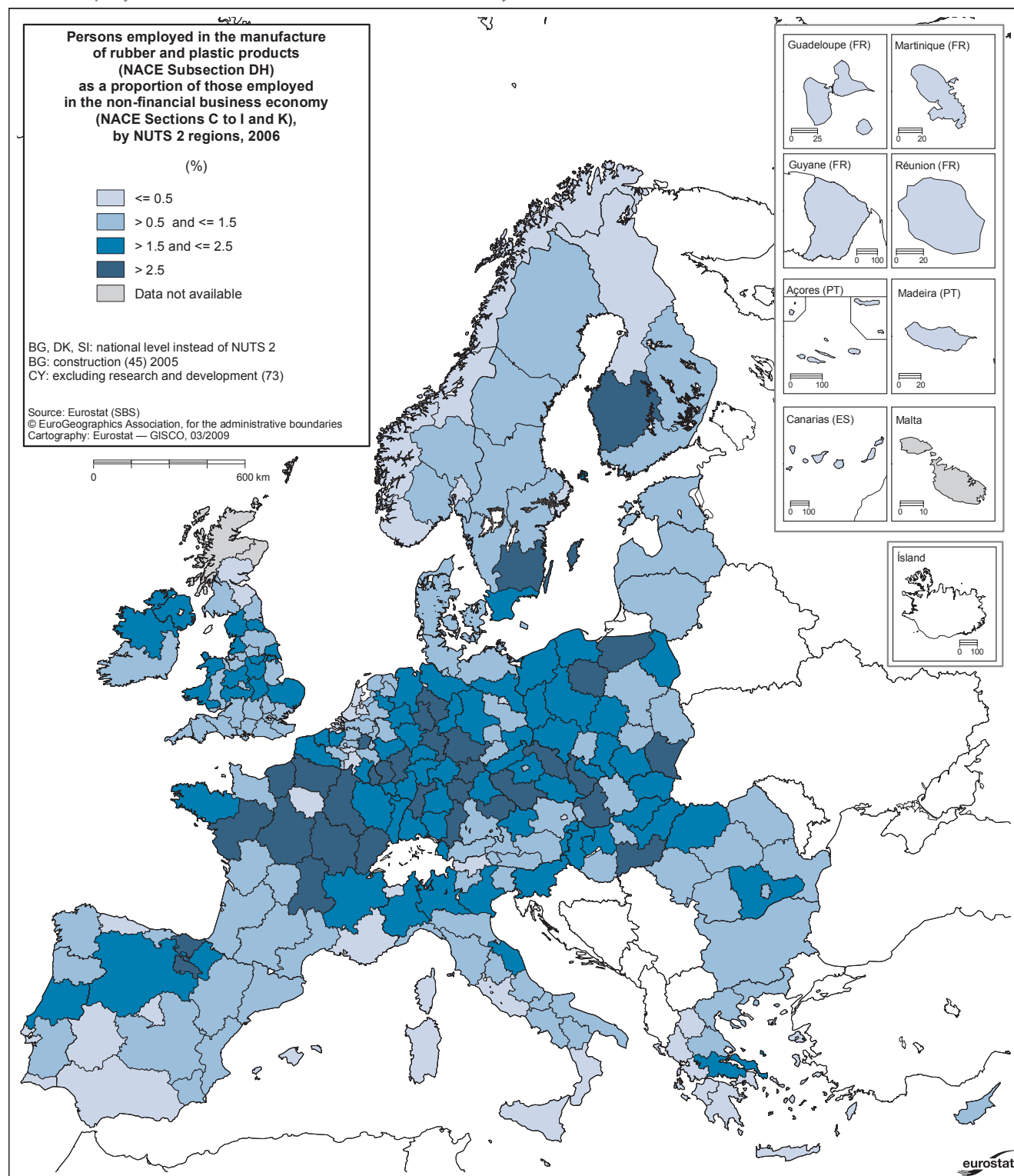
(1) Malta, not available; the Netherlands and Poland, 2005.

(2) Cyprus, Malta and the Netherlands, not available; Bulgaria, Poland and Romania, 2005.

Source: Eurostat (SBS)

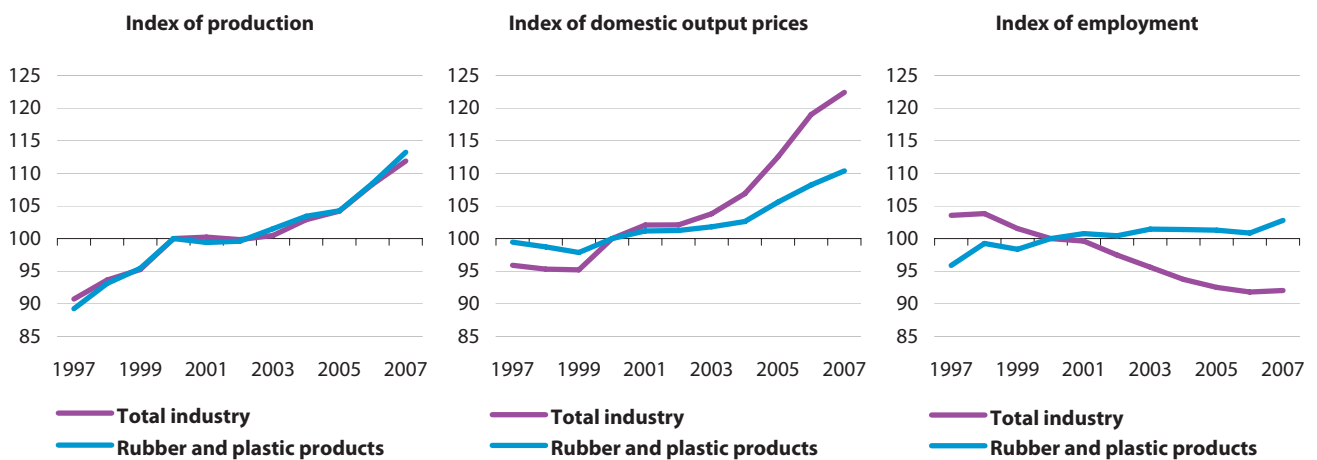
Map 7.1: Manufacture of rubber and plastic products (NACE Division 25)

Persons employed in the manufacture of rubber and plastic products (NACE Subsection DH) as a proportion of those employed in the non-financial business economy (NACE Sections C to I and K) (%)



Source: Eurostat (SBS)

Figure 7.1: Manufacture of rubber and plastic products (NACE Division 25)
Evolution of main indicators, EU-27 (2000=100)



Source: Eurostat (STS)

The rubber and plastics manufacturing sector in Germany generated just over one quarter (27.4 %) of the value added generated within the EU-27 in 2006. In these terms, the German rubber and plastics sector was almost twice the size of that in France (14.6 %), which was the second largest producer within the EU. Although the contribution of the rubber and plastics sector to non-financial business economy value added in Germany was slightly higher than the EU-27 average (1.9 % compared with 1.4 %), Germany was far from being the most specialised Member State. In these relative terms, Luxembourg was the most specialised country, as rubber and plastics contributed 3.2 % of the added value of the non-financial business economy; this was followed closely by the Czech Republic and Slovenia.

These three Member States were also the most specialised in terms of the relative importance of the rubber and plastics workforce and its contribution to the total number of persons employed within the non-financial business economy. At a regional level (the NUTS 2 level of detail shown in the map), the highest proportion (7.8 %) of the non-financial business economy workforce engaged in rubber and plastics manufacturing was in Auvergne (France). There were a number of other regions in France, as well as in Germany, the Czech Republic and Poland, together with Luxembourg (that is treated as a single region at the level of detail shown), where there was also relatively strong regional specialisation in rubber and plastics manufacturing.

There was a fairly steady upward development in the production index of the EU-27's rubber and plastic products manufacturing activity during the ten years through to 2007, albeit it with a couple of years of stagnation in 2001 and 2002. This was an almost exact mirror of the annual development for the whole of the industrial economy (NACE Sections C to E). Over the ten year period considered, the average rate of growth for rubber and plastic products output was 2.4 % per annum. There was also little difference in the development of output between rubber products manufacturing on the one hand and plastic products manufacturing on the other, except that the output of rubber products manufacturing fell rather than stagnated in 2001 and 2002.

In a similar vein, there was also little difference in the evolution of domestic output prices for rubber products and plastic products during the same ten year period; the average rate of increase in output prices for rubber and plastic products across the EU-27 was 1.0 % per annum, reflecting relatively small price declines through until 2000 followed by a gradual upturn in prices until 2007. This overall pattern of price development was similar to that noted for the whole of total industry, although the upturn in prices after 2000 was less strong from rubber and plastics.

However, there was a much greater distinction in terms of employment. The EU-27 rubber and plastics manufacturing sector was the only manufacturing (NACE Section D) subsection in which there was employment growth in the ten

Table 7.3: Manufacture of rubber and plastic products (NACE Division 25)
Share of value added and persons employed by enterprise size class, EU-27, 2006 (%)

	Value added		Persons employed	
	Non-financial business economy (1)	Rubber and plastic products	Non-financial business economy	Rubber and plastic products
1 to 9 persons employed	21.0	4.8	29.7	7.8
10 to 49 persons employed	18.9	19.0	20.7	22.0
50 to 249 persons employed	17.8	33.6	17.0	34.3
250 or more persons employed	42.1	42.6	32.6	35.9

(1) 1 to 9 persons employed and 50 to 249 persons employed, 2005.

Source: Eurostat (SBS)

years through to 2007, rising at an average rate of 0.7 % per annum. This contrasted with relatively persistent employment declines (at an average 1.2 % per annum) for total industry.

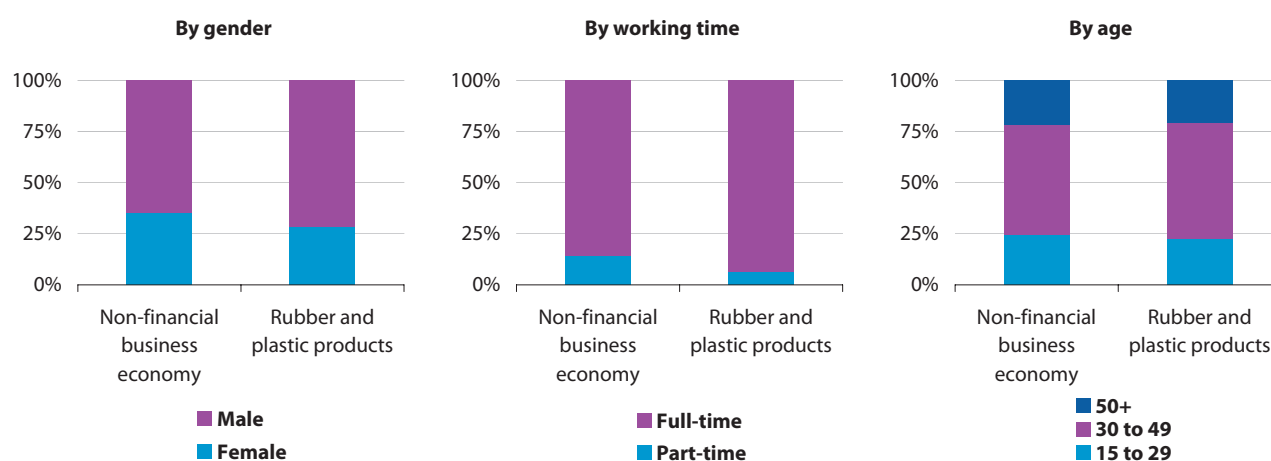
Unlike many other industrial sectors, and more in line with the non-financial business economy as a whole, a majority (57.4 %) of both the value added generated by the rubber and plastics manufacturing sector in the EU-27 and its workforce (64.1 %) came from small and medium-sized enterprises (those employing less than 250 persons). However, within small and medium-sized enterprises, micro-enterprises (employing less than 10 people) provided a particularly low proportion of value added (4.8 %) and the workforce (7.8 %) – the relative difference being made up by medium-sized enterprises (those employing between 50 and 249 persons). Although the apparent labour productivity of rubber and plastics manufacturing enterprises rose through the size groups, there were also diminishing productivity gains. This contrasted with industry as a whole, where productivity gains accelerated through the size classes.

The size structure of the rubber and plastics manufacturing sector was somewhat atypical in Germany and France (the two countries with the highest levels of output), as well as the Czech Republic (one of the most specialised Member States) in 2006, as all three of these Member States reported that large enterprises (employing 250 or more persons) generated a majority of sectoral value added in 2006.

Employment characteristics

A clear majority (71.5 %) of the rubber and plastics manufacturing sector's workforce was male; this figure was above the average (64.9 %) for the whole of the EU-27 non-financial business economy in 2007. There was also a more notable prevalence of full-time work in the rubber and plastics manufacturing sector (93.9 % compared with 85.7 % for the non-financial business economy). In contrast, the age structure was fairly similar, albeit with a slightly higher majority (56.5 % compared with 53.7 %) of workers in the rubber and plastics manufacturing sector aged between 30 and 49 years old.

Figure 7.2: Manufacture of rubber and plastic products (NACE Division 25)
Employment characteristics, 2007



Source: Eurostat (LFS)

Table 7.4: Manufacture of rubber and plastic products (NACE Division 25)
Expenditure, productivity and profitability, EU-27, 2006

	(EUR million)			(EUR thousand per person)		(%)	
	Personnel costs	Purchases of goods & services	Investment in tangible goods	Apparent labour productivity	Average personnel costs	Wage adjusted labour productivity	Gross operating rate
Rubber and plastic products	52 134	198 148	11 817	44.8	30.9	145.1	9.6
Rubber products	12 250	47 339	2 600	48.9	34.0	143.7	8.9
Plastic products	39 884	150 809	9 000	43.4	30.0	144.7	9.5

Source: Eurostat (SBS)

These employment characteristics for the EU-27 as a whole were also observed in most of the Member States. The proportion of men in the workforce was as much as 10 to 20 percentage points higher than the non-financial business economy average in the Netherlands, Spain, Belgium, the United Kingdom, Latvia, Ireland, Cyprus and Luxembourg. However, it was lower than the non-financial business economy average in Hungary and particularly in Estonia, which was the only Member State where women formed a majority (51.3 %) of the rubber and plastics manufacturing sector's workforce.

As with many other industrial activities in Denmark and the Netherlands, the proportion of young workers under the age of 30 in the rubber and plastics manufacturing sector was well below (about ten percentage points less) the share of this age group across their respective non-financial business economies. In contrast, there were relatively high proportions of young persons working within rubber and plastics manufacturing in Bulgaria and particularly Poland. Indeed, in the latter, young workers represented a little over a third (36.0 %) of the workforce in this sector, the highest proportion among the Member States.

Expenditure, productivity and profitability

Just under four fifths (79.2 %) of operating expenditure in the EU-27's rubber and plastics manufacturing sector went on purchases of goods and services in 2006, a slightly lower proportion than the average (83.9 %) across the whole of the non-financial business economy.

Tangible investment was EUR 11.8 billion in 2006, representing 1.1 % of total investment across the non-financial business economy of the EU-27. This was a lower share than the rubber and plastics manufacturing sector's contribution to total value added, resulting in an investment rate (15.1 %)

that was lower than the non-financial business economy average (18.4 %). Among the Member States, investment rates in the rubber and plastics manufacturing sector were between 10 and 15 percentage points lower than average rates for the respective non-financial business economies of Belgium, Portugal, Sweden, Denmark, Slovenia, Slovakia and Lithuania. In contrast, rates were considerably higher in Poland (33.3 % compared with 19.5 % in 2005) and, in particular, Bulgaria (84.0 % compared with 56.7 %).

The average value added generated per person employed in the EU-27's rubber and plastics manufacturing sector was EUR 44.8 thousand in 2006, about EUR 1.3 thousand more than the non-financial business economy average. Personnel costs per employee averaged EUR 30.9 thousand in the EU-27 in 2006, which was about EUR 2.1 thousand higher than for the whole of the non-financial business economy. In wage adjusted terms, therefore, the labour productivity of the EU-27's rubber and plastics manufacturing sector (145.1 %) was a little lower than the non-financial business economy average (151.1 %) in 2006. This was also the case for the wage adjusted productivity ratios of the rubber products subsector (143.7 %) and the plastic products subsector (144.7 %), between which there was also relatively little difference in apparent labour productivity levels nor average personnel costs.

Among Member States, however, there were stark contrasts between the wage adjusted labour productivity ratios. In this respect, neighbouring Latvia and Lithuania provided the two greatest extremes: on the one hand, the ratio for the rubber and plastics manufacturing sector in Latvia was significantly lower than its non-financial business economy average (195.4 % compared with 255.7 %); while, in Lithuania, on the other, it was significantly higher (254.9 % compared with 177.4 %).

Table 7.5: Rubber and plastic products (CPA Division 25)
External trade, EU-27, 2007

	Value (EUR million)			Share of industrial exports (%)	Share of industrial imports (%)
	Extra-EU exports	Extra-EU imports	Trade balance		
Rubber and plastic products	27 148	24 347	2 801	2.3	1.8
Rubber products	8 164	9 354	-1 190	0.7	0.7
Plastic products	18 984	14 993	3 992	1.6	1.1

Source: Eurostat (Comext)

The gross operating rate of the EU-27's rubber and plastics manufacturing sector was 9.6 % in 2006, slightly lower than the average (10.8 %) across the EU-27's non-financial business economy. Again, there was relatively little difference in the corresponding rates between the two subsectors.

External trade

About three quarters (76.9 %) of the Member States' total exports of rubber and plastic products (CPA Subsection DH) in 2007 were destined for other Member States, which represented a notably higher share than the average (67.6 %) for all industrial goods (CPA Sections C to E).

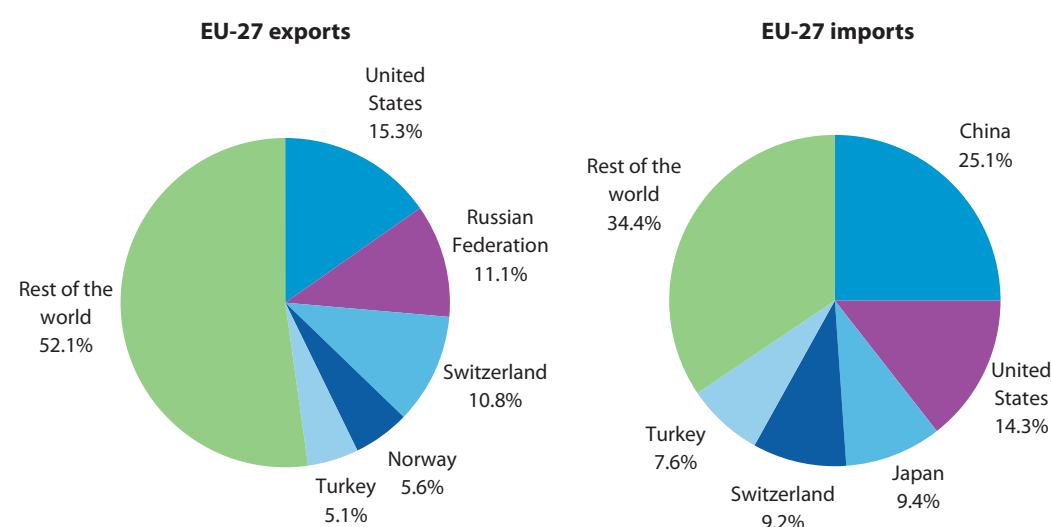
Exports of rubber and plastic products from the EU-27 to non-member countries (extra-EU trade) were valued at EUR 27.1 billion in 2007, whilst imports were valued at EUR 24.3 billion. The resulting net trade surplus of EUR 2.8 billion in 2007 represented a narrowing of the surplus (compared with 2006) after a number of years of the surplus growing. Whereas the EU-27 trade surplus for plastic products (CPA Group 25.2)

continued to widen to EUR 4.0 billion in 2007, the trade deficit for rubber products (CPA Group 25.1) increased considerably to EUR 1.2 billion, driven by a rapid increase (21.0 %) in the value of imports when compared with their level in 2006.

The value of EU-27 exports of rubber and plastic products represented 2.3 % of all industrial exports in 2007. The principal export markets for the EU-27's rubber and plastic products were the United States, Switzerland and Russia. The position of the United States as the principal export market was partially eroded between 2006 and 2007, however, as a result of a falling level of EU-27 exports to this country at the same time as the value of the total export market for these products grew.

There was relatively little difference in the relative shares of the EU-27's three main export partners for plastic products, whereas for rubber products the United States continued to account for around one fifth of the EU-27's exports in 2007, which was slightly more than twice the proportion accounted for by Russia, the second highest share.

Figure 7.3: Rubber and plastic products (CPA Division 25)
Main trading partners, EU-27, 2007 (% share of exports/imports in value terms)



Source: Eurostat (Comext)

The value of imports of rubber products from China and Japan were similar, together accounting for a little less than one third (31.9 %) of all such imports to the EU-27 in 2007, although the year on year growth in the value of imports from China in 2007 was twice as strong as that for Japan (43.6 % compared with 17.9 %).

7.1: Rubber

The rubber sector (NACE Group 25.1) has three distinct parts: the manufacture of rubber tyres and tubes; the retreading and rebuilding of rubber tyres; and the manufacture of other rubber products.

According to the International Rubber Study Group⁽²⁾, the EU is self-sufficient in synthetic rubber, producing 2.8 million tonnes of synthetic rubber in 2007 (corresponding to 20.5 % of world production) but consuming 2.6 million tonnes. In contrast, the EU produces no natural rubber but consumed 1.4 million tonnes.

Following legislation regarding retreaded tyres and bans on shredded tyres in landfill, more recent legislative proposals have focussed on the impact that tyres can have on better fuel efficiency. A proposal for a regulation of the European Parliament and of the Council⁽³⁾ regarding type-approval requirements for the general safety of motor vehicles was put forward in May 2008, which in part looks to enhance the environmental performance of vehicles by reducing the amount of road noise and vehicle CO₂ emissions from tyres. A complementary proposal for a directive of the European Parliament and of the Council⁽⁴⁾ on the labelling of tyres with respect to

Imports of plastic products from China accounted for a little less than one third (30.6 %) of EU-27 imports in 2007, which was slightly more than the combined value of imports from the United States and Switzerland (the second and third most important origin of EU-27 imports for plastic products).

fuel efficiency and other essential parameters was put forward in November 2008, which could enable consumers to readily identify energy-efficient and better performing tyres.

Structural profile

Rubber products manufacturing was the principal activity of a little over 7.7 thousand enterprises throughout the EU-27 in 2006. These enterprises employed an estimated 368.0 thousand persons, about one fifth (21.1 %) of the rubber and plastics manufacturing workforce. The turnover generated by the rubber products manufacturing sector was EUR 64.9 billion in 2006, of which EUR 18.0 billion was value added, which corresponded to a little less than one quarter (23.0 %) of the value added generated by the combined activities of rubber and plastics manufacturing in the EU-27.

The manufacture of other rubber products (NACE Class 25.13), such as tubes, pipes, hoses, seals and other articles of vulcanised rubber, accounted for one half (50.9 %) of the EU-27's added value within rubber products manufacturing in 2006. The value added created by the rubber tyres and tubes manufacturing subsector (NACE Class 25.11) accounted for most of the remainder (46.4 %), leaving a very small retreading and rebuilding of rubber tyres subsector (NACE Class 25.12).

(2) IRSG, <http://www.rubberstudy.com/statistics-geninfo.aspx>.

(3) COM(2008) 316.

(4) COM(2008) 779.

Table 7.6: Manufacture of rubber products (NACE Group 25.1)
Structural profile, EU-27, 2006

	Enterprises (thousand)	Turnover (EUR million)	Value added (EUR million)	Persons employed (thousand)	Share in total (%)	
					Value added	Persons employed
Rubber products (1)	7.7	64 946	18 000	368.3	100.0	100.0
Rubber tyres & tubes (1)	0.5	34 549	8 355	134.3	46.4	36.5
Retreading & rebuilding of rubber tyres (2)	1.4	1 501	405	12.8	2.3	3.5
Other rubber products	5.8	28 896	9 154	221.2	50.9	60.1

(1) Rounded estimates based on non-confidential data.

(2) Rounded estimates based on non-confidential data; value added, 2005.

Source: Eurostat (SBS)

Table 7.7: Manufacture of rubber products (NACE Group 25.1)

Structural profile: ranking of top five Member States in terms of value added and persons employed, 2006

	Highest value added (1)			Largest number of persons employed (2)			Most specialised: share in non-financial business economy (%) (3)	
	Country	(EUR million)	(% of EU-27)	Country	(thousand)	(% of EU-27)	Country	Value added
1	Germany	4 610	25.6	Germany	73.5	19.9	Luxembourg	2.0
2	France	3 469	19.3	France	66.9	18.2	Czech Republic	1.0
3	Italy	2 334	13.0	Italy	45.7	12.4	Slovakia	0.9
4	United Kingdom	1 845	10.3	Spain	29.6	8.0	Slovenia	0.8
5	Spain	1 644	9.1	Poland	29.4	7.9	Poland	0.5

(1) Malta, not available; the Netherlands, Poland and Portugal, 2005.

(2) Malta, not available; the Czech Republic, the Netherlands, Poland and Portugal, 2005.

(3) Malta and the Netherlands, not available; Bulgaria, Cyprus, Poland, Portugal and Romania, 2005.

Source: Eurostat (SBS)

Table 7.8: Rubber (CPA Group 25.1)

Production of selected products, EU-27, 2007 (1)

	Prodcom code	Production value (EUR million)	Rounding base (EUR million)	Volume of sold production (million)	Unit of volume	Rounding base (million)
New pneumatic rubber tyres for motor cars (including for racing cars)	25.11.11.00	11 294	-	320.4	units	-
New pneumatic rubber tyres for buses or lorries with a load index > 121	25.11.13.57	3 361	-	17.8	units	-
Seals; of vulcanised rubber	25.13.73.23	2 503	-	227.2	kg	-
Rubber-to-metal bonded articles for tractors and motor vehicles	25.13.73.45	2 219	-	281.9	kg	-
Articles of vulcanized solid rubber (including rubber bands, tobacco-pouches, characters for date stamps and the like, stoppers and rings for bottles; excluding hard rubber)	25.13.73.60	2 100	700	439.0	kg	-

(1) Excluding products of a generic nature (other), sales of services such as repair, maintenance and installation; estimates; threshold of production value set at EUR 2 billion; the rounding base indicates the magnitude of the rounding employed to protect confidential cells (in the case of PRODCOM code 25.13.73.60, the value lies within the range +/- EUR 700 million of the reported value).

Source: Eurostat (PRODCOM)

The rubber products manufacturing sector in Germany was larger than that of any other Member State in terms of the value added generated, contributing one quarter (25.6 %) of the EU-27 total in 2006. A further one fifth (19.3 %) of EU-27 value added generated in this sector came from activities in France. In terms of the relative contribution of the rubber products manufacturing sector to the value added generated in each Member State's non-financial business economy, by far the most specialised Member State was Luxembourg, where these activities contributed six times the EU-27 average. The Czech Republic, Slovakia and Slovenia were also relatively specialised in the manufacture of rubber products, with these activities contributing between two and a half and three times the EU-27 average.

The EU-27 index of production for rubber products manufacturing followed an upward trend during the period between 1997 and 2007, with average growth of 2.4 % per annum, despite a contraction in output in 2001. The development of the output for other rubber products followed closely the evolution for the whole of rubber products. In contrast, the production index of rubber tyres and tubes manufacturing was little different in 2007 from the level of 2000, with much slower growth after the relative trough recorded in 2001; over the ten year period through to 2007, output grew by an average 0.2 % per annum.

Table 7.9: Manufacture of rubber products (NACE Group 25.1)
Expenditure, productivity and profitability, EU-27, 2006

	(EUR million)			(EUR thousand per person)	
	Personnel costs	Purchases of goods & services	Investment in tangible goods	Apparent labour productivity	Average personnel costs
Rubber products (1)	12 250	47 339	2 600	48.9	34.0
Rubber tyres & tubes	5 465	26 378	1 517	62.2	40.9
Retreading & rebuilding of rubber tyres (2)	291	1 094	51	32.1	24.6
Other rubber products	6 494	19 867	1 064	41.4	30.2

(1) Rounded estimates based on non-confidential data.

(2) Investment in tangible goods and apparent labour productivity, 2005.

Source: Eurostat (SBS)

Expenditure and profitability

About one fifth (22.0 %) of tangible investment across all rubber and plastics manufacturing activities in the EU-27 was spent on rubber products manufacturing in 2006. This represented a slightly lower share than the corresponding ratio for value added, resulting in an investment rate for rubber products manufacturing (14.4 %) that was somewhat below the average (15.1 %) for rubber and plastics manufacturing.

The operating cost structure of the EU-27's rubber manufacturing sector was very similar to that for rubber and plastics manufacturing as a whole, as about one fifth (20.6 %) of operating expenditure was accounted for by personnel costs, leaving the majority spent on purchases of goods and services.

Each person employed in the EU-27's rubber products manufacturing sector generated an

average of EUR 48.9 thousand of value added in 2006, which more than covered average personnel costs of EUR 34.0 thousand per employee. The resulting wage adjusted labour productivity ratio of 143.7 % was very similar to the average for the whole of the rubber and plastics manufacturing sector.

In Denmark, the average value added generated per worker within the rubber products manufacturing sector in 2006 was insufficient to cover average personnel costs (being almost 20 % less). In Denmark, Bulgaria and Lithuania, the wage adjusted labour productivity ratio of the rubber products manufacturing sector was between 70 and 100 percentage points lower than the average for rubber and plastics manufacturing as a whole. In contrast, wage adjusted labour productivity was relatively high in the Czech Republic (60 percentage points above the rubber and plastics manufacturing average).

7.2: Plastics

This subchapter covers the manufacture of plastic products (NACE Group 25.2), including plastic sheets, pipes and tubes; plastic packaging goods (such as bags, containers and bottles); plastic products for the construction sector (such as doors, frames and baths); and other plastic products (such as insulating and lighting fittings). Note that the manufacture of plastic games, toys, footwear, furniture and linoleum are not considered.

The production of plastic begins with the distillation of heavy crude oil into hydrocarbon fractions, the most important of which is called naphtha. Polymerisation and polycondensation

are the two key processes used to produce plastics. Plastics can be grouped into two main polymer families: these are thermosets, which do not soften once moulded; and thermoplastics, which soften on heating and then harden on cooling.

According to Plastics Europe⁽⁹⁾, the EU-27 together with Norway and Switzerland produced 65.6 million tonnes of plastics in 2007, accounting for a quarter of global production. There are a wide range of applications for plastics across many manufacturing activities. Demand by converters of plastics in the EU-27, Norway and Switzerland was for a total 52.5 million tonnes, of which just over one third (37 %) was for packaging, a further fifth (21 %) for building and construction and a little under one tenth (8 %) for the automotive applications.

(9) For more information, see <http://www.plasticseurope.org>.

Structural profile

The plastics manufacturing sector (NACE Group 25.2) employed about 1.4 million persons across the EU-27 in 2006, about eight in every ten workers within rubber and plastics manufacturing. These persons were employed by some 57.2 thousand enterprises, which generated an estimated value added of EUR 60.0 billion from turnover of EUR 209.7 billion in 2006.

The value added generated by the manufacture of other plastics (NACE Class 25.24), covering the production of goods such as plastic tableware and kitchenware as well as electrical insulating, was the largest activity within this sector, generating two fifths of EU-27 value added in 2006. A further quarter (25.4 %) came from the manufacture of plastic plates, sheets, tubes and profiles manufacturing (NACE Class 25.21), while the manufacture of plastic packing goods (NACE Class 25.22) and builders' ware (NACE Class 25.23) provided the remainder.

The plastics manufacturing sector in Germany generated more value added in 2006 than that of any other Member State, accounting for over one quarter (28.1 %) of the EU-27 total, almost twice the contribution of the next highest share from the United Kingdom (15.1 %). There was not a particularly strong level of relative specialisation in value added terms within the plastics manufacturing sector. The relative contribution of the value generated by this sector to total value added in the non-financial business economy was highest in Slovenia, where it was about two thirds more than the EU-27 average.

For most of the plastics manufacturing subsectors, EU-27 production indices in the period between 1997 and 2007 followed a broad pattern of growth through until 2000 followed by a year or two of stagnation or contraction before a further upswing in output through until the end of the period. In this respect, the development of the output of builders' ware of plastic manufacturing was something of an anomaly. Over the same ten year period, the production index declined by a total of 6.6 %, with upturns in 1998, 2003 and 2006 being followed immediately by declines.

Expenditure and productivity

Tangible investment in the plastics manufacturing sector in 2006 was valued at EUR 39.9 billion, representing about three quarters (76.2 %) of all tangible investment across the EU-27's rubber and plastics manufacturing activities, resulting in an investment rate of 15.0 %.

The average value added generated by each person employed within the EU-27's plastics manufacturing sector was EUR 43.4 thousand in 2006, which was EUR 13.4 thousand higher than the average personnel costs of each employee (note the latter does not include self proprietors). As a result, the wage adjusted labour productivity ratio of the plastics manufacturing workforce was 144.7 % in 2006, almost identical to the average for the whole of rubber and plastics manufacturing. This was also the case among a majority of the Member States for which data are available⁽⁶⁾, with exceptions limited to Bulgaria (where this ratio was 20 percentage points higher for plastics manufacturing), and to Slovakia and the Czech Republic (where it was between 20 and 30 percentage points lower for plastics manufacturing).

⁽⁶⁾ Bulgaria, the Netherlands, Poland and Portugal, 2005; Malta, not available.

Table 7.10: Manufacture of plastic products (NACE Group 25.2)
Structural profile, EU-27, 2006

	Enterprises (thousand)	Turnover (EUR million)	Value added (EUR million)	Persons employed (thousand)	Share in total (%)	
					Value added	Persons employed
Plastic products (1)	57.2	209 676	60 000	1 381.2	100.0	100.0
Plastic plates, sheets, tubes & profiles (1)	8.2	58 209	15 235	281.6	25.4	20.4
Plastic packing goods	8.6	41 856	11 144	254.4	18.6	18.4
Builders' ware of plastic (1)	11.5	32 325	10 000	254.3	16.7	18.4
Other plastic products	29.0	77 286	24 055	590.8	40.1	42.8

(1) Rounded estimates based on non-confidential data.

Source: Eurostat (SBS)

Table 7.11: Manufacture of plastic products (NACE Group 25.2)

Structural profile: ranking of top five Member States in terms of value added and persons employed, 2006

	Highest value added (1)			Largest number of persons employed (2)			Most specialised: share in non-financial business economy (%) (3)	
	Country	(EUR million)	(% of EU-27)	Country	(thousand)	(% of EU-27)	Country	Value added
1	Germany	16 879	28.1	Germany	305.2	22.1	Slovenia	1.8
2	United Kingdom	9 087	15.1	United Kingdom	180.2	13.0	Czech Republic	1.7
3	France	7 959	13.3	France	164.3	11.9	Lithuania	1.5
4	Italy	7 316	12.2	Italy	155.4	11.2	Germany	1.5
5	Spain	4 065	6.8	Poland	112.6	8.3	Poland	1.4

(1) Malta, not available; the Netherlands, Poland and Portugal, 2005.

(2) Malta, not available; the Czech Republic, the Netherlands, Poland and Portugal, 2005.

(3) Cyprus, Malta and the Netherlands, not available; Bulgaria, Poland, Portugal and Romania, 2005.

Source: Eurostat (SBS)

Table 7.12: Manufacture of plastic products (NACE Group 25.2)

Expenditure, productivity and profitability, EU-27, 2006

	(EUR million)			(EUR thousand per person)	
	Personnel costs	Purchases of goods & services	Investment in tangible goods	Apparent labour productivity	Average personnel costs
Plastic products (1)	39 884	150 809	9 000	43.4	30.0
Plastic plates, sheets, tubes & profiles	9 649	43 510	2 391	54.1	35.1
Plastic packing goods	7 371	31 082	2 221	43.8	29.9
Builders' ware of plastic (2)	6 370	22 605	1 020	39.3	26.1
Other plastic products	16 495	53 612	3 392	40.7	29.3

(1) Rounded estimates based on non-confidential data.

(2) Rounded estimates based on non-confidential data; investment in tangible goods, 2005.

Source: Eurostat (SBS)

Table 7.13: Plastics (CPA Group 25.2)

Production of selected products, EU-27, 2007 (1)

	Prodcom code	Production value (EUR million)	Rounding base (EUR million)	Volume of sold production (million)	Unit of volume	Rounding base (million)
Plastic parts & accessories for all land vehicles (excluding for locomotives or rolling stock)	25.24.90.60	20 210	0.5	-	-	-
Plastic doors; windows & their frames & thresholds for doors	25.23.14.50	12 887	-	90	units	-
Plastic carboys; bottles; flasks & similar articles for the conveyance or packing of goods; of a capacity ≤ 2 litres	25.22.14.50	6 900	300	99 000	units	3 000
Sacks & bags of polymers of ethylene (including cones)	25.22.11.00	6 885	-	3 118	kg	-
Plastic boxes; cases; crates & similar articles for the conveyance or packing of goods	25.22.13.00	6 028	4	2 484	kg	0.7

(1) Excluding products of a generic nature (other), sales of services such as repair, maintenance and installation; estimates; threshold of production value set at EUR 6 billion; the rounding base indicates the magnitude of the rounding employed to protect confidential cells (in the case of PRODCOM code 25.24.90.60, the value lies within the range +/- EUR 0.5 million of the reported value).

Source: Eurostat (PRODCOM)

Table 7.14: Manufacture of rubber and plastic products (NACE Division 25)
Main indicators, 2006 (1)

	BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	IT	CY	LV	LT
Enterprises	0.8	1.5	3.0	0.6	6.6	0.2	0.3	0.6	5.7	5.0	12.4	0.1	0.2	0.4
Persons employed	27.0	23.8	84.8	20.7	378.7	5.2	10.0	11.7	120.1	231.2	201.0	1.2	4.6	9.5
Turnover	9 145	651	8 134	3 706	69 541	339	1 581	1 475	20 785	42 151	40 910	102	212	636
Production	8 526	611	7 588	3 601	62 693	316	1 530	1 424	18 957	39 126	39 285	91	212	594
Purch. of goods & serv.	7 002	569	6 585	2 245	48 131	267	1 045	1 064	15 457	30 408	31 726	69	179	505
Value added	2 225	124	1 802	1 408	21 489	78	539	480	5 709	11 428	9 650	37	48	154
Personnel costs	1 363	46	892	917	15 035	47	354	265	3 759	8 920	6 114	24	24	60
Average personnel costs	51.7	2.0	10.9	44.6	40.1	9.2	35.6	24.5	31.9	38.6	33.7	20.5	5.3	6.3
Gross operating surplus	862	78	910	492	6 454	30	185	215	1 949	2 508	3 536	13	24	94
Gross investment	249	94	454	234	2 498	25	73	95	894	1 729	1 580	6	27	39
Apparent labour prod.	82.3	5.2	21.3	67.9	56.7	15.0	53.7	40.9	47.5	49.4	48.0	31.0	10.4	16.2
Wage adj. labour prod.	159.4	255.1	194.4	152.5	141.5	163.5	150.8	166.7	149.3	127.9	142.5	151.5	195.4	254.9
Gross operating rate	9.4	11.9	11.2	13.3	9.3	8.9	11.7	14.6	9.4	6.0	8.6	12.4	11.1	14.8
Investment rate	11.2	75.7	25.2	16.6	11.6	32.5	13.5	19.7	15.7	15.1	16.4	16.8	56.2	25.5
	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK	NO
Enterprises	0.0	2.3	:	1.2	0.6	9.1	1.2	2.7	1.2	0.5	0.7	1.7	6.9	0.4
Persons employed	6.2	41.1	:	32.6	28.1	142.1	25.8	47.1	13.6	20.9	15.3	28.6	208.2	5.4
Turnover	1 866	3 061	:	6 872	5 476	9 028	2 789	2 033	1 619	1 811	3 039	4 757	31 165	1 212
Production	1 480	2 642	:	6 366	4 913	8 433	2 711	1 866	1 384	1 675	2 857	4 379	29 527	1 068
Purch. of goods & serv.	1 420	2 422	:	4 879	3 853	6 884	2 071	1 712	1 216	1 503	2 127	3 317	20 122	855
Value added	455	705	:	1 987	1 809	2 363	791	402	408	334	1 018	1 531	10 932	372
Personnel costs	326	406	:	1 300	1 159	955	442	191	230	188	618	1 065	7 130	268
Average personnel costs	53.0	10.1	:	40.6	41.6	7.3	17.2	4.1	17.7	9.0	40.7	42.2	35.0	50.6
Gross operating surplus	129	299	:	687	650	1 408	349	211	179	146	401	432	3 802	104
Gross investment	57	192	:	277	258	788	138	338	98	150	160	188	1 025	66
Apparent labour prod.	73.9	17.2	:	60.9	64.3	16.6	30.6	8.5	30.0	16.0	66.5	53.5	52.5	69.3
Wage adj. labour prod.	139.5	170.2	:	150.1	154.8	227.4	177.6	208.9	169.3	177.0	163.4	126.6	150.0	136.9
Gross operating rate	6.9	9.8	:	10.0	11.9	15.6	12.5	10.4	11.0	8.1	13.2	9.1	12.2	8.6
Investment rate	12.5	27.2	:	13.9	14.3	33.3	17.4	84.0	24.1	44.9	15.7	12.3	9.4	17.8

(1) Netherlands and Poland, 2005; unless otherwise stated, values refer to EUR million; number of enterprises and number of persons employed are given in thousands; average personnel costs and apparent labour productivity are given in EUR thousand per person; wage adjusted labour productivity, gross operating rate and investment are ratios expressed as percentages.

Source: Eurostat (SBS)

