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Association of Plastics Manufacturers

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An analysis of plastics consumption and recovery in Europe

Published Summer 2004

2002
& 2003

Plastics 2002 – 2003 headlines

- Total plastics consumption, including virgin polymers and recycled granulate, continued to increase, rising 5.6 per cent between 2001 and 2003. The main growth occurred between 2001 and 2002 (+3.7 per cent), compared to 1.9 per cent growth between 2002 and 2003
- Per capita consumption of virgin plastics in Western Europe rose to 96.6 kilograms in 2002, increasing to 98.1 kilograms by 2003
- Mechanical recycling of plastics waste increased by 11.3 per cent in tonnage terms between 2001 and 2002, with a similar increase in 2002, maintaining the mechanical recycling rate of about 14 per cent in 2003
- Energy was recovered from 4 678 000 tonnes of plastics waste in 2002, an increase of 2.1 per cent on 2001 figures which represents 23 per cent of the recovery of total collectable plastics waste. This increase was due to a growth in energy recovery capacity expansions and new plants
- Overall, increased recovery meant that the amount of plastics going to landfill only increased slightly between 2001 and 2003 and is effectively being decoupled from the growth in consumption and associated waste generation. Volumes sent to landfill in Western Europe in 2003 are estimated to be at the same level as in 1993

*Please note: Rounding of figures in this report (for example to the nearest kilotonne or percentage point) may appear to cause slight differences in totals. 2003 data remains subject to a degree of estimation and it will not be fully confirmed until late 2004 – also some 2003 data is not yet available. The 2002 data is as accurate as possible and is based on fully confirmed figures. The data for 2001 has been revised and verified since publication of the last report.

Contents

Plastics continued growth in difficult times

This is the fourteenth year in which Plastics*Europe* (formally known as APME) has commissioned an annual survey of plastics consumption and recovery in the European market. This report confirms the data for 2002 and contains the figures for 2003, it also includes information from the new member states that joined the European Union this year, plus Bulgaria and Romania. Summer publication has allowed us to present the most up-to-date data possible, including statistics from the year immediately preceding publication. This report maintains its status as one of the few independent industry surveys which examines the complete lifetime of plastics – from consumption by processors through to material recovery at end of life.

Report in brief

2002 and 2003 were two of the most difficult and challenging years the European plastics industry has ever faced. Prospects of a quick recovery after several years of cut backs and industry consolidation were dashed early in 2003 by the outbreak of war in Iraq. The global economic downturn, exacerbated by ongoing tensions in the Middle East, has brought relative stagnation to industry, while highly volatile crude oil and petrochemical feedstock prices also negatively impacted profitability across all market sectors.

Despite these challenges, the plastics industry remains relatively robust with consumption in Western Europe rising steadily to 39 706 000 tonnes in 2003, an increase of 5.6 per cent on 2001. All signs indicate that the outlook for 2004 is more positive, with the global economy showing signs of recovery and the demand for plastics enhanced by high demands from Asia.

Years of innovation have resulted in great progress in the evolution of plastics' development and use. Today's broad family of tailor-made materials helps designers meet the challenges of the latest technological applications and manufacturing solutions while minimising the impact on the environment. Increased consumption reflects growing recognition of plastics' strength and flexibility, combined with affordability and durability which make them suitable for a range of applications from packaging to construction, telecommunications to electronics equipment.

Plastics are one of the most resource efficient and uniquely versatile materials available to society and as such make a significant contribution to the goals of sustainable development. The European plastics industry is committed to facilitating improved resource efficiency, as well as waste prevention techniques through technological developments and improved understanding and implementation of various recovery and recycling options. In particular, Plastics*Europe* has been active in a number of partnerships looking at ways to help meet the challenges established in the EU's Environmental Technical Action Plan (ETAP), adopted in January 2004. This, in turn, will help meet the goals set out in the Thematic Strategies on the sustainable use of resources and the prevention and recycling of waste.

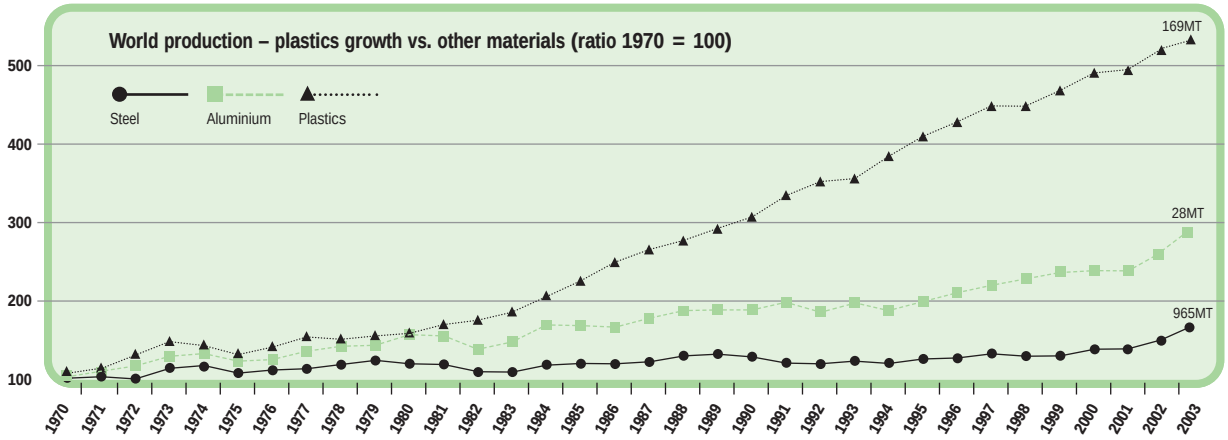
Plastics*Europe* has also been involved in increasing understanding and direction around the European Directive on Plastics and Packaging Waste (P&PW) which was revised in 2003. Plastics*Europe*'s eco-efficiency studies helped ensure that although plastics' recycling targets were increased, levels remain more achievable and realistic than initially proposed.

Plastics*Europe* – the new organisation takes shape

In early 2003, a need for a more efficient and integrated network, driven by an increasingly dynamic and changing business environment, prompted the plastics manufacturers' member companies to initiate a review of APME and its interaction with partner organisations. The result has been a new streamlined European plastics organisation - Plastics*Europe* - which will replace APME by the end of 2004. The new pan-European network of plastic manufacturers is designed to ensure strong cooperation between existing national plastics associations (NPAs) and the European Chemical Industry Council (CEFIC), in order to respond to today's challenges with 'one industry voice'.

While much time has been spent ensuring the smooth transition from APME to the new plastics association, the technical programme has been actively contributing and responding to the needs of the European legislative debate, providing valuable research to ensure that plastics are considered within a broader concept of resource saving and sustainability.

Also, as the End of Life Vehicle (ELV) and Waste Electric and Electronic Equipment (WEEE) Directives were finalised and are being transposed into national legislation and the industry began to concentrate on implementation, Plastics*Europe* began to explore approaches to improve end of life recovery options to help meet the objectives of the legislation.



Source: SPMP – CIPAD – IISI – PECHINEY – PARDOS MARKETING

Plastics making energy work harder

In a recent study carried out by Plastics*Europe*, it is estimated that if plastics were to be replaced by alternative, more traditional, materials where possible across Western Europe, approximately 10 per cent more energy would be required. This is the equivalent of about 25 million tonnes of crude oil, corresponding to 105 million tonnes of CO_2 greenhouse gas emissions per year, or a third of the Kyoto reduction target for Western Europe.

Plastics are something of an unsung hero, so often taken for granted, yet essential to the pursuit of a sustainable society. As pressure increases to find solutions to linked social and environmental problems, ranging from climate change to resource and energy use, the European plastics industry continues to develop materials and technologies, which throughout the course of their life cycle are able to meet the complex, interlinked challenges of a sustainable society.

Plastics are one of the most resource efficient and flexible materials available to society. As such they make a major contribution to the vital goals of sustainable development, not only as a result of their growth in use, which brings economic and social benefits, but also because of the significant contribution they make to energy use and efficiency, thereby reducing negative impacts on the environment.

A key element of this is energy conservation. Plastics achieve this in a number of ways:

1. Energy saving during manufacture

2. Energy saving throughout a product's lifetime

3. Energy saving at end of life: reuse, recycling and energy recovery.

1. Energy saving during manufacture

The European plastics industry is committed to the principle of prevention. This means not only reducing unnecessary consumption but also minimising the amount of energy used and waste produced during the manufacturing process itself as well as the amount of material and energy resources needed to fulfil the product's function during its lifetime.

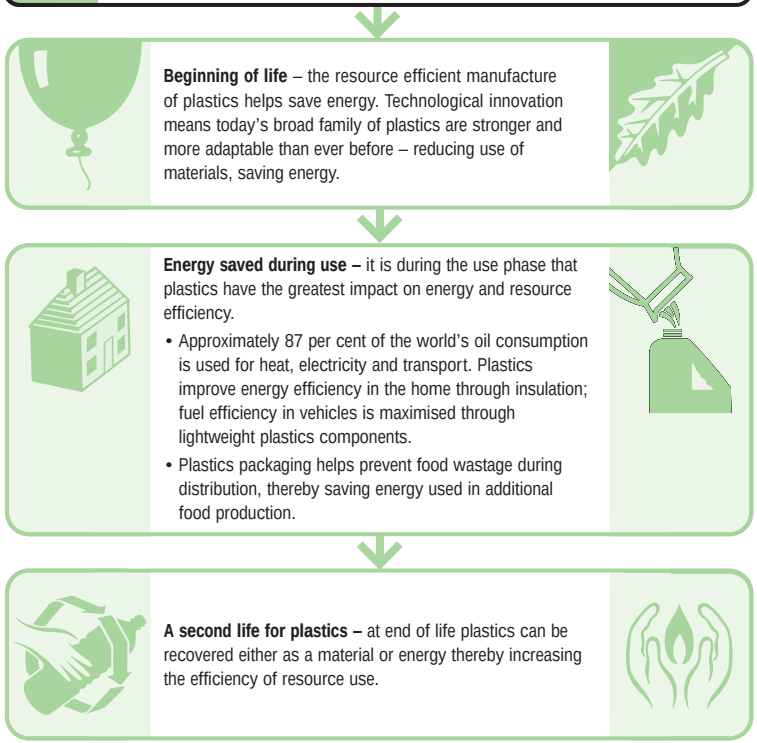
The vast majority of plastics are made from feedstocks derived from oil or gas in large, highly efficient, world-scale petrochemical facilities. The feedstock for the manufacture of plastics only consumes a small fraction – four per cent – of the world's oil. This fraction is used so effectively that it is estimated that the use of plastics as a whole actually saves more oil than is used for their manufacture, ensuring that valuable fossil fuel reserves last longer as a result.

Thanks to continual innovations in material chemistry and process engineering, today's broad family of plastics are lighter, yet stronger and more adaptable, than ever before. This means that, product for product, proportionally less of the world's oil supply and energy resources are being used in their manufacture – a prime example for the principle of 'using less to do more'.

The reduction in the weight of plastics is particularly noticeable in packaging – the biggest user of plastics. Over a ten-year period, the weight of the average plastics package was reduced by an average of 28 per cent. A good example, which helped contribute to this reduction is the switch from shrink to stretch film packaging on pallets filled with drinks cartons by one of Europe's largest fruit juice producers, based in the Netherlands. This move reduced the amount of packaging waste by 80 tonnes per year. In Europe as a whole, the average reduction in weight of pallet film was an impressive 70 per cent over ten years.

As for the manufacturing process itself, the industry has made great advances to ensure cleaner production, the reduction of energy consumption and limitations in harmful emissions to air and water.

Plastics help conserve energy throughout their lifetime



Improvement is often due to the development of processes which no longer require the use of solvents and where polymerisation takes place in the bulk liquid or gas phase. Similarly, innovation in catalyst development and process techniques also saves energy while enhancing product performance.

2. Energy saving throughout a product's lifetime

The vast majority of energy saved by plastics occurs during the product's lifetime, where the use of lightweight or insulating plastics results in dramatic savings of energy that would otherwise be lost if more traditional materials were used.

For example, transport and the home are two of the biggest users of energy worldwide. Therefore, plastics play a vital role in reducing this energy consumption by their lightweight and insulating properties.

See the opposite page for examples of how plastics make dramatic energy saving during life.

3. Energy saving at end of life: reuse, recycling and energy recovery

Once plastics have reached the end of their normal working life, energy and resources can also be saved through a variety of recovery techniques.

• *Saving resources by reuse*

Savings of resources and energy can often best be achieved through reuse and many plastics products are increasingly designed in ways that make this possible. For example, the number of reusable plastic pallets,

crates and boxes used in food distribution and the medical sector has grown rapidly. These rigid units have the additional benefit of giving products greater protection, first reducing cost and saving energy.

• *Saving resources by recycling*
Mechanical recycling for homogeneous and relatively clean plastics waste streams remains the preferred recovery technique providing viable market outlets exist. Over recent years, expansion in packaging waste collection activity and improvements in waste management systems in many European countries has increased the amount of plastics waste being recycled. In fact, some 14 per cent of collectable plastics waste in Europe is now mechanically recycled to produce 'recyclate' which can then be used alone, or mixed with virgin plastics, to make new plastics objects.

For household waste streams a focus on PET and high density polyethylene plastics bottles has resulted in some impressive achievements. In the area of PET bottle recycling as a result of tremendous growth in collection schemes for recycling there was an increase in overall tonnage of +30 per cent in 2002 (vs. 2001) and another +36 per cent in 2003 (vs. 2002), for a total of over half a million tonnes of collected bottles. The collection and recycling rate in some countries is extremely impressive, with Belgium, Germany, Norway, Sweden and Switzerland all achieving more than 70 per cent recycling of the available quantity of PET bottles.

While local conditions determine what is actually achievable, it is clear that by adopting the best practices from such leading countries, there is much scope for continuing growth in PET (and HDPE) bottle recycling across Europe, as a number of countries have as yet only achieved rates of around 10 per cent or less.

• *End of life energy recovery*
Where reuse or recycling are not appropriate options, much of the energy contained post-user plastics can be recovered in the form of energy.

It is very important that the incineration of Municipal Solid Waste (MSW) is recognised as a useful source of energy and that such recovery may count towards the recovery targets in waste legislation. More generally, the convergence and synergy between waste and energy policies should be a major objective.

Local circumstances and eco-efficiency considerations will determine the best combination of recovery routes: recycling to new plastic products, replacing fossil fuels in power stations/manufacturing plants, and generating heat and/or electricity from modern municipal incinerators.

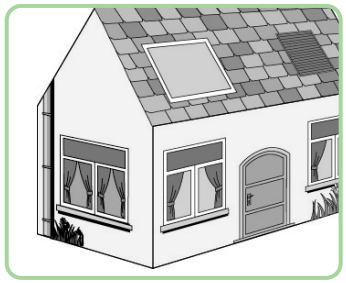
In 2002 some 4.6 million tonnes of plastics waste across Europe were recovered in this way to provide power for commercial (cement kilns, heavy industrial processes etc…) and domestic use.

Plastics already make a valuable contribution to energy conservation both during life and at end of life. New technologies are continually being employed, which means that plastics will continue to be key to preserving the world's energy for future generations.

Some examples to illustrate the dramatic impact of using this 'material of choice' to conserve energy during use

• *Better fuel consumption in vehicles:*
Increasingly lighter, stronger plastics are helping automotive designers meet the twin challenges of increasing performance and minimising environmental impact. It is estimated that 100 kilograms of plastics have typically replaced 200-300 kilograms of conventional materials in today's vehicles saving around 12 million tonnes of oil and reducing CO_2 emissions by 30 million tonnes per year across Europe. Hybrid fuel systems, powered by dual petrol and electric systems, are already coming onto the market. Plastics' strength, durability and lightweight properties make them the ideal material for these fuel saving second generation vehicles.

• *Improving energy efficiency in the home:*
In northern European countries almost one quarter of all energy consumed is used in domestic heating. Plastics foam insulation in housing typically saves the energy that is required to produce it within a year. Over the lifetime of the building, the energy savings rise to 40-60 times that required to produce the insulation. The CO_2 reduction over the lifetime is 10-40 times that used to produce the insulation.



• *Contribution to new energy sources:*
An integral component of plastics' environmental credentials is their contribution to the design of renewable or alternative energy technologies such as solar, wave and wind power.

Photovoltaic solar cells, which help convert the sun's energy into usable energy, rely on plastics' resistance to extremes of temperature and light to work efficiently. Innovations in plastics mean that the cost of generating usable domestic electricity from solar radiation has been reduced. This, added to the fact that solar power is a clean source of energy, means that the increased use of solar energy in the future looks likely, reducing our dependence on fossil fuel energy. Furthermore, it is essential that the energy equivalent to that used in the production of the plastics for fuel cells will be recovered by the active solar cell within two to three years.

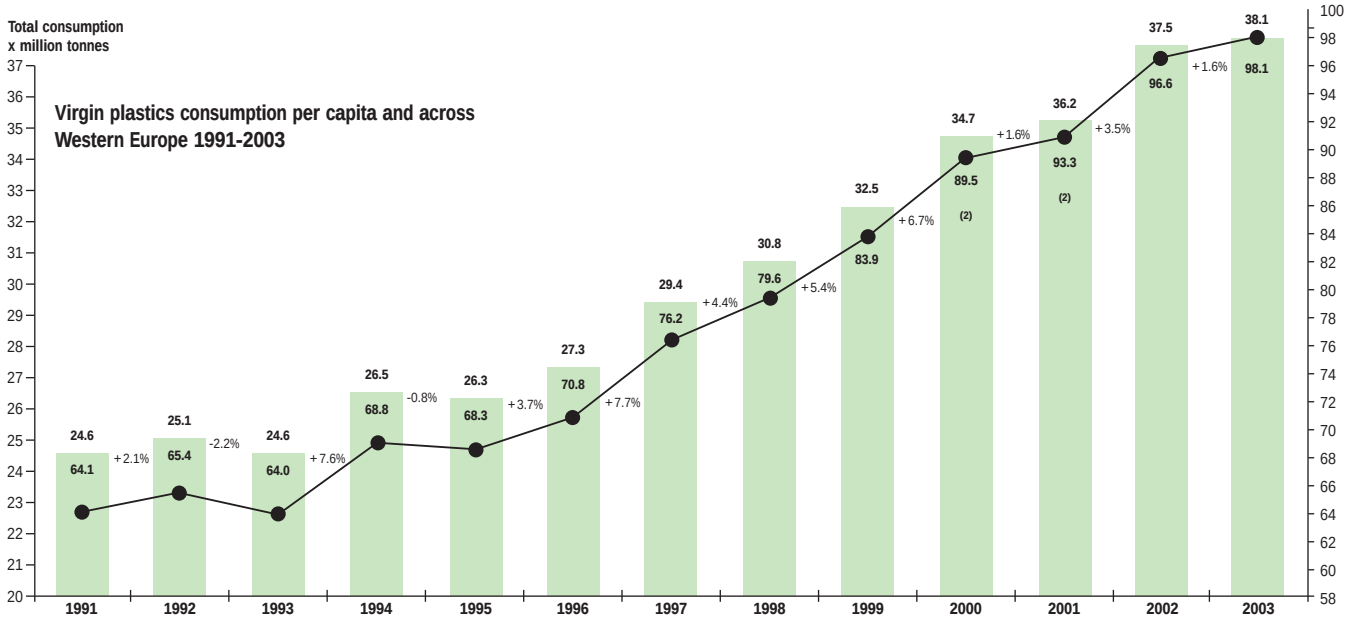
In the future, hydrogen fuel cell technology may radically alter the way we power our vehicles. Fuel cells use hydrogen as an energy source. No carbon dioxide is emitted during the chemical process that converts hydrogen into electrical energy. The weight of the fuel cell systems is a crucial part of the fuel cell design and plastics play a vital role in enhancing their performance. The thermoplastics plates reduce overall weight as they replace plates made from milled graphite or stainless steel coated with gold. Plastics are involved in the construction of efficient, affordable automotive fuel cells and unlike other materials are corrosion proof and retain their shape, even at temperatures up to 240 degrees Celsius. Fuel cell technology has the versatility to be used in a range of applications including cell phones, lap tops and building and home automation.

Consumption in Western Europe

Plastics processors' consumption by country, Western Europe 2002 (x 1 000 tonnes/year)

	Trend 2001/2002	% compared to the total	
Austria	-12.1%	2.0%	765
Belgium	5%	5.3%	2 080
Denmark	-2.8%	1.4%	550
Finland	7.6%	1.2%	475
France	4.2%	11.7%	4 550
Germany	3.2%	27.9%	10 870
Greece	10.9%	1.3%	515
Ireland	8%	1.1%	430
Italy	2.5%	18.0%	7 020
Netherlands	10.5%	4.5%	1 760
Portugal	18.8%	1.8%	705
Spain	9.3%	9.1%	3 550
Sweden	10.0%	1.8%	720
United Kingdom	1.6%	10.1%	3 954
European Union	6.2%	97.4%	37 943
Norway	31.3%	1.0%	385
Switzerland	12.8%	1.6%	637
2002 Western Europe	3.7%	100.0%	38 966
2003 Western Europe	*1.9%*	*100.0%*	*2003 39 706*

In 2003, the consumption of polymers for plastics applications in Western Europe was 39 706 000 tonnes, an increase of 1.9 per cent from 2002. This followed a 3.7 per cent increase in 2001. Per capita consumption in Western Europe was approximately 98.1 kilograms of virgin plastics in 2003, up from 96.6 in 2002.



The figures for 2001 and 2002 have been revised in accordance with updated data.

Data in this graph refer to consumption of virgin plastics in plastics applications.

Plastics consumption data generally refer to the final market of plastics products consumed by end-users in Western Europe. They may include recycled polymers but exclude non-plastics applications. Fibres, strappings, coatings, woodbondings, elastomers and composite packaging such as LDPE film in cartons for liquid food are considered as non-plastics applications. Furthermore, these data do not take into account the import/export flows of empty and filled packaging.

Consumption in Western Europe

Consumption of thermoplastics in Western Europe 2001-2003

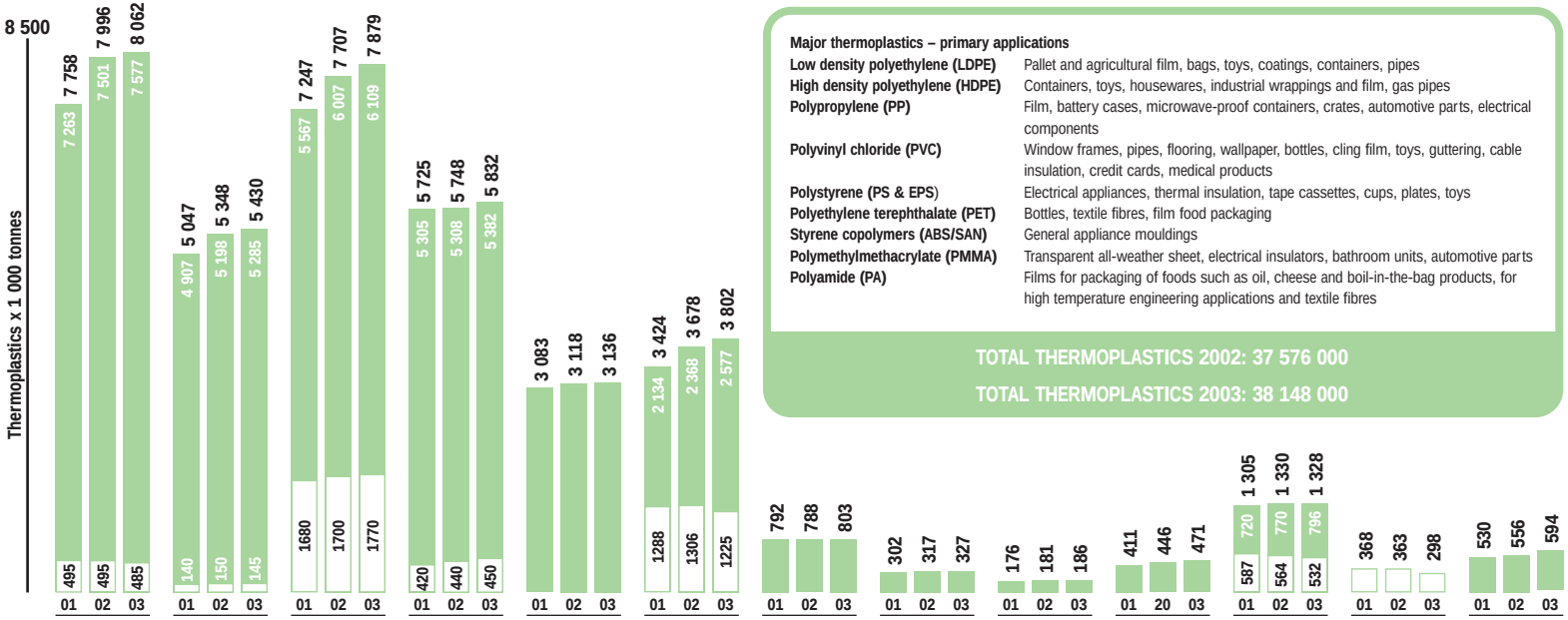
The total demand for thermoplastics across all applications rose by a total of 5.5 per cent over two years to 38 148 000 in 2003. Thermoplastics are not only used in the manufacture of many typical plastics applications, such as packaging but also in non-plastics applications such as textile fibres and coatings. Non-plastics applications accounted for 12.9 per cent of all thermoplastics consumed in 2003.

In 2003 the large-volume, thermoplastics families of polyethylene (PE), polypropylene (PP), polyvinyl chloride (PVC), polystyrene (PS & EPS) and polyethylene terephthalate (PET) represented 68 per cent of total plastics consumption in typical plastics applications. Many of these demonstrated substantial growth, in particular PET with 11 per cent higher volumes over two years.

Consumption of thermosets in Western Europe 2001-2003

The total demand for thermosets shrunk by 0.2 per cent in 2002 to 10 503 000 tonnes, compared with 10 519 000 in 2001. However, the total demand increased by 1.3 per cent between 2002 and 2003 to 10 640 000 tonnes, reflecting the first signs of economic recovery. Demand for these polymers in non-plastics applications such as adhesives is stagnant with 0.3 per cent increase over two years. Demand for these polymers in plastics applications has increased by one per cent over two years.

The proportions of thermosets used for plastics applications remained steady at 61 per cent.

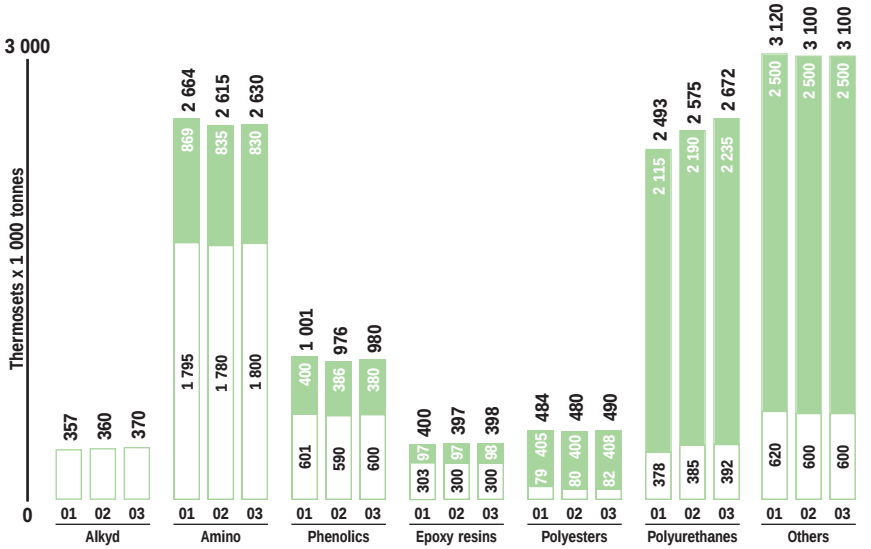


Major thermoplastics – primary applications

Low density polyethylene (LDPE)	Pallet and agricultural film, bags, toys, coatings, containers, pipes
High density polyethylene (HDPE)	Containers, toys, housewares, industrial wrappings and film, gas pipes
Polypropylene (PP)	Film, battery cases, microwave-proof containers, crates, automotive parts, electrical components
Polyvinyl chloride (PVC)	Window frames, pipes, flooring, wallpaper, bottles, cling film, toys, guttering, cable insulation, credit cards, medical products
Polystyrene (PS & EPS)	Electrical appliances, thermal insulation, tape cassettes, cups, plates, toys
Polyethylene terephthalate (PET)	Bottles, textile fibres, film food packaging
Styrene copolymers (ABS/SAN)	General appliance mouldings
Polymethylmethacrylate (PMMA)	Transparent all-weather sheet, electrical insulators, bathroom units, automotive parts
Polyamide (PA)	Films for packaging of foods such as oil, cheese and boil-in-the-bag products, for high temperature engineering applications and textile fibres

TOTAL THERMOPLASTICS 2002: 37 576 000

TOTAL THERMOPLASTICS 2003: 38 148 000



Plastics applications

Non-plastics applications

Major thermosets – primary applications

Phenolics	Adhesives, automotive parts, electrical components
Epoxy resins	Adhesives, automotive components, E&E components, sports equipment, boats
Polyurethane (PU)	Coatings, finishes, cushions, mattresses, vehicle seats

TOTAL THERMOSETS 2002: 10 503 000

TOTAL THERMOSETS 2003: 10 640 000

TOTAL PLASTICS CONSUMPTION, INCLUDING NON-PLASTICS APPLICATIONS

2002: 48 079 000 TONNES 2003: 48 788 000 TONNES

Please note, the 2003 figures are subject to a degree of estimation.

Consumption by industry sector

Demand for plastics remained strong across all industry sectors in 2002 and 2003, although actual growth was limited, reflecting an overall downturn in the world's economy. Although the majority of sectors showed no significant increase in consumption compared to 2002, the automotive sector did show significant growth, increasing by 5.7 per cent in 2003.

The packaging sector continues to be the major consumer of plastics. However, with the share of packaging in total plastics consumption remaining stable at just over 37 per cent in 2002 and 2003. Across other industry sectors there was relatively little change. The building and construction sector remains the third largest user of plastics, with a 2 per cent increase in consumption in 2003. The agriculture sector consumed the same 1.9 per cent of plastics in both 2002 and 2003.

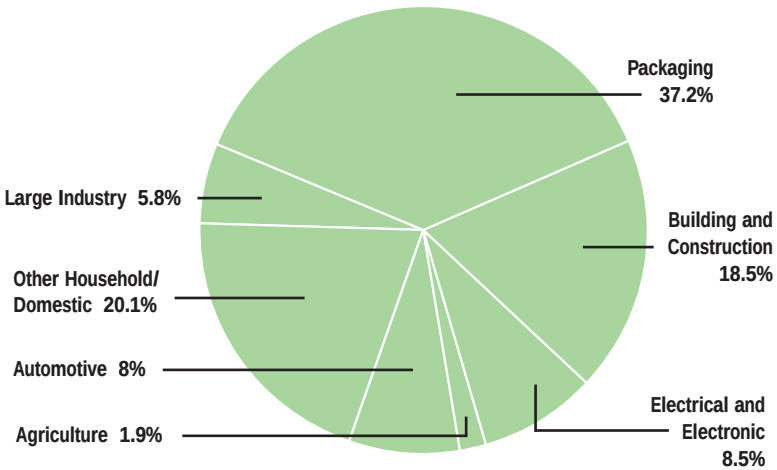
Packaging

Packaging was still the largest consumer of plastics in 2003, accounting for 14 764 000 tonnes, or 37.2 per cent of all plastics consumed. Packaging saw a 1.3 per cent growth in consumption rates between 2002 and 2003 despite the economic downturn. This is because plastics remain the material of choice for packaging, increasingly substituting other more traditional materials because they are lightweight, flexible and easy to process. Continuing technological development by the plastics industry means today's broad family of plastics continue to do more with less, helping to save valuable resources. In fact, although over 50 per cent of all Europe's goods are packaged in plastics, by weight these plastics account for only 17 per cent of all packaging.

Agriculture

Agricultural plastics account for 1.9 per cent, 744 000 tonnes, of the total plastics consumed in Europe in 2003. Despite there being no growth in this sector between 2002 and 2003, they continue to play a pivotal role. Plastics-based agricultural irrigation and drainage systems provide effective solutions for crop growing. For example, in arid regions, plastics piping and drainage systems can cut irrigation costs by one to two thirds while as much as doubling crop yield.

Plastics consumption by industry sector Western Europe 2003



TOTAL CONSUMPTION, WESTERN EUROPE 2003	39 706 000 TONNES

Building and Construction (B&C)

The building and construction (B&C) industry uses plastics for a range of applications from insulation to piping, window frames to interior design. It is plastics' durability, strength, resistance to corrosion, low maintenance and aesthetically pleasing finish that ensures their continued popularity in the sector. This is reflected in the data showing that, despite the economic downturn, B&C consumed 7 350 000 tonnes of plastics in 2003 and accounted for 18.5 per cent of total plastics consumption in Western Europe, making it the third largest user after the packaging and domestic sectors. The relatively low, two per cent, industry growth in plastics consumption between 2002 and 2003 is indicative of the negative impact of the broader economic recession and reduced house building.

Automotive

The demands of the automotive industry are a challenge for today's designers. The solution to balancing high performance, competitive pricing, style and reliability with comfort, safety, fuel efficiency and minimal environmental impact, often lies in a new generation of lightweight plastics. This is reflected in the volume of plastics being used in the automotive sector. The automotive sector defied the stagnant economic climate and saw relatively high growth rates between 2002 and 2003 – 5.7 per cent. The volume of plastics consumed by the automotive sector reached 3 170 000 tonnes, or eight per cent of total plastics applications in 2003.

Plastics are in the vanguard of new automotive innovation, with designs such as Daimler Benz's Smart car and the development of lightweight fuel cells among the examples of the lightweight material playing an essential role in the future of the automotive sector and energy efficiency. In fact, it is estimated that plastics' lightweight contributes to a 10 per cent per year reduction in passenger car fuel consumption across Europe.

Electrical and Electronic (E&E)

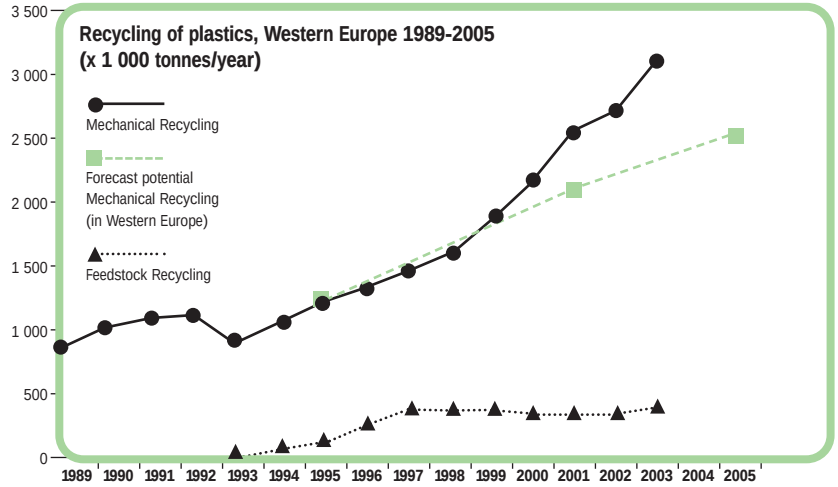
Despite the global economic downturn electrical and electronic (E&E) plastics consumption rose 3.4 per cent to 3 360 000 tonnes in 2003, compared to 3 250 000 tonnes in 2002. This confirms plastics as an indispensable material for the E&E sector. It is a fact that many of today's new technical developments capitalise on the latest types of new generation plastics – as a result, devices are becoming smaller and lighter. This means that while the amount of E&E applications continues to increase, the weight of plastics used in each unit, as in packaging, decreases. This is a fine example of plastics doing more with less resources.

Plastics waste management maximising diversion from landfill

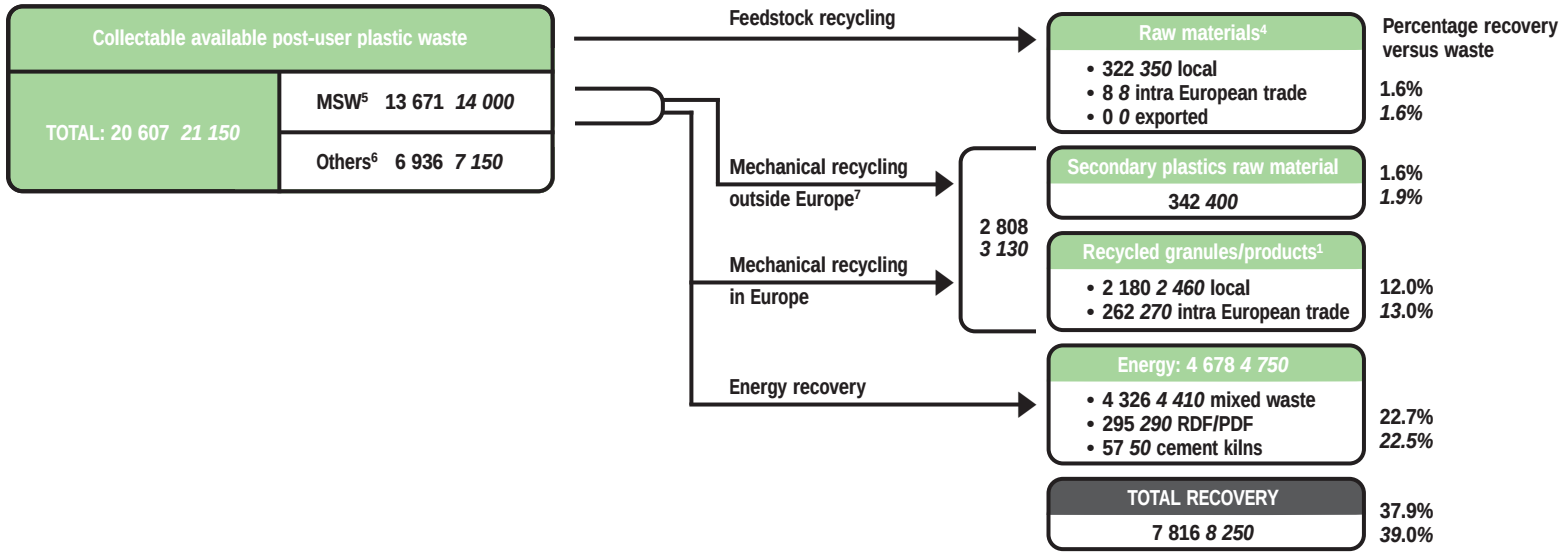
This year's research shows that between 2001 and 2003, the recovery of plastics waste has kept pace with the increase in consumption. Although there remains wide diversity between countries, good progress was made in the collection for mechanical recycling which saw a massive 24 per cent increase between 2001 and 2003, while energy recovery rose by just over 3.6 per cent.

- **Total recovery of waste from all plastics applications was 39 per cent in 2003, up one per cent on 2002**
- **Total recovery of plastics packaging waste increased from 49.4 per cent in 2001 to 52.6 per cent in 2002, driven by mechanical recycling**
- **The proportion of plastics recovered rose by 2 percentage points between 2001 and 2003, which reflects continuing decoupling of consumption from associated waste**

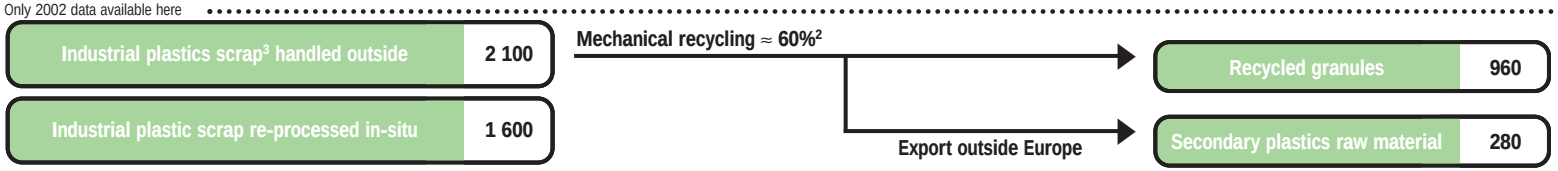
It is widely accepted that diversion from landfill to some kind of waste treatment facility is the single most effective environmental measure in relation to waste. Ensuring the increasingly efficient use of resources and minimising impact on the environment through the prevention and recovery of waste is essential if the European Union is to meet the goals laid out in the EU Landfill Directive (1999), which obliges member states to progressively reduce the amount of biodegradable waste going to landfill to 35 per cent of 1995 levels within 15 years.



Plastics waste recovery in 2002 – breakdown by recovery route (x 1 000 tonnes/year) ***2003 data shown in italics***



Only 2002 data available here



1 85 per cent granules, 15 per cent plastic products **2** 40 per cent is not mechanically recycled but goes to landfill; cement kilns and municipal incinerators **3** Processing, filling, assembling, installing, polymerisation **4** Paraffins, methanol, … **5** Households and assimilated **6** Of which distribution and industry **7** Mainly Asia and Central Europe

The European plastics industry is committed to promoting recovery and minimising waste lost to landfill through a combination of waste management options. It is clear from exhaustive research and practical experience from the implementation of the Packaging and Packaging Waste Directive (PPWD) and related eco-efficiency studies that neither recycling nor energy recovery options alone are sufficient – instead a combination of both is needed to achieve the most eco-efficient, effective waste management solution.

The principle challenge is for waste recovery to keep up with year-on-year growth in consumption. Post-user plastics waste generation increased by 5.9 per cent between 2001 and 2003 to 21 150 000 tonnes, however, improved collection and separation infrastructures meant

Plastics waste management maximising diversion from landfill

good progress was made in the amount of plastics recovered. In particular, improvements in recycling contributed to an 11.2 per cent rise in recovery between 2001 and 2003 and an overall proportional rise of 2 per cent more plastics waste recovered in 2003. As a result, the amount of plastics waste going to landfill in 2003 was 61 per cent of total collectable plastics waste – down from 63 per cent in 2001.

Mechanical recycling – the material reprocessing of waste plastics by physical means into plastics products

Mechanical recycling is the preferred recovery route for homogeneous and relatively clean plastics waste streams, provided end markets exist for the resultant recyclate. It is also the second largest recovery technique after energy recovery, with 13.6 per cent of total plastic waste recovered this way in 2002 and 14.8 per cent in 2003. Between 2001 and 2003 there was a 24 per cent increase in the amount of post-user plastics waste recovered through mechanical recycling, from 2 521 000 tonnes to 3 130 000 tonnes.

As in 2001, the growth of mechanical recycling in 2002 was stimulated mainly by packaging waste recycling, as countries adopted best waste management practices. France, Italy and Spain expanded their waste management systems, in particular their packaging waste collection activity.

The graph on page eight indicates that the mechanical recycling of post-user plastics waste throughout Western Europe has continued to rise each year since 1993. At first glance, it looks as though the initial forecast of a potential of around 11 per cent of collectable waste is being comfortably exceeded. However, the estimate assessed by TN Sofres and TNO in 1997 was set under the assumption that there would be no export of waste outside Europe and that all the recycled material would be used in European markets. Correcting the graph to exclude waste exports in fact brings the trend much closer to the forecast level.

Looking specifically at the targets set by the European Packaging Directive, an average of 23.8 per cent of post-user packaging waste was mechanically and feedstock recycled across Western Europe in 2002, up from 23.3 per cent in 2001. Austria, Belgium, Germany, Italy and Norway have already met the minimum 2008 plastics packaging waste target of 22.5 per cent. However, a few countries still have yet to meet the minimum 2001 target of 15 per cent of post-user plastics packaging waste to be recycled (Greece, Ireland and Portugal and the new member states have been given longer to meet these targets).

Recycling limits are ultimately decided by the availability of end markets for recyclate. The chart on page 13 examines the destination sectors for main applications of recycled products in 2002.

Feedstock recycling – material reprocessing of waste plastics by conversion into basic chemicals, monomers for plastics or hydrocarbon feedstock

After a decrease over recent years, the amount of post-user plastics waste sent for feedstock recycling increased by 17.4 per cent between 2001 and 2003 to return to previous levels of above the 300 kilotonne mark.

Feedstock recycling in theory has great potential to boost plastics waste recovery levels. While a number of companies have successfully developed and demonstrated technologies, many of which can process mixed plastics streams, investment in feedstock recycling has been hindered by a combination of logistical and economic factors. At the same time, good progress has been made with various eco-efficient energy recovery technologies.

There has been some renewed interest in other areas of feedstock recycling – such as the de-polymerisation of PET or treatment of PVC to make chemicals which can then be used in the production of new plastics.

Energy recovery – the recovery of plastics waste into energy

In 2003, 4 750 000 tonnes of post-user plastics waste collected in Western Europe, was reclaimed through energy recovery. This is up 1.5 per cent on 2002. This represented 22.5 per cent of total collectable plastics waste and means energy recovery remains the most common recovery route for post-user plastics waste in Western Europe.

In the past, concern around the poor environmental performance and emissions from old incinerators meant that this form of recovery often met with opposition. However, strict regulation has ensured that energy recovery is now endorsed as an environmentally sound option. In addition, it contributes to the security of energy supply.

Capacity expansions and new incineration plants have led to an increase in energy recovery capabilities in countries across Western Europe. Some new recovery capacities have been started up in countries such as Germany, Sweden and Italy. Switzerland and Denmark recovered the most plastics waste via energy recovery in 2002, recovering 75 per cent and 65 per cent respectively. France maintained its leading position in tonnage terms and continued to recover the most plastics waste via this route in 2002.

Completing the recovery picture 1993-2003 (x 1 000 tonnes)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total plastics waste	**16 211**	**17 505**	**16 056**	**16 871**	**16 975**	**18 457**	**19 166**	**19 341**	**19 980**	**20 607**	**21 150**
Mechanical recycling	915	1 057	1 222	1 320	1 455	1 614	1 888	2 213	2 521	2 808	3 130
Feedstock recycling	0	51	99	251	334	361	346	329	298	330	350
Energy recovery	2 425	2 348	2 698	2 496	2 575	3 834	3 949	4 411	4 583	4 678	4 750
Total plastics waste recovered	**21%**	**20%**	**26%**	**25%**	**26%**	**31%**	**32%**	**36%**	**37%**	**38%**	**39%**

While year-on-year figures give a clear indication of overall trends, the scope of data used has changed and there have been improvements in methodology. Although figures have been re-evaluated to take such changes into account, comparisons between years should be treated with care.

Plastics waste in perspective

Despite the huge demand for plastics across all industry sectors, they continue to account for less than one per cent of total waste by weight. While total waste stood at a little over 2 722 million tonnes in 2002, post-user plastics waste contributed to just 20.6 million tonnes – less than one per cent. Nevertheless, it is recognised that this represents a significant quantity of valuable resource in terms of material and energy. The sector breakdown of this plastics waste has remained broadly constant over time.

Total solid waste by sector, (all materials included), Western Europe 2002 (x millions of tonnes/% by weight)

Sector	x million tonnes	% by weight
Agriculture	1 073	39.4
Distribution and Industry	375	13.8
Building and Construction	463	17
Municipal Solid Waste	224	8.2
Automotive	15	0.6
Electrical and Electronic	7	0.2
Others (Mines, sludges, energy production)	565	20.8

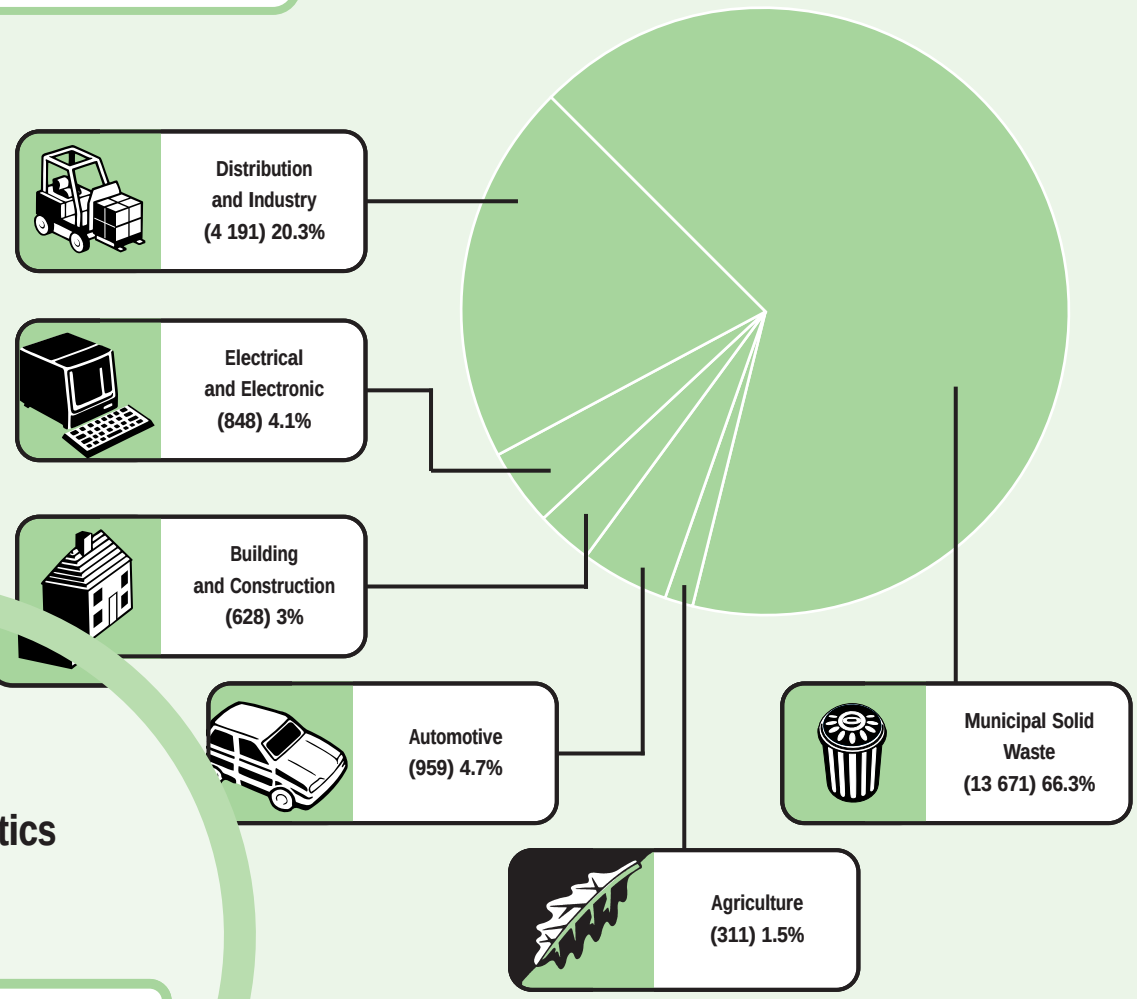
TOTAL WASTE 2 722 MILLION TONNES

of which total proportion of plastics

< 1%

TOTAL POST-USER PLASTICS WASTE 20 607 000 TONNES

Total post-user collectable plastics waste by sector, Western Europe 2002
(x 1 000 tonnes/% by weight)



Plastics recovery in action

The European plastics industry's approach of promoting minimising the loss of valuable resources at end of life helped ensure that the amount of plastics waste recovered from the total collectable plastics waste has increased to 37.9 per cent, up 0.9 per cent on 2001 and that plastics recovery has more than kept pace with consumption.

Mainly as a result of improving packaging collection systems and municipal incineration facilities, the highest quantities of plastics waste were recovered from MSW – with a total of 5 449 000 tonnes in 2002. However, in proportional terms the most fruitful sectors are Agriculture and Distribution. While feedstock recycling rates have only increased slightly with 330 000 tonnes being recovered in 2002 (compared to 298 000 in 2001), mechanical recycling increased by 11.5 per cent between 2002 and 2003 to 3 130 000 tonnes – this is mainly due to increases in packaging waste collection and increased recycling both in Europe and elsewhere, especially via exports to Asia. Energy recovery remains the largest recovery route for collectable plastics waste in Europe at 4 750 000 tonnes in 2003, an increase of 3.6 per cent on 2001. While this is mainly currently achieved by utilising the energy from MSW incineration, there is increasing interest in using solid recovered fuels meeting European wide quality standards.

Breakdown by recovery route and by end-use sector, Western Europe 2002 (x 1 000 tonnes)






	Agriculture	Automotive	Building and Construction	Distribution and Industry	Electrical and Electronic	Municipal Solid Waste	TOTAL
Total available plastics waste collectable	**311**	**959**	**628**	**4 190**	**848**	**13 671**	**20 607**
Landfill and incineration*	145	895	574	2 145	811	8 246	**12 817**
Energy recovery	1	7	0	444	3	4 222	**4 678**
Feedstock recycling	0	0	0	0	0	330	**330**
Mechanical recycling within Europe	149	58	52	1 332	32	843	**2 466**
Mechanical recycling for export	16	0	2	269	0	54	**341**
% total recovery as a proportion of end-use waste	**53.4%**	**6.7%**	**8.6%**	**48.2%**	**4.1%**	**39.7%**	**37.9%**

*Without energy recovery

Managing plastics waste by sector

The next two pages examine the ways in which the European plastics industry is striving to maximise the resource efficiency of plastics through a range of pan-European initiatives and partnerships. Plastics*Europe* is involved in a number of ventures, including some EU co-funded initiatives to further knowledge, develop best practices and facilitate appropriate post-user recovery systems across the various sectors. These include working in partnership with ACRR (Association of Cities and Regions for Recycling) to contribute technical know-how and expertise to the EU's LIFE programme, which is working towards the practical implementation of Community policy defined by the 6th Action Programme for the Environment, as well as working partnerships with ASSURRE (Association for the Sustainable Use and Recovery of Resources in Europe).

Packaging

Representing 37.2 per cent of total plastics consumption in 2002, plastics are used to package more products than any other material in Europe.

Continuing innovations in material and processing techniques have greatly improved plastics packaging performance, to the extent that over a recent ten-year period the weight of packaging for a given article has reduced by 28 per cent, contributing significantly to reducing plastics waste and showing how plastics continue to do more with less. In fact, although over 50 per cent of all Europe's goods are packaged in plastics, by weight, these plastics only account for 17 per cent of all packaging.

Plastics packaging waste presents a number of challenges in terms of recovery due to the composition and diversity of the plastics used and the fact that mixed waste is often dirty and/or contaminated. The plastics packaging waste recycling table on the right shows the plastics packaging recycling breakdown for 2002 by country. Good progress has been made and most countries have increased their recycling rates. However, challenges still remain for many countries to meet the minimum recycling target of 22.5 per cent, set by the European Packaging Directive. As a whole, mechanical recycling of post-user plastic packaging waste increased by 12.6 per cent in Western Europe in 2002 – in the meantime, packaging waste increased by just 3.5 per cent. Consequently, the recycling rate went up from 20.5 per cent in 2001, to 22.4 per cent in 2002.

In terms of the total recovery (recycling and energy recovery) of plastic packaging waste in Europe, comparing recovery in 2001 and 2002, the rate increased from 49.4 per cent to 52.5 per cent as a result of an increase in mechanical recycling and countries adopting best waste collection practices.

Automotive

In the past, the presence of large homogeneous waste streams has meant that for this sector, mechanical recycling has focused on removing these large parts for recycling. However, except for batteries and 8 to 9 kilotonnes of bumpers, which are relatively easy to dismantle and separate, the recycling of other car parts has been difficult to develop. As the EU ELV directive came into force, and the industry began to concentrate on implementation, Plastics*Europe* started to explore new techniques to improve end of life recovery. The limited availability of homogeneous and clean waste streams for mechanical recycling means interest in shredder residue treatment is now becoming ever more important.

Research across the whole life cycle of plastics, from 'cradle to grave' in order to demonstrate the eco-efficiency of plastics, will continue to play an essential role in shaping future legislation. In particular, as revision of ELV recycling targets begins, Plastics*Europe* will again be proactive in contributing studies to help guide this legislation.

The automotive sector registered the largest increase in plastics waste compared to other sectors, increasing by 10.2 per cent in 2002. This growth was a combination of an increase in the number of end of life vehicles (ELVs) and an increase in the average plastics waste content in these vehicles.

In 2001, approximately 11.3 per cent of automotive plastics waste was estimated to have been recovered both from repair shops and from end of life vehicles. However, in 2002, this was reduced to 6.7 per cent mainly due to a reassessment of the statistics and some lower levels of energy recovery.

In line with the TNO/APME *Best Practices for the Mechanical Recycling of Post-user Plastics* study, the findings of which encourage the recycling of batteries and bumpers from ELVs, the recycling of plastics from batteries (mainly PP) has now reached maturity in Western Europe with approximately 50 kilotonnes currently mechanically recycled.

Plastics packaging waste recycling, 2002

Mechanical recycling rate, %	Country
> 20%	Austria, Germany, Norway, Belgium, Italy, Netherlands, Spain
15 – 20%	France, UK, Switzerland
10 – 15%	Denmark, Finland, Portugal, Sweden
5 – 10%	Ireland
0 – 5%	Greece

Total mechanical recycling (MR) of plastics packaging in Western Europe, 2002: 2 829 000 (22.4 % rate)

TOTAL ADDITIONAL MR TONNAGE NEEDED BY 2006 FOR 22.5% PROPOSED TARGET BY COUNTRY	0.35 M

Recycling rates as estimated here are measured as a percentage of collectable waste. This in general tends to result in higher figures than if rates were calculated as a percentage of packaging put on the market.

Electrical and Electronic (E&E)

The closely integrated nature of E&E products such as televisions and mobile telephones means that plastics and metals are frequently in close combination, which makes them difficult to handle in waste terms. The fact that this is a continually evolving industry adds to the challenges facing this sector and means that total recovery, as a proportion of end-use plastics waste, stood at around 4.1 per cent in 2002 – equivalent to 35 000 tonnes.

As the Waste Electrical and Electric Equipment directive (WEEE) came into force, Plastics*Europe* started to assess new techniques to improve end of life recovery. The type of recovery method varies depending on the item; for example, plastics recovered from items such as mobile phones can be used as a source of energy. For larger equipment, such as refrigerators, the same shredding approach as ELVs is used. Recovery challenges within the E&E sector mean interest in gasification technologies is increasing as a viable recovery solution.

It is forecast that the theoretical collectable plastics waste in WEEE will grow to some 1.1 million tones by 2005 (source SOFRES 2000). The challenge with plastics waste from E&E equipment, is that it

Managing plastics waste – a partnership approach

generally consists of a number of materials. This means that plastics cannot be considered in isolation when looking at the best recovery options. It depends on the item, but the elimination of hazardous substances or recycling of precious metals often is the determing factor for the eco-efficiency of end of life processing of E&E equipment.

Building and Construction (B&C)

In 2002, 8.6 per cent of collectable building and construction waste was recycled for a second life. In general, the B&C sector offers some scope for mechanical recycling due to the concentration of larger, single polymer applications such as pipes and window frames. Initiatives such as the EU-funded LIFE programme are continuing to assess this area's true potential.

At a national level, the Netherlands, Switzerland, Norway and Germany greatly exceeded the average recycling rate; the Netherlands achieved 22.2 per cent, Switzerland, 17.6 per cent and Norway and Germany each achieved 15.9 per cent.

What is also interesting is that the B&C sector is an important end market for recycled plastics (see graph below). Some 30 per cent of recycled plastics products are actually used by the building sector in applications such as insulating bricks, fences and flooring.

Agriculture

Although one of the smaller users of plastics, this sector offers a good potential for mechanical recycling – in fact, agricultural plastic waste registered the highest recovery figure at 53.4 per cent in 2002. This is primarily due to the fact that agricultural films are extensively collected, and in general, the recycling activity is economically viable.

Despite the fact that there is no European legislation covering agricultural plastics recovery – and that most of these schemes are voluntary, six countries achieved rates of over 50 per cent in 2002. Such high levels of success in this sector reinforce the point that a regular, easily accessible supply of large quantities of homogeneous plastics waste and suitable end markets, which make plastics economically attractive to recover, are essential to improve recycling levels.

Approximately 40 per cent of all recycled plastics products were used in distribution products such as film and bags, 30 per cent were used in building applications such as pipes, windows and tiles. The remaining 30 per cent were used in household products and other applications – see chart below.

case study

6th Environmental Action Programme (EAP): Thematic Strategies

The 6th Environmental Action Programme calls for a number of inter-related measures designed to reduce the environmental impacts of resource use in-line with the EU's Sustainable Development Strategy. This includes a thematic strategy on the recycling of waste and initiatives in the field of waste prevention, notably proposals on Community waste prevention targets and secondly, the thematic strategy on the Sustainable Use of Natural Resources, which supports the objectives of the Lisbon strategy and the EU's sustainable development strategy. The 6th EAP takes a more holistic approach to plastics' waste management issues, inspired by a life-cycle approach to resources. Plastics*Europe* has been recognised as a key contributor to legislative discussions.

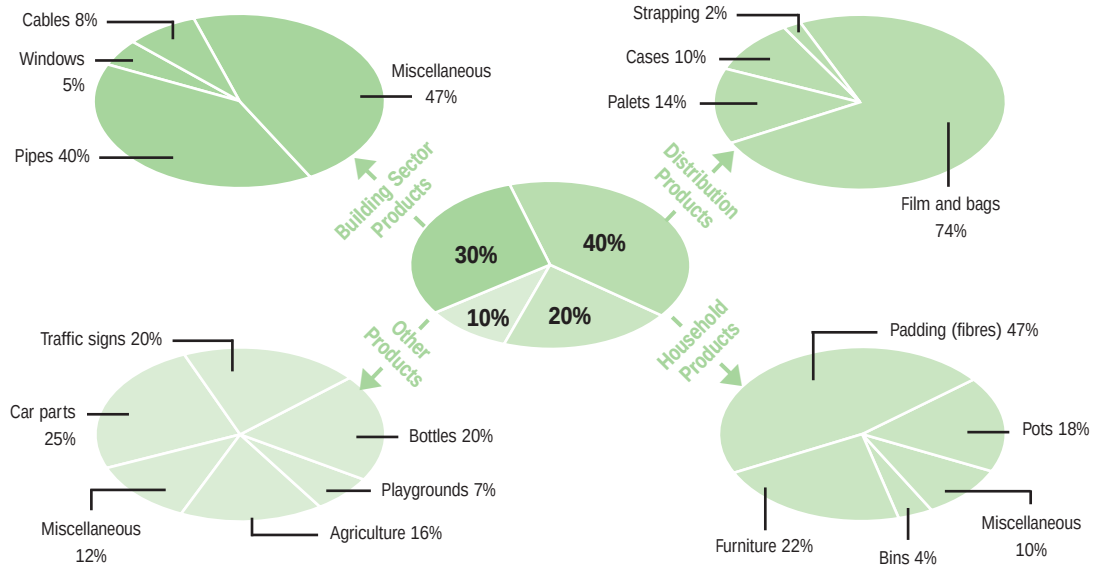
case study

Identiplast

On 18-19 April 2005, Plastics*Europe* (formerly APME) will host the fifth biennial Identiplast conference at Concert Noble in Brussels. The conference, inspired by the European plastics industry's commitment to the development and implementation of various recycling options, will bring together an impressive array of producers, academic institutes, convertors, media, recycling and recovery experts, OEM's and EU Commission delegates, to identify the latest challenges and opportunities in the field of recycling and energy recovery, sharing information and best practice.

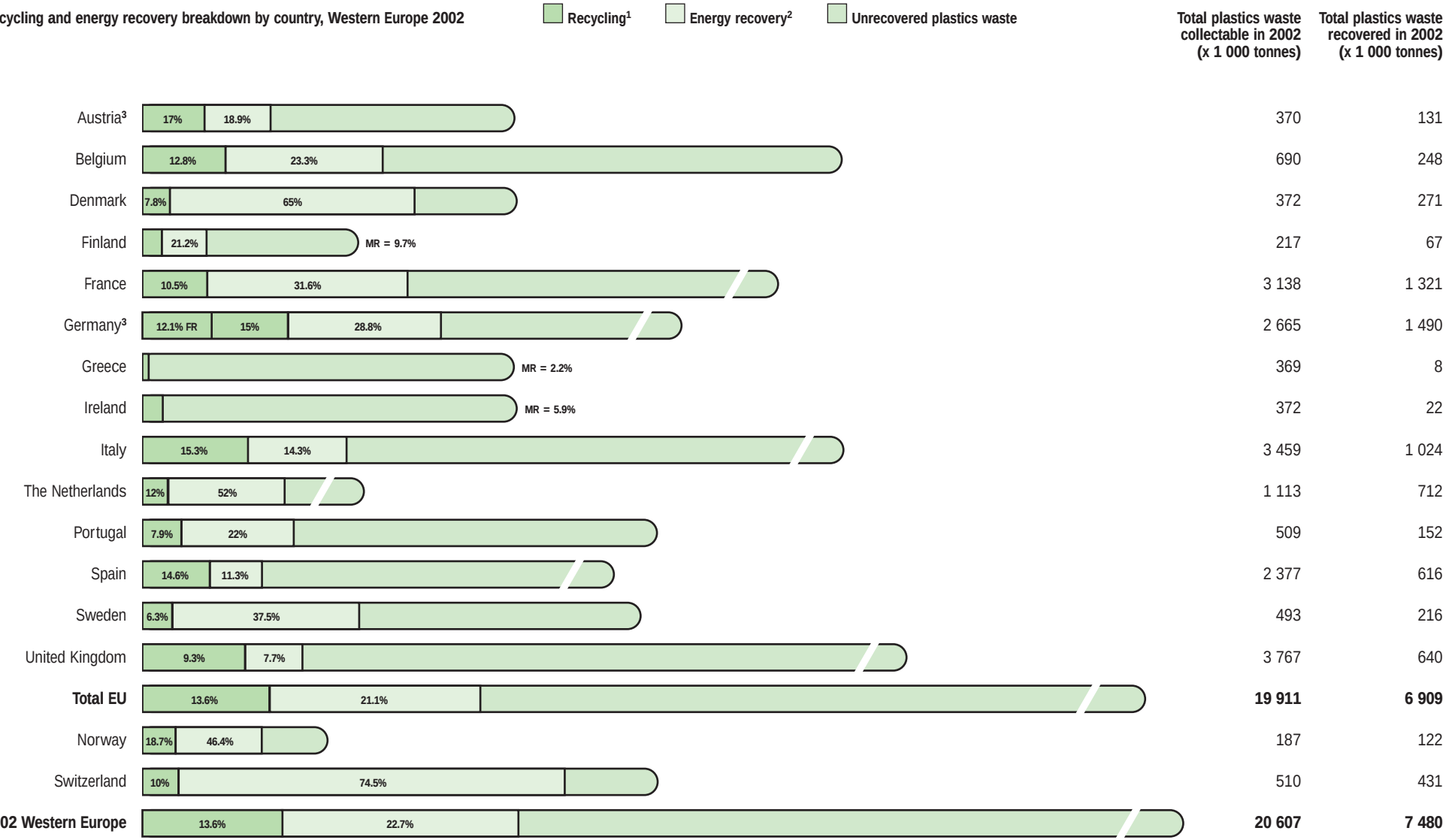
The programme, built on the success of previous years, will provide attendees with a thorough political review of EU legislation towards plastics and the future European strategies on resources, energy and waste, cutting-edge discussion on the future advances in recycling and recovery technologies and examine the challenges of plastics recovery in new EU member states. The conference offers the opportunity for industry to share technological progress, while simultaneously demonstrating the commitment of the plastics industry to facilitate recycling and recovery.

Destination sectors and main applications of recycled products, 2002



An overview of recovery in Western Europe

Recycling and energy recovery breakdown by country, Western Europe 2002

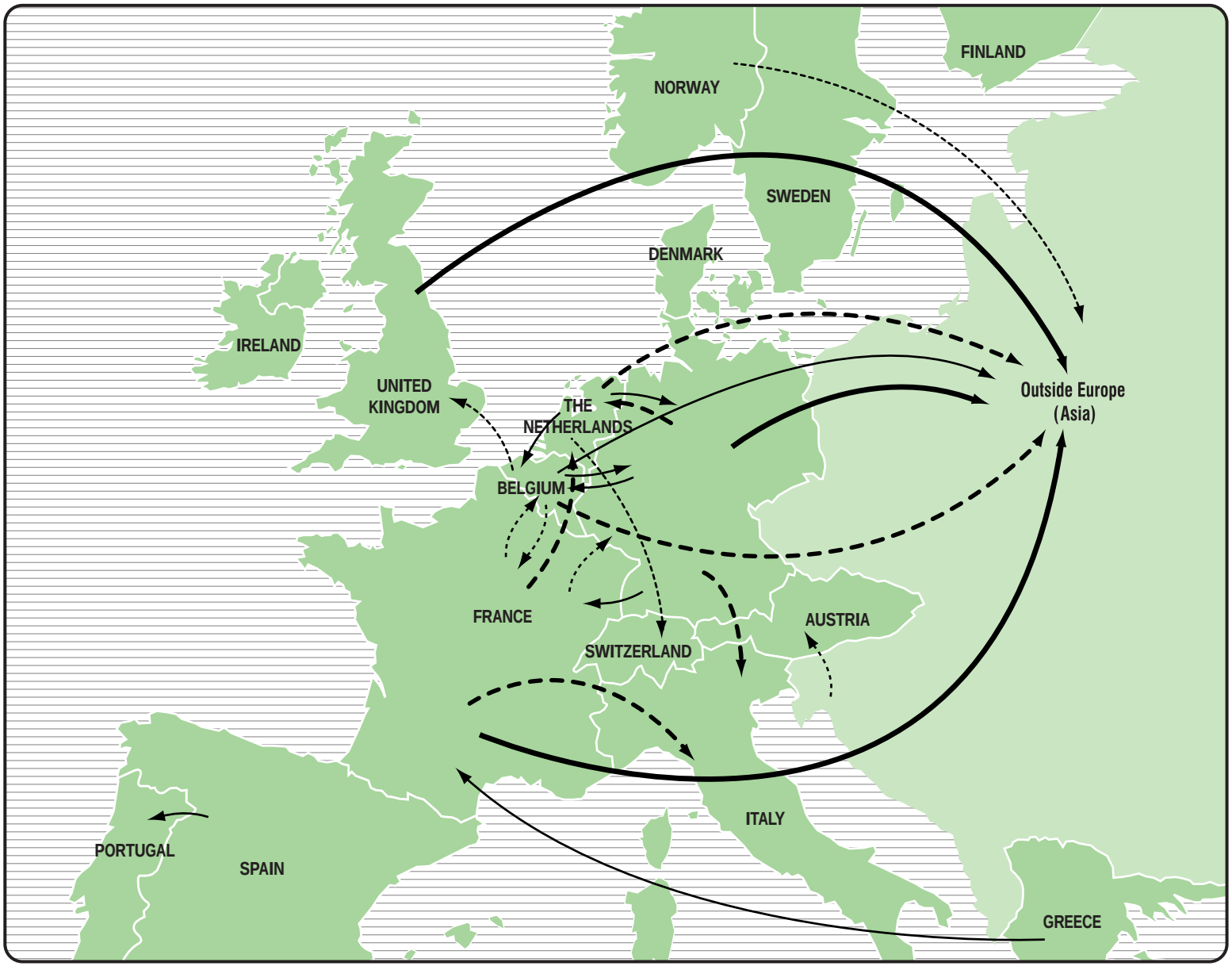


	Total plastics waste collectable in 2002 (x 1 000 tonnes)	Total plastics waste recovered in 2002 (x 1 000 tonnes)
Austria[3]	370	131
Belgium	690	248
Denmark	372	271
Finland	217	67
France	3 138	1 321
Germany[3]	2 665	1 490
Greece	369	8
Ireland	372	22
Italy	3 459	1 024
The Netherlands	1 113	712
Portugal	509	152
Spain	2 377	616
Sweden	493	216
United Kingdom	3 767	640
Total EU	**19 911**	**6 909**
Norway	187	122
Switzerland	510	431
2002 Western Europe	**20 607**	**7 480**

1 Recycling ratio = (local waste recycled + waste exported to be recycled)/waste collectable **2** Energy recovery ratio = energy recovery/waste collectable **3** Recycling in Austria and Germany includes feedstock recycling

Trade in post-user plastics waste 2002

Plastics waste exports increased steadily, but with contrasting trends. Intra-European plastics waste trade increased by 8.3 per cent, while plastics waste for export outside Western Europe rose by 14.8 per cent from 298 kilotonnes to 341 kilotonnes. The increase in export outside Western Europe is due to economically attractive waste reprocessing deals outside Europe and increased demand in Asia, particularly China and India, where in contrast to 2002, products such as PET waste became green listed.

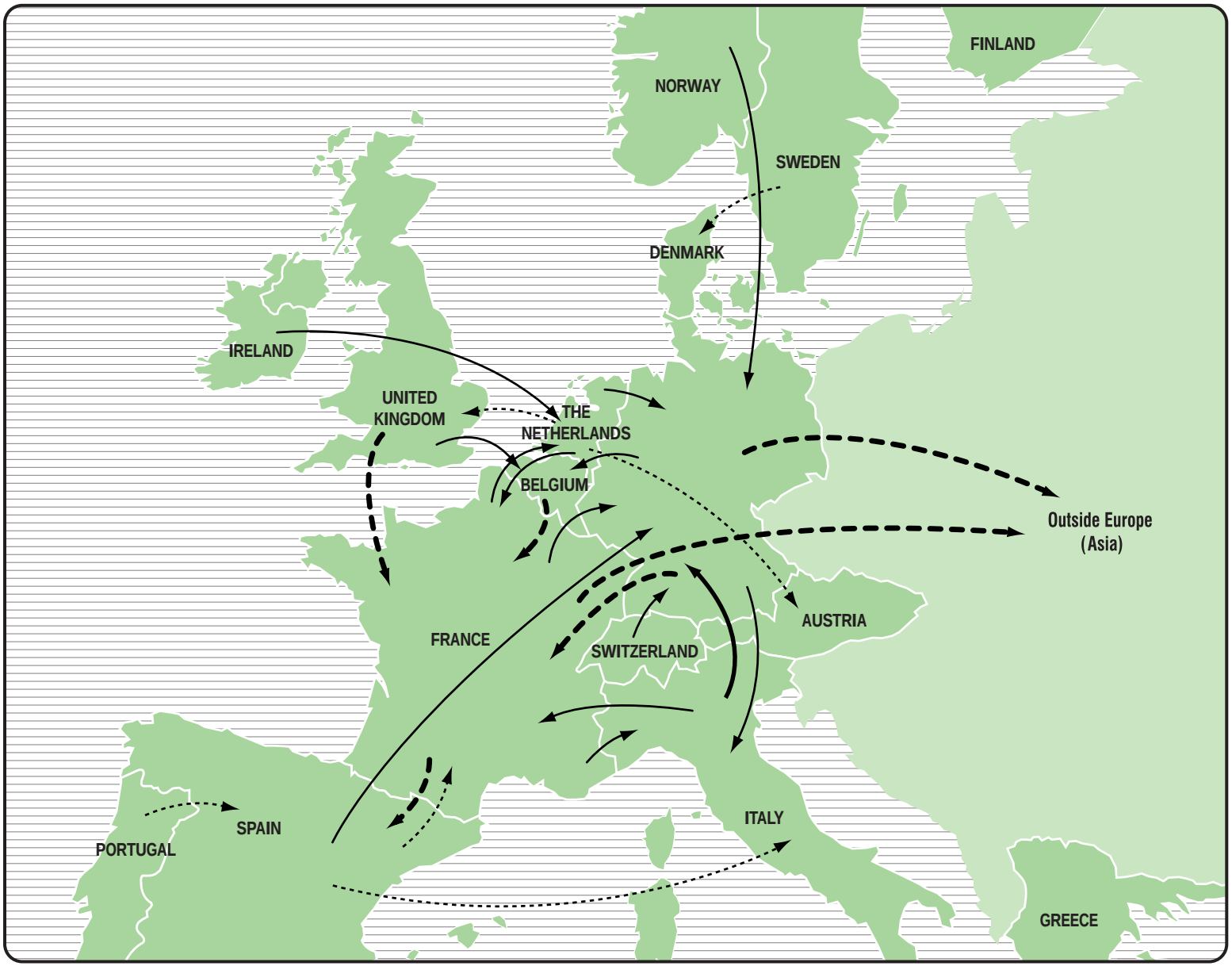


2002 Streams

- 3 – 5kt/year
- 5 – 15kt/year
- 15 – 25kt/year
- 25 + kt/year

Trade in granulate from post-user plastics waste 2002

In addition to the intra-European trade in recycled granulate across national boundaries, a substantial amount of granulate continued to be exported outside Europe to Asian markets. This was due to better price and demand in end user markets outside Europe.



2002 Streams

5 – 15kt/year

15 – 25kt/year

25 + kt/year

Consumption in new EU member states plus Bulgaria and Romania

Last year saw the introduction of data on EU Accession countries for the first time. Ten of these countries – Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia – joined the EU in May 2004. Bulgaria and Romania, new accession countries. Together, these 12 countries have a population greater than 100 million, representing over 20 per cent of the European Union zone.

While the coverage and quality of data for these countries has improved in comparison to last year's report, it is still not as complete as for other EU member states. Data covers the period up to 2002 although not all countries have data up to that date.

Economic growth in these new EU member states and new accession countries is substantial, resulting in rising domestic demand and increasing competitiveness of exports. Total plastics processors consumption reached 4.3 million tonnes in 2002, with 40 kilograms of plastics consumed per inhabitant each year (compared to 97 kilograms per inhabitant in Western Europe). The potential for future growth clearly remains high.

Bulgaria (300 per cent), Czech Republic (12 per cent), Poland (8 per cent), Slovakia (25 per cent) all show significant growth on the previous years, primarily driven by the rise in disposable incomes and consumer demand.

Packaging continues to be a key area of growth largely due to the increasing demand for consumer goods and expansion of logistics infrastructure.

The use of plastics in construction products also continues to expand rapidly, reflected by the proportion of consumption attributed to PVC (19 per cent) being at even higher levels than Western Europe (14 per cent). New car registrations in these countries are also increasing by over 10 per cent each year, with Poland being a particularly strong market. This growth is fuelling the consumption of PP, PA and ABS.

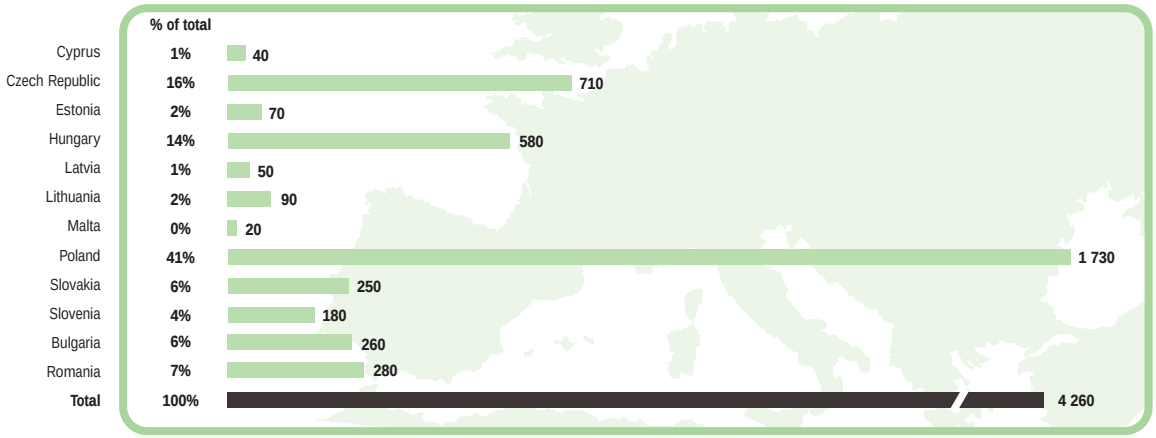
In 2002 and 2003, plastics recyclers have faced an increase in the price of waste plastics due to strong demand from Germany, Austria and China. This has had a negative effect on the growth of recycling activity in the 12 countries, particularly for household plastic waste.

Total waste originating there has continued a downward trend as the focus of economic activity shifts from heavy industry to consumer goods production and services. In 2002, it had decreased by 3 per cent from the previous year to 410 600 000 tonnes.

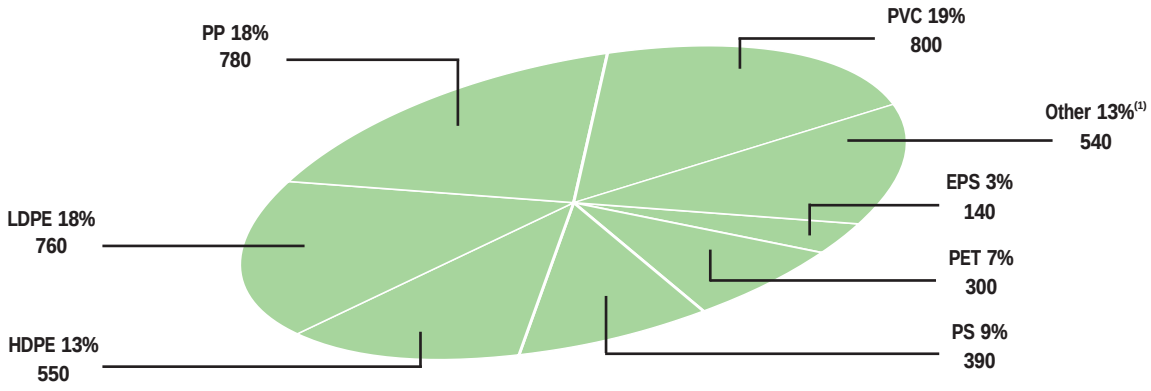
As these countries develop economically, the proportion of MSW continues to rise. In 2002, the total across all 12 countries reached 37 million tonnes which represents 375 kilograms for each inhabitant per annum.

The proportion of plastic within MSW is on average 8 per cent by weight in each country, with a total of 1.8 million tonnes. This is less than 1 per cent by weight of the total waste generated.

Plastics processors' consumption by country, new EU member states and new accession countries, 2002 (x 1 000 tonnes)



Plastics consumption breakdown by polymer, new EU member states and new accession countries, 2002



TOTAL 4 260 000 KTONNES

1 Engineering plastics, thermosets etc.

Plastics waste, collection and recovery in new EU member States and new accession countries

Evaluation of the MSW fractions, new EU member states and new accession countries, 2002 (x 1 000 tonnes)

	Total MSW (all materials)	Of which		MSW per capita (kg/year/hab.)
		Household and assimilated	Bulky waste and other	
Bulgaria	2 700	1 700	1 000	329
Czech Republic	4 550	3 400	1 150	446
Estonia	500	380	120	357
Hungary	4 600	2 800	1 800	460
Latvia	910	580	330	379
Lithuania	1 250	900	350	338
Poland	13 000	7 500	5 500	337
Romania	6 100	4 600	1 500	272
Slovakia	2 100	1 300	800	396
Slovenia	800	550	250	400
Cyprus	360	220	140	450
Malta	180	110	70	450
TOTAL	37 050	24 040	13 010	352

OF WHICH PLASTICS CONSTITUTE APPROXIMATELY 8% BY WEIGHT (2M TONNES)

Plastics packaging mechanical recycling in new EU member states and new accession countries, 2002 (x 1 000 tonnes)

	Plastics packaging waste (household + distribution)	Mechanical recycling (%)	Comments
Bulgaria	64	2%	
Czech Republic	129	11%	About 30 per cent of PET bottles are collected through a scheme called Eko-Kom within the Czech Republic. A number of other recyclers are also involved in recycling this waste, mainly into fibres.
Hungary	18	3%	
Latvia	27	4%	In Latvia, a huge mechanical recycling plant started operating in 2001, processing plastics waste such as PE film and HDPE bottles, imported from Western Europe.
Lithuania	49	4%	
Poland	565	10%	About 30 organisations are involved in plastics waste management within Poland. The total mechanical recycling increased from 10 per cent by weight in 2002 to 12.5 per cent in 2003. For 2004, the national recycling target of 14 per cent for plastics waste will probably be exceeded.
Romania	162	6%	In the last two years, private economic entities have begun large scale collection of PET bottles along with cardboard packaging waste from large generating sources. The collecting materials are exported to countries including Hungary, Bugaria, and Italy.
Slovakia	53	9%	New recycling plants, handling PET bottles and PE film, were constructed in 2002 and 2003.
Slovenia	37	3%	

Collection

Recovery of plastics has been slow to develop in new EU member states and new accession countries due to the lack of collection infrastructure. However, some countries have begun to take more proactive steps particularly around post-user plastic packaging. For example, the Czech Republic is developing a structured collection system that currently recovers approximately 30% of PET bottles. Similar recovery of PET bottles takes place in Poland, where approximately 15 000 tonnes were collected in 2002. The overall household plastics recycling rate in Poland, probably the most advanced of the new EU member states in terms of collection infrastructure, reached 6% in 2002, in line with Western European average.

In Romania, up to 3% of household plastics waste is recovered. Private economic entities have continued to develop collection systems for cardboard packaging and PET bottle waste from sources generating significant quantities. These materials are exported for recycling.

Recovery

The overall mechanical recycling rate for post-user plastics in the new EU member states and accession countries reached 7% in 2002, made up primarily of materials recovered from household and distribution or industry sources.

The construction of several new mechanical recycling plants is underway in Poland, Slovakia and other Baltic States. A large mechanical recycling plant has also been set up in Latvia, reprocessing plastic film and bottle waste imported from countries in Western Europe.

Current chemical recycling capacity within new EU member states is just over 35 000 tonnes per annum. The rate of energy recovery from plastics has increased slightly to approximately 4% by weight of MSW, but remains low compared with 23% in Western Europe. Significant investment has been made in incineration plants to bring them up to EU standards. Slovakia, Hungary and Czech Republic have energy recovery rates from MSW of over 10%, while Bulgaria and Latvia have incineration capacity that generates recovery rates of between 2 and 3%.

Plastics*Europe*: facing up to the challenges of an enlarged EU

Plastics*Europe* reflects an ambition by the plastics industry to evolve at the same time as the EU institutions. As Europe is in the midst of major changes with the accession of 10 new countries, so the plastics industry is changing its working structure, resources and processes to be able to extend its reach and to communicate the benefits of plastics more effectively.

The business environment and societal expectations faced by the plastics industry and products in the expanding EU are increasingly complex. With the reach of Plastics*Europe* across the new EU member states and new accession countries, the industry will be able to contribute effectively to the policy debate in these nations and gain recognition for the benefits plastics bring to sustainable development.

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Note: Those references marked (*) are available and downloadable from the Plastics*Europe* Web site: www.plasticseurope.org

Plastics*Europe* is the newly formed plastics manufacturers association which merges European (APME) and national plastics industry bodies into one single networked organisation. It will operate from six decentralised offices: one in Brussels and five regional centres located in France, Germany, Italy, Spain and the UK.
Plastics*Europe* represents well over 90 per cent of Europe's plastics raw materials production capacity. It will build on the combined membership of the merged associations.

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The data for the years 2002 and 2003 was collected through numerous contacts: plastics manufacturers (15), plastics manufacturers associations (25), Professional Associations (35), Ministries of the environment (22), environment agencies (20), waste management organisations (70), waste collectors (15), incinerator plants (15), cement kiln groups (6), coal fired plants (1) and other players involved in plastics recovery in the major European countries (consultants, magazines, associations (45). A survey among 100 plastic recyclers was also realised by the EUPR (Brussels). As a whole, around 370 companies were contacted to update the survey. PlasticsEurope and AJI-EUROPE would like to thank all contributors for their generous help.

2002/GB/08/04