



## Plastics – the Facts 2016

An analysis of European plastics  
production, demand and waste data





**Plastics – the Facts is an analysis of the data related to the production, demand and waste management of plastic materials. It provides the latest business information on production and demand, trade, recovery as well as employment and turnover in the plastics industry. In short, this report gives an insight into the industry’s contribution to European economic growth and prosperity throughout the life cycle of the material.**

The data presented in this report was collected by PlasticsEurope (the Association of Plastics Manufacturers in Europe) and EPRO (the European Association of Plastics Recycling and Recovery Organisations). PlasticsEurope’s Market Research and Statistics Group (PEMRG) provided input on the production of and demand for plastics raw materials. Consultic Marketing & Industrieberatung GmbH helped assess waste generation and recovery data. Official statistics from European or national authorities and waste management organisations have been used for recovery and trade data, where available. Research or expertise from consultants completed gaps.

Figures cannot always be directly compared with those of previous years due to changes in estimates. Some estimates from previous years have been revised in order to track progress, e.g. for use and recovery of plastics across Europe over the past decade.

All figures and graphs in this report show data for EU-28 plus Norway and Switzerland, which is referred to as Europe for the purposes of abbreviation – other country groups are explicitly listed.

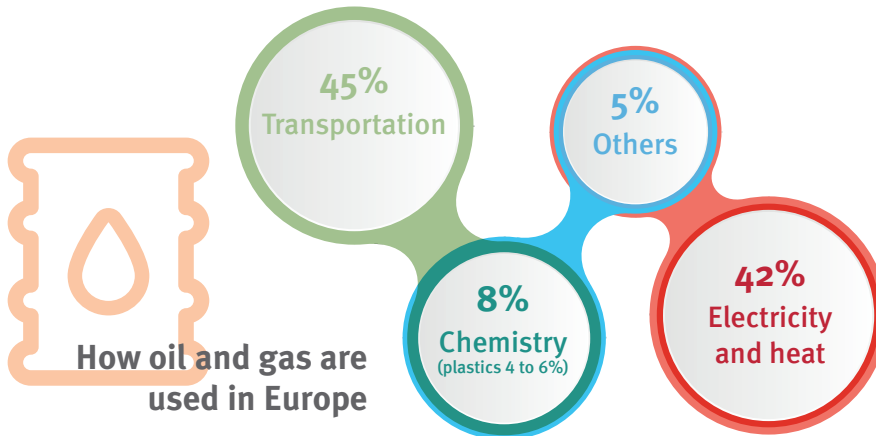
## Plastics: an efficient use of resources

Plastics are a wide family of resource efficient materials derived from organic products such as cellulose, coal, natural gas, salt and, of course, crude oil.

The new members of this wide family are “bio-plastics” – this term actually describes two different concepts:

- Biodegradable plastics: which are materials that are degraded by microorganisms into water, carbon dioxide (or methane) and biomass under specified conditions, and can be made from organic and/or fossil resources.
- Bio-based plastics: which are materials made from biological and renewable resources such as grains, corn, potatoes, beet sugar, sugar cane or vegetable oils.

It is important to stress that at European level only 4 to 6% of the oil and gas is used to produce plastic materials.



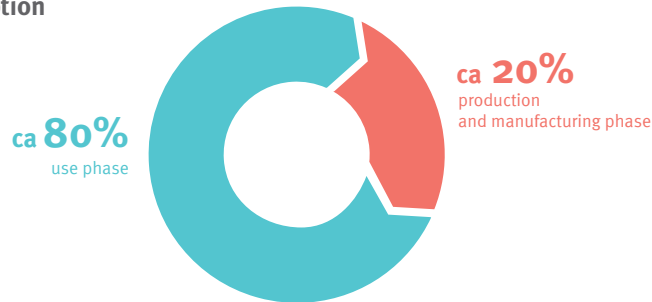
# Plastics: for a more sustainable world

Plastic materials are extremely resource efficient not only in their production phase but also during their use phase. This is highly important, since the rule of thumb says that a product - a house, a car, an electronic device - is consuming most of the energy during the use phase. That makes it even more important to optimise the use phase. In some applications like insulation, during their service life, plastic materials save more than 140 times the energy needed for their production. They are also champion when it comes to protecting goods & food, thereby reducing breakage and waste.

Because of the unique properties of plastic materials, they are used in a wide range of application sectors, such as packaging, building and construction, automotive and aeronautics, electrical and electronic equipment, agriculture, leisure and sports equipment or medical and health products, to help us to live and build a more sustainable world.

**Did you know that 80% of a product's energy consumption accounts for the use phase?**

Products energy consumption



Plastic materials are



functional



aesthetical



sustainable





# PLASTICS

contribution to european society  
and economy

# Key figures of the European plastics industry

The European plastics industry includes plastics raw materials producers, plastics converters and plastics machinery manufacturers in the EU28 Member States.

over  
**1.5 million**

The plastics industry gives direct employment to over 1.5 million people in Europe



Jobs

close to  
**60,000 companies**

An industry in which close to 60,000 companies operate, most of them SME's



Companies

over  
**340 billion euros**

The European plastics industry had a turnover of more than 340 billion euros in 2015



Turnover

over  
**16.5 billion euros**

The European plastics industry had a trade balance of over 16.5 billion euros in 2015\*



Trade balance

\* Data including only plastics raw materials producers and plastics converters





### Contribution to public finances

The European plastics industry contributed close to 27.5 billion euros to public finances and welfare in 2015

close to  
**27.5 billion euros**

### Multiplier effect

The European plastics industry has a multiplier effect of 2.4 in GDP and almost 3 in jobs\*

**x2.4 in GDP and almost x3 in jobs**

### Industrial value added

The European plastics industry ranks 7<sup>th</sup> in Europe\*\* in industrial value added contribution. At the same level as the pharmaceutical industry.

**7<sup>th</sup> in Europe**

### Recycling

In 2014, more than 7.5 tonnes of plastics waste were collected for recycling

over  
**7.5 million tonnes**

\* The European House Ambrosetti study, data for Italy, 2013

\*\* Measured by gross value added at factor prices, 2012



+

23:35:60  
Business Strategy

Accounting  
Marketing  
Finance  
Operations

23:3



# PLASTICS

market data

134:23:454

+

Business Strategy  
Brand Building  
Customer Engagement  
Sales Management

Technology



23:35:60



5:60



## World and EU plastics production data

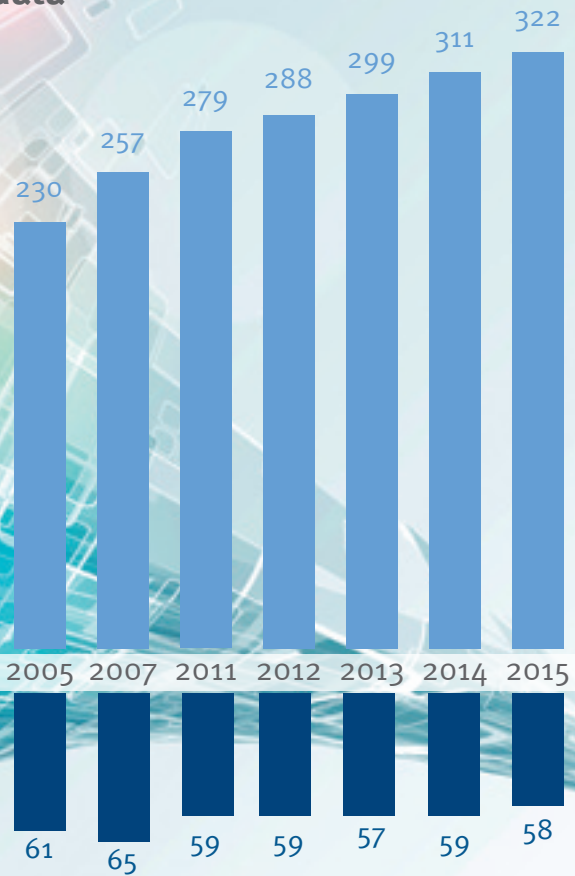
Includes plastic materials (thermoplastics and polyurethanes) and other plastics (thermosets, adhesives, coatings and sealants). Does not include the following fibers: PET-, PA-, PP- and polyacryl-fibers.

Source: PlasticsEurope (PEMRG) / Consultic

# WORLD

# EUROPE

(EU28+NO/CH)

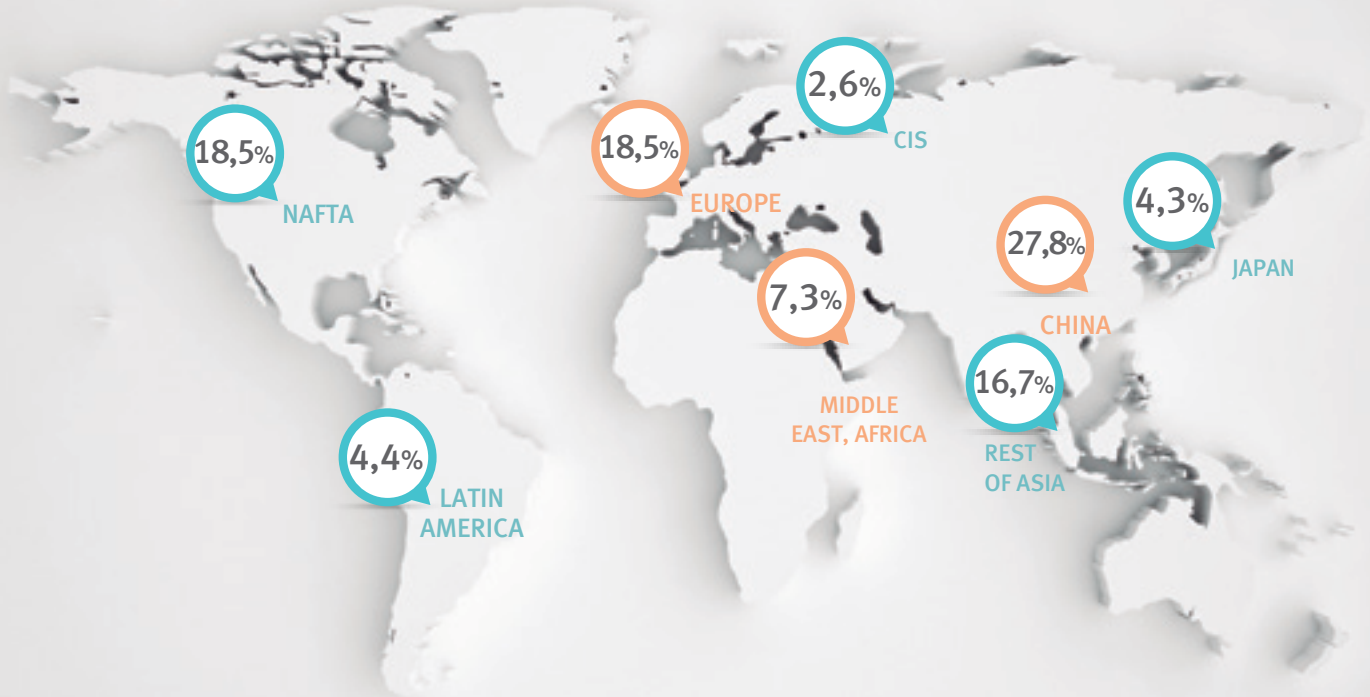


in million tonnes

# Distribution of global plastic materials production

China is the largest producer of plastic materials\* (only thermoplastics and polyurethanes), followed by Europe and NAFTA.  
World production of plastic materials in 2015: 269 million tonnes.

Source: PlasticsEurope (PEMRG) / Consultic



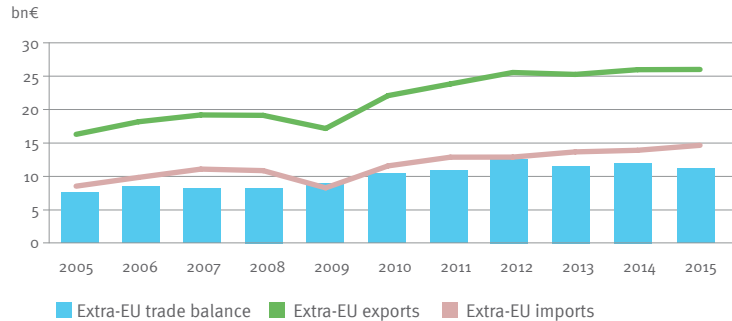
\* Plastic materials: only thermoplastics and polyurethanes

# Trade balance

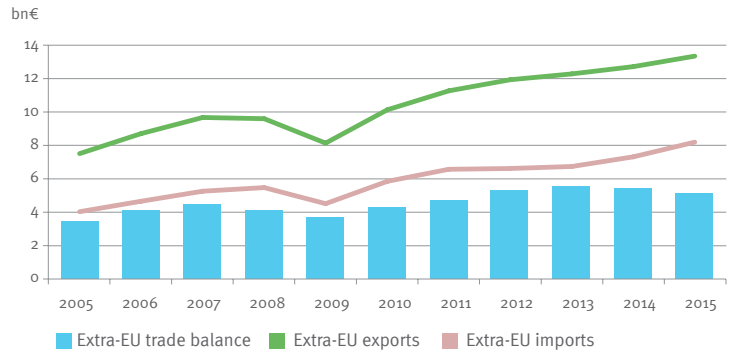
A positive trade balance of more than 16,5 billion euros in 2015.



## Plastics manufacturing extra EU-28



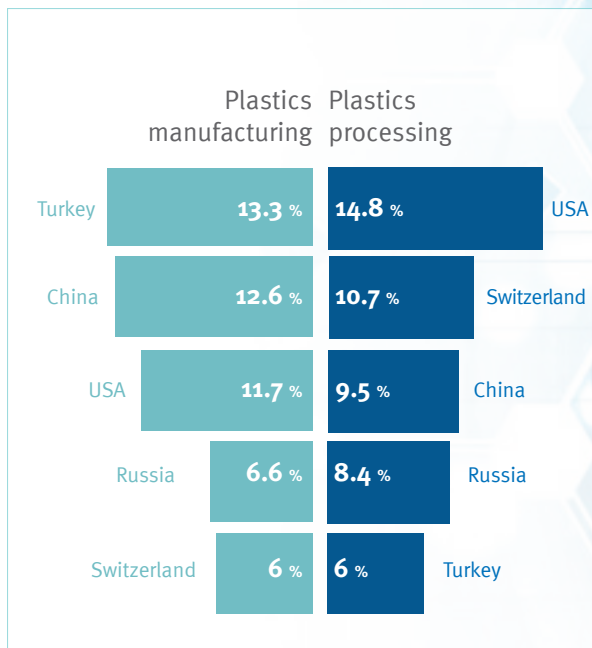
## Plastics processing extra EU-28



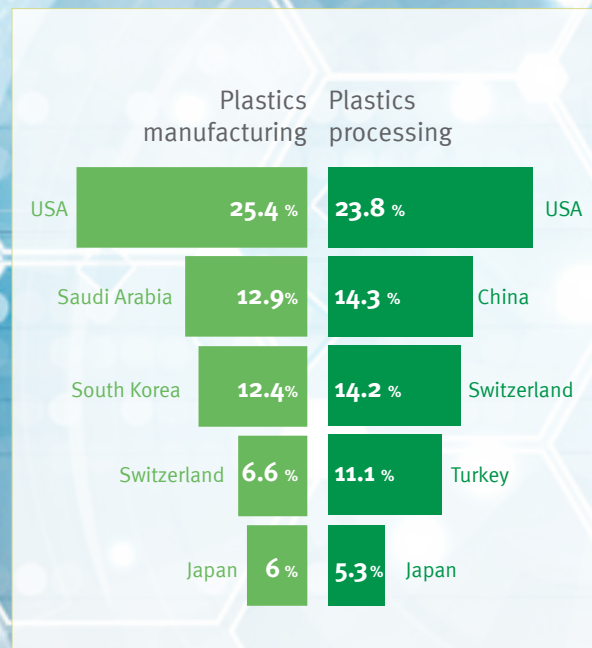
Source: Eurostat

# Top extra EU trade partners in value

## 2015 Exports extra EU-28



## 2015 Imports extra EU-28

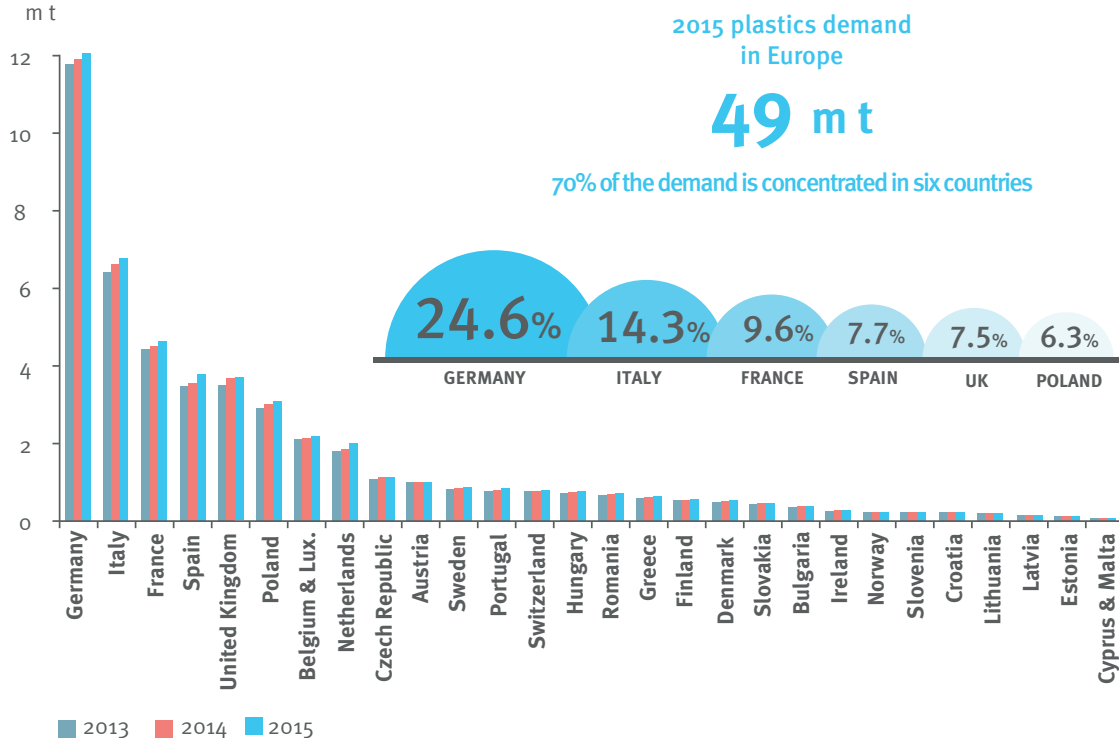


Source: Eurostat

# Plastic materials EU demand per country

European plastic demand includes plastic materials (thermoplastics and polyurethanes) and other plastics (thermosets, adhesives, coatings and sealants). Does not include the following fibers: PET-, PA-, PP- and polyacryl-fibers.

Source: PlasticsEurope (PEMRG) / Consulitic / myCeppi





# Plastic materials demand main market sectors

Distribution of European (EU-28+NO/CH) plastics demand by segment in 2015.

Source: PlasticsEurope (PEMRG) / Consultic / myCeppi

Total demand  
**49 m t**

AGRICULTURE

**3.3%**



ELECTRICAL &  
ELECTRONIC

**5.8%**



AUTOMOTIVE

**8.9%**



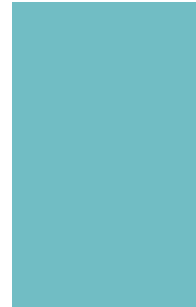
BUILDING &  
CONSTRUCTION

**19.7%**



PACKAGING

**39.9%**



OTHERS

**22.4%**

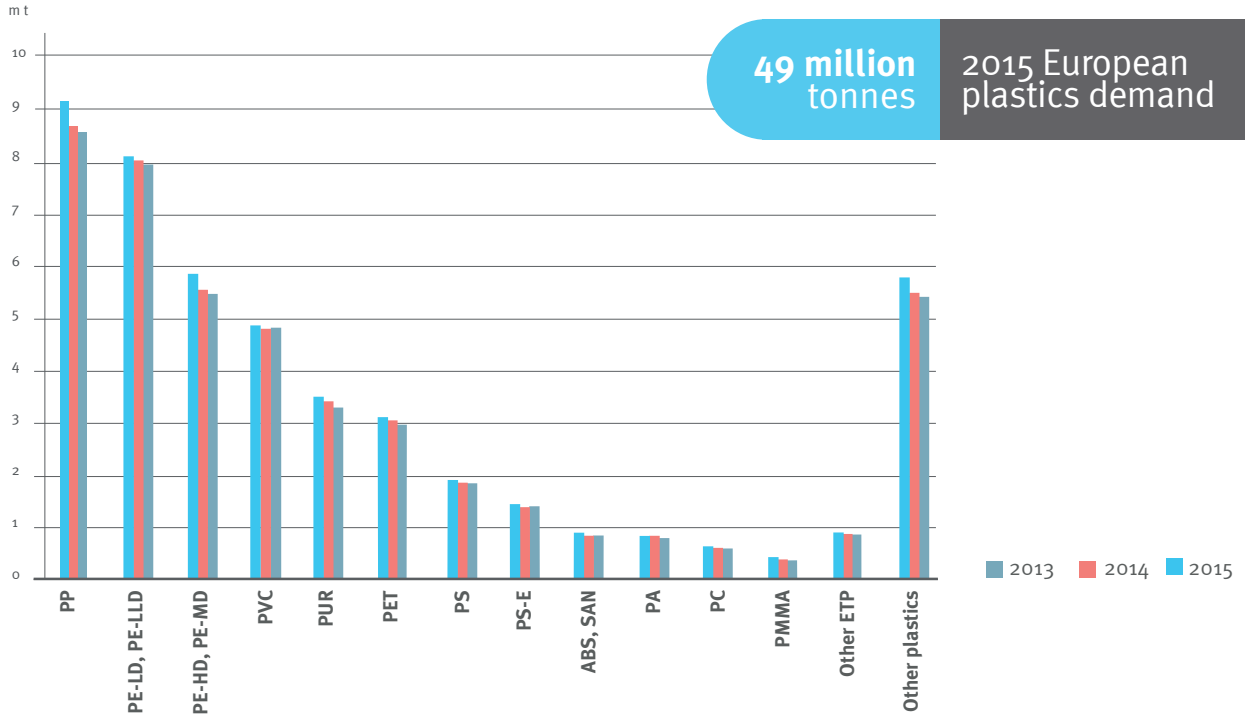
Consumer and household goods, furniture, sport, health and safety, etc.



# Plastic materials EU demand per polymer

European plastics demand includes plastic materials (thermoplastics and polyurethanes) and other plastics (thermosets, adhesives, coatings and sealants). Does not include the following fibers: PET-, PA-, PP- and polyacryl-fibers.

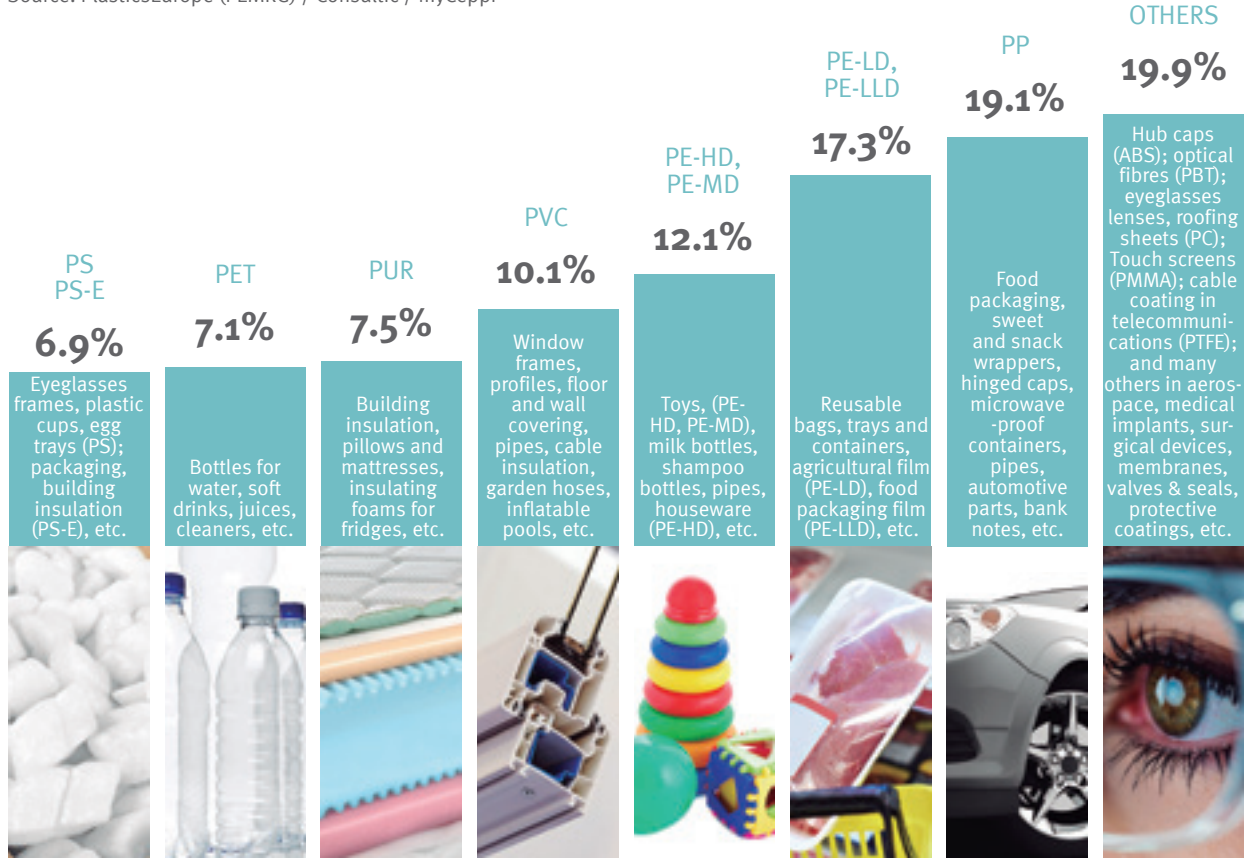
Source: PlasticsEurope (PEMRG) / Consultic / myCeppi



# Plastic materials main fields of applications

European plastics demand (EU-28+NO/CH) by polymer type 2015.

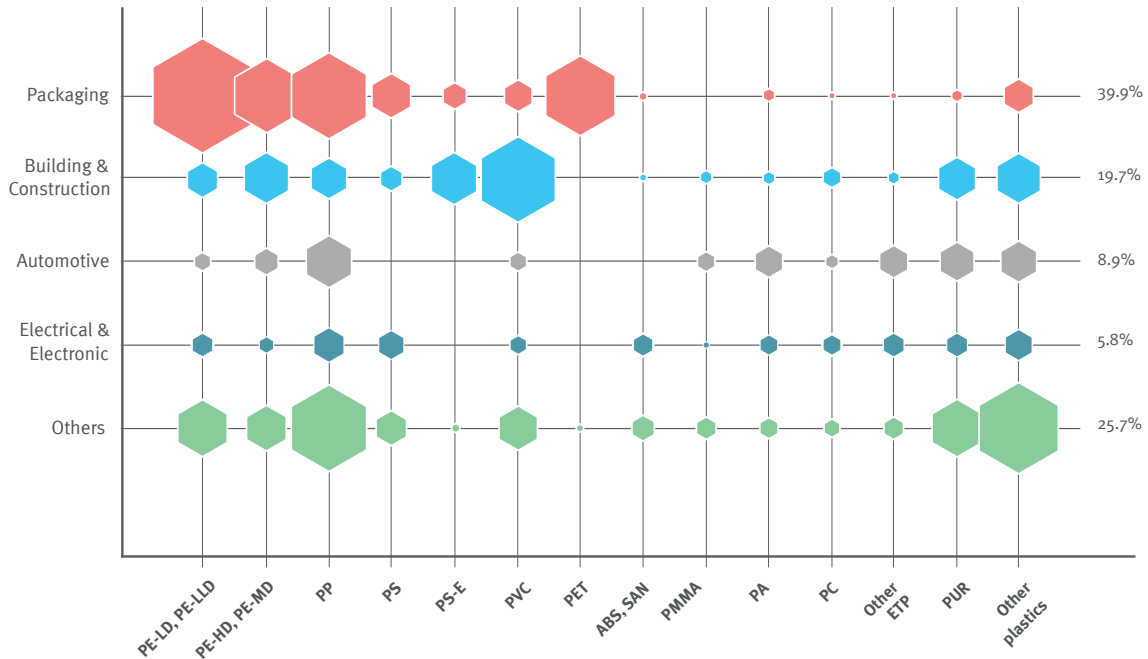
Source: PlasticsEurope (PEMRG) / Consultic / myCeppi



# Plastics demand by polymer and market segment

European plastics demand (EU-28+NO/CH) by polymer type 2015.

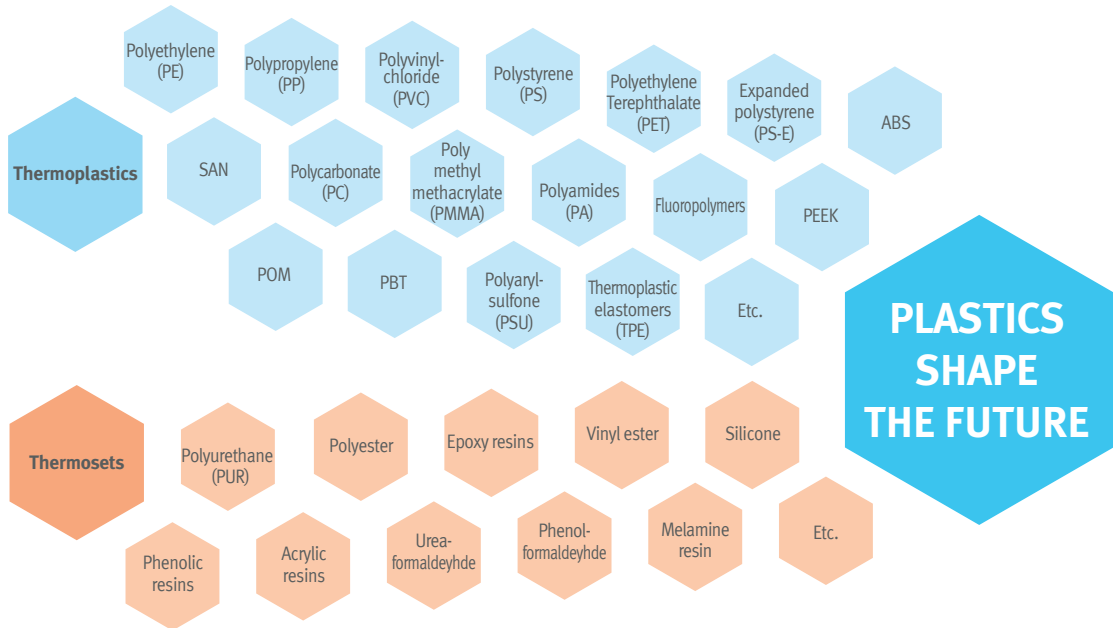
Source: PlasticsEurope (PEMRG) / Consultic / myCepi



# What is plastic?

Plastics is not one single material. The plastics' family is composed of a great variety of materials designed to meet the very different needs of thousands of end products. As products evolve, so do plastic materials, so many of them are still to come.

## Most common materials







# PLASTICS

not waste  
but resource

# Plastics waste treatment in EU28+2

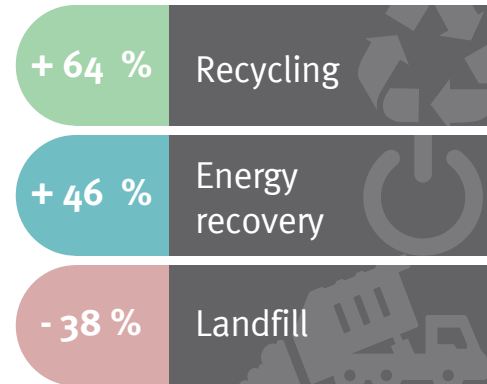
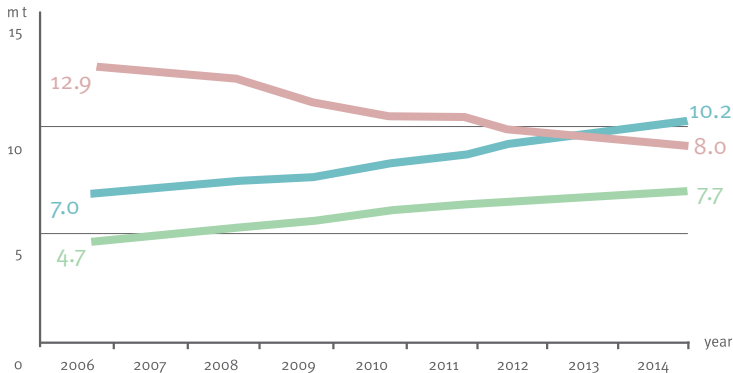
In 2014, 25.8 million tonnes of post-consumer plastics waste ended up in the official waste streams. 69.2% was recovered through recycling and energy recovery processes while 30.8% still went to landfill.

Within the different plastic applications, plastic packaging reached the highest recycling rate with 39.5%\* and represented more than 80% of the total recycled quantities.

Source: Consultic



## 2006-2014 waste treatment evolution:



The annual average of post-consumer plastics waste generation from 2006 to 2014 is 25 million tonnes

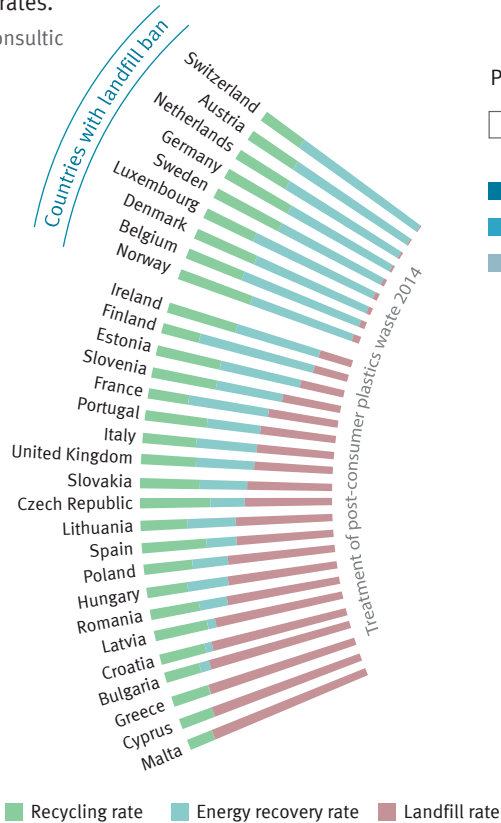
\*Based on in-put quantities into recycling facilities.



# Plastics waste treatment by country in 2014

In 2014, landfilling was still the 1<sup>st</sup> option in many EU countries. In general, countries with landfill ban achieve higher recycling rates.

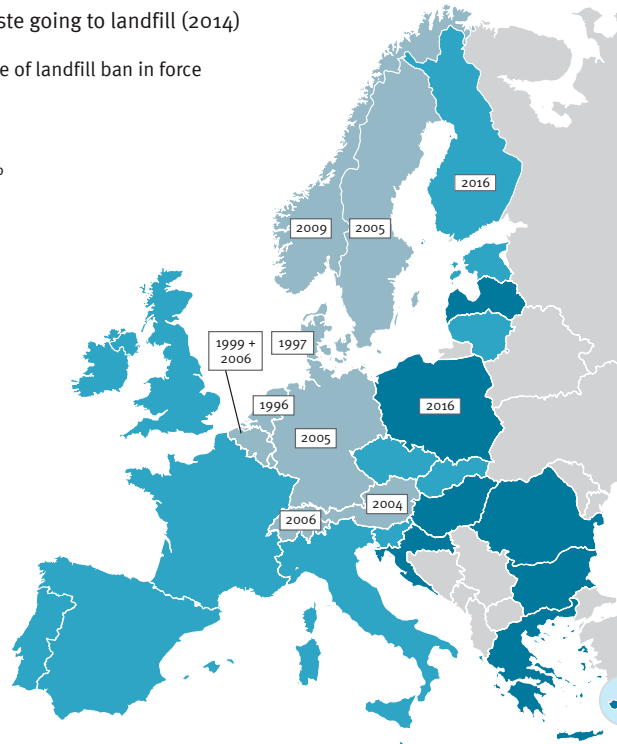
Source: Consultic



Plastics waste going to landfill (2014)

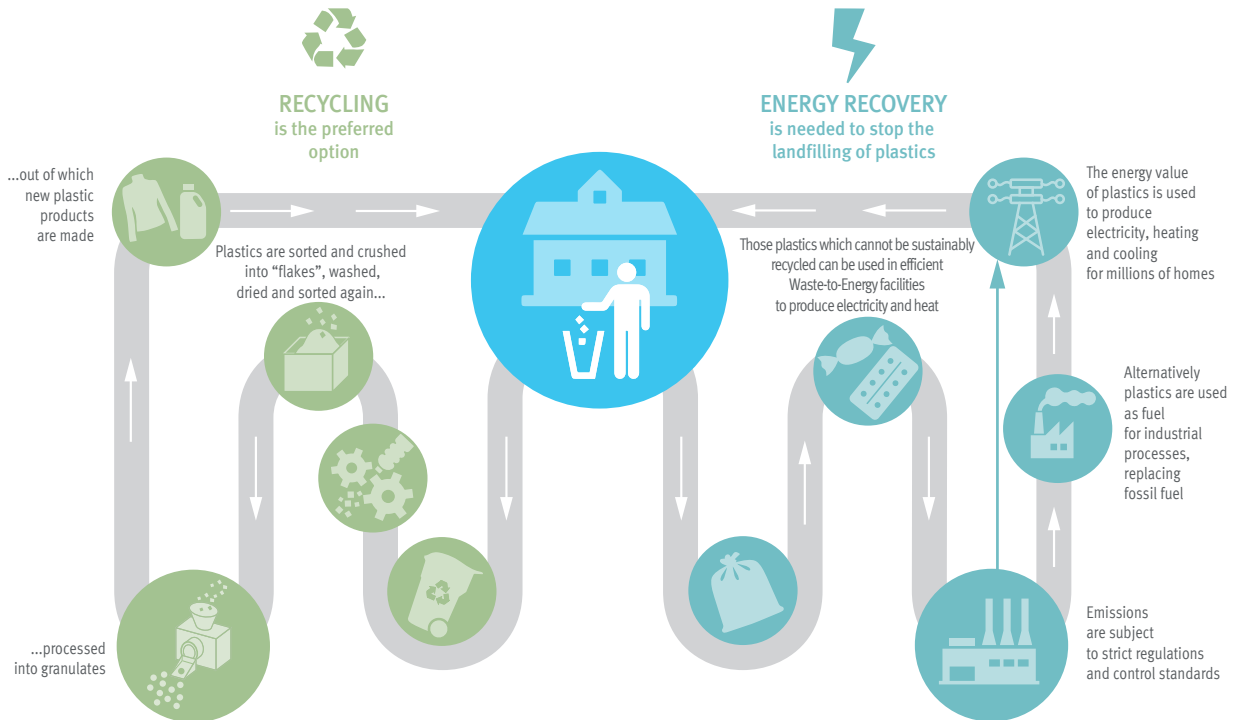
□ Date of landfill ban in force

- > 50%
- 10% - 50%
- < 10%

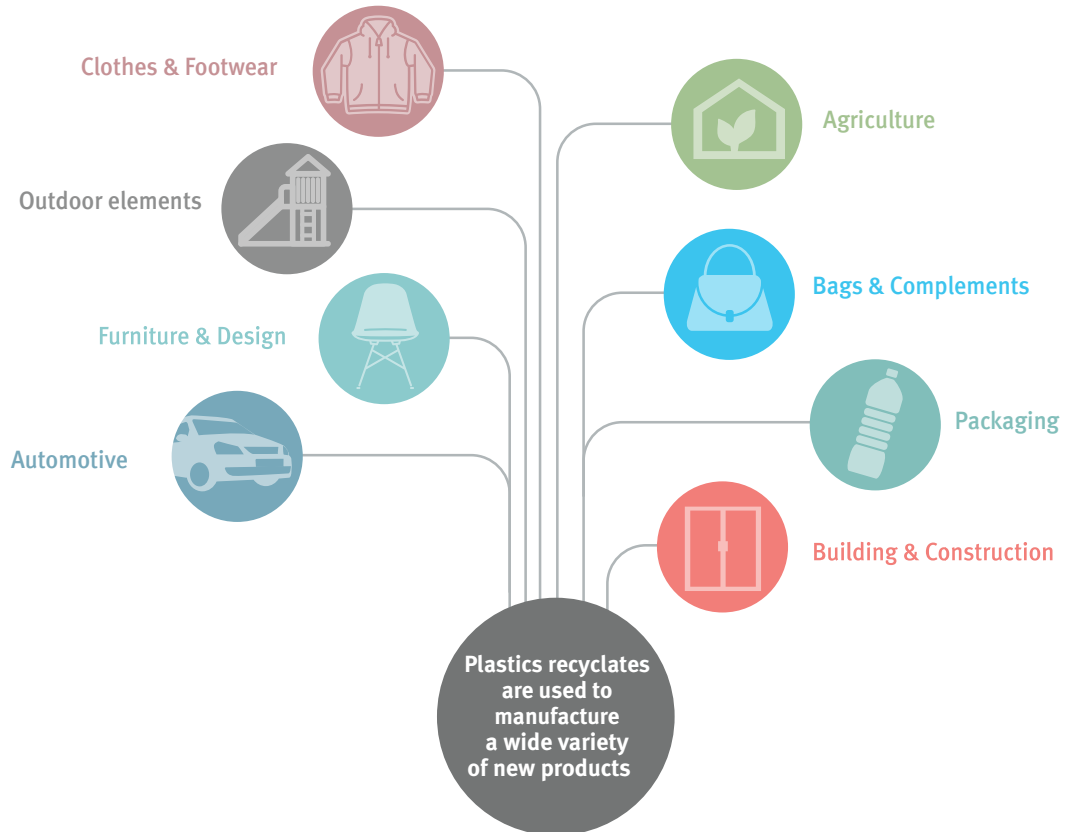


# Plastics: key resource for circular economy

Recycling is the preferred option for plastics waste. However, when recycling is not the most sustainable option, energy recovery is the alternative. Both options complement each other and exploit the full potential of plastics waste.



# Plastic materials have several lives



# Plastics: proper waste management is key to avoid Marine Litter

Thanks to their unique properties, plastic materials are essential in many applications and often make the impossible possible. However, to take full advantage of the benefits of plastics, its products need to be properly recovered and managed when they reach the end of their service life. It is simple, plastics are just too valuable to be wasted or thrown away and it is unacceptable that any waste is entering the marine environment!

Whether deliberately or accidentally, when plastics waste is not properly disposed it may end up as litter in the environment, the world's oceans, seas and rivers and harming wild life, fisheries and tourism.

Marine Litter has become a global challenge and derives from land and sea based human activities, mainly caused by poor waste management and infrastructures or people's behaviour. Thus, prevention at source through the creation of proper waste collection and treatment together with improved human behaviour are key to reduce litter inputs, to protect our on-land and water environment and to secure recovery of our resources after disposal.

In March 2011, the Global Declaration for Solutions on Marine Litter was launched by 47 plastics associations from regions across the globe. Recognizing their important role in fighting Marine Litter, these plastics associations have launched and are supporting projects in six key areas aimed at contributing to sustainable solutions. These six focus areas are: education, research, public policy, sharing best practices, plastics recycling/recovery, and plastic pellet containment.

**Since 2011, 65 associations in 34 countries have signed on to the Global Declaration, and 260 projects are underway, planned or completed.**

Learn more about these project on  
[www.marinelittersolutions.eu](http://www.marinelittersolutions.eu)

## And human behaviour makes the difference

Everyone can contribute. Thus it is crucial to create awareness about Marine Litter and invest in educational projects to enhance individual responsibility and keep products and waste where they belong.







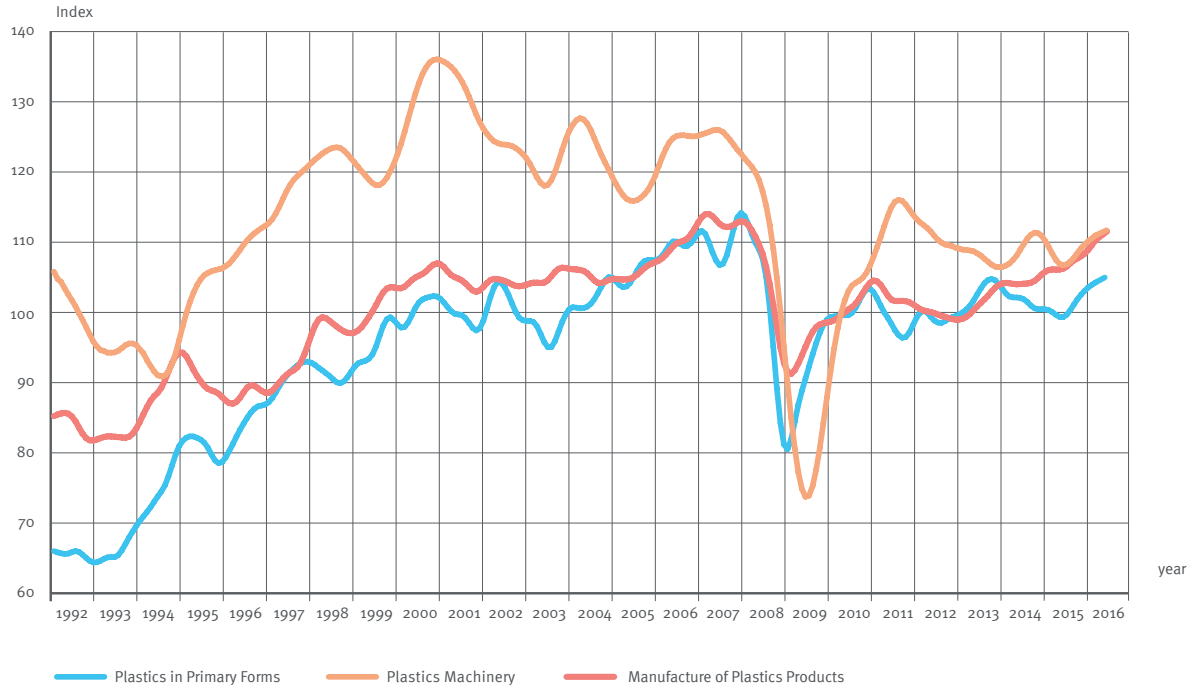
# PLASTICS

snapshot  
and outlook



# In 2016, plastics production shows a slight increase, but is still below pre-crisis level

Plastics industry production in EU-28 index (2010=100, trend cycle & seasonally adjusted data).

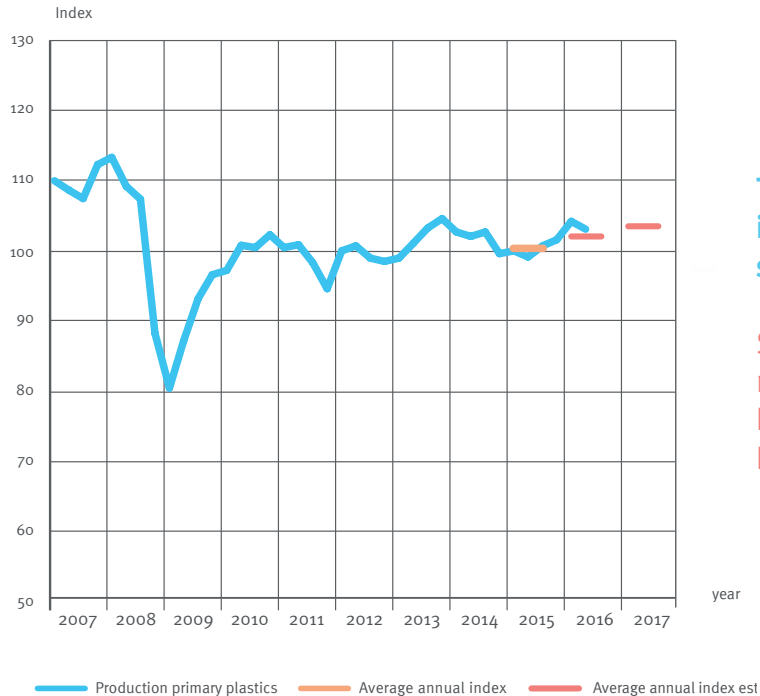




# In 2017, plastics production is expected to continue on a positive trend

Production of plastics in primary forms, EU28.

Index 2010 = 100 on a quarterly basis; seasonally and working day adjusted; annual average.



The production of plastics in primary forms has been stable in the past years.

Short-term estimates show a moderate upward trend:

**Estimate 2016: +1.5%**

**Estimate 2017: +1.5%**

Sustainability

People

Develop

**PLASTICS  
SHAPE  
THE FUTURE**

Technology

Invention

Innovation

Experin

Creativity

Improvement

Solution



# Glossary of terms

ABS	Acrylonitrile butadiene styrene resin	PE-HD	Polyethylene, high density
ASA	Acrylonitrile styrene acrylate resin	PE-LD	Polyethylene, low density
bn	billion	PE-LLD	Polyethylene, linear low density
CH	Switzerland	PE-MD	Polyethylene, medium density
CIS	Commonwealth of Independent States	PEMRG	PlasticsEurope Market Research Group
Consultic	Consultic Marketing & Industrieberatung GmbH	PET	Polyethylene terephthalate
EU	European Union	Plastic materials	Thermoplastics + Polyurethanes
EPRO	European Association of Plastics Recycling and Recovery Organisations	PMMA	Polymethyl methacrylate
ETP	Engineering Thermoplastics	POM	Polyoxymethylene
GDP	Gross domestic product	PP	Polypropylene
m t	Million tonnes	PS	Polystyrene
my Ceppy	my Ceppy Kft	PS-E	Polystyrene, expandable
NAFTA	North American Free Trade Agreement	PTFE	Polytetrafluoroethylene
NO	Norway	PUR	Polyurethane
Other plastics	Thermosets, adhesives, coatings and sealants	PVC	Polyvinyl chloride
PA	Polyamides	SAN	Styrene-acrylonitrile copolymer
PBT	Polybutylene terephthalate	Thermoplastics	Standard plastics (PE, PP, PVC, PS, EPS, PET (bottle grade)) + Engineering plastics (ABS, SAN, PA, PC, PBT, POM, PMMA, Blends, and others including High Performance Polymers)
PC	Polycarbonate	Thermosets	Urea-formaldehyde foam, melamine resin, polyester resins, epoxy resins, etc.
PE	Polyethylene		
PEEK	Polyetheretherketone		

# PlasticsEurope

Association of Plastics Manufacturers

**PlasticsEurope** is the association of plastics manufacturers and one of the leading European trade associations with centres in Brussels, Frankfurt, London, Madrid, Milan and Paris. It is networking with European and national plastics associations and have more than 100 member companies, producing over 90% of all polymers across the EU28 member states plus Norway, Switzerland and Turkey.

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**EPRO** is the association of national organisations responsible for organising and promoting plastics recycling and recovery in Europe. EPRO provides a unique forum for leading European specialists in plastics waste management to exchange experience and ideas, develop integrated plastics packaging and agriculture waste strategies and support technological development.

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