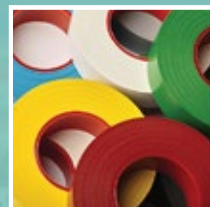




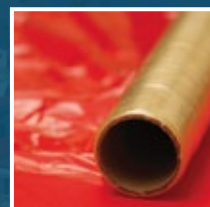
COATED FABRICS

PVC coated polyester is the flexible material most frequently used in tents, banners, energy efficient and lightweight architectural textiles, pool liners, seat covers as well as protective clothes.



ADHESIVES & SEALANTS

Plasticisers add durability and product stability to sealants and adhesives. In addition to increasing the service and shelf life of end products, plasticisers allow formulators to reduce costs and optimise performance.



FILM & SHEET

PVC can be calendered and embossed into films of different thickness and flexibility to be used in various applications such as stationery articles, banners, decorative films, and labels.



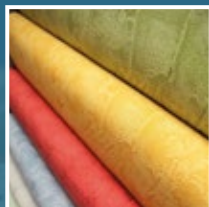
MEDICAL

Plasticised PVC medical devices have been used safely for over 60 years. Flexible PVC owes its success to its transparency and unsurpassed anti-kinking properties becoming a primary choice for tubing, blood bags, examination and surgical gloves.



WIRE & CABLE

Flexible PVC cables offer electrical insulation, strength and safety at a wide range of operating temperatures. Benefits include long service life, durability and recyclability at affordable costs.



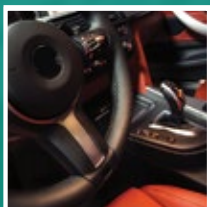
CLADDING, ROOFING, WALLCOVERING

Flexible PVC – often reinforced with fiberglass or polyester – is durable, insulates, can stand bad weather and has good resistance to ultraviolet light and ozone.



PAINT

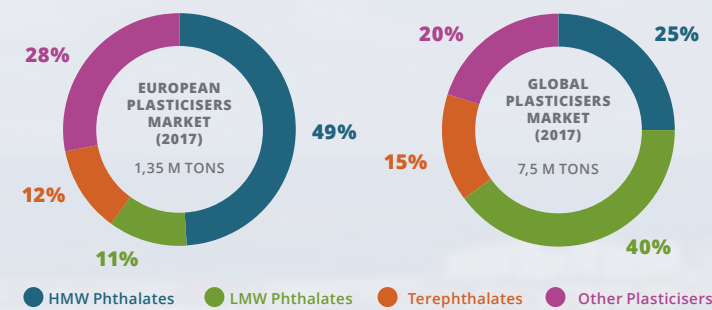
Plasticisers make paint softer, more flexible and adherent. They can be used in coatings or other applications for which very low level of emissions is desired.



AUTOMOTIVE

Plasticisers are used in automotive parts making them flexible and resilient, e.g. in artificial leather and underbody coatings. But you also find plasticisers in the interlayer of safety glass and in dashboards, which must be safe in the event of an impact. In brake systems and fuel lines, polyamide is plasticised to get the necessary resilience.

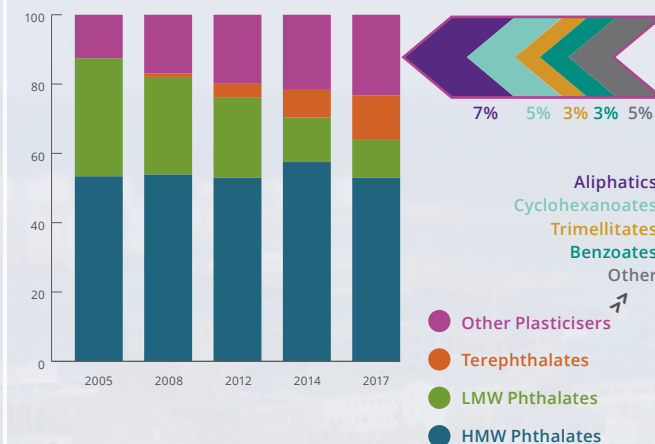
Plasticisers (US: plasticizers) are colourless and odourless liquids used primarily to soften plastic. Over 85% of all plasticisers consumed in Europe are employed in durable flexible PVC applications, largely for the construction, automotive and wire & cable sectors. Some plasticisers are used in non-PVC applications such as coatings, rubber products, adhesives and sealants. Over the last 60 years more than 30,000 different substances have been evaluated for their plasticising properties but only about 50 respond to the strict European criteria allowing their commercialisation. Each plasticiser is evaluated and regulated for its use in specific applications ensuring the highest performance, sustainability and safety standards.



Source: 2018 IHS and European Plasticisers estimates

The European market has evolved rapidly in response to market and regulatory pressure. Orthophthalates make up the majority of the plasticisers followed by terephthalates. Other plasticisers are also gaining market share. Globally, low molecular weight (LMW) phthalates still represents almost 40 percent of all consumption and are still very popular in Asia, the Middle East, Africa and Latin America.

EUROPEAN MARKET TRENDS



Source: 2018 IHS and European Plasticisers estimates

CLASSIFIED PLASTICISERS

Included in REACH Candidate List or pending Authorisation

ORTHOPHTHALATES
Low Molecular weight
3-6C
DEHP DBP
DIBP BBP

DCHP

NON-CLASSIFIED PLASTICISERS

ORTHOPHTHALATES
High Molecular weight $\geq 7C$
DINP DIDP DPHP

Sebacates
DMS DBS

Azelates
DIDAz

Cyclohexanoates

Terephthalates
DOTP DBT

Adipates
DEHA DINA
DIDA DTDA

Alkyl sulfonates
ASE

Dibenzoates
ODEB OXPDB

Trimellitates
TOTM

Phosphate
TPP

Citrates
ATBC

Benzoates
INB IDB

Vegetable Oil based
Expoxidized, hydrogenated and acetylated vegetable oil

Butyrates

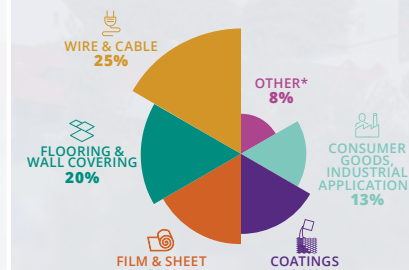
Valerates

This table is for illustration purposes only. The list of plasticisers is non-exhaustive and box sizes do not accurately represent market volumes.

Modern plasticisers have undergone extensive testing for possible health and environmental effects and are amongst the most widely researched of all chemical substances. In Europe, the safe use of plasticisers is regulated under REACH, the most comprehensive product safety regulation in the world.

Globally, almost 7.5 million tonnes of plasticisers are consumed every year, of which European consumption accounts for over 1.35 million tons.

EUROPE'S PLASTICISERS USE



*Other: elastomers, surface coatings, rubber compounds and medical applications
Source: 2018 IHS and European Plasticisers estimates



SPORTS

Plasticisers make PVC bendable and soft in order to withstand considerable physical stress without breaking. Flexible PVC is used in a large array of sporting gear, clothing and footwear.



TOYS

Flexible PVC makes toys soft, flexible and safe by replacing or protecting sharp edges and avoiding brittleness. In Europe, the choice of plasticisers used to manufacture toys is strictly regulated by REACH.



FLOORING

PVC floors are not only stylish and affordable but also waterproof, anti-slip, sound and heat insulating as well as stain resistant. While requiring low maintenance, they ensure high hygienic standards and are therefore widely used in private houses as well as hospitals, sport halls or schools.



RUBBER

Plasticiser-containing rubber is commonly used in seals, conveyor belts, automotive tubes and hoses. Plasticisers improve the rubber's overall flexibility, low temperature properties and increase its heat resistance.



Rue Belliard 40
B-1040 Brussels - Belgium
Tel: + 32 2 436 94 64 [@EuropeanPlasticisers](https://twitter.com/EuropeanPlasticisers)
europeanplasticisers.eu info@europeanplasticisers.eu

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