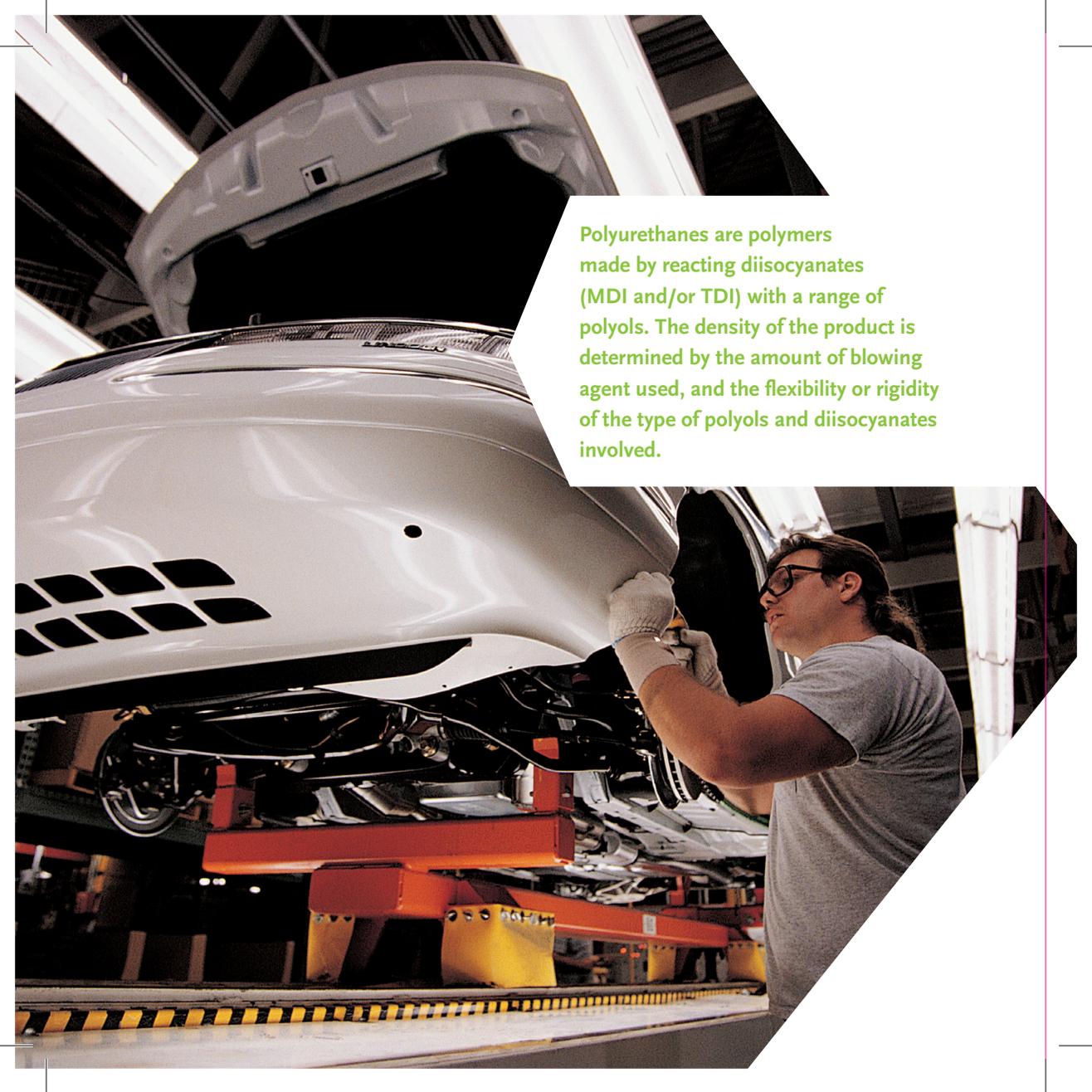




polyurethanes

A photograph of a worker in a grey t-shirt and safety glasses, wearing white gloves, working on the front end of a white car. The car is on a production line, supported by orange and yellow machinery. The worker is focused on a task, possibly inspecting or adjusting a part of the car's body. The background shows the industrial setting of a factory with overhead lights and structural elements.

Polyurethanes are polymers made by reacting diisocyanates (MDI and/or TDI) with a range of polyols. The density of the product is determined by the amount of blowing agent used, and the flexibility or rigidity of the type of polyols and diisocyanates involved.

What are Polyurethanes?

Polyurethanes are plastic materials that are versatile, sustainable, modern and safe. They are selected for use in a wide variety of daily life consumer and industrial products that play a crucial role in making our lives more convenient, comfortable and environmentally friendly. Major applications include:

- Building insulation
- Insulation of refrigerators and freezers
- Cushioning for furniture and mattresses
- Automotive parts, rollers and tyres
- Adhesives and coatings
- Shoe soles and sportswear

The growing success and increased use of polyurethanes is boosted by the fact that they are affordable, can be manufactured according to exact specifications and are recyclable. These qualities make them the product of choice for manufacturers and retailers all over the world.

The polyurethanes industry focuses on the three pillars of sustainable development:

- Environmental responsibility
- Economic growth
- Social progress





Polyurethanes are an important contributor to energy conservation in refrigerators and today are used in almost all refrigerators. Models designated A++ are 60% more efficient than refrigerators 15 years ago.

Approximately 51 million kWh of energy is saved each year in the EU through the use of polyurethane insulation.



Environmental Responsibility

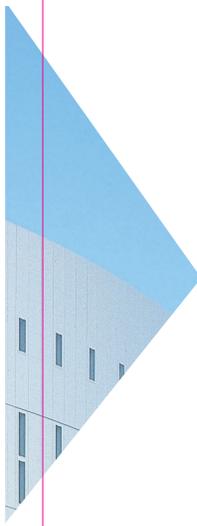
Polyurethanes actively help fight climate change in a variety of ways:

- As effective insulators, they improve the energy efficiency of buildings, transportation and appliances by reducing the need for heating and cooling, thereby lowering carbon emissions.
- Increased energy savings and enhanced energy efficiency in buildings can be achieved in a number of ways: polyurethane roof and wall insulation, wall and window insulation and pipe insulation all ensure that temperatures are maintained.
- Today, about 45% of fossil fuels are used to cool and heat the interiors of buildings and homes. Through the use of insulation materials, considerable energy savings can be made, resulting in a substantial reduction in CO₂.
- In vehicles, not only do they ensure comfort, safety, and durability but also enhanced fuel efficiency, because they are lighter than alternative materials.
- In appliances, polyurethane use means that less energy is needed to power refrigerators, freezers, water heaters and other such units, which again results in considerable energy savings.

The polyurethanes industry is constantly striving to improve the end-of-life phase of its products to achieve even greater sustainability. More than 250,000 tons of polyurethanes from European sources are recycled and recovered every year.



Wall insulation of 1.6cm of polyurethane has the same insulation efficiency as a 1.34m-thick concrete wall!



Economic Growth

Through both direct and indirect activities, the polyurethanes industry represents tens of thousands of companies and millions of jobs the world over. Its growth is sustainable, as polyurethanes make a considerable contribution to resource conservation.

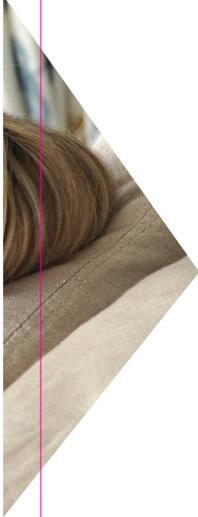
Continued development and application of polyurethanes, with a view to enhancing the energy efficiency of products, is an important step in helping us reduce greenhouse gas emissions and bringing us closer to our goal of an environmentally sustainable world.

Social Benefits

Polyurethanes also bring greater levels of comfort and ease to everyday life. In other words, through the production of useful, high-quality products, polyurethanes not only benefit the environment and the economy, but also the lives of those who use them.

The polyurethane industry employs
over 800,000 people in the EU.





Innovation

Because of the wide-ranging benefits of polyurethanes, the industry is committed to finding new and innovative ways in which to use this material. The material is so versatile that it can currently be found in anything from roof insulation to surfboards. Since it can be cut into sheets, slabs or other desired shapes, as well as moulded or sprayed in place to meet custom designs, polyurethane can be used in a wide range of applications and it continues to replace more traditional materials, such as metal and rubber in cars.

Ensuring Comfort

Polyurethanes help make our lives more comfortable. They can take many forms in various applications, including mattresses, soft furnishings, clothing, carpet underlay and even transportation. They are generally chosen because of the following benefits:

- Comfort and support in mattresses and sofas
- Durability and ease of use for design and manufacturing
- Good ventilation and heat transfer due to foam structure
- Reduction of noise levels and heat loss in carpet underlay
- Lightweight and resilience in jackets and footwear
- Cushioning and vibration reduction in vehicle seat cushions and interiors



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This is an initiative of ISOPA,
the European Diisocyanate and Polyol Producers Association



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