Innovative and more sustainable developments with rigid polyurethane foam

**Thermal insulation makes an important contribution to climate neutrality**

**From building insulation to the cold chain**

Thermal insulation of buildings and the cold chain plays a vital role in saving CO2 emissions and conserving fossil raw materials. [Covestro](https://www.covestro.com) is one of the leading raw material suppliers for one of the most efficient insulation materials used for this purpose for a long time: Rigid polyurethane (PU) foam. Given the ongoing climate change and the drastic measures required to combat it, its importance is currently growing once again.

This is reason enough for Covestro to further increase the sustainability and insulating performance of its foams and develop innovative solutions for more effective production. At the [K 2022](https://www.covestro.com) plastics trade show, the company will present promising results that support its vision to become fully circular.

**Climate-neutral raw material for insulation**

For example, Covestro now offers one of the two main raw materials for PU rigid foam, methylene diphenyl diisocyanate (MDI), in a version that is [climate-neutral](https://www.solutions.covestro.com/en/highlights/articles/stories/2022/climate-neutral-mdi-types)[[1]](#footnote-1) from the cradle to the factory gate: On balance, no CO2 emissions are generated in the aforementioned part of the value-added cycle. This increase in sustainability is due to the use of alternative raw materials based on plant waste and residual oils, which are allocated to the products with the help of certified mass balancing according to ISCC PLUS. With such climate-neutral1 solutions, Covestro helps its customers achieve their own sustainability goals and master the transition to a circular economy. The products can be incorporated into existing process technology at construction, refrigeration and automotive industry customers without any significant changes.

**Small refrigerators with plenty of interior space**

In the cold chain, too, rigid PU foam has been the insulating material of choice for decades to keep food from spoiling efficiently and permanently. In the future, it will be important to not only further increase the insulation performance, but also to have the largest possible interior space in which to store a lot of refrigerated goods, and yet limited external dimensions of the refrigerator. Here, PU vacuum insulation panels (VIPs) offer an advantageous solution: they take up little space but provide efficient insulation with low energy consumption and CO2 emissions. Even at the end of their useful life, PU VIPs still reduce the carbon footprint: Thanks to their use, refrigerators are made from only a few different materials and can be recycled more easily.

**More effective and sustainable production of insulation elements**

For the production of rigid foam insulation boards and metal sandwich elements, customers have to spread a PU reaction mixture on a top layer. Covestro has developed an innovative technology using [casting rakes](https://www.solutions.covestro.com/en/highlights/articles/stories/2019/next-generation-fpr-for-insulation) that enables more uniform distribution of the liquid mixture, simplifying the production process but also increasing the quality of the insulation elements. Insulation Board Fastline (IBF) technology also reduces out-of-spec batches and production waste – waste that would otherwise have to be disposed of or recycled. The casting rakes can be easily integrated into the existing production.

**Efficiently insulated windows**

The efficient thermal insulation of [doors and windows](https://www.solutions.covestro.com/en/highlights/articles/stories/composites-thermoset/baydur-construction) naturally makes another important contribution to reducing energy consumption and CO2 emissions from buildings. While multi-pane windows made of insulating glass have proven themselves in practice, for a few years now, composite materials made of polyurethane resins in combination with glass fibers using pultrusion technology have been providing excellent insulation of window and door frames. They also give them good strength and fire resistance.

**About Covestro:**

Covestro is one of the world's leading manufacturers of high-quality plastics and their components. With its innovative products and processes, the company contributes to greater sustainability and quality of life in many areas. Covestro supplies customers around the globe in key industries such as mobility, construction and housing, and electrical and electronics. In addition, Covestro's polymers are used in areas such as sports and leisure, cosmetics, healthcare and in the chemical industry itself.

The company is fully aligned with the Circular Economy and aims to become carbon neutral by 2035 (Scope 1 and 2). In fiscal 2021, Covestro generated sales of €15.9 billion. As of the end of 2021, the company produced at 50 sites worldwide and employed around 17,900 people (converted to full-time positions).

**Forward-looking statements**

This press release may contain forward-looking statements based on current assumptions and forecasts made by Covestro AG management. Various known and unknown risks, uncertainties, and other factors could lead to material differences between the actual future results, financial situation, development, or performance of the company and the estimates provided here. These factors include those discussed in Covestro’s public reports. These reports are available at www.covestro.com. The company assumes no obligation whatsoever to update these forward-looking statements or to make them conform to future events or developments.

1. Climate neutrality is the result of an internal assessment of a partial product life cycle from raw material extraction (cradle) to the factory gate (Covestro gate), also known as cradle-to-gate assessment. The methodology of our life cycle assessment, which has been critically reviewed by TÜV Rheinland, is based on ISO standards 14040 and ISO 14044. The calculation takes into account biogenic carbon sequestration based on preliminary data from the supply chain. No compensatory measures were applied. [↑](#footnote-ref-1)