

PIONEERING THE FUTURE



A brighter, circular world needs pioneers. And Covestro – with its vision of becoming fully circular – is a trailblazer. In the past year, we have optimally positioned ourselves to fully leverage our potential. And with our circular solutions, the move away from fossil raw materials and collaborations across boundaries, we are **shaping a sustainable future**.

SHOWING FORESIGHT

A woman with long brown hair is shown in profile, looking towards the right. She has a thoughtful expression. The background is dark with soft, out-of-focus lights. Overlaid on the right side of the image are several thick, curved lines in shades of pink and orange, creating a sense of movement and futurism.

In an increasingly demanding world, the chemical industry plays a crucial role. It offers sustainable solutions to the challenges of our time. And Covestro is optimally positioned to actively shape the future: with its vision of **becoming fully circular**, a **new strategy and a strong foundation** of safety and culture.

BECOMING FULLY CIRCULAR

Global CO₂ emissions continue to rise,¹ accompanied by floods, forest fires and droughts. At the same time, the earth's natural assets are being exhausted and its environment polluted. Humanity uses about 60 percent more of the planet's resources than it can regenerate every year,² and a third of the more than two billion tons of waste is not managed properly.³ It is about time for a change. The good news is that an increasing number of nations want to become climate-neutral; many ideas and technological solutions are on the table.

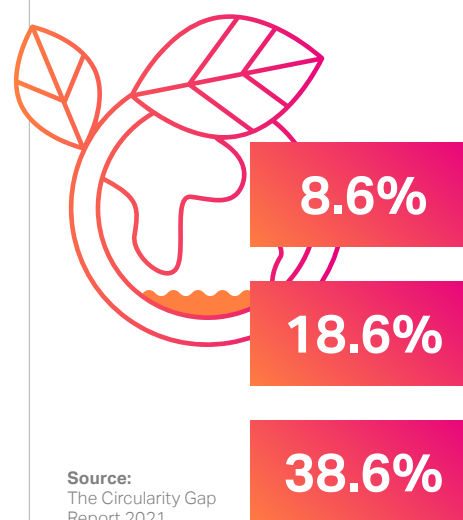
CIRCULAR ECONOMY IS KEY

"But we need more: a great idea that unites politics, society and the economy," says Covestro CEO Dr. Markus Steilemann. "This is what the circular economy offers – as a key to climate neutrality, resource conservation and environmental protection." Covestro wants to help make circularity in the chemical industry and beyond a global guiding principle and aims to become fully circular itself in the long term: with circular products for which there is an increasing demand and by switching production to renewable raw materials, green electricity and innovative recycling.

(Sources: ¹Global Carbon Project; ²Global Footprint Network; ³World Bank)

Take the quiz

How circular is the world?



Source:
The Circularity Gap
Report 2021

Answer: 8.6%

Linear Economy to Circular Economy

Manufacture, consume, throw away – the traditional linear economy leads to a dead end.
We need a paradigm shift to the circular economy with sustainable ways of behavior and production.



BECOMING THE BEST OF WHO WE ARE

When it comes to finding answers to the most pressing problems of our time, chemical companies like Covestro have a crucial role to play. Climate change, a growing world population and new forms of mobility and urbanization – all of these are challenges that we are meeting with our sustainable solutions. In order to be able to use our full potential for this purpose, we are positioning ourselves optimally.

"SUSTAINABLE FUTURE"

This journey has already started for Covestro. With our vision to become fully circular, we have a clear goal in mind. The key course has been set through our new strategy "Sustainable Future". In 2021, we already reached a central milestone of our strategy's first chapter: "Become the best of who we are." We have reorganized our Group structure, enabling us to move even closer to our customers, better meet their needs and achieve sustainable growth together. Overall, we are becoming more digital, more efficient and more competitive. This optimal setup brings us another step closer to our vision of the circular economy.

The vision of becoming fully circular sets the direction for our Group strategy "Sustainable Future"



BECOME THE BEST OF WHO WE ARE

Transform the company
to exploit its full potential



DRIVE SUSTAINABLE GROWTH

Address sustainability in
a profitable way



BECOME FULLY CIRCULAR

Accelerate the transition to a
fossil-free economy

Advance digitalization

Expand "We Are 1" culture

A STRONG FOUNDATION

To become fully circular and grow sustainably, you need one thing more than anything else: a strong foundation. With curiosity and different perspectives, we drive innovation and progress. That is why Covestro relies on a diverse workforce in which people come together regardless of age, origin, religion, gender or sexual orientation. Nevertheless, they all have one thing in common: safety.

At Covestro, safety is an all-encompassing concept. In addition to plants and production processes, the focus is above all on employees. After all, safety requires a corporate culture in which people approach each other, pay attention, communicate openly and treat each other with respect.

"WE ARE 1"

Team Resource Management (TRM) training, which Covestro implements at all production sites worldwide, provides valuable support in this regard. Under the guidance of instructors with experience in TRM, our teams use simulations to learn how the human factor influences safety. This is complemented by practical tools to ensure smooth interaction and improve communication within the teams.

In this way, we strengthen our "We Are 1" culture, in which team thinking and mutual appreciation are paramount – and where safety is anchored as the foundation of our business.



»Effective communication and a sustainable error culture are at the heart of TRM. The training made it clear to me once again what factors can disrupt communication. All participants were made aware that – even if it is tedious – we need to talk regularly, openly and with mutual respect about all the little things that sometimes don't run optimally in everyday operations but often fall by the wayside in the stress of everyday life.«

Dr. Ralph Weber,
Plant Manager at Covestro

TAKING ACTION



Becoming fully circular will take decades. To address this challenge, we constantly take action. We invest in sustainable growth. We drive research and development. And foremost: We work with partners – **because a climate-neutral and circular future can only be achieved together.**

GROWING SUSTAINABLY

The desire for a better world is becoming ever more urgent – it should be climate friendly, more resilient, healthier. Covestro is helping to realize this brighter world, because our high-quality plastics are used almost everywhere and are part of the solution to the challenges of our time. To this end, we systematically combine economic and sustainable aspects to create new growth impetus.

ADDRESSING SUSTAINABILITY IN A PROFITABLE WAY

As part of its vision to become fully circular, Covestro is systematically expanding its portfolio of circular products. We are also investing around 1 billion euros in circular-economy projects over the next ten years. In addition to our research and development activities, we will also be orienting our acquisitions and investments even more strongly towards sustainability in the future. For example, we are expanding production capacities and investing specifically in the construction of a world-scale plant for the production of the rigid foam component MDI, a material that enables the energy-efficient insulation of buildings.

In this way, we are driving sustainable growth in various areas and helping to make the world a brighter place with our sustainable solutions.

»The use of sustainable technologies is key for us. For example, our new AdiP technology reduces CO₂ emissions in an MDI plant by up to 35 percent.«

Dr. Klaus Schäfer,
Chief Technology Officer



SCALING UP SUCCESS STORIES

Future mobility is a matter of concern to us all. Driving with fossil fuels is increasingly reaching its limits, which raises the question of how we will get from A to B in ten years and beyond. To answer this question in the near future, innovative minds are constantly developing new ideas for future mobility. Team Sonnenwagen Aachen is a group of such innovators. These students from RWTH Aachen University (Germany) and FH Aachen University of Applied Sciences (Germany) spend much of their spare time building solar cars, powered only by the sun. The goal is to test them under tough conditions in competitions with peers from around the world.

LIGHTWEIGHT AND ROBUST

Team Sonnenwagen Aachen has set themselves the task of optimizing the efficiency of their solar cars to enable them to travel several hundred kilometers without having to stop and charge. One of the key reasons why they manage to achieve that is the right choice of lightweight yet robust materials. High-tech materials are a key enabler for future mobility concepts and part of the reason why Team Sonnenwagen Aachen has chosen Covestro as their main sponsor for the third time in a row. With the Covestro Photon, as the solar car for 2021 is called, we are taking action and can jointly push the boundaries of future mobility to demonstrate the great potential of plastics for a sustainable future.



EXPLORE
ONLINE VIDEO



Take the quiz

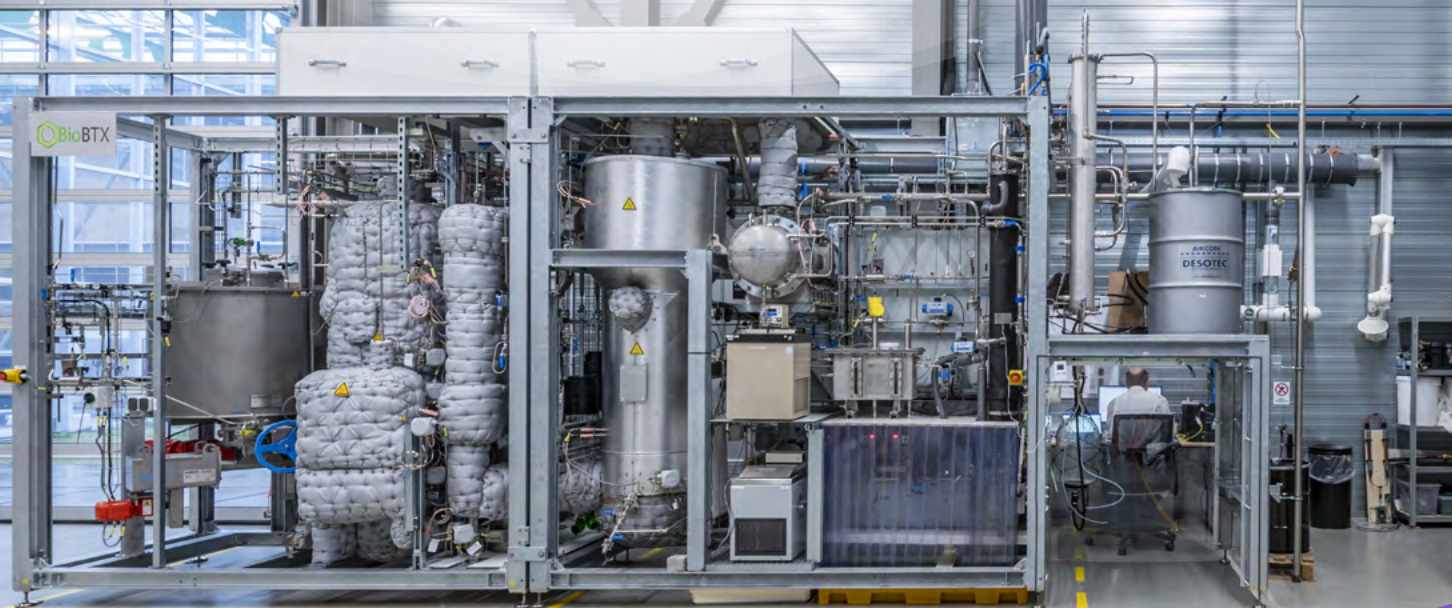
How heavy is the Covestro Photon?

50 kg

180 kg

310 kg

Answer: 180 kg



FOSTERING COLLABORATION

Climate protection is a joint task. This applies on both a large and a small scale. Only if government players, industry and consumers pull together can the comprehensive transformation of our society towards climate neutrality and a circular economy succeed in a timely manner.



**EXPLORE
ONLINE VIDEO**

Partnerships along the entire value chain are therefore a central component of Covestro's strategy and an important part of how we take action to become fully circular. This is also illustrated by the innovation project CIRCULAR FOAM: Together with 21 partners from 9 countries, Covestro is working to close the material loop for rigid polyurethane foams from refrigerators and buildings. The focus is on two recycling paths: chemolysis and smart pyrolysis.

WITH SYSTEMIC APPROACH

However, the development of innovative processes for chemical recycling is not the only prerequisite for the success of the project. A systemic approach is needed to close the material cycle and create a blueprint for the circular economy. After all, completely new circular value chains have to be created and the participation of all relevant stakeholders in politics, society and industry has to be secured.

But the joint efforts are worthwhile. After all, implementing the system across Europe could save 1 million tons of waste, 2.9 million tons of CO₂ emissions and 150 million euros in incineration costs annually as early as 2040. An important contribution to the realization of the circular economy.

SETTING STANDARDS



To achieve a sustainable future, innovation is indispensable. To that end, Covestro is pushing boundaries to set standards. How? Three examples: **alternative raw materials, new recycling methods and digitalization.**

ALTERNATIVE RAW MATERIAL BASES

A sustainable and climate-neutral circular economy is not just a vision; it already presents a multitude of opportunities for action. One example is mass balancing, which allows the proportion of alternative raw materials in production to be gradually increased and allocated to selected products. By applying this principle to the entire value chain and certifying it according to the globally recognized ISCC PLUS standard, the proportion of renewable raw materials increases and products become more sustainable. By pursuing this approach, Covestro's aim is to gradually switch its global production to certified mass-balanced products and thus significantly expand its alternative raw material base.

We are therefore also providing transparency for our customers while helping them to become more sustainable. Another advantage is that the alternative raw materials can be used in existing production processes without any major changeovers and without compromising on product quality.

THE JOURNEY CONTINUES

Customers further along the value chain can benefit from the use of mass-balanced raw materials and reduce their own carbon footprint. One example is H.B. Fuller, one of the world's largest manufacturers of industrial adhesives, based in St. Paul, Minnesota, USA. As part of a supply agreement with Covestro, it receives ISCC PLUS-certified, mass-balanced adhesive raw materials used primarily in the automotive, wood, composites and textile industries. "The ability to source certified renewable feedstock in large quantities based on the mass-balanced approach allows us to use molecules that bring a significant reduction in our carbon footprint without compromising the performance of PU adhesives," says Iñaki Sigler, Global Product Manager for Woodworking and Composites at H.B. Fuller. "This is an investment in a future that we are all a part of." Thus, with our mass-balanced approach, we are already setting standards and accelerating the path towards a circular economy.



EXPLORE
ONLINE VIDEO

Take the quiz

Which Covestro site in the Asia-Pacific region received ISCC PLUS certification in 2021?

Shanghai

Greater Noida

Linyuan



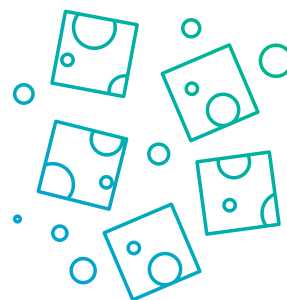
Answer: Shanghai

INNOVATIVE RECYCLING METHODS

Flexible polyurethane foam: a versatile material that offers comfort in everyday life – for example in car seats, shoe soles and mattresses. Covestro produces main components of the foam, and they are becoming more and more popular. For the TDI component alone, the company expects global demand growth to increase to 6 percent per year through 2025. That is a lot of mattresses!

REUSING MATTRESSES

Polyurethane has one disadvantage, however: it cannot be recycled very well with the established mechanical recycling processes. But Covestro is working intensively to change things in this regard. We have developed a pioneering process to chemically recycle the soft foam from used mattresses. The material is broken down into molecules, which are then reassembled into new foam precursors. "In contrast to other approaches, our process targets both components, the TDI precursor TDA and polyol," says project manager Karin Clauberg. Since the beginning of 2021, Covestro has operated a pilot plant at its Leverkusen (Germany) site to confirm the positive laboratory results.

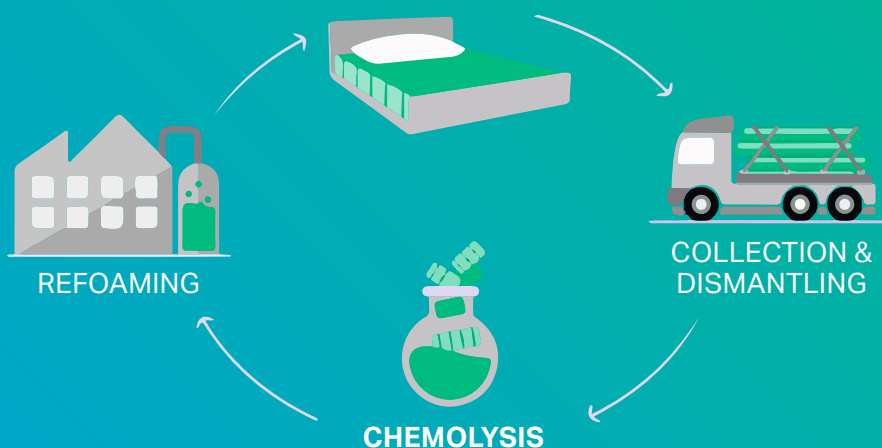


3.1 million tons

**of the TDI foam component
will probably be in demand
worldwide in 2025 –
an increase of 800,000 tons
compared to 2020.**

Source: Covestro IR presentation

Replacing fossil fuels with innovative Covestro technology



Foam mattresses have been difficult to recycle to date. However, with an innovative method from Covestro, the material can be chemically decomposed and new foam components can be produced from the molecules.

DIGITALIZING CHEMISTRY

The circular economy requires a restructuring of the entire economy. This transformation can only succeed if we also take full advantage of the opportunities offered by digitalization. Therefore, in chemical research, we are relying on enormous computing power and access to external high-performance computers as well as quantum computing. With this, we want to significantly accelerate development efforts. Our expertise in chemistry along with artificial intelligence, machine learning and computing power will clearly push the boundaries.

DIGITALIZING OUR CORE BUSINESS

Beyond this, we pay special attention to the digitalization of our core business. We continuously leverage efficiencies in basically all areas of the company and invest in collaboration with our customers. To this end, we use all available means of digitalization to make the usage of our products by our customers more efficient and effective, but at the same time more convenient. It has recently become possible, for example, to digitally track deliveries of our products by sea.

None of this can be done on our own, which is why we successfully build long-term partnerships. For us, it is absolutely clear that digitalization will change the way we work as a chemical company in the future. By seizing our opportunities now and developing our core areas digitally, we will be able to use these technologies to set standards for a sustainable and circular future.



»Digital processes bring us clear benefits: satisfied customers and employees, better use of resources, and precisely tailored provision of technologies with their finger on the pulse.«

Walter Grüner,
Chief Information Officer at Covestro