

Press Release



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Covestro collaborates with Brazilian industry leader Beira Rio

More sustainable modern design concept for footwear

- **Use of CO₂ and biomass as raw materials**
- **Plastic waste as a valuable resource**
- **Low-solvent coatings and adhesives**

Together with leading Brazilian footwear manufacturer Calçados Beira Rio, [Covestro](#) is developing concept shoes that combine a pioneering design with innovative, more sustainable material solutions. An elegant women's shoe and a comfortable casual shoe are used as examples to illustrate the variety of possibilities – from upper to lining, from sole to heel. The result is a more sustainable [overall solution](#) with superior performance and plenty of design possibilities.

Both shoes feature Covestro products derived from alternative raw materials such as CO₂, biomass and plastic waste. These are a valuable resource as they provide carbon that can be put to use beneficially in a circular economy, instead of being released into the atmosphere as waste gas. Covestro is pioneering the use of such raw materials to reduce its dependence on fossil materials and increase the sustainability of the value chain.

Walking with CO₂ technology

One example is the upper and inner lining of the two shoes. The base is a soft foam that ensures a good fit and comfortable footfall. Here, a precursor product was used that contains up to 20 percent carbon dioxide and is marketed by Covestro under the name [cardyon](#)[®]. The CO₂ replaces some of the fossil raw materials previously used, but does not compromise the favorable properties of conventionally produced foam.



Two different types of thermoplastic polyurethane (TPU) are found in the outer soles of both women's shoes. One of them is also based on cardyon®; while in the other, 60 percent of the carbon content is derived from biomass. As a result, both products have a lower CO₂ footprint than fossil-based TPU and help close the carbon cycle.

High heels made from recycled plastic

Covestro is also focusing on the recovery of plastic waste as part of its strategic program to support the circular economy, and is working with partners to develop new value-adding cycles to achieve this. For example, used polycarbonate products are shredded, cleaned, possibly mixed with new plastic and reused as recycled Makrolon®. In women's shoes, this lends lasting strength to the insole and heel.

No solvents

Footwear manufacturers such as Beira Rio want to offer more sustainable products for the benefit of their customers, but also want to improve hygienic conditions in production. That's why they are increasingly relying on water-based raw materials, which emit significantly fewer volatile organic components (VOCs) than the solvent-based substances used in the past.

INSQIN® technology is used in the lining, upper and heel of the women's pump, as well as in the synthetic upper material of the casual shoe. This technology is based on water-based polyurethane raw materials and was developed specifically for a more sustainable textile coating. Aqueous adhesives with the polyurethane dispersion Dispercoll® U provide the necessary strength in the upper and outer sole of both shoes.

About Covestro:

With 2020 sales of EUR 10.7 billion, Covestro is among the world's leading polymer companies. Business activities are focused on the manufacture of high-tech polymer materials and the development of innovative, sustainable solutions for products used in many areas of daily life. In doing so, Covestro is fully committed to the circular economy. The main industries served are the automotive and transportation industries, construction, furniture and wood processing, as well as electrical, electronics, and household appliances industries. Other sectors include sports and leisure, cosmetics, health and the chemical industry itself. At the end of 2020, Covestro has 33 production sites worldwide and employs approximately 16,500 people (calculated as full-time equivalents).

Forward-looking statements

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