

Press Release



Leverkusen,
May 14, 2021

Covestro AG
Communications
51365 Leverkusen,
Germany

Contact
Dr. Frank Rothbarth
Telephone
+49 214 6009 2536
E-mail
frank.rothbarth
@covestro.com

International Day of Light on May 16, 2021

Polycarbonates for LED lights in extreme environments

Challenging applications in swimming pools and explosion-proof lights

LED light sources have proven to be energy-saving and long-lasting which makes them economical light sources and are widely used in buildings, vehicles and street lighting. Light guides, reflectors, diffusers and lenses must be designed to ensure optimum use of LED light.

[Covestro](#) has spent years developing a customized portfolio of transparent, translucent, reflective, as well as thermally conductive and flame-retardant grades of polycarbonate plastic to meet these needs. In that way, the company is supporting more sustainable lighting technologies, to which the [International Day of Light](#) on May 16, 2021, is dedicated.

LED lighting in swimming pools

Operating LED lamps under water puts special demands on the materials involved. In cooperation with Brazilian swimming pool equipment supplier [Ecopyre Lighting](#), Covestro developed an [integrated solution](#) using the thermally conductive polycarbonate Makrolon® TC. It features high dimensional stability during manufacture and operation of the lights, thereby preventing water ingress (ingress protection or IP).

The letters "TC" in the type designation stand for "thermally conductive" and indicate that the plastic also has good thermal conductivity. This makes it ideal – like the other types in the [TC portfolio](#) – for efficient thermal management in which the heat generated by the LEDs is well dissipated. In addition, the plastic complies with the chemical resistance required for use in swimming pool water.



Lenses for explosion-proof LED lamps

The highly transparent product Makrolon® is even suitable for lenses in explosion-proof lamps, as demonstrated by a recent [case study](#) with safety technology supplier [R. Stahl](#). The lights comply with Categories 2 and 3 (for Zones 1 and 21, or 2 and 22) of the EU ATEX directives¹ for industrial environments where highly explosive dust and gas atmospheres may occur during normal operation. These include oil platforms, refineries, and also certain chemical plants.

R. Stahl AG, a German trendsetter for safety technology in potentially explosive atmospheres, was looking for an optical material solution for LED safety lighting that could be used worldwide. The decision was made in favor of the transparent plastic Makrolon®, which enables light-focusing optics and is applicable at elevated temperatures of 60 to 85 degrees Celsius.

Polycarbonate is a thermoplastic that allows efficient development and production of optical parts for LED-powered lights. The various Makrolon® types can be used for injection molding and extrusion. Stronger and lighter than glass, polycarbonate also facilitates savings in energy and CO₂ emissions.

About Covestro:

With sales of EUR 10.7 billion in 2020, Covestro is among the world's largest 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 everyday life. In doing so, Covestro is fully aligning itself to the Circular Economy. Its main customers are the automotive and transport industries, the construction industry, the furniture and wood processing industries, and the electrical, electronics, and household appliance industries. Other sectors include sports and leisure, cosmetics, healthcare and the chemical industry itself. As of the end of 2020, Covestro produces at 33 sites worldwide and employs around 16,500 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 liability whatsoever to update these forward-looking statements or to make them conform to future events or developments.

¹ [EUR-Lex - 32014L0034 - EN - EUR-Lex \(europa.eu\)](#)