

# Press Release



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Milestone for more cost-effective production of high-performance rotor blades

## **Covestro receives first DNV adjustment certification for partial reduction factor $\gamma_{m1}$ of wind turbine blades using aging-resistant PU**

[Covestro](#) has now received the first adjustment certification from [DNV](#), the wind power industry's certification organization, for the so-called partial reduction factor  $\gamma_{m1}$  of wind turbine blades made of aging-resistant polyurethane (PU). This factor is an important indicator of the long-term aging resistance of rotor blades and is also used to measure the long-term service performance of the blades. It is also the first time that DNV has evaluated and adjusted this factor.

To do so, DNV evaluated complex and rigorous comparative tests as well as theoretical analysis by Covestro. Based on design standards for wind rotor blades (DNVGL-ST-0376:2015), DNV confirmed and adjusted the partial reduction factor  $\gamma_{m1}$  of polyurethane resin processed using the vacuum infusion process. This certification applies to the Baydur<sup>®</sup> 78BD085 PU resin and the Desmodur<sup>®</sup> 44CP20 hardener from Covestro.

### **Longer and lighter rotor blade designs**

Resin materials must prove their long-term aging resistance before they can be given lower safety margins that allow for broader rotor blade design and application. For the first time ever, DNV has lowered the  $\gamma_{m1}$  factor of polyurethane resin, marking an important milestone for Covestro.

Compared to epoxy resin, which is often used to manufacture rotor blades, polyurethane resin shows better mechanical properties. With a lower  $\gamma_{m1}$  value, rotor blade designers can take full advantage of polyurethane and also achieve greater design freedom. As the need for longer and larger rotor blades increases, so does the weight of the blades. Therefore, weight reduction has become an important issue in the rotor blade industry. Polyurethane resin



enables the production of lighter blades with the same length, which greatly improves the efficiency of blade production and its applications.

Dr. Irene Li, vice president of research and development for Covestro's Tailored Urethanes business entity in Asia Pacific, remarked, "We are pleased that the excellent performance of polyurethane has been recognized by a wind power industry's certification authority. As more and more polyurethane rotor blades are installed, we look forward to further innovations in polyurethane resin and the rapid development this will bring to the wind power industry."

### **Innovative materials in focus**

For a long time, epoxy resin was the main material used in the production of wind rotor blades. For years, Covestro has invested in research into polyurethane resins to improve rotor blade performance and reduce manufacturing costs. Today, polyurethane – a new material in the field of wind rotor blade manufacturing – is rapidly gaining recognition in the market. With this innovative solution, Covestro aims to drive the use of renewable energy and, in the end, the shift to a circular economy.

Kim Sandgaard-Mørk, executive vice president of DNV's Renewable Energy Certification Division, said, "Wind turbine blades are becoming lighter and larger, while favorable feed-in tariffs for wind energy are gradually being reduced. This poses a challenge for cost control in wind rotor blade production and development. The wind power industry is therefore looking for new material applications while optimizing designs to reduce costs while ensuring optimal performance. By demonstrating the performance of polyurethane under the new blade standards and obtaining a new safety factor certification for its resin products, Covestro is blazing a new trail for blade design."

### **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**



This news release may contain forward-looking statements based on current assumptions and forecasts made by Covestro AG. 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 given here. These factors include those discussed in Covestro's public reports which are available at [www.covestro.com](http://www.covestro.com). The company assumes no liability whatsoever to update these forward-looking statements or to conform them to future events or developments.