

DSM, 3B, Siemens Wind Power and DTU Wind Energy

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Co-creation in Wind works! DSM, 3B – the fibreglass company, Siemens Wind Power and DTU Wind Energy propose a new-to-the-world composite system for making wind turbine blades, featuring easy blade manufacturing, low weight, high stiffness, and excellent resistance to fatigue. This material system is being evaluated by Siemens Wind Power for its next generation wind turbine blades. The revolutionary system received the 2014 Innovation Award from JEC in the Sustainability category.

The novel composite system is based on DSM's Beyone™ 201-A-01, a resin that is styrene-free, cobalt-free (based on BluCure™ Technology), and 40 % bio based. The use of this resin brings faster resin infusion and requires only limited post-cure. The system also incorporates 3B's novel SE3030 glass rovings. Through an optimized sizing applied on the glass filaments an excellent fibre/ resin interaction is obtained, resulting in improved composite properties for a long-lasting blade operation.

"For Siemens the new composite system provides many benefits, including a major reduction in blade manufacturing cost and an increased process output," explains Karsten Schibsbye, Manager Next Generation Blade Project, Siemens Wind Power.

"Peace-of-mind is what the new system brings to energy providers," adds Povl Brøndsted of DTU Wind Energy, *"as the resilient material system allows making top performing blades that enable wind turbines turning in sustainable energy day after day."*

"The parties were able to demonstrate that through co-creation a complex technology can be evaluated at record speed and prepared for live application in line with market requirements," mentions Onur Tokgoz, Wind Energy Global Business Leader at 3B – the fibreglass company. *"This is truly an innovative approach for improving both end-use performance and sustainability."*

"The JEC show in Paris is at the pulse of the Global Composites industry", comments Fons Harbers, Commercial Director EMEA DSM Composite Resins. *"We are delighted that the new composite system has received such an important award and got the industry recognition it deserves".*

DSM – Bright Science. Brighter Living.™

Royal DSM is a global science-based company active in health, nutrition and materials. By connecting its unique competences in Life Sciences and Materials Sciences DSM is driving economic prosperity, environmental progress and social advances to create sustainable value for all stakeholders simultaneously. DSM delivers innovative solutions that nourish, protect and improve performance in global markets such as food and dietary supplements, personal care, feed, medical devices, automotive, paints, electrical and electronics, life protection, alternative energy and bio-based materials. DSM's 24,500 employees deliver annual net sales of around €10 billion. The company is listed on NYSE Euronext. More information can be found at www.dsm.com.

DSM Composite Resins is a business unit of DSM headquartered in Schaffhausen Switzerland.

For more information, please visit www.dsmcompositeresins.com.

3B-the fibreglass company

3B-the fibreglass company is a leading developer and supplier of fibreglass products and technologies for the reinforcement of thermoplastic and thermoset polymers. This dynamic and entrepreneurial company has three state-of-the-art fibreglass manufacturing facilities in Battice (Belgium), Birkeland (Norway) and Goa (India) as well as a dedicated R&D Centre located in the heart of Europe. 3B's ambition is to be the preferred supplier of value creating, innovative glass fibre solutions for automotive and wind. This growth agenda builds upon three strategic drivers that are sustainability, technological innovation and a global presence to most effectively service our international customers.

The company is the only major fibreglass producer operating fully 100 percent boron-free glass fibre manufacturing platforms with ECR glass formulations delivering significantly improved corrosion resistance, enhanced stiffness, higher temperature resistance and longer service life. The company operates a unique eco-responsible and high performance glass technology, HiPer-tex™, in its Norwegian plant. This well established brand combines durability with eco-responsibility and versatility, making HiPer-tex™ the material of choice for a wide range of industries. With a sound foundation of unique assets, 3B is committed to designing reliable and durable fibreglass solutions available globally.

For more information visit our new website: www.3b-fibreglass.com.

Siemens Wind Power

Siemens Wind Power is a part of the Siemens Energy Sector, the world’s leading supplier of a broad spectrum of products, services and solutions for power generation in thermal power plants and using renewables, power transmission in grids and for the extraction, processing and transport of oil and gas. In fiscal 2013 (ended September 30), the Energy Sector had revenues of EUR26.6 billion, received new orders totaling approximately EUR28.8 billion and posted a profit of approximately EUR2 billion. On September 30, 2013, the Energy Sector had a work force of approximately 83,500. Further information is available at www.siemens.com/energy.

DTU Wind Energy

For almost two centuries DTU, Technical University of Denmark, has been dedicated to fulfilling the vision of H.C. Ørsted – the father of electromagnetism – who founded the university in 1829 to develop and create value using the natural sciences and the technical sciences to benefit society. Today, DTU is ranked as one of the foremost technical universities in Europe, continues to set new records in the number of publications, and persistently increase and develop our partnerships with industry, and assignments accomplished by DTU’s public sector consultancy.

DTU Wind Energy is a globally leading centre for wind energy with technical-scientific competences in the international front and with a unique integration of research, education and public/private sector consulting.

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