

Press release

nova-Institut GmbH (www.nova-institute.eu)
Hürth, 11 March 2015



Innovation Award "Bio-based Material of the Year 2015" – “Top 6” candidates nominated!

For the eighth year running the Innovation Award "Bio-based Material of the Year" will be awarded to the young, innovative bio-based material industry, finding suitable applications and markets for bio-based products. The competition focuses on new developments in these areas, which have had (or will have) a market launch in 2014 or 2015. The winners will be elected at the International Conference on Bio-based Materials, 13-15 April 2015 in Cologne, Germany (www.biowerkstoff-kongress.de).

This year, six bio-based materials and products have been nominated for the Award by the advisory board – out of 24 submitted products. The nominated companies are from the United Kingdom, the United States and Germany.

In a short 10-minute presentation, each of the six companies will introduce its innovation. The three winners will be elected by the participants of the conference and awarded with the prize, sponsored by Coperion GmbH, at the dinner buffet. Join the conference and the election: www.bio-based.eu/conference. 250 participants are expected, see who has already registered at www.biowerkstoff-kongress.de/tnlist

The “Top 6” candidates are:

1) [Bayer MaterialScience AG \(DE\): DESMODUR® eco N – First bio-based polyurethane crosslinker in the market for high performance automotive coatings: Polyisocyanate based on Pentamethylene Diisocyanate \(PDI\)](#)

The limiting factor for bio-based polyurethanes has been the need for polyurethane crosslinkers based on renewable feedstock, since bio-based polyols solutions already exist. Bayer MaterialScience has taken up this challenge and developed DESMODUR® eco N: a new solvent-free aliphatic polyisocyanate and the first polyurethane crosslinker on the market with a significant renewable content that has not come at the expense of performance. This crosslinker is based on a new isocyanate, pentamethylene diisocyanate (PDI), 70 percent of whose carbon content comes from biomass. Furthermore it is produced using energy-efficient gas-phase technology, to assure minimum impact on the carbon footprint. This product enables the production of bio-based polyurethanes for high-performance automotive coatings.

2) [EcoTechnilin Ltd \(UK\): FibriRock 100% bio-sourced composite for aircraft applications comprising flax non-woven, basalt yarns and a sugar-based bioresin. Co-developed with TFC](#)

FibriRock: a lightweight bio-sourced fast-curing composite with excellent FST performance. Certified for use in an airline galley cart, FibriRock combines a Nomex-type core with skins formed from flax, basalt and a sugar-based bioresin. There are three reasons why FibriRock is so special in the field of aerospace composites: the skins, which represent 87% of the material, are 100% biosourced; the fast processing times (150 seconds) are pretty exceptional in the field of aircraft composites where most sandwich-type materials take between 40 and 70 minutes to cure; and the low heat release rate figures (15 kWmin/m²) are three times lower

than competitive materials enabling clients to use much cheaper films and decorative finishes. Hence FibriRock is taking EcoTechnilin to new heights!

3) Evonik Industries AG (DE): 100% bio-based high performance polyamide 12 based on palm kernel oil

Thanks to its specific properties, polyamide 12 is the material of choice for a wide range of high performance products in numerous applications. Examples are sophisticated liner systems for motor vehicles, large-volume pipes, e.g., in the oil and gas industry, medical catheters, or injection-molded parts.

The conventional production of polyamide 12 starts from petroleum based butadiene. This is transformed via multiple chemical process steps to the key monomer lauro lactam. Now, the breakthrough alternative uses a one-step fermentation process starting from lauric acid methylester which is based on the renewable resource palm kernel oil. The resulting monomer 12-aminolauric acid is processed via established polymerization and compounding steps to polyamide 12 products with the same outstanding properties as the conventionally produced ones.

4) HIB TRIM PART SOLUTIONS GmbH (DE): Nature 50 – Natural fibre reinforced plastic (Hemp – PP) including a long fibre ratio > 50% for injection moulding

In the last years, many companies have developed natural fibre reinforced PP granulates – but the market success has been limited. Our new Nature 50 granulate is a completely new development with unique properties. Long hemp fibres (> 50%) are mixed with PP and additives in an innovative cold-press technology (no extruder). The granulate can then be extruded and injection moulded in serial moulding tools. The long hemp fibres give a unique design and a good Charpy impact property to the material – making it suitable for automotive parts. The weight reduction is between 18 and 20% in substitution of serial plastic PC ABS GF20. Also impact strength, shrinkage and heat expansion show attractive properties.

As a pure injection moulding part, Nature 50 shows an extraordinary appearance due to the long fibres, which can be varied through colouring. Therefore the material offers a wide range of design options in- and outside of the automotive sector.

5) INVISTA S.a.r.l. (US): LYCRA® T 162R Fibre – spandex yarn made using renewable butanediol as raw material with a lower CO₂ and fossil fuel emissions footprint

INVISTA, one of the world's largest integrated producers of polymers and fibres, and owner of the LYCRA® brand, has introduced the only commercial offering of a bio-derived spandex available globally and for use in a wide variety of apparel fabrics and garments. Approximately 70% by weight of the new T 162R LYCRA® bio-derived spandex fibre comes from a renewable butanediol raw material source made from dextrose derived from corn. The use of a renewable feedstock in the making of this new LYCRA® bio-derived fibre results in a lower CO₂ and fossil fuel emissions footprint than spandex produced using traditional raw materials.

6) twoBEars GbR (DE): bioFila – High performance PLA blends with outstanding optic and haptic properties for 3D printing

In 2009 the patent of Stratasy for 3D printing ended and opened the way for 3D printing for everybody. By now, printing files can be ordered on the internet from everywhere – therefore, the products do not travel around the world, but can be printed at home, offering a big potential for reducing global transport emissions. The market for 3D printing filaments is US\$ 800 Mio. and is expected grow tenfold in the next 10 years.

With the new developments, also new challenges appear: A lot of waste and prints with failures are produced by 3D printing with standard plastics such as ABS. The solution is PlaTec, which is stronger than ABS, with its softening temperature of 120°C. PlaTec is biodegradable and is made out of renewable raw materials.

Click here for more information about the six candidates: <http://www.biowerkstoffkongress.de/award>

Responsible under press legislation (V.i.S.d.P.):

Dipl.-Phys. Michael Carus (Managing Director)

nova-Institut GmbH, Chemiepark Knapsack, Industriestraße 300, DE-50354 Hürth (Germany)

Internet: www.nova-institute.eu and www.bio-based.eu

Email: contact@nova-institut.de

Phone: +49 (0) 22 33-48 14 40

nova-Institute is a private and independent institute, founded in 1994; nova offers research and consultancy with a focus on bio-based and CO₂-based economy in the fields of feedstock, techno-economic evaluation, markets, LCA, dissemination, B2B communication and policy. Today, nova-Institute has 25 employees and an annual turnover of more than 2 million €.