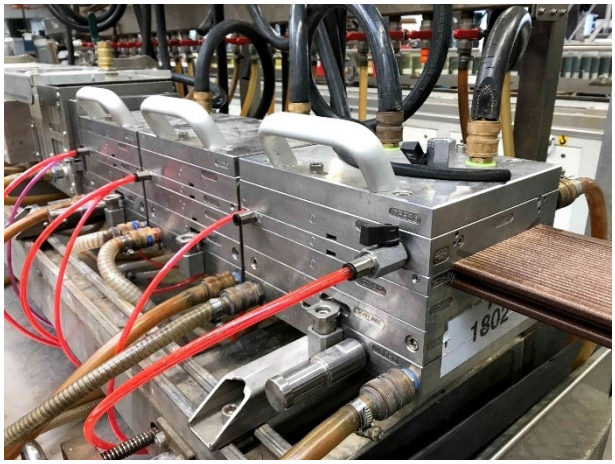
KUNST NETZ WERK STOFF

03.2019

"It even smells like hay and grass"

In close cooperation with a biorefinery from Hesse, SLS have created the technological conditions for the economic extrusion of high-quality decking boards made of an innovative eco granulate.

„"This is an environmentally friendly end product with an outstanding life cycle assessment and it even has a distinct scent of hay and grass", says Marco Streck, managing director of SLS, about the decking profiles made of an eco granulate named AgriPlast. This is an innovative composite material made up of up to 75 % grass fibre cellulose and of about 25 % recycled polypropylene or polyethylene. It is produced by a biorefinery in Odenwald, a region in Hesse.



However, at SLS there was another question on the agenda and that was how to manufacture resilient, weatherproof and dimensionally stable decking boards using extrusion technology in a precise and cost-effective way. Marco Streck and his development engineers have worked intensely on this task for several weeks.

"Of course, we were able to draw on our experience from engineering the wood plastic composites products but we also had to deal very intensively with the special material characteristics of the grass fibre granulate," emphasises the managing director.

Very precise control of all parameters

AgriPlast eco-granules allow the manufacture of very dimensionally stable products with a higher resistance to mechanical abrasion, heat, cold and fire than many pure thermoplastics. It meets the criteria of the European toy standard EN 71-3 and contains neither antimony nor halogens. It is also 100 percent recyclable. Thanks to these amazing properties, it has an almost exemplary life cycle assessment and reduces the ecological footprint of the end products. However - and the SLS extrusion specialists quickly realised this - the eco-granulate cannot be processed with conventional standard extrusion dies.

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As is the case of other fibre-reinforced plastics, the enormous pressure loads in the tool and the abrasive effect of the materials in the machine and in the tool must also be taken into account. They place special demands on toolmaking and require a particularly harmonious design and fine-tuning of the extrusion process during production.

Innovative approaches in demand

As SLS managing director Marco Streck explains, you also have to abandon some aspects of traditional toolmaking: "In addition to much experience, innovative approaches are required first and foremost. This applies for example to the design and control of the tool nozzle, the dimensioning of the calibrators and the associated cooling process in the tool. To make sure the end product - in this case the decking planks – meets all quality criteria and can be successfully established in the market, they have to see to it at SLS that all production parameters are fulfilled with the highest accuracy in extrusion. The smallest deviations in process control are often decisive factors with regard to success and failure."

For the processing of the innovative organic granulate based on meadowgrass cellulose, SLS was able to actively contribute both the expertise of their in-house toolmaking department and their materials and process engineering know-how. In the meantime, the company has started serial production of the decking boards made of the eco granulate – colours available are natural, brown, grey and black. The decking profiles are cut to length according to the customer's requirements, assembled and packed surface-friendly before they are delivered to the Odenwald biorefinery as required. "The development and production of the decking profiles for Biowert is an extremely successful joint project and a prime example of the successful cooperation between a granulate manufacturer and a plastics processor," says SLS managing director Marco Streck.

www.sls-kunststoffprofile.de
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www.biowert.de
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