

# TRANSFORM

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## TOO VALUABLE TO WASTE

Borealis Is Committed to Upcycling and Counts on Cooperations and Lindner's Technology

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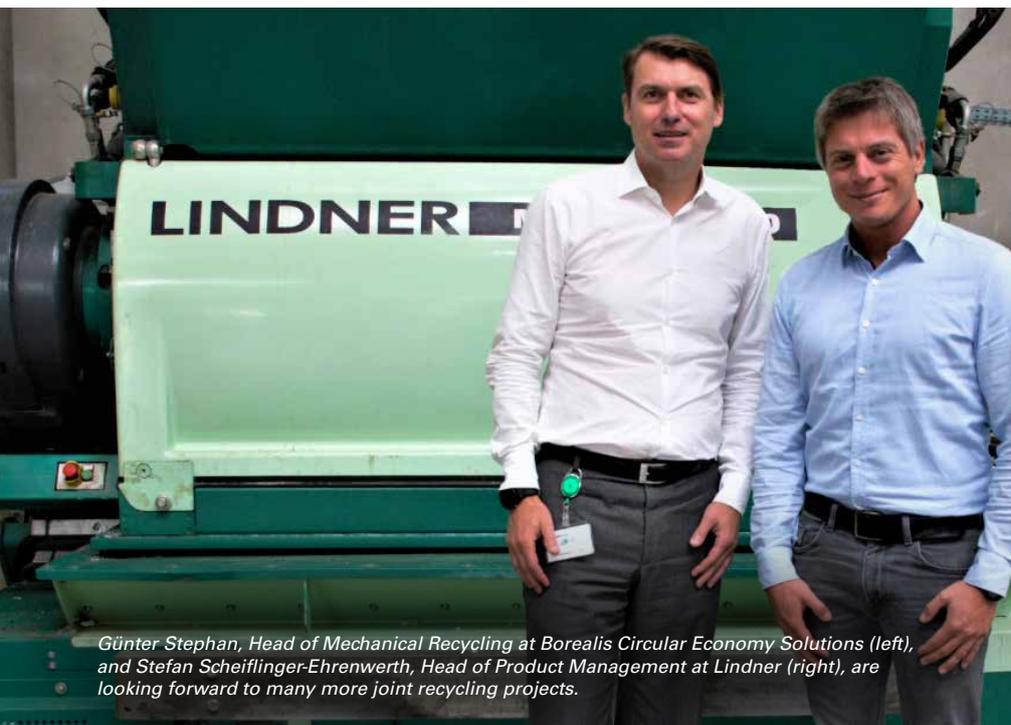
**LINDNER WASHTECH LAUNCHES NEW HOT-WASH SYSTEM**

**THE NEW MICROMAT**

**BOREALIS IS COMMITTED TO UPCYCLING AND COUNTS ON COOPERATIONS AND LINDNER'S TECHNOLOGY**

# TOO VALUABLE TO WASTE

**With their acquisition of the plastics recycler mtm plastics, Borealis, a leading chemicals and plastics group, became the first plastics manufacturer to work towards a circular economy. The group has been consistent in its efforts to drive plastics circularity and is developing regranulates of the highest quality. The result is sophisticated and innovative products jointly created with partners from the waste management and plastics industries.**



*Günter Stephan, Head of Mechanical Recycling at Borealis Circular Economy Solutions (left), and Stefan Scheifflinger-Ehrenwerth, Head of Product Management at Lindner (right), are looking forward to many more joint recycling projects.*

**U**pon meeting Günter Stephan, Head of Mechanical Recycling at Borealis Circular Economy Solutions, it is immediately clear that the company has truly understood the most pressing issue of our age. In 2016 Borealis became the first big plastics industry player to acquire a plastics recycling company, mtm plastics. Two years later, the Austrian company Ecoplast, another plastics recovery company, joined the Borealis Group. The group is doing everything in its power to advance the circular economy. 'We believe plastic is a fantastic material that is far too valuable to waste,' explains Stephan before adding: 'That's why we are working with our partners along the value chain to take concrete measures to implement the circular economy principles on a larger scale in our industry.' These initiatives are already bearing fruit: the combined know-how results in ever higher-quality ►



*The used cooking oil collection bucket Recycling Öli is made of 100% recycled post-consumer rigid plastics and meets high technical standards.*

regranulate and innovative products such as Purpolen®, a regranulate made of 100% recycled plastics and suitable for manufacturing branded consumer goods.

According to Stephan, mechanical recycling is currently the most eco-efficient method to apply the principles of the circular economy. Borealis also draws on the experience and technology of established recycling companies such as Lindner Recyclingtech, the Austrian specialist in shredding technology and waste processing. Stefan Scheifflinger-Ehrenwerth, Head of Product Management at Lindner, explains: 'In terms of processes, material recovery starts with shredding, sorting and cleaning waste. As one of the leading suppliers of system solutions in this industry, we know that the economic aspect of the entire process also plays a vital role in the closed-loop economy. That's precisely why it's so important to cooperate with companies from all areas of the value chain. Only when all components and processes are well coordinated will it be possible to cost-effectively produce high-quality regranulate that is comparable to virgin material.'

The Circumat project group is an example of what such a cooperation might

look like. Its members – the Landes-Abfallverwertungsunternehmen LAVU, the Transfercenter für Kunststofftechnik (TCKT), the Johannes Kepler University Linz (JKU) and the industrial partners Er-ema, Greiner Packaging, Innplast Kunststoffe, Lindner and Borealis with mtm plastics – are aiming to jointly develop technically advanced products made of recyclates to demonstrate new possible areas of application. 'Recycling Öli' is their pilot project.

Öli is a multiple-use bucket for the collection of used cooking oil from households and the catering industry in Germany, Austria and Switzerland and was previously made of virgin polypropylene. Thanks to this cooperation, it is now possible to produce buckets made of 100% recycled post-consumer rigid plastic with the same properties as the old containers made of virgin material. For example, the bucket has to retain its shape when 400 kg of compression load are applied, it has to be heat-resistant up to 80 °C and has to have consistent dimensions of  $\pm 1/10$  mm. Recycling Öli will gradually replace the existing Öli buckets. 'The Recycling Öli project has clearly demonstrated what waste plastics are capable of thanks to upcyc-

ling. In the future we will definitely see even more exciting areas of application and new products made of high-quality recyclates,' concludes Scheifflinger-Ehrenwerth. ■



## K 2019: LINDNER WASHTECH LAUNCHES NEW HOT-WASH SYSTEM FOR EFFECTIVE PLASTIC RECOVERY

# THINGS ARE HOTTING UP!

**Recyclates that are barely distinguishable from virgin material – that’s what plastics processing specialist Lindner had in mind when developing the new hot-wash system to be presented at the K 2019 in Düsseldorf. In addition to effective cleaning, the solution offers not only high but above all continuous output.**

**G**roßbottwar, Germany: Gone are the days when products made of recycled plastics were a well-intentioned but marginal phenomenon. Markets, and in particular big brands, have to react to the sustainability trend and are demanding ever-higher quality recyclates in ever-increasing quantities. To deliver this high quality, complex processing systems – and here, in particular, washing technology – are needed. One specific challenge is posed by undesirable materials stuck to post-commercial and post-consumer film as well as unpleasant odours. The more effectively these materials can be removed, the higher the quality and the potential revenue.

German-Austrian company Lindner Washtech has developed a three-stage hot-wash system to meet these requirements and also ensure high productivity. Managing Director of Lindner Washtech, Harald Hoffmann: ‘When developing the new components, we focused on effective cleaning and continuous processing so that all preceding and subsequent equipment can be operated productively at all times. That is why we based this solution on our tried-and-tested technology, combined it with the advantages of hot washing and deliberately left out the otherwise common, but often vulnerable, batch processing.’

### THREE STAGES TO SUCCESS

The modular and compact Lindner hot-wash system has three stages and does not require any additional conveyors. In the first stage, the shredded and pre-washed plastics are fed into a reactor, mixed with hot water and washed. Already at this stage, mixing arms apply concentrated friction to the material. The double discharge screw conveyor then feeds the plastics into the new hot-wash rafter in optimally dosed quantities. This is a new and improved version of the already successful rafter pre-washer, in which continuous friction is applied to the material to remove and separate ►

# THINGS ARE HOTTING UP!

THE NEW HOT WASH SYSTEM

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residues effectively and gently. In the third and final stage, the Twister friction washer, a machine specifically designed for this application, removes the hot water or the hot caustic solution. The liquid is then separately treated.

Optionally the system can also be operated with caustic solution to remove even stubborn fat and oil residues, as well as

glue. The downstream water treatment system continuously monitors the water's alkaline content and automatically applies the necessary chemicals.

Alongside Lindner's modern and robust shredders, the innovative hot-wash system is a key component in Lindner's new system solutions for plastics recycling. ■

## LINDNER AT THE K 2019

In addition to the indoor booth in hall 9, D78/E75, Lindner Recyclingtech, together with its subsidiary Lindner Washtech, will be exhibiting for the first time this year in the outside area (15.2). A system solution consisting of a shredder and a dry-cleaning system can be seen live in action, recycling plastics twice a day.



*The new Lindner Washtech hot-wash system cleans effectively in three stages and guarantees continuous output.*

**K 2019: LINDNER SHOWCASES THE LATEST MICROMAT SHREDDER ALONG WITH THE BRAND-NEW 1500 MODEL**

# NEVER DEFEATED

**The Lindner Micromat is a top seller in the plastics shredding market. At K 2019 the next generation will be presented along with an additional model and a new and improved universal cutting system. The shredder will be displayed live and in colour in the outside area.**

**W**alking through the outside area of K 2019 this year, for the first time visitors will see a tent for live demonstrations by the Austrian specialist in shredding technology and recycling systems, Lindner Recyclingtech and its subsidiary Lindner Washtech.

'The cycle starts here' is written in large letters above the entrance. And as soon as visitors pass it, its meaning immediately becomes clear. In terms of processes, the mechanical recycling of plastic waste always starts with shredding at the recycling companies. Which is precisely why Lindner is demonstrating the new Micromat 1500 shredder. ►



## FURTHER APPLICATIONS AND ADDED FEATURES

Based on Lindner's tried-and-tested technology, the Micromat series has been further optimised to meet current market demands in the plastics industry. And with the 1500 size – meaning a rotor length of 1500 mm – a new entry-level model from the Micromat series has been created. But that's not all. The most innovative feature is without doubt the new Multiplex cutting system. Thanks to the three-dimensional arrangement of the rotor knives, this exceptional system can shred almost any plastic. As a result of the knives actively pulling in the material, output can realistically be increased by some 40 percent on average compared to previous technologies. Stefan

Scheiflinger-Ehrenwerth, Head of Product Management at Lindner, explains:

'During development, we tested a wide range of materials together with our clients and optimised this cutting system's geometry to cover as many types of plastic as possible. The long-term test finally revealed that the new Multiplex rotor not only increases the throughput enormously, but in some cases even multiplies it.'

In addition to mechanical improvements, the machine's software and controls were redeveloped from scratch. With the new Lindner Mobile HMI (Human Machine Interface), the manufacturer is reacting to the growing shortage of skilled workers and focusing on extremely simple,

*In Vechta, Germany, Lohner Kunststoff Recycling (LKR) knows exactly how to bring industrial plastic waste back to the starting blocks. Jointly owned by Remondis Group, the company has been recycling production waste and surplus since 1992. Today, LKR is a specialised full-service provider that transforms 45,000 metric tons of waste into valuable raw material every year for its customers worldwide. To shred this waste, the company relies on Lindner's technology – like the Micromat with its new Multiplex rotor. Thanks to the cutting system's new 3D stepped design, the shredder can produce up to 40% more output, even with tough input material. All the while maintaining Lindner's signature high flexibility and maximum productivity.*



'With the new Micromat cutting system, we were able to significantly increase throughput even with tough materials.'

**JAN-HENDRIK WILMING**  
CEO  
Lohner Kunststoff Recycling GmbH  
Germany



self-explanatory menu navigation. The ► mobile control panel can be placed at the front or rear of the shredder depending on the task at hand, for example a screen exchange. Moreover, the touchscreen only displays the relevant functions.

With the new control software, the shredder is able to communicate with downstream equipment in the process chain and, for example, function as a dosing unit for the facility or pass on data about the materials' quality to the extruder.

**THE FILM SPECIALIST**

With the Micromat HP series, Lindner is launching a shredder that is specially designed for shredding post-consumer and industrial film. Equipped with a direct belt drive that enables rotor speeds of over 300 rpm, these new machines

can produce up to 2.5 times more output than the basic version in this area of application.

Furthermore, the new cutting system is able to precisely cut plastics into flakes for cleaning, sorting and subsequent extrusion in just a single step. The advantage of this feature is that additional fine granulation is unnecessary, meaning that energy and maintenance expenditure is significantly reduced while simultaneously lowering investment costs. ■



**LINDNER  
AT THE  
K 2019**

In addition to the indoor booth D78/E75 in hall 9, Lindner Recyclogtech and its subsidiary Lindner Washtech will be exhibiting in the outside area 15.2 for the first time this year. A Lindner system solution featuring the brand-new Micromat 1500 shredder and the Loop Dryer dry-cleaning system can be seen live in action, recycling plastics twice a day – from 11.30 am to 3.30 pm.