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Turning post-consumer milk jugs into high-grade material: Lindner's tailor-made washing line displays convincing efficiency



Lindner's washing line. Connected to the single-shaft pre-shredder Micromat Plus is a Floater, a Twister and a Graviter, followed finally by a dryer and air-wash system. © Lindner washTech
<<Note to Editor: further images at end of release>>

Tucker, GA/USA, March 2017 – Poly-Wood (www.polywoodinc.com), based in Syracuse, IN/USA, a leading manufacturer of outdoor furniture made from recycled HDPE, is now also a highly efficient plastics recycler. At its production centre, Poly-Wood operates one of the most modern recycling plants for HDPE with systems from Lindner washTech (www.lindner-washtech.com). At the heart of the plant is a combination of shredders and wash components specifically customized by Lindner for this particular application.

The starting material is post-consumer HDPE material, primarily in the form of empty but uncleaned non-returnable milk containers. The Lindner systems convert this waste into flakes as an ideal input material for the recycling process in terms of purity, residual moisture and particle size.

Focus on sustainability and efficiency

Chad Rassi, Process Engineer at Poly-Wood, says: "We had the fortune of planning our recycling plant from scratch. The key aspect here was to ensure a high level of sustainability through the particularly efficient use of water, heating and energy power, as well as low-maintenance operation, maintenance-friendly design and a high nominal throughput in long-term operation. We wanted to achieve outstanding cost efficiency so as to make the recycling of plastics a success for us both technically and economically."

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Lindner reSource America LLC, the US branch of German company Lindner washTech, then offered Poly-Wood to tailor a complete washing line including all supply lines for the recycling of the non-returnable milk bottles. Rassi continued: "We finally accepted this offer because Lindner had really got to grips with our project and familiarised itself so intensively with our work that it was able to come up with the best possible solution at every stage. The company's regular presence on the site, the expertise of its representatives, and the personal trust we built up with them was just as convincing for us as the excellent reputation of this manufacturer's products."

Made-to-measure shredding, perfect cleaning and drying

In the first step of a Lindner system, a Micromat Plus 2000 single-shaft shredder is filled by feeding chain conveyor. This powerful shredder is designed to consistently ensure low energy consumption plus high efficiency. It is possible, for example, to freely combine different drive systems, rotors and blades with one another to maximise productivity for the respective shredder material. The point blade rotor (length 78", diameter 22") is equipped with 104 2.6" x 2.6" blades, four times changeable, to ensure precise cutting and a high throughput even with very abrasive (not pre-cleaned) material. The large inspection and maintenance flap allows comfortable adjustment and replacement of the blades and counter-blades as well as cleaning of the hopper or replacement of impurities.

Due to special characteristics of post-consumer milk jugs Lindner can customize the line using new components for high efficient washing. Combination of Floater and Twister, a highly efficient friction washer from Lindner washTech where any paper label residue and other contamination are detached from the plastic, is the right solution for this specific material. To achieve requested size of flakes material is size-reduced on specially designed Wet Grinder. Here, a jet of water is directed onto the rotor so that the friction arising during the grinding process can be used to detach remaining dirt particles. The amount of water can be regulated to ensure uniform and controlled material discharge. The particle size is ideal for the next cleaning stage in the Graviter, where heavier plastic fractions such as PET, ABS or PVC are removed.

This is followed by careful drying of the cleaned material in a Lindner Loop Dryer with a rotor diameter of 48", a rotor length of 78" and a 120 HP motor before the still remaining fines are separated in an air-wash system. The material can be transferred directly to octabins / Big Bags or to storage Silo before entering recycling line.

Experience brings rapid success

Tomas Kepka, Vice President of Lindner reSource America LLC, optimised the washing unit in close cooperation with Poly-Wood and Lindner washTech. He adds: "Two important factors provided us with the basis that enabled us to comply with Poly-Wood's requirements quickly and completely. Firstly, the Lindner systems have a modular structure. This enables us to meet a wide variety of different demands simply through the clever combination of standard and new components. Secondly, we benefit from our long-lasting cooperation with main suppliers of plastics recycling

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machineries. As a result, we are very familiar with their demands made on the input material for their recycling process. From this experience, we know without extensive preliminary trials how we must configure our systems to provide them with a clean, shredded and dried material optimised for these machines."

Rassi sums up: "In the meantime, we know that our decision to accept the offer from Lindner was absolutely correct. The complete system went in operation in September 2016 after a lead time of only six months. Water and energy consumption are even lower than expected and the performance and end product is outstanding!

Poly-Wood LLC, Syracuse, IN/USA, is the leading manufacturer of outdoor furniture made from HDPE plastic material. Through chemistry innovations, Poly-Wood has created a plastic lumber that has the look of real wood but the strength and lasting durability of plastic. Since their first Classic Adirondack Chair, they have expanded their product lines to include additional Adirondack styles as well as dining, lounges, deep seating, benches and swings.

Lindner reSource America LLC, Tucker, GA, is the North American subsidiary of the Spittal, Austria based **Lindner-Group** (www.l-rt.com) which has for decades been offering innovative and successful shredding solutions. From the original planning, development and design to the production and after-sales service, everything is supplied from a single source. At its Austrian production sites in Spittal/Drau and Feistritz/Drau, Lindner manufactures machines and plant components that are exported to nearly one hundred countries around the world. Beyond stationary and mobile crushing and shredding machines for waste recycling, its portfolio includes complete systems for plastics recycling and the processing of substitute fuels and substrates for biomass equipment. A team of sales and service experts located throughout the United States provides support to clients in the USA and Canada.

For further information on the application please contact:

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<p>Please find this press release (doc and jpg) for download at http://www.konsens.de/lindner-recyclingtech.html</p>

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The single-shaft Micromat Plus 2000 pre-shredder from Lindner is fed by conveyor belt with the non-returnable HDPE milk containers compressed into bales.



"In the Twister, a highly efficient friction washer from Lindner, we separate any paper labels adhering to the plastic as well as other remaining contaminants."



*The final results are clean, dry HDPE flakes for direct further processing in a recycling line.
All pictures: © Lindner washTech*