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Omnova Solutions significantly improved recycling capabilities at its plant in Auburn, Pennsylvania by investing in rotary batch mixers from Munson Machinery

Omnova supplies printed flexible and rigid films to commercial and residential product makers for flat and three-dimensional (3D) lamination to wood, metal, particle board and substrates used in high-end and commodity products. Applications include cabinets for kitchens, bath and healthcare; home and office hospitality furniture; retail displays; wall and floor coverings; and interiors of recreational vehicles.

The plant compounds, calenders, prints, embosses, and coats primarily PVC films. Despite significant reductions in waste through LEAN SixSigma and other continuous improvement programs, Omnova's calendering process still generated process waste material that could be recycled. In an effort to effectively re-utilise this material and improve the plant's environmental footprint, Omnova invested in its recycling program.

LOW REUSE RATE

Omnova's options to recycle material were initially limited. To improve the recycling process, Omnova invested in a Munson 700-TSC-300 rotary batch mixer with capacity of 8,165 kg and 8.5 cu m. The company granulated its start-up and process waste material, reducing its particle size and then blended it in the mixer. Plant process engineer Steve Reed says: "The homogeneous mixing action of the Munson machine produced high-quality recycled blends that could be added back into compound formulations in-house or sold outside to brokers."

One benefit of the machine's mixing efficiency was to reduce variations in particle size distribution. This prevents particle segregation and problems arising from different melt temperatures during re-processing.

The company was recycling a handful of colours at the time – black, white and blends of red, green and blue. The ability of the mixer to produce consistent blends made in-house recycling possible. "The blends that we were releasing to production had to be within a pretty tight colour tolerance," Reed says. As a result of the mixer's blending capabilities, he was able to build the company's recycling activities into a viable operation.

Rotary batch mixer controls particle-size distribution

Plant process engineer, Steven Reed, inspects quality of recyclate that will be reused in company's film compounding operations

Omnova invested in a second, smaller rotary batch mixer to meet growing in-house demand for recycled material

The rotary batch mixer achieves homogeneous blending through the use of specially designed internal mixing flights that tumble, turn, cut and fold the batch. The gravity-fed process produces uniformly mixed batches in 3 minutes or less and achieves full discharge. The mixer has a small footprint, dust-tight operation and low energy consumption.

MARKET CHANGES EFFECT RECLAIM

As Omnova's business grew, so did their need for recycling capacity. With more materials and colours added to the production schedule, Omnova invested in a second, smaller Munson rotary batch mixer with a capacity of 2,268 kg. The company evaluated machines from other manufacturers and concluded that Munson stood out in two categories: distribution of particles by particle size (i.e., good mixing) and colour consistency.

Omnova currently manufactures over 1,500 custom colours. Reed spent a lot of time fine tuning the process of colour matching virgin and recycled material figuring out how to use both in order to obtain good colour consistency. "The more control over colour matching, the better our ability to recycle back into grade 1 material," he says.

The recycling operation at Auburn fits perfectly with Omnova's commitment to reduce waste as part of its Vision 2014 sustainability initiative. Under the program, the company has set specific energy and waste reduction goals to achieve by the year 2014. The Auburn plant is certainly doing its part in helping to reach those objectives.

For more information contact Munson Machinery by email: info@munsonmachinery.com or visit: www.munsonmachinery.com