MARS MINERAL AND CONTEC

COMBINE FOR SUSTAINABLE TYRE RECYCLING

The new pin mixer at Contec's plant in Poland

In October last year US-based equipment manufacturer Mars Mineral was awarded a contract to design and manufacture a new pin mixer for Warsaw, Poland-based Contec S.A., which uses pyrolysis to extract recovered carbon black (rCB) powder grades, as well as pyrolysis oil and recovered steel from end-of-life tyres. The Mars Mineral pin mixer transforms the rCB powder into pellets, making them ready for packaging and transport to Contec's end-partner customers. rCB pellets are used in tyre, paint, plastics, and rubber manufacturing.

Mars Mineral engineering staff and the Contec team collaborated at Mars Mineral's pilot production facility in Mars, Pa., to produce high-quality pellets in a pilot-scale quantity for Contec sales personnel to sample prospective commercial customers.

Krzysztof Wróblewski, CEO of Contec S.A., said, "At Contec, we care about quality and efficiency in every stage of the process. Every single element counts, including those with whom we choose to collaborate. As a worldwide leader in designing and manufacturing high-quality and reliable pin mixers, Mars Mineral was the obvious choice to pelletise our recovered rCB powder straight from the mill. Pelletized rCB is easier to handle, package, transport, and dose than powdered carbon black."

The Mars Mineral pin mixer is a high-speed conditioning and micro-pelletizing device that converts rCb with the addition of a liquid or additives into small dense agglomerates or pellets in the 0.125 mm—1 mm size range, 20 g—50 g hardness range. The company offers a pin mixer series with volumetric capacities ranging from 0.28—62.3 m3/hr. The pellets can be produced at ambient temperature, which minimises capital and operational costs, complexity, and environmental impact. "Through material testing and careful study of the impact of changes in the process control parameters, we were able to provide an operational blueprint for the pin mixer that Contec ultimately purchased," said Clayton Woodward, president of Mars Mineral. "We've been manufacturing pelletisers for over 50 years and are excited about how our technology can give companies, like Contec, and manufacturers everywhere a path to sustainability and a new revenue stream."

Mars Mineral, based in Mars, Pa, specialises in agitation pelletising with pin agglomerators and disc pelletisers or deep drum pelletisers. This is a process that converts fine dusts and powders into spherical- shaped pellets. This process is accomplished without the need of pressure or heat, but rather an agitation of the material in the presence of a binder, usually just water. This action forms "seed" pellets that can be as small as 50 mesh, increasing in size up to 1" diameter.

The benefits of pelletising include the elimination of fine dust particles and the improvement of material flowability and densifying. This results in reduced worker exposure to dust particles, improved environmental conditions in your plant, the ability to recycle, reuse or produce a saleable product, or simply to provide a non-dusty product for disposal.

This pelletising method has been widely accepted in various industries, including steel, foundry, chemical, mining, cement, lime and fertiliser.

Krzysztof Wroblewski