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- Considering equipment options for wet-granulation
- Using an air classifier for fine grinding

SIZE REDUCTION

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Among varied techniques to pulverize materials on a toll basis, the Custom Services Group of Solvay Solexis cryogenically grinds and screens plastic resins at -50° to -275°F (-46° to -170°C), placing extreme demands on screening equipment.

“Sifter screens are more susceptible to breakage under cryogenic conditions due to embrittlement from the cold,” says Craig Davis, sales and marketing manager. “It is critical to minimize downtime when this happens because system components can freeze, and material left in the system can get wet.”

“Centrifugal screeners... keep up with grinding processes with the same efficiency as a rectangular screen, but are easy to clean and maintain like circular vibratory screeners,” he says.

Solvay Solexis recently added a Kason Quick-Clean Centri-Sifter® separator equipped with three roller bearings located outside of the screening chamber instead of the normal two. The bearings on the hinged cover and the motor-end of the shaft provide the support needed for vibration-free operation at high speeds and loads. When the end cover is hinged open, a third bearing between the motor-end bearing material feed point allows the shaft to cantilever for fast, easy removal of screens and/or paddles, minimizing interruptions, preventing ice formation from causing re-starting problems, and allowing fast, thorough wash-downs.

Ludman Compactor
Agglomerates Waste Salt Fines to Produce ASTM Grade Road Salt

After Consolidated Coal Company had remediated contaminants from their mine wastewater, they were left with 3 to 5 Tons/hour of relatively pure salt fines. Rather than transport the fines to a landfill, Consolidated decided to install a compaction plant in order to increase the size of the salt fines from 40 Mesh (0.0165”) to the ASTM 632 requirement of ½” to 30 Mesh (0.0232”)

The Ludman Model 2407 compactor with force feeder was selected for this application. The Model 2407 compactor mill, which is designed for 100 Ton separating force and driven by 2-75HP motors, compacts the salt fines into a solid sheet approximately 0.25” thick.

The agglomerated salt sheet is then passed through a Ludman Model 930-1 roll crusher. The Ludman 930-1 granulating mill has 30” long rolls which are run at differential speeds, and are corrugated with 3 cuts per inch. These rolls crack the agglomerated salt into the final size required while producing minimum fines.

Finally the agglomerated salt is sized to the correct ASTM grade road salt in a sifter with the undersized fines being returned to the compactor for further processing.

Through this process, saleable road salt is produced from coal mine wastewater with a Ludman compactor and granulator. Ludman also produces compactors for the fertilizer, farming, pharmaceutical, chemical and mineral industries.