PROCESS P L U S

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an extremely narrow particle size distribution."

Centrifugal Force Prevents Agglomeration

Once the particles have been micronized, they are transported by compressed air up a pneumatic line into a product collector from which they are metered through a rotary airlock into the inlet spout of the centrifugal sifter. A feed screw directs the material into the cylindrical sifting chamber, where rotating helical paddles propel the particles through apertures in a 25 mesh ($700\,\mu m$) stainless steel screen. The paddles never make actual contact with the screen.

The oversize agglomerated flakes and hard particles are propelled through the open end of the cylindrical screening chamber and a discharge spout, to be recycled in the vortex mill, leaving only particles measuring 5 µm and smaller.

"The centrifugal screener is mounted on a stand with wheels for easy transfer to other production lines," says Caskey. "It meets all applicable FDA, USDA and other standards, and removable end housings with rubber gaskets permit cleaning in just a matter of minutes. When our original centrifugal sifter experienced screen breakage caused by material buildup, which always occurred in the same location, both Kason and our local distributor, Cino Equipment of Hasbrouck Heights, NJ, recommended replacement with the Quick-Clean model, which has a hinged end cover and a three-bearing shaft that cantilevers for quick removal of internal components."

External roller bearings are located at the motor end of the shaft and on a hinged cover at the discharge end for maximum support and vibration-free operation. When the end cover is hinged open, the shaft becomes a cantilever supported by a third externally mounted roller bearing located between the motor-end bearing and material feed point, allowing internal components to slide freely from the opposite shaft end. "The sturdier three-bearing design, and switching from nylon to stronger stainless steel screen baskets, eliminated the screen breakage problem," says Caskey.

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The centrifugal sifter removes agglomerated particles to leave an end product with a particle size averaging 2–5 µm.

The sifter also eliminated a problem that Morre-Tec's customer was experiencing with agglomerated particles clogging their equipment. "Since we installed the centrifugal sifter, we have had zero complaints," says Caskey. "Because screen changes can be accomplished in less than two minutes and cleaning is quick and easy, we can use the screener for other branded micronized products such as our dicalcium and tricalcium phosphates and our creatine monohydrate. We can also offer toll micronizing of non-hazardous ingredients for food, cosmetic, nutritional and pharmaceutical applications." KEM



