Phoenix Equipment Corporation
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Plant # 548

Milling Flash Drying System – Crown Iron Works

Capacity: 17,000 Lbs/Hr

Raw Materials: Raw Feed Material

Process Information: designed for drying of powers, filter & centrifuge cakes, and slurries where a discrete and fine end product is desired

Major Equipment

- Ring Flash Dryer
- Burner
- Gas Train
- Combustion Fan
- Exhaust Fan
- Baghouse
- Cyclone
- Mixing Conveyor
- Incline Screw
- Backmixer
- Air Blower

Brief Plant Description

Used Crown Iron Works, Model 48, Milling Flash Drying System. Previous use was 17,000 Lbs/Hr, 30 MMBTU, food-grade product. System designed for drying of powers, filter & centrifuge cakes, and slurries where a discrete and fine end product is desired. The Milling Flash Dryer is basically a low energy jet mill, that uses jets of low-pressure air to encourage inter particle collisions between pieces of feed material. These inter particle collisions break up the feed material in the dryer with no moving parts in the dryer or airstream. The dryer is in the shape of a torus, or donut that is broken up into 2 basic areas: (1) Manifold & Milling area; (2) Classifier. The ideal feed material for the Flash Dryer is a crumbly and free flowing cake that breaks up readily when it enters the drying air stream. The feed material enters the recirculating hot air upstream of the first nozzle, with the centrifugal forces generated by the air concentrating the material in the area above the nozzles. Particle-to-particle collisions begin immediately, deagglomerating the material before hard agglomerates can form. A tremendous amount of surface area is created allowing evaporation to occur quickly, thereby depressing air temperature in a very short period of time. Centrifugal forces are generated by the recirculating gases within the dryer, forcing the larger particles to the peripheral walls. Finer material is displaced towards the inside radius of the dryer where the classifier outlet is located. Fine product exits the dryer along with the exhaust gas vapor. Larger particles or agglomerates are recycled to the nozzle area dryer for further de-agglomeration and drying.

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