

Bulk bag unloader facilitates safe handling of toxic materials

Problem...

Several years ago, the ITT Surprenant Division in Clinton, MA, now the Surprenant Wire and Cable Division of FL Industries, faced a major materials handling problem. Two of the fourteen ingredients used to compound various insulations for Surprenant's specialty conductors were toxic and had to be batched in substantial quantities. The ingredients were received in powder form in 50-lb bags which were opened on the production floor, hatched on platform scales and manually dumped into a mixer or blender. Despite extensive use of exhaust ducting and respiratory protection for the workers in the area, Surprenant engineers were still concerned with the impact of toxic contamination on the environment and the threat of not meeting OSHA regulatory standards.

Solution...

With plans already underway to update and automate their compounding operations, Surprenant engineers decided to obtain the two toxic ingredients in semibulk bags. The bags are lifted by a monorail-mounted hoist and positioned in a bulk bag unloader. The weight of the bags rests on the bed of the unloader, forming a dust-tight seal against the ring on the discharge opening. The discharge spout or "neck" of the bag can be pulled down into a vacuum-vented discharge chamber and opened, after which the access hatch on the chamber is closed. Agitator pads in the unloader bed gently massage the bottom of the bag to promote the flow of the material into the discharge opening. A screw at the bottom of the discharge chamber feeds material into a vacuum conveying system for transfer to a closed storage bin.

Upon demand, an auger under the storage bin delivers material at a controlled rate into a weigh hopper on the floor below. After weighing, the material is conveyed by vacuum to a receiver positioned over a mixer or blender on the upper floor. The entire material path from bag to mixer is enclosed and dust tight.

Results...

Because of the bulk packaging, the cost per pound of materials is lower. In addition, handling costs in receiving, storing and discharging the materials are substantially lower.