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**Shape-It™ Bulk Bag Unloader**  
**Clamp-It, Collapse-It, AMC, Dust Collection**  
**Product – Calcium Stearate**  
**Case History 3S-1210**

**Background:**

Client began experiencing problems with their screw conveyor, which was fitted at the outlet of their bulk bag unloader. The system was approximately 15 years old and had no real dust control features. Due to this the system would emit so much airborne dust workers could not see across the room when unloading bulk bags. The client contacted 3Sigma to replace the screw and, after discussions, decided to purchase a completely new system. After seeing a demonstration at 3Sigma's facility, client ordered a dust tight unloading system one week later.

**Existing Problem**

- Screw conveyor failed on existing BBU
- An excessive amount of airborne dust created a dangerous working environment
- **The product is very fine, -325 mesh, very dusty**

**Customer Needs:**

- A new, dust tight system that unloads bulk bags, while conveying product to their mixer.
- Proper discharge of product
- Minimize airborne dusts
- Minimize maintenance items and expense
- Meet newly established area classification – Class I, Div. 1, Groups C, D

**Solution:**

- 3Sigma provided a Shape-It™ bulk bag unloader that uses vertical vibration to shape the bag and promote product flow
- The oversized square dish, where the bag rests, maximizes contact and minimizes leakage
- A rotary feeder is used to feed an AMC conveyor, while the AMC conveys product to the client's mixer and empties 100% of its materials
- Because of the explosion-proof environment, a pneumatic hoist was supplied to place the bulk bags





- The Contain-It™ chamber is a dust-tight bag access chamber that contains any and all bag spills
- Competitive designs utilize the containment chamber as both the bag spout access and the material storage hopper, leading to environmental spills and dangerous operator exposure issues
- The Contain-It™ chamber is designed for accessing the bag only. It is not designed nor used as part of the hopper.
- The Clamp-It™ seals the bag spout to the Tube-It™ discharge tube within the dust-tight chamber
- The Tube-It™ creates one seamless system by sealing to the bulk bag on the inside of the Contain-It™ chamber and connecting to a rotary valve on the outside, which was chosen to feed the AMC
- The Collapse-It™ dust collection system connects to the dust collector and allows the operator to remove additional material from the bag at the end of the cycle and collapse the bag



Dust Collector Mounted in Safe Area

- 3Sigma provide a dust collector which is connected to the Contain-It™ chamber's dust port. The collector automatically starts and stops based on the status of the access chamber door (open or closed).



Explosion proof control panel

**BETTER BY DESIGN™**

