# BENETECH. Severe Glass Spillage Eliminated with MaxZone® System

## PROBLEM SUMMARY

A voluminous amount of product spillage was causing severe safety concerns for a cullet glass facility in the western U.S.

Excessive spillage, including exorbitant maintenance and cleanup, generated hours of unwanted downtime and constant disruption to their main feed belt that delivered tons of broken glass shards into the kiln.

In one area of the belt, up to four (4) feet of glass spillage created major headaches for the crew.

### BENETECH SOLUTION

Benetech's engineering team recommended multiple solutions to improve flow and reduce spillage. Engineered discharge chutes were designed using DEM flow modeling and Inventor CAD software to simulate smooth transfer loading onto the feed belts.

The conveyor, head box, and related structure were raised five degrees (for a total of approx. 30 in.) in order to improve loading and to provide a solid foundation for the Installation of the MaxZone Plus<sup>®</sup> and MaxZone<sup>®</sup> Premium skirtboard sealing system.

Additionally, the "belt lifting" system was removed by creating a straight belt line and utilizing multiple height Idler standoff risers for the nine (9) Benetech Drop & Slide<sup>®</sup> Idlers and conveyor belt support components.

Benetech products included, but were not limited to:

 MaxZone<sup>®</sup> Premium Load Zone System — A belt enclosure system with easy-to-access, externally adjusted skirtboards; internal wear liners; dust curtains designed to disrupt air flow streams and prevent dust escaping the enclosure; and rubber skirting to prevent dust leakage along the sides of the conveyor.



#### IT PAYS TO IMPLEMENT BENETECH SOLUTIONS

- Reduced glass spillage by up to 99%
- Clean-up time decreased from 8 hours daily to occasional spot clean-ups weekly
- Estimated annual savings of \$1,000,000 due to reduced shutdowns
- Employee morale improved as conditions were drastically enhanced using Benetech engineering controls and products

- 2.MaxZone Plus<sup>®</sup> Modified load zone chutes designed to accurately align material onto conveyor belts thus reducing dust.
- 3. Drop & Slide Idlers Roller frames that slide into place from one side of the belt without the need to remove adjacent idlers, resulting in excellent serviceability and improved safety.
- 4. Engineered Transfer Chutes & DEM Custom-designed transfer chutes using Discrete Element Method (DEM) Flow Analysis greatly minimize production problems, including pluggage or choked flows, eliminating spillage and airborne dust, reducing high-impact areas, optimizing belt life, and creating longer intervals between service and maintenance.

### SUCCESSFUL RESULTS

Benetech's MaxZone<sup>®</sup> products and engineered transfer chutes were designed and installed, showing immediate, highly effective results, with little to no carryback on the inclined conveyor.

Overall, material flow was greatly improved at transfer points, resulting in less maintenance and clean-up hours, reduced material loss, and improved air quality.

Employee morale was also greatly elevated as they saw that conditions were improved dramatically by using Benetech engineering controls and products. They also could see that the owners are actively seeking new and better ways to improve working conditions and to reduce silica dust exposure.











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