

Oxbow Sulfur Handling Facility – High-Angle Conveyor Engineering

Description

Industry: Chemical / Industrial | **Service:** Conveyor Engineering & Analysis

Location: Southampton, UK

The Challenge

Oxbow's sulfur handling facility in Southampton converts liquid sulfur into pastilles using a steel belt system, then transfers the pastilles into a silo for truck loading. The site presented a set of interrelated engineering challenges:

- The site footprint was too small for a conventional conveyor to reach from the steel belts to the silo
- The facility is adjacent to an automobile transfer terminal, making fugitive sulfur particulate unacceptable – full material containment was required
- The specific sulfur pastille composition caused the material to spread on the belt more readily than typical bulk materials
- Carryback at the head end – common in bucket elevators and Flexowall systems – had to be eliminated to avoid waste and contamination

The Solution

DSE engineered a Snake Sandwich Belt high-angle conveyor system to meet the site's compact footprint requirement while fully enclosing the material throughout the conveying path. The system was designed in 3D using Autodesk Inventor, and the full enclosure – including cladding and a drip pan along the belly – ensures any fugitive sulfur is contained and can be returned to the belt line rather than escaping into the adjacent environment.

A key advantage of the Sandwich Belt system for this application is the positive belt-scraping at the head end, which eliminates carryback without the high wear and energy consumption associated with beating material free from bucket or Flexowall systems. The system also uses conventional conveyor components throughout, reducing spare parts complexity and the potential for extended downtime.

The material spreading issue was resolved in the field during commissioning through the introduction of a Wet Brush system: a light wetting of the belt edge arrests the material through the loading zone and prevents it from spreading as it travels through the sandwich. Combined with several other commissioning adjustments, this produced a successful and stable startup.

Result

The Oxbow sulfur handling conveyor has been in successful operation since its 2015 commissioning. The system meets all site constraints â?? compact footprint, full material containment, clean head-end discharge, and reliable operation using conventional conveyor components.

Contact DSE to discuss conveyor engineering for specialty material handling applications.

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Date Created

April 20, 2026

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