

inBulk

TECHNOLOGIES

CASE STUDY

Material	Ferrous Sulphate
Application	Cement Making Process
Bulk Density	1.4T/m ³
Flow	Fredrikstad, Norway – Westbury, UK
Date	November 2004 - Ongoing
Unit	20' H Type unit in Carbon Steel

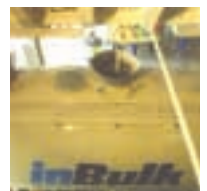
Due to the incidence of cement dermatitis EU directive 2003/53/EC brought a new challenge to the cement producing companies in the European Union. New legislation meant that cement producers must ensure that chromium levels are kept to an acceptable level. Elimination of Chromium VI is only possible by a chemical reduction process. This is performed by mixing ferrous sulphate powder or tin sulphate to the cement during the milling process.

During 2004, *inBulk Technologies* were approached by Lafarge Cement UK to study the prospect of utilising ISO-Veyors as a suitable medium for transporting and storing ferrous sulphate.

Ferrous sulphate is a difficult material to store and handle like many other chemical powders and granules. It is an irritant that can damage skin or eyes as well as being harmful if inhaled. It is a hygroscopic material and forms an acid when in contact with water. ISO-Veyors provide a sealed system from filling to final discharge, alleviating all these factors. This was a key consideration for Lafarge's Westbury Production Plant.

Lafarge Cement UK placed a total logistics contract with *inBulk Technologies* to guarantee a steady supply of material from the Norwegian based manufacturer. The flow consists of a road leg from the supplier's premises to the dockside, then a transfer to ship.

Following the Sea journey to the UK, the ISO-Veyor is transferred onto skeletal road trailers for the final journey to the Westbury Cement plant.



On arrival at Westbury the truck driver discharges the ISO-Veyor via an air supply of 1 Barg into a custom built silo of 135 tonnes capacity.

This Logistics contract demonstrates the flexibility and intermodality of ISO-Veyor technology. It also complies and satisfies the expectations of this global market leader

The Lafarge Cement UK contract illustrates several key benefits to the industry:

- Fully intermodal – Capable of any combination of road, rail or ship
- Easy to Fill – Can be filled in same way as road or rail tankers
- Easy to Handle – Standard ISO frame allows for standard container lifting equipment
- Easy Horizontal Discharge – Simple connection to 2 barg compressor provides discharge rate of 1 tonne per minute
- Provides flexible weatherproof storage and reduces dependency on silos
- Creates platform for driver controlled deliveries

Overall ISO-Veyors minimise product handling, eliminates contamination, maintains product quality and also protects environment from accidental material spillages. Taking these factors together, ISO-Veyors can significantly reduce the requirements for intermediate handling, reducing the requirements for silo construction and dramatically enhances the overall efficiency of the supply chain.



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