

inBulk

TECHNOLOGIES

CASE STUDY

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| Material | Calcium Carbonate LG11 (food-grade) |
| Application | Animal Feeds |
| Bulk Density | 800kg/m ³ |
| Flow | Dowlow Quarry, Buxton - Renfrewshire, Scotland |
| Date | November 2003 |
| Unit | 20' G Type unit in Carbon Steel for granular materials |

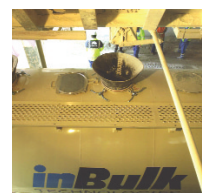
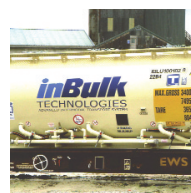
Further to an earlier successful road based trial, *inBulk Technologies* were asked by a large Derbyshire based minerals supplier to hold a full rail trial for delivery of their product to an animal feeds company located in Scotland. The trial was proposed to establish if an intermodal container could be filled and transported from the Buxton Quarry to other locations on the main rail network. Previous attempts to use intermodal equipment had been ruled out due to rail network restrictions on the line to Buxton. InBulk Technologies had the line re-measured and set to work to design an ISO-Veyor that could fit the restricted gauge of line using standard rail wagons.

In the mean time a low platform wagon was obtained to ensure that there was ample clearance through the many long and narrow tunnels to Buxton.

Loaded on to a timetabled EWS rail service the ISO-Veyor and rail wagon was positioned into the loading facility. After a short time filling had taken place via the 3 top hatches by a gravity fed system. After filling with 26.6 tonnes of granular Calcium Carbonate, the train then departed on its overnight journey to a railhead local to the end customers Glasgow factory.

On arrival at a railhead, the ISO-Veyor can switch from a means of transport and effectively become a temporary silo. Units can be stacked when space is at a premium. In this case, the ISO-Veyor was immediately transferred to a skeletal road trailer for the onward journey to the final client by truck.

On arrival to the factory, the ISO-Veyor was parked adjacent to the filling line in a similar way to standard road tankers. The discharge process began by connecting the ISO-Veyor to the 2 barg tractor compressor unit.



The unit was completely discharged after 66 minutes and the lorry was free to leave the premises after only 1.5 hrs, cutting a significant amount of time from a normal delivery.

The resounding success of the ISO-Veyor proved that the Buxton area could be a source of many rail connected materials than first thought. The G Type ISO-Veyor had also discharged the product in the same amount of time as a tipping tanker, but without the need to be tipped. The ISO-Veyors ability to be discharged from a horizontal position removes the necessity for expensive, tipping chassis and significantly reduces the potential from accidents on site.

The trial for Calcium Carbonate 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 a discharge rate comparable to road tankers
- 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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