ProSpare

Make it better.

Dust significantly reduced at bulk bag loading stations thanks to BFM® fitting

The challenge

Dust emissions are common when handling and processing bulk raw materials. It is both an annoyance and, in some cases, can cause serious health issues to site staff. Respirable crystalline silica (RCS) is particularly problematic. *Often found in stone, rocks, sands and clays, the HSE explains that exposure to RCS over long periods can cause lung cancer and other serious respiratory diseases* [1]. As such, site operators must pay close attention to health and safety where dust is concerned.

A UK-based Monolithic Refractory Manufacturer and Installer, producing 300+ products, were looking to reduce dust levels across the plant. They created a project to improve the bulk bag loading stations during filling. Raw materials used on site included sand, lime and dolomite. These materials are transferred from silos, dosed into bulk bags and then transported for mixing.

Transferring large quantities of powders in relatively short time results in displaced air and naturally creates dust. If improperly managed, this dust can leak out of the bag and into the plant.

The site fills approximately 60 bulk bags per day. These were attached to the filling head through a clamp system, holding the bags in place. The clamps were ineffective at containing dust and often required adjustment during filling. As the materials handled pose an RCS risk, containment is essential. Despite having an LEV system, and static and personal dust monitors to consistently monitor dust, the clamps proved a weak point.

The director of engineering trialled a number of bulk bag loading solutions, including a selection of inflatable seals. These were all deemed unsuitable due to their inability to sufficiently reduce dust, and regularly suffered premature wear. As a result none of the options passed initial testing - until they chose BFM® fitting.

‘Negligible’ dust levels
with BFM® Bulk Bag Loader

2.5 years
still operational with no obvious signs of wear

Ineffective clamp system used to hold bulk bags in place

Visit - www.prospare.co.uk | Call +44 (0)1773 814008 | Email - sales@prospare.co.uk

ProSpare Limited
Castlewood Business Park, Farmwell Lane, Sutton-in-Ashfield, Nottinghamshire. NG17 1BX.

[1] https://www.hse.gov.uk/lung-disease/silicosis.htm

Data correct as of June 2024 v270624

ProSpare

Make it better.

The solution and improvement

The BFM® Bulk Bag Loader is a three-layered, inflatable filling head connector that features a stainless steel central core, fully encased in BFM®'s strong, flexible Seeflex urethane. It effortlessly snaps into a BFM® spigot, which is welded to the filling outlet.

During operation, the BFM® Bulk Bag Loader inflates to hold the bag neck in place, creating a strong, secure and dust-tight seal. An air fitting is plugged into an 8mm pneumatic air-line to inflate the outer layer. Once inflated, the outer layer secures the bag neck, keeping it open and upright. When loading is complete, the BFM® Bulk Bag Loader can then be quickly deflated for easy bag removal. Resulting in a highly efficient process.

The site has installed two BFM® Bulk Bag Loaders, with a third to be installed soon. The key advantage of the BFM® Bulk Bag Loader for this site is the significant reduction in dust emissions experienced during the filling process and crucially, limiting the risk of exposure to RCS. Having passed all the rigorous on-site tests the company performs, the BFM® Bulk Bag Loader was then subjected to further external quantitative and qualitative tests by auditors. The results showed that dust levels in the air are now 'negligible' where BFM® Bulk Bag Loaders are in use.

The site team is also impressed with the durability of the BFM® Bulk Bag Loader, particularly the resilience of the steel core and urethane material. The BFM® Bulk Bag Loaders have been in place over two and a half years, with no obvious signs of wear.

The risk of cross-contamination between material changes is also reduced. BFM® Bulk Bag Loaders can be easily snapped in and out for cleaning, or used on a rotation, to limit downtime.

Finally, the team commented on the flexibility of the BFM® fitting system. Should they change from filling a bulk bag to a fixed bin, they can easily switch a BFM® Bulk Bag Loader for a BFM® flexible connector, whilst maintaining fully contained filling.

The Director of Engineering stated:

"The BFM® Bulk Bag Loader is a Godsend and the only option on the market that works for us when filling."

BFM® Bulk Bag Loader inflated during filling on site

Image of BFM® Bulk Bag Loader and BFM® Spigot

BFM® fitting

Visit - www.prospare.co.uk | Call +44 (0)1773 814008 | Email - sales@prospare.co.uk

ProSpare Limited
Castlewood Business Park, Farmwell Lane, Sutton-in-Ashfield, Nottinghamshire. NG17 1BX.

Data correct as of June 2024 v270624