

Bag Type: 15L Newsafe™ Contained Powder Transfer Bag (ATMI part number BHNEAT-0000-0002)
Connector: 4" Tri-Clamp (TC)
Film: BHN Static-Dissipative USP Class VI Low Density Polyethylene

The Newsafe range of contained Powder Transfer Bags (cPTBs) are well suited for powder delivery applications where cleanliness, containment and high levels of content recovery are important. Many combinations of capacity, film material and Tri-Clamp connector size are available to meet the demands of virtually any application.

Introduction

This bulletin presents data on transfer efficiency and content recovery. Newsafe cPTBs offer two key design features to ensure superior transfer efficiency:

- 1) A conical funnel shape, to minimize the risk of “shelving” or “bridging” in combination with a tight seal on the connector.
- 2) A static dissipative film, to minimize retention of powder on the inside of the bag due to static charge, and furthermore to prevent dust explosion and fire.

These features eliminate the need for washdown procedures in dry powder applications.



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Application note SA002E 0807rev2

Experimental

A 15L/4"TC/static dissipative Newsafe cPTB (ATMI part number BHNEAT-0000-0002) was first weighed to establish a tare weight (bag only), with a calibrated precision balance BBA-600 with capacity 600 g and d=0.01g

Temperature: 22° C - 48% RH.

The bag was then filled with approximately 4L of diatomaceous earth (a fine silica powder), closed with a linear pinch clamp (ATMI part number 700119C), and then shaken to distribute the powder throughout the bag.

Lastly, the content of the bag was transferred to an external vessel via the Tri-Clamp flange, and the empty bag reweighed.

Results

Weight of empty bag (before filling) = 184.17g

Weight of filled bag = 1458.57g

Weight of empty bag (after emptying) = 184.87g

Weight of DE placed in bag = 1458.57 - 184.17 = 1274.40g

Weight of DE left in bag = 184.87 - 184.17 = 0.70g

Product recovery = 100% x ((1274.40 - 0.70) / 1274.40) = 99.95%

Inspection of the used PTB revealed that much of this 0.70g of residue was located on a small 60 degree bevel at the interface between the Tri-Clamp flange and the film of the bag. Very little powder was left on the interior surface of the bag film, indicating that the static dissipative properties of the film are effective

Conclusions

The Newsafe cPTB tested (15L/4"TC/static dissipative film) is capable of transferring low density dry powders with efficiency higher than 99.9%, even when the bag is only partially filled. As such, a washdown procedure is generally regarded as unnecessary with the Newsafe cPTB.