

Bag Type: 5L Newsafe™ Contained Powder Transfer Bag
(ATMI part number BHNEAT-0000-0001)
Connector: 2" 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 or fire.

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



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Application note SA001E 0807rev2

Experimental

A 5L/2"TC/static dissipative Newsafe cPTB (ATMI part number BHNEAT-0000-0001) 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 1.2kg of lactose monohydrate (a common excipient), 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) = 67.86g

Weight of filled bag = 1242.52g

Weight of empty bag (after emptying) = 68.97g

Weight of lactose placed in bag = 1242.52 - 67.86 = 1174.66g

Weight of lactose left in bag = 68.97 - 67.86 = 1.11g

Product recovery = 100% x ((1174.66 - 1.11) / 1174.66) = 99.91%

Inspection of the used PTB revealed that much of this 1.11g 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 (5L/2"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.