

# PREVENTING MOISTURE DAMAGE TO CONTAINERIZED CARGO AND PACKAGING

A Guide To Choosing The Most Effective Moisture Control Solutions



*FOR EXPORTERS, IMPORTERS,  
MANUFACTURERS AND SHIPPERS*

[www.desiccant-solutions.com](http://www.desiccant-solutions.com)

# THE FIRST THING YOU SHOULD KNOW ABOUT EFFECTIVE MOISTURE CONTROL

There is no simple, universal solution to protecting cargo or packaging from moisture damage. Relying on the traditional desiccant pouch to control moisture inside containers is not the most effective solution. Pouches can easily become oversaturated, re-release moisture back into the container environment, and can sometimes leak or even break open in some conditions encountered on a long voyage. However, pouches are effective in controlling moisture inside crates and other types of packaging. This guide provides an overview to the many moisture control solutions from Buffers USA that allow shippers to match a solution to a specific cargo type and load configuration. More detailed information about each product is available at: [www.desiccant-solutions.com](http://www.desiccant-solutions.com) (or ask for our technical data sheets).

## THE LIMITATIONS OF DESICCANT POUCHES WHEN USED INSIDE CONTAINERS



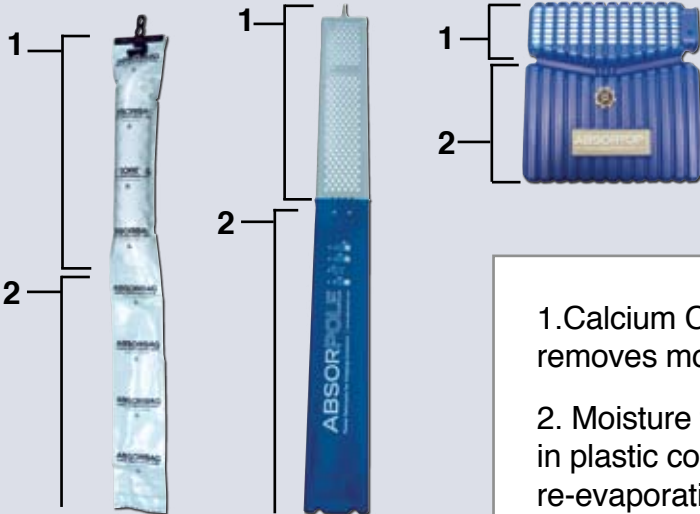
Due to the design of the pouch-type desiccants, they always release absorbed moisture back into the container on a daily cycle.



When the desiccant is needed the most—at high humidity levels—the pouch type easily gets over-saturated and stops absorbing. Once they become over-saturated, leakage also usually occurs.

## A BETTER SOLUTION FROM BUFFERS USA® FOR MOISTURE PROTECTION INSIDE CONTAINERS

### ABSORBAG® ABSORPOLE® ABSORTOP®



Patented technology with brine collectors creates a damage-free environment for both moist and dry cargo within the shipping container.

Our products provide wider safety margins to protect cargo during both short and long voyages under a broader range of conditions.

1. Calcium Chloride behind absorption grids aggressively removes moisture from the air.
2. Moisture turns into brine and is permanently trapped in plastic collectors during the entire voyage—preventing re-evaporation.

# BUFFERS USA® SOLUTIONS FOR CONTROLLING MOISTURE IN CONTAINERS

TYPE OF CARGO	LOAD CONFIGURATION	RECOMMENDED SOLUTION	KEY FEATURES
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## A B S O R P O L E ®

Dry cargo (steel and aluminum coils, machinery consumer goods, etc). Moist cargo (typically agricultural commodities such as hay, coffee, cocoa, peanuts, beans and sugar).

Any type of crated cargo or tightly stuffed containers that allow 15" – 20" (400 mm – 500 mm) free space between ceiling and cargo.



- Built-in collector (2) prevents re-evaporation.
- Thin profile fits easily in the corrugations of the container walls.
- Large capacity moisture absorption (1) and collection.
- Impact-resistant for added protection in the event of shifting cargo.
- Quick and easy installation, removal and disposal.
- Contains no Dimethyl Fumarate (DMF).

## A B S O R B A G ®

Dry and moist, packaged and bulk cargo.

Any type of cargo that allows about 4" space (100 mm) between the cargo and the sidewalls and not loaded higher than about 5' (1500 mm) from the floor. 15"– 20" (400 – 500 mm) free space between ceiling and cargo.



- Built-in collector (2) prevents re-evaporation.
- Economy version of the ABSORPOLE® can be used in front and rear corners of shipping containers together with ABSORPOLES® to reduce cost of desiccant protection.
- Fits in the corrugations of the container walls.
- Requires more space on the sides of cargo than ABSORPOLE®.
- Collector not impact-resistant.
- Contains no Dimethyl Fumarate (DMF).

## A B S O R T O P ®

Dry and moist, packaged and bulk.

Designed for use when there is only 6"– 8" (150 – 200 mm) of free space to the ceiling for cargoes such as any bulk-loaded agricultural products.



- Built-in collector (2) prevents re-evaporation.
- One ABSORTOP® has collection capacity of 2 ABSORPOLES® or 2 ABSORBAGS® (up to 4 liters of brine water).
- Compact Size: H: 15 1/2" (395 mm) W: 15" (380 mm) D: 4 1/2" (115 mm).
- Impact-resistant for added protection in the event of shifting cargo.
- Quick and easy installation, removal and disposal.
- Contains no Dimethyl Fumarate (DMF).

## A B S O R G E L™ B L A N K E T

Dry and moist, packaged and bulk.

**LARGE SURFACE AREA PROVIDES RAPID ABSORPTION DURING SHORTER VOYAGES.**

For fully loaded containers in which cargo is tight to both ceiling and walls.

**ALSO SUITABLE FOR TRAILER AND REEFER CONTAINERS THAT DO NOT HAVE D-RINGS TO HANG DESICCANTS.**



- Moisture turns to gel - not brine.
- For use when no D-rings are available to hang desiccants.
- Best alternative when no space for ABSORPOLE®, ABSORBAG® or ABSORTOP®.
- One time use with quick and easy installation, removal and disposal.
- Contains no Dimethyl Fumarate (DMF).

# A B S O R B E L™ B A G

Dry and moist, packaged and bulk.

**WHEN NON-LIQUID BRINE COLLECTION IS DESIRED.**

For any type of cargo that allows at least 1" space (25 mm) between the cargo and the sidewalls and ceiling.



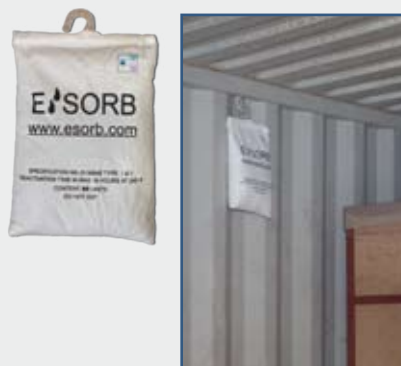
- Absorbent Material: 50% Calcium Chloride, 40% starch and 10% gelling agents. All materials are non-toxic and environmentally friendly.
- Absorption Capacity: Up to 2.25 liters of moisture.
- Slim Profile: Fits in the corrugations of the container walls.
- Contains no Dimethyl Fumarate (DMF).

# E S O R B™ H A N G B A G

Dry and moist. Packaged and bulk.

**LOW COST OPTION FOR LESS SEVERE VOYAGE CONDITIONS.**

Designed for use when there is no space on sides of container walls but 6" – 8" (150 – 200 mm) of free space to ceiling.



- Sewn-in hook for easy install/removal.
- Choice of MT (100% Montmorillonite clay) and MD models (90% Montmorillonite clay and 10% Calcium Chloride) effectively lock in trapped moisture to reduce re-evaporation and prevent oversaturation.
- Safe and non-toxic.
- 100% biodegradable.
- Contains no Dimethyl Fumarate (DMF).
- Sizes such as 1 kg, 1.5 kg, 2.0 kg and 2.8 kg dry weight.

## BUFFERS USA® SOLUTIONS FOR CONTROLLING MOISTURE INSIDE PACKAGING

### ESORB™ POUCHES. NEXT GENERATION DESICCANT TECHNOLOGY FOR PACKAGING.



- Protects cargo inside packaging from mold, mildew, oxidation and other moisture-related packaging damage. Also protects packaged product during storage after voyage.
- Absorbs well at all humidity levels.
- TYVEC pouch material is used for Type 2 non-dusting pouches.
- Choice of MT (100% Montmorillonite clay) and MD models (90% Montmorillonite clay and 10% Calcium Chloride) effectively lock in trapped moisture to reduce re-evaporation and prevent oversaturation.
- MT model meets MIL spec MIL-D-3464E and DIN 55473.
- Safe, non-toxic materials.
- 100% biodegradable.
- Cost-Effective.
- Contains no Dimethyl Fumarate (DMF).

**BUFFERS USA®** 

Securing Your Containers. Protecting Your Cargo.

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