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HOW TO USE DESICCANTS WITH MOISTURE BARRIER BAGS

WHAT IS DESICCANT?

Desiccant is a drying agent that is used to absorb moisture from the air inside moisture barrier bags. Desiccant absorbs moisture vapor (humidity) from the air left inside that barrier bag after it has been sealed. Any moisture that penetrates the bag will also be absorbed. Desiccant remains dry to the touch even when it is fully saturated with moisture vapor.

HOW IS DESICCANT PURCHASED?

Desiccant is sold by the "Unit" or fractional Unit. One unit of desiccant will absorb a specific amount of moisture. A unit weighs about 28 grams or 1 ounce. The pouches of desiccant are placed into metal pails to keep the desiccant dry during shipping and storage.

HOW IS DESICCANT PACKAGED?

Desiccant is packaged in small sealed pouches made from a white plastic called "Tyvek", or brown "Kraft" paper. Tyvek pouches are very clean and sulfur free. Kraft pouches are economical.

WHY ARE ELECTRONICS MOISTURE SENSITIVE?

Certain kinds of electronic devices called "Surface Mount Devices" or SMD's are mounted on a circuit card by high temperature soldering. The body of the SMD is made from plastic that absorbs moisture from the air. When the case is heated during soldering, the moisture inside turns to steam and may break the device as the steam escapes. Keeping SMD's dry before soldering means that the devices will not be damaged.

HOW MUCH DESICCANT DO I NEED?

(Method 1) (per MIL-P-116)

1	Formula:	Unit = $0.011 \times \text{bag area in square inches}$
2	Example	10" x 20" inch barrier bag
3	Find Bag Area	10" x 20" x 2" sides = 400sqin
4	Apply Formula	Units = $0.011 \times 400\text{sqin} = 4.4$

Use 4.5 Units of desiccant

(Method 2)(per EIA 583. This formula allows you to tailor the desiccant to your specific needs)

What you need to know?

Bag area, Bag MVTR, Months of Storage, Maximum Interior Humidity (MIH)

Formula

$$\text{Units} = 0.231 \times \text{Bag Area} \times \text{Bag MVTR} \times \text{Months} \text{ divided by Moisture Capacity}$$

Example

For a 10" x 20" bag with a 0.02 MVTR, a 12 month storage time and a MIH of 20%

Apply formula Units =

$$0.231 \times 400\text{sqin} \times 0.02 \text{ MVTR} \times 12 \text{ divided by } 4.8\text{g/unit} \text{Units} = 4.6$$

Use 4.5 Units of Desiccant

Moisture Capacity	
10% MIH	3.0 g/unit
20% MIH	4.8 g/unit
30% MIH	5.8 g/unit
40% MIH	6.2 g/unit