

Statshield® Moisture Barrier Bags Application Instructions



Made in the
United States of America

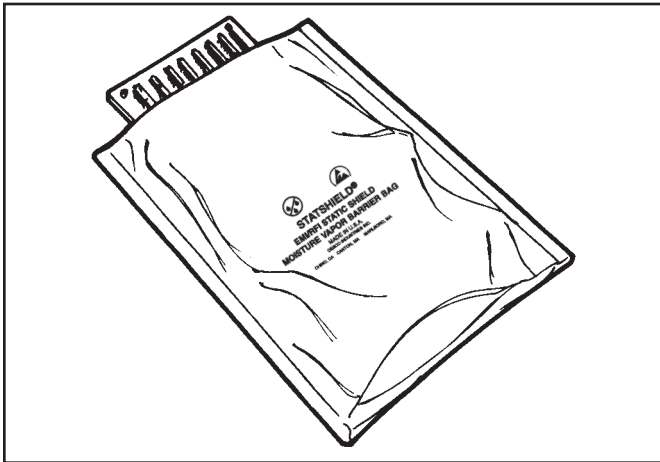


Figure 1. Desco Statshield® Moisture Barrier Bag

Description

[Desco Statshield® Moisture Barrier Bags](#) combine the properties of a MOISTURE BARRIER protection with EMI-RFI-ESD shielding. Statshield® Moisture Barrier Bags meet the electrical and physical requirements of ANSI/ESD S20.20, Packaging standard ANSI/ESD S541, and Static Control Bag ANSI/ESD S11.4. All Statshield® Moisture Barrier Bags are amide, amine, and silicone free and pass outgassing and corrosion tests. All bags are printed with ESD protective symbol and the Moisture-Sensitive Identification Label and are dated and lot coded for quality control traceability.

All three styles are available in a variety of standard sizes, custom sizes and with custom printing.

Desco offers three styles of Moisture Barrier Bags:

Moisture Barrier Bags

- Static Control Bag ANSI/ESD S11.4 Level 2
- Thickness .0035" (.0889mm)
- Moisture Barrier Transfer Rate (MVTR) $\leq$ 0.020
- Puncture Resistance >20 lbs

High Moisture Barrier Bags

- Static Control Bag ANSI/ESD S11.4 Level 2
- Thickness .0065" (.1651mm)
- Moisture Barrier Transfer Rate (MVTR) $\leq$ 0.014
- Puncture Resistance >30 lbs

Foil (EMI/RFI) Moisture Barrier Bag

- Static Control Bag ANSI/ESD S11.4 Level 1
- Thickness .0040" (.1061mm)
- Moisture Barrier Transfer Rate (MVTR) $\leq$ 0.0003
- Puncture Resistance >27 lbs

Notes:

Thickness - Typical value. Nominal $\pm 10\%$ per MIL-STD-3010 1003

Moisture Barrier Transfer Rate (MVTR) - Measured per ASTM F1249 (g/100 sq.in./24 hrs, at 100F)

Puncture Resistance – measured per MIL-STD-3010 2065

Construction

[Desco's Statshield® Moisture Barrier Bags](#)

manufactured from a static dissipative metalized laminated film. The metal layer of the Desco's [Statshield® Moisture Barrier Bags](#) and [Statshield® High Moisture Barrier Bags](#) is created by vacuum deposited manufacturing technique. This manufacturing technique allows for a more flexible finished bag that is less likely to tear or rip during use. Finished bags with foil layer, such as Desco's [Statshield® Foil Moisture Barrier Bags](#) provides a better moisture barrier and is a good choice when having to meet IPC/JEDEC J-STD-033 Standard.

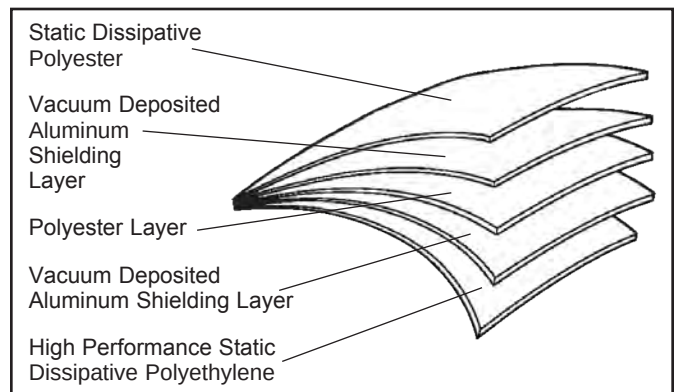


Figure 2. Statshield® MBB bag and High Moisture MBB Bag Layer construction.

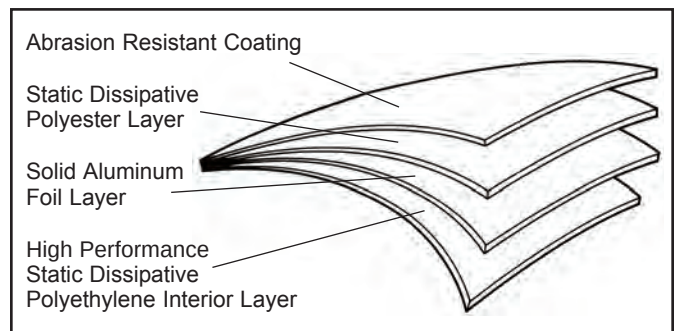


Figure 3. Statshield® Foil (EMI/RFI) MBB Bag Layer construction

Dry Packing Information

The Statshield® Moisture Barrier Bag, Desiccant Packs and Humidity Indicator Cards have been developed for use in "DRY PACKAGING" applications. In order for the MBB bag and its accessories to perform properly, Desco recommends the user follow procedures defined in IPC/JEDEC J-STD-033B.

DESICCANT

[Desiccant](#) is a drying agent used to lower the moisture content of air within a closed space, such as a sealed Moisture Barrier bag. Desiccant is packaged in fractional units in order to facilitate its usage with a variety of bag sizes. One full "unit" of packaged desiccant will absorb the following quantities of water at equilibrium with air at 77°F (25°C): 3.00 grams @ 20% rH and 6.00 grams @ 40% rH, when tested to MIL-D-3464.



Figure 4. Desiccant packs

In order to provide a complete moisture barrier packaging system, desiccant must be inserted into the bag, prior to having the bag vacuum sealed. The recommended amount of desiccant is dependent on the interior surface area of the bag to be used. Figure 5 is a reference table indicating recommended minimum amounts of desiccant that should be used with Moisture Barrier Bags.

INTERIOR BAG SURFACE AREA	NUMBER OF DESICCANT UNITS		
	*MIH <20%	MIH <30%	MIH < 40%
100 sq. in.	1.5	1.0	1.0
130 sq. in.	2.0	1.5	1.0
160 sq. in.	2.0	1.5	1.5
200 sq. in.	2.5	2.0	1.5
240 sq. in.	3.0	2.0	1.5
290 sq. in.	4.0	2.5	2.0
340 sq. in.	4.5	3.0	2.5
390 sq. in.	5.0	3.5	2.5
450 sq. in.	5.5	4.0	3.0
510 sq. in.	6.5	4.5	3.5
580 sq. in.	7.5	5.0	4.0
650 sq. in.	8.0	5.5	4.0
720 sq. in.	9.0	6.0	4.5

Figure 5. Table for recommended desiccant usage.
Information taken out of EIA-583, Table 1, Page 8

Desiccant packs are available from Desco in the following unit sizes and standard packages:

Item #	Unit Size	Std. Package
13840	1/2 unit - 1.5" x 3"	Box of 700
13843	1 unit - 2" x 4"	Box of 450
13844	1/2 unit - 2" x 4"	Pail of 300
13850	1/2 unit - 1.5" x 3"	Pail of 550

Desiccant packs sold by Desco meet the requirements of MIL-D-3464. For more detailed information, see Drawing [13850](#).

HUMIDITY INDICATOR CARDS

[Humidity Indicator Cards](#) contain chemically impregnated, humidity sensitive, indicating spots that will change color with moisture. The comparison bar is used to determine relative humidity of air. Select the indicating spot that most closely matches the color of the comparison bar. The measured relative humidity is the percentage indicated on the matching spot. The chemical reaction of the indicating spots is completely reversible; the spots will continue to change color as the moisture levels change.

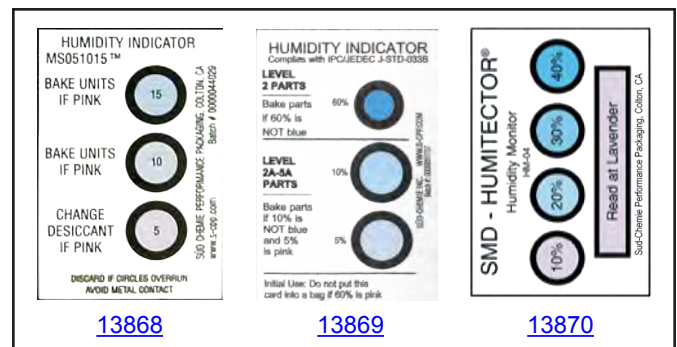


Figure 5. Humidity Indicator Cards

Item#	Card Size	Std. Package	Relative Humidity
13868	2" x 3"	125 pcs/can	5/10/15
13869	2" x 3"	125 pcs/can	5/10/60
13870	2" x 3"	100 pcs/can	10/20/30/40

COBALT-DICHLORIDE FREE HUMIDITY INDICATOR CARDS

[Cobalt-Dichloride Free Humidity Indicator](#) (HI) Cards provide electronic and semiconductor manufacturers with a JEDEC complaint humidity indicator card that is free of Cobalt-Dichloride, a chemical regulated under European Chemical Bureau (ECB) REACH-directives.

*MIH - Maximum Interior Humidity.

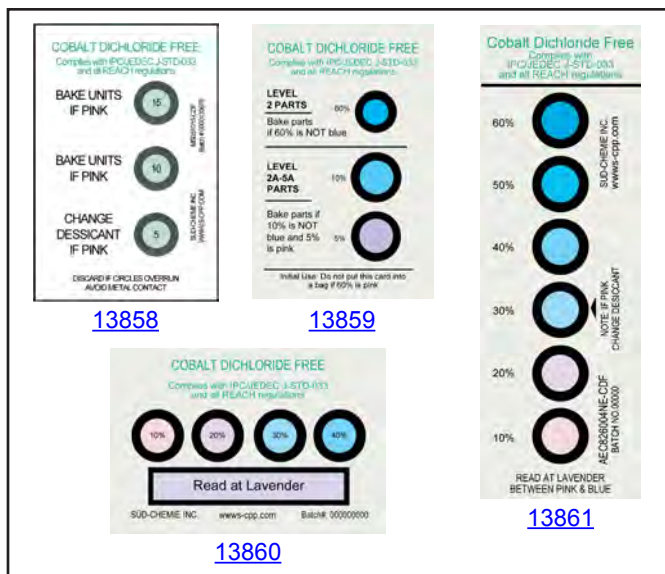


Figure 6. Cobalt-Dichloride Free Humidity Indicator Cards

Item#	Card Size	Std. Package	Relative Humidity
13858	2" x 3"	125 pcs/can	5/10/15
13859	2" x 3"	125 pcs/can	5/10/60
13860	2" x 3"	100 pcs/can	10/20/30/40
13861	1.56" x 4.75"	200 pcs/can	10/20/30/40/50/60

Specifications

Moisture Barrier Bag .0035" (.0889mm)

Electrical Properties

Resistance of polyester layer
 1×10^4 to $< 1 \times 10^{11}$ ohms per
 ANSI/ESD STM11.11

Resistance of polyethylene layer
 1×10^4 to $< 1 \times 10^{11}$ ohms per
 ANSI/ESD STM11.11

EMI Shielding (dB between 1 and 10 GHz)
 45dB

Energy Penetration <10nJ per ANSI/ESD S11.31

Physical Properties

Thickness (nominal)
 0.0035" (.0889mm) per MIL-STD-3010 1003
 MVTR (grams / 100 in² / 24 hrs, 100°F) ≤ 0.02 per
 ASTM F 1249
 Puncture Strength (lb)
 ≥ 20 per FTMS 101-C, MIL-STD-2065

For more detailed information, see Drawing [13806](#).

Foil Moisture Barrier Bag .0040" (.1016mm)

Electrical Properties

Resistance of polyester outer layer
 1×10^4 to $< 1 \times 10^{11}$ ohms per
 ANSI/ESD STM11.11

Resistance of polyethylene inner layer
 1×10^4 to $< 1 \times 10^{11}$ ohms per
 ANSI/ESD STM11.11

EMI Shielding (dB between 1 and 10 GHz)
 45dB

Energy Penetration <10nJ per ANSI/ESD S11.31

Physical Properties

Thickness (nominal)
 0.0040" (.1016mm) per MIL-STD-3010 2065

MVTR (grams / 100 in² / 24 hrs, 100°F)
 ≤ 0.0003 per ASTM F 1249

Puncture Strength (lb)
 ≥ 25 per FTMS 101-C, MIL-STD-3010 2065

For more detailed information, see Drawing [13950](#).

High Moisture Barrier Bag .0065" (.1651mm)

Electrical Properties

Resistance of polyester outer layer
 1×10^4 to $< 1 \times 10^{11}$ ohms per
 ANSI/ESD STM11.11

Resistance of polyethylene inner layer
 1×10^4 to $< 1 \times 10^{11}$ ohms per
 ANSI/ESD STM11.11

EMI Shielding
 45dB

Energy Penetration <10nJ per ANSI/ESD S11.31

Physical Properties

Thickness (nominal)
 0.0065" (.1651mm) per MIL-STD-3010 1003

MVTR (grams / 100 in² / 24 hrs, 100°F)
 0.005 per ASTM F 1249

Puncture Strength (lb)
 30 per FTMS 101-C, MIL-STD-3010 2065

For more detailed information, see Drawing [13760](#).

See Bag Selection Chart Click [HERE](#).

See Shielding Bag Storage at [TB-7057](#).

Limited Warranty, Warranty Exclusions, Limit of Liability and RMA Request Instructions

See Desco's Terms and Conditions - <http://desco.descoindustries.com/TermsAndConditions.aspx>

RoHS 2 and REACH Statement

None of the RoHS 2 restricted materials or REACH substances of very high concern as of 2013/06/20 are intentionally added in manufacturing this product. Ref: European Union Directive 2011/65/EU and Regulation (EC) No. 1907/2006/CE. See Desco [Limited Warranty at Desco.com](#).