

# STAYDRY® H2-3000

Hydrogen and Moisture Getter Patented Technology \*

## DESCRIPTION

Hermetically sealed semiconductor devices containing Gallium Arsenide (GaAs), RF absorbers and utilizing industry gate metallization structures have been shown to leak out hydrogen in ambient as well as environmental conditioning, which will poison and shorten the life of the device. AAM manufactures and sells the hydrogen getter for the semiconductor industry, specifically designed for these types of devices.

H2-3000 film is a unique getter, which employs an active hydrogen getter and desiccant for water absorption, dispersed in a flexible silicone polymer matrix. The high permeability of the polymer matrix to both hydrogen and moisture assures a rapid uptake of both gases. The getter operates through a reaction, which is irreversible for hydrogen. Therefore, there are no hazardous or problematic side effects, once absorbed gasses are trapped from harming the device.

## APPLICATIONS

H2-3000 possesses high hydrogen and moisture gettering capacity, while being thermally stable up to 200° C. The material is a film and can therefore be molded or stamped to any desired shape. The excellent physical properties of the polymer allow the getter to remain flexible over the temperature range of - 55° C to 150° C. As a result, no spalling or flaking occurs as the getter material removes hydrogen. The composition of the material is designed to maintain a dew point of less than - 65° C, while maintaining a hydrogen atmosphere of less than 1 part per million within the device.

## TYPICAL PROPERTIES

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Appearance:	Black film
Storage Temperature:	25°C
Getter Cure Temp:	N/A
Getter Activation:	16 hours @ 150°C vacuum oven (≤ 500 micron Hg)
Shelf Life:	12 (Months)
Density:	>=1.35 g/cc
Thermal Stability @ 200°C:	<1.0 % loss
Moisture Absorption:	> 3.5 weight %
CTE:	440 µm/m °C

<b>Ionics:</b>	Na <sup>+</sup> = < 50 ppm K <sup>+</sup> = < 50 ppm Cl <sup>-</sup> = < 200 ppm FI <sup>-</sup> = < 50 ppm
<b>Hydrogen Capacity:</b>	> 45cm <sup>3</sup> /g
<b>Hydrogen Rate (within 24 hrs):</b>	< 1 ppm

\* United States Patent #5,888,925

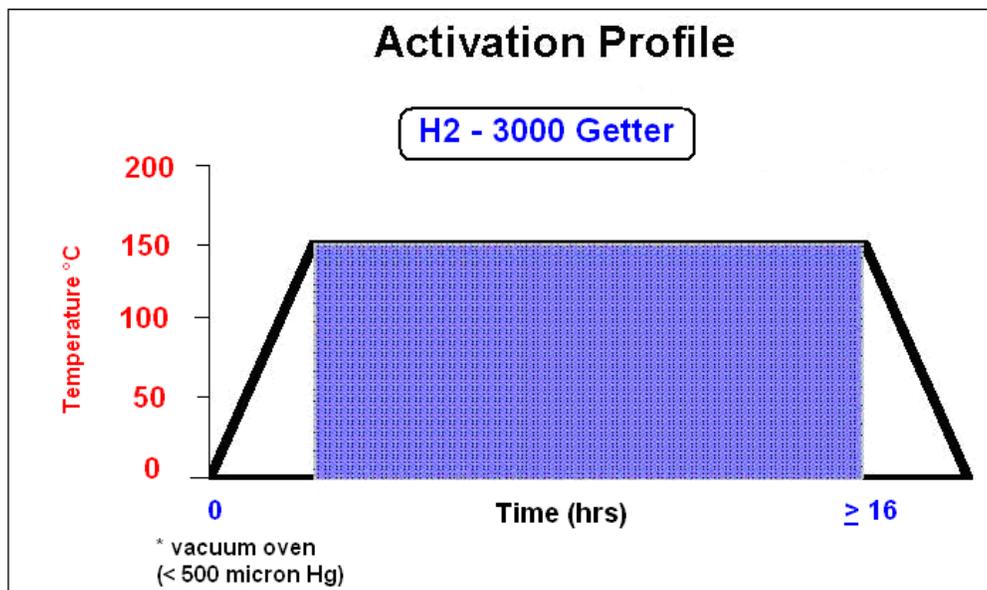
## AVAILABILITY

H2-3000 film is available in standard thickness of 8mil, 10mil and 20mil. Special thickness is available for high volume usage, upon request. Standard sheets are available up to 8" x 10". Larger sheets and custom pre-forms, laser cut and hard tooled, are also available.

## BONDING

Thoroughly clean the surface to be bonded with a volatile solvent (IPA or acetone). Apply primer (Dow Corning DC1204 or PR 1204) to the lid and one side of the H2-3000 to promote adhesion of RTV silicone to lid surface. Allow primer to dry at room temperature with 50% or greater RH for 4 hours. Apply RTV silicone (Dow Corning RTV 3145 Gray) to either the primed lid or primed surface of the H2-3000. Press the getter, with adhesive, to the lid. Apply "squeeze-out" pressure and remove excess silicone, if needed. Cure RTV via 85%RH @ 25°C for 16 hours.

## PROCESSING PROFILE



## ACTIVATION

Place the bonded assembly into a vacuum oven at 150°C for a minimum of 16 hours (recommended vacuum is 500 microns Hg or less). Seal the package **IMMEDIATELY** after activating. Assemble in an inert atmosphere. 90% of gettering capacity is gone after 45 minutes exposure to normal humidity at 25°C.

*\* Material can be pre-applied or attached to the device by curing for 2 hours at 150°C. Store in an inert atmosphere until ready to assemble.*

## SHIPPING & STORAGE

There are no special shipping concerns for this product. Store material in an inert atmosphere. Minimize long term exposure to air. Always use powderless gloves when handling film. Shelf life of the material is 12 months, when stored at room temperature (25°C).

**To confirm this is the most recent issue, please contact Alpha Advanced Materials**

[AAM.AlphaAssembly.com](http://AAM.AlphaAssembly.com)

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Also read carefully warning and safety information on the Safety Data Sheet. This data sheet contains technical information required for safe and economical operation of this product. READ IT THOROUGHLY PRIOR TO PRODUCT USE. Emergency directory assistance Chemtrec 1 - 800 - 424 - 9300.

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