

HR1 Getters - Foil Hydrogen Getters for Hermetically Sealed Devices

Overview

Although pre-baking a hermetic package may prevent some out gassing, H₂ may still be released over time.

Hermetic Solutions Group has developed a number of solutions to address this issue, including the HR1 hydrogen getter.

The HR1 hydrogen getter is a great solution for hermetic packages with limited space available for another package component. Available in a foil format, the Hermetic Solutions Group's HR1 getter is easy to integrate into an existing design.



Technical Specifications

Absorption Rate	5-10 ppm/min.
Absorption Capacity	967 cc/cc at ambient
Material	Mill-rolled Pd foil
Getter Size	1.0"x1.0" .50"x.50" .25"x.25"
Thickness	0.004" is typical, other thicknesses available
Operating Temperature Ranges	-50°C to 250°C
Attachment	Spot welded or adhesively bonded to metal lid
Heat Activation	No activation required

Note: Data via RGA in 99% Nitrogen 1% Hydrogen environment. (Test Site: Oneida Research Services Inc.)

Guidelines on Getter Storage, Handling, Installation and Reuse

- **Store** getters in dry air, N₂ filled glass enclosure, or sealed box.
- **Handle** getters carefully. Don't touch the getter with your fingers - use tweezers when handling getter foil. If a getter should become contaminated, quickly wipe using an isopropyl alcohol swab/wipe, or use an ultrasonic method to clean the foil as necessary.
- **Install** getters to a package lid surface via low out-gassing adhesives, then follow a curing or bake-out process in a vacuum furnace before seal. The nominal bake-out temperature and duration may vary from 100°C to 200°C, with a 1-24 hr bake time, depending upon adhesive glass transition temperature, or a standard bake-out temperature and duration requirement. Weld or seal package in an inert and dry atmosphere (N₂, Ar, He, or their mixtures). Finally, check package's hermetic performance with He gas detection. 1.0×10^{-9} atm.cc/s is the optimal leak check reading to ensure long-term reliability.
- **Reuse** of getter from previous application is a simple process. Clean it, then heat to ~350°C for 10 minutes in a vacuum furnace that will desorb previous absorbed H₂ and other contaminants, then follow previous installation guidelines.