

HCRH

Hydrogen Getters



HIGHLIGHTS

General Features

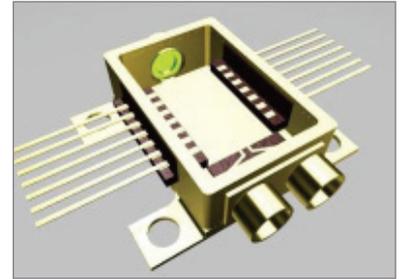
- High sorption capacity per unit of coated surface area
- Selective sorption of hydrogen
- No requirement for activation
- No particulation
- No organics outgassed
- Custom designs available
- Low hydrogen partial pressure achievable

Applications

- GaAs microelectronic packages for microwave and RF applications
- H₂ control in hermetically sealed systems
- Preventive control of H₂O generation in microelectronics
- Implantable medical devices
- Hermetic storage containers for hydrogen
- H₂ removal from static gas filled systems
- H₂ control for embrittlement protection

Excess hydrogen inside hermetically sealed packages can lead to device failure. A well-known case consists on GaAs RF amplifiers which are extremely sensitive to hydrogen content due to voltage drift. Because of this, they require tight controls on the maximum concentration of hydrogen present inside the device package.

Hydrogen cause electrodes degradation, voltage drift and is source to water generation inside hermetic packages with subsequent impact of device failure. Microelectronics, detectors, implantable defibrillators are all applications which are negatively affected by hydrogen and can find an extreme performance benefit in using Hydrogen getters.



To combat the detrimental effects of hydrogen, SAES Getters has developed **High Capacity Rel-Hy® (HCRH)**. HCRH is the ideal getter solution for any hermetically sealed package needing removal of hydrogen to ensure stability and reliability of the device over their required lifetime. HCRH is engineered to selectively pump hydrogen at ambient conditions without requiring any special start-up treatment or activation, does not particulate and does not require any mixing. HCRH can also be sized to meet the lifetime hydrogen capacity requirements.

Property	Value
Thickness	150 um
Density	4.5 g/cc
H ₂ Capacity	> 10 torr liter/cm ²
Getter activation	No activation required
Storage temperature	25 °C
Shelf life	12 months

HCRH is available as an etched thin foil with multiple, customer-designed, pieces on a foil that can be easily removed and attached into the package by the customer.



Single or double side active surfaces are available options. A double side active surface getter has enhanced sorption speed and compensate for higher hydrogen generation rate in the device.

SORPTION PERFORMANCE

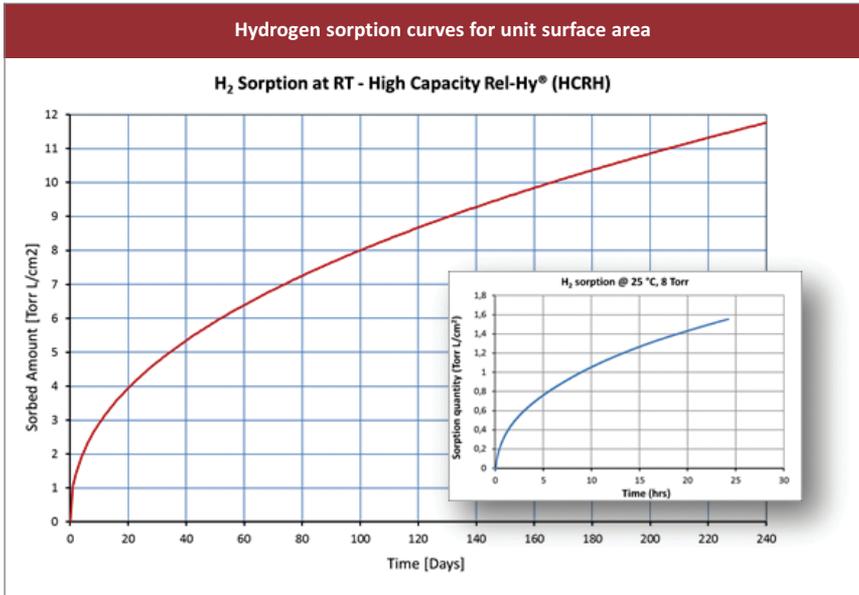
HCRH has been experimentally characterized by means of static sorption tests, carried out at various temperature conditions, to assess the getter performance in different scenarios.

HCRH Sorption Test

Gas: pure hydrogen

Pressure: 8 torr

Temperature: room temperature

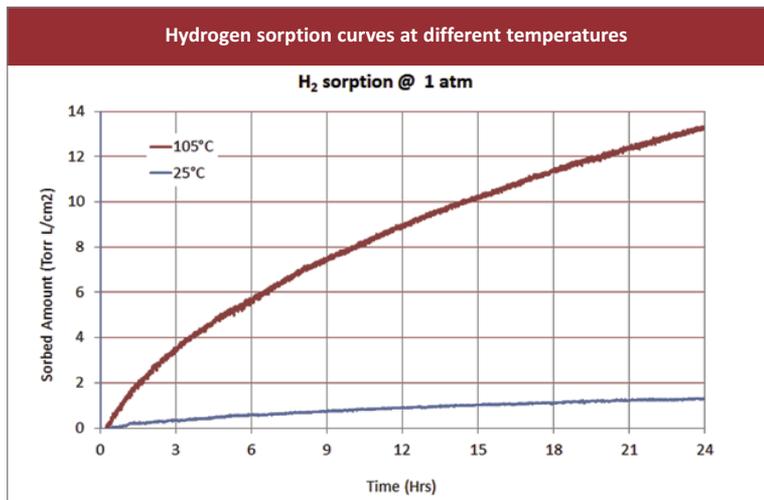


HCRH Sorption Test

Gas: pure hydrogen

Pressure: 760 torr

Temperature: 25°C and 105°C



Analysis of used HCRH can provide feedback on the gas quantity absorbed and allows fine tuning of getter size to device lifetime requirements.

High Capacity Rel-Hy (HCRH) is the higher sorption capacity version of Rel-Hy and is part of the SAES Group's innovative Page film production line. All Rel-Hy and HCRH getters are manufactured in Colorado Springs, CO, USA.

HCRH Hydrogen Getters

The SAES Group manufacturing companies are ISO9001 certified and the Italian companies are also ISO14001 certified. Full information about our certifications for each company of the Group are available on our website at: www.saesgroup.com

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