NEW

NANOCHEM® Desicore™ Germane Gas Purifier

The Next Generation Purifier for Germane purification without the effects of decomposition

All the Benefits of NANOCHEM® purifier with Efficient Moisture Removal

Overview

NANOCHEM® Desicore™ Purifiers are designed to remove moisture from Germane gas at the point-of-use. Moisture is a killer impurity in sensitive processes such as Si-Ge epitaxial depositions and can directly affect device performance and wafer yield.

Typical purifier media exhibit increased pressure due to decomposition of the Germane gas resulting in dangerous build up of Hydrogen and significant decrease in Germane concentration. Desicore™ is the only media that does not build pressure after the conditioning period.

NANOCHEM® purification medium has long been the industry standard for purifying hydride gases for a variety of semiconductor applications, including low temperature SiGe Epi. NANOCHEM® Desicore™ offers all the benefits of NANOCHEM® medium – the highest lifetimes and the best efficiencies for impurity removal as well as protection from source gases and system component decomposition.

Applications

NANOCHEM® Desicore™ Purifiers are exclusively designed and developed to work with 1000 ppm or greater* of Germane gas. Unlike other materials, Desicore™ can work with a wide range of concentrations in carrier gases (Hydrogen, Helium or Argon) without affecting the delivered concentration.

*For concentrations less than 1000 ppm, please consult MATHESON.

Features and Benefits

- Custom-designed purification material for point-of-use moisture removal offering:
  - **High Capacity**
  - **Long Lifetimes**
  - **ppb Efficiency in Germane Gas**
  - **Low Overall Cost of Ownership**
- Room temperature operation - no power required
- Easy to install and operate, the purifier is fully conditioned and ready for operation in less than 3 hours to minimize gas usage
- Patent to Patent Pending
- Desicore™ was the only material capable of removing H_2O to less than 5 ppb in 100% Germane gas without decomposing the 10% GeH_4/H_2 causing significant pressure changes in stagnant flow conditions

Specifications

- 0.003 µm particle filter with 9-log retention (99.9999999%) Teflon filter
- Internal surface finish < 10 in Ra
- Metal parts of Stainless Steel, Type 316L
- Maximum operating temperature of 40°C (104°F)

MATHESON

ask. . .The Gas Professionals™

Capacity & Efficiency in GeH_4 (Including 100%)

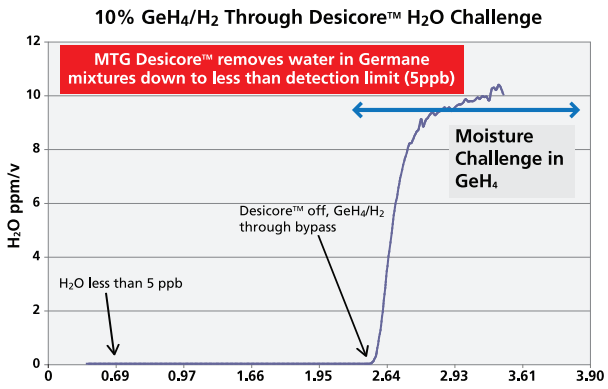
Desicore™ offers superior capacities and efficiencies over other purifier materials without decomposition pressure build up of the Germane.

The figure shows that inlet moisture content of 10 ppm was reduced to < 5 ppb.

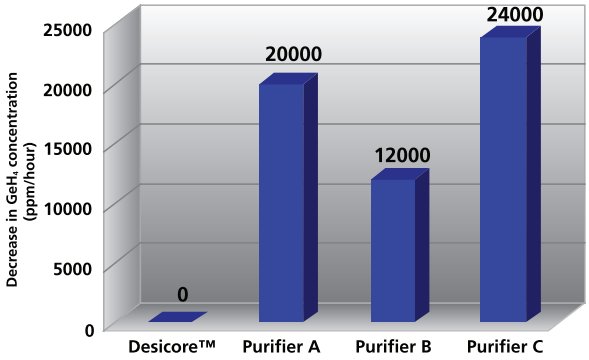
No loss of Germane during or after conditioning.

Desicore™ is the only material on the market that does not decompose Germane. Other competitor materials tested showed significant decreases in concentration after holding the purifier under stagnant conditions.

Desicore™ H_2O Challenge



Change in Concentrations



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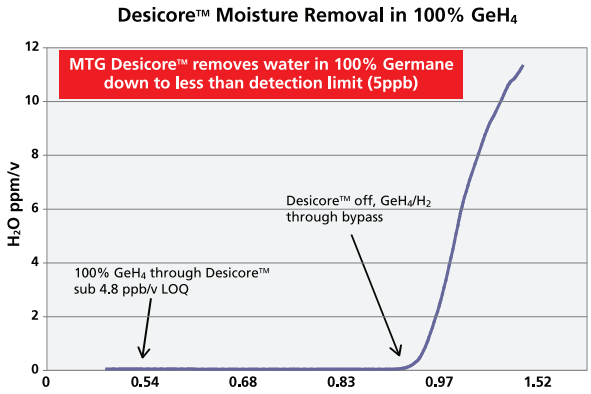

Purifier Models / Sizes

NANOCHEM® Desicore™ purification medium is available in a wide variety of hardware configurations for point-of-use, distribution, source and bulk purification applications:

Model	Maximum Recommended Flow Rate** slpm	(NM³/hr)	Media Volume ml or liters	Maximum Allowable Operating Pressure Without End-Point psig (MPa)
MiniSentry™	1	(0.06)	12 ml	3,000 (21)
Purifilter®	3	(0.2)	25 ml	1,000 (7)
A-Series*	50	(3)	300 ml	500 (3.55)
L-Series	8-150	(0.5-9)	60, 300 ml	500 (3.55)

*Drop-in replacements available for competing hardware designs.

**For higher flow rates, contact Matheson Tri-Gas, Inc.

NOTE: 0.003 µm particle filter with 99.9999999% retention standard on all models.

Please contact your local MATHESON Sales Engineer or call 303-678-0700 to obtain a purifier lifetime estimate for your specific operating conditions.

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