

Technical Note

Germane

1998-1040 Rev 1 5/22

Germane Chemcassette® Detection System

The Germane Chemcassette® is the preferred method in the field for select hydride gases, Germane and Arsine, due to sensitivity, selectivity, and response speed requirements. While the Hydrides XP/XP4 Chemcassette® can also detect Germane and Arsine gases, Germane is formulated with improved sensitivity and response to Germane with a reduced dependency on humidity. The Germane Chemcassette® is available in a 30 day and a 90 day/XP version.

The Germane Chemcassette® will respond to:

Arsine (AsH₃)	Dichlorosilane (SiH ₂ Cl ₂) **	Hydrogen Selenide (H ₂ Se) *	Stibine (SbH ₃)
Beryllium Hydride	Disilane (Si ₂ H ₆)	Hydrogen Sulfide (H ₂ S) *	Tellurium Hydride
Cadmium Hydride	Gallium Hydride	Phosphine (PH ₃)	Trichlorosilane (SiHCl ₃) **
Diborane (B ₂ H ₆)	Germane (GeH₄)	Silane (SiH ₄)	Zinc Hydride

Bolded gases represent those gases for which calibrations are available.

Contact Honeywell Analytics for special calibration information.

* Honeywell Analytics can provide filters for removal from the sample stream. (PN 710201 H₂S Scrubber Filter)

** Chlorosilanes react on the Germane Chemcassette®; however, we recommend using the HCl/Mineral Acids Chemcassette® and calibration to detect and quantify leaks as HCl.

Mono-substituted compounds:	Biphosphyl Ethane	Tert-butylarsine (TBA)
	Monoethyl Arsine	Tert-butylphosphine (TBP)
	Monoethyl Phosphine	Tert-butylthiol

Di-substituted compounds:	Diethyl Arsine	Diethyl Silane
	Diethyl Phosphine	Di-tert-butylsilane

Other compounds:	ACT® 935 Photoresist Stripper	Cupra Select
	EKC265™ Photoresist Stripper	Hydroxylamine (HDA)
	TOMCATS® tetramethylcyclotetrasiloxane	

For additional detection capability of hydride gases, please refer to the identified hydride gases detectable by Hydrides XP/XP4 Chemcassette® in TN 1998-0287.

Visual Stain Color Observation:

Stain colors observed are warm gray for Arsine (AsH₃) and tan for Germane (GeH₄).

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Negative or Combined Effects:

High HCl concentrations may desensitize the Germane Chemcassette®.

Visual Observation:

During sampling, low levels of ambient Hydrogen Sulfide (H₂S) or strong reducers may be present in your workplace air. These may cause some light stains to appear on the Germane Chemcassette® tape. However, the monitoring instrument will not respond unless a hazardous concentration of the target gas is present. The Germane calibration on the Germane Chemcassette® has a greater reduction in interference from H₂S gas. The instrument uses a sophisticated process of determining a gas event. Visual inspection of stains on a Chemcassette® tape is only used to verify that a target gas was present when the instrument detected it. In the absence of readings, do not interpret the appearance of stains to mean that a gas event has occurred.

The Germane Chemcassette® may also show some overall gray discoloration after long-term exposure to light. This will not affect gas detection.

Note: Germane Chemcassette® should be protected from exposure to light intensity of 1200 LUX or greater to reduce tape discoloration. 1200 LUX is equivalent to the Chemcassette® being 3 feet from a fluorescent light source with a diffuser. Remember to keep the optics block clean to reduce any concerns from bright atmospheres above 1200 LUX.

The Germane Chemcassette® will not respond to:

Acetic Acid	Freons	Ozone
Acetone	Glycols	Phosgene
Acetylene	Hexamethyldisilazane	Phosphoric Acid
Acids	Hexane	Sulfur Dioxide
Amines	Hydrazines	Sulfides/Sulfates (except H ₂ S)
Ammonia	Hydrocarbons	Sulfuric Acid
Ammonium Hydroxide	Hydrogen	Tetramethylammonium Hydroxide
Boron Trifluoride	Hydrogen Cyanide	Toluene
n-butyl Acetate (NBA)	Hydrogen Peroxide	Trichloroethane
Carbon Monoxide	Isopropyl Alcohol (IPA)	Trichloroethylene
Cellusolve Acetate	Isocyanates	Trimethyl Borate (TMB)
Chlorine	Ketones	Trimethyl Phosphite (TMP)
Chlorinated Compounds	Methane	Tetraethyl Orthosilicate (TEOS)
o-Dichlorobenzene	Methanol	Xylenes
Ethanol	Methyl Ethyl Ketone (MEK)	
Ethylene Oxide	Nitrogen Oxides	

The Germane Chemcassette® will not respond to fully substituted hydride compounds.

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Ordering Information

Instrument	Part Number	Description
Vertex / Vertex-M	1295-0566	Germane
Vertex / Vertex-M	1295-0564	XPV Germane
<i>***Vertex and Vertex-M Software Version Required</i>		
<i>1.25.15 or later</i>		

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Find out more:

<https://sps.honeywell.com/us/en/products/safety/gas-and-flame-detection>

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