1. PRODUCT AND COMPANY IDENTIFICATION

TRIMETHYLGALLIUM HIGH PURITY GRADE

Revision Date: 10/18/2011

Supplier
Rohm and Haas Electronic Materials LLC
A Subsidiary of The Dow Chemical Company
455 Forest Street
MARLBOROUGH, MA 01752 United States

For non-emergency information contact: +12155923000

Emergency telephone number
CHEMTREC: 1 800 424 9300

Local emergency telephone number
989-636-4400

2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trimethylgallium</td>
<td>1445-79-0</td>
<td>90.0 - 100.0 %</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance

<table>
<thead>
<tr>
<th>Form</th>
<th>Colour</th>
<th>Odour</th>
</tr>
</thead>
<tbody>
<tr>
<td>liquid</td>
<td>colourless</td>
<td>Garlic odor</td>
</tr>
</tbody>
</table>

®™*Trademark of The Dow Chemical Company (”Dow”) or an affiliated company of Dow
Hazard Summary

**DANGER!**
Pyrophoric! Can ignite spontaneously when exposed to air at normal or slightly elevated temperatures. Smoke may contain various hydrocarbons and hazardous metallic oxides. Reacts with water. Causes skin burns. Causes eye burns. May cause respiratory tract burns.

Potential Health Effects

**Primary Routes of Entry:** Inhalation, ingestion, eye and skin contact.

**Eyes:** Will cause severe conjunctival irritation, corneal damage, and may result in loss of vision.

**Skin:** Material will cause chemical burns.

**Ingestion:** Swallowing may have the following effects:
corrosion of mouth, throat and digestive tract

**Inhalation:** Inhalation may have the following effects:
severe irritation of nose, throat and respiratory tract
Higher concentrations may have the following effects:
severe irritation to nose, throat and respiratory tract and possibly lung damage

**Target Organs:** Eye
Respiratory System
Skin

**Carcinogenicity**
Not considered carcinogenic by NTP, IARC, and OSHA

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**4. FIRST AID MEASURES**

**Inhalation:** Remove from exposure. If there is difficulty in breathing, give oxygen. Immediate medical attention is required.

**Skin contact:** Immediately flush the skin with large quantities of water, preferably under a shower. If skin contact occurs, remove contaminated clothing and wash skin thoroughly. Continue washing for at least 20 minutes. Contaminated clothing should be washed or dry-cleaned before re-use. Immediate medical attention is required.

**Eye contact:** Immediately flush the eye with plenty of water for at least 20 minutes, holding the eye open. Immediate medical attention is required.

**Ingestion:** Do NOT induce vomiting. Wash out mouth with water. Have victim drink 1-3 glasses of water to dilute stomach contents. Immediate medical attention is required. Never administer anything by mouth if a victim is losing consciousness, is unconscious or is convulsing.

**Notes to physician:** Treat symptomatically. Treat skin burns conventionally.
5. FIREFIGHTING MEASURES

Suitable extinguishing media: Pyrophoric! Do not use wet chemical, water or foam. Use dry chemical powder followed by sand or dolomite (powdered limestone).

Specific hazards during firefighting: Pyrophoric! Can ignite spontaneously when exposed to air at normal or slightly elevated temperatures. Smoke may contain various hydrocarbons and hazardous metallic oxides.

Special protective equipment for firefighters: Wear full protective clothing and self-contained breathing apparatus.

Further information: Reacts violently with water resulting in flammable vapor and metal oxide(s). Be aware of reignition.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear suitable protective clothing.

Environmental precautions
Prevent the material from entering drains or water courses. Advise Authorities if spillage has entered watercourse or sewer or has contaminated soil or vegetation.

Methods for cleaning up
Cover with dry sand or dolomite and allow to decompose or burn out completely. Transfer into suitable containers for recovery or disposal. Use non-sparking tools and/or explosion-proof equipment. Eliminate all ignition sources.

7. HANDLING AND STORAGE

Handling
Use local exhaust ventilation. Avoid contact with eyes, skin and clothing. Keep container tightly closed. Eliminate all possible sources of ignition. Wear flame-proof clothing. Handle in glovebox/bag under inert atmosphere only.

Storage
Storage conditions: Store in original container. Keep away from heat and sources of ignition. Storage area should be: cool dry well ventilated out of direct sunlight

Further information on storage conditions: Practice good personal hygiene to prevent accidental exposure.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit(s)

Exposure limits are listed below, if they exist.

Exposure controls
Engineering measures: Engineering methods to prevent or control exposure are preferred. Methods include process or personnel enclosure, mechanical ventilation (local exhaust), and control of process conditions. Use glove box or bag in a closed system under inert atmosphere, in conjunction with adequate ventilation.

Individual protection measures

Eye/face protection: Chemical goggles and face shield.

Skin protection

Hand protection: Leather-palmed, heat-resistant gloves

Other protection: not applicable

Respiratory protection: The specific respirator selected must be based on the airborne concentration found in the workplace and must not exceed the working limits of the respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form liquid
Colour colourless
Odour Garlic odor

Boiling point/boiling range 56 °C (133 °F)
Vapour pressure 69.0 mmHg at 20 °C (68 °F)
Relative vapour density 1.10
Relative density 1.10

VOC’s 0.00 g/L

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY
Hazardous reactions
Catches fire spontaneously if exposed to air.
Reacts violently with water.
Stable under recommended storage conditions.

Conditions to avoid
High temperatures  Exposure to air or oxygen  Exposure to water or moisture  Exposure to sunlight.

Materials to avoid
Air  Oxidizers  Water  Moisture  Acids  Halogenated compounds

Hazardous decomposition products
Metal oxides, Carbon monoxide, carbon dioxide, Hydrocarbons, acrid smoke and irritating fumes,

polymerisation
Will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

Component: **Trimethylgallium**  
Skin irritation  Causes skin burns.

Component: **Trimethylgallium**  
Eye irritation  May cause irreversible eye damage.  Causes eye burns.

Component: **Trimethylgallium**  
Further information  Ingestion causes burns of the upper digestive and respiratory tracts.

12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.

13. DISPOSAL CONSIDERATIONS

**Environmental precautions**: Prevent the material from entering drains or water courses.  Advise Authorities if spillage has entered watercourse or sewer or has contaminated soil or vegetation.

**Disposal**
Dispose in accordance with all local, state (provincial), and federal regulations.  Under RCRA, it is the responsibility of the product’s user to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste.  This is because the product uses, transformations, mixtures, processes, etc. may render the resulting materials hazardous.  Do not remove label until container is thoroughly cleaned.  Empty containers may contain hazardous residues.  This material and its container must be disposed of in a safe way.
14. TRANSPORT INFORMATION

DOT

<table>
<thead>
<tr>
<th>Proper shipping name</th>
<th>Organometallic substance, liquid, pyrophoric, water-reactive (Trimethylgallium)</th>
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</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN 3394</td>
</tr>
<tr>
<td>Class</td>
<td>4.2 (4.3)</td>
</tr>
<tr>
<td>Packing group</td>
<td>I</td>
</tr>
</tbody>
</table>

Classification for SEA transport (IMO-IMDG):

<table>
<thead>
<tr>
<th>Proper shipping name</th>
<th>ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE (Trimethylgallium)</th>
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</thead>
<tbody>
<tr>
<td>UN number</td>
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<td>Packing group</td>
<td>I</td>
</tr>
</tbody>
</table>

Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations.

15. REGULATORY INFORMATION

Workplace Classification

OSHA: Corrosive
Pyrophoric
Water Reactive

WHMIS: This product is a ‘controlled product’ under the Canadian Workplace Hazardous Materials Information System (WHMIS).

SARA TITLE III: Section 311/312 Categorizations (40CFR370): Immediate, delayed, flammability, reactive hazard

SARA TITLE III: Section 313 Information (40CFR372)
This product does not contain a chemical which is listed in Section 313 at or above de minimis concentrations.

United States TSCA Inventory (US.TSCA): All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

California (Proposition 65)
This product does not contain materials which the State of California has found to cause cancer, birth defects or other reproductive harm.
16. OTHER INFORMATION

NFPA Hazard Rating

<table>
<thead>
<tr>
<th>Health</th>
<th>Fire</th>
<th>Reactivity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>4</td>
<td>2</td>
<td>Pyrophoric</td>
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</tbody>
</table>

Legend

<table>
<thead>
<tr>
<th>ACGIH</th>
<th>American Conference of Governmental Industrial Hygienists</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAc</td>
<td>Butyl acetate</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Administration</td>
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<tr>
<td>PEL</td>
<td>Permissible Exposure Limit</td>
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<tr>
<td>STEL</td>
<td>Short Term Exposure Limit (STEL):</td>
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<tr>
<td>TLV</td>
<td>Threshold Limit Value</td>
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<tr>
<td>TWA</td>
<td>Time Weighted Average (TWA):</td>
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Bar denotes a revision from prior MSDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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