



# MATERIAL SAFETY DATA SHEET

## Rohm and Haas Company

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### 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

TRIMETHYLALUMINUM OPTOGRADE™

Product Code : 58616  
KEY : 845617-3

MSDS Date : 02/15/02

#### COMPANY IDENTIFICATION

ROHM AND HAAS COMPANY  
100 INDEPENDENCE MALL WEST  
PHILADELPHIA, PA 19106-2399

#### EMERGENCY TELEPHONE NUMBERS

HEALTH EMERGENCY : 215-592-3000  
SPILL EMERGENCY : 215-592-3000  
CHEMTREC : 800-424-9300

OPTOGRADE™ is a registered trademark of Morton International, Inc. a Rohm and Haas Company.

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### 2. COMPOSITION/INFORMATION ON INGREDIENTS

This product is considered hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

<u>No</u>		<u>CAS REG NO</u>	<u>WEIGHT (%)</u>
1	Trimethylaluminum (CH <sub>3</sub> ) <sub>3</sub> Al .....	75-24-1	100

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### 3. HAZARDS IDENTIFICATION

#### Emergency Overview

EXTREMELY FLAMMABLE. CATCHES FIRE IF EXPOSED TO AIR. CAUSES SEVERE DIGESTIVE TRACT BURNS. CAUSES EYE BURNS. CAUSES SKIN BURNS. DECOMPOSITION PRODUCTS MAY CAUSE EYE, NOSE AND RESPIRATORY TRACT IRRITATION. See sections 3, 5, & 6.

#### Primary Routes Of Exposure

Eye. Skin. Inhalation (breathing).

#### Eye Contact

Causes burns.

#### Skin Contact

Causes burns.

#### Inhalation (Breathing)

Decomposition products can irritate the eyes, nose, and respiratory tract.

#### Ingestion (Swallowing)

Causes severe burns to the mouth, throat, and stomach.



Target Organs/Chronic Effects

Lungs and respiratory system. Eyes. Skin.

Conditions Aggravated By Exposure

Exposure to this product is not expected to contribute, worsen or aggravate any pre-existing medical conditions.

Carcinogenicity

Trimethylaluminum (CH <sub>3</sub> ) <sub>3</sub> Al	ACGIH No	IARC No	NTP No	OSHA No
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**4. FIRST AID MEASURES**

Eye Contact

Immediately flush eyes with plenty of water for at least 15 minutes. Get immediate medical attention.

Skin Contact

Immediately flush with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get prompt medical attention. Professionally wash clothing before re-use.

Inhalation (Breathing)

Remove to fresh air. If symptoms develop, seek immediate medical attention. If not breathing, give artificial respiration.

Ingestion (Swallowing)

Obtain immediate medical attention.

Notes To Physicians

Treatment should be directed at preventing absorption, administering to symptoms (if they occur), and providing supportive therapy.

**5. FIRE FIGHTING METHODS**

Flash Point .....	Pyrophoric Not Applicable
Explosive Lmts .....	LEL(%) Not Determined UEL(%) Not Determined
Autoignition .....	Not Determined

Hazardous Combustion And Decomposition Products

Smoke, soot, and toxic/irritating fumes (i.e., carbon dioxide, carbon monoxide, etc.). Metallic oxides. Low molecular weight hydrocarbons. Methane.



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### Fire And Explosion Hazards

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

### Extinguishing Media

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

### Fire Fighting Procedures/Equipment

Fire fighters and others who may be exposed to the products of combustion should be equipped with NIOSH-approved positive pressure self-contained breathing apparatus (SCBA) and full protective clothing. Reacts violently with water resulting in flammable vapor and metal oxide(s). Caution: Reignition can occur.

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## **6. ACCIDENTAL RELEASE MEASURES**

### Evacuation

Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Eliminate all sources of ignition.

### Containment

Cover with dry sand or dolomite and allow to decompose or burn out completely.

### Clean-Up/Personal Protection Equipment

Appropriate safety measures and protective equipment should be used.

### Collection And Disposal

Stop discharge, if safe to do so. Use proper protective equipment. Use non-sparking tools and/or explosion-proof equipment. Stop ignition sources. Cover spills with absorbent clay and place in closed chemical waste containers. Dispose of according to applicable local, state and federal regulations.

### Reporting

Spills of this material in excess of a component's RQ must be reported to the National Response Center (1-800-424-8802) and to the appropriate state and local emergency response organizations. No regulated ingredients.

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## **7. HANDLING AND STORAGE**

### Storage Conditions

Store in cool, dry, well ventilated area.

### Transfer

Eliminate all possible sources of ignition. Wear flame-proof clothing. Handle in glovebox/bag under inert atmosphere only. Avoid contact with skin, eyes, and clothing.



Personal Hygiene

Wash thoroughly after handling, especially before eating, drinking, smoking, and using restroom facilities. Wash contaminated goggles faceshield, and gloves. Professionally launder contaminated clothing before re-use.

Empty Container Precautions

Attention! This container can be hazardous when empty. Follow label warnings even after container is emptied since empty containers may retain product residues. Do not reuse empty container without professional cleaning for food, clothing, or products for human or animal consumption or where skin contact can occur.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Exposure Guidelines

ACGIH - TLV

Trimethylaluminum (CH <sub>3</sub> ) <sub>3</sub> Al	2 mg/M <sup>3</sup>
Alkyls (not otherwise classified), as Al	

OSHA - PEL

Trimethylaluminum (CH <sub>3</sub> ) <sub>3</sub> Al	2 mg/M <sup>3</sup>
Alkyls (not otherwise classified), as Al	

Engineering Controls/Ventilation

Use glove box or bag in a closed system under inert atmosphere, in conjunction with adequate ventilation.

Eye Protection

Wear chemical splash goggles and a full-face shield. An eye wash facility should be readily available.

Skin Protection

Leather-palmed, heat-resistant gloves. Flame-proof clothing. An emergency shower should be readily available.

Respiratory Protection

Respiratory protection is not usually required.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance .....	Colorless
Odor .....	Slight
Physical State .....	Liquid
Solubility .....	Reacts with water
pH .....	Not Applicable
Boiling Point .....	259F 126.1C



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Freeze/Melt .....	59.7F 15.3C
Vapor Pressure .....	11.6 mm HG @ 25C
VOC Material .....	Not Determined
Specific Grvty .....	0.752
%Non-Vol(w/w) .....	0

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

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## **10. STABILITY AND REACTIVITY**

### Chemical Stability

Stable under normal conditions of use.

### Hazardous Polymerization

Will not occur.

### Conditions To Avoid

High temperatures.

### Incompatibility With Other Materials

Water. Oxidizers. Acids. Ammonia. Air. Alcohols. Halogenated hydrocarbons. Moisture.

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## **11. TOXICITY INFORMATION**

### Components

Trimethylaluminum (CH<sub>3</sub>)<sub>3</sub> Al:

Pyrophoric. Spontaneously flammable in air and moisture. Causes severe eye and skin burns. Aluminum oxide can be generated during combustion which can cause pulmonary (lung) fibrosis if inhaled over prolonged periods. If metal oxide particles are formed, exposure to these can cause -metal fume fever-. Metal fume fever is an influenza-like condition characterized by sweet or foul taste in the mouth, upper respiratory tract irritation, coughing and a feeling of malaise. Fever chills, muscular pain, headache, nausea and diarrhea may occur, also. Onset of symptoms can be delayed 4 - 12 hours and usually subside within 24 - 36 hours after exposure ceases.

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## **12. ECOLOGICAL INFORMATION**

No data are available on this product.

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## **13. DISPOSAL CONSIDERATIONS**

### Disposal

When a decision is made to discard this material as supplied, it meets RCRA's characteristic definition of ignitability and reactivity.



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### General Statements

Federal regulations may apply to empty container. State and/or local regulations may be different.

### General Recommendations

Of the methods of disposal currently available, it is recommended that an alternative be selected according to the following order of preference, based upon environmental acceptability: (1) recycle or rework, if feasible; (2) incinerate at an authorized facility; or (3) treat at an acceptable waste treatment facility.

### Special Instructions

Be sure to contact the appropriate government environmental agencies if further guidance is required.

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## **14. TRANSPORT INFORMATION**

Weight (lb)	Shipping Name	49	CFR	IATA	IMO
	Aluminum alkyls		Y		Y
DOT Label	Spontaneously Combustibl/Danger when wet				
UN/NA Id Num	UN 3051	DOT Label No	WD4243		
Hazard Class	4.2 (IATA/49CFR) 4.2 (IMO)				
Subsid Risk	4.3	Packing Group	I		
WHMIS Label	BD2				

All the information in this section is for NON-BULK packagings (119 gallons or less; 882 lbs. or less for solids). For BULK shipments, one (or more) ingredient(s) is a hazardous substance, which may require that the letters -RQ- precede the proper shipping name. For the RQ ingredients and their amounts, see MSDS section 6 or Appendix A to Part 172.101 of the 49 CFR. Under IATA above, transportation is FORBIDDEN on passenger and cargo aircraft.

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## **15. REGULATORY INFORMATION**

### Federal

#### SARA Title III - Section 311/312 - Hazard Categories

- Y- Fire Hazard
- N- Sudden Release of Pressure Hazard
- Y- Reactivity Hazard
- Y- Immediate (acute) Health Hazard
- Y- Delayed (chronic) Health Hazard

### Ozone-Depleting Chemicals

No regulated ingredients.

### SARA Section 302 Extremely Hazardous Mat

No regulated ingredients.



SARA Section 313 Toxic Chemicals

No regulated ingredients.

Chemical Listing

Listed on the following Country's Chemical Inventories:

Australia                    Australian Inventory  
 Listed.  
 European Union            EINECS (Euro. Inventory of Chem. Subst.)  
 Listed.  
 Republic of Korea         Korean Inventory  
 Not listed.  
 Japan                         Japanese MITI Inventory  
 Listed.  
 United States                Toxic Substance Control Act  
 Chemical component(s) in this product are on the section 8(b) Chemical  
 Substance Inventory List (40 CFR 710).

State Right-To-Know

Pennsylvania - New Jersey R-T-K

Trimethylaluminum (CH <sub>3</sub> ) <sub>3</sub> Al	75-24-1	100
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California - California Proposition 65

No regulated ingredients.

CONEG

No data available.

Canada

This is a -controlled product- under the Canadian Workplace Hazardous  
 Materials Information System (WHMIS).  
 Class B Division 6                    Class D Division 2 Sub-division B

CEPA - NPRI

No regulated ingredients.

Canadian Chemical Inventory

Domestic Substance List

Listed.

**16. OTHER INFORMATION**

Hazard Rating		
	HMIS	NFPA
Health	3	3



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Fire	4	4
Reactivity	3	3

\* = Chronic

Product Use

Semiconductor applications

ABBREVIATIONS:

ACGIH = American Conference of Governmental Industrial Hygienists  
OSHA = Occupational Safety and Health Administration  
TLV = Threshold Limit Value  
PEL = Permissible Exposure Limit  
TWA = Time Weighted Average  
STEL = Short-Term Exposure Limit  
BAC = Butyl acetate

The information contained herein relates only to the specific material identified. Rohm and Haas Company believes that such information is accurate and reliable as of the date of this material safety data sheet, but no representation, guarantee or warranty, expressed or implied, is made as to the accuracy, reliability, or completeness of the information. Rohm and Haas Company urges persons receiving this information to make their own determination as to the information's suitability and completeness for their particular application.

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