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## TRIMETHYLALUMINUM

### 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY.

**Product Name**

Trimethylaluminum

**Formula**

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

**Company Identification**

See footer.

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

**Substance/Preparation**

Trimethylaluminum

**Components/Impurities**

None

**EC No.**

200-853-0

**CAS No.**

75-24-1

### 3. HAZARDS IDENTIFICATION

Pyrophoric liquid, decomposes violently in water. Skin contact can cause severe burns. Fumes may cause skin and eye irritation. Avoid inhalation of fumes.

### 4. FIRST AID MEASURES

Prompt medical attention is required in all cases of exposure to Trimethylaluminum and its by-products. Rescue personnel should be equipped with appropriate protective equipment (e.g. Self-contained breathing apparatus) to prevent unnecessary exposure and must be aware of the fire and explosion potential of Trimethylaluminum.

**Skin**

Contact may cause severe burns. Fumes may cause irritation. Immediately flush affected areas with large quantities of water. Remove affected clothing as rapidly as possible only if not stuck to skin.

**Eyes**

Contact may cause severe burns. Fumes may cause irritation. Persons with potential exposure to Trimethylaluminum should not wear contact lenses. Flush contaminated eyes with large quantities of water for at least 15 minutes. Hold eyelids open to ensure complete flushing.

**Inhalation**

May cause irritation. Move exposed personnel to an uncontaminated area quickly using self-contained breathing apparatus. If breathing is difficult, give oxygen. If breathing has stopped, apply artificial respiration. Medical assistance should be sought immediately. Keep victim warm and quiet.

# MATERIAL SAFETY DATA SHEET

### 5. FIRE-FIGHTING MEASURES

**Extinguishing Media**

Always use dry powder, soda ash or lime. Never use water, foam or halogenated compounds to fight fires involving organometallic materials. Without risk, stop flow of this compound to the fire. Without risk, and if safe to do so, move container(s) away from fire area.

**Exposure Hazards**

In a controlled fire any unreacted Trimethylaluminum may re-ignite when contact with air or water is renewed.

**Special Protective Equipment for Fire-Fighters**

Fire resistant clothing, self-contained breathing apparatus, face shield and safety goggles, safety shoes and fire resistant gloves.

### 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions**

Evacuate area. Use appropriate protective equipment. Purge equipment with inert gas before attempting repairs. Ensure adequate ventilation. If leak is in container call one of the emergency numbers as appropriate (See footer).

**Environmental Precautions**

Try to stop release, if safe to do so. For fire-fighting measures see Section 5.

**Clean up method**

Contact Epichem for specific advice.

### 7. HANDLING AND STORAGE

**Handling**

Valve outlet seals must remain in place unless container is secured and valve outlet piped to use point. Use a check valve or trap to prevent hazardous back flow into the container. Any equipment used for Trimethylaluminum service must be thoroughly cleaned and prepared to eliminate contamination and must be maintained in a leak-free state. All air and moisture in the system must be eliminated before use.

**Storage**

Protect containers from physical damage. Do not allow temperatures to exceed (125F) 51C. Store away from flammable material.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Exposure Controls**

**OSHA or ACGIH:**

TLV= 2 mg/m<sup>3</sup> (aluminum alkyls)

TLV(aluminum oxide)= 10 mg/m<sup>3</sup>

PEL(aluminum oxide)= 15 mg/m<sup>3</sup> (ttl dust)

PEL(aluminum oxide)= 5 mg/m<sup>3</sup> (resp. frac.)

**OES and MEL:** Long term exposure limit for aluminum alkyls: 2mg/m<sup>3</sup> (8-hour TWA reference period).

Long term exposure limit for aluminum oxides: (8-hour TWA reference period)

Total inhalable dust 10mg/m<sup>3</sup>

Respirable dust 5mg/m<sup>3</sup>

Ensure adequate ventilation.

**Personal Protection**

Self-contained breathing apparatus, fire resistant gloves, face shield and safety goggles, safety shoes, fire-resistant garments. Safety shower and eyewash.



## 9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: (261F)127C @ 760mmHg  
Vapor Pressure:  $\log_{10} P(\text{mmHg}) = 8.22-2134/T(K)$   
Freezing Point: (60F)15C  
Liquid Density: 0.752g/ml @ 20C  
Molecular Weight: 72.09 grams  
Solubility in water: Reacts violently.  
Appearance: Colorless liquid which is pyrophoric.

## 10. STABILITY AND REACTIVITY

### Conditions to avoid

Reacts pyrophorically in air. It decomposes slowly above 100°C  
**Note:** Trimethylaluminum is stable indefinitely in an inert atmosphere at room temperature.

### Materials to avoid

Avoid water, air or other oxidizers.

### Hazardous Decomposition Products

Aluminum Oxide dust, CO, CO<sub>2</sub>

## 11. TOXICOLOGICAL INFORMATION

Aluminum Oxide dust formed when this compound is oxidized has caused toxic effects to the liver and kidneys in test animals. Exposure to aluminum oxide dust (which forms when trimethylaluminum burns) is not known to be acutely toxic.

*Trimethylaluminum is not listed in the IARC, NTP or OSHA Subpart Z as a carcinogen or potential carcinogen.*

Trimethylaluminum is listed on the TSCA inventory.

## 12. ECOLOGICAL INFORMATION

This product does not contain any Class I or Class II ozone depleting chemicals.

## 13. DISPOSAL CONSIDERATIONS

Regional and National regulations should be followed during waste disposal. Contact an Epichem representative for disposal of container and any unused quantities.

## 14. TRANSPORT INFORMATION

UN No: 3051  
CLASS: 4.2 (4.3)  
PG I  
ECCN#: 3C003  
IMDG Code: 4221  
Shipping Name: Aluminum alkyls  
(Trimethylaluminum)

## 15. REGULATORY INFORMATION

### Classification

Highly Flammable, Corrosive

### Risk and Safety Phrases

R14: Reacts violently with water.

R17: Spontaneously flammable in air.

R34: Causes burns.

S16: Keep away from sources of ignition – No smoking.

S43a: In case of fire use dry powder or lime - Never use water.

S45: In case of accident or if you feel unwell seek medical advice immediately. (Show label where possible)

## 16. OTHER INFORMATION

Ensure operators understand the pyrophoric and potentially thermally unstable nature of the product. DSC data available on request. Before using this product, it is recommended that a risk assessment and safety study be carried out. Further information on the use of this product can be obtained from the Technical Product Manager at the nearest Epichem facility.

**SAFETY NOTICE:** In Order to provide our customers with the highest quality material and maintain our high standards of safety, the surface temperature of the bubbler will be monitored during the transportation of our products. We would like to monitor the surface temperature of the bubbler using a tempilabel. Tempilabel is a temperature-monitoring strip ranging from 120F to 150F (49C to 66C) which will indicate the temperature during shipment. The strip will turn black at one of the four ratings shown if the temperature is reached (normally a silver centre). If the temperature monitor is changed, please notify an Epichem representative immediately and we will assist you in the proper measures to be taken. We ask for your co-operation in our efforts of quality assurance and safety. If you have any questions or comments, please contact an Epichem representative. We thank you for your co-operation. Your assistance is greatly appreciated.

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### 24 Hour Emergency Contact Numbers:

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