



## TMAI LO

**Product description** Trimethylaluminum, low oxygen

Molecular formula :  $(\text{CH}_3)_3\text{Al}$   
 Molecular weight : 72.1  
 CAS No. : 75-24-1  
 EINECS/ELINCS No. : 200-853-0  
 TSCA status : listed on inventory

TMAI LO is used as a high quality Al precursor for the deposition of compound semiconductors which are used in applications such as light emitting diodes, laser diodes, high performance transistors and highly efficient solar cells. TMAI LO is especially synthesized to meet ultra low oxygen requirements.

**Specifications** For detailed specification please contact your AkzoNobel representative.

**Characteristics**

Appearance : clear, colorless liquid  
 Density, 30°C : 0.743 g/ml  
 Melting point : 15°C  
 Viscosity, 30°C : 0.9 mPa.s  
 Boiling point, 760 torr : 127°C  
 Stability to air : ignites upon exposure  
 Stability to water : reacts violently, may ignite upon contact

Solubility : soluble in aromatic and saturated aliphatic and cycloaliphatic hydrocarbons

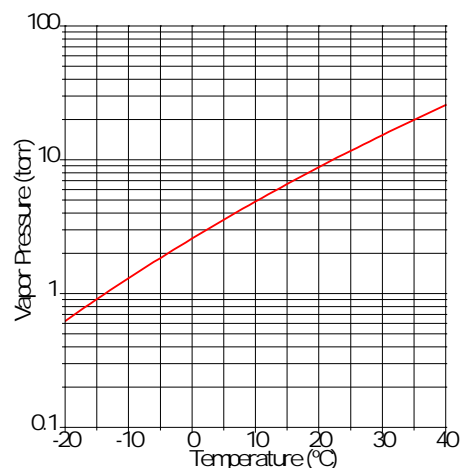
**Thermochemical properties**

Specific heat, 57°C : 2.213 J/g.°C (0.529 cal/g.°C)  
 Heat of vaporization  $\Delta H_v$  at 127°C, 1 bar : 247 J/g (59 cal/g)  
 Heat of formation  $\Delta H_f^\circ$ , 25°C, 1 bar : -151 kJ/mole (-36 kcal/mole)  
 Heat of combustion  $\Delta H_c^\circ$ , 25°C : -3180 kJ/mole (-760 kcal/mole)

**Vapor pressure**

at 10°C (283.15 K) : 4.87 torr  
 at 15°C (288.15 K) : 6.57 torr

Gas constants:  $\log P(\text{torr})=B-A/T(\text{K})$   
 A : 2134  
 B : 8.224



## Storage

TMAI LO is stable when stored under a dry, inert atmosphere and away from heat. CAUTION: TMAI LO may undergo exothermic decomposition with gas evolution at elevated temperatures (see section on Safety and handling).

## Packaging and transport

Containers are fabricated from stainless steel with an electropolished internal finish and are equipped with dip tube for top discharge and diaphragm valves. The diaphragm valves are equipped with metal gasket face seal connections such as Swagelok® VCR®.

For more information please refer to our Cylinder Offerings leaflet, available at [www.akzonobel.com/hpmo](http://www.akzonobel.com/hpmo). Both packaging and transport meet the international regulations.

TMAI LO is classified as Organometallic substance, liquid, pyrophoric, water-reactive; Class 4.2; UN 3394; PG I.

## Safety and handling

TMAI LO ignites upon exposure to air and reacts violently with water. Water must be scrupulously removed from process equipment prior to putting it into metal alkyls service. Failure to do so may result in an explosion. If heated above 120°C (248°F), TMAI LO will undergo exothermic decomposition with evolution of flammable gas. Products of complete combustion of TMAI LO are aluminum oxide, carbon dioxide and water. TMAI LO causes severe burns to the skin and eyes. It is imperative that proper personal protective equipment be worn when handling TMAI LO.

Please refer to the Material Safety Data Sheet (MSDS) for further information on the safe storage, use and handling of TMAI LO. This information should be thoroughly reviewed prior to acceptance of this product.

The MSDS is available at [www.akzonobel.com/hpmo](http://www.akzonobel.com/hpmo).

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