

Product Data Sheet

TMAI LO

Product description Trimethylaluminum, low oxygen

Molecular formula	: (CH ₃) ₃ 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

AkzoNobel uses leading edge processes, purification and transfilling techniques that ensure the repeatable and consistent delivery of our TMAI LO in each cylinder that we supply. We apply state of the art techniques such as ICP-OES for trace metal analysis to meet your demands. Please contact us for detailed sales specifications.

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

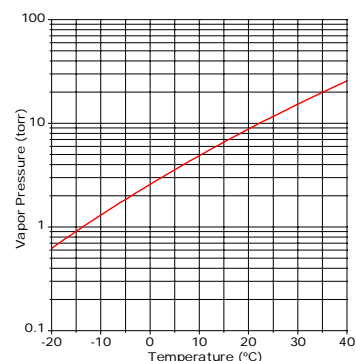
Thermochemical properties

Specific heat, 57°C	: 2.213 J/g.°C (0.529 cal/g.°C)
Heat of vaporization ΔH_v at 127°C, 1 bar	: 247 J/g (59 cal/g)
Heat of formation ΔH_f° , 25°C, 1 bar	: -151 kJ/mole (-36 kcal/mole)
Heat of combustion ΔH_c° , 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: $\log P(\text{torr})=B-A/T(K)$
 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. 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.

Swagelok and VCR are registered trademarks of Swagelok Company.

All information concerning this product and/or suggestions for handling and use contained herein are offered in good faith and are believed to be reliable. AkzoNobel Functional Chemicals, however, makes no warranty as to accuracy and/or sufficiency of such information and/or suggestions, as to the product's merchantability or fitness for any particular purpose, or that any suggested use will not infringe any patent. Nothing contained herein shall be construed as granting or extending any license under any patent. Buyer must determine for himself, by preliminary tests or otherwise, the suitability of this product for his purposes. The information contained herein supersedes all previously issued bulletins on the subject matter covered. The user may forward, distribute, and/or photocopy this document only if unaltered and complete, including all of its headers and footers, and should refrain from any unauthorized use. You may not copy this document to a website.

AkzoNobel Functional Chemicals
Amersfoort, The Netherlands
T +31 33 467 6767
F +31 33 467 6151
E metalorganicsEU@akzonobel.com

AkzoNobel Functional Chemicals
Chicago, U.S.A.
T +1 312 544 7000
1 800 828 7929 (Toll free US only)
F +1 312 544 7188
E metalorganicsNA@akzonobel.com

Akzo Nobel (Asia) Co., Ltd.
Shanghai, PR China
T +86 21 2220 5000
F +86 21 2220 5558
E metalorganicsAP@akzonobel.com

www.akzonobel.com/hpmo