

## Product Data Sheet

# TMAI SSG

**Product description** Trimethylaluminum, select semiconductor grade

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 SSG 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 SSG is also used in CVD processes in the Si-semiconductor industry.

### Specifications

AkzoNobel uses leading edge processes, purification and transfilling techniques that ensure the repeatable and consistent delivery of our TMAI SSG 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

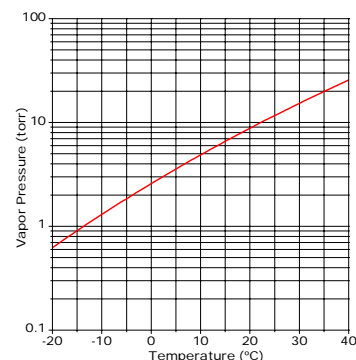
Specific heat, 57°C	: 2.213 J/g.°C (0.529 cal/g.°C)
Heat of vaporization $\Delta H_v$ at 127°C, 1 bar	: 247 J/g (59 cal/g)
Heat of formation $\Delta H_f^\circ$ , 25°C, 1 bar	: -151 kJ/mole (-36 kcal/mole)
Heat of combustion $\Delta H_c^\circ$ , 25°C	: -3180 kJ/mole (-760 kcal/mole)

### Vapor pressure

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

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

A	: 2134
B	: 8.224



## Storage

TMAI SSG is stable when stored under a dry, inert atmosphere and away from heat. CAUTION: TMAI SSG 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/hpmpo](http://www.akzonobel.com/hpmpo). Both packaging and transport meet the international regulations.

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

## Safety and handling

TMAI SSG 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 SSG will undergo exothermic decomposition with evolution of flammable gas. Products of complete combustion of TMAI SSG are aluminum oxide, carbon dioxide and water. TMAI SSG causes severe burns to the skin and eyes. It is imperative that proper personal protective equipment be worn when handling TMAI SSG.

Please refer to the Material Safety Data Sheet (MSDS) for further information on the safe storage, use and handling of TMAI SSG. This information should be thoroughly reviewed prior to acceptance of this product. The MSDS is available at [www.akzonobel.com/hpmpo](http://www.akzonobel.com/hpmpo).

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AkzoNobel Functional Chemicals  
Amersfoort, The Netherlands  
T +31 33 467 6767  
F +31 33 467 6151  
E [metalorganicsEU@akzonobel.com](mailto: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](mailto: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](mailto:metalorganicsAP@akzonobel.com)

[www.akzonobel.com/hpmpo](http://www.akzonobel.com/hpmpo)