

## Dichloro(dimethyl)silane

*This document is a high-level summary intended to provide the general public with an overview of product safety for this substance. It is not intended to replace the Material Safety Data Sheet (MSDS), which is available from suppliers and should be referred to for full details of recommended safety procedures for each type of use. It is not intended to replace or supersede manufacturer's instructions and warnings for their consumer products containing this substance.*

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*An additional document for the safe handling of chlorosilanes can be found at: <http://www.silicones-safety.eu/files/Chlorosilanes%20Manual%2022082003.pdf>*

### Substance Name and Chemical Identity

Chemical Name:  
Dichloro(dimethyl)silane

CAS Number:  
75-78-5

Molecular formula:  
 $C_2H_6Cl_2Si$

### Uses and Applications

Dichloro(dimethyl)silane is a linear organic silicon substance that has been used in the following applications:

- Use as a monomer ('building block') in the production of silicone polymers. Silicone polymers may be oils, greases, rubbers and resins, and have a wide range of uses.
- Use as an intermediate (starting material) in the production of other organic and inorganic chemicals.
- Use in the production of surface-modified particles or substrates (non-metal surface treatment).

The substance is not suitable for use by the general public. The applications described should take place in industrial settings under highly controlled conditions. Although the end uses of products made from dichloro(dimethyl)silane will vary, due to its highly reactive nature, no residual unreacted material is expected to be present in any of the final products.

Dichloro(dimethyl)silane is also used in the electronics industry for the production of ultra-pure polysilicon in the manufacture of semiconductors and photovoltaics.

In non-metal surface treatment, dichloro(dimethyl)silane is used to modify the surface or particles of amorphous silica before it is sold or further processed for use in applications such as paint, sealants and adhesives.

## Physical/Chemical Properties

Dichloro(dimethyl)silane is a highly volatile and highly flammable liquid with a low boiling point. It reacts violently with water, rapidly breaking down to dimethylsilanediol and hydrochloric acid. The substance is classified under the EU Globally Harmonized System (GHS) as adopted by the European Union as:

- Flammable Liquid Category 2; 'H225: Highly flammable liquid and vapor'

In the EU, an additional hazard statement also applies:

- 'EUH014: Reacts violently with water'

Property	Value
Physical state	Liquid
Color	Clear
Odor	Odorless
Molecular weight	129.06 g/mol
Melting/boiling point	-76°C/70°C
Density	1.07 g/cm <sup>3</sup>
Vapor pressure	14600–18100 Pa at 20°C
Flammability	Highly flammable
Flash point	-10–1°C at 101.3 kPa
Self-ignition temperature	425 – >500°C at 101.3 kPa
Explosive properties	Not explosive

## Health Information

Dichloro(dimethyl)silane is classified under the EU Globally Harmonized System (GHS) as:

- Acute Toxic Category 4 (Oral); 'H302: Harmful if swallowed'
- Acute Toxic Category 3 (Vapor); 'H331: Toxic if inhaled'
- Skin Corrosion Category 1A; 'H314: Causes severe skin burns and eye damage'
- 'EUH071: Corrosive to the respiratory tract'

## Environmental Information

Dichloro(dimethyl)silane is not classified for environmental effects under the EU Globally Harmonized System (GHS).

## Exposure Potential

**Consumer exposure:** There are no consumer uses of dichloro(dimethyl)silane. It is expected that there is no residual dichloro(dimethyl)silane in end-products manufactured using the substance.

**Workplace exposure:** This refers to potential for worker exposure at manufacturing sites or industrial workplaces. Due to the corrosive and highly flammable nature of the substance, all aspects of dichloro(dimethyl)silane handling, including on-site storage and transfer, should be subject to highly controlled conditions. Further details are given in the Safety Data Sheet and CES Guidance Document on safe handling.

### Environmental releases:

Manufacturing should occur under controlled conditions, with only very small releases to air and wastewater. Environmental exposure can be minimized by applying appropriate air and wastewater abatement technologies to remove unreacted substance and reaction products. The use of appropriate measures to manage environmental release is described in the Safety Data Sheet and CES Guidance Document on safe handling.

## Risk Management Recommendations

**Consumer and professional risk management:** There are no expected consumer or professional uses of this substance.

### Industrial risk management:

Users must review carefully the Safety Data Sheet and the chlorosilanes safe handling document for information on protecting workers and limiting environmental exposure at industrial sites. In summary, when using this chemical, there must be adequate ventilation. Suitable respiratory protection must be worn if the product is handled in large quantities in confined spaces. Chemical-resistant clothing and gloves, and safety glasses or other suitable eye protection must be worn. Avoid sources of ignition and keep containers tightly closed, in a dry and cool place.

## Conclusions

Dichloro(dimethyl)silane should be used only under highly controlled conditions at industrial sites. The manufacturing and use of dichloro(dimethyl)silane does not pose a significant risk to humans or the environment if instructions in the Safety Data Sheet and applicable legal requirements are followed.

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MOM-114 9/12 Printed in U.S.A.

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