

Potassium methylsilanetriolate

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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Substance Name and Chemical Identity

Chemical Name:
Potassium methylsilanetriolate

CAS Number:
31795-24-1

Molecular formula:
 $\text{CH}_6\text{O}_3\text{Si}\cdot x\text{K}$

Uses and Applications

Potassium methylsilanetriolate is a salt of an organic silicon substance that has been used in the following applications:

- 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).
- Use in coatings and paints.
- Use in masonry treatment applications.
- Use as a laboratory chemical.

The substance is used as an intermediate in the production of other chemicals in an industrial setting under highly controlled conditions. In non-metal surface treatment, potassium methylsilanetriolate is used to modify the surface of a wide range of materials. In coatings and paints the substance is combined with water glass (potassium silicate), minerals and other fillers. In masonry treatment products, potassium methylsilanetriolate serves as the active ingredient in water-repellent treatments for external and internal masonry surfaces. Potassium methylsilanetriolate is consumed in use and it is expected that no residual unreacted material will be present in the final treated articles. Therefore, although there are various different end uses associated with its life cycle, it is not present in articles or end-of-life wastes.

Physical/Chemical Properties

The commercial form of potassium methylsilanetriolate is a corrosive, non-flammable liquid (aqueous solution) with low volatility. The substance consists of different silanol species and potassium hydroxide, which is only stable as an aqueous solution. The substance is not classified for hazardous physicochemical properties under the EU Globally Harmonized System (GHS).

Property	Value
Physical state	Liquid
Color	Colorless to yellowish
Odor	Slight
Molecular weight	132.23 g/mol
Melting/boiling point	n/a
Density	1.3–1.4 g/cm ³ at 25°C (aqueous solution)
Vapor pressure	n/a
Flammability	Non flammable
Flash point	n/a
Self-ignition temperature	>600°C at 101.3 kPa
Explosive properties	Not explosive

Health Information

Potassium methylsilanetriolate is classified for human health hazards under the EU Globally Harmonized System (GHS) as:

- Skin Corrosion Category 1A;
'H314: Causes severe skin burns and eye damage'
- Eye Damage Category 1;
'H318: Causes serious eye damage'

Environmental Information

Potassium methylsilanetriolate is not classified for environmental effects under the EU Globally Harmonized System (GHS).

Exposure Potential

Professional and consumer

exposure: Techniques used by both professionals and consumers of masonry treatment products include intimate hand mixing and application by brushing or rolling, and for professionals occasionally non-industrial spraying.

Workplace exposure: This refers to potential for worker exposure at manufacturing sites or industrial workplaces. Due to the corrosive nature of the substance, all aspects of potassium methylsilanetriolate handling, including on-site storage and transfer, should be subject to highly controlled conditions. Further details are given in the Safety Data Sheet.

Environmental releases:

Manufacturing occurs under controlled conditions, with only very small releases to air and wastewater expected. Environmental exposure is minimized by applying 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.

Risk Management Recommendations

Consumer risk management:

The substance should be limited to product concentration of 4% in masonry products for application by brushing or rolling by consumers. Use of safety protective gloves and clothing is be recommended.

Professional risk management:

For professional use, worker training and appropriate personal protective equipment (such as gloves, chemical resistant clothing and eye protection) must be implemented. Appropriate respiratory protection should be worn when required for spraying applications.

Industrial risk management: For more detailed information please refer to the Safety Data Sheet on protecting workers and limiting environmental exposure at industrial sites. In summary, when using this chemical, chemical-resistant clothing and gloves, and safety glasses or other suitable eye protection must be worn. Keep containers tightly closed, in a dry and cool place.

Conclusions

In consumer and professional use potassium methylsilanetriolate is present at relatively low concentrations. At industrial sites the substance is used only under highly controlled conditions, where the manufacturing and use of the substance 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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