GPS Safety Summary

Substance Name:

Sodium methanethiolate

1. General Statement

Sodium Methanethiolate is marketed as aqueous solutions which are colourless liquids with a stinging odour. They are used as a chemical intermediate under strictly controlled conditions. Products containing sodium Methanethiolate are commercially available to industrial customers only.

Flammable product, harmful if swallowed and corrosive to the skin and eyes, the solutions containing this substance must be carefully handled and stored to preserve human health and environment.

2. Chemical Identity

Name:	Sodium Methanethiolate
Brand names:	Sodium Methylmercaptide aqueous 21%, Sodium Methylmercaptide aqueous 33%
Chemical name (IUPAC):	Sodium METHANETHIOLATE
CAS number(s):	5188-07-8
EC number:	225-969-9
Molecular formula:	$CH_4S.Na$
Structure:	

3. Use and applications

Sodium Methylmercaptyde can replace Methylmercaptan in most applications and is used as thiomethylation agent in the pharmaceutical and agrochemical industry.

4. Physical / Chemical properties

Property	Value
Physical state	Crystalline solid at 20°C and 1013 hPa for the anhydrous form Liquid at 20°C and 1013 hPa for the 21% and 33% solutions
Colour	Clear
Odour	Stinging
Density	21% Solution: 1,12 at 20°C 33% Solution: 1,203 at 20°C

Vapour pressure	21% Solution: 2900 Pa at 25°C 33% Solution: 2200 Pa at 20°C
Freezing / boiling points	21% Solution: -12°C at 1013hPa 33% Solution: -14°C at 1013hPa No boiling point as the substance decomposes on heating.
Flammability	Flammable liquid
Flash point	21% Solution: 30°C (closed cup) 33% Solution: 50°C (closed cup)
Self-ignition temperature	>400°C at 1017 hPa
Explosive properties	Not explosive due to chemical structure
Oxidizing properties	Not oxidising due to chemical structure
Water solubility	Completely soluble
Octanol-water partition coefficient (Log K_{ow})	-2.33 at 20°C (calculated)

5. Health Effects

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	The solutions are harmful by the oral route. There is a risk of toxic effects by skin contact
Irritation / corrosion Skin / eye/ respiratory tract	Cause severe skin burns and eye damage
Sensitisation	Not sensitiser
Toxicity after repeated exposure Oral / inhalation / dermal	A slight anaemia was observed after repeated oral administration to laboratory animals
Genotoxicity / Mutagenicity	Not genotoxic
Carcinogenicity	This information is not available
Reproductive / Developmental toxicity	No effect on the reproduction was observed after repeated oral administration to laboratory animals

6. Environmental Effects

Effect Assessment	Result
Aquatic Toxicity	Toxic to aquatic organisms

Fate and behaviour	Result
Biodegradation	Readily biodegradable
Bioaccumulation potential	Not expected to bioaccumulate
PBT / vPvB conclusion	Not considered to be either PBT or vPvB

7. Exposure

7.1 Human health

The most likely route of human exposure (workers) to sodium methanethiolate is through inhalation and/or to a much lesser extent dermal contact. In industrial settings, ingestion is not an anticipated route of exposures.

Solutions of 21% and 33% sodium methanethiolate are industrially manufactured and used within closed systems, under controlled conditions, thus minimizing the occupational exposure potential.

Procedures, controls, collective and personal risk management measures to limit occupational exposure must be in place. Workers who might accidentally come into contact with the undiluted substance should follow the safety measures recommended in the Safety Data Sheet.

When used under these controlled conditions as recommended in the Safety Data Sheet, exposure is negligible and thus risks acceptable.

For more information about conditions recommended, refer to the safety data sheet.

7.2 Environment

Based on its physico-chemical properties, sodium methanethiolate is completely soluble in water, and upon addition in water, it dissociates to methanethiolate anion and sodium cation. The substance is readily biodegradable and does not have a potential for bioaccumulation.

Sodium methanethiolate is industrially manufactured and used in closed systems in a continuous or batch process and consumed when used as an intermediate, minimizing release to the environment.

Procedures, controls and risk management measures to limit environmental releases must be in place.

When used as recommended in the Safety Data sheet, emissions to the environment are negligible and thus risks are acceptable.

More information about release measures and accidental release measures are available in the safety data sheet.

8. Risk Management recommendations

<table>
<tr><th colspan="3">Human health measures</th></tr>
<tr><td>Organizational</td><td colspan="2">Implement high standards of occupational hygiene.
Hygiene measures must be respected and incompatible materials must be clearly identified.
Ensure operatives are well informed of the hazards and trained to minimize exposures.
Maintain clear and up-to-date handling procedures and control their application.
Collect the latest available Safety Data Sheet.
Handle and store according to the indications of the Safety Data Sheet.</td></tr>
<tr><td rowspan="4">Protection</td><td>Eye/Face protection:</td><td>Safety glasses, face-shield</td></tr>
<tr><td>Skin protection:</td><td>Combination with delayed penetration</td></tr>
<tr><td>Hand protection:</td><td>Neoprene gloves</td></tr>
<tr><td>Respiratory protection:</td><td>In case of insufficient ventilation, wear suitable respiratory equipment</td></tr>
</table>

Engineering controls	Provide appropriate exhaust ventilation at machinery. Ensure that eyewash stations and safety showers are close to workstation locations. *When Strictly Controlled Conditions apply:* Manufacture and use in rigorously contained (closed) systems. Use material of high integrity for loading and unloading. Routine monitoring and inspections for leaks to reduce fugitive emissions. Investigate engineering techniques to reduce exposures.
Environmental protective measures	
Do not release into the environment. Do not let product enter drains. Use techniques to minimize emissions (incineration or any treatment to minimize level of release). Destroy by incineration in accordance with local and national regulations.	

9. Regulatory Information / Classification and Labelling

9.1 Regulatory Information

This substance has been registered under:

- EU Regulation EC 1907/2006 (REACH)

This substance is listed on inventories in the USA, in Canada, in Japan, in Korea, in Philippines and in China.

9.2 Classification and labelling

Under GHS substances are classified according to their physical, health, and environmental hazards. The hazards are communicated via specific labels and the safety data sheet. GHS attempts to standardize hazard communication so that the intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use. Substances registered for REACH are classified according to CLP (EC) 1272/2008, implementation of the GHS in the European Union.

Classification	
According to REGULATION (EC) no 1272/2008: – Flammable liquids, cat.3 – Oral, Acute toxicity, cat. 4 – Skin corrosion, cat. 1A – Serious eye damage, cat. 1	
Signal Word	
Danger	
Pictogram	
– GHS02: Flame	
– GHS07: Exclamation mark	

– GHS05: Corrosion	
Hazard statement	
– H226: Flammable liquid and vapours – H302: Harmful if swallowed – H314: Causes severe skin burns and eye damage	
Additional classification according to Globally Harmonized System (GHS)	
– Aquatic acute, cat 2 (H401 : Toxic to aquatic life)	

10. Contact Information within Company

For further information on this substance or product safety summary in general, please contact:

- Arkema web site : on the product page, an actualised contact name is provided
  http://www.arkema.com
- **ICCA portal where the GPS Safety Summary is posted**:
  http://www.icca-chem.org/en/Home/ICCA-initiatives/global-product-strategy/

11. Date of Issues / Revision

- Date of issue: 26/11/2014
- Date of revision:

12. Disclaimer

The information contained in this paper is intended as advice only and whilst the information is provided in utmost good faith and has been based on the best information currently available, is to be relied upon at the user's own risk.

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