

GPS Safety Summary

Substance Name:

Methanesulphonic acid

1. General Statement

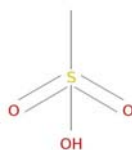
Methanesulphonic acid is a colourless liquid organic compound. Methanesulphonic acid (MSA) is a naturally occurring simple organic acid that is part of the global sulphur cycle. It is produced in the atmosphere from the chemical oxidation of atmospheric dimethyl sulphide and deposited on the earth in rain and snow, and by dry deposition. It is manufactured at industrial scale either as an anhydrous acid or diluted in water and used as a component in a large number of products for industrial, professional and consumer use.

Corrosive to metal, harmful if swallowed and in contact with skin, corrosive to skin, causing eye damage and irritant to the respiratory tract, this substance is a strong acid that must be carefully handled under stringent safety conditions in accordance with the risk management measures to keep the exposure as low as possible to preserve human health and environment. Methanesulphonic acid is readily biodegradable in the environment.

Methanesulphonic acid is formulated in suitable concentrations for consumer applications, according to appropriate regulations, to ensure safe use of the final product in the conditions of use written on the product packaging.

2. Chemical Identity

Name:	Methanesulphonic acid
Brand names:	MSA
Chemical name (IUPAC):	Methanesulfonic acid
CAS number(s):	75-75-2
EC number (optional):	200-898-6
Molecular formula (optional):	CH ₄ O ₃ S
Structure (optional):	



3. Use and applications

The anhydrous methanesulphonic acid is used in fine chemical synthesis as solvent (rearrangement and condensation reactions), catalyst or to produce mesylates (amines salification).

Methanesulfonic acid diluted in water is widely used as a catalyst (esterification, alkylation, ...) and is an interesting substitute for organic and inorganic strong acids in various applications (descaling products, cleaning products for industrial, professional and consumer use).

4. Physical / Chemical properties

Property	Value
Physical state	Liquid at 20°C and 1013 hPa
Colour	Light yellow
Molecular weight	96.1057 g/mol
Density	1.48 at 20°C
Vapour pressure	0.000475 hPa at 20°C
Melting point	20°C at 1013 hPa
Boiling point	167°C at 13.3 hPa Decomposition (> 215°C) before boiling at normal atmospheric pressure
Flammability	Not flammable
Flash point	189°C at 1013.25 hPa(closed cup)
Self-ignition temperature	535°C at 1010 hPa
Explosive / oxidizing properties	Not relevant due to the chemical structure
Water solubility	1000 g/L at 20°C (miscible)
Octanol-water partition coefficient (Log K _{ow})	-2.38 at 20°C (expert statement)
Dissociation constant (pK _a)	-1.86
Viscosity	11.6 mPa.s at 25°C

5. Health Effects

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	Harmful by oral and dermal routes. Low toxicity by inhalation route at saturated vapour concentrations.
Irritation / corrosion Skin / eye/ respiratory tract	Corrosive to the skin and eyes. Irritant for the respiratory tract.
Sensitisation	Not a skin sensitizer.
Toxicity after repeated exposure Oral / inhalation / dermal	No relevant systemic toxicity following repeated inhalation exposure.
Genotoxicity / Mutagenicity	No evidence of genetic toxicity.
Carcinogenicity	Not suspected to have a carcinogenic potential.
Reproductive / Developmental Toxicology	No evidence of toxicity for reproduction.

6. Environmental Effects

Effect Assessment	Result
Aquatic Toxicity	Harmful to aquatic organisms

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

*: Persistent, Bioaccumulative and Toxic (PBT)

** : very Persistent and very Bioaccumulative (vPvB)

7. Exposure

7.1 Human health

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

The probability of exposure to workers is expected to be low because on manufacturing, formulation and application site, enclosed controlled environment are used and the product is transported in well sealed containers. However, workers may be exposed during (un)loading, mixing, sampling, analysis and maintenance operations and particularly in case of batch processes. The exposure must be kept as minimum as possible by the use of appropriate risk management measures as suitable collective and personal protective equipment, good industrial hygiene practices and risk communication through appropriate training of workers.

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

Consumers are likely to come into contact with methanesulphonic acid when using certain types of products like cleaners and maintenance products. Methanesulphonic acid is formulated to comply with requirements of the most stringent regulations for all applicable consumer uses to ensure that the final products are used safely in the conditions of use written on the packaging.

7.2 Environment

Based on its physico-chemical properties, methanesulphonic acid is completely soluble in water. It has a low potential for volatility and bioaccumulation and is readily biodegradable. It would be expected to partition predominantly into aquatic compartment and not to adsorb on soil or sediment particles. In addition it is not persistent.

Care should be taken to avoid releases of this product to sewage, drainage systems and water bodies. Spillage should be quickly collected in the event of an accidental release. More information about release measures and accidental release measures are available in the extended safety data sheet.

8. Risk Management recommendations

Human health measures		
Organizational	Implement a good basic standard of occupational hygiene, Ensure operatives are well informed of the hazards and trained to minimize exposures, Hygiene measures must be respected and incompatible materials must be clearly identified.	
Protection	Eye/Face protection:	Safety glasses with side-shields. Face-shield.
	Skin protection:	Combination with delayed penetration.

	Hand protection:	Splashes: gloves nitrile rubber (complying with EN 374), glove thickness: 0.12 mm Intermittent contact/prolonged contact: gloves nitrile rubber (complying with EN 374), glove thickness: 0.85 mm
	Respiratory protection:	<i>Low concentration or short activity:</i> suitable respiratory equipment <i>High concentrations or prolonged activity:</i> self contained breathing apparatus.
Engineering controls	Ensure sufficient air exchange and/or exhaust in work area. Ensure that eyewash stations and safety showers are close to workstation locations.	

Environmental protective measures
<ul style="list-style-type: none"> – Do not release into the environment. – Do not let product enter drains. – Eliminate 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)

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 eSDS. 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 CLP (EC) 1272/2008, implementation of the GHS in the European Union.

Classification	
According to REGULATION (EC) no 1272/2008:	
<ul style="list-style-type: none"> – Metal corrosion cat. 1 – Oral: Acute toxicity cat. 4 – Dermal: Acute toxicity cat. 4 – Skin corrosion cat. 1B – Eye damage cat. 1 – Specific Target Organ Toxicity – Single Exposure cat. 3 	
Signal Word	
– Danger	
Pictogram	
– GHS05: corrosion	

<ul style="list-style-type: none"> — GHS07: exclamation mark 	
Hazard statement	
<ul style="list-style-type: none"> — H290: May be corrosive to metals — H302: Harmful if swallowed — H312: Harmful in contact with skin — H314: Causes severe skin burns and eye damage — H335: May cause respiratory irritation 	
Alternative classification according to Globally Harmonized System (GHS)	
Acute aquatic toxicity cat.3 (H402: Harmful 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: 2014/07/31
- Date of revision:

12. Disclaimer

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