

Following ingestion

Rinse mouth. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

no data available

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Absorption, Distribution and Excretion

Dairy cows /were fed/ cottonseed ration containing maa. the maa had no effect on cows, with very little residue accumulating in tissues or milk. the maa appeared to be poorly absorbed from intestinal tract & was rapidly excreted in urine.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

In case of fire in the surroundings, use appropriate extinguishing media.

5.2 Specific hazards arising from the chemical

Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.

5.3 Special protective actions for fire-fighters

In case of fire in the surroundings, use appropriate extinguishing media.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Separated from strong bases and food and feedstuffs. Dry. Store in an area without drain or sewer access.SOLID FORMULATIONS ARE SOMEWHAT HYGROSCOPIC & SHOULD BE STORED IN DRY PLACE.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles or eye protection in combination with breathing protection if powder.

Skin protection

Protective gloves.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Solid
Colour	Monoclinic, spear-shaped plates from absolute alcohol
Odour	no data available
Melting point/freezing point	161Å°C
Boiling point or initial boiling point and boiling range	393.3Å°C at 760mmHg
Flammability	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	no data available
Flash point	205.8Å°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	Soluble in ethanol
Partition coefficient n-octanol/water	no data available
Vapour pressure	<7.5X10-8 mm Hg @ 25 deg C
Density and/or relative density	no data available
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Decomposes on heating. This produces toxic fumes of arsenic oxides (see ICSC 0378). The solution in water is a medium strong acid.

10.2 Chemical stability

STABLE

10.3 Possibility of hazardous reactions

Decomposes on heating. This produces toxic fumes of arsenic oxides (see ICSC 0378). The solution in water is a medium strong acid.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /arsenic/.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 961 mg/kg
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance is mildly irritating to the eyes, skin and respiratory tract. Ingestion could cause gastroenteritis. Medical observation is indicated.

STOT-repeated exposure

The substance may have effects on the kidneys and liver. This may result in impaired functions. This substance is carcinogenic to humans.

Aspiration hazard

A harmful concentration of airborne particles can be reached quickly when dispersed.

SECTION 12: Ecological information**12.1 Toxicity**

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

The metabolism of maa to inorganic arsenic is the main mechanism of herbicide degradation... the assoc of herbicidal breakdown with the general microbiological activity suggests that the oxidation of maa /methanearsonic acid/ occurred coincidentally with the metab of soil org matter. on the other hand, both norfolk loamy sand samples (with & without organic matter added) showed an increased dsma /disodium salt of maa/ decomposition relative to soil organic matter. this suggested an adaptation of the microbial population to metabolize the methyl carbon of maa. /investigators/...exam the degradation of msma /monosodium salt of maa/ on 4 soils. they concluded that soil microorganisms appeared to play some role in the decomposition process. a fungus, several actinomycetes, & several bacteria were isolated using soil enrichment techniques. the organisms degraded 3, 13 or 9, & 20% of the msma in 11 days, respectively. however, in the absence of an energy source, microbial metabolism of the organic arsenical was nonexistent. the products of metabolism were carbon dioxide & arsenate. no arsenite could be detected.

12.3 Bioaccumulative potential

In aquatic model ecosystem testing bioaccumulation & distribution of (14)c-methanearsonic acid, bioaccumulation ratios for daphnids, gambusia, algae & crayfish were 5, 127, 34, & 5, respectively. bioaccumulation ratio values declined for crayfish & catfish when removed from (14)c-methanearsonic acid exposure to untreated water. (14)c was found @ higher % rate in residue of exptl organisms than (74)as-arsenate.

12.4 Mobility in soil

no data available

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations**13.1 Disposal methods****Product**

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information**14.1 UN Number**

ADR/RID: UN2759 (For reference only, please check.) IMDG: UN2759 (For reference only, please check.) IATA: UN2759 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: ARSENICAL PESTICIDE, SOLID, IMDG: ARSENICAL PESTICIDE, SOLID, IATA: ARSENICAL PESTICIDE, SOLID, TOXIC (For reference only, please check.) TOXIC (For reference only, please check.) TOXIC (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.)

IMDG: 6.1 (For reference only, please check.)

IATA: 6.1 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: I (For reference only, please check.) IMDG: I (For reference only, please check.) IATA: I (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: Yes

IMDG: Yes

IATA: Yes

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Methylarsonic acid	Methylarsonic acid	124-58-3	204-705-6
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Not Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Not Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Not Listed.
Vietnam National Chemical Inventory			Not Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Not Listed.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019

Revision Date July 15, 2019

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

Do NOT take working clothes home. Depending on the degree of exposure, periodic medical examination is suggested. The recommendations on this card also apply to monosodium methanarsonate and disodium methanarsonate.