# SECTION 1: Identification

## 1.1 GHS Product identifier

**Product name** Arsenic acid

## 1.2 Other means of identification

**Product number** -
**Other names** scorch;zotox;ARSENATE

## 1.3 Recommended use of the chemical and restrictions on use

**Identified uses** Intermediates
**Uses advised against** no data available

# SECTION 2: Hazard identification

## 2.1 Classification of the substance or mixture

Acute toxicity - Category 3, Oral
Acute toxicity - Category 3, Inhalation
Carcinogenicity, Category 1A
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

## 2.2 GHS label elements, including precautionary statements

**Pictogram(s)**

**Signal word** Danger

**Hazard statement(s)**
H301 Toxic if swallowed
H331 Toxic if inhaled
H350 May cause cancer
H400 Very toxic to aquatic life
H410 Very toxic to aquatic life with long lasting effects

**Precautionary statement(s)**

**Prevention**
P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P203 Obtain, read and follow all safety instructions before use.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P273 Avoid release to the environment.

**Response**
P301+P316 IF SWALLOWED: Get emergency medical help immediately.
P321 Specific treatment (see ... on this label).
P330 Rinse mouth.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P316 Get emergency medical help immediately.
P318 IF exposed or concerned, get medical advice.
P391 Collect spillage.

**Storage**
P405 Store locked up.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.

**Disposal**
P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

## 2.3 Other hazards which do not result in classification

no data available

# SECTION 3: Composition/information on ingredients

## 3.1 Substances

| Chemical name | Common names and synonyms | CAS number | EC number | Concentration |
|---|---|---|---|---|
| Arsenic acid | Arsenic acid | 7778-39-4 | 231-901-9 | 100% |

# SECTION 4: First-aid measures

## 4.1 Description of necessary first-aid measures

**If inhaled**

Fresh air, rest. Refer for medical attention.

**Following skin contact**

Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention .

**Following eye contact**

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

**Following ingestion**

Rinse mouth. Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Rest. Refer for medical attention .

### 4.2 Most important symptoms/effects, acute and delayed

Excerpt from ERG Guide 154 [Substances - Toxic and/or Corrosive (Non-Combustible)]: TOXIC; inhalation, ingestion or skin contact with material may cause severe injury or death. Contact with molten substance may cause severe burns to skin and eyes. Avoid any skin contact. Effects of contact or inhalation may be delayed. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution. (ERG, 2016)
Ingestion cuases irritation of stomach, weakness, other gastrointestinal symptoms. Overdose can cause arsenic poisoning, but symptoms are delayed. (USCG, 1999)

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

**Absorption, Distribution and Excretion**

Systemic toxic effects have resulted from occupational accidents when arsenic acid ... splashed on workers, indicating that the skin is possible route of absorption for arsenic.

## SECTION 5: Fire-fighting measures

### 5.1 Suitable extinguishing media

Personnel protection: ... Wear positive pressure self contained breathing apparatus when fighting fires involving arsenic acid. Arsenic acid solution; arsenic acid, solid

### 5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 154 [Substances - Toxic and/or Corrosive (Non-Combustible)]: Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Some are oxidizers and may ignite combustibles (wood, paper, oil, clothing, etc.). Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated. For electric vehicles or equipment, ERG Guide 147 (lithium ion batteries) or ERG Guide 138 (sodium batteries) should also be consulted. (ERG, 2016)
Excerpt from ERG Guide 154 [Substances - Toxic and/or Corrosive (Non-Combustible)]: Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Some are oxidizers and may ignite combustibles (wood, paper, oil, clothing, etc.). Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated. For electric vehicles or equipment, ERG Guide 147 (lithium ion batteries) or ERG Guide 138 (sodium batteries) should also be consulted. (ERG, 2016)

### 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

Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in sealable plastic containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

### 6.2 Environmental precautions

Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in sealable plastic containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

### 6.3 Methods and materials for containment and cleaning up

Prompt cleanup and removal are necessary. Control runoff and isolate discharged material for proper disposal.

## 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

Store in an area without drain or sewer access. Separated from strong oxidants, strong bases, metals, strong reducing agents and food and feedstuffs. Do NOT store or transport in containers made from aluminium, copper, iron or zinc.Protect container against physical damage. Store in well ventilated area away from food or food products and combustible materials. Inorganic arsenic cmpd

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

**Occupational Exposure limit values**

TLV: (as As): 0.01 mg/m3, as TWA; A1 (confirmed human carcinogen); BEI issued.MAK: skin absorption (H); carcinogen category: 1; germ cell mutagen group: 3A

**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 face shield.

**Skin protection**

Protective gloves. Protective clothing.

**Respiratory protection**

Use closed system or ventilation.

**Thermal hazards**

no data available

## SECTION 9: Physical and chemical properties and safety characteristics

| | |
|---|---|
| **Physical state** | Liquid. |
| **Colour** | WHITE TRANSLUCENT CRYSTALS /HEMIHYDRATE/ |
| **Odour** | no data available |
| **Melting point/freezing point** | 35 Â°C. |
| **Boiling point or initial boiling point and boiling range** | 160 Â°C. Remarks:Loss of water. |
| **Flammability** | no data available |
| **Lower and upper explosion limit/flammability limit** | no data available |
| **Flash point** | no data available |
| **Auto-ignition temperature** | no data available |
| **Decomposition temperature** | no data available |
| **pH** | WEAK ACIDIC PROPERTIES. |
| **Kinematic viscosity** | no data available |
| **Solubility** | 302 G/100 CC OF WATER @ 12.5 DEG C /HEMIHYDRATE/ |
| **Partition coefficient n-octanol/water** | no data available |
| **Vapour pressure** | 55 mBar. Temperature:50 Â°C.;110 mBar. Temperature:65 Â°C. |
| **Density and/or relative density** | 2.5 g/cmÂ³. |
| **Relative vapour density** | no data available |
| **Particle characteristics** | no data available |

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

5 mg/cu m (as AS); NIOSH considers arsenic (inorganic cmpd, as As) to be a potential occupational carcinogen. Arsenic (inorganic cmpd, as As)
Decomposes on heating. This produces toxic and corrosive fumes. The substance is a strong oxidant. It reacts with combustible and reducing materials. The substance is a medium strong acid. Attacks metals. This produces toxic and flammable arsine (see ICSC 0222).

### 10.2 Chemical stability

The pH of aqueous solutions appears to be a major factor in the relative stability. ... Pentavalent inorganic arsenic ... is relatively stable at neutral or alkaline pH but undergoes reduction with decreasing pH. Pentavalent inorganic arsenic

### 10.3 Possibility of hazardous reactions

ARSENIC ACID SOLUTION may evolve very toxic gaseous arsine (AsH3) from contact with active metals, such as zinc and aluminum [Inorganic Chemicals Handbook, I, p. 175]. When heated to decomposition, it produces toxic fumes of metallic arsenic [Sax, 9th ed., p. 271]. The solution is weakly acidic and a weak oxidizing agent. Reacts with alkalis to generate some heat and precipitate arsenates.

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

Arsenic acid is a strong oxidant and will oxidize I(-1) ion to I(-3).

### 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 48 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**

Classification of carcinogenicity: 1) evidence in humans: sufficient; 2) evidence in animals: limited. Overall summary evaluation of carcinogenic risk to humans is Group 1: Carcinogenic to humans. NOTE: This evaluation applies to the group of chemicals as a whole and not necessarily to all individual chemicals within the group. Arsenic and arsenic compounds

**Reproductive toxicity**

no data available

**STOT-single exposure**

The substance is corrosive to the eyes, skin and respiratory tract. The substance may cause effects on the blood, cardiovascular system, gastrointestinal tract, liver and nervous system. The effects may be delayed. See Notes.

**STOT-repeated exposure**

The substance may have effects on the peripheral nervous system, skin and cardiovascular system. This may result in polyneuropathy and skin lesions. This substance is carcinogenic to humans.

**Aspiration hazard**

A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20Â°C on spraying.

## SECTION 12: Ecological information

### 12.1 Toxicity

- Toxicity to fish: LC50 - Oncorhynchus mykiss (previous name: Salmo gairdneri) - ca. 67.5 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: LOEC - Strongylocentrotus purpuratus - 11 Âµg/L - 48 h.
- Toxicity to algae: EC50 - Ankistrodesmus falcatus - 0.256 mg/L - 14 d.
- Toxicity to microorganisms: EC10 - Pseudomonas putida - 18 mg arsenate/L - 16 h.

### 12.2 Persistence and degradability

no data available

### 12.3 Bioaccumulative potential

no data available

### 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: UN1553 (For reference only, please check.) IMDG: UN1553 (For reference only, please check.) IATA: UN1553 (For reference only, please check.)

### 14.2 UN Proper Shipping Name

ADR/RID: ARSENIC ACID, LIQUID (For reference only, please check.) IMDG: ARSENIC ACID, LIQUID (For reference only, please check.) IATA: ARSENIC ACID, LIQUID (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 |
|---|---|---|---|
| Arsenic acid | Arsenic acid | 7778-39-4 | 231-901-9 |
| **European Inventory of Existing Commercial Chemical Substances (EINECS)** | | | Listed. |
| **EC Inventory** | | | Listed. |
| **United States Toxic Substances Control Act (TSCA) Inventory** | | | Listed. |
| **China Catalog of Hazardous chemicals 2015** | | | Listed. |
| **New Zealand Inventory of Chemicals (NZIoC)** | | | Listed. |
| **Philippines Inventory of Chemicals and Chemical Substances (PICCS)** | | | Listed. |
| **Vietnam National Chemical Inventory** | | | Listed. |
| **Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)** | | | 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**

Depending on the degree of exposure, periodic medical examination is suggested.The symptoms of acute poisoning do not become manifest until hours.Do NOT take working clothes home.Another CAS number used is 1327-52-2. Arsenic acid hemihydrate has CAS number 7774-41-6. Arsenic acid (hemihydrate) is a colourless to white hygroscopic solid. It decomposes at 160Â°C (loss of water); melting point 35Â°C; relative density 2-2.5; very soluble in water. UN number 1554.