

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Perchloric acid 0,1 mol/l - 0,1 N volumetric standard solution, in anhydrous acetic acid

article number: **K023**
Version: **GHS 3.0 en**
Replaces version of: 2020-08-26
Version: (GHS 2)

date of compilation: 2019-08-21
Revision: 2022-02-15

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Identification of the substance **Perchloric acid 0,1 mol/l - 0,1 N volumetric standard solution, in anhydrous acetic acid**

Article number K023

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: Laboratory chemical
Laboratory and analytical use

Uses advised against: Do not use for squirting or spraying. Do not use for products which come into direct contact with the skin. Do not use for products which come into contact with foodstuffs. Do not use for private purposes (household).

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone:+49 (0) 721 - 56 06 0

Telefax: +49 (0) 721 - 56 06 149

e-mail: sicherheit@carlroth.de

Website: www.carlroth.de

Competent person responsible for the safety data sheet: :Department Health, Safety and Environment

e-mail (competent person): sicherheit@carlroth.de

1.4 Emergency telephone number

| Name | Street | Postal code/city | Telephone | Website |
|--|-----------------|--------------------|-----------|---------|
| NSW Poisons Information Centre Childrens Hospital | Hawkesbury Road | 2145 Westmead, NSW | 131126 | |

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification acc. to GHS

| Section | Hazard class | Cat-egory | Hazard class and category | Hazard statement |
|---------|--|-----------|---------------------------|------------------|
| 2.6 | Flammable liquid | 3 | Flam. Liq. 3 | H226 |
| 2.16 | Substance or mixture corrosive to metals | 1 | Met. Corr. 1 | H290 |
| 3.2 | Skin corrosion/irritation | 1 | Skin Corr. 1 | H314 |

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Perchloric acid 0,1 mol/l - 0,1 N volumetric standard solution, in anhydrous acetic acid

article number: **K023**

| Section | Hazard class | Cat-egory | Hazard class and category | Hazard statement |
|---------|-----------------------------------|-----------|---------------------------|------------------|
| 3.3 | Serious eye damage/eye irritation | 1 | Eye Dam. 1 | H318 |

For full text of abbreviations: see SECTION 16

The most important adverse physicochemical, human health and environmental effects

Skin corrosion produces an irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis. The product is combustible and can be ignited by potential ignition sources.

2.2 Label elements

Labelling

Signal word

Danger

Pictograms

GHS02, GHS05



Hazard statements

H226 Flammable liquid and vapour
H290 May be corrosive to metals
H314 Causes severe skin burns and eye damage

Precautionary statements

Precautionary statements - prevention

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P260 Do not breathe dusts or mists
P280 Wear eye protection/face protection

Precautionary statements - response

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P370+P378 In case of fire: Use sand, carbon dioxide or powder extinguisher for extinction

Precautionary statements - storage

P403+P235 Store in a well-ventilated place. Keep cool

Hazardous ingredients for labelling: Acetic acid ... %, Acetic anhydride

2.3 Other hazards

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Perchloric acid 0,1 mol/l - 0,1 N volumetric standard solution, in anhydrous acetic acid

article number: K023








SECTION 3: Composition/information on ingredients

3.1 Substances

not relevant (mixture)

3.2 Mixtures

Description of the mixture

| Name of substance | Identifier | Wt% | Classification acc. to GHS | Pictograms | Notes |
|----------------------|------------------|-------|---|--|-------|
| Acetic acid ... % | CAS No 64-19-7 | ≥ 90 | Flam. Liq. 3 / H226 Skin Corr. 1A / H314 Eye Dam. 1 / H318 |   | B(a) |
| Acetic anhydride | CAS No 108-24-7 | < 2.5 | Flam. Liq. 3 / H226 Acute Tox. 4 / H302 Acute Tox. 4 / H332 Skin Corr. 1B / H314 |    | |
| Perchloric acid ...% | CAS No 7601-90-3 | < 2.5 | Ox. Liq. 1 / H271 Met. Corr. 1 / H290 Skin Corr. 1A / H314 Eye Dam. 1 / H318 |   | B(a) |

Notes

B(a): The classification refers to an aqueous solution

For full text of abbreviations: see SECTION 16

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Take off immediately all contaminated clothing. Self-protection of the first aider.

Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact

After contact with skin, wash immediately with plenty of water. Immediate medical treatment required because corrosive injuries that are not treated are hard to cure.

Following eye contact

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes hold- ing eyelids apart and consult an ophthalmologist. Protect uninjured eye.

Following ingestion

Rinse mouth immediately and drink plenty of water. Call a physician immediately. If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects).

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Perchloric acid 0,1 mol/l - 0,1 N volumetric standard solution, in anhydrous acetic acid

article number: **K023**

4.2 Most important symptoms and effects, both acute and delayed

Following inhalation: Irritant effects, Cough, pain, choking, and breathing difficulties,
Following skin contact: Causes severe burns, Causes poorly healing wounds,
After eye contact: Risk of serious damage to eyes, Risk of blindness,
Following ingestion: Corrosion, Gastric perforation

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media



Suitable extinguishing media

co-ordinate firefighting measures to the fire surroundings
water spray, alcohol resistant foam, dry extinguishing powder, BC-powder, carbon dioxide (CO₂)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Combustible. In case of insufficient ventilation and/or in use, may form flammable/explosive vapour-air mixture. Solvent vapours are heavier than air and may spread along floors. Places which are not ventilated, e.g. unventilated below ground level areas such as trenches, conduits and shafts, are particularly prone to the presence of flammable substances or mixtures. Vapours may form explosive mixtures with air.

Hazardous combustion products

Carbon monoxide (CO), Carbon dioxide (CO₂), May produce toxic fumes of carbon monoxide if burning.

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus. Wear full chemical protective clothing.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures



For non-emergency personnel

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray. Avoidance of ignition sources.

6.2 Environmental precautions

Keep away from drains, surface and ground water. The product is an acid. Before discharge into sewage plants the product normally needs to be neutralised. Danger of explosion.

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Perchloric acid 0,1 mol/l - 0,1 N volumetric standard solution, in anhydrous acetic acid

article number: **K023**

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains.

Advice on how to clean up a spill

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Provision of sufficient ventilation. Handle and open container with care. Clear contaminated areas thoroughly.

Measures to prevent fire as well as aerosol and dust generation



Keep away from sources of ignition - No smoking.

Take precautionary measures against static discharge.

Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs. When using do not smoke.

7.2 Conditions for safe storage, including any incompatibilities

Store in a well-ventilated place. Keep container tightly closed. Keep only in original container.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice:

Ground/bond container and receiving equipment.

Ventilation requirements

Use local and general ventilation.

Specific designs for storage rooms or vessels

Recommended storage temperature: 15 – 25 °C

7.3 Specific end use(s)

No information available.

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Perchloric acid 0,1 mol/l - 0,1 N volumetric standard solution, in anhydrous acetic acid

article number: **K023**

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

| Country | Name of agent | CAS No | Identifier | TWA [ppm] | TWA [mg/m ³] | STEL [ppm] | STEL [mg/m ³] | Ceiling-C [ppm] | Ceiling-C [mg/m ³] | Notation | Source |
|---------|------------------|----------|------------|-----------|--------------------------|------------|---------------------------|-----------------|--------------------------------|----------|--------|
| AU | acetic anhydride | 108-24-7 | WES | | | | | 5 | 21 | | WES |
| AU | acetic acid | 64-19-7 | WES | 10 | 25 | 15 | 37 | | | | WES |

Notation

Ceiling-C Ceiling value is a limit value above which exposure should not occur

STEL Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Relevant DNELs of components of the mixture

| Name of substance | CAS No | Endpoint | Threshold level | Protection goal, route of exposure | Used in | Exposure time |
|-------------------|----------|----------|------------------------|------------------------------------|-------------------|----------------------------|
| Acetic anhydride | 108-24-7 | DNEL | 12.6 mg/m ³ | human, inhalatory | worker (industry) | acute - local effects |
| Acetic anhydride | 108-24-7 | DNEL | 4.2 mg/m ³ | human, inhalatory | worker (industry) | chronic - local effects |
| Acetic anhydride | 108-24-7 | DNEL | 4.2 mg/m ³ | human, inhalatory | worker (industry) | chronic - systemic effects |

Relevant PNECs of components of the mixture

| Name of substance | CAS No | Endpoint | Threshold level | Organism | Environmental compartment | Exposure time |
|-------------------|----------|----------|-----------------|-----------------------|------------------------------|------------------------------|
| Acetic anhydride | 108-24-7 | PNEC | 30.58 mg/l | aquatic organisms | water | intermittent release |
| Acetic anhydride | 108-24-7 | PNEC | 3.058 mg/l | aquatic organisms | freshwater | short-term (single instance) |
| Acetic anhydride | 108-24-7 | PNEC | 0.306 mg/l | aquatic organisms | marine water | short-term (single instance) |
| Acetic anhydride | 108-24-7 | PNEC | 115 mg/l | aquatic organisms | sewage treatment plant (STP) | short-term (single instance) |
| Acetic anhydride | 108-24-7 | PNEC | 11.36 mg/kg | aquatic organisms | freshwater sediment | short-term (single instance) |
| Acetic anhydride | 108-24-7 | PNEC | 1.136 mg/kg | aquatic organisms | marine sediment | short-term (single instance) |
| Acetic anhydride | 108-24-7 | PNEC | 0.47 mg/kg | terrestrial organisms | soil | short-term (single instance) |

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Perchloric acid 0,1 mol/l - 0,1 N volumetric standard solution, in anhydrous acetic acid

article number: **K023**

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection



Use safety goggle with side protection. Wear face protection.

Skin protection



• hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

• type of material

Butyl caoutchouc (butyl rubber)

• material thickness

0,7mm

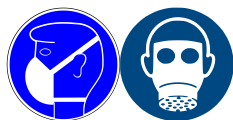
• breakthrough times of the glove material

>480 minutes (permeation: level 6)

• other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection



Respiratory protection necessary at: Aerosol or mist formation. Type: E (against acidic gases like sulphur dioxide or hydrogen chloride, colour code: Yellow).

Environmental exposure controls

Keep away from drains, surface and ground water.

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Perchloric acid 0,1 mol/l - 0,1 N volumetric standard solution, in anhydrous acetic acid

article number: **K023**

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

| | |
|--|--|
| Physical state | liquid |
| Colour | colourless |
| Odour | like: - Acetic acid |
| Melting point/freezing point | 17 °C |
| Boiling point or initial boiling point and boiling range | 117 °C |
| Flammability | flammable liquid in accordance with GHS criteria |
| Lower and upper explosion limit | 85 g/m ³ (LEL) - 430 g/m ³ (UEL) / 2 vol% (LEL) - 19.9 vol% (UEL) |
| Flash point | 40 °C |
| Auto-ignition temperature | 485 °C |
| Decomposition temperature | not relevant |
| pH (value) | 0.1 (20 °C) |
| Kinematic viscosity | not determined |
| <u>Solubility(ies)</u> | |
| Water solubility | miscible in any proportion |
| <u>Partition coefficient</u> | |
| Partition coefficient n-octanol/water (log value): | this information is not available |
| Vapour pressure | 20.79 hPa at 25 °C |
| <u>Density and/or relative density</u> | |
| Density | 1.06 g/cm ³ |
| Relative vapour density | information on this property is not available |
| Particle characteristics | not relevant (liquid) |
| <u>Other safety parameters</u> | |
| Oxidising properties | none |

9.2 Other information

Information with regard to physical hazard classes:

Corrosive to metals category 1: corrosive to metals

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Perchloric acid 0,1 mol/l - 0,1 N volumetric standard solution, in anhydrous acetic acid

article number: **K023**

Other safety characteristics:

Miscibility completely miscible with water

SECTION 10: Stability and reactivity

10.1 Reactivity

The mixture contains reactive substance(s). Risk of ignition. Substance or mixture corrosive to metals.

If heated

Risk of ignition. Vapours may form explosive mixtures with air.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

Danger of explosion: Peroxides, Perchlorates, Hydrogen peroxide, Chromium(VI) oxide, Permanganates, for example potassium permanganate, strong oxidiser,

Violent reaction with: Strong alkali, Aldehydes, Alkali hydroxide (caustic alkali), Alcohols, Nitric acid

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

10.5 Incompatible materials

different plastics, Rubber articles, different metals, iron, copper, bronze, brass, zinc

Release of flammable materials with

Metals (due to the release of hydrogen in an acid/alkaline medium)

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Classification acc. to GHS

Acute toxicity

Shall not be classified as acutely toxic.

| Acute toxicity estimate (ATE) of components of the mixture | | | |
|--|----------|--------------------|------------|
| Name of substance | CAS No | Exposure route | ATE |
| Acetic anhydride | 108-24-7 | oral | 630 mg/kg |
| Acetic anhydride | 108-24-7 | inhalation: vapour | 11 mg/l/4h |

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Perchloric acid 0,1 mol/l - 0,1 N volumetric standard solution, in anhydrous acetic acid

article number: **K023**

| Acute toxicity of components of the mixture | | | | | |
|---|----------|----------------|----------|-------------|---------|
| Name of substance | CAS No | Exposure route | Endpoint | Value | Species |
| Acetic acid ... % | 64-19-7 | oral | LD50 | 3,310 mg/kg | rat |
| Acetic anhydride | 108-24-7 | oral | LD50 | 630 mg/kg | rat |

Skin corrosion/irritation

Causes severe skin burns and eye damage.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects)

• If in eyes

causes burns, Causes serious eye damage, risk of blindness

• If inhaled

irritant effects, cough, pain, choking, and breathing difficulties

• If on skin

causes severe burns, causes poorly healing wounds

• Other information

none

11.2 Endocrine disrupting properties

None of the ingredients are listed.

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Perchloric acid 0,1 mol/l - 0,1 N volumetric standard solution, in anhydrous acetic acid

article number: K023

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

| Aquatic toxicity (acute) of components of the mixture | | | | | |
|---|-----------|----------|-------------|-----------------------|---------------|
| Name of substance | CAS No | Endpoint | Value | Species | Exposure time |
| Acetic acid ... % | 64-19-7 | LC50 | >300.8 mg/l | fish | 96 h |
| Acetic acid ... % | 64-19-7 | EC50 | >300.8 mg/l | aquatic invertebrates | 48 h |
| Acetic acid ... % | 64-19-7 | ErC50 | >300.8 mg/l | algae | 72 h |
| Acetic anhydride | 108-24-7 | LC50 | >1,000 mg/l | fish | 96 h |
| Acetic anhydride | 108-24-7 | EC50 | >1,000 mg/l | aquatic invertebrates | 48 h |
| Acetic anhydride | 108-24-7 | ErC50 | >1,000 mg/l | algae | 72 h |
| Perchloric acid ...% | 7601-90-3 | EC50 | 1,470 mg/l | fish | 96 h |
| Perchloric acid ...% | 7601-90-3 | ErC50 | >435.7 mg/l | algae | 72 h |

| Aquatic toxicity (chronic) of components of the mixture | | | | | |
|---|-----------|----------|--------|----------------|---------------|
| Name of substance | CAS No | Endpoint | Value | Species | Exposure time |
| Perchloric acid ...% | 7601-90-3 | EC50 | >1 g/l | microorganisms | 30 min |

Biodegradation

Data are not available.

12.2 Process of degradability

| Degradability of components of the mixture | | | | | | |
|--|----------|----------------|------------------|------|-----------|------------|
| Name of substance | CAS No | Process | Degradation rate | Time | Method | Source |
| Acetic acid ... % | 64-19-7 | biotic/abiotic | 99 % | 30 d | | |
| Acetic anhydride | 108-24-7 | biotic/abiotic | >95 % | 5 d | MITI-Test | OECD- 302B |

12.3 Bioaccumulative potential

Data are not available.

| Bioaccumulative potential of components of the mixture | | | | |
|--|-----------|---------------|-----------------------------|----------|
| Name of substance | CAS No | BCF | Log KOW | BOD5/COD |
| Acetic acid ... % | 64-19-7 | 3.16 | -0.17 (pH value: 7, 25 °C) | |
| Acetic anhydride | 108-24-7 | 3.16 | -0.577 (pH value: 7, 25 °C) | |
| Perchloric acid ...% | 7601-90-3 | >0.12 - <0.14 | | |

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Perchloric acid 0,1 mol/l - 0,1 N volumetric standard solution, in anhydrous acetic acid

article number: **K023**

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Endocrine disrupting properties

None of the ingredients are listed.

12.7 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

Only packagings which are approved (e.g. acc. to the Dangerous Goods Regulations) may be used.

Relevant provisions relating to waste(Basel Convention)

Properties of waste which render it hazardous

H3 Flammable liquids
H8 Corrosives

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1 UN number

| | |
|-----------|------------|
| UN RTDG | UN 2789 |
| IMDG-Code | UN 2789 |
| ICAO-TI | UN 2789 |

14.2 UN proper shipping name

| | |
|-----------|----------------------|
| UN RTDG | ACETIC ACID SOLUTION |
| IMDG-Code | ACETIC ACID SOLUTION |
| ICAO-TI | Acetic acid solution |

14.3 Transport hazard class(es)

| | |
|---------|----------|
| UN RTDG | 8 (3) |
|---------|----------|

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Perchloric acid 0,1 mol/l - 0,1 N volumetric standard solution, in anhydrous acetic acid

article number: **K023**

| | |
|--|---|
| IMDG-Code | 8 (3) |
| ICAO-TI | 8 (3) |
| 14.4 Packing group | |
| UN RTDG | II |
| IMDG-Code | II |
| ICAO-TI | II |
| 14.5 Environmental hazards | non-environmentally hazardous acc. to the dangerous goods regulations |
| 14.6 Special precautions for user | |
| There is no additional information. | |
| 14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code | |
| The cargo is not intended to be carried in bulk. | |
| 14.8 Information for each of the UN Model Regulations | |
| Transport information National regulationsAdditional information(UN RTDG) | |
| UN number | 2789 |
| Class | 8 |
| Subsidiary risk(s) | 3 |
| Packing group | II |
| Danger label(s) | 8+3 |
| | |
| Special provisions (SP) | - UN RTDG |
| Excepted quantities (EQ) | E2 UN RTDG |
| Limited quantities (LQ) | 1 L UN RTDG |
| International Maritime Dangerous Goods Code (IMDG) - Additional information | |
| Proper shipping name | ACETIC ACID SOLUTION |
| Particulars in the shipper's declaration | UN2789, ACETIC ACID SOLUTION, 8 (3), II, 40°C C.C. |
| Marine pollutant | - |
| Danger label(s) | 8+3 |
| | |
| Excepted quantities (EQ) | E2 |
| Limited quantities (LQ) | 1 L |
| EmS | F-E, S-C |


Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Perchloric acid 0,1 mol/l - 0,1 N volumetric standard solution, in anhydrous acetic acid

article number: **K023**

| | |
|---|---|
| Stowage category | A |
| Segregation group | 1 - Acids |
| International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information | |
| Proper shipping name | Acetic acid solution |
| Particulars in the shipper's declaration | UN2789, Acetic acid solution, 8 (3), II |
| Danger label(s) | 8+3 |
|  | |
| Excepted quantities (EQ) | E2 |
| Limited quantities (LQ) | 0,5 L |

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

There is no additional information.

National regulations(Australia)

Australian Inventory of Chemical Substances(AICS)

All ingredients are listed or exempt from listing.

Other information

Directive 94/33/EC on the protection of young people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

UN Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances

| Name of substance | CAS No | Listed in | HS code |
|-------------------|----------|-----------|---------|
| Acetic anhydride | 108-24-7 | Table I | 2915.24 |

National inventories

| Country | Inventory | Status |
|---------|------------|--------------------------------|
| AU | AICS | all ingredients are listed |
| CA | DSL | all ingredients are listed |
| CN | IECSC | all ingredients are listed |
| EU | ECSI | all ingredients are listed |
| EU | REACH Reg. | all ingredients are listed |
| JP | CSCL-ENCS | all ingredients are listed |
| KR | KECI | all ingredients are listed |
| MX | INSQ | all ingredients are listed |
| NZ | NZIoC | all ingredients are listed |
| PH | PICCS | all ingredients are listed |
| TR | CICR | not all ingredients are listed |

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Perchloric acid 0,1 mol/l - 0,1 N volumetric standard solution, in anhydrous acetic acid

article number: **K023**

| Country | Inventory | Status |
|---------|-----------|----------------------------|
| TW | TCSI | all ingredients are listed |
| US | TSCA | all ingredients are listed |

Legend

| | |
|------------|---|
| AICS | Australian Inventory of Chemical Substances |
| CICR | Chemical Inventory and Control Regulation |
| CSCL-ENCS | List of Existing and New Chemical Substances (CSCL-ENCS) |
| DSL | Domestic Substances List (DSL) |
| ECSI | EC Substance Inventory (EINECS, ELINCS, NLP) |
| IECSC | Inventory of Existing Chemical Substances Produced or Imported in China |
| INSQ | National Inventory of Chemical Substances |
| KECI | Korea Existing Chemicals Inventory |
| NZIoC | New Zealand Inventory of Chemicals |
| PICCS | Philippine Inventory of Chemicals and Chemical Substances (PICCS) |
| REACH Reg. | REACH registered substances |
| TCSI | Taiwan Chemical Substance Inventory |
| TSCA | Toxic Substance Control Act |

15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

Alignment to regulation: Globally Harmonized System of Classification and Labelling of Chemicals ("Purple book").

Restructuring: section 9, section 14

| Section | Former entry (text/value) | Actual entry (text/value) | Safety-relevant |
|---------|---|---|-----------------|
| 2.1 | | Classification acc. to GHS: change in the listing (table) | yes |
| 2.1 | | The most important adverse physicochemical, human health and environmental effects: Skin corrosion produces an irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis. The product is combustible and can be ignited by potential ignition sources. | yes |
| 2.2 | | Precautionary statements - response: change in the listing (table) | yes |
| 2.2 | Labelling of packages where the contents do not exceed 125 ml: Signal word: Danger | | yes |
| 2.2 | | Labelling of packages where the contents do not exceed 125 ml: change in the listing (table) | yes |
| 2.2 | | Labelling of packages where the contents do not exceed 125 ml: change in the listing (table) | yes |
| 2.2 | | Labelling of packages where the contents do not exceed 125 ml: change in the listing (table) | yes |
| 2.2 | contains: Acetic acid, Acetic anhydride | | yes |

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Perchloric acid 0,1 mol/l - 0,1 N volumetric standard solution, in anhydrous acetic acid

article number: **K023**

| Section | Former entry (text/value) | Actual entry (text/value) | Safety-relevant |
|---------|---|--|-----------------|
| 2.3 | Other hazards: There is no additional information. | Other hazards | yes |
| 2.3 | | Results of PBT and vPvB assessment: This mixture does not contain any substances that are assessed to be a PBT or a vPvB. | yes |

Abbreviations and acronyms

| Abbr. | Descriptions of used abbreviations |
|------------|--|
| Acute Tox. | Acute toxicity |
| ATE | Acute Toxicity Estimate |
| BCF | Bioconcentration factor |
| BOD | Biochemical Oxygen Demand |
| CAS | Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances) |
| Ceiling-C | Ceiling value |
| COD | Chemical oxygen demand |
| DGR | Dangerous Goods Regulations (see IATA/DGR) |
| DNEL | Derived No-Effect Level |
| EC50 | Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval |
| EINECS | European Inventory of Existing Commercial Chemical Substances |
| ELINCS | European List of Notified Chemical Substances |
| EmS | Emergency Schedule |
| ErC50 | ≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control |
| Eye Dam. | Seriously damaging to the eye |
| Eye Irrit. | Irritant to the eye |
| Flam. Liq. | Flammable liquid |
| GHS | "Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations |
| HS | Harmonized Commodity Description and Coding System (Harmonized System, drawn up by the World Customs Organisation) |
| IATA | International Air Transport Association |
| IATA/DGR | Dangerous Goods Regulations (DGR) for the air transport (IATA) |
| ICAO | International Civil Aviation Organization |
| ICAO-TI | Technical instructions for the safe transport of dangerous goods by air |
| IMDG | International Maritime Dangerous Goods Code |
| IMDG-Code | International Maritime Dangerous Goods Code |

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Perchloric acid 0,1 mol/l - 0,1 N volumetric standard solution, in anhydrous acetic acid

article number: **K023**

| Abbr. | Descriptions of used abbreviations |
|-------------|---|
| LC50 | Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval |
| LD50 | Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval |
| LEL | Lower explosion limit (LEL) |
| log KOW | n-Octanol/water |
| MARPOL | International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant") |
| Met. Corr. | Substance or mixture corrosive to metals |
| NLP | No-Longer Polymer |
| Ox. Liq. | Oxidising liquid |
| PBT | Persistent, Bioaccumulative and Toxic |
| PNEC | Predicted No-Effect Concentration |
| ppm | Parts per million |
| Skin Corr. | Corrosive to skin |
| Skin Irrit. | Irritant to skin |
| STEL | Short-term exposure limit |
| TWA | Time-weighted average |
| UEL | Upper explosion limit (UEL) |
| UN RTDG | UN Recommendations on the Transport of Dangerous Good |
| vPvB | Very Persistent and very Bioaccumulative |
| WES | Safe Work Australia: Workplace exposure standards for airborne contaminants |

Key literature references and sources for data

Safe Work Australia's Code of Practice for Labelling of Workplace Hazardous Chemicals (under WHS Regulations).

UN Recommendations on the Transport of Dangerous Good. International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties. The classification is based on tested mixture. Health hazards. Environmental hazards. The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

List of relevant phrases (code and full text as stated in section 2 and 3)

| Code | Text |
|------|---|
| H226 | Flammable liquid and vapour. |
| H271 | May cause fire or explosion; strong oxidiser. |
| H290 | May be corrosive to metals. |
| H302 | Harmful if swallowed. |
| H314 | Causes severe skin burns and eye damage. |

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



Perchloric acid 0,1 mol/l - 0,1 N volumetric standard solution, in anhydrous acetic acid

article number: **K023**

| Code | Text |
|------|----------------------------|
| H318 | Causes serious eye damage. |
| H332 | Harmful if inhaled. |

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.