

Safety Data Sheet

Revision date: 29.08.2022

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

1.1 Product identifier

| | |
|--------------------------------|---|
| Trade name/designation: | Aluminium standard solution, 1,000 mg/l Al in 2% hydrochloric acid AVS TITRINORM® standard for AAS |
| Product No.: | 86660 |
| CAS No.: | not applicable |
| Other means of identification: | none |

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

| | |
|---------------------------|--------------------------|
| Relevant identified uses: | General chemical reagent |
|---------------------------|--------------------------|

1.3 Details of the supplier of the safety data sheet

Singapore

VWR Singapore Pte Ltd.

| | |
|---------------------------|-------------------------|
| Street | 18 Gul Drive |
| Postal code/City | Singapore 629468 |
| Telephone | +65 6505 0760 |
| Telefax | +65 6264 3780 |
| E-mail (competent person) | SDS@avantorsciences.com |

1.4 Emergency phone number

| | |
|-----------|---|
| Telephone | +65 (0) 6505 0760 (office hours: 8 am-5 pm) |
|-----------|---|

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

| Hazard classes and hazard categories | Hazard statements |
|--|-------------------|
| Substance or mixture corrosive to metals, category 1 | H290 |

2.2 Label elements

Hazard pictograms



Signal word: Warning

| Hazard statements | |
|-------------------|-----------------------------|
| H290 | May be corrosive to metals. |

| Precautionary statements | |
|--------------------------|--|
| P234 | Keep only in original container. |
| P390 | Absorb spillage to prevent material damage. |
| P406 | Store in a corrosive resistant/... container with a resistant inner liner. |

2.3 Other hazards

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

SECTION 3: Composition / information on ingredients

3.1 Substances

not applicable

3.2 Mixtures

Composition / Information on ingredients

| Substance name | Concentration | Identifier | Hazard classes and hazard categories |
|-------------------|---------------|--------------------|--|
| Hydrogen chloride | 2 - 5% | CAS No.: 7647-01-0 | Press. Gas - H280 Acute Tox. 3 - H331 Skin Corr. 1A - H314 |

SECTION 4: First aid measures

4.1 Description of first aid measures

General information

When in doubt or if symptoms are observed, get medical advice. If unconscious but breathing normally, place in recovery position and seek medical advice. Never give anything by mouth to an unconscious person or a person with cramps. Change contaminated, saturated clothing. Do not leave affected person unattended.

After inhalation

Remove casualty to fresh air and keep warm and at rest. If breathing is irregular or stopped, administer artificial respiration. In case of respiratory tract irritation, consult a physician.

In case of skin contact

After contact with skin, wash immediately with plenty of water and soap. Remove contaminated, saturated clothing immediately. In case of skin reactions, consult a physician.

After eye contact:

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Protect uninjured eye. Remove contact lenses, if present and easy to do. Continue rinsing.

In case of ingestion

If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention. Do NOT induce vomiting. Give nothing to eat or drink.

Self-protection of the first aider

First aider: Pay attention to self-protection!

4.2 Most important symptoms and effects, both acute and delayed

no data available

4.3 Indication of any immediate medical attention and special treatment needed

no data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

The product itself does not burn.
Co-ordinate fire-fighting measures to the fire surroundings.

Extinguishing media which must not be used for safety reasons

no restriction

5.2 Special hazards arising from the substance or mixture

In case of fire may be liberated:
Pyrolysis products, toxic

5.3 Advice for firefighters

DO NOT fight fire when fire reaches explosives.
Special protective equipment for firefighters:

Wear a self-contained breathing apparatus and chemical protective clothing.

Additional information

Do not allow run-off from fire-fighting to enter drains or water courses.

Do not inhale explosion and combustion gases.

Use water spray jet to protect personnel and to cool endangered containers.

In case of fire: Evacuate area.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Do not breathe gas/vapour/aerosol. Provide adequate ventilation. Use personal protection equipment. In case of major fire and large quantities: Remove persons to safety. Wear a self-contained breathing apparatus and chemical protective clothing.

6.2 Environmental precautions

Do not allow to enter into surface water or drains. Make sure spills can be contained, e.g. in sump pallets or kerbed areas.

Discharge into the environment must be avoided.

6.3 Methods and material for containment and cleaning up

Spilled product must never be returned to the original container for recycling. Clean contaminated articles and floor according to the environmental legislation. Collect in closed and suitable containers for disposal.

6.4 Additional information

Clear spills immediately.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

All work processes must always be designed so that the following is as low as possible:

Inhalation

skin contact

Eye contact

Use extractor hood (laboratory).

If handled uncovered, arrangements with local exhaust ventilation have to be used.

If local exhaust ventilation is not possible or not sufficient, the entire working area must be ventilated by technical means.

7.2 Conditions for safe storage, including any incompatibilities

Recommended storage temperature: no data available

Storage class: no data available

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

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

| Ingredient (Designation) | Regulatory information | Country | Limit value type (country of origin) | Limit value | Remark |
|-----------------------------|---|---------|---|----------------------------------|--------|
| Hydrogen chloride | Workplace Safety and Health (General Provisions) Regulations, WORKPLACE SAFETY AND HEALTH ACT (CHAPTER 354A, SECTION 65) | SG | STV | 5 ppm - 7.5 mg/m ³ | |

8.2 Exposure controls

8.2.1 Appropriate engineering controls

no data available

8.2.2 Personal protection equipment

no data available

Eye/face protection

no data available

Recommendation: no data available

Skin protection

Wear suitable gloves. When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. In the case of wanting to use the gloves again, clean them before taking off and air them well. Check leak tightness/impermeability prior to use.

By short-term hand contact

| | |
|----------------------------------|--|
| Suitable material: | CR (polychloroprene, chloroprene rubber) |
| Thickness of the glove material: | 0,13 mm |
| Breakthrough time:: | 101 min |
| Recommended glove articles: | VWR 112-0032 |

By long-term hand contact

| | |
|----------------------------------|--|
| Suitable material: | CR (polychloroprene, chloroprene rubber) |
| Thickness of the glove material: | - |
| Breakthrough time:: | > 480 min |
| Recommended glove articles: | VWR 112-2157 |

Respiratory protection

no data available

| | |
|--|-------------------|
| Suitable respiratory protection apparatus: | no data available |
| Recommendation: | no data available |
| Suitable material: | no data available |
| Recommendation: | no data available |

Additional information

no data available

8.2.3 Environmental exposure controls

no data available

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

| | |
|----------------------|-------------------|
| (a) Appearance | |
| Physical state: | liquid |
| Colour: | no data available |
| (b) Odour: | no data available |
| (c) Odour threshold: | no data available |

Safety relevant basic data

| | |
|--|---------------------------|
| (d) pH: | no data available |
| (e) Melting point/freezing point: | no data available |
| (f) Initial boiling point and boiling range: | no data available |
| (g) Flash point: | no data available |
| (h) Evaporation rate: | no data available |
| (i) Flammability (solid, gas): | not applicable |
| (j) Flammability or explosive limits | |
| Lower explosion limit: | no data available |
| Upper explosion limit: | no data available |
| (k) Vapour pressure: | no data available |
| (l) Vapour density: | no data available |
| (m) Density: | no data available |
| (n) Solubility(ies) | |
| Water solubility: | no data available |
| (o) Partition coefficient: n-octanol/water: | no data available |
| (p) Auto-ignition temperature: | no data available |
| (q) Decomposition temperature: | not applicable |
| (r) Viscosity | |
| Kinematic viscosity: | no data available |
| Dynamic viscosity: | no data available |
| (s) Explosive properties: | not applicable |
| (t) Oxidising properties: | not applicable |
| (u) Particle characteristics: | does not apply to liquids |

9.2 Other information

| | |
|------------------------|-------------------|
| Bulk density: | no data available |
| Refraction index: | no data available |
| Dissociation constant: | no data available |
| Surface tension: | no data available |
| Henry's Law Constant: | no data available |

SECTION 10: Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions

The generally known reaction partners of water.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

no data available

10.7 Additional information

no data available

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute effects

Acute oral toxicity:

no data available

Acute dermal toxicity:

Hydrogen chloride - LD50: > 5010 mg/kg - Rabbit - (Japan GHS Basis for Classification Data)

Acute inhalation toxicity:

Hydrogen chloride - LC50: 1.68 mg/l - Rat - (Japan GHS Basis for Classification Data)

Irritant and corrosive effects

Primary irritation to the skin:

not applicable

Irritation to eyes:

not applicable

Irritation to respiratory tract:

not applicable

Respiratory or skin sensitisation

In case of skin contact: not sensitising

After inhalation: not sensitising

STOT-single exposure

not applicable

STOT-repeated exposure

not applicable

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**Carcinogenicity**

No indication of human carcinogenicity.

Germ cell mutagenicity

No indications of human germ cell mutagenicity exist.

Reproductive toxicity

No indications of human reproductive toxicity exist.

Aspiration hazard

not applicable

Other adverse effects

no data available

Additional information

no data available

SECTION 12: Ecological information

12.1 Ecotoxicity

Fish toxicity:

no data available

Daphnia toxicity:

no data available

Algae toxicity:

no data available

Bacteria toxicity:

no data available

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water: no data available

12.4 Mobility in soil:

no data available

12.5 Results of PBT/vPvB assessment

not applicable

12.6 Other adverse effects

no data available

SECTION 13: Disposal considerations
13.1 Waste treatment methods
Appropriate disposal / Product

Dispose according to local legislation. Consult the appropriate local waste disposal expert about waste disposal.

Waste code product: no data available

Appropriate disposal / Package

Dispose according to local legislation. Handle contaminated packages in the same way as the substance itself.

Additional information

no data available

SECTION 14: Transport information
Land transport (ADR/RID)

| | | |
|------|--|--|
| 14.1 | UN-No.: | 1789 |
| 14.2 | Proper Shipping Name: | HYDROCHLORIC ACID |
| 14.3 | Class(es): | 8 |
| | Classification code: | C1 |
| | Hazard label(s): | 8 |
| 14.4 | Packing group: | III |
| 14.5 | Environmental hazards: | No |
| 14.6 | Special precautions for user: | |
| | Hazard identification number (Kemler No.): | 80 |
| | tunnel restriction code: | E |
| | | (Passage forbidden through tunnels of category E.) |

Sea transport (IMDG)

| | | |
|------|---|-------------------|
| 14.1 | UN-No.: | 1789 |
| 14.2 | Proper Shipping Name: | HYDROCHLORIC ACID |
| 14.3 | Class(es): | 8 |
| | Classification code: | |
| | Hazard label(s): | 8 |
| 14.4 | Packing group: | III |
| 14.5 | Environmental hazards: | No |
| | Marine pollutant: | No |
| 14.6 | Special precautions for user: | |
| | Segregation group: | 1 |
| | EmS-No. | F-A S-B |
| 14.7 | Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code not relevant | |

Air transport (ICAO-TI / IATA-DGR)

| | | |
|------|-------------------------------|-------------------|
| 14.1 | UN-No.: | 1789 |
| 14.2 | Proper Shipping Name: | HYDROCHLORIC ACID |
| 14.3 | Class(es): | 8 |
| | Classification code: | |
| | Hazard label(s): | 8 |
| 14.4 | Packing group: | III |
| 14.5 | Special precautions for user: | |

SECTION 15: Regulatory information

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

National regulations

- Workplace Safety and Health Act
- Workplace Safety and Health (Permissible Exposure Levels of Toxic Substances) Order
- Environmental Protection and Management Act (EPMA) - Second Schedule, Part 1, Control of Hazardous Substances
- Maritime and Port Authority of Singapore (MPA) - Dangerous Goods, Petroleum and Explosives Regulations

SECTION 16: Other information

Abbreviations and acronyms

ACGIH - American Conference of Governmental Industrial Hygienists
 ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road
 AGS - Committee on Hazardous Substances (Ausschuss für Gefahrstoffe)
 CLP - Regulation on Classification, Labelling and Packaging of Substances and Mixtures
 DFG - German Research Foundation (Deutsche Forschungsgemeinschaft)
 DNEL - Derived No Effect Level
 Gestis - Information system on hazardous substances of the German Social Accident Insurance (Gefahrstoffinformationssystem der Deutschen Gesetzlichen Unfallversicherung)
 IATA-DGR - International Air Transport Association-Dangerous Goods Regulations
 ICAO-TI - International Civil Aviation Organization-Technical Instructions
 IMDG - International Maritime Code for Dangerous Goods
 KOSHA - Korea Occupational Safety and Health Agency
 LTV - Long Term Value
 NIOSH - National Institute for Occupational Safety and Health
 OSHA - Occupational Safety & Health Administration
 PBT - Persistent, Bioaccumulative and Toxic
 PNEC - Predicted No Effect Concentration
 RID - Regulation concerning the International Carriage of Dangerous Goods by Rail
 STV - Short Term Value
 SVHC - Substances of Very High Concern
 vPvB - very Persistent, very Bioaccumulative

Key literature references and sources for data

This Safety Data Sheet has been prepared based on information available for public as TOXNET information, European Chemicals Agency (ECHA) substance dossier, papers from international cancer research institutes (IARC Monographs), U.S. National Toxicology Program data, U.S. Agency for Toxic Substances and Disease Control (ATSDR), PubChem websites and SDS from our raw material manufacturers.

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Additional information

Indication of changes

Section 8: Update of DNEL and/or PNEC data

If you need an explanation of the change, contact the supplier (SDS@avantorsciences.com).

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.