**Product Name** AA Flame PM-OQ Standards Kit

**Product Code(s)** 5799-0003

This product is a kit, composed of the following individual chemical components:

## Kit Components

| Component Part Number | Component Name | Volume or mass/ container and unit | No. of component containers/ kit |
|---|---|---|---|
| 5799-0004 | 0.2% Nitric Acid Blank | 250 mL | 2 |
| 5799-0005 | 1.0 mg/L Copper in 0.2% HNO3 | 50 mL | 1 |
| 5799-0006 | 2.5 mg/L Copper in 0.2% HNO3 | 50 mL | 1 |
| 5799-0007 | 5.0 mg/L Copper in 0.2% HNO3 | 125 mL | 1 |
| 5799-0008 | Lithium (1mg/L) and KCl (0.38% w/v) in 0.2% HNO3 | 50 mL | 1 |

SDSs for each component follow this cover sheet.

## Transportation Information for the Kit:

**Proper Shipping Names:**

| DOT | IATA/ICAO | China |
|---|---|---|
| Not Regulated | Not Regulated | Not Regulated |

# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008

**Revision date** 05-Dec-2025 **Revision Number** 2

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

### 1.1. Product identifier

**Product Code(s)** 5799-0004

**Product Name** 0.2% Nitric Acid Blank

**Form** Not applicable

**Pure substance/mixture** Mixture

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

**Recommended use** Reagents and Standards for Analytical Chemical Laboratory Use

**Uses advised against** Do not use outside of recommended applications

### 1.3. Details of the supplier of the safety data sheet

**Supplier**

Agilent Technologies LDA UK Ltd.
5500 Lakeside Cheadle Royal Business Park,
Cheadle, Cheshire, SK8 3GR
United Kindgom

+44 (0) 345 712 5292

For further information, please contact

**E-mail address** pdl-msds_author@agilent.com

### 1.4. Emergency telephone number

Emergency Telephone CHEMTREC®: +44 20 3807 3798

| **Emergency Telephone - §45 - (EC)1272/2008** | |
|---|---|
| **Europe** | **112** |
| **Austria** | No information available |
| **Bulgaria** | |
| **Croatia** | |
| **Cyprus** | |
| **Czech Republic** | |

| | |
|---|---|
| **Denmark** | |
| **France** | |
| **Hungary** | |
| **Ireland** | |
| **Italy** | |
| **Lithuania** | |
| **Luxembourg** | |
| **Netherlands** | |
| **Norway** | |
| **Portugal** | |
| **Romania** | |
| **Slovakia** | |
| **Slovenia** | |
| **Spain** | |
| **Sweden** | |
| **Switzerland** | |

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

*Classification according to*
*Regulation (EC) No. 1272/2008 [CLP]*

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP].

### 2.2. Label elements

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP]
**Hazard statements**
This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP].
EUH210 - Safety data sheet available on request.

### 2.3. Other hazards

Causes mild skin irritation.

**PBT & vPvB** This mixture contains no substance considered to be persistent, bioaccumulating or toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors.

| Chemical name | EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very High Concern (SVHC) for Authorisation | EU - REACH (1907/2006) - Endocrine Disruptor Assessment List of Substances |
|---|---|---|
| Nitric Acid | - | - |

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Not applicable

### 3.2 Mixtures

**Chemical nature** aqueous solution.

| Chemical name | Weight-% | REACH registration number | EC No. (Index No.) | Classification according to Regulation (EC) No. 1272/2008 [CLP] | Specific concentration limit (SCL) | M-Factor | M-Factor (long-term) | Notes |
|---|---|---|---|---|---|---|---|---|
| Nitric Acid<br>7697-37-2 | 0.1 - 1 | - | 231-714-2 | Met. Corr. 1 (H290)<br>Ox. Liq. 2 (H272)<br>Acute Tox. 3 (H331)<br>Skin Corr. 1A (H314)<br>(EUH071) | Ox. Liq. 2 :: C>=99%<br>Ox. Liq. 3 :: C≥65%<br>Skin Corr. 1A :: C>=20%<br>Skin Corr. 1B :: 5%<=C<20% | - | - | B |

*- Substances contained in this mixture with No registration number are under the REACH threshold in Article 6(1) and not subject to the registration requirements according to REACH Title II*

*CLP Notes:*

*Note B - Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different classification and labelling since the hazards vary at different concentrations. In Part 3 entries with Note B have a general designation of the following type: 'nitric acid … %'. In this case the supplier must state the percentage concentration of the solution on the label. Unless otherwise stated, it is assumed that the percentage concentration is calculated on a weight/weight basis.*

**Full text of H- and EUH-phrases: see section 16**

*Acute Toxicity Estimate*

*If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components*

| Chemical name | Oral LD50 mg/kg | Dermal LD50 mg/kg | Inhalation LC50 - 4 hour - dust/mist - mg/L | Inhalation LC50 - 4 hour - vapour - mg/L | Inhalation LC50 - 4 hour - gas - ppm |
|---|---|---|---|---|---|
| Nitric Acid 7697-37-2 | No data available | No data available | No data available | 2.65 | No data available |

This product does not contain candidate substances of very high concern at a concentration >=0.1% (Regulation (EC) No. 1907/2006 (REACH), Article 59).

**Additional information**
The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/v). This is less than the acid concentration stated on the product label and COA, which reflects a percent value of the commercially available concentrated aqueous form of the acid.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

**Inhalation** Remove to fresh air.

**Eye contact** Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a doctor.

**Skin contact** Wash skin with soap and water. In the case of skin irritation or allergic reactions see a doctor.

**Ingestion** Rinse mouth.

### 4.2. Most important symptoms and effects, both acute and delayed

**Symptoms** Prolonged contact may cause redness and irritation.

**Effects of Exposure** No information available.

### 4.3. Indication of any immediate medical attention and special treatment needed

**Note to doctors** Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

| | |
|---|---|
| **Suitable Extinguishing Media** | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| **Large Fire** | CAUTION: Use of water spray when fighting fire may be inefficient. |
| **Unsuitable extinguishing media** | Do not scatter spilled material with high pressure water streams. |

### 5.2. Special hazards arising from the substance or mixture

| | |
|---|---|
| **Specific hazards arising from the chemical** | No information available. |

### 5.3. Advice for firefighters

| | |
|---|---|
| **Special protective equipment and precautions for fire-fighters** | Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment. |

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

| | |
|---|---|
| **Personal precautions** | Ensure adequate ventilation. |
| **For emergency responders** | Use personal protection recommended in Section 8. |

### 6.2. Environmental precautions

| | |
|---|---|
| **Environmental precautions** | See Section 12 for additional Ecological Information. |

### 6.3. Methods and material for containment and cleaning up

| | |
|---|---|
| **Methods for containment** | Prevent further leakage or spillage if safe to do so. |
| **Methods for cleaning up** | Take up mechanically, placing in appropriate containers for disposal. |
| **Prevention of secondary hazards** | Clean contaminated objects and areas thoroughly observing environmental regulations. |

### 6.4. Reference to other sections

| | |
|---|---|
| **Reference to other sections** | See section 8 for more information. See section 13 for more information. |

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

**Advice on safe handling** Ensure adequate ventilation.

**General hygiene considerations** Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage Conditions** Please refer to the manufacturer's certificate for specific storage and transport temperature conditions. Store only in the original receptacle unless other advice is given on the CoA.

**Storage class (TRGS 510)** LGK 10.

### 7.3. Specific end use(s)

**Risk Management Methods (RMM)** The information required is contained in this Safety Data Sheet.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

**Exposure Limits**

| Chemical name | European Union | Austria | Belgium | Bulgaria | Croatia |
|---|---|---|---|---|---|
| Nitric Acid<br>7697-37-2 | STEL: 1 ppm<br>STEL: 2.6 mg/m³ | STEL-KZGW: 1 ppm ();<br>STEL-KZGW: 2.6 mg/m³ (); | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL-KGVI: 1 ppm;<br>STEL-KGVI: 2.6 mg/m³; |
| **Chemical name** | **Cyprus** | **Czech Republic** | **Denmark** | **Estonia** | **Finland** |
| Nitric Acid<br>7697-37-2 | STEL: 1 ppm<br>STEL: 2.6 mg/m³ | TWA: 1 mg/m³;<br>Ceiling: 2.5 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | TWA: 0.5 ppm;<br>TWA: 1.3 mg/m³;<br>STEL: 1 ppm;<br>STEL: 2.6 mg/m³; |
| **Chemical name** | **France** | **Germany TRGS** | **Germany DFG** | **Greece** | **Hungary** |
| Nitric Acid<br>7697-37-2 | STEL-VLCT (indicat if): 1 ppm;<br>STEL-VLCT (indicat | TWA-AGW;<br>1 ppm ();<br>TWA-AGW; | - | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL-CK: 2.6 mg/m³;<br>STEL-CK: 1 ppm; |

| | | | | | |
|---|---|---|---|---|---|
| | if): 2.6 mg/m³; | 2.6 mg/m³ (); | | | |
| Chemical name | Ireland | Italy MDLPS | Italy AIDII | Latvia | Lithuania |
| Nitric Acid<br>7697-37-2 | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | TWA: 2 ppm;<br>TWA: 5.2 mg/m³;<br>STEL (REL): 4 ppm;<br>STEL (REL): 10.3 mg/m³; | TWA: 0.78 ppm;<br>TWA: 2 mg/m³;<br>STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL-TPRD: 1 ppm;<br>STEL-TPRD: 2.6 mg/m³; |
| Chemical name | Luxembourg | Malta | Netherlands | Norway | Poland |
| Nitric Acid<br>7697-37-2 | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 0.5 ppm;<br>STEL: 1.3 mg/m³; | TWA: 2 ppm;<br>TWA: 5 mg/m³;<br>STEL: 4 ppm (value calculated);<br>STEL: 10 mg/m³ (value calculated); | TWA-NDS: 1.4 mg/m³;<br>STEL-NDSCh: 2.6 mg/m³; |
| Chemical name | Portugal | Romania | Slovakia | Slovenia | Spain |
| Nitric Acid<br>7697-37-2 | TWA (VLE-MP): 2 ppm;<br>STEL (VLE-CD): 1 ppm;<br>STEL (VLE-CD): 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | Ceiling: 2.6 mg/m³; | TWA: 1 ppm;<br>TWA: 2.6 mg/m³;<br>STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL (VLA-EC): 1 ppm;<br>STEL (VLA-EC): 2.6 mg/m³; |

| Chemical name | Sweden | Switzerland | United Kingdom |
|---|---|---|---|
| Nitric Acid<br>7697-37-2 | TLV-NGV: 0.5 ppm;<br>TLV-NGV: 1.3 mg/m³;<br>STEL (Bindande KGV): 1 ppm;<br>STEL (Bindande KGV): 2.6 mg/m³; | TWA-MAK: 2 ppm;<br>TWA-MAK: 5 mg/m³;<br>STEL-KZGW: 2 ppm;<br>STEL-KZGW: 5 mg/m³; | STEL: 1 ppm<br>STEL: 2.6 mg/m³ |

**Biological occupational exposure limits** This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

**Derived No Effect Level (DNEL) - Workers** No information available

**Derived No Effect Level (DNEL) - General Public** No information available.

**Predicted No Effect Concentration (PNEC)** No information available.

**8.2. Exposure controls**

**Personal protective equipment**

| | |
|---|---|
| **Eye/face protection** | Avoid contact with eyes. Wear safety glasses with side shields (or goggles). |
| **Hand protection** | Wear protective Neoprene™ gloves. The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374. Wear suitable gloves. |
| **Skin and body protection** | Wear suitable protective clothing. |
| **Respiratory protection** | Appropriate respiratory protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction. |
| **General hygiene considerations** | Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection. |
| **Environmental exposure controls** | Do not allow into any sewer, on the ground or into any body of water. |

## SECTION 9: Physical and chemical properties

**9.1. Information on basic physical and chemical properties**

| | |
|---|---|
| **Appearance** | Liquid |
| **Physical state** | Liquid |
| **Colour** | colourless |
| **Odour** | Odourless |
| **Odour threshold** | No information available |

| **Property** | **Values** | **Remarks • Method** |
|---|---|---|
| **Melting point / freezing point** | 0 °C | None known |
| **Initial boiling point and boiling range** | 100 °C | None known |
| **Flammability** | No data available | None known |
| **Flammability Limit in Air** | | None known |
| **Upper flammability or explosive limits** | No data available | |
| **Lower flammability or explosive limits** | No data available | |
| **Flash point** | No data available | None known |
| **Autoignition temperature** | No data available | None known |
| **Decomposition temperature** | 100 °C | None known |
| **SADT (°C)** | No data available | None known |
| **pH** | No data available | None known |

| | | |
|---|---|---|
| **pH (as aqueous solution)** | No data available | None known |
| **Kinematic viscosity** | No data available | None known |
| **Dynamic viscosity** | No data available | None known |
| **Water solubility** | No data available | None known |
| **Solubility(ies)** | No data available | None known |
| **Partition coefficient** | No data available | None known |
| **Vapour pressure** | 23 hPa | @ 20°C |
| **Relative density** | 0.99821 g/cm3 at 20 °C | None known |
| **Bulk density** | No data available | |
| **Liquid Density** | No data available | |
| **Relative vapour density** | No data available | None known |
| **Particle characteristics** | | |
| **Particle Size** | No information available | |
| **Particle Size Distribution** | No information available | |

**9.2. Other information**

**9.2.1. Information with regards to physical hazard classes**
No information available

**9.2.2. Other safety characteristics**
No information available

## SECTION 10: Stability and reactivity

**10.1. Reactivity**

**Reactivity** No information available.

**10.2. Chemical stability**

**Stability** Stable under normal conditions.

**Explosion data**
**Sensitivity to mechanical impact** None.
**Sensitivity to static discharge** None.

**10.3. Possibility of hazardous reactions**

**Possibility of hazardous reactions** None under normal processing.

**10.4. Conditions to avoid**

**Conditions to avoid** None known based on information supplied.

**10.5. Incompatible materials**

**Incompatible materials** None known based on information supplied.

**10.6. Hazardous decomposition products**

**Hazardous decomposition products** None known based on information supplied.

## SECTION 11: Toxicological information

**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**
**Information on likely routes of exposure**

**Inhalation** Specific test data for the substance or mixture is not available.

**Eye contact** Specific test data for the substance or mixture is not available.

**Skin contact** Specific test data for the substance or mixture is not available. Causes mild skin irritation.

**Ingestion** Specific test data for the substance or mixture is not available.

**Symptoms related to the physical, chemical and toxicological characteristics**
**Symptoms** Prolonged contact may cause redness and irritation.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**
**Acute toxicity** Based on available data, the classification criteria are not met.
**Numerical measures of toxicity**
The following ATE values have been calculated for the mixture:
ATEmix (oral) 99,999.00 mg/kg
ATEmix (dermal) 99,999.00 mg/kg
ATEmix (inhalation-gas) 99,999.00 ppm
ATEmix (inhalation-vapour) 1,325.00 mg/l
ATEmix (inhalation-dust/mist) 99,999.00 mg/l

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---|---|---|---|
| Nitric Acid | - | - | = 2500 ppm ( Rat ) 1 h<br>ATE (vapours) = 2.65 mg/L |

**Skin corrosion/irritation** Classification based on data available for ingredients. Causes mild skin irritation.

**Serious eye damage/eye irritation** Based on available data, the classification criteria are not met.

| | |
|---|---|
| **Respiratory or skin sensitisation** | Based on available data, the classification criteria are not met. |
| **Germ cell mutagenicity** | Based on available data, the classification criteria are not met. |
| **Carcinogenicity** | Based on available data, the classification criteria are not met. |
| **Reproductive toxicity** | Based on available data, the classification criteria are not met. |
| **STOT - single exposure** | Based on available data, the classification criteria are not met. |
| **STOT - repeated exposure** | Based on available data, the classification criteria are not met. |
| **Aspiration hazard** | Based on available data, the classification criteria are not met. |

**11.2. Information on other hazards**

**11.2.1. Endocrine disrupting properties**

**Endocrine disrupting properties** This product does not contain any known or suspected endocrine disruptors.

**11.2.2. Other information**

**Other adverse effects** No information available.

## SECTION 12: Ecological information

**12.1. Toxicity**

**Ecotoxicity** The environmental impact of this product has not been fully investigated.

**12.2. Persistence and degradability**

**Persistence and degradability** No information available.

**12.3. Bioaccumulative potential**

**Bioaccumulation**

| Chemical name | Partition coefficient |
|---|---|
| Nitric Acid | -2.3 |

**12.4. Mobility in soil**

**Mobility in soil** No information available.

**12.5. Results of PBT and vPvB assessment**

**PBT and vPvB assessment** Based on available data, the classification criteria are not met.

| Chemical name | PBT and vPvB assessment |
|---|---|
| Nitric Acid | The substance is not PBT / vPvB |

**12.6. Endocrine disrupting properties**

**Endocrine disrupting properties** Based on available data, the classification criteria are not met.

**12.7. Other adverse effects**

**Other adverse effects** No information available.

**PMT or vPvM properties** Based on available data, the classification criteria are not met.

## SECTION 13: Disposal considerations

**13.1. Waste treatment methods**

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

## SECTION 14: Transport information

**IATA**

**14.1 UN number or ID number** Not regulated

**14.2 UN proper shipping name** Not regulated

**14.3 Transport hazard class(es)** Not regulated

**14.4 Packing group** Not regulated

**14.5 Environmental hazards** Not applicable

**14.6 Special precautions for user**

**Special Provisions** None

**IMDG**

| | |
|---|---|
| **14.1 UN number or ID number** | Not regulated |
| **14.2 UN proper shipping name** | Not regulated |
| **14.3 Transport hazard class(es)** | Not regulated |
| **14.4 Packing group** | Not regulated |
| **14.5 Environmental hazards** | Not applicable |
| **14.6 Special precautions for user** | |
| **Special Provisions** | None |
| **14.7 Maritime transport in bulk according to IMO instruments** | No information available |

**RID**

| | |
|---|---|
| **14.1 UN number or ID number** | Not regulated |
| **14.2 UN proper shipping name** | Not regulated |
| **14.3 Transport hazard class(es)** | Not regulated |
| **14.4 Packing group** | Not regulated |
| **14.5 Environmental hazards** | Not applicable |
| **14.6 Special precautions for user** | |
| **Special Provisions** | None |

**ADR**

| | |
|---|---|
| **14.1 UN number or ID number** | Not regulated |
| **14.2 UN proper shipping name** | Not regulated |
| **14.3 Transport hazard class(es)** | Not regulated |
| **14.4 Packing group** | Not regulated |
| **14.5 Environmental hazards** | Not applicable |
| **14.6 Special precautions for user** | |
| **Special Provisions** | None |

**ADN**

| | |
|---|---|
| **14.1 UN number or ID number** | Not regulated |
| **14.2 UN proper shipping name** | Not regulated |
| **14.3 Transport hazard class(es)** | Not regulated |
| **14.4 Packing group** | Not regulated |
| **14.5 Environmental hazard** | Not applicable |
| **14.6 Special precautions for user** | |
| **Special Provisions** | None |

## SECTION 15: Regulatory information

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

**National regulations**

**Germany**

| | |
|---|---|
| **Water hazard class (WGK)** | non-hazardous to water (nwg) |
| **Chemical Prohibition Ordinance (ChemVerbotsV)** | Not applicable |
| **TRGS 905** | Not applicable |

**Switzerland**

| | |
|---|---|
| **Ordinance on the Incentive Tax on Volatile Organic Compounds (OVOC) SR 814.018** | Not applicable |
| **Storage of Hazardous Material** | SC Non-hazardous material |
| **WPO (GSchV) SR 814.201; WPA (GSchG) SR 814.20** | Class B |
| **Major Accidents Ordinance SR 814.012** | Not applicable |

| Chemical name | Threshold quantity |
|---|---|
| Nitric Acid - 7697-37-2 | 20000 kg |

**European Union**

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

**Authorisations and/or restrictions on use:**

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

| Chemical name | Restricted substance per REACH Annex XVII | Substance subject to authorisation per REACH Annex XIV |
|---|---|---|
| Nitric Acid - 7697-37-2 | 75 | |

**DIRECTIVE (EU) 2021/1187 on the marketing and use of explosives precursors**

Not applicable

| Chemical name | RESTRICTED EXPLOSIVES PRECURSORS - ANNEX I | REPORTABLE EXPLOSIVES PRECURSORS - ANNEX II |
|---|---|---|
| Nitric Acid - 7697-37-2 | 3 %w/w | - |

**Persistent Organic Pollutants**

Not applicable

**Ozone-depleting substances (ODS) regulation (EC) 2024/590**
Not applicable

**International Inventories**

| | |
|---|---|
| **TSCA** | U.S. INVENTORY (TSCA): Listed on inventory. For purposes of 40 CFR 720.36, this product is for Research and Development (R&D) Use Only |
| **DSL/NDSL** | Contact supplier for inventory compliance status |
| **EINECS/ELINCS** | Contact supplier for inventory compliance status |
| **ENCS** | Contact supplier for inventory compliance status |
| **IECSC** | Contact supplier for inventory compliance status |
| **KECL** | Contact supplier for inventory compliance status |
| **PICCS** | Contact supplier for inventory compliance status |
| **AIIC** | Contact supplier for inventory compliance status |

**Legend:**
**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
**ENCS** - Japan Existing and New Chemical Substances
**IECSC** - China Inventory of Existing Chemical Substances
**KECL** - Korean Existing Chemicals Inventory
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances
**AICS** - Australian Inventory of Chemical Substances

**15.2. Chemical safety assessment**

**Chemical Safety Report** A Chemical Safety Assessment is not required for this substance

## SECTION 16: Other information

**Key or legend to abbreviations and acronyms used in the safety data sheet**

**Full text of any hazard and/or precautionary statements referred to under Sections 2-15**
EUH071 - Corrosive to the respiratory tract
H272 - May intensify fire; oxidiser
H290 - May be corrosive to metals
H314 - Causes severe skin burns and eye damage
H331 - Toxic if inhaled
**Legend**

| | |
|---|---|
| ACGIH | American Conference of Governmental Industrial Hygienists |
| AIDII | Italian Association of Industrial Hygienists |
| ADN | Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Europe) |
| ADR | Agreement concerning the International Carriage of Dangerous Goods by Road (Europe) |
| AIIC | Australian Inventory of Industrial Chemicals |
| ATE | Acute Toxicity Estimate |
| ASTM | American Society for the Testing of Materials |
| bar | Biological Reference Values for Chemical Compounds in the Work Area |
| BAT | Biological tolerance values for occupational exposure |
| BEL | Biological exposure limits |
| bw | Body weight |
| Ceiling | Maximum limit value |
| CLP | Classification, Labelling and Packaging Regulation; Regulation (EC) No 1272/2008 |
| CMR | Carcinogen, Mutagen or Reproductive Toxicant |
| DFG | German Research Foundation |
| DOT | Department of Transportation (United States) |
| DSL | Domestic Substances List (Canada) |
| ECHA | European Chemicals Agency |
| EC Number | European Community number |
| EmS | Emergency Schedule |
| ENCS | Existing and New Chemical Substances (Japan) |
| EPA | Environmental Protection Agency |
| EWC | European Waste Codes |
| GHS | Globally Harmonized System |
| IARC | International Agency for Research on Cancer |
| IATA | International Air Transport Association |
| IBC | International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk |
| ICAO | International Civil Aviation Organisation |
| IECSC | Inventory of Existing Chemical Substances in China |
| IMDG | International Maritime Dangerous Goods |
| IMO | International Maritime Organization |
| ISO | International Organisation for Standardisation |
| KECI | Korean Existing Chemicals Inventory |
| LC50 | Lethal Concentration to 50% of a test population |
| LD50 | Lethal Dose to 50% of a test population (Median Lethal Dose) |
| MAL | Measuring Technical Hygienic Air Needs |
| MARPOL | International Convention for the Prevention of Pollution from Ships |
| MDLPS | Ministry of Labour and Social Policy |
| n.o.s. | Not Otherwise Specified |
| NOAEC | No Observed Adverse Effect Concentration |
| NOAEL | No Observed Adverse Effect Level |

| | |
|---|---|
| NOELR | No Observable Effect Loading Rate |
| NZIoC | New Zealand Inventory of Chemicals |
| OECD | Organization for Economic Cooperation and Development |
| OEL | Occupational exposure limits |
| PBT | Persistent, Bioaccumulative and Toxic substance |
| PICCS | Philippines Inventory of Chemicals and Chemical Substances |
| PMT | Persistent, Mobile and Toxic |
| PPE | Personal protective equipment |
| QSAR | Quantitative Structure Activity Relationship |
| REACH | Registration, Evaluation, Authorisation, and Restriction of Chemicals (REACH) Regulation (EC 1907/2006) |
| RID | Agreement concerning the International Carriage of Dangerous Goods by Rail (Europe) |
| SADT | Self-Accelerating Decomposition Temperature |
| SAR | Structure-activity relationship |
| SDS | Safety Data Sheet |
| SL | Surface Limit |
| STEL | Short Term Exposure Limit |
| STOT RE | Specific target organ toxicity - Repeated exposure |
| STOT SE | Specific target organ toxicity - Single exposure |
| SVHC | Substance of very high concern |
| TCSI | Taiwan Chemical Substance Inventory |
| TDG | Transport of Dangerous Goods (Canada) |
| TRGS | Technical Rule for Hazardous Substances |
| TSCA | Toxic Substances Control Act (United States) |
| TWA | Time-Weighted Average |
| UN | United Nations |
| VOC | Volatile organic compounds |
| vPvB | Very Persistent and Very Bioaccumulative |
| vPvM | Very Persistent and Very Mobile |
| Sen+ | Sensitiser |
| Sk* | Skin designation |
| ** | Hazard Designation |

| Classification procedure | |
|---|---|
| Classification according to Regulation (EC) No. 1272/2008 [CLP] | Method Used |
| Acute oral toxicity | Calculation method |
| Acute dermal toxicity | Calculation method |
| Acute inhalation toxicity - gas | Calculation method |
| Acute inhalation toxicity - vapour | Calculation method |
| Acute inhalation toxicity - dust/mist | Calculation method |
| Skin corrosion/irritation | Calculation method |
| Serious eye damage/eye irritation | Calculation method |

| | |
|---|---|
| Respiratory sensitisation | Calculation method |
| Skin sensitisation | Calculation method |
| Mutagenicity | Calculation method |
| Carcinogenicity | Calculation method |
| Reproductive toxicity | Calculation method |
| STOT - single exposure | Calculation method |
| STOT - repeated exposure | Calculation method |
| Chronic aquatic toxicity | Calculation method |
| Acute aquatic toxicity | Calculation method |
| Aspiration hazard | Calculation method |
| Ozone | Calculation method |

**Key literature references and sources for data used to compile the SDS**
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)
Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine’s PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

**Revision date** 05-Dec-2025
**Reason for revision** Classification , transport , Precautionary statements
**This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006**
**Disclaimer**
**The information contained in this document is based on Agilent’s state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.**

**End of Safety Data Sheet**

# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008

**Revision date** 05-Dec-2025 **Revision Number** 2

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

### 1.1. Product identifier

**Product Code(s)** 5799-0005

**Product Name** 1.0 mg/L Copper in 0.2% HNO3

**Form** Not applicable

**Pure substance/mixture** Mixture

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

**Recommended use** Reagents and Standards for Analytical Chemical Laboratory Use

**Uses advised against** Do not use outside of recommended applications

### 1.3. Details of the supplier of the safety data sheet

**Supplier**

Agilent Technologies LDA UK Ltd.
5500 Lakeside Cheadle Royal Business Park,
Cheadle, Cheshire, SK8 3GR
United Kindgom

+44 (0) 345 712 5292

For further information, please contact

**E-mail address** pdl-msds_author@agilent.com

### 1.4. Emergency telephone number

Emergency Telephone CHEMTREC®: +44 20 3807 3798

| **Emergency Telephone - §45 - (EC)1272/2008** | |
|---|---|
| **Europe** | **112** |
| **Austria** | No information available |
| **Bulgaria** | |
| **Croatia** | |
| **Cyprus** | |
| **Czech Republic** | |

| | |
|---|---|
| **Denmark** | |
| **France** | |
| **Hungary** | |
| **Ireland** | |
| **Italy** | |
| **Lithuania** | |
| **Luxembourg** | |
| **Netherlands** | |
| **Norway** | |
| **Portugal** | |
| **Romania** | |
| **Slovakia** | |
| **Slovenia** | |
| **Spain** | |
| **Sweden** | |
| **Switzerland** | |

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

*Classification according to*
*Regulation (EC) No. 1272/2008 [CLP]*

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP].

### 2.2. Label elements

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP]
**Hazard statements**
This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP].
EUH210 - Safety data sheet available on request.

### 2.3. Other hazards

Causes mild skin irritation.

**PBT & vPvB** This mixture contains no substance considered to be persistent, bioaccumulating or toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

**Endocrine Disruptor Information**

| Chemical name | EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very High Concern (SVHC) for Authorisation | EU - REACH (1907/2006) - Endocrine Disruptor Assessment List of Substances |
|---|---|---|
| Nitric Acid | - | - |

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Not applicable

### 3.2 Mixtures

**Chemical nature** aqueous solution.

| Chemical name | Weight-% | REACH registration number | EC No. (Index No.) | Classification according to Regulation (EC) No. 1272/2008 [CLP] | Specific concentration limit (SCL) | M-Factor | M-Factor (long-term) | Notes |
|---|---|---|---|---|---|---|---|---|
| Nitric Acid<br>7697-37-2 | 0.1 - 1 | - | 231-714-2 | Met. Corr. 1 (H290)<br>Ox. Liq. 2 (H272)<br>Acute Tox. 3 (H331)<br>Skin Corr. 1A (H314)<br>(EUH071) | Ox. Liq. 2 :: C>=99%<br>Ox. Liq. 3 :: C≥65%<br>Skin Corr. 1A :: C>=20%<br>Skin Corr. 1B :: 5%<=C<20% | - | - | B |

*- Substances contained in this mixture with No registration number are under the REACH threshold in Article 6(1) and not subject to the registration requirements according to REACH Title II*

*CLP Notes:*

*Note B - Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different classification and labelling since the hazards vary at different concentrations. In Part 3 entries with Note B have a general designation of the following type: 'nitric acid … %'. In this case the supplier must state the percentage concentration of the solution on the label. Unless otherwise stated, it is assumed that the percentage concentration is calculated on a weight/weight basis.*

**Full text of H- and EUH-phrases: see section 16**

*Acute Toxicity Estimate*

*If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components*

| Chemical name | Oral LD50 mg/kg | Dermal LD50 mg/kg | Inhalation LC50 - 4 hour - dust/mist - mg/L | Inhalation LC50 - 4 hour - vapour - mg/L | Inhalation LC50 - 4 hour - gas - ppm |
|---|---|---|---|---|---|
| Nitric Acid 7697-37-2 | No data available | No data available | No data available | 2.65 | No data available |

This product does not contain candidate substances of very high concern at a concentration >=0.1% (Regulation (EC) No. 1907/2006 (REACH), Article 59).

**Additional information**
The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/v). This is less than the acid concentration stated on the product label and COA, which reflects a percent value of the commercially available concentrated aqueous form of the acid.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

**Inhalation** Remove to fresh air.

**Eye contact** Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a doctor.

**Skin contact** Wash skin with soap and water. In the case of skin irritation or allergic reactions see a doctor.

**Ingestion** Rinse mouth.

### 4.2. Most important symptoms and effects, both acute and delayed

**Symptoms** Prolonged contact may cause redness and irritation.

**Effects of Exposure** No information available.

### 4.3. Indication of any immediate medical attention and special treatment needed

**Note to doctors** Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

| | |
|---|---|
| **Suitable Extinguishing Media** | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| **Large Fire** | CAUTION: Use of water spray when fighting fire may be inefficient. |
| **Unsuitable extinguishing media** | Do not scatter spilled material with high pressure water streams. |

### 5.2. Special hazards arising from the substance or mixture

| | |
|---|---|
| **Specific hazards arising from the chemical** | No information available. |

### 5.3. Advice for firefighters

| | |
|---|---|
| **Special protective equipment and precautions for fire-fighters** | Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment. |

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

| | |
|---|---|
| **Personal precautions** | Ensure adequate ventilation. |
| **For emergency responders** | Use personal protection recommended in Section 8. |

### 6.2. Environmental precautions

| | |
|---|---|
| **Environmental precautions** | See Section 12 for additional Ecological Information. |

### 6.3. Methods and material for containment and cleaning up

| | |
|---|---|
| **Methods for containment** | Prevent further leakage or spillage if safe to do so. |
| **Methods for cleaning up** | Take up mechanically, placing in appropriate containers for disposal. |
| **Prevention of secondary hazards** | Clean contaminated objects and areas thoroughly observing environmental regulations. |

### 6.4. Reference to other sections

| | |
|---|---|
| **Reference to other sections** | See section 8 for more information. See section 13 for more information. |

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

**Advice on safe handling** Ensure adequate ventilation.

**General hygiene considerations** Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage Conditions** Please refer to the manufacturer's certificate for specific storage and transport temperature conditions. Store only in the original receptacle unless other advice is given on the CoA.

**Storage class (TRGS 510)** LGK 10.

### 7.3. Specific end use(s)

**Risk Management Methods (RMM)** The information required is contained in this Safety Data Sheet.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

**Exposure Limits**

| Chemical name | European Union | Austria | Belgium | Bulgaria | Croatia |
|---|---|---|---|---|---|
| Nitric Acid<br>7697-37-2 | STEL: 1 ppm<br>STEL: 2.6 mg/m³ | STEL-KZGW: 1 ppm ();<br>STEL-KZGW: 2.6 mg/m³ (); | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL-KGVI: 1 ppm;<br>STEL-KGVI: 2.6 mg/m³; |
| Chemical name | Cyprus | Czech Republic | Denmark | Estonia | Finland |
| Nitric Acid<br>7697-37-2 | STEL: 1 ppm<br>STEL: 2.6 mg/m³ | TWA: 1 mg/m³;<br>Ceiling: 2.5 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | TWA: 0.5 ppm;<br>TWA: 1.3 mg/m³;<br>STEL: 1 ppm;<br>STEL: 2.6 mg/m³; |
| Chemical name | France | Germany TRGS | Germany DFG | Greece | Hungary |
| Nitric Acid<br>7697-37-2 | STEL-VLCT (indicat if): 1 ppm;<br>STEL-VLCT (indicat | TWA-AGW;<br>1 ppm ();<br>TWA-AGW; | - | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL-CK: 2.6 mg/m³;<br>STEL-CK: 1 ppm; |

| | if): 2.6 mg/m³; | 2.6 mg/m³ (); | | | |
|---|---|---|---|---|---|
| Chemical name | Ireland | Italy MDLPS | Italy AIDII | Latvia | Lithuania |
| Nitric Acid<br>7697-37-2 | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | TWA: 2 ppm;<br>TWA: 5.2 mg/m³;<br>STEL (REL): 4 ppm;<br>STEL (REL): 10.3 mg/m³; | TWA: 0.78 ppm;<br>TWA: 2 mg/m³;<br>STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL-TPRD: 1 ppm;<br>STEL-TPRD: 2.6 mg/m³; |
| Chemical name | Luxembourg | Malta | Netherlands | Norway | Poland |
| Nitric Acid<br>7697-37-2 | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 0.5 ppm;<br>STEL: 1.3 mg/m³; | TWA: 2 ppm;<br>TWA: 5 mg/m³;<br>STEL: 4 ppm (value calculated);<br>STEL: 10 mg/m³ (value calculated); | TWA-NDS: 1.4 mg/m³;<br>STEL-NDSCh: 2.6 mg/m³; |
| Chemical name | Portugal | Romania | Slovakia | Slovenia | Spain |
| Nitric Acid<br>7697-37-2 | TWA (VLE-MP): 2 ppm;<br>STEL (VLE-CD): 1 ppm;<br>STEL (VLE-CD): 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | Ceiling: 2.6 mg/m³; | TWA: 1 ppm;<br>TWA: 2.6 mg/m³;<br>STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL (VLA-EC): 1 ppm;<br>STEL (VLA-EC): 2.6 mg/m³; |

| Chemical name | Sweden | Switzerland | United Kingdom |
|---|---|---|---|
| Nitric Acid<br>7697-37-2 | TLV-NGV: 0.5 ppm;<br>TLV-NGV: 1.3 mg/m³;<br>STEL (Bindande KGV): 1 ppm;<br>STEL (Bindande KGV): 2.6 mg/m³; | TWA-MAK: 2 ppm;<br>TWA-MAK: 5 mg/m³;<br>STEL-KZGW: 2 ppm;<br>STEL-KZGW: 5 mg/m³; | STEL: 1 ppm<br>STEL: 2.6 mg/m³ |

**Biological occupational exposure limits** This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

**Derived No Effect Level (DNEL) - Workers**

| Chemical name | Oral | Dermal | Inhalation |
|---|---|---|---|
| Copper<br>7440-50-8 | - | 137 mg/kg bw/day [4] [6]<br>273 mg/kg bw/day [4] [7] | - |

**Notes**

**[4]** Systemic health effects.
**[6]** Long term.

**[7]** Short term.

**Derived No Effect Level (DNEL) - General Public**

| Chemical name | Oral | Dermal | Inhalation |
|---|---|---|---|
| Copper<br>7440-50-8 | 0.041 mg/kg bw/day [4] [6] | 273 mg/kg bw/day [4] [6]<br>273 mg/kg bw/day [4] [7] | 1 mg/m³ [5] [6]<br>1 mg/m³ [5] [7] |

**Notes**
**[4]** Systemic health effects.
**[5]** Local health effects.
**[6]** Long term.
**[7]** Short term.

**Predicted No Effect Concentration (PNEC)**

| Chemical name | Freshwater | Freshwater (intermittent release) | Marine water | Marine water (intermittent release) | Air |
|---|---|---|---|---|---|
| Copper<br>7440-50-8 | 7.8 µg/L | - | 5.2 µg/L | - | - |

| Chemical name | Freshwater sediment | Marine sediment | Sewage treatment | Soil | Food chain |
|---|---|---|---|---|---|
| Copper<br>7440-50-8 | 87 mg/kg sediment dw | 676 mg/kg sediment dw | 230 µg/L | 65 mg/kg soil dw | - |

**8.2. Exposure controls**

**Personal protective equipment**

**Eye/face protection** Avoid contact with eyes. Wear safety glasses with side shields (or goggles).

**Hand protection** Wear protective Neoprene™ gloves. The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374. Wear suitable gloves.

| | |
|---|---|
| **Skin and body protection** | Wear suitable protective clothing. |
| **Respiratory protection** | Appropriate respiratory protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction. |
| **General hygiene considerations** | Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection. |
| **Environmental exposure controls** | Do not allow into any sewer, on the ground or into any body of water. |

## SECTION 9: Physical and chemical properties

**9.1. Information on basic physical and chemical properties**

| | |
|---|---|
| **Appearance** | Liquid |
| **Physical state** | Liquid |
| **Colour** | colourless |
| **Odour** | Odourless |
| **Odour threshold** | No information available |

| **Property** | **Values** | **Remarks • Method** |
|---|---|---|
| **Melting point / freezing point** | 0 °C | None known |
| **Initial boiling point and boiling range** | 100 °C | None known |
| **Flammability** | No data available | None known |
| **Flammability Limit in Air** | | None known |
| **Upper flammability or explosive limits** | No data available | |
| **Lower flammability or explosive limits** | No data available | |
| **Flash point** | No data available | None known |
| **Autoignition temperature** | No data available | None known |
| **Decomposition temperature** | 100 °C | None known |
| **SADT (°C)** | No data available | None known |
| **pH** | No data available | None known |
| **pH (as aqueous solution)** | No data available | None known |
| **Kinematic viscosity** | No data available | None known |
| **Dynamic viscosity** | No data available | None known |
| **Water solubility** | No data available | None known |
| **Solubility(ies)** | No data available | None known |
| **Partition coefficient** | No data available | None known |
| **Vapour pressure** | 23 hPa | @ 20°C |
| **Relative density** | 0.99821 g/cm3 at 20 °C | None known |
| **Bulk density** | No data available | |

| | | |
|---|---|---|
| **Liquid Density** | No data available | |
| **Relative vapour density** | No data available | None known |
| **Particle characteristics** | | |
| **Particle Size** | No information available | |
| **Particle Size Distribution** | No information available | |

**9.2. Other information**

**9.2.1. Information with regards to physical hazard classes**
No information available

**9.2.2. Other safety characteristics**
No information available

## SECTION 10: Stability and reactivity

**10.1. Reactivity**

**Reactivity** No information available.

**10.2. Chemical stability**

**Stability** Stable under normal conditions.

**Explosion data**
**Sensitivity to mechanical impact** None.
**Sensitivity to static discharge** None.

**10.3. Possibility of hazardous reactions**

**Possibility of hazardous reactions** None under normal processing.

**10.4. Conditions to avoid**

**Conditions to avoid** None known based on information supplied.

**10.5. Incompatible materials**

**Incompatible materials** None known based on information supplied.

**10.6. Hazardous decomposition products**

**Hazardous decomposition products** None known based on information supplied.

## SECTION 11: Toxicological information

**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**
**Information on likely routes of exposure**

**Inhalation** Specific test data for the substance or mixture is not available.

**Eye contact** Specific test data for the substance or mixture is not available.

**Skin contact** Specific test data for the substance or mixture is not available. Causes mild skin irritation.

**Ingestion** Specific test data for the substance or mixture is not available.

**Symptoms related to the physical, chemical and toxicological characteristics**
**Symptoms** Prolonged contact may cause redness and irritation.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**
**Acute toxicity** Based on available data, the classification criteria are not met.
**Numerical measures of toxicity**
The following ATE values have been calculated for the mixture:
ATEmix (oral) 99,999.00 mg/kg
ATEmix (dermal) 99,999.00 mg/kg
ATEmix (inhalation-gas) 99,999.00 ppm
ATEmix (inhalation-vapour) 1,325.00 mg/l
ATEmix (inhalation-dust/mist) 99,999.00 mg/l

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---|---|---|---|
| Nitric Acid | - | - | = 2500 ppm ( Rat ) 1 h<br>ATE (vapours) = 2.65 mg/L |

**Skin corrosion/irritation** Classification based on data available for ingredients. Causes mild skin irritation.

**Serious eye damage/eye irritation** Based on available data, the classification criteria are not met.

**Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.

**Germ cell mutagenicity** Based on available data, the classification criteria are not met.

**Carcinogenicity** Based on available data, the classification criteria are not met.

**Reproductive toxicity** Based on available data, the classification criteria are not met.

**STOT - single exposure** Based on available data, the classification criteria are not met.

**STOT - repeated exposure** Based on available data, the classification criteria are not met.

**Aspiration hazard** Based on available data, the classification criteria are not met.

### 11.2. Information on other hazards

#### 11.2.1. Endocrine disrupting properties

**Endocrine disrupting properties** This product does not contain any known or suspected endocrine disruptors.

#### 11.2.2. Other information

**Other adverse effects** No information available.

## SECTION 12: Ecological information

### 12.1. Toxicity

**Ecotoxicity** The environmental impact of this product has not been fully investigated.

### 12.2. Persistence and degradability

**Persistence and degradability** No information available.

### 12.3. Bioaccumulative potential

**Bioaccumulation**

| Chemical name | Partition coefficient |
|---|---|
| Nitric Acid | -2.3 |

### 12.4. Mobility in soil

**Mobility in soil** No information available.

### 12.5. Results of PBT and vPvB assessment

**PBT and vPvB assessment** Based on available data, the classification criteria are not met.

| Chemical name | PBT and vPvB assessment |
|---|---|
| Nitric Acid | The substance is not PBT / vPvB |

**12.6. Endocrine disrupting properties**

**Endocrine disrupting properties** Based on available data, the classification criteria are not met.

**12.7. Other adverse effects**

**Other adverse effects** No information available.
**PMT or vPvM properties** Based on available data, the classification criteria are not met.

## SECTION 13: Disposal considerations

**13.1. Waste treatment methods**

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

## SECTION 14: Transport information

**IATA**

**14.1 UN number or ID number** Not regulated
**14.2 UN proper shipping name** Not regulated
**14.3 Transport hazard class(es)** Not regulated
**14.4 Packing group** Not regulated
**14.5 Environmental hazards** Not applicable
**14.6 Special precautions for user**
**Special Provisions** None

**IMDG**

**14.1 UN number or ID number** Not regulated
**14.2 UN proper shipping name** Not regulated
**14.3 Transport hazard class(es)** Not regulated
**14.4 Packing group** Not regulated
**14.5 Environmental hazards** Not applicable
**14.6 Special precautions for user**
**Special Provisions** None
**14.7 Maritime transport in bulk** No information available

**according to IMO instruments**

**RID**

| | |
|---|---|
| **14.1 UN number or ID number** | Not regulated |
| **14.2 UN proper shipping name** | Not regulated |
| **14.3 Transport hazard class(es)** | Not regulated |
| **14.4 Packing group** | Not regulated |
| **14.5 Environmental hazards** | Not applicable |
| **14.6 Special precautions for user** | |
| **Special Provisions** | None |

**ADR**

| | |
|---|---|
| **14.1 UN number or ID number** | Not regulated |
| **14.2 UN proper shipping name** | Not regulated |
| **14.3 Transport hazard class(es)** | Not regulated |
| **14.4 Packing group** | Not regulated |
| **14.5 Environmental hazards** | Not applicable |
| **14.6 Special precautions for user** | |
| **Special Provisions** | None |

**ADN**

| | |
|---|---|
| **14.1 UN number or ID number** | Not regulated |
| **14.2 UN proper shipping name** | Not regulated |
| **14.3 Transport hazard class(es)** | Not regulated |
| **14.4 Packing group** | Not regulated |
| **14.5 Environmental hazard** | Not applicable |
| **14.6 Special precautions for user** | |
| **Special Provisions** | None |

## SECTION 15: Regulatory information

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

**National regulations**

**Germany**

| | |
|---|---|
| **Water hazard class (WGK)** | non-hazardous to water (nwg) |
| **Chemical Prohibition Ordinance (ChemVerbotsV)** | Not applicable |
| **TRGS 905** | Not applicable |

**Switzerland**

| | |
|---|---|
| **Ordinance on the Incentive Tax on Volatile Organic Compounds (OVOC) SR 814.018** | Not applicable |
| **Storage of Hazardous Material** | SC Non-hazardous material |
| **WPO (GSchV) SR 814.201; WPA (GSchG) SR 814.20** | Class B |
| **Major Accidents Ordinance SR 814.012** | Not applicable |

| Chemical name | Threshold quantity |
|---|---|
| Nitric Acid - 7697-37-2 | 20000 kg |

**European Union**

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

**Authorisations and/or restrictions on use:**

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

| Chemical name | Restricted substance per REACH Annex XVII | Substance subject to authorisation per REACH Annex XIV |
|---|---|---|
| Nitric Acid - 7697-37-2 | 75 | |

**DIRECTIVE (EU) 2021/1187 on the marketing and use of explosives precursors**

Not applicable

| Chemical name | RESTRICTED EXPLOSIVES PRECURSORS - ANNEX I | REPORTABLE EXPLOSIVES PRECURSORS - ANNEX II |
|---|---|---|
| Nitric Acid - 7697-37-2 | 3 %w/w | - |

**Persistent Organic Pollutants**

Not applicable

**Ozone-depleting substances (ODS) regulation (EC) 2024/590**

Not applicable

**International Inventories**

| | |
|---|---|
| **TSCA** | U.S. INVENTORY (TSCA): Listed on inventory. For purposes of 40 CFR 720.36, this product is for Research and Development (R&D) Use Only |
| **DSL/NDSL** | Contact supplier for inventory compliance status |
| **EINECS/ELINCS** | Contact supplier for inventory compliance status |
| **ENCS** | Contact supplier for inventory compliance status |
| **IECSC** | Contact supplier for inventory compliance status |
| **KECL** | Contact supplier for inventory compliance status |
| **PICCS** | Contact supplier for inventory compliance status |
| **AIIC** | Contact supplier for inventory compliance status |

**Legend:**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
**ENCS** - Japan Existing and New Chemical Substances
**IECSC** - China Inventory of Existing Chemical Substances
**KECL** - Korean Existing Chemicals Inventory
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances
**AICS** - Australian Inventory of Chemical Substances

### 15.2. Chemical safety assessment

| | |
|---|---|
| **Chemical Safety Report** | A Chemical Safety Assessment is not required for this substance |

## SECTION 16: Other information

**Key or legend to abbreviations and acronyms used in the safety data sheet**

**Full text of any hazard and/or precautionary statements referred to under Sections 2-15**
EUH071 - Corrosive to the respiratory tract
H272 - May intensify fire; oxidiser
H290 - May be corrosive to metals
H314 - Causes severe skin burns and eye damage
H331 - Toxic if inhaled

**Legend**

| | |
|---|---|
| ACGIH | American Conference of Governmental Industrial Hygienists |
| AIDII | Italian Association of Industrial Hygienists |
| ADN | Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Europe) |
| ADR | Agreement concerning the International Carriage of Dangerous Goods by Road (Europe) |
| AIIC | Australian Inventory of Industrial Chemicals |
| ATE | Acute Toxicity Estimate |
| ASTM | American Society for the Testing of Materials |

| | |
|---|---|
| bar | Biological Reference Values for Chemical Compounds in the Work Area |
| BAT | Biological tolerance values for occupational exposure |
| BEL | Biological exposure limits |
| bw | Body weight |
| Ceiling | Maximum limit value |
| CLP | Classification, Labelling and Packaging Regulation; Regulation (EC) No 1272/2008 |
| CMR | Carcinogen, Mutagen or Reproductive Toxicant |
| DFG | German Research Foundation |
| DOT | Department of Transportation (United States) |
| DSL | Domestic Substances List (Canada) |
| ECHA | European Chemicals Agency |
| EC Number | European Community number |
| EmS | Emergency Schedule |
| ENCS | Existing and New Chemical Substances (Japan) |
| EPA | Environmental Protection Agency |
| EWC | European Waste Codes |
| GHS | Globally Harmonized System |
| IARC | International Agency for Research on Cancer |
| IATA | International Air Transport Association |
| IBC | International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk |
| ICAO | International Civil Aviation Organisation |
| IECSC | Inventory of Existing Chemical Substances in China |
| IMDG | International Maritime Dangerous Goods |
| IMO | International Maritime Organization |
| ISO | International Organisation for Standardisation |
| KECI | Korean Existing Chemicals Inventory |
| LC50 | Lethal Concentration to 50% of a test population |
| LD50 | Lethal Dose to 50% of a test population (Median Lethal Dose) |
| MAL | Measuring Technical Hygienic Air Needs |
| MARPOL | International Convention for the Prevention of Pollution from Ships |
| MDLPS | Ministry of Labour and Social Policy |
| n.o.s. | Not Otherwise Specified |
| NOAEC | No Observed Adverse Effect Concentration |
| NOAEL | No Observed Adverse Effect Level |
| NOELR | No Observable Effect Loading Rate |
| NZIoC | New Zealand Inventory of Chemicals |
| OECD | Organization for Economic Cooperation and Development |
| OEL | Occupational exposure limits |
| PBT | Persistent, Bioaccumulative and Toxic substance |
| PICCS | Philippines Inventory of Chemicals and Chemical Substances |
| PMT | Persistent, Mobile and Toxic |

| | |
|---|---|
| PPE | Personal protective equipment |
| QSAR | Quantitative Structure Activity Relationship |
| REACH | Registration, Evaluation, Authorisation, and Restriction of Chemicals (REACH) Regulation (EC 1907/2006) |
| RID | Agreement concerning the International Carriage of Dangerous Goods by Rail (Europe) |
| SADT | Self-Accelerating Decomposition Temperature |
| SAR | Structure-activity relationship |
| SDS | Safety Data Sheet |
| SL | Surface Limit |
| STEL | Short Term Exposure Limit |
| STOT RE | Specific target organ toxicity - Repeated exposure |
| STOT SE | Specific target organ toxicity - Single exposure |
| SVHC | Substance of very high concern |
| TCSI | Taiwan Chemical Substance Inventory |
| TDG | Transport of Dangerous Goods (Canada) |
| TRGS | Technical Rule for Hazardous Substances |
| TSCA | Toxic Substances Control Act (United States) |
| TWA | Time-Weighted Average |
| UN | United Nations |
| VOC | Volatile organic compounds |
| vPvB | Very Persistent and Very Bioaccumulative |
| vPvM | Very Persistent and Very Mobile |
| Sen+ | Sensitiser |
| Sk* | Skin designation |
| ** | Hazard Designation |

| Classification procedure | |
|---|---|
| Classification according to Regulation (EC) No. 1272/2008 [CLP] | Method Used |
| Acute oral toxicity | Calculation method |
| Acute dermal toxicity | Calculation method |
| Acute inhalation toxicity - gas | Calculation method |
| Acute inhalation toxicity - vapour | Calculation method |
| Acute inhalation toxicity - dust/mist | Calculation method |
| Skin corrosion/irritation | Calculation method |
| Serious eye damage/eye irritation | Calculation method |
| Respiratory sensitisation | Calculation method |
| Skin sensitisation | Calculation method |
| Mutagenicity | Calculation method |
| Carcinogenicity | Calculation method |
| Reproductive toxicity | Calculation method |
| STOT - single exposure | Calculation method |
| STOT - repeated exposure | Calculation method |

| | |
|---|---|
| Chronic aquatic toxicity | Calculation method |
| Acute aquatic toxicity | Calculation method |
| Aspiration hazard | Calculation method |
| Ozone | Calculation method |

**Key literature references and sources for data used to compile the SDS**
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)
Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine’s PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

**Revision date** 05-Dec-2025
**Reason for revision** Classification , transport , Precautionary statements
**This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006**
**Disclaimer**
**The information contained in this document is based on Agilent’s state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.**

**End of Safety Data Sheet**

# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008

**Revision date** 05-Dec-2025 **Revision Number** 2

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

### 1.1. Product identifier

**Product Code(s)** 5799-0006

**Product Name** 2.5 mg/L Copper in 0.2% HNO3

**Form** Not applicable

**Pure substance/mixture** Mixture

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

**Recommended use** Reagents and Standards for Analytical Chemical Laboratory Use

**Uses advised against** Do not use outside of recommended applications

### 1.3. Details of the supplier of the safety data sheet

**Supplier**

Agilent Technologies LDA UK Ltd.
5500 Lakeside Cheadle Royal Business Park,
Cheadle, Cheshire, SK8 3GR
United Kindgom

+44 (0) 345 712 5292

For further information, please contact

**E-mail address** pdl-msds_author@agilent.com

### 1.4. Emergency telephone number

Emergency Telephone CHEMTREC®: +44 20 3807 3798

| **Emergency Telephone - §45 - (EC)1272/2008** | |
|---|---|
| **Europe** | **112** |
| **Austria** | No information available |
| **Bulgaria** | |
| **Croatia** | |
| **Cyprus** | |
| **Czech Republic** | |

| | |
|---|---|
| **Denmark** | |
| **France** | |
| **Hungary** | |
| **Ireland** | |
| **Italy** | |
| **Lithuania** | |
| **Luxembourg** | |
| **Netherlands** | |
| **Norway** | |
| **Portugal** | |
| **Romania** | |
| **Slovakia** | |
| **Slovenia** | |
| **Spain** | |
| **Sweden** | |
| **Switzerland** | |

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

*Classification according to*
*Regulation (EC) No. 1272/2008 [CLP]*

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP].

### 2.2. Label elements

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP]
**Hazard statements**
This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP].
EUH210 - Safety data sheet available on request.

### 2.3. Other hazards

Causes mild skin irritation.

**PBT & vPvB** This mixture contains no substance considered to be persistent, bioaccumulating or toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

**Endocrine Disruptor Information**

| Chemical name | EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very High Concern (SVHC) for Authorisation | EU - REACH (1907/2006) - Endocrine Disruptor Assessment List of Substances |
|---|---|---|
| Nitric Acid | - | - |

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Not applicable

### 3.2 Mixtures

**Chemical nature** aqueous solution.

| Chemical name | Weight-% | REACH registration number | EC No. (Index No.) | Classification according to Regulation (EC) No. 1272/2008 [CLP] | Specific concentration limit (SCL) | M-Factor | M-Factor (long-term) | Notes |
|---|---|---|---|---|---|---|---|---|
| Nitric Acid<br>7697-37-2 | 0.1 - 1 | - | 231-714-2 | Met. Corr. 1 (H290)<br>Ox. Liq. 2 (H272)<br>Acute Tox. 3 (H331)<br>Skin Corr. 1A (H314)<br>(EUH071) | Ox. Liq. 2 :: C>=99%<br>Ox. Liq. 3 :: C≥65%<br>Skin Corr. 1A :: C>=20%<br>Skin Corr. 1B :: 5%<=C<20% | - | - | B |

*- Substances contained in this mixture with No registration number are under the REACH threshold in Article 6(1) and not subject to the registration requirements according to REACH Title II*

*CLP Notes:*

*Note B - Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different classification and labelling since the hazards vary at different concentrations. In Part 3 entries with Note B have a general designation of the following type: 'nitric acid … %'. In this case the supplier must state the percentage concentration of the solution on the label. Unless otherwise stated, it is assumed that the percentage concentration is calculated on a weight/weight basis.*

**Full text of H- and EUH-phrases: see section 16**

*Acute Toxicity Estimate*

*If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components*

| Chemical name | Oral LD50 mg/kg | Dermal LD50 mg/kg | Inhalation LC50 - 4 hour - dust/mist - mg/L | Inhalation LC50 - 4 hour - vapour - mg/L | Inhalation LC50 - 4 hour - gas - ppm |
|---|---|---|---|---|---|
| Nitric Acid 7697-37-2 | No data available | No data available | No data available | 2.65 | No data available |

This product does not contain candidate substances of very high concern at a concentration >=0.1% (Regulation (EC) No. 1907/2006 (REACH), Article 59).

**Additional information**
The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/v). This is less than the acid concentration stated on the product label and COA, which reflects a percent value of the commercially available concentrated aqueous form of the acid.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

**Inhalation** Remove to fresh air.

**Eye contact** Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a doctor.

**Skin contact** Wash skin with soap and water. In the case of skin irritation or allergic reactions see a doctor.

**Ingestion** Rinse mouth.

### 4.2. Most important symptoms and effects, both acute and delayed

**Symptoms** Prolonged contact may cause redness and irritation.

**Effects of Exposure** No information available.

### 4.3. Indication of any immediate medical attention and special treatment needed

**Note to doctors** Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

| | |
|---|---|
| **Suitable Extinguishing Media** | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| **Large Fire** | CAUTION: Use of water spray when fighting fire may be inefficient. |
| **Unsuitable extinguishing media** | Do not scatter spilled material with high pressure water streams. |

### 5.2. Special hazards arising from the substance or mixture

| | |
|---|---|
| **Specific hazards arising from the chemical** | No information available. |

### 5.3. Advice for firefighters

| | |
|---|---|
| **Special protective equipment and precautions for fire-fighters** | Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment. |

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

| | |
|---|---|
| **Personal precautions** | Ensure adequate ventilation. |
| **For emergency responders** | Use personal protection recommended in Section 8. |

### 6.2. Environmental precautions

| | |
|---|---|
| **Environmental precautions** | See Section 12 for additional Ecological Information. |

### 6.3. Methods and material for containment and cleaning up

| | |
|---|---|
| **Methods for containment** | Prevent further leakage or spillage if safe to do so. |
| **Methods for cleaning up** | Take up mechanically, placing in appropriate containers for disposal. |
| **Prevention of secondary hazards** | Clean contaminated objects and areas thoroughly observing environmental regulations. |

### 6.4. Reference to other sections

| | |
|---|---|
| **Reference to other sections** | See section 8 for more information. See section 13 for more information. |

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

**Advice on safe handling** Ensure adequate ventilation.

**General hygiene considerations** Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage Conditions** Please refer to the manufacturer's certificate for specific storage and transport temperature conditions. Store only in the original receptacle unless other advice is given on the CoA.

**Storage class (TRGS 510)** LGK 10.

### 7.3. Specific end use(s)

**Risk Management Methods (RMM)** The information required is contained in this Safety Data Sheet.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

**Exposure Limits**

| Chemical name | European Union | Austria | Belgium | Bulgaria | Croatia |
|---|---|---|---|---|---|
| Nitric Acid<br>7697-37-2 | STEL: 1 ppm<br>STEL: 2.6 mg/m³ | STEL-KZGW: 1 ppm ();<br>STEL-KZGW: 2.6 mg/m³ (); | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL-KGVI: 1 ppm;<br>STEL-KGVI: 2.6 mg/m³; |
| **Chemical name** | **Cyprus** | **Czech Republic** | **Denmark** | **Estonia** | **Finland** |
| Nitric Acid<br>7697-37-2 | STEL: 1 ppm<br>STEL: 2.6 mg/m³ | TWA: 1 mg/m³;<br>Ceiling: 2.5 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | TWA: 0.5 ppm;<br>TWA: 1.3 mg/m³;<br>STEL: 1 ppm;<br>STEL: 2.6 mg/m³; |
| **Chemical name** | **France** | **Germany TRGS** | **Germany DFG** | **Greece** | **Hungary** |
| Nitric Acid<br>7697-37-2 | STEL-VLCT (indicat if): 1 ppm;<br>STEL-VLCT (indicat | TWA-AGW;<br>1 ppm ();<br>TWA-AGW; | - | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL-CK: 2.6 mg/m³;<br>STEL-CK: 1 ppm; |

| | | | | | |
|---|---|---|---|---|---|
| | if): 2.6 mg/m³; | 2.6 mg/m³ (); | | | |
| Chemical name | Ireland | Italy MDLPS | Italy AIDII | Latvia | Lithuania |
| Nitric Acid<br>7697-37-2 | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | TWA: 2 ppm;<br>TWA: 5.2 mg/m³;<br>STEL (REL): 4 ppm;<br>STEL (REL): 10.3 mg/m³; | TWA: 0.78 ppm;<br>TWA: 2 mg/m³;<br>STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL-TPRD: 1 ppm;<br>STEL-TPRD: 2.6 mg/m³; |
| Chemical name | Luxembourg | Malta | Netherlands | Norway | Poland |
| Nitric Acid<br>7697-37-2 | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 0.5 ppm;<br>STEL: 1.3 mg/m³; | TWA: 2 ppm;<br>TWA: 5 mg/m³;<br>STEL: 4 ppm (value calculated);<br>STEL: 10 mg/m³ (value calculated); | TWA-NDS: 1.4 mg/m³;<br>STEL-NDSCh: 2.6 mg/m³; |
| Chemical name | Portugal | Romania | Slovakia | Slovenia | Spain |
| Nitric Acid<br>7697-37-2 | TWA (VLE-MP): 2 ppm;<br>STEL (VLE-CD): 1 ppm;<br>STEL (VLE-CD): 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | Ceiling: 2.6 mg/m³; | TWA: 1 ppm;<br>TWA: 2.6 mg/m³;<br>STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL (VLA-EC): 1 ppm;<br>STEL (VLA-EC): 2.6 mg/m³; |

| Chemical name | Sweden | Switzerland | United Kingdom |
|---|---|---|---|
| Nitric Acid<br>7697-37-2 | TLV-NGV: 0.5 ppm;<br>TLV-NGV: 1.3 mg/m³;<br>STEL (Bindande KGV): 1 ppm;<br>STEL (Bindande KGV): 2.6 mg/m³; | TWA-MAK: 2 ppm;<br>TWA-MAK: 5 mg/m³;<br>STEL-KZGW: 2 ppm;<br>STEL-KZGW: 5 mg/m³; | STEL: 1 ppm<br>STEL: 2.6 mg/m³ |

**Biological occupational exposure limits** This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

**Derived No Effect Level (DNEL) - Workers**

| Chemical name | Oral | Dermal | Inhalation |
|---|---|---|---|
| Copper<br>7440-50-8 | - | 137 mg/kg bw/day [4] [6]<br>273 mg/kg bw/day [4] [7] | - |

**Notes**

**[4]** Systemic health effects.
**[6]** Long term.

**[7]** Short term.

**Derived No Effect Level (DNEL) - General Public**

| Chemical name | Oral | Dermal | Inhalation |
|---|---|---|---|
| Copper<br>7440-50-8 | 0.041 mg/kg bw/day [4] [6] | 273 mg/kg bw/day [4] [6]<br>273 mg/kg bw/day [4] [7] | 1 mg/m³ [5] [6]<br>1 mg/m³ [5] [7] |

**Notes**
**[4]** Systemic health effects.
**[5]** Local health effects.
**[6]** Long term.
**[7]** Short term.

**Predicted No Effect Concentration (PNEC)**

| Chemical name | Freshwater | Freshwater (intermittent release) | Marine water | Marine water (intermittent release) | Air |
|---|---|---|---|---|---|
| Copper<br>7440-50-8 | 7.8 µg/L | - | 5.2 µg/L | - | - |

| Chemical name | Freshwater sediment | Marine sediment | Sewage treatment | Soil | Food chain |
|---|---|---|---|---|---|
| Copper<br>7440-50-8 | 87 mg/kg sediment dw | 676 mg/kg sediment dw | 230 µg/L | 65 mg/kg soil dw | - |

**8.2. Exposure controls**

**Personal protective equipment**

**Eye/face protection** Avoid contact with eyes. Wear safety glasses with side shields (or goggles).

**Hand protection** Wear protective Neoprene™ gloves. The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374. Wear suitable gloves.

| | |
|---|---|
| **Skin and body protection** | Wear suitable protective clothing. |
| **Respiratory protection** | Appropriate respiratory protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction. |
| **General hygiene considerations** | Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection. |
| **Environmental exposure controls** | Do not allow into any sewer, on the ground or into any body of water. |

## SECTION 9: Physical and chemical properties

**9.1. Information on basic physical and chemical properties**

| | |
|---|---|
| **Appearance** | Liquid |
| **Physical state** | Liquid |
| **Colour** | colourless |
| **Odour** | Odourless |
| **Odour threshold** | No information available |

| **Property** | **Values** | **Remarks • Method** |
|---|---|---|
| **Melting point / freezing point** | 0 °C | None known |
| **Initial boiling point and boiling range** | 100 °C | None known |
| **Flammability** | No data available | None known |
| **Flammability Limit in Air** | | None known |
| **Upper flammability or explosive limits** | No data available | |
| **Lower flammability or explosive limits** | No data available | |
| **Flash point** | No data available | None known |
| **Autoignition temperature** | No data available | None known |
| **Decomposition temperature** | 100 °C | None known |
| **SADT (°C)** | No data available | None known |
| **pH** | No data available | None known |
| **pH (as aqueous solution)** | No data available | None known |
| **Kinematic viscosity** | No data available | None known |
| **Dynamic viscosity** | No data available | None known |
| **Water solubility** | No data available | None known |
| **Solubility(ies)** | No data available | None known |
| **Partition coefficient** | No data available | None known |
| **Vapour pressure** | 23 hPa | @ 20°C |
| **Relative density** | 0.99821 g/cm3 at 20 °C | None known |
| **Bulk density** | No data available | |

| | | |
|---|---|---|
| **Liquid Density** | No data available | |
| **Relative vapour density** | No data available | None known |
| **Particle characteristics** | | |
| **Particle Size** | No information available | |
| **Particle Size Distribution** | No information available | |

**9.2. Other information**

**9.2.1. Information with regards to physical hazard classes**
No information available

**9.2.2. Other safety characteristics**
No information available

## SECTION 10: Stability and reactivity

**10.1. Reactivity**

**Reactivity** No information available.

**10.2. Chemical stability**

**Stability** Stable under normal conditions.

**Explosion data**
**Sensitivity to mechanical impact** None.
**Sensitivity to static discharge** None.

**10.3. Possibility of hazardous reactions**

**Possibility of hazardous reactions** None under normal processing.

**10.4. Conditions to avoid**

**Conditions to avoid** None known based on information supplied.

**10.5. Incompatible materials**

**Incompatible materials** None known based on information supplied.

**10.6. Hazardous decomposition products**

**Hazardous decomposition products** None known based on information supplied.

## SECTION 11: Toxicological information

**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**

**Information on likely routes of exposure**

**Inhalation** Specific test data for the substance or mixture is not available.

**Eye contact** Specific test data for the substance or mixture is not available.

**Skin contact** Specific test data for the substance or mixture is not available. Causes mild skin irritation.

**Ingestion** Specific test data for the substance or mixture is not available.

**Symptoms related to the physical, chemical and toxicological characteristics**

**Symptoms** Prolonged contact may cause redness and irritation.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Acute toxicity** Based on available data, the classification criteria are not met.

**Numerical measures of toxicity**

The following ATE values have been calculated for the mixture:

ATEmix (oral) 99,999.00 mg/kg
ATEmix (dermal) 99,999.00 mg/kg
ATEmix (inhalation-gas) 99,999.00 ppm
ATEmix (inhalation-vapour) 1,325.00 mg/l
ATEmix (inhalation-dust/mist) 99,999.00 mg/l

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---|---|---|---|
| Nitric Acid | - | - | = 2500 ppm ( Rat ) 1 h<br>ATE (vapours) = 2.65 mg/L |

**Skin corrosion/irritation** Classification based on data available for ingredients. Causes mild skin irritation.

**Serious eye damage/eye irritation** Based on available data, the classification criteria are not met.

**Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.

**Germ cell mutagenicity** Based on available data, the classification criteria are not met.

**Carcinogenicity** Based on available data, the classification criteria are not met.

**Reproductive toxicity** Based on available data, the classification criteria are not met.

**STOT - single exposure** Based on available data, the classification criteria are not met.

**STOT - repeated exposure** Based on available data, the classification criteria are not met.

**Aspiration hazard** Based on available data, the classification criteria are not met.

### 11.2. Information on other hazards

#### 11.2.1. Endocrine disrupting properties

**Endocrine disrupting properties** This product does not contain any known or suspected endocrine disruptors.

#### 11.2.2. Other information

**Other adverse effects** No information available.

## SECTION 12: Ecological information

### 12.1. Toxicity

**Ecotoxicity** The environmental impact of this product has not been fully investigated.

### 12.2. Persistence and degradability

**Persistence and degradability** No information available.

### 12.3. Bioaccumulative potential

**Bioaccumulation**

| Chemical name | Partition coefficient |
|---|---|
| Nitric Acid | -2.3 |

### 12.4. Mobility in soil

**Mobility in soil** No information available.

### 12.5. Results of PBT and vPvB assessment

**PBT and vPvB assessment** Based on available data, the classification criteria are not met.

| Chemical name | PBT and vPvB assessment |
|---|---|
| Nitric Acid | The substance is not PBT / vPvB |

**12.6. Endocrine disrupting properties**

**Endocrine disrupting properties** Based on available data, the classification criteria are not met.

**12.7. Other adverse effects**

**Other adverse effects** No information available.
**PMT or vPvM properties** Based on available data, the classification criteria are not met.

## SECTION 13: Disposal considerations

**13.1. Waste treatment methods**

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

## SECTION 14: Transport information

**IATA**

**14.1 UN number or ID number** Not regulated
**14.2 UN proper shipping name** Not regulated
**14.3 Transport hazard class(es)** Not regulated
**14.4 Packing group** Not regulated
**14.5 Environmental hazards** Not applicable
**14.6 Special precautions for user**
**Special Provisions** None

**IMDG**

**14.1 UN number or ID number** Not regulated
**14.2 UN proper shipping name** Not regulated
**14.3 Transport hazard class(es)** Not regulated
**14.4 Packing group** Not regulated
**14.5 Environmental hazards** Not applicable
**14.6 Special precautions for user**
**Special Provisions** None
**14.7 Maritime transport in bulk** No information available

**according to IMO instruments**

**RID**

| | |
|---|---|
| **14.1 UN number or ID number** | Not regulated |
| **14.2 UN proper shipping name** | Not regulated |
| **14.3 Transport hazard class(es)** | Not regulated |
| **14.4 Packing group** | Not regulated |
| **14.5 Environmental hazards** | Not applicable |
| **14.6 Special precautions for user** | |
| **Special Provisions** | None |

**ADR**

| | |
|---|---|
| **14.1 UN number or ID number** | Not regulated |
| **14.2 UN proper shipping name** | Not regulated |
| **14.3 Transport hazard class(es)** | Not regulated |
| **14.4 Packing group** | Not regulated |
| **14.5 Environmental hazards** | Not applicable |
| **14.6 Special precautions for user** | |
| **Special Provisions** | None |

**ADN**

| | |
|---|---|
| **14.1 UN number or ID number** | Not regulated |
| **14.2 UN proper shipping name** | Not regulated |
| **14.3 Transport hazard class(es)** | Not regulated |
| **14.4 Packing group** | Not regulated |
| **14.5 Environmental hazard** | Not applicable |
| **14.6 Special precautions for user** | |
| **Special Provisions** | None |

## SECTION 15: Regulatory information

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

**National regulations**

**Germany**

| | |
|---|---|
| **Water hazard class (WGK)** | non-hazardous to water (nwg) |
| **Chemical Prohibition Ordinance (ChemVerbotsV)** | Not applicable |
| **TRGS 905** | Not applicable |

**Switzerland**

| | |
|---|---|
| **Ordinance on the Incentive Tax on Volatile Organic Compounds (OVOC) SR 814.018** | Not applicable |
| **Storage of Hazardous Material** | SC Non-hazardous material |
| **WPO (GSchV) SR 814.201; WPA (GSchG) SR 814.20** | Class B |
| **Major Accidents Ordinance SR 814.012** | Not applicable |

| Chemical name | Threshold quantity |
|---|---|
| Nitric Acid - 7697-37-2 | 20000 kg |

**European Union**

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

**Authorisations and/or restrictions on use:**

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

| Chemical name | Restricted substance per REACH Annex XVII | Substance subject to authorisation per REACH Annex XIV |
|---|---|---|
| Nitric Acid - 7697-37-2 | 75 | |

**DIRECTIVE (EU) 2021/1187 on the marketing and use of explosives precursors**

Not applicable

| Chemical name | RESTRICTED EXPLOSIVES PRECURSORS - ANNEX I | REPORTABLE EXPLOSIVES PRECURSORS - ANNEX II |
|---|---|---|
| Nitric Acid - 7697-37-2 | 3 %w/w | - |

**Persistent Organic Pollutants**

Not applicable

**Ozone-depleting substances (ODS) regulation (EC) 2024/590**

Not applicable

**International Inventories**

| | |
|---|---|
| **TSCA** | U.S. INVENTORY (TSCA): Listed on inventory. For purposes of 40 CFR 720.36, this product is for Research and Development (R&D) Use Only |
| **DSL/NDSL** | Contact supplier for inventory compliance status |
| **EINECS/ELINCS** | Contact supplier for inventory compliance status |
| **ENCS** | Contact supplier for inventory compliance status |
| **IECSC** | Contact supplier for inventory compliance status |
| **KECL** | Contact supplier for inventory compliance status |
| **PICCS** | Contact supplier for inventory compliance status |
| **AIIC** | Contact supplier for inventory compliance status |

**Legend:**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
**ENCS** - Japan Existing and New Chemical Substances
**IECSC** - China Inventory of Existing Chemical Substances
**KECL** - Korean Existing Chemicals Inventory
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances
**AICS** - Australian Inventory of Chemical Substances

### 15.2. Chemical safety assessment

| | |
|---|---|
| **Chemical Safety Report** | A Chemical Safety Assessment is not required for this substance |

## SECTION 16: Other information

**Key or legend to abbreviations and acronyms used in the safety data sheet**

**Full text of any hazard and/or precautionary statements referred to under Sections 2-15**
EUH071 - Corrosive to the respiratory tract
H272 - May intensify fire; oxidiser
H290 - May be corrosive to metals
H314 - Causes severe skin burns and eye damage
H331 - Toxic if inhaled

**Legend**

| | |
|---|---|
| ACGIH | American Conference of Governmental Industrial Hygienists |
| AIDII | Italian Association of Industrial Hygienists |
| ADN | Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Europe) |
| ADR | Agreement concerning the International Carriage of Dangerous Goods by Road (Europe) |
| AIIC | Australian Inventory of Industrial Chemicals |
| ATE | Acute Toxicity Estimate |
| ASTM | American Society for the Testing of Materials |

| | |
|---|---|
| bar | Biological Reference Values for Chemical Compounds in the Work Area |
| BAT | Biological tolerance values for occupational exposure |
| BEL | Biological exposure limits |
| bw | Body weight |
| Ceiling | Maximum limit value |
| CLP | Classification, Labelling and Packaging Regulation; Regulation (EC) No 1272/2008 |
| CMR | Carcinogen, Mutagen or Reproductive Toxicant |
| DFG | German Research Foundation |
| DOT | Department of Transportation (United States) |
| DSL | Domestic Substances List (Canada) |
| ECHA | European Chemicals Agency |
| EC Number | European Community number |
| EmS | Emergency Schedule |
| ENCS | Existing and New Chemical Substances (Japan) |
| EPA | Environmental Protection Agency |
| EWC | European Waste Codes |
| GHS | Globally Harmonized System |
| IARC | International Agency for Research on Cancer |
| IATA | International Air Transport Association |
| IBC | International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk |
| ICAO | International Civil Aviation Organisation |
| IECSC | Inventory of Existing Chemical Substances in China |
| IMDG | International Maritime Dangerous Goods |
| IMO | International Maritime Organization |
| ISO | International Organisation for Standardisation |
| KECI | Korean Existing Chemicals Inventory |
| LC50 | Lethal Concentration to 50% of a test population |
| LD50 | Lethal Dose to 50% of a test population (Median Lethal Dose) |
| MAL | Measuring Technical Hygienic Air Needs |
| MARPOL | International Convention for the Prevention of Pollution from Ships |
| MDLPS | Ministry of Labour and Social Policy |
| n.o.s. | Not Otherwise Specified |
| NOAEC | No Observed Adverse Effect Concentration |
| NOAEL | No Observed Adverse Effect Level |
| NOELR | No Observable Effect Loading Rate |
| NZIoC | New Zealand Inventory of Chemicals |
| OECD | Organization for Economic Cooperation and Development |
| OEL | Occupational exposure limits |
| PBT | Persistent, Bioaccumulative and Toxic substance |
| PICCS | Philippines Inventory of Chemicals and Chemical Substances |
| PMT | Persistent, Mobile and Toxic |

| | |
|---|---|
| PPE | Personal protective equipment |
| QSAR | Quantitative Structure Activity Relationship |
| REACH | Registration, Evaluation, Authorisation, and Restriction of Chemicals (REACH) Regulation (EC 1907/2006) |
| RID | Agreement concerning the International Carriage of Dangerous Goods by Rail (Europe) |
| SADT | Self-Accelerating Decomposition Temperature |
| SAR | Structure-activity relationship |
| SDS | Safety Data Sheet |
| SL | Surface Limit |
| STEL | Short Term Exposure Limit |
| STOT RE | Specific target organ toxicity - Repeated exposure |
| STOT SE | Specific target organ toxicity - Single exposure |
| SVHC | Substance of very high concern |
| TCSI | Taiwan Chemical Substance Inventory |
| TDG | Transport of Dangerous Goods (Canada) |
| TRGS | Technical Rule for Hazardous Substances |
| TSCA | Toxic Substances Control Act (United States) |
| TWA | Time-Weighted Average |
| UN | United Nations |
| VOC | Volatile organic compounds |
| vPvB | Very Persistent and Very Bioaccumulative |
| vPvM | Very Persistent and Very Mobile |
| Sen+ | Sensitiser |
| Sk* | Skin designation |
| ** | Hazard Designation |

| Classification procedure | |
|---|---|
| Classification according to Regulation (EC) No. 1272/2008 [CLP] | Method Used |
| Acute oral toxicity | Calculation method |
| Acute dermal toxicity | Calculation method |
| Acute inhalation toxicity - gas | Calculation method |
| Acute inhalation toxicity - vapour | Calculation method |
| Acute inhalation toxicity - dust/mist | Calculation method |
| Skin corrosion/irritation | Calculation method |
| Serious eye damage/eye irritation | Calculation method |
| Respiratory sensitisation | Calculation method |
| Skin sensitisation | Calculation method |
| Mutagenicity | Calculation method |
| Carcinogenicity | Calculation method |
| Reproductive toxicity | Calculation method |
| STOT - single exposure | Calculation method |
| STOT - repeated exposure | Calculation method |

| | |
|---|---|
| Chronic aquatic toxicity | Calculation method |
| Acute aquatic toxicity | Calculation method |
| Aspiration hazard | Calculation method |
| Ozone | Calculation method |

**Key literature references and sources for data used to compile the SDS**
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)
Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine’s PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

**Revision date** 05-Dec-2025
**Reason for revision** Classification , transport , Precautionary statements
**This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006**
**Disclaimer**
**The information contained in this document is based on Agilent’s state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.**

**End of Safety Data Sheet**

# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008

**Revision date** 05-Dec-2025 **Revision Number** 2

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

### 1.1. Product identifier

**Product Code(s)** 5799-0007

**Product Name** 5.0 mg/L Copper in 0.2% HNO3

**Form** Not applicable

**Pure substance/mixture** Mixture

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

**Recommended use** Reagents and Standards for Analytical Chemical Laboratory Use

**Uses advised against** Do not use outside of recommended applications

### 1.3. Details of the supplier of the safety data sheet

**Supplier**

Agilent Technologies LDA UK Ltd.
5500 Lakeside Cheadle Royal Business Park,
Cheadle, Cheshire, SK8 3GR
United Kindgom

+44 (0) 345 712 5292

For further information, please contact

**E-mail address** pdl-msds_author@agilent.com

### 1.4. Emergency telephone number

Emergency Telephone CHEMTREC®: +44 20 3807 3798

| **Emergency Telephone - §45 - (EC)1272/2008** | |
|---|---|
| **Europe** | **112** |
| **Austria** | No information available |
| **Bulgaria** | |
| **Croatia** | |
| **Cyprus** | |
| **Czech Republic** | |

| | |
|---|---|
| **Denmark** | |
| **France** | |
| **Hungary** | |
| **Ireland** | |
| **Italy** | |
| **Lithuania** | |
| **Luxembourg** | |
| **Netherlands** | |
| **Norway** | |
| **Portugal** | |
| **Romania** | |
| **Slovakia** | |
| **Slovenia** | |
| **Spain** | |
| **Sweden** | |
| **Switzerland** | |

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

*Classification according to*
*Regulation (EC) No. 1272/2008 [CLP]*

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP].

### 2.2. Label elements

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP]
**Hazard statements**
This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP].
EUH210 - Safety data sheet available on request.

### 2.3. Other hazards

Causes mild skin irritation.

**PBT & vPvB** This mixture contains no substance considered to be persistent, bioaccumulating or toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

**Endocrine Disruptor Information**

| Chemical name | EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very High Concern (SVHC) for Authorisation | EU - REACH (1907/2006) - Endocrine Disruptor Assessment List of Substances |
|---|---|---|
| Nitric Acid | - | - |

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Not applicable

### 3.2 Mixtures

**Chemical nature** aqueous solution.

| Chemical name | Weight-% | REACH registration number | EC No. (Index No.) | Classification according to Regulation (EC) No. 1272/2008 [CLP] | Specific concentration limit (SCL) | M-Factor | M-Factor (long-term) | Notes |
|---|---|---|---|---|---|---|---|---|
| Nitric Acid<br>7697-37-2 | 0.1 - 1 | - | 231-714-2 | Met. Corr. 1 (H290)<br>Ox. Liq. 2 (H272)<br>Acute Tox. 3 (H331)<br>Skin Corr. 1A (H314)<br>(EUH071) | Ox. Liq. 2 :: C>=99%<br>Ox. Liq. 3 :: C≥65%<br>Skin Corr. 1A :: C>=20%<br>Skin Corr. 1B :: 5%<=C<20% | - | - | B |

*- Substances contained in this mixture with No registration number are under the REACH threshold in Article 6(1) and not subject to the registration requirements according to REACH Title II*

*CLP Notes:*

*Note B - Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different classification and labelling since the hazards vary at different concentrations. In Part 3 entries with Note B have a general designation of the following type: 'nitric acid … %'. In this case the supplier must state the percentage concentration of the solution on the label. Unless otherwise stated, it is assumed that the percentage concentration is calculated on a weight/weight basis.*

**Full text of H- and EUH-phrases: see section 16**

*Acute Toxicity Estimate*

*If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components*

| Chemical name | Oral LD50 mg/kg | Dermal LD50 mg/kg | Inhalation LC50 - 4 hour - dust/mist - mg/L | Inhalation LC50 - 4 hour - vapour - mg/L | Inhalation LC50 - 4 hour - gas - ppm |
|---|---|---|---|---|---|
| Nitric Acid 7697-37-2 | No data available | No data available | No data available | 2.65 | No data available |

This product does not contain candidate substances of very high concern at a concentration >=0.1% (Regulation (EC) No. 1907/2006 (REACH), Article 59).

**Additional information**
The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/v). This is less than the acid concentration stated on the product label and COA, which reflects a percent value of the commercially available concentrated aqueous form of the acid.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

**Inhalation** Remove to fresh air.

**Eye contact** Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a doctor.

**Skin contact** Wash skin with soap and water. In the case of skin irritation or allergic reactions see a doctor.

**Ingestion** Rinse mouth.

### 4.2. Most important symptoms and effects, both acute and delayed

**Symptoms** Prolonged contact may cause redness and irritation.

**Effects of Exposure** No information available.

### 4.3. Indication of any immediate medical attention and special treatment needed

**Note to doctors** Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

| | |
|---|---|
| **Suitable Extinguishing Media** | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| **Large Fire** | CAUTION: Use of water spray when fighting fire may be inefficient. |
| **Unsuitable extinguishing media** | Do not scatter spilled material with high pressure water streams. |

### 5.2. Special hazards arising from the substance or mixture

| | |
|---|---|
| **Specific hazards arising from the chemical** | No information available. |

### 5.3. Advice for firefighters

| | |
|---|---|
| **Special protective equipment and precautions for fire-fighters** | Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment. |

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

| | |
|---|---|
| **Personal precautions** | Ensure adequate ventilation. |
| **For emergency responders** | Use personal protection recommended in Section 8. |

### 6.2. Environmental precautions

| | |
|---|---|
| **Environmental precautions** | See Section 12 for additional Ecological Information. |

### 6.3. Methods and material for containment and cleaning up

| | |
|---|---|
| **Methods for containment** | Prevent further leakage or spillage if safe to do so. |
| **Methods for cleaning up** | Take up mechanically, placing in appropriate containers for disposal. |
| **Prevention of secondary hazards** | Clean contaminated objects and areas thoroughly observing environmental regulations. |

### 6.4. Reference to other sections

| | |
|---|---|
| **Reference to other sections** | See section 8 for more information. See section 13 for more information. |

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

**Advice on safe handling** Ensure adequate ventilation.

**General hygiene considerations** Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage Conditions** Please refer to the manufacturer's certificate for specific storage and transport temperature conditions. Store only in the original receptacle unless other advice is given on the CoA.

**Storage class (TRGS 510)** LGK 10.

### 7.3. Specific end use(s)

**Risk Management Methods (RMM)** The information required is contained in this Safety Data Sheet.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

**Exposure Limits**

| Chemical name | European Union | Austria | Belgium | Bulgaria | Croatia |
|---|---|---|---|---|---|
| Nitric Acid<br>7697-37-2 | STEL: 1 ppm<br>STEL: 2.6 mg/m³ | STEL-KZGW: 1 ppm ();<br>STEL-KZGW: 2.6 mg/m³ (); | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL-KGVI: 1 ppm;<br>STEL-KGVI: 2.6 mg/m³; |
| Chemical name | Cyprus | Czech Republic | Denmark | Estonia | Finland |
| Nitric Acid<br>7697-37-2 | STEL: 1 ppm<br>STEL: 2.6 mg/m³ | TWA: 1 mg/m³;<br>Ceiling: 2.5 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | TWA: 0.5 ppm;<br>TWA: 1.3 mg/m³;<br>STEL: 1 ppm;<br>STEL: 2.6 mg/m³; |
| Chemical name | France | Germany TRGS | Germany DFG | Greece | Hungary |
| Nitric Acid<br>7697-37-2 | STEL-VLCT (indicat if): 1 ppm;<br>STEL-VLCT (indicat | TWA-AGW;<br>1 ppm ();<br>TWA-AGW; | - | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL-CK: 2.6 mg/m³;<br>STEL-CK: 1 ppm; |

| | | | | | |
|---|---|---|---|---|---|
| | if): 2.6 mg/m³; | 2.6 mg/m³ (); | | | |
| Chemical name | Ireland | Italy MDLPS | Italy AIDII | Latvia | Lithuania |
| Nitric Acid<br>7697-37-2 | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | TWA: 2 ppm;<br>TWA: 5.2 mg/m³;<br>STEL (REL): 4 ppm;<br>STEL (REL): 10.3 mg/m³; | TWA: 0.78 ppm;<br>TWA: 2 mg/m³;<br>STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL-TPRD: 1 ppm;<br>STEL-TPRD: 2.6 mg/m³; |
| Chemical name | Luxembourg | Malta | Netherlands | Norway | Poland |
| Nitric Acid<br>7697-37-2 | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 0.5 ppm;<br>STEL: 1.3 mg/m³; | TWA: 2 ppm;<br>TWA: 5 mg/m³;<br>STEL: 4 ppm (value calculated);<br>STEL: 10 mg/m³ (value calculated); | TWA-NDS: 1.4 mg/m³;<br>STEL-NDSCh: 2.6 mg/m³; |
| Chemical name | Portugal | Romania | Slovakia | Slovenia | Spain |
| Nitric Acid<br>7697-37-2 | TWA (VLE-MP): 2 ppm;<br>STEL (VLE-CD): 1 ppm;<br>STEL (VLE-CD): 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | Ceiling: 2.6 mg/m³; | TWA: 1 ppm;<br>TWA: 2.6 mg/m³;<br>STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL (VLA-EC): 1 ppm;<br>STEL (VLA-EC): 2.6 mg/m³; |

| Chemical name | Sweden | Switzerland | United Kingdom |
|---|---|---|---|
| Nitric Acid<br>7697-37-2 | TLV-NGV: 0.5 ppm;<br>TLV-NGV: 1.3 mg/m³;<br>STEL (Bindande KGV): 1 ppm;<br>STEL (Bindande KGV): 2.6 mg/m³; | TWA-MAK: 2 ppm;<br>TWA-MAK: 5 mg/m³;<br>STEL-KZGW: 2 ppm;<br>STEL-KZGW: 5 mg/m³; | STEL: 1 ppm<br>STEL: 2.6 mg/m³ |

**Biological occupational exposure limits** This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

**Derived No Effect Level (DNEL) - Workers**

| Chemical name | Oral | Dermal | Inhalation |
|---|---|---|---|
| Copper<br>7440-50-8 | - | 137 mg/kg bw/day [4] [6]<br>273 mg/kg bw/day [4] [7] | - |

**Notes**

**[4]** Systemic health effects.
**[6]** Long term.

**[7]** Short term.

**Derived No Effect Level (DNEL) - General Public**

| Chemical name | Oral | Dermal | Inhalation |
|---|---|---|---|
| Copper<br>7440-50-8 | 0.041 mg/kg bw/day [4] [6] | 273 mg/kg bw/day [4] [6]<br>273 mg/kg bw/day [4] [7] | 1 mg/m³ [5] [6]<br>1 mg/m³ [5] [7] |

**Notes**
**[4]** Systemic health effects.
**[5]** Local health effects.
**[6]** Long term.
**[7]** Short term.

**Predicted No Effect Concentration (PNEC)**

| Chemical name | Freshwater | Freshwater (intermittent release) | Marine water | Marine water (intermittent release) | Air |
|---|---|---|---|---|---|
| Copper<br>7440-50-8 | 7.8 µg/L | - | 5.2 µg/L | - | - |

| Chemical name | Freshwater sediment | Marine sediment | Sewage treatment | Soil | Food chain |
|---|---|---|---|---|---|
| Copper<br>7440-50-8 | 87 mg/kg sediment dw | 676 mg/kg sediment dw | 230 µg/L | 65 mg/kg soil dw | - |

**8.2. Exposure controls**

**Personal protective equipment**

**Eye/face protection** Avoid contact with eyes. Wear safety glasses with side shields (or goggles).

**Hand protection** Wear protective Neoprene™ gloves. The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374. Wear suitable gloves.

| | |
|---|---|
| **Skin and body protection** | Wear suitable protective clothing. |
| **Respiratory protection** | Appropriate respiratory protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction. |
| **General hygiene considerations** | Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection. |
| **Environmental exposure controls** | Do not allow into any sewer, on the ground or into any body of water. |

## SECTION 9: Physical and chemical properties

**9.1. Information on basic physical and chemical properties**

| | |
|---|---|
| **Appearance** | Liquid |
| **Physical state** | Liquid |
| **Colour** | colourless |
| **Odour** | Odourless |
| **Odour threshold** | No information available |

| **Property** | **Values** | **Remarks • Method** |
|---|---|---|
| **Melting point / freezing point** | 0 °C | None known |
| **Initial boiling point and boiling range** | 100 °C | None known |
| **Flammability** | No data available | None known |
| **Flammability Limit in Air** | | None known |
| **Upper flammability or explosive limits** | No data available | |
| **Lower flammability or explosive limits** | No data available | |
| **Flash point** | No data available | None known |
| **Autoignition temperature** | No data available | None known |
| **Decomposition temperature** | 100 °C | None known |
| **SADT (°C)** | No data available | None known |
| **pH** | No data available | None known |
| **pH (as aqueous solution)** | No data available | None known |
| **Kinematic viscosity** | No data available | None known |
| **Dynamic viscosity** | No data available | None known |
| **Water solubility** | No data available | None known |
| **Solubility(ies)** | No data available | None known |
| **Partition coefficient** | No data available | None known |
| **Vapour pressure** | 23 hPa | @ 20°C |
| **Relative density** | 0.99821 g/cm3 at 20 °C | None known |
| **Bulk density** | No data available | |

| | | |
|---|---|---|
| **Liquid Density** | No data available | |
| **Relative vapour density** | No data available | None known |
| **Particle characteristics** | | |
| **Particle Size** | No information available | |
| **Particle Size Distribution** | No information available | |

**9.2. Other information**

**9.2.1. Information with regards to physical hazard classes**
No information available

**9.2.2. Other safety characteristics**
No information available

## SECTION 10: Stability and reactivity

**10.1. Reactivity**

**Reactivity** No information available.

**10.2. Chemical stability**

**Stability** Stable under normal conditions.

**Explosion data**
**Sensitivity to mechanical impact** None.
**Sensitivity to static discharge** None.

**10.3. Possibility of hazardous reactions**

**Possibility of hazardous reactions** None under normal processing.

**10.4. Conditions to avoid**

**Conditions to avoid** None known based on information supplied.

**10.5. Incompatible materials**

**Incompatible materials** None known based on information supplied.

**10.6. Hazardous decomposition products**

**Hazardous decomposition products** None known based on information supplied.

## SECTION 11: Toxicological information

**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**

**Information on likely routes of exposure**

**Inhalation** Specific test data for the substance or mixture is not available.

**Eye contact** Specific test data for the substance or mixture is not available.

**Skin contact** Specific test data for the substance or mixture is not available. Causes mild skin irritation.

**Ingestion** Specific test data for the substance or mixture is not available.

**Symptoms related to the physical, chemical and toxicological characteristics**

**Symptoms** Prolonged contact may cause redness and irritation.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Acute toxicity** Based on available data, the classification criteria are not met.

**Numerical measures of toxicity**

The following ATE values have been calculated for the mixture:

ATEmix (oral) 99,999.00 mg/kg
ATEmix (dermal) 99,999.00 mg/kg
ATEmix (inhalation-gas) 99,999.00 ppm
ATEmix (inhalation-vapour) 1,325.00 mg/l
ATEmix (inhalation-dust/mist) 99,999.00 mg/l

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---|---|---|---|
| Nitric Acid | - | - | = 2500 ppm ( Rat ) 1 h<br>ATE (vapours) = 2.65 mg/L |

**Skin corrosion/irritation** Classification based on data available for ingredients. Causes mild skin irritation.

**Serious eye damage/eye irritation** Based on available data, the classification criteria are not met.

**Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.

**Germ cell mutagenicity** Based on available data, the classification criteria are not met.

**Carcinogenicity** Based on available data, the classification criteria are not met.

**Reproductive toxicity** Based on available data, the classification criteria are not met.

**STOT - single exposure** Based on available data, the classification criteria are not met.

**STOT - repeated exposure** Based on available data, the classification criteria are not met.

**Aspiration hazard** Based on available data, the classification criteria are not met.

### 11.2. Information on other hazards

#### 11.2.1. Endocrine disrupting properties

**Endocrine disrupting properties** This product does not contain any known or suspected endocrine disruptors.

#### 11.2.2. Other information

**Other adverse effects** No information available.

## SECTION 12: Ecological information

### 12.1. Toxicity

**Ecotoxicity** The environmental impact of this product has not been fully investigated.

### 12.2. Persistence and degradability

**Persistence and degradability** No information available.

### 12.3. Bioaccumulative potential

**Bioaccumulation**

| Chemical name | Partition coefficient |
|---|---|
| Nitric Acid | -2.3 |

### 12.4. Mobility in soil

**Mobility in soil** No information available.

### 12.5. Results of PBT and vPvB assessment

**PBT and vPvB assessment** Based on available data, the classification criteria are not met.

| Chemical name | PBT and vPvB assessment |
|---|---|
| Nitric Acid | The substance is not PBT / vPvB |

**12.6. Endocrine disrupting properties**

**Endocrine disrupting properties** Based on available data, the classification criteria are not met.

**12.7. Other adverse effects**

**Other adverse effects** No information available.
**PMT or vPvM properties** Based on available data, the classification criteria are not met.

## SECTION 13: Disposal considerations

**13.1. Waste treatment methods**

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

## SECTION 14: Transport information

**IATA**

**14.1 UN number or ID number** Not regulated
**14.2 UN proper shipping name** Not regulated
**14.3 Transport hazard class(es)** Not regulated
**14.4 Packing group** Not regulated
**14.5 Environmental hazards** Not applicable
**14.6 Special precautions for user**
**Special Provisions** None

**IMDG**

**14.1 UN number or ID number** Not regulated
**14.2 UN proper shipping name** Not regulated
**14.3 Transport hazard class(es)** Not regulated
**14.4 Packing group** Not regulated
**14.5 Environmental hazards** Not applicable
**14.6 Special precautions for user**
**Special Provisions** None
**14.7 Maritime transport in bulk** No information available

**according to IMO instruments**

**RID**

| | |
|---|---|
| **14.1 UN number or ID number** | Not regulated |
| **14.2 UN proper shipping name** | Not regulated |
| **14.3 Transport hazard class(es)** | Not regulated |
| **14.4 Packing group** | Not regulated |
| **14.5 Environmental hazards** | Not applicable |
| **14.6 Special precautions for user** | |
| **Special Provisions** | None |

**ADR**

| | |
|---|---|
| **14.1 UN number or ID number** | Not regulated |
| **14.2 UN proper shipping name** | Not regulated |
| **14.3 Transport hazard class(es)** | Not regulated |
| **14.4 Packing group** | Not regulated |
| **14.5 Environmental hazards** | Not applicable |
| **14.6 Special precautions for user** | |
| **Special Provisions** | None |

**ADN**

| | |
|---|---|
| **14.1 UN number or ID number** | Not regulated |
| **14.2 UN proper shipping name** | Not regulated |
| **14.3 Transport hazard class(es)** | Not regulated |
| **14.4 Packing group** | Not regulated |
| **14.5 Environmental hazard** | Not applicable |
| **14.6 Special precautions for user** | |
| **Special Provisions** | None |

## SECTION 15: Regulatory information

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

**National regulations**

**Germany**

| | |
|---|---|
| **Water hazard class (WGK)** | non-hazardous to water (nwg) |
| **Chemical Prohibition Ordinance (ChemVerbotsV)** | Not applicable |
| **TRGS 905** | Not applicable |

**Switzerland**

| | |
|---|---|
| **Ordinance on the Incentive Tax on Volatile Organic Compounds (OVOC) SR 814.018** | Not applicable |
| **Storage of Hazardous Material** | SC Non-hazardous material |
| **WPO (GSchV) SR 814.201; WPA (GSchG) SR 814.20** | Class B |
| **Major Accidents Ordinance SR 814.012** | Not applicable |

| Chemical name | Threshold quantity |
|---|---|
| Nitric Acid - 7697-37-2 | 20000 kg |

**European Union**

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

**Authorisations and/or restrictions on use:**

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

| Chemical name | Restricted substance per REACH Annex XVII | Substance subject to authorisation per REACH Annex XIV |
|---|---|---|
| Nitric Acid - 7697-37-2 | 75 | |

**DIRECTIVE (EU) 2021/1187 on the marketing and use of explosives precursors**

Not applicable

| Chemical name | RESTRICTED EXPLOSIVES PRECURSORS - ANNEX I | REPORTABLE EXPLOSIVES PRECURSORS - ANNEX II |
|---|---|---|
| Nitric Acid - 7697-37-2 | 3 %w/w | - |

**Persistent Organic Pollutants**

Not applicable

**Ozone-depleting substances (ODS) regulation (EC) 2024/590**

Not applicable

**International Inventories**

| | |
|---|---|
| **TSCA** | U.S. INVENTORY (TSCA): Listed on inventory. For purposes of 40 CFR 720.36, this product is for Research and Development (R&D) Use Only |
| **DSL/NDSL** | Contact supplier for inventory compliance status |
| **EINECS/ELINCS** | Contact supplier for inventory compliance status |
| **ENCS** | Contact supplier for inventory compliance status |
| **IECSC** | Contact supplier for inventory compliance status |
| **KECL** | Contact supplier for inventory compliance status |
| **PICCS** | Contact supplier for inventory compliance status |
| **AIIC** | Contact supplier for inventory compliance status |

**Legend:**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
**ENCS** - Japan Existing and New Chemical Substances
**IECSC** - China Inventory of Existing Chemical Substances
**KECL** - Korean Existing Chemicals Inventory
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances
**AICS** - Australian Inventory of Chemical Substances

### 15.2. Chemical safety assessment

| | |
|---|---|
| **Chemical Safety Report** | A Chemical Safety Assessment is not required for this substance |

## SECTION 16: Other information

**Key or legend to abbreviations and acronyms used in the safety data sheet**

**Full text of any hazard and/or precautionary statements referred to under Sections 2-15**
EUH071 - Corrosive to the respiratory tract
H272 - May intensify fire; oxidiser
H290 - May be corrosive to metals
H314 - Causes severe skin burns and eye damage
H331 - Toxic if inhaled

**Legend**

| | |
|---|---|
| ACGIH | American Conference of Governmental Industrial Hygienists |
| AIDII | Italian Association of Industrial Hygienists |
| ADN | Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Europe) |
| ADR | Agreement concerning the International Carriage of Dangerous Goods by Road (Europe) |
| AIIC | Australian Inventory of Industrial Chemicals |
| ATE | Acute Toxicity Estimate |
| ASTM | American Society for the Testing of Materials |

| | |
|---|---|
| bar | Biological Reference Values for Chemical Compounds in the Work Area |
| BAT | Biological tolerance values for occupational exposure |
| BEL | Biological exposure limits |
| bw | Body weight |
| Ceiling | Maximum limit value |
| CLP | Classification, Labelling and Packaging Regulation; Regulation (EC) No 1272/2008 |
| CMR | Carcinogen, Mutagen or Reproductive Toxicant |
| DFG | German Research Foundation |
| DOT | Department of Transportation (United States) |
| DSL | Domestic Substances List (Canada) |
| ECHA | European Chemicals Agency |
| EC Number | European Community number |
| EmS | Emergency Schedule |
| ENCS | Existing and New Chemical Substances (Japan) |
| EPA | Environmental Protection Agency |
| EWC | European Waste Codes |
| GHS | Globally Harmonized System |
| IARC | International Agency for Research on Cancer |
| IATA | International Air Transport Association |
| IBC | International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk |
| ICAO | International Civil Aviation Organisation |
| IECSC | Inventory of Existing Chemical Substances in China |
| IMDG | International Maritime Dangerous Goods |
| IMO | International Maritime Organization |
| ISO | International Organisation for Standardisation |
| KECI | Korean Existing Chemicals Inventory |
| LC50 | Lethal Concentration to 50% of a test population |
| LD50 | Lethal Dose to 50% of a test population (Median Lethal Dose) |
| MAL | Measuring Technical Hygienic Air Needs |
| MARPOL | International Convention for the Prevention of Pollution from Ships |
| MDLPS | Ministry of Labour and Social Policy |
| n.o.s. | Not Otherwise Specified |
| NOAEC | No Observed Adverse Effect Concentration |
| NOAEL | No Observed Adverse Effect Level |
| NOELR | No Observable Effect Loading Rate |
| NZIoC | New Zealand Inventory of Chemicals |
| OECD | Organization for Economic Cooperation and Development |
| OEL | Occupational exposure limits |
| PBT | Persistent, Bioaccumulative and Toxic substance |
| PICCS | Philippines Inventory of Chemicals and Chemical Substances |
| PMT | Persistent, Mobile and Toxic |

| | |
|---|---|
| PPE | Personal protective equipment |
| QSAR | Quantitative Structure Activity Relationship |
| REACH | Registration, Evaluation, Authorisation, and Restriction of Chemicals (REACH) Regulation (EC 1907/2006) |
| RID | Agreement concerning the International Carriage of Dangerous Goods by Rail (Europe) |
| SADT | Self-Accelerating Decomposition Temperature |
| SAR | Structure-activity relationship |
| SDS | Safety Data Sheet |
| SL | Surface Limit |
| STEL | Short Term Exposure Limit |
| STOT RE | Specific target organ toxicity - Repeated exposure |
| STOT SE | Specific target organ toxicity - Single exposure |
| SVHC | Substance of very high concern |
| TCSI | Taiwan Chemical Substance Inventory |
| TDG | Transport of Dangerous Goods (Canada) |
| TRGS | Technical Rule for Hazardous Substances |
| TSCA | Toxic Substances Control Act (United States) |
| TWA | Time-Weighted Average |
| UN | United Nations |
| VOC | Volatile organic compounds |
| vPvB | Very Persistent and Very Bioaccumulative |
| vPvM | Very Persistent and Very Mobile |
| Sen+ | Sensitiser |
| Sk* | Skin designation |
| ** | Hazard Designation |

| Classification procedure | |
|---|---|
| Classification according to Regulation (EC) No. 1272/2008 [CLP] | Method Used |
| Acute oral toxicity | Calculation method |
| Acute dermal toxicity | Calculation method |
| Acute inhalation toxicity - gas | Calculation method |
| Acute inhalation toxicity - vapour | Calculation method |
| Acute inhalation toxicity - dust/mist | Calculation method |
| Skin corrosion/irritation | Calculation method |
| Serious eye damage/eye irritation | Calculation method |
| Respiratory sensitisation | Calculation method |
| Skin sensitisation | Calculation method |
| Mutagenicity | Calculation method |
| Carcinogenicity | Calculation method |
| Reproductive toxicity | Calculation method |
| STOT - single exposure | Calculation method |
| STOT - repeated exposure | Calculation method |

| | |
|---|---|
| Chronic aquatic toxicity | Calculation method |
| Acute aquatic toxicity | Calculation method |
| Aspiration hazard | Calculation method |
| Ozone | Calculation method |

**Key literature references and sources for data used to compile the SDS**
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)
Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine’s PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

**Revision date** 05-Dec-2025
**Reason for revision** Classification , transport , Precautionary statements
**This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006**
**Disclaimer**
**The information contained in this document is based on Agilent’s state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.**

**End of Safety Data Sheet**

# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
Regulation (EC) No. 1907/2006 and Regulation (EC) No. 1272/2008

**Revision date** 03-Dec-2025 **Revision Number** 2

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

### 1.1. Product identifier

**Product Code(s)** 5799-0008

**Product Name** Lithium (1 mg/L) and KCl (0.38% w/v) in 0.2% HNO3

**Form** Not applicable

**Pure substance/mixture** Mixture

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

**Recommended use** Reagents and Standards for Analytical Chemical Laboratory Use

**Uses advised against** Do not use outside of recommended applications

### 1.3. Details of the supplier of the safety data sheet

**Supplier**

Agilent Technologies LDA UK Ltd.
5500 Lakeside Cheadle Royal Business Park,
Cheadle, Cheshire, SK8 3GR
United Kindgom

+44 (0) 345 712 5292

For further information, please contact

**E-mail address** pdl-msds_author@agilent.com

### 1.4. Emergency telephone number

Emergency Telephone CHEMTREC®: +44 20 3807 3798

| **Emergency Telephone - §45 - (EC)1272/2008** | |
|---|---|
| **Europe** | **112** |
| **Austria** | No information available |
| **Bulgaria** | |
| **Croatia** | |
| **Cyprus** | |
| **Czech Republic** | |
| **Denmark** | |

| | |
|---|---|
| **France** | |
| **Hungary** | |
| **Ireland** | |
| **Italy** | |
| **Lithuania** | |
| **Luxembourg** | |
| **Netherlands** | |
| **Norway** | |
| **Portugal** | |
| **Romania** | |
| **Slovakia** | |
| **Slovenia** | |
| **Spain** | |
| **Sweden** | |
| **Switzerland** | |

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

*Classification according to*
*Regulation (EC) No. 1272/2008 [CLP]*

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP].

### 2.2. Label elements

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP]
**Hazard statements**
This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP].
EUH210 - Safety data sheet available on request.

### 2.3. Other hazards

Causes mild skin irritation.

**PBT & vPvB** This mixture contains no substance considered to be persistent, bioaccumulating or toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors.

| Chemical name | EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very | EU - REACH (1907/2006) - Endocrine Disruptor Assessment List of |
|---|---|---|

| | High Concern (SVHC) for Authorisation | Substances |
|---|---|---|
| Nitric Acid | - | - |

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Not applicable

### 3.2 Mixtures

**Chemical nature** aqueous solution.

| Chemical name | Weight-% | REACH registration number | EC No. (Index No.) | Classification according to Regulation (EC) No. 1272/2008 [CLP] | Specific concentration limit (SCL) | M-Factor | M-Factor (long-term) | Notes |
|---|---|---|---|---|---|---|---|---|
| Nitric Acid<br>7697-37-2 | 0.1 - 1 | - | 231-714-2 | Met. Corr. 1 (H290)<br>Ox. Liq. 2 (H272)<br>Acute Tox. 3 (H331)<br>Skin Corr. 1A (H314)<br>(EUH071) | Ox. Liq. 2 :: C>=99%<br>Ox. Liq. 3 :: C≥65%<br>Skin Corr. 1A :: C>=20%<br>Skin Corr. 1B :: 5%<=C<20% | - | - | B |

*- Substances contained in this mixture with No registration number are under the REACH threshold in Article 6(1) and not subject to the registration requirements according to REACH Title II*

*CLP Notes:*

*Note B - Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different classification and labelling since the hazards vary at different concentrations. In Part 3 entries with Note B have a general designation of the following type: 'nitric acid … %'. In this case the supplier must state the percentage concentration of the solution on the label. Unless otherwise stated, it is assumed that the percentage concentration is calculated on a weight/weight basis.*

**Full text of H- and EUH-phrases: see section 16**

*Acute Toxicity Estimate*

*If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components*

| Chemical name | Oral LD50 mg/kg | Dermal LD50 mg/kg | Inhalation LC50 - 4 hour - dust/mist - mg/L | Inhalation LC50 - 4 hour - vapour - mg/L | Inhalation LC50 - 4 hour - gas - ppm |
|---|---|---|---|---|---|
| Nitric Acid 7697-37-2 | No data available | No data available | No data available | 2.65 | No data available |

This product does not contain candidate substances of very high concern at a concentration >=0.1% (Regulation (EC) No. 1907/2006 (REACH), Article 59).

**Additional information**
The concentration of the acid stated in this SDS is calculated as an absolute mass concentration (%w/v). This is less than the acid concentration stated on the product label and COA, which reflects a percent value of the commercially available concentrated aqueous form of the acid.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

**Inhalation** Remove to fresh air.

**Eye contact** Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a doctor.

**Skin contact** Wash skin with soap and water. In the case of skin irritation or allergic reactions see a doctor.

**Ingestion** Rinse mouth.

### 4.2. Most important symptoms and effects, both acute and delayed

**Symptoms** Prolonged contact may cause redness and irritation.

**Effects of Exposure** No information available.

### 4.3. Indication of any immediate medical attention and special treatment needed

**Note to doctors** Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

| | |
|---|---|
| **Suitable Extinguishing Media** | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| **Large Fire** | CAUTION: Use of water spray when fighting fire may be inefficient. |
| **Unsuitable extinguishing media** | Do not scatter spilled material with high pressure water streams. |

**5.2. Special hazards arising from the substance or mixture**

| | |
|---|---|
| **Specific hazards arising from the chemical** | No information available. |

**5.3. Advice for firefighters**

| | |
|---|---|
| **Special protective equipment and precautions for fire-fighters** | Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment. |

## SECTION 6: Accidental release measures

**6.1. Personal precautions, protective equipment and emergency procedures**

| | |
|---|---|
| **Personal precautions** | Ensure adequate ventilation. |
| **For emergency responders** | Use personal protection recommended in Section 8. |

**6.2. Environmental precautions**

| | |
|---|---|
| **Environmental precautions** | See Section 12 for additional Ecological Information. |

**6.3. Methods and material for containment and cleaning up**

| | |
|---|---|
| **Methods for containment** | Prevent further leakage or spillage if safe to do so. |
| **Methods for cleaning up** | Take up mechanically, placing in appropriate containers for disposal. |
| **Prevention of secondary hazards** | Clean contaminated objects and areas thoroughly observing environmental regulations. |

**6.4. Reference to other sections**

| | |
|---|---|
| **Reference to other sections** | See section 8 for more information. See section 13 for more information. |

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

**Advice on safe handling** Ensure adequate ventilation.

**General hygiene considerations** Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage Conditions** Please refer to the manufacturer's certificate for specific storage and transport temperature conditions. Store only in the original receptacle unless other advice is given on the CoA.

**Storage class (TRGS 510)** LGK 10.

### 7.3. Specific end use(s)

**Risk Management Methods (RMM)** The information required is contained in this Safety Data Sheet.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

**Exposure Limits**

| Chemical name | European Union | Austria | Belgium | Bulgaria | Croatia |
|---|---|---|---|---|---|
| Nitric Acid<br>7697-37-2 | STEL: 1 ppm<br>STEL: 2.6 mg/m³ | STEL-KZGW: 1 ppm ();<br>STEL-KZGW: 2.6 mg/m³ (); | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL-KGVI: 1 ppm;<br>STEL-KGVI: 2.6 mg/m³; |
| Chemical name | Cyprus | Czech Republic | Denmark | Estonia | Finland |
| Nitric Acid<br>7697-37-2 | STEL: 1 ppm<br>STEL: 2.6 mg/m³ | TWA: 1 mg/m³;<br>Ceiling: 2.5 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | TWA: 0.5 ppm;<br>TWA: 1.3 mg/m³;<br>STEL: 1 ppm;<br>STEL: 2.6 mg/m³; |
| Chemical name | France | Germany TRGS | Germany DFG | Greece | Hungary |
| Nitric Acid<br>7697-37-2 | STEL-VLCT (indicat if): 1 ppm;<br>STEL-VLCT (indicat if): 2.6 mg/m³; | TWA-AGW;<br>1 ppm ();<br>TWA-AGW;<br>2.6 mg/m³ (); | - | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL-CK: 2.6 mg/m³;<br>STEL-CK: 1 ppm; |
| Chemical name | Ireland | Italy MDLPS | Italy AIDII | Latvia | Lithuania |
| Nitric Acid<br>7697-37-2 | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | TWA: 2 ppm;<br>TWA: 5.2 mg/m³;<br>STEL (REL): 4 ppm; | TWA: 0.78 ppm;<br>TWA: 2 mg/m³;<br>STEL: 1 ppm; | STEL-TPRD: 1 ppm;<br>STEL-TPRD: 2.6 mg/m³; |

| | | | | | |
|---|---|---|---|---|---|
| | | | STEL (REL): 10.3 mg/m³; | STEL: 2.6 mg/m³; | |
| Chemical name | Luxembourg | Malta | Netherlands | Norway | Poland |
| Nitric Acid<br>7697-37-2 | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL: 0.5 ppm;<br>STEL: 1.3 mg/m³; | TWA: 2 ppm;<br>TWA: 5 mg/m³;<br>STEL: 4 ppm (value calculated);<br>STEL: 10 mg/m³ (value calculated); | TWA-NDS: 1.4 mg/m³;<br>STEL-NDSCh: 2.6 mg/m³; |
| Chemical name | Portugal | Romania | Slovakia | Slovenia | Spain |
| Nitric Acid<br>7697-37-2 | TWA (VLE-MP): 2 ppm;<br>STEL (VLE-CD): 1 ppm;<br>STEL (VLE-CD): 2.6 mg/m³; | STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | Ceiling: 2.6 mg/m³; | TWA: 1 ppm;<br>TWA: 2.6 mg/m³;<br>STEL: 1 ppm;<br>STEL: 2.6 mg/m³; | STEL (VLA-EC): 1 ppm;<br>STEL (VLA-EC): 2.6 mg/m³; |

| Chemical name | Sweden | Switzerland | United Kingdom |
|---|---|---|---|
| Nitric Acid<br>7697-37-2 | TLV-NGV: 0.5 ppm;<br>TLV-NGV: 1.3 mg/m³;<br>STEL (Bindande KGV): 1 ppm;<br>STEL (Bindande KGV): 2.6 mg/m³; | TWA-MAK: 2 ppm;<br>TWA-MAK: 5 mg/m³;<br>STEL-KZGW: 2 ppm;<br>STEL-KZGW: 5 mg/m³; | STEL: 1 ppm<br>STEL: 2.6 mg/m³ |

**Biological occupational exposure limits** This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

**Derived No Effect Level (DNEL) - Workers**

| Chemical name | Oral | Dermal | Inhalation |
|---|---|---|---|
| Potassium chloride<br>7447-40-7 | - | 303 mg/kg bw/day [4] [6]<br>910 mg/kg bw/day [4] [7] | 1064 mg/m³ [4] [6]<br>5320 mg/m³ [4] [7] |
| Lithium carbonate<br>554-13-2 | - | 64.3 mg/kg bw/day [4] [6]<br>100 mg/kg bw/day [4] [7] | 10 mg/m³ [4] [6]<br>30 mg/m³ [4] [7] |

**Notes**

**[4]** Systemic health effects.
**[6]** Long term.
**[7]** Short term.

**Derived No Effect Level (DNEL) - General Public**

| Chemical name | Oral | Dermal | Inhalation |
|---|---|---|---|
| Potassium chloride<br>7447-40-7 | 91 mg/kg bw/day [4] [6]<br>455 mg/kg bw/day [4] [7] | 910 mg/kg bw/day [4] [6]<br>910 mg/kg bw/day [4] [7] | 273 mg/m³ [4] [6]<br>1365 mg/m³ [4] [7] |
| Lithium carbonate<br>554-13-2 | 6.43 mg/kg bw/day [4] [6]<br>19.23 mg/kg bw/day [4] [7] | 50 mg/kg bw/day [4] [6]<br>50 mg/kg bw/day [4] [7] | 9.64 mg/m³ [4] [6]<br>28.92 mg/m³ [4] [7] |

**Notes**

**[4]** Systemic health effects.
**[6]** Long term.
**[7]** Short term.

**Predicted No Effect Concentration (PNEC)**

| Chemical name | Freshwater | Freshwater (intermittent release) | Marine water | Marine water (intermittent release) | Air |
|---|---|---|---|---|---|
| Potassium chloride<br>7447-40-7 | 0.1 mg/L | 1 mg/L | 0.1 mg/L | - | - |
| Lithium carbonate<br>554-13-2 | 9 mg/L | 0.3 mg/L | 0.9 mg/L | - | - |

| Chemical name | Freshwater sediment | Marine sediment | Sewage treatment | Soil | Food chain |
|---|---|---|---|---|---|
| Potassium chloride<br>7447-40-7 | - | - | 10 mg/L | - | - |
| Lithium carbonate<br>554-13-2 | 238.4 mg/kg sediment dw | 23.84 mg/kg sediment dw | 122.2 mg/L | 44.11 mg/kg soil dw | - |

**8.2. Exposure controls**

**Personal protective equipment**

**Eye/face protection** Avoid contact with eyes. Wear safety glasses with side shields (or goggles).

**Hand protection** Wear protective Neoprene™ gloves. The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374. Wear suitable gloves.

**Skin and body protection** Wear suitable protective clothing.

| | |
|---|---|
| **Respiratory protection** | Appropriate respiratory protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction. |
| **General hygiene considerations** | Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Wear suitable gloves and eye/face protection. |
| **Environmental exposure controls** | Do not allow into any sewer, on the ground or into any body of water. |

## SECTION 9: Physical and chemical properties

**9.1. Information on basic physical and chemical properties**

| | |
|---|---|
| **Appearance** | Liquid |
| **Physical state** | Liquid |
| **Colour** | colourless |
| **Odour** | Odourless |
| **Odour threshold** | No information available |

| **Property** | **Values** | **Remarks • Method** |
|---|---|---|
| **Melting point / freezing point** | 0 °C | None known |
| **Initial boiling point and boiling range** | 100 °C | None known |
| **Flammability** | No data available | None known |
| **Flammability Limit in Air** | | None known |
| **Upper flammability or explosive limits** | No data available | |
| **Lower flammability or explosive limits** | No data available | |
| **Flash point** | No data available | None known |
| **Autoignition temperature** | No data available | None known |
| **Decomposition temperature** | 100 °C | None known |
| **SADT (°C)** | No data available | None known |
| **pH** | No data available | None known |
| **pH (as aqueous solution)** | No data available | None known |
| **Kinematic viscosity** | No data available | None known |
| **Dynamic viscosity** | No data available | None known |
| **Water solubility** | Miscible in water | None known |
| **Solubility(ies)** | No data available | None known |
| **Partition coefficient** | No data available | None known |
| **Vapour pressure** | 23 hPa | @ 20°C |
| **Relative density** | 0.99821 g/cm3 at 20 °C | @ 20 °C |
| **Bulk density** | No data available | |
| **Liquid Density** | No data available | |
| **Relative vapour density** | No data available | None known |

**Particle characteristics**

| | |
|---|---|
| **Particle Size** | No information available |
| **Particle Size Distribution** | No information available |

**9.2. Other information**

**9.2.1. Information with regards to physical hazard classes**
No information available

**9.2.2. Other safety characteristics**
No information available

## SECTION 10: Stability and reactivity

**10.1. Reactivity**

**Reactivity** No information available.

**10.2. Chemical stability**

**Stability** Stable under normal conditions.

**Explosion data**

| | |
|---|---|
| **Sensitivity to mechanical impact** | None. |
| **Sensitivity to static discharge** | None. |

**10.3. Possibility of hazardous reactions**

**Possibility of hazardous reactions** None under normal processing.

**10.4. Conditions to avoid**

**Conditions to avoid** None known based on information supplied.

**10.5. Incompatible materials**

**Incompatible materials** None known based on information supplied.

**10.6. Hazardous decomposition products**

**Hazardous decomposition products** None known based on information supplied.

## SECTION 11: Toxicological information

**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**

**Information on likely routes of exposure**

**Inhalation** Specific test data for the substance or mixture is not available.

**Eye contact** Specific test data for the substance or mixture is not available.

**Skin contact** Specific test data for the substance or mixture is not available. Causes mild skin irritation.

**Ingestion** Specific test data for the substance or mixture is not available.

**Symptoms related to the physical, chemical and toxicological characteristics**

**Symptoms** Prolonged contact may cause redness and irritation.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Acute toxicity** Based on available data, the classification criteria are not met.

**Numerical measures of toxicity**

The following ATE values have been calculated for the mixture:

ATEmix (oral) 99,999.00 mg/kg
ATEmix (dermal) 99,999.00 mg/kg
ATEmix (inhalation-gas) 99,999.00 ppm
ATEmix (inhalation-vapour) 1,325.00 mg/l
ATEmix (inhalation-dust/mist) 99,999.00 mg/l

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---|---|---|---|
| Nitric Acid | - | - | = 2500 ppm ( Rat ) 1 h<br>ATE (vapours) = 2.65 mg/L |

**Skin corrosion/irritation** Classification based on data available for ingredients. Causes mild skin irritation.

**Serious eye damage/eye irritation** Based on available data, the classification criteria are not met.

**Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.

**Germ cell mutagenicity** Based on available data, the classification criteria are not met.

**Carcinogenicity** Based on available data, the classification criteria are not met.

**Reproductive toxicity** Based on available data, the classification criteria are not met.

**STOT - single exposure** Based on available data, the classification criteria are not met.

**STOT - repeated exposure** Based on available data, the classification criteria are not met.

**Aspiration hazard** Based on available data, the classification criteria are not met.

**11.2. Information on other hazards**

**11.2.1. Endocrine disrupting properties**
**Endocrine disrupting properties** This product does not contain any known or suspected endocrine disruptors.

**11.2.2. Other information**
**Other adverse effects** No information available.

## SECTION 12: Ecological information

**12.1. Toxicity**
**Ecotoxicity** The environmental impact of this product has not been fully investigated.

**12.2. Persistence and degradability**
**Persistence and degradability** No information available.
**12.3. Bioaccumulative potential**
**Bioaccumulation**

| Chemical name | Partition coefficient |
|---|---|
| Nitric Acid | -2.3 |

**12.4. Mobility in soil**
**Mobility in soil** No information available.

**12.5. Results of PBT and vPvB assessment**
**PBT and vPvB assessment** Based on available data, the classification criteria are not met.

| Chemical name | PBT and vPvB assessment |
|---|---|
| Nitric Acid | The substance is not PBT / vPvB |

**12.6. Endocrine disrupting properties**

**Endocrine disrupting properties** Based on available data, the classification criteria are not met.

**12.7. Other adverse effects**

**Other adverse effects** No information available.
**PMT or vPvM properties** Based on available data, the classification criteria are not met.

## SECTION 13: Disposal considerations

**13.1. Waste treatment methods**

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

## SECTION 14: Transport information

**IATA**

**14.1 UN number or ID number** Not regulated
**14.2 UN proper shipping name** Not regulated
**14.3 Transport hazard class(es)** Not regulated
**14.4 Packing group** Not regulated
**14.5 Environmental hazards** Not applicable
**14.6 Special precautions for user**
**Special Provisions** None

**IMDG**

**14.1 UN number or ID number** Not regulated
**14.2 UN proper shipping name** Not regulated
**14.3 Transport hazard class(es)** Not regulated
**14.4 Packing group** Not regulated
**14.5 Environmental hazards** Not applicable
**14.6 Special precautions for user**
**Special Provisions** None
**14.7 Maritime transport in bulk according to IMO instruments** No information available

**RID**

**14.1 UN number or ID number** Not regulated
**14.2 UN proper shipping name** Not regulated
**14.3 Transport hazard class(es)** Not regulated
**14.4 Packing group** Not regulated
**14.5 Environmental hazards** Not applicable

**14.6 Special precautions for user**
**Special Provisions** None

**ADR**
**14.1 UN number or ID number** Not regulated
**14.2 UN proper shipping name** Not regulated
**14.3 Transport hazard class(es)** Not regulated
**14.4 Packing group** Not regulated
**14.5 Environmental hazards** Not applicable
**14.6 Special precautions for user**
**Special Provisions** None

**ADN**
**14.1 UN number or ID number** Not regulated
**14.2 UN proper shipping name** Not regulated
**14.3 Transport hazard class(es)** Not regulated
**14.4 Packing group** Not regulated
**14.5 Environmental hazard** Not applicable
**14.6 Special precautions for user**
**Special Provisions** None

## SECTION 15: Regulatory information

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

**National regulations**

**Germany**
**Water hazard class (WGK)** non-hazardous to water (nwg)
**Chemical Prohibition Ordinance (ChemVerbotsV)** Not applicable

**TRGS 905** Not applicable

**Switzerland**
**Ordinance on the Incentive Tax on Volatile Organic Compounds (OVOC) SR 814.018** Not applicable
**Storage of Hazardous Material** SC Non-hazardous material
**WPO (GSchV) SR 814.201; WPA (GSchG) SR 814.20** Class B
**Major Accidents Ordinance SR 814.012** Not applicable

| Chemical name | Threshold quantity |
|---|---|
| Nitric Acid - 7697-37-2 | 20000 kg |

**European Union**

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

**Authorisations and/or restrictions on use:**

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

| Chemical name | Restricted substance per REACH Annex XVII | Substance subject to authorisation per REACH Annex XIV |
|---|---|---|
| Nitric Acid - 7697-37-2 | 75 | |

**DIRECTIVE (EU) 2021/1187 on the marketing and use of explosives precursors**

Not applicable

| Chemical name | RESTRICTED EXPLOSIVES PRECURSORS - ANNEX I | REPORTABLE EXPLOSIVES PRECURSORS - ANNEX II |
|---|---|---|
| Nitric Acid - 7697-37-2 | 3 %w/w | - |

**Persistent Organic Pollutants**

Not applicable

**Ozone-depleting substances (ODS) regulation (EC) 2024/590**

Not applicable

**International Inventories**

| | |
|---|---|
| **TSCA** | U.S. INVENTORY (TSCA): Listed on inventory. For purposes of 40 CFR 720.36, this product is for Research and Development (R&D) Use Only |
| **DSL/NDSL** | Contact supplier for inventory compliance status |
| **EINECS/ELINCS** | Contact supplier for inventory compliance status |
| **ENCS** | Contact supplier for inventory compliance status |
| **IECSC** | Contact supplier for inventory compliance status |
| **KECL** | Contact supplier for inventory compliance status |
| **PICCS** | Contact supplier for inventory compliance status |
| **AIIC** | Contact supplier for inventory compliance status |

**Legend:**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
**ENCS** - Japan Existing and New Chemical Substances
**IECSC** - China Inventory of Existing Chemical Substances
**KECL** - Korean Existing Chemicals Inventory
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances
**AICS** - Australian Inventory of Chemical Substances

**15.2. Chemical safety assessment**

**Chemical Safety Report** A Chemical Safety Assessment is not required for this substance

## SECTION 16: Other information

**Key or legend to abbreviations and acronyms used in the safety data sheet**

**Full text of any hazard and/or precautionary statements referred to under Sections 2-15**
EUH071 - Corrosive to the respiratory tract
H272 - May intensify fire; oxidiser
H290 - May be corrosive to metals
H314 - Causes severe skin burns and eye damage
H331 - Toxic if inhaled

**Legend**

| | |
|---|---|
| ACGIH | American Conference of Governmental Industrial Hygienists |
| AIDII | Italian Association of Industrial Hygienists |
| ADN | Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Europe) |
| ADR | Agreement concerning the International Carriage of Dangerous Goods by Road (Europe) |
| AIIC | Australian Inventory of Industrial Chemicals |
| ATE | Acute Toxicity Estimate |
| ASTM | American Society for the Testing of Materials |
| bar | Biological Reference Values for Chemical Compounds in the Work Area |
| BAT | Biological tolerance values for occupational exposure |
| BEL | Biological exposure limits |
| bw | Body weight |
| Ceiling | Maximum limit value |
| CLP | Classification, Labelling and Packaging Regulation; Regulation (EC) No 1272/2008 |
| CMR | Carcinogen, Mutagen or Reproductive Toxicant |
| DFG | German Research Foundation |
| DOT | Department of Transportation (United States) |
| DSL | Domestic Substances List (Canada) |
| ECHA | European Chemicals Agency |
| EC Number | European Community number |

| | |
|---|---|
| EmS | Emergency Schedule |
| ENCS | Existing and New Chemical Substances (Japan) |
| EPA | Environmental Protection Agency |
| EWC | European Waste Codes |
| GHS | Globally Harmonized System |
| IARC | International Agency for Research on Cancer |
| IATA | International Air Transport Association |
| IBC | International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk |
| ICAO | International Civil Aviation Organisation |
| IECSC | Inventory of Existing Chemical Substances in China |
| IMDG | International Maritime Dangerous Goods |
| IMO | International Maritime Organization |
| ISO | International Organisation for Standardisation |
| KECI | Korean Existing Chemicals Inventory |
| LC50 | Lethal Concentration to 50% of a test population |
| LD50 | Lethal Dose to 50% of a test population (Median Lethal Dose) |
| MAL | Measuring Technical Hygienic Air Needs |
| MARPOL | International Convention for the Prevention of Pollution from Ships |
| MDLPS | Ministry of Labour and Social Policy |
| n.o.s. | Not Otherwise Specified |
| NOAEC | No Observed Adverse Effect Concentration |
| NOAEL | No Observed Adverse Effect Level |
| NOELR | No Observable Effect Loading Rate |
| NZIoC | New Zealand Inventory of Chemicals |
| OECD | Organization for Economic Cooperation and Development |
| OEL | Occupational exposure limits |
| PBT | Persistent, Bioaccumulative and Toxic substance |
| PICCS | Philippines Inventory of Chemicals and Chemical Substances |
| PMT | Persistent, Mobile and Toxic |
| PPE | Personal protective equipment |
| QSAR | Quantitative Structure Activity Relationship |
| REACH | Registration, Evaluation, Authorisation, and Restriction of Chemicals (REACH) Regulation (EC 1907/2006) |
| RID | Agreement concerning the International Carriage of Dangerous Goods by Rail (Europe) |
| SADT | Self-Accelerating Decomposition Temperature |
| SAR | Structure-activity relationship |
| SDS | Safety Data Sheet |
| SL | Surface Limit |
| STEL | Short Term Exposure Limit |
| STOT RE | Specific target organ toxicity - Repeated exposure |
| STOT SE | Specific target organ toxicity - Single exposure |
| SVHC | Substance of very high concern |
| TCSI | Taiwan Chemical Substance Inventory |

| | |
|---|---|
| TDG | Transport of Dangerous Goods (Canada) |
| TRGS | Technical Rule for Hazardous Substances |
| TSCA | Toxic Substances Control Act (United States) |
| TWA | Time-Weighted Average |
| UN | United Nations |
| VOC | Volatile organic compounds |
| vPvB | Very Persistent and Very Bioaccumulative |
| vPvM | Very Persistent and Very Mobile |
| Sen+ | Sensitiser |
| Sk* | Skin designation |
| ** | Hazard Designation |

| Classification procedure | |
|---|---|
| Classification according to Regulation (EC) No. 1272/2008 [CLP] | Method Used |
| Acute oral toxicity | Calculation method |
| Acute dermal toxicity | Calculation method |
| Acute inhalation toxicity - gas | Calculation method |
| Acute inhalation toxicity - vapour | Calculation method |
| Acute inhalation toxicity - dust/mist | Calculation method |
| Skin corrosion/irritation | Calculation method |
| Serious eye damage/eye irritation | Calculation method |
| Respiratory sensitisation | Calculation method |
| Skin sensitisation | Calculation method |
| Mutagenicity | Calculation method |
| Carcinogenicity | Calculation method |
| Reproductive toxicity | Calculation method |
| STOT - single exposure | Calculation method |
| STOT - repeated exposure | Calculation method |
| Chronic aquatic toxicity | Calculation method |
| Acute aquatic toxicity | Calculation method |
| Aspiration hazard | Calculation method |
| Ozone | Calculation method |

**Key literature references and sources for data used to compile the SDS**
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)
Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal

Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

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**This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006**
**Disclaimer**
**The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.**

**End of Safety Data Sheet**