

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/30/2018

Reviewed on 10/30/2018

1 Identification· **Product identifier**· **Product name: Copper Standard: 10000 µg/mL Cu in 5% HNO₃ [500ml bottle]**· **Part number:** 5190-8379· **Application of the substance / the mixture** Reagents and Standards for Analytical Chemical Laboratory Use· **Details of the supplier of the safety data sheet**· **Manufacturer/Supplier:**Agilent Technologies, Inc.
5301 Stevens Creek Blvd
Santa Clara, CA 95051,
USA

Tel: 800-227-9770

· **Information department:** e-mail: pdl-msds_author@agilent.com· **Emergency telephone number:** CHEMTREC®: 1-800-424-9300**2 Hazard(s) identification**· **Classification of the substance or mixture**

GHS03 Flame over circle

Ox. Liq. 3

H272 May intensify fire; oxidizer.



GHS05 Corrosion

Skin Corr. 1B

H314 Causes severe skin burns and eye damage.

Eye Dam. 1

H318 Causes serious eye damage.

Aquatic Acute 3

H402 Harmful to aquatic life.

Aquatic Chronic 3

H412 Harmful to aquatic life with long lasting effects.

· **Label elements**· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**

GHS03



GHS05

· **Signal word** Danger· **Hazard-determining components of labeling:**

Nitric acid

· **Hazard statements**

H272 May intensify fire; oxidizer.

H314 Causes severe skin burns and eye damage.

H402 Harmful to aquatic life.

H412 Harmful to aquatic life with long lasting effects.

(Contd. on page 2)

US

Safety Data Sheet

acc. to OSHA HCS

Printing date 10/30/2018

Reviewed on 10/30/2018

Product name: Copper Standard: 10000 µg/mL Cu in 5% HNO₃ [500ml bottle]

(Contd. of page 1)

· **Precautionary statements**

- P221 Take any precaution to avoid mixing with combustibles.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P310 Immediately call a poison center/doctor.
 P405 Store locked up.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**

The substance possesses oxidizing properties.



· **HMIS-ratings (scale 0 - 4)**

HEALTH	3	Health = 3
FIRE	3	Fire = 3
REACTIVITY	0	Reactivity = 0

· **Other hazards**

· **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients




· **Chemical characterization: Mixtures**

· **Description:**

Aqueous solution.

Mixture: consisting of the following components.

· **Dangerous components:**

CAS: 7697-37-2 RTECS: QU5775000	Nitric acid	 Ox. Liq. 2, H272;  Skin Corr. 1A, H314	<10%
CAS: 7440-50-8 RTECS: GL 5325000	Copper	 Aquatic Acute 1, H400; Aquatic Chronic 1, H410	<1%

· **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.

-US

(Contd. on page 3)

Safety Data Sheet

acc. to OSHA HCS

Printing date 10/30/2018

Reviewed on 10/30/2018

Product name: Copper Standard: 10000 µg/mL Cu in 5% HNO₃ [500ml bottle]

(Contd. of page 2)

4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** Rinse mouth. Do not induce vomiting.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Inform respective authorities in case of seepage into water course or sewage system.
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Absorb liquid components with liquid-binding material.
DO NOT USE SAWDUST.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

- **PAC-1:**

7697-37-2	Nitric acid	0.16 ppm
7440-50-8	Copper	3 mg/m ³

- **PAC-2:**

7697-37-2	Nitric acid	24 ppm
-----------	-------------	--------

(Contd. on page 4)



Safety Data Sheet
acc. to OSHA HCS

Printing date 10/30/2018

Reviewed on 10/30/2018

Product name: Copper Standard: 10000 µg/mL Cu in 5% HNO3 [500ml bottle]

(Contd. of page 3)

Table with 2 columns: CAS number and Concentration. Rows include Copper (33 mg/m³), Nitric acid (92 ppm), and Copper (200 mg/m³).

7 Handling and storage

- Handling:
Precautions for safe handling: Store in cool, dry place in tightly closed receptacles.
Information about protection against explosions and fires: No special measures required.
Conditions for safe storage, including any incompatibilities
Storage:
Requirements to be met by storerooms and receptacles: Please refer to the manufacturers certificate for specific storage and transport temperature conditions.
Information about storage in one common storage facility: Store away from foodstuffs.
Further information about storage conditions: Keep receptacle tightly sealed.
Specific end use(s): No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
Control parameters

Components with limit values that require monitoring at the workplace:

7697-37-2 Nitric acid

Table with 2 columns: Exposure Limit and Value. Rows include PEL, REL, and TLV for Nitric acid.

7440-50-8 Copper

Table with 2 columns: Exposure Limit and Value. Rows include PEL, REL, and TLV for Copper.

- Additional information: The lists that were valid during the creation were used as basis.
Exposure controls
Personal protective equipment:
General protective and hygienic measures: Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work.

(Contd. on page 5)

Safety Data Sheet

acc. to OSHA HCS

Printing date 10/30/2018

Reviewed on 10/30/2018

Product name: Copper Standard: 10000 µg/mL Cu in 5% HNO₃ [500ml bottle]

(Contd. of page 4)

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

· **Breathing equipment:** *Not required.*

· **Protection of hands:**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374



Protective gloves

· **Material of gloves**

PVC gloves

Neoprene gloves

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: *Liquid*

Color: *Colorless*

· **Odor:** *Odorless*

· **Odor threshold:** *Not determined.*

· **pH-value at 20 °C (68 °F):** *<2*

· **Change in condition**

Melting point/Melting range: *Not determined.*

Boiling point/Boiling range: *83 °C (181.4 °F)*

· **Flash point:** *Not applicable.*

· **Flammability (solid, gaseous):** *Not determined.*

· **Ignition temperature:** *Not determined*

· **Decomposition temperature:** *Not determined.*

· **Auto igniting:** *Product is not selfigniting.*

· **Danger of explosion:** *Not determined.*

(Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS

Printing date 10/30/2018

Reviewed on 10/30/2018

Product name: Copper Standard: 10000 µg/mL Cu in 5% HNO₃ [500ml bottle]

(Contd. of page 5)

· Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
· Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)
· Density at 20 °C (68 °F):	1.10978 g/cm ³ (9.26111 lbs/gal)
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with Water:	Fully miscible.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity** Stable under normal conditions.
- **Chemical stability** Stable under normal conditions.
- **Thermal decomposition / conditions to be avoided:**
Formation of toxic gases is possible during heating or in case of fire.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** Heat.
- **Incompatible materials:** Strong oxidizing agents.
- **Hazardous decomposition products:** Formation of toxic gases is possible during heating or in case of fire.

11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

7697-37-2 Nitric acid

Inhalative	LC50/4 h	130 mg/l (rat)
------------	----------	----------------

· **Primary irritant effect:**

· **on the skin:** Caustic effect on skin and mucous membranes.

· **on the eye:**

Strong caustic effect.

Strong irritant with the danger of severe eye injury.

· **Sensitization:** Based on available data, the classification criteria are not met.

· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Corrosive

(Contd. on page 7)



Safety Data Sheet
acc. to OSHA HCS

Printing date 10/30/2018

Reviewed on 10/30/2018

Product name: Copper Standard: 10000 µg/mL Cu in 5% HNO3 [500ml bottle]

(Contd. of page 6)

Irritant

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

Carcinogenic categories

IARC (International Agency for Research on Cancer)

None of the ingredients is listed.

NTP (National Toxicology Program)

None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients is listed.

12 Ecological information

Toxicity

Aquatic toxicity:

7697-37-2 Nitric acid

LC50/48 180 mg/l (crustacean)

7440-50-8 Copper

LC50/48 0.044 mg/l (crustacean)

EC50/48 h 0.02 mg/l (crustacean)

EC50/72h 0.57 mg/l (Algae)

LC50/96 h 0.665 mg/l (fish)

Persistence and degradability No further relevant information available.

Behavior in environmental systems:

Bioaccumulative potential No further relevant information available.

Mobility in soil No further relevant information available.

Ecotoxicological effects:

Remark: Harmful to fish

Additional ecological information:

General notes:

Water hazard class 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

Danger to drinking water if even small quantities leak into the ground.

Harmful to aquatic organisms

Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects No further relevant information available.

US

(Contd. on page 8)



Safety Data Sheet
acc. to OSHA HCS

Printing date 10/30/2018

Reviewed on 10/30/2018

Product name: Copper Standard: 10000 µg/mL Cu in 5% HNO3 [500ml bottle]

(Contd. of page 8)

· Transport/Additional information:

· ADR

· Excepted quantities (EQ)

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

· UN "Model Regulation":

UN 2031 NITRIC ACID SOLUTION, 8, II

15 Regulatory information

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

· Sara

· Section 355 (extremely hazardous substances):

7697-37-2 Nitric acid

· Section 313 (Specific toxic chemical listings):

7697-37-2 Nitric acid

7440-50-8 Copper

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

· Proposition 65

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Carcinogenic categories

· EPA (Environmental Protection Agency)

7440-50-8 Copper

D

· TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· Hazard pictograms



GHS03

GHS05

(Contd. on page 10)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/30/2018

Reviewed on 10/30/2018

Product name: Copper Standard: 10000 µg/mL Cu in 5% HNO₃ [500ml bottle]

(Contd. of page 9)

- **Signal word** *Danger*
- **Hazard-determining components of labeling:**
 - Nitric acid*
- **Hazard statements**
 - H272 May intensify fire; oxidizer.*
 - H314 Causes severe skin burns and eye damage.*
 - H402 Harmful to aquatic life.*
 - H412 Harmful to aquatic life with long lasting effects.*
- **Precautionary statements**
 - P221 Take any precaution to avoid mixing with combustibles.*
 - P280 Wear protective gloves/protective clothing/eye protection/face protection.*
 - P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.*
 - P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.*
 - P310 Immediately call a poison center/doctor.*
 - P405 Store locked up.*
 - P501 Dispose of contents/container in accordance with local/regional/national/international regulations.*
- **Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

16 Other information

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.

- **Date of preparation / last revision** *10/30/2018 / 1*
- **Abbreviations and acronyms:**
 - ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)*
 - IMDG: International Maritime Code for Dangerous Goods*
 - DOT: US Department of Transportation*
 - IATA: International Air Transport Association*
 - ACGIH: American Conference of Governmental Industrial Hygienists*
 - EINECS: European Inventory of Existing Commercial Chemical Substances*
 - ELINCS: European List of Notified Chemical Substances*
 - CAS: Chemical Abstracts Service (division of the American Chemical Society)*
 - NFPA: National Fire Protection Association (USA)*
 - HMIS: Hazardous Materials Identification System (USA)*
 - LC50: Lethal concentration, 50 percent*
 - LD50: Lethal dose, 50 percent*
 - PBT: Persistent, Bioaccumulative and Toxic*
 - vPvB: very Persistent and very Bioaccumulative*
 - NIOSH: National Institute for Occupational Safety*
 - OSHA: Occupational Safety & Health*
 - TLV: Threshold Limit Value*
 - PEL: Permissible Exposure Limit*
 - REL: Recommended Exposure Limit*
 - Ox. Liq. 2: Oxidizing liquids – Category 2*
 - Ox. Liq. 3: Oxidizing liquids – Category 3*
 - Skin Corr. 1A: Skin corrosion/irritation – Category 1A*
 - Skin Corr. 1B: Skin corrosion/irritation – Category 1B*
 - Eye Dam. 1: Serious eye damage/eye irritation – Category 1*
 - Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1*
 - Aquatic Acute 3: Hazardous to the aquatic environment - acute aquatic hazard – Category 3*
 - Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1*

(Contd. on page 11)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/30/2018

Reviewed on 10/30/2018

Product name: Copper Standard: 10000 µg/mL Cu in 5% HNO₃ [500ml bottle]

(Contd. of page 10)

Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3· **Sources***Tables 3.1 and 3.2 from Annex 6 of EC 1272/2008, EC 1907/2006, EH40/2005 as amended 2011, Registry of Toxic Effects of Chemical Substances (RTECS), The Dictionary of Substances and their Effects, 1st Edition, IUCLID.*· ***Data compared to the previous version altered.*** All sections have been updated.

US