



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 01.04.2015

Version number 3

Revision: 01.04.2015

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

1.1 Product identifier**Product name: Cadmium Standard: 1000 µg/mL Cd in 5% HNO₃ [100ml bottle]****Part number: 5190-9414****1.2 Relevant identified uses of the substance or mixture and uses advised against**

No further relevant information available.

Application of the substance / the mixture Reference material for laboratory use only**Manufacturer/Supplier:**

Agilent Technologies Manufacturing GmbH & Co. KG

Tel: 0800 603 1000

Hewlett-Packard-Str. 8

76337 Waldbronn

Germany

Further information obtainable from: e-mail: pdl-msds_author@agilent.com**1.4 Emergency telephone number:** CHEMTREC®: +(44)-870-8200418

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture**Classification according to Regulation (EC) No 1272/2008**

GHS05 corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

Not applicable.



Xi; Irritant

R36/38: Irritating to eyes and skin.

R52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Information concerning particular hazards for human and environment:

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Classification system:

The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

2.2 Label elements**Labelling according to Regulation (EC) No 1272/2008**

The product is classified and labelled according to the CLP regulation.

Hazard pictograms

GHS05

Signal word Danger**Hazard statements**

H314 Causes severe skin burns and eye damage.

H412 Harmful to aquatic life with long lasting effects.

(Contd. on page 2)



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 01.04.2015

Version number 3

Revision: 01.04.2015

Product name: Cadmium Standard: 1000 µg/mL Cd in 5% HNO₃ [100ml bottle]

(Contd. from page 1)

· **Precautionary statements**

- P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P303+P361+P353 IF ON SKIN (or hair): Remove/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.

· **2.3 Other hazards**

· **Results of PBT and vPvB assessment**

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

SECTION 3: Composition/information on ingredients

· **3.2 Chemical characterisation: Mixtures**

- **Description:** Aqueous solution.

· **Dangerous components:**

CAS: 7697-37-2 EINECS: 231-714-2 RTECS: QU5775000	Nitric acid C R35; O R8 Ox. Liq. 3, H272; Skin Corr. 1A, H314	< 5%
CAS: 10022-68-1 EINECS: 233-710-6 RTECS: EV 1850000	Cadmium nitrate tetrahydrate Xn R20/21/22; N R50/53 Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 4, H302; Acute Tox. 4, H312; Acute Tox. 4, H332	< 2.0%

- **Additional information:** For the wording of the listed risk phrases refer to section 16.

SECTION 4: First aid measures

· **4.1 Description of first aid measures**

- **After inhalation:** In case of unconsciousness place patient in recovery position for transport.
 · **After skin contact:**
 Immediately wash with water and soap and rinse thoroughly.
 If skin irritation continues, consult a doctor.
 · **After eye contact:**
 Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
 · **After swallowing:** Rinse mouth. Do not induce vomiting.
 · **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
 · **4.3 Indication of any immediate medical attention and special treatment needed**
 No further relevant information available.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**

· **Suitable extinguishing agents:**

CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

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

Formation of toxic gases is possible during heating or in case of fire.

(Contd. on page 3)



Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 01.04.2015

Version number 3

Revision: 01.04.2015

Product name: Cadmium Standard: 1000 µg/mL Cd in 5% HNO3 [100ml bottle]

(Contd. from page 2)

- **5.3 Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures** Wear protective clothing.
- **6.2 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.
- **6.3 Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Absorb liquid components with liquid-binding material.
DO NOT USE SAWDUST.
- **6.4 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.

SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**
Ensure good ventilation/extraction at the workplace.
Store in cool, dry place in tightly closed receptacles.
Prevent formation of aerosols.
- **Information about fire - and explosion protection:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
Store in a cool location.
Please refer to the manufacturer's certificate for specific storage and transport temperature conditions.
Store only in the original receptacle.
Keep container in a well-ventilated place. Keep away from sources of ignition and heat.
- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **Further information about storage conditions:** Keep container tightly sealed.
- **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

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

· **Ingredients with limit values that require monitoring at the workplace:**

7697-37-2 Nitric acid

WEL Short-term value: 2.6 mg/m³, 1 ppm

10022-68-1 Cadmium nitrate tetrahydrate

WEL Long-term value: 0.025 mg/m³
as Cd, Carc

- **Additional information:** Lists used were valid at the time of SDS preparation.

(Contd. on page 4)



Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 01.04.2015

Version number 3

Revision: 01.04.2015

Product name: Cadmium Standard: 1000 µg/mL Cd in 5% HNO3 [100ml bottle]

(Contd. from page 3)

- **8.2 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.
Avoid contact with the eyes.
Avoid contact with the eyes and skin.
- **Respiratory protection:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
- **Protection of hands:**



Protective gloves

Chemical-resistant, impervious gloves with an approved standards should be worn at all times.
The selection of the glove material is based on the penetration times, rates of diffusion and its degradation

- **Material of gloves**
PVC gloves
Neoprene gloves
- **Penetration time of glove material**
The protection time of the gloves can not be accurately estimated for mixtures consisting of several substances.
Refer to and observe manufacturers break through times of the protective gloves.
- **Eye protection:**



Tightly sealed goggles

SECTION 9: Physical and chemical properties

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

· **General Information**

· **Appearance:**

· Form:	Liquid
· Colour:	Colourless
· Odour:	Odourless
· Odour threshold:	Not determined.

· **pH-value at 20 °C:** < 2

· **Change in condition**

· Melting point/Melting range:	Not determined.
· Boiling point/Boiling range:	100 °C

· **Flash point:** Not applicable.

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

· **Ignition temperature:**

· **Decomposition temperature:** Not determined.

(Contd. on page 5)



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 01.04.2015

Version number 3

Revision: 01.04.2015

Product name: Cadmium Standard: 1000 µg/mL Cd in 5% HNO₃ [100ml bottle]

(Contd. from page 4)

· Self-igniting:	<i>Product is not selfigniting.</i>
· Danger of explosion:	<i>Not determined.</i>
· Explosion limits:	
Lower:	<i>Not determined.</i>
Upper:	<i>Not determined.</i>
· Vapour pressure at 20 °C:	<i>23 hPa</i>
· Density at 20 °C:	<i>1 g/cm³</i>
· Relative density	<i>Not determined.</i>
· Vapour density	<i>Not determined.</i>
· Evaporation rate	<i>Not determined.</i>
· Solubility in / Miscibility with water:	<i>Fully miscible.</i>
· Partition coefficient (n-octanol/water):	<i>Not determined.</i>
· Viscosity:	
Dynamic:	<i>Not determined.</i>
Kinematic:	<i>Not determined.</i>
· 9.2 Other information	<i>No further relevant information available.</i>

SECTION 10: Stability and reactivity

- **10.1 Reactivity** *Stable under normal conditions.*
- **10.2 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.
- **10.3 Possibility of hazardous reactions** *No dangerous reactions known.*
- **10.4 Conditions to avoid** *Heat.*
- **10.5 Incompatible materials:**
Bases.
Strong oxidizing agents.
- **10.6 Hazardous decomposition products:**
Formation of toxic gases is possible during heating or in case of fire.

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity:**

- **LD/LC50 values relevant for classification:**

7697-37-2 Nitric acid

Oral	LD0	430 mg/kg (Human)
Inhalative	LC50/4 h	130 mg/l (rat)

10022-68-1 Cadmium nitrate tetrahydrate

Oral	LD50	300 mg/kg (rat)
------	------	-----------------

- **Primary irritant effect:**
- **on the skin:** *Irritant to skin and mucous membranes.*
- **on the eye:** *Irritating effect.*
- **Sensitisation:** *No sensitising effects known.*

(Contd. on page 6)



Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 01.04.2015

Version number 3

Revision: 01.04.2015

Product name: Cadmium Standard: 1000 µg/mL Cd in 5% HNO3 [100ml bottle]

(Contd. from page 5)

· Additional toxicological information:

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Irritant

SECTION 12: Ecological information

· 12.1 Toxicity

· Aquatic toxicity:

7697-37-2 Nitric acid

LC50/48 | 180 mg/l (crustacean)

· 12.2 Persistence and degradability No further relevant information available.

· 12.3 Bioaccumulative potential No further relevant information available.

· 12.4 Mobility in soil No further relevant information available.

· Ecotoxicological effects:

· Remark: Harmful to fish

· Additional ecological information:

· General notes:

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

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

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

Harmful to aquatic organisms

· 12.5 Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

· 12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations

· 13.1 Waste treatment methods

· Recommendation

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· European waste catalogue

Waste disposal key numbers from EWC have to be assigned depending on origin and processing.

· Uncleaned packaging:

· Recommendation: Dispose of in accordance with national regulations.

· Recommended cleansing agents: Water, if necessary together with cleansing agents.

SECTION 14: Transport information

· 14.1 UN-Number

· ADR, IMDG, IATA

UN3264

· ADR

3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)

· IMDG, IATA

CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID)

(Contd. on page 7)



Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 01.04.2015

Version number 3

Revision: 01.04.2015

Product name: Cadmium Standard: 1000 µg/mL Cd in 5% HNO3 [100ml bottle]

(Contd. from page 6)

· **14.3 Transport hazard class(es)**

· **ADR, IMDG, IATA**



· **Class** 8 Corrosive substances.
· **Label** 8

· **14.4 Packing group**

· **ADR, IMDG, IATA** III

· **14.5 Environmental hazards:**

· **Marine pollutant:** No

· **14.6 Special precautions for user**

· **Danger code (Kemler):** Warning: Corrosive substances.
80
· **EMS Number:** F-A,S-B
· **Segregation groups** Acids

· **14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable.

· **Transport/Additional information:**

· **ADR**

· **Excepted quantities (EQ):** E1
· **Limited quantities (LQ)** 5L
· **Transport category** 3
· **Tunnel restriction code** E

· **UN "Model Regulation":**

UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID), 8, III

SECTION 15: Regulatory information

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

· **Philippines Inventory of Chemicals and Chemical Substances**

All ingredients are listed.

· **Australian Inventory of Chemical Substances**

All ingredients are listed.

· **Standard for the Uniform Scheduling of Medicines and Poisons**

7697-37-2 Nitric acid S5, S6

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 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.

· **Relevant phrases**

H272 May intensify fire; oxidiser.
H302 Harmful if swallowed.

(Contd. on page 8)



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 01.04.2015

Version number 3

Revision: 01.04.2015

Product name: Cadmium Standard: 1000 µg/mL Cd in 5% HNO₃ [100ml bottle]

(Contd. from page 7)

H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H332 Harmful if inhaled.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

R20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

R35 Causes severe burns.

R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R8 Contact with combustible material may cause fire.

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

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

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)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

Ox. Liq. 3: Oxidising Liquids, Hazard Category 3

Acute Tox. 4: Acute toxicity, Hazard Category 4

Skin Corr. 1A: Skin corrosion/irritation, Hazard Category 1A

Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1

Aquatic Acute 1: Hazardous to the aquatic environment - Acute Hazard, Category 1

Aquatic Chronic 1: Hazardous to the aquatic environment - Chronic Hazard, Category 1

Aquatic Chronic 3: Hazardous to the aquatic environment - Chronic 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.