



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

Printing date 17.06.2015

Version number 1

Revision: 17.06.2015

Hazardous according to criteria of Australian Safety and Compensation Council

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

· **1.1 Product identifier**

· **Product name: Cadmium Standard: 10000 µg/mL Cd in 5% HNO3 [100ml bottle]**

· **Part number: 5190-8366**

· **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 Australia Pty Ltd
679 Springvale Road
Mulgrave
Victoria 3170, Australia

Tel: 1800 802 402

· **Further information obtainable from: e-mail: pdl-msds_author@agilent.com**

· **1.4 Emergency telephone number: CHEMTREC®: +(61) - 290372994**

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**

· **Classification according to Regulation (EC) No 1272/2008**



flame over circle

Ox. Liq. 3 H272 May intensify fire; oxidiser.



health hazard

Muta. 2 H341 Suspected of causing genetic defects.

Carc. 1B H350 May cause cancer.

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.



corrosion

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

Eye Dam. 1 H318 Causes serious eye damage.

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



T; Toxic

R45-23: May cause cancer. Toxic by inhalation.



C; Corrosive

R34: Causes burns.



Xn; Harmful

R48/20/22-68: Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed. Possible risk of irreversible effects.

(Contd. on page 2)



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 17.06.2015

Version number 1

Revision: 17.06.2015

Product name: Cadmium Standard: 10000 µg/mL Cd in 5% HNO₃ [100ml bottle]

(Contd. from page 1)

**O**; Oxidising

- R8:** Contact with combustible material may cause fire.
- 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**



GHS03



GHS05



GHS08

- **Signal word** Danger
- **Hazard-determining components of labelling:**
Nitric acid
cadmium
- **Hazard statements**
H272 May intensify fire; oxidiser.
H314 Causes severe skin burns and eye damage.
H341 Suspected of causing genetic defects.
H350 May cause cancer.
H373 May cause damage to organs through prolonged or repeated exposure.
- **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):** 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.
- **Additional information:**
Restricted to professional users.
- **Information concerning particular hazards for human and environment:**
- **Safety phrases:**
53 Avoid exposure - obtain special instructions before use.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
61 Avoid release to the environment. Refer to special instructions/safety data sheets.

(Contd. on page 3)

AU



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 17.06.2015

Version number 1

Revision: 17.06.2015

Product name: Cadmium Standard: 10000 µg/mL Cd in 5% HNO3 [100ml bottle]

(Contd. from page 2)

- **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.
Mixture: consisting of the following components.

- **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	< 10%
CAS: 7440-43-9 EINECS: 231-152-8 RTECS: EU 9800000	cadmium T+ R26; T Carc. Cat. 2 R45-48/23/25; Xn R62-68-63; N R50/53 Muta. Cat. 3, Repr. Cat. 3 ----- Acute Tox. 2, H330; Muta. 2, H341; Carc. 1B, H350; Repr. 2, H361fd; STOT RE 1, H372	< 1.0%

- **SVHC**

7440-43-9	cadmium
-----------	---------

- **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**
- **General information:**
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may occur even after several hours; therefore medical observation for at least 48 hours after the accident is recommended.
Remove breathing equipment only after contaminated clothing has been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After inhalation:**
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness place patient in recovery position for transport.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:**
Rinse mouth. Do not induce vomiting.
Drink plenty of water and provide fresh air. Call for a doctor immediately.
- **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.

(Contd. on page 4)



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 17.06.2015

Version number 1

Revision: 17.06.2015

Product name: Cadmium Standard: 10000 µg/mL Cd in 5% HNO₃ [100ml bottle]

(Contd. from page 3)

- **5.2 Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
- **5.3 Advice for firefighters**
- **Protective equipment:**
Mouth respiratory protective device.
Wear self-contained respiratory protective device.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **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:**
Use neutralising agent.
Dispose of contaminated material as waste according to item 13.
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.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about fire - and explosion protection:** *Keep respiratory protective device available.*
- **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.*

(Contd. on page 5)

-AU-



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

Printing date 17.06.2015

Version number 1

Revision: 17.06.2015

Product name: Cadmium Standard: 10000 µg/mL Cd in 5% HNO3 [100ml bottle]

(Contd. from page 4)

· **8.1 Control parameters**

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

7697-37-2 Nitric acid

NES	Short-term value: 10 mg/m ³ , 4 ppm
	Long-term value: 5.2 mg/m ³ , 2 ppm

7440-43-9 cadmium

NES	Long-term value: 0.01 mg/m ³
	Note (g); as Cd

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

· **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.
- Store protective clothing separately.
- 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:**

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



Protective gloves

· **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. |

(Contd. on page 6)



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 17.06.2015

Version number 1

Revision: 17.06.2015

Product name: Cadmium Standard: 10000 µg/mL Cd in 5% HNO₃ [100ml bottle]

(Contd. from page 5)

· <i>pH-value at 20 °C:</i>	< 2
· <i>Change in condition</i>	
<i>Melting point/Melting range:</i>	Not determined.
<i>Boiling point/Boiling range:</i>	100 °C
· <i>Flash point:</i>	Not applicable.
· <i>Flammability (solid, gaseous):</i>	Not determined.
· <i>Ignition temperature:</i>	
<i>Decomposition temperature:</i>	Not determined.
· <i>Self-igniting:</i>	Product is not selfigniting.
· <i>Danger of explosion:</i>	Product does not present an explosion hazard.
· <i>Explosion limits:</i>	
<i>Lower:</i>	Not determined.
<i>Upper:</i>	Not determined.
· <i>Vapour pressure at 20 °C:</i>	23 hPa
· <i>Density at 20 °C:</i>	1.1066 g/cm ³
· <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:</i>	
<i>Dynamic:</i>	Not determined.
<i>Kinematic:</i>	Not determined.
· <i>9.2 Other information</i>	No further relevant information available.

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:** 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)
------	-----	-------------------

(Contd. on page 7)



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

Printing date 17.06.2015

Version number 1

Revision: 17.06.2015

Product name: Cadmium Standard: 10000 µg/mL Cd in 5% HNO3 [100ml bottle]

(Contd. from page 6)

Inhalative	LC50/4 h	130 mg/l (rat)
7440-43-9 cadmium		
Oral	LD50	225 mg/kg (rat)

- **Primary irritant effect:**
- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitisation:** No sensitising effects known.
- **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:
Toxic
Corrosive
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
Carcinogenic.
- **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
Muta. 2, Carc. 1B

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.
Must not reach sewage water or drainage ditch undiluted or unneutralised.
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.

(Contd. on page 8)

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 17.06.2015

Version number 1

Revision: 17.06.2015

Product name: Cadmium Standard: 10000 µg/mL Cd in 5% HNO₃ [100ml bottle]

(Contd. from page 7)

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

SECTION 14: Transport information

· 14.1 UN-Number	UN2031
· ADG, IMDG, IATA	2031 NITRIC ACID solution
· ADG	NITRIC ACID solution
· IMDG, IATA	

· **14.3 Transport hazard class(es)**
 · **ADG, IMDG, IATA**



· Class	8 Corrosive substances.
· Label	8

· 14.4 Packing group	II
· ADG, IMDG, IATA	

· 14.5 Environmental hazards:	
· Marine pollutant:	No

· 14.6 Special precautions for user	Warning: Corrosive substances.
· Danger code (Kemler):	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:**

· ADG	
· Limited quantities (LQ)	1L
· Transport category	2
· Tunnel restriction code	E
· UN "Model Regulation":	UN2031, NITRIC ACID solution, 8, II

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

(Contd. on page 9)



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 17.06.2015

Version number 1

Revision: 17.06.2015

Product name: Cadmium Standard: 10000 µg/mL Cd in 5% HNO3 [100ml bottle]

(Contd. from page 8)

· **National regulations:**

· **Information about limitation of use:**

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

· **Other regulations, limitations and prohibitive regulations**

· **Substances of very high concern (SVHC) according to REACH, Article 57**

7440-43-9	cadmium
-----------	---------

· **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.

H314 Causes severe skin burns and eye damage.

H330 Fatal if inhaled.

H341 Suspected of causing genetic defects.

H350 May cause cancer.

H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.

H372 Causes damage to organs through prolonged or repeated exposure.

R26 Very toxic by inhalation.

R35 Causes severe burns.

R45 May cause cancer.

R48/23/25 Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

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

R62 Possible risk of impaired fertility.

R63 Possible risk of harm to the unborn child.

R68 Possible risk of irreversible effects.

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. 2: Acute toxicity, Hazard Category 2

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

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

Muta. 2: Germ cell mutagenicity, Hazard Category 2

Carc. 1B: Carcinogenicity, Hazard Category 1B

Repr. 2: Reproductive toxicity, Hazard Category 2

STOT RE 1: Specific target organ toxicity - Repeated exposure, Hazard Category 1

STOT RE 2: Specific target organ toxicity - Repeated exposure, Hazard Category 2

· **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.