

**1 Identification**

- **Product identifier**
- **Product Name:** 1000 µg/mL Cadmium
- **Part Number:**  
CLCD2-2Y  
CLCD2-2M
- **Application of the substance / the mixture** *Certified Reference Material*
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
SPEX CertiPrep, LLC.  
203 Norcross Ave, Metuchen,  
NJ 08840 USA
- **Information department:** *product safety department*
- **Emergency telephone number:**  
*Emergency Phone Number (24 hours)*  
CHEMTREC (800-424-9300)  
*Outside US:* 703-527-3887

**2 Hazard(s) identification**

- **Classification of the substance or mixture**



GHS08 Health hazard

Carc. 1B H350 May cause cancer.

Repr. 2 H361 Suspected of damaging fertility or the unborn child.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

- **Label elements**

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

- **Hazard pictograms**



GHS07



GHS08

- **Signal word** *Danger*

- **Hazard-determining components of labeling:**

cadmium oxide (nonpyrophoric)

- **Hazard statements**

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H350 May cause cancer.

H361 Suspected of damaging fertility or the unborn child.

- **Precautionary statements**

*Wear protective gloves/protective clothing/eye protection/face protection.**If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.**IF exposed or concerned: Get medical advice/attention.**If skin irritation occurs: Get medical advice/attention.**Store locked up.**Dispose of contents/container in accordance with local/regional/national/international regulations.*

- **Classification system:**

- **NFPA ratings (scale 0 - 4)**



Health = 2

Fire = 0

Reactivity = 0

**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 04/30/2019

Reviewed on 04/30/2019

**Product Name: 1000 µg/mL Cadmium**

(Contd. of page 1)

**· HMIS-ratings (scale 0 - 4)**

|            |   |                |
|------------|---|----------------|
| HEALTH     | 2 | Health = *2    |
| FIRE       | 0 | Fire = 0       |
| 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:** Mixture of the substances listed below with nonhazardous additions.

**· Dangerous components:**

|           |                               |      |
|-----------|-------------------------------|------|
| 7697-37-2 | nitric acid                   | 2.0% |
| 1306-19-0 | cadmium oxide (nonpyrophoric) | 0.1% |

**· Chemical identification of the substance/preparation**

|           |   |       |
|-----------|---|-------|
| 7732-18-5 | water, distilled, conductivity or of similar purity | 97.9% |
|-----------|---|-------|

**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 rinse with water.
- **After eye contact:** Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** Do not give anything to eat or drink - 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** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

**6 Accidental release measures**

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:**  
Dilute with plenty of water.  
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.
- **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               |
| 1306-19-0 | cadmium oxide (nonpyrophoric) | 0.11 mg/m <sup>3</sup> |

**· PAC-2:**

|           |                               |                        |
|-----------|-------------------------------|------------------------|
| 7697-37-2 | nitric acid                   | 24 ppm                 |
| 1306-19-0 | cadmium oxide (nonpyrophoric) | 0.87 mg/m <sup>3</sup> |

(Contd. on page 3)

**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 04/30/2019

Reviewed on 04/30/2019

**Product Name: 1000 µg/mL Cadmium**

(Contd. of page 2)

· **PAC-3:**

|           |                               |                       |
|-----------|-------------------------------|-----------------------|
| 7697-37-2 | nitric acid                   | 92 ppm                |
| 1306-19-0 | cadmium oxide (nonpyrophoric) | 5.4 mg/m <sup>3</sup> |

### 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Open and handle receptacle with care.
- **Information about protection against explosions and fires:** Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **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**PEL Long-term value: 5 mg/m<sup>3</sup>, 2 ppmREL Short-term value: 10 mg/m<sup>3</sup>, 4 ppmLong-term value: 5 mg/m<sup>3</sup>, 2 ppmTLV Short-term value: 10 mg/m<sup>3</sup>, 4 ppmLong-term value: 5.2 mg/m<sup>3</sup>, 2 ppm**1306-19-0 cadmium oxide (nonpyrophoric)**PEL Long-term value: 0.005 mg/m<sup>3</sup>  
as Cd; see 29 CFR 1910.1027

REL See Pocket Guide App. A

TLV Long-term value: 0.01 0.002\* mg/m<sup>3</sup>  
as Cd; \*respirable fraction; BEI

- **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.  
Store protective clothing separately.  
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 respiratory protective device that is independent of circulating air.
- **Protection of hands:**



Protective gloves

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

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

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

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

(Contd. on page 4)

**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 04/30/2019

Reviewed on 04/30/2019

**Product Name: 1000 µg/mL Cadmium**

(Contd. of page 3)

- **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:**

|                           |                                    |
|---------------------------|------------------------------------|
| · <b>Form:</b>            | Liquid                             |
| · <b>Color:</b>           | According to product specification |
| · <b>Odor:</b>            | Characteristic                     |
| · <b>Odour Threshold:</b> | Not applicable.                    |

· **pH-value:** Not applicable.

· **Change in condition**

|                                       |                 |
|---------------------------------------|-----------------|
| · <b>Melting point/Melting range:</b> | Undetermined.   |
| · <b>Boiling point/Boiling range:</b> | 100 °C (212 °F) |

· **Flash point:** Not applicable.

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

· **Decomposition temperature:** Not applicable.

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

· **Danger of explosion:** Product does not present an explosion hazard.

· **Explosion limits:**

|                 |                 |
|-----------------|-----------------|
| · <b>Lower:</b> | Not applicable. |
| · <b>Upper:</b> | Not applicable. |

· **Vapor pressure at 20 °C (68 °F):** 23 hPa (17.3 mm Hg)

· **Density at 20 °C (68 °F)** 1.01601 g/cm<sup>3</sup> (8.4786 lbs/gal)

· **Relative density** Not applicable.

· **Vapor density** Not applicable.

· **Evaporation rate** Not applicable.

· **Solubility in / Miscibility with**

· **Water:** Fully miscible.

· **Partition coefficient (n-octanol/water):** Not applicable.

· **Viscosity:**

|                     |                 |
|---------------------|-----------------|
| · <b>Dynamic:</b>   | Not applicable. |
| · <b>Kinematic:</b> | Not applicable. |

· **Solvent content:**

|                       |        |
|-----------------------|--------|
| · <b>Water:</b>       | 97.9 % |
| · <b>VOC content:</b> | 0.00 % |

· **Solids content:** 0.1 %

· **Other information** No further relevant information available.

### 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

(Contd. on page 5)

US

**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 04/30/2019

Reviewed on 04/30/2019

Product Name: 1000 µg/mL Cadmium

(Contd. of page 4)

**11 Toxicological information**

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

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

1306-19-0 cadmium oxide (nonpyrophoric)

Oral LD50 72 mg/kg (rat)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
The product shows the following dangers according to internally approved calculation methods for preparations:  
Irritant  
Product is suspected to cause damage to fertility.  
Product is suspected to cause birth defects.

- **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

1306-19-0 cadmium oxide (nonpyrophoric)

I

· **NTP (National Toxicology Program)**

1306-19-0 cadmium oxide (nonpyrophoric)

K

· **OSHA-Ca (Occupational Safety & Health Administration)**

1306-19-0 cadmium oxide (nonpyrophoric)

**12 Ecological information**

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **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.
- **Additional ecological information:**
- **General notes:**  
Water hazard class 3 (Self-assessment): extremely hazardous for water  
Do not allow product to reach ground water, water course or sewage system, even in small quantities.  
Danger to drinking water if even extremely small quantities leak into the ground.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

**13 Disposal considerations**

- **Waste treatment methods**
- **Recommendation:** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

**14 Transport information**

· **UN-Number**

· **DOT, ADR, IMDG, IATA**

UN3264

· **UN proper shipping name**

· **DOT**

· **ADR**

Corrosive liquid, acidic, inorganic, n.o.s. (Nitric acid Solution)

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

· **IMDG, IATA**

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

(Contd. on page 6)

US

**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 04/30/2019

Reviewed on 04/30/2019

Product Name: 1000 µg/mL Cadmium

(Contd. of page 5)

- Transport hazard class(es)
- DOT, ADR, IMDG, IATA



- Class 8 Corrosive substances
- Label 8

- Packing group III
- DOT, ADR, IMDG, IATA

- Environmental hazards: Not applicable.

- Special precautions for user Warning: Corrosive substances
- Danger code (Kemler): 80
- EMS Number: F-A,S-B
- Segregation groups Acids
- Stowage Category A
- Stowage Code SW2 Clear of living quarters.

- Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

- Transport/Additional information:

- ADR
- Excepted quantities (EQ) Code: E1  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 1000 ml

- IMDG
- Limited quantities (LQ) 5L
- Excepted quantities (EQ) Code: E1  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 1000 ml

- UN "Model Regulation": UN 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (NITRIC ACID SOLUTION), 8, III

### 15 Regulatory information

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

- Section 313 (Specific toxic chemical listings):

|           |                               |
|-----------|-------------------------------|
| 7697-37-2 | nitric acid                   |
| 1306-19-0 | cadmium oxide (nonpyrophoric) |

- TSCA (Toxic Substances Control Act):

All ingredients are listed.

- Proposition 65

- Chemicals known to cause cancer:

|           |                               |
|-----------|-------------------------------|
| 1306-19-0 | cadmium oxide (nonpyrophoric) |
|-----------|-------------------------------|

- 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)

|           |                               |    |
|-----------|-------------------------------|----|
| 1306-19-0 | cadmium oxide (nonpyrophoric) | B1 |
|-----------|-------------------------------|----|

- TLV (Threshold Limit Value established by ACGIH)

|           |                               |    |
|-----------|-------------------------------|----|
| 1306-19-0 | cadmium oxide (nonpyrophoric) | A2 |
|-----------|-------------------------------|----|

(Contd. on page 7)

**Safety Data Sheet**  
acc. to OSHA HCS

Printing date 04/30/2019

Reviewed on 04/30/2019

**Product Name: 1000 µg/mL Cadmium**

(Contd. of page 6)

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

1306-19-0 cadmium oxide (nonpyrophoric)

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

· **Hazard pictograms**



GHS07

GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**

cadmium oxide (nonpyrophoric)

· **Hazard statements**

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H350 May cause cancer.

H361 Suspected of damaging fertility or the unborn child.

· **Precautionary statements**

Wear protective gloves/protective clothing/eye protection/face protection.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF exposed or concerned: Get medical advice/attention.

If skin irritation occurs: Get medical advice/attention.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **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.

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

## 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** product safety department

· **Contact:**

SPEX CertiPrep, LLC.

1-732-549-7144

· **Date of preparation / last revision** 04/30/2019 / -

· **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)

VOC: Volatile Organic Compounds (USA, EU)

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

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

Carc. 1B: Carcinogenicity – Category 1B

Repr. 2: Reproductive toxicity – Category 2