

1. Material Identification

Product Name : Cadmium oxide

Catalog Number : io-1899

CAS Number : 1306-19-0

Identified uses : Laboratory chemicals, manufacture of chemical compounds

Company : IonZ

>> R&D Use only

2. Hazards Identification

GHS Classification:

Flammable liquid (category 2)

Acute toxicity, oral (Category 3)

Acute toxicity, dermal (Category 3)

Acute toxicity, inhalation (Category 3)

Specific target organ toxicity, single exposure (Category 1)

Pictogram(s)



GHS Hazard Statements

>> H301 (35%): Toxic if swallowed [Danger Acute toxicity, oral]

>> H330 (100%): Fatal if inhaled [Danger Acute toxicity, inhalation]

>> H341 (100%): Suspected of causing genetic defects [Warning Germ cell mutagenicity]

>> H350 (100%): May cause cancer [Danger Carcinogenicity]

>> H361 (69.6%): Suspected of damaging fertility or the unborn child [Warning Reproductive toxicity]

>> H361fd (29.9%): Suspected of damaging fertility; Suspected of damaging the unborn child [Warning Reproductive toxicity]

>> H372 (100%): Causes damage to organs through prolonged or repeated exposure [Danger Specific target organ toxicity, repeated exposure]

>> H400 (100%): Very toxic to aquatic life [Warning Hazardous to the aquatic environment, acute hazard]

>> H410 (100%): Very toxic to aquatic life with long lasting effects [Warning Hazardous to the aquatic environment, long-term hazard]

Precautionary Statement Codes

>> P203, P260, P264, P270, P271, P273, P280, P284, P301+P316, P304+P340, P316, P318, P319, P320, P321, P330, P391, P403+P233, P405, and P501

Health Hazards:

- >> The lethal inhalation dose of cadmium oxide in humans is 2,500 mg/m³ for a 1 minute exposure. Lethal exposure has been established at 50 mg (cadmium)/m³ for 1 hour for cadmium oxide dust and 1/2 hour for the fume. These concentrations may be inhaled without sufficient discomfort to warn worker of exposure. Inhalation may cause acute tracheobronchitis, pneumonitis, and pulmonary edema. Exposure can cause kidney and lung damage. Acute exposure by inhalation may cause death by anoxia. The lowest human toxic inhalation concentration is 8.630 mg/m³/5 hours for the fume. Persons with respiratory disorders should be excluded from contact with this material. (EPA, 1998)
- >> When heated to decomposition, it emits toxic fumes of cadmium. (Non-Specific -- Cadmium Compounds) Fire may produce irritating or poisonous gases. Runoff from fire control or dilution water may cause pollution. Oxides of cadmium react explosively with magnesium when heated. (EPA, 1998)
- >> Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.

3. Composition/Information On Ingredients

Chemical name : Cadmium oxide
CAS Number : 1306-19-0
Molecular Formula : CdO
Molecular Weight : 128.4100 g/mol

4. First Aid Measures

First Aid:

- >> Warning: Effects may be delayed for hours. Caution is advised.
- >> Signs and Symptoms of Acute Cadmium Oxide Exposure: The following signs and symptoms may be noted following exposure to cadmium oxide: cough, dyspnea (shortness of breath), dry mouth or increased salivation, abdominal pain, nausea, vomiting, bronchitis, and chest pain. Pulmonary edema may develop. Vertigo (dizziness), fever, and profuse sweating are common. Victims may collapse.
- >> Emergency Life-Support Procedures: Acute exposure to cadmium oxide may require decontamination and life support for the victims. Emergency personnel should wear protective clothing appropriate to the type and degree of contamination. Air-purifying or supplied-air respiratory equipment should also be worn, as necessary. Rescue vehicles should carry supplies such as plastic sheeting and disposable plastic bags to assist in preventing spread of contamination.
- >> Inhalation Exposure:
 - >> 1. Move victims to fresh air. Emergency personnel should avoid self-exposure to cadmium oxide.
 - >> 2. Evaluate vital signs including pulse and respiratory rate, and note any trauma. If no pulse is detected, provide CPR. If not breathing, provide artificial respiration. If breathing is labored, administer oxygen or other respiratory support.
 - >> 3. Obtain authorization and/or further instructions from the local hospital for administration of an antidote or performance of other invasive procedures.
 - >> 4. Transport to a health care facility.
- >> Dermal/Eye Exposure:
 - >> 1. Remove victims from exposure. Emergency personnel should avoid self-exposure to cadmium oxide.
 - >> 3. Remove contaminated clothing as soon as possible.
 - >> 4. If eye exposure has occurred, eyes must be flushed with lukewarm water for at least 15 minutes.
 - >> 5. Wash exposed skin areas THOROUGHLY with soap and water.
 - >> 6. Obtain authorization and/or further instructions from the local hospital for administration of an antidote or performance of other invasive procedures.
 - >> 7. Transport to a health care facility.
- >> Ingestion Exposure:
 - >> 1. Evaluate vital signs including pulse and respiratory rate, and note any trauma. If no pulse is detected, provide CPR. If not breathing, provide artificial respiration. If breathing is labored, administer oxygen or other respiratory support.

- >> 2. Obtain authorization and/or further instructions from the local hospital for administration of an antidote or performance of other invasive procedures.
- >> 3. Vomiting may be induced with syrup of Ipecac. If elapsed time since ingestion of cadmium oxide is unknown or suspected to be greater than 30 minutes, do not induce vomiting and proceed to Step
- >> 4. Ipecac should not be administered to children under 6 months of age. Warning: Ingestion of cadmium oxide may result in sudden loss of consciousness. Syrup of Ipecac should be administered only if victims are alert, have an active gag-reflex, and show no signs of impending seizure or coma. If ANY uncertainty exists, proceed to Step
- >> 4. The following dosages of Ipecac are recommended: children up to 1 year old, 10 mL (1/3 oz); children 1 to 12 years old, 15 mL (1/2 oz); adults, 30 mL (1 oz). Ambulate (walk) the victims and give large quantities of water. If vomiting has not occurred after 15 minutes, Ipecac may be readministered. Continue to ambulate and give water to the victims. If vomiting has not occurred within 15 minutes after second administration of Ipecac, administer activated charcoal.
- >> 4. Activated charcoal may be administered if victims are conscious and alert. Use 15 to 30 g (1/2 to 1 oz) for children, 50 to 100 g (1-3/4 to 3-1/2 oz) for adults, with 125 to 250 mL (1/2 to 1 cup) of water.
- >> 5. Promote excretion by administering a saline cathartic or sorbitol to conscious and alert victims. Children require 15 to 30 g (1/2 to 1 oz) of cathartic; 50 to 100 g (1-3/4 to 3-1/2 oz) is recommended for adults.
- >> 6. Transport to a health care facility. (EPA, 1998)

First Aid Measures

Inhalation First Aid

- >> Fresh air, rest. Half-upright position. Refer for medical attention.

Skin First Aid

- >> Rinse skin with plenty of water or shower.

Eye First Aid

- >> First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Ingestion First Aid

- >> Rinse mouth. Refer for medical attention .

5. Fire Fighting Measures

- >> (Non-Specific -- Cadmium Compounds) Wear self-contained breathing apparatus and full protective clothing. Move container from fire if you can do so without risk.
- >> (Non-Specific -- Cadmium Compounds) Extinguish with dry chemical, carbon dioxide, water fog, spray, or foam. (EPA, 1998)
- >> In case of fire in the surroundings, use appropriate extinguishing media.

6. Accidental Release Measures

Isolation and Evacuation:

Isolation and evacuation measures to take when a large amount of this chemical is accidentally released in an emergency.

- >> Excerpt from ERG Guide 154 [Substances – Toxic and/or Corrosive (Non-Combustible)]:
- >> IMMEDIATE PRECAUTIONARY MEASURE: Isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.
- >> SPILL: Increase the immediate precautionary measure distance, in the downwind direction, as necessary.
- >> FIRE: If tank, rail tank car or highway tank is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2024)

Spillage Disposal:

Methods for containment and safety measures to protect workers dealing with a spillage of this chemical.

- >> Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Vacuum spilled material with specialist equipment. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

7. Handling And Storage

Safe Storage:

- >> Separated from food and feedstuffs. Store in an area without drain or sewer access.

Storage Conditions:

- >> Storage temperature: Ambient with open venting

8. Exposure Control/ Personal Protection

- >> Ca See Appendix A [*Note: The REL applies to all Cadmium compounds (as Cd).]

- >> 0.005 [mg/m³], as Cd, see 29 CFR 1910.1027

PEL-TWA (8-Hour Time Weighted Average)

- >> 5 µg/m³ [2.5 µg/m³ Action Level]
- >> 0.01 [mg/m³], as Cd (0.002 mg/m³, as Cd, respirable fraction)
- >> (respirable fraction): 0.002 mg/m

TLV-TWA (Time Weighted Average)

- >> 0.01 mg/m³, 0.02 mg/m³ (respirable particulate matter) [1990]

EU-OEL

- >> inhalable 0.001 mg/m

MAK (Maximale Arbeitsplatz Konzentration)

- >> (as Cd, inhalable fraction): skin absorption (H); carcinogen category: 1; germ cell mutagen group: 3A.

Inhalation Risk:

- >> A harmful concentration of airborne particles can be reached quickly when dispersed.

Effects of Short Term Exposure:

- >> The substance is irritating to the respiratory tract. May cause mechanical irritation to the eyes. Inhalation of the aerosol may cause lung oedema. Exposure far above the OEL could cause death. The effects may be delayed. Medical observation is indicated.

Effects of Long Term Exposure:

- >> The substance may have effects on the kidneys and lungs. This may result in kidney impairment and tissue lesions. This substance is carcinogenic to humans.

Exposure Prevention

- >> PREVENT DISPERSION OF DUST! AVOID ALL CONTACT! IN ALL CASES CONSULT A DOCTOR!

Inhalation Prevention

- >> Use local exhaust or breathing protection.

Eye Prevention

- >> Wear safety goggles or eye protection in combination with breathing protection if powder.

Ingestion Prevention

>> Do not eat, drink, or smoke during work. Wash hands before eating.

Exposure Control and Personal Protection

Exposure Summary

- >> Biological Exposure Indices (BEI) [ACGIH] – Cd in urine = 5 ug/g creatinine; Cd in blood = 5 ug/L; sampling time not critical; Monitoring in blood should be preferred during the initial year of exposure and whenever changes in the degree of exposure are suspected. [ACGIH]
- >> TIH (Toxic Inhalation Hazard) – Term used to describe gases and volatile liquids that are toxic when inhaled. Some are TIH materials themselves, e.g., chlorine, and some release TIH gases when spilled in water, e.g., chlorosilanes. [ERG 2016].

9. Physical And Chemical Properties

Molecular Weight:

>> 128.41

Exact Mass:

>> 129.898280

Physical Description:

- >> Cadmium oxide appears as brown crystals or brown amorphous powder. Used as an electroplating chemical and in the manufacture of cadmium electrodes. Is a component of silver alloys, phosphors, semiconductors, glass and ceramic glazes. Formerly used by veterinarians to kill worms and parasites. (EPA, 1998)
- >> ODOURLESS BROWN CRYSTALS OR AMORPHOUS POWDER.

Color/Form:

>> Brown cubic crystals

Odor:

>> Odorless

Boiling Point:

>> 2838 °F at 760 mmHg (sublimes) (NTP, 1992)

Melting Point:

>> Greater than 2732 °F (EPA, 1998)

Solubility:

- >> less than 1 mg/mL at 68 °F (NTP, 1992)
- >> Solubility in water: none

Density:

- >> 8.15 crystalline form; 6.95 amorphous form (EPA, 1998)
- >> Density (amorphous): 6.9 g/cm³

Vapor Pressure:

>> 1 mmHg at 1832 °F (EPA, 1998)

Decomposition:

- >> When heated to decomposition it emits toxic fumes of /cadmium/.
- >> 900–1000 °C (amorphous)

Refractive Index:

>> INDEX OF REFRACTION: 2.49 (LITHIUM)

10. Stability And Reactivity

>> Insoluble in water.

11. Toxicological Information

Toxicity Summary:

- >> Cadmium initially binds to metallothionein and is transported to the kidney. Toxic effects are observed once the concentration of cadmium exceeds that of available metallothionein, and it has also been shown that the cadmium-metallothionein complex may be damaging. Accumulation of cadmium in the kidney results in increased excretion of vital low and high weight molecular proteins. Cadmium is a high affinity zinc analog and can interfere in its biological processes. It also binds to and activates the estrogen receptor, likely stimulating the growth of certain types of cancer cells and causing other estrogenic effects, such as reproductive dysfunction. Cadmium causes cell apoptosis by activating mitogen-activated protein kinases. (L8, A18, A19, A28)

Evidence for Carcinogenicity:

Evidence that this chemical does or may cause cancer. The information here is collected from various sources by the Hazardous Substances Data Bank (HSDB).

- >> Evaluation: There is sufficient evidence in humans for the carcinogenicity of cadmium and cadmium compounds. There is sufficient evidence in experimental animals for the carcinogenicity of cadmium compounds. There is limited evidence in experimental animals for the carcinogenicity of cadmium metal. In making the overall evaluation, the Working Group took into consideration the evidence that ionic cadmium causes genotoxic effects in a variety of types of eukaryotic cells, including human cells. Overall evaluation: Cadmium and cadmium compounds are carcinogenic to humans (Group 1). /Cadmium and cadmium compounds/

Carcinogen Classification:

This section provides the International Agency for Research on Cancer (IARC) Carcinogenic Classification and related monograph links. In the IARC Carcinogenic classification, chemicals are categorized into four groups: Group 1 (carcinogenic to humans), Group 2A (probably carcinogenic to humans), Group 2B (possibly carcinogenic to humans), and Group 3 (not classifiable as to its carcinogenicity to humans).

- >> 1, carcinogenic to humans. (L135)

Health Effects:

- >> Chronic exposure to cadmium fumes can cause chemical pneumonitis, pulmonary edema, and lung diseases such as bronchitis and emphysema. Cadmium also accumulates in the kidneys, causing permanent damage. Loss of bone density also occurs. (L6)

Exposure Routes:

- >> The substance can be absorbed into the body by inhalation of its aerosol and by ingestion.
- >> inhalation

Inhalation Exposure

- >> Cough. Laboured breathing. Shortness of breath. Symptoms may be delayed.

Eye Exposure

- >> Redness. Pain.

Ingestion Exposure

- >> Abdominal cramps. Diarrhoea. Nausea. Vomiting.
- >> pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; emphysema, proteinuria, anosmia (loss of the sense of smell), mild anemia; [potential occupational carcinogen]

Target Organs:

Organs that are affected by exposure to this chemical. Information in this section reflects human data unless otherwise noted.

- >> respiratory system, kidneys, blood

Cancer Sites:

The site in which cancer develops due to exposure to this compound. Cancers are casually referred to based on their primary sites (e.g., skin, lung, breasts, prostate, colon and rectum).

- >> [prostatic & lung cancer]

Adverse Effects:

An adverse effect is an undesired harmful effect resulting from a medical treatment or other intervention.

- >> Nephrotoxin – The chemical is potentially toxic to the kidneys in the occupational setting.
- >> Reproductive Toxin – A chemical that is toxic to the reproductive system, including defects in the progeny and injury to male or female reproductive function. Reproductive toxicity includes developmental effects. See Guidelines for Reproductive Toxicity Risk Assessment.
- >> Chronic Bronchitis – Chronic bronchitis is persistent coughing and production of phlegm for at least 3 months out of the year for at least two successive years. (American Thoracic Society).
- >> Toxic Pneumonitis – Inflammation of the lungs induced by inhalation of metal fumes or toxic gases and vapors.

Toxicity Data:

- >> LC50 (mice) = 250 mg/m³/2h

Minimum Risk Level:

The minimal risk level (MRL) is an estimate of the amount of a chemical a person can eat, drink, or breathe each day without a detectable risk to health

- >> Acute Inhalation: 0.00003 mg/m³ (L134) Chronic Inhalation: 0.00001 mg/m³ (L134) Intermediate Oral: 0.0005 mg/kg/day (L134) Chronic Oral: 0.0001 mg/kg/day (L134)

Treatment:

Treatment when exposed to toxin

- >> Cadmium poisoning is treated by removal from exposure and supportive care. If ingested, induced vomiting or gastric lavage may be performed. (L139)

Antidote and Emergency Treatment:

- >> Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. /Cadmium and Related Compounds/

Human Toxicity Excerpts:

- >> /SIGNS AND SYMPTOMS/ Twelve–sixteen hours after inhalation of /cadmium oxide/ fumes, /symptoms may include the following/: headache, vertigo, gastrointestinal lesions, severe pleurodynia, cough with hemoptysis, dyspnea, high temperature, severe perspiration, collapse, pneumonia. Chronic symptoms by inhalation include the following: rhinopharyngitis, malaise, ... mucosal ulceration, mucous membrane atrophy, ... insomnia, depressed appetite, nausea, and loss of weight. ... In 15–30 hours /after ingestion/, symptoms may include the following: increased salivation, nausea and vomiting, abdominal pains, diarrhea, vertigo, or unconsciousness.

Non-Human Toxicity Excerpts:

- >> /LABORATORY ANIMALS: Acute Exposure/ Female Fischer 344 rats were exposed to ultrafine cadmium oxide particles, generated by spark discharging, for 6 hr at a concentration of 70 ug Cd/cu m (1 x 10⁺⁶/cu cm) (40 nm modal diameter). Lung morphology and quantification of Cd content/concentration by inductively coupled plasma (ICP)-mass spectrometry were performed on days 0, 1, 4, and 7 after exposure. Cd content in the lung on day 0 was 0.53 +/- 0.12 ug/lung, corresponding to 19% of the estimated total inhaled cumulative dose, and the amount remained constant throughout the study. In the liver no significant increase of Cd content was found up to 4 days. A slight but statistically significant increase was observed in the liver on day 7. We found neither exposure-related morphological changes of lungs nor inflammatory responses in lavaged cells. Another group of rats were exposed to a higher concentration of ultrafine CdO particles (550 ug Cd/cu m for 6 hr, 51 nm modal diameter). The rats were sacrificed immediately and 1 day after exposure. The lavage study performed on day 0 showed an increase in the percentage of neutrophils. Multifocal alveolar inflammation was seen histologically on day 0 and day 1. Although the Cd content in the lung was comparable between day 0 and day 1 (3.9 ug/lung), significant elevation of Cd levels in the liver and kidneys was observed on both days. Two of 4 rats examined on day 0 showed elevation of blood cadmium, indicating systemic translocation of a fraction of deposited Cd from the lung in this group. These results and comparison with reported data using fine CdO particles indicate that inhalation of ultrafine CdO particles results in efficient deposition in the rat lung. With regard to the deposition dose, adverse health effects of ultrafine CdO and fine CdO appear to be comparable. Apparent systemic translocation of Cd took place only in animals exposed to a high concentration that induced lung injury.

Human Toxicity Values:

Quantitative human toxicity values (e.g., lethal dose) for this compound.

- >> ... CALCULATED LETHAL INHALATION DOSE OF CADMIUM OXIDE IN MAN TO BE 2500 MG/CU M FOR 1 MIN EXPOSURE.

Non-Human Toxicity Values:

>> LD50 Rat oral 72 mg/kg

National Toxicology Program Studies:

Reports from the National Toxicology Program, an interagency program supported by three government agencies (NIH, FDA, and CDC) within the Department of Health and Human Services. This program plays a critical role in generating, interpreting, and sharing toxicological information about chemicals of public health concerns.

>> Male and female F344/N rats and B6C3F1 mice were exposed to cadmium oxide aerosol (MMAD=1.1-1.6 μ m) for 6 hours per day, 5 days per week, for 2 or 13 weeks. Exposure levels were 0.1 to 10 mg/cu m for the 2-week studies and 0.025 to 1 mg/cu m for the 13-week studies. ... In the 2-week studies, all rats and mice at the highest exposure level (10 mg/cu m) died from respiratory toxicity characterized by inflammation, necrosis, and fibrosis of the lung. Toxicity to the nasal cavity and tracheobronchial lymph nodes was also observed in the 10 mg/cu m groups. At the lower exposure levels, treatment-related toxic lesions were not life threatening, and all body weights were within 10% of controls. In the 13-week studies, all rats and mice (with the exception of one control mouse) survived to the end of the studies. The final mean body weight of rats in the highest exposure groups (1 mg/cu m) was 93% of the control value. For all other exposed rat and mouse groups, final mean body weights corresponded to those of the respective controls. For rats and mice in the 13-week studies, the major toxicity was to the respiratory system. Treatment-related lesions were observed in the lung, tracheobronchial lymph node, larynx, and nose. The no-observed-adverse-effect level (NOAEL) in the lungs was 0.025 mg/cu m for rats. A NOAEL was not found in the lungs or larynx of mice or in the larynx of rats. At the 0.025 and 0.05 mg/cu m levels in mice, lung lesions were minimal and not considered life threatening. A NOAEL in the nasal cavity was 0.05 mg/cu m for rats and mice. Reproductive toxicity was observed in the 1 mg/cu m groups of rats and was evidenced by a reduced number of spermatids per testis and an increase in the length of the estrous cycle. Reproductive toxicity was not observed at any exposure level in mice.

TSCA Test Submissions:

Under the Toxic Substances Control Act (TSCA), EPA has broad authority to issue regulations designed to require manufacturers (including importers) or processors to test chemical substances and mixtures for health and environmental effects. This section provides information on test reports submitted for this chemical under TSCA.

>> Cadmium oxide was evaluated for clastogenicity in groups of 20 male Long-Evans rats injected intraperitoneally with total dose levels of 0 or 5 mg/kg bw, in three equal increments at 2 day intervals. Blood and bone marrow samples were obtained from each rat at 1 and 30 days after treatment, for determination of chromosomal abnormalities. The treatment increased the frequency of 1 type of chromosomal aberration (gap/break) in bone marrow cells obtained on day 1, indicating that the test compound was positive for clastogenicity in rats under the conditions of this assay. Positive control treatment with a single intraperitoneal injection of 0.3 mg/kg triethylenemelamine produced a significant increase in the frequency of chromosomal aberrations in bone marrow cells collected on day 1; bone marrow cells collected from positive control rats on day 30 and blood cells collected on day 1 or 30 were similar to negative controls in frequency of chromosomal aberrations.

Populations at Special Risk:

>> /Protect/ from exposure those individuals with diseases of the ... liver, kidneys, or blood.

12. Ecological Information

ICSC Environmental Data:

>> Bioaccumulation of this chemical may occur in plants and seafood. It is strongly advised not to let the chemical enter into the environment.

13. Disposal Considerations

Spillage Disposal

>> Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Vacuum spilled material with specialist equipment. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

Disposal Methods

>> CADMIUM DUST MAY BE DISPOSED OF IN SEALED CONTAINERS IN SECURED SANITARY /SRP: HAZARDOUS WASTE/ LANDFILL.

- >> Generators of waste (equal to or greater than 100 kg/mo) containing this contaminant, EPA hazardous waste number D006, must conform with USEPA regulations in storage, transportation, treatment and disposal of waste. /Cadmium/
- >> SRP: At the time of review, criteria for land treatment or burial (sanitary landfill) disposal practices are subject to significant revision. Prior to implementing land disposal of waste residue (including waste sludge), consult with environmental regulatory agencies for guidance on acceptable disposal practices.

14. Transport Information

DOT

Cadmium oxide

6.1

UN Pack Group: III

IATA

Cadmium oxide

6.1,

UN Pack Group: III

15. Regulatory Information

Federal Drinking Water Standards:

Federal drinking water standards (e.g. maximum containment level (MCL)) for this chemical. These standards are legally enforceable.

- >> Maximum contaminant levels for inorganic contaminants: 0.005 mg/L /Cadmium/

Federal Drinking Water Guidelines:

Federal drinking water guidelines (e.g. maximum containment level (MCL)) for this chemical. In general, these guidelines are recommendations and not legally enforceable.

- >> Maximum contaminant level goals for inorganic contaminants: 0.005 mg/L /Cadmium/

State Drinking Water Standards:

State drinking water standards (e.g. maximum containment level (MCL)) for this chemical. These standards are legally enforceable.

- >> (AZ) ARIZONA 10 ug/L /Cadmium/

Clean Water Act Requirements:

The Clean Water Act (CWA) of 1972 establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. Under CWA, the U.S. Environmental Protection Agency (EPA) developed the Toxic Pollutant List (40 CFR Part 401.15) and the Priority Pollutant List (40 CFR Part 423, Appendix A). These lists are to be used by EPA and States to develop the Effluent Guidelines regulations and ensure water quality criteria and standards.

- >> Toxic pollutant designated pursuant to section 307(a)(1) of the Federal Water Pollution Control Act and is subject to effluent limitations. /Cadmium and compounds/

Regulatory Information

The Australian Inventory of Industrial Chemicals

- >> Chemical: Cadmium oxide (CdO)

REACH Registered Substance

- >> Status: Active Update: 23-12-2022 <https://echa.europa.eu/registration-dossier/-/registered-dossier/15016>

REACH Restricted Substance

- >> Restricted substance: Cadmium oxide

>> EC: 215-146-2

REACH Substances of Very High Concern (SVHC)

>> Substance: Cadmium oxide

>> EC: 215-146-2

>> Date of inclusion: >20-Jun-2013

>> Reason for inclusion: Carcinogenic (Article 57a); Specific target organ toxicity after repeated exposure (Article 57(f) – human health)

New Zealand EPA Inventory of Chemical Status

>> Cadmium oxide: HSNO Approval: HSR004390 Approved with controls

16. Other Information

Other Safety Information

Chemical Assessment

>> IMAP assessments – Cadmium metal and cadmium oxide: Environment tier II assessment

>> IMAP assessments – Cadmium oxide (CdO): Human health tier II assessment

"The information provided is believed to be accurate but is not comprehensive and should be used as a reference. It reflects our current knowledge and is intended for safety guidance related to the product. This document does not constitute a warranty of the product's properties. lonz is not responsible for any damages resulting from handling or contact with the product incorrectly."