

SAFETY DATA SHEET

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SECTION 1. IDENTIFICATION

Product Name: Nickel(III) Oxide Nanoparticles / Nanopowder

Product Number: All applicable American Elements product codes, e.g. NI3-OX-02-NP 02 , NI3-OX-03-NP 03 , NI3-OX-04-NP 04 , NI3-OX-05-NP 05

CAS #: 1314-06-3

Relevant identified uses of the substance: Scientific research and development

Supplier details:

American Elements
10884 Weyburn Ave.
Los Angeles, CA 90024
Tel: +1 310-208-0551
Fax: +1 310-208-0351

Emergency telephone number:

+1 800-424-9300

SECTION 2. HAZARDS IDENTIFICATION

Hazard classification

Health hazards

Skin sensitizer

Category 1

Carcinogenicity

Category 1A

Specific target organ toxicity - repeated exposure

Category 1



Signal word: Danger

Hazard statement:

H317 May cause an allergic skin reaction.

H350 May cause cancer.

H372 Causes damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention:

P201+P202+P260+P280+P272+P264 Obtain special instructions before use. Do not handle until all

safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection. Contaminated work clothing should not be allowed out of the workplace. Wash hands thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

Response:

P308+P313 IF exposed or concerned: Get medical advice/attention.

P302+352-P333+P313+P362+P364-P314 IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse.

Specific treatment (see this label). Get medical advice/attention if you feel unwell.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in GHS classification: None.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances

Synonyms: Nickel (III) Oxide; Nickel Oxide; Nickel Sesquioxide; Nickel Peroxide; Nickel Trioxide; Nickel Oxide, Black

CAS No.: 1314-06-3

Molecular Weight: 165.39

Chemical Formula: Ni₂O₃

SECTION 4. FIRST AID MEASURES

General information:

Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

Ingestion:

Rinse mouth thoroughly. Call a POISON CENTER or doctor/physician if you feel unwell.

Inhalation:

Move to fresh air. Get medical attention if symptoms persist.

Skin contact:

Wash skin thoroughly with soap and water. If skin irritation or an allergic skin reaction develops, get medical attention. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

Eye contact:

Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses.

Get medical attention if symptoms persist. Most important symptoms/effects, acute and delayed

Symptoms:

May cause irritation to skin, eyes, and respiratory tract. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Indication of immediate medical attention and special treatment needed

Treatment:

Treat symptomatically. Symptoms may be delayed.

SECTION 5. FIREFIGHTING MEASURES

Fire:

Not considered to be a fire hazard.

Explosion:

Not considered to be an explosion hazard.

Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills:

Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.

SECTION 7. HANDLING AND STORAGE

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Wear special protective equipment (Sec. 8) for maintenance break-in or where exposures may exceed established exposure levels. Wash hands, face, forearms and neck when exiting restricted areas. Shower, dispose of outer clothing, change to clean garments at the end of the day. Avoid cross-contamination of street clothes. Wash hands before eating and do not eat, drink, or smoke in workplace. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne Exposure Limits:

For Nickel, Metal and Insoluble Compounds, as Ni:

- OSHA Permissible Exposure Limits (PEL) -
1 mg/m³ (TWA).

For Nickel, Elemental / Metal:

- ACGIH Threshold Limit Value (TLV) -
1.5 mg/m³ (TWA), A5 - Not suspected as a human carcinogen.

For Nickel, Insoluble Compounds, as Ni:

- ACGIH Threshold Limit Value (TLV) -
0.2 mg/m³ (TWA), A1 - Confirmed human carcinogen

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded and engineering controls are not feasible, a half facepiece particulate respirator

(NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use

concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest.. A

full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit,

or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier,

whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type

R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece

positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to

prevent skin contact.

Eye Protection:

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible.

Maintain

eye wash fountain and quick-drench facilities in work area.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Gray-black powder.

Odor: Odorless.

Solubility: Insoluble in water.

Specific Gravity: 4.84

pH: No information found.

% Volatiles by volume @ 21C (70F): 0

Boiling Point: No information found.

Melting Point: Decomposes at ca. 600C into NiO and oxygen.

Vapor Density (Air=1):

N/A Vapor Pressure (mm Hg): N/A

Evaporation Rate (BuAc=1): No information found.

SECTION 10. STABILITY AND REACTIVITY

Stability:

Stable under ordinary conditions of use and storage.
Hazardous Decomposition Products:
Decomposes into nickel monoxide and oxygen.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
Increases the sensitivity of nitroalkanes to heat. Hazardous reaction with hydrogen peroxide.
Conditions to Avoid:
Incompatibles.

SECTION 11. TOXICOLOGICAL INFORMATION

No LD50/LC50 information found relating to normal routes of occupational exposure. Investigated as a tumorigen and mutagen.

-----\Cancer Lists\-----

---NTP Carcinogen---

Ingredient Known Anticipated IARC Category

Nickel Oxide (1314-06-3) No Yes 1

SECTION 12. ECOLOGICAL INFORMATION

Environmental Fate:

No information found.

Environmental Toxicity:

No information found.

SECTION 13. DISPOSAL CONSIDERATIONS

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste

disposal facility. Processing, use or contamination of this product may change the waste management options.

State and local disposal regulations may differ from federal disposal regulations. Dispose of container and

unused contents in accordance with federal, state and local requirements.

SECTION 14. TRANSPORT INFORMATION

Not Regulated.

SECTION 15. REGULATORY INFORMATION

-----\Chemical Inventory Status - Part 1\-----

Ingredient TSCA EC Japan Australia

Nickel Oxide (1314-06-3) Yes Yes Yes Yes

-----\Chemical Inventory Status - Part 2\-----

--Canada--

Ingredient Korea DSL NDSL Phil.

Nickel Oxide (1314-06-3) Yes Yes No No

-----\Federal, State & International Regulations - Part 1\-----

-SARA 302- -----SARA 313-----

Ingredient RQ TPQ List Chemical Catg.

Nickel Oxide (1314-06-3) No No No Nickel compo

-----\Federal, State & International Regulations - Part 2\-----

-RCRA- -TSCAIngredient

CERCLA 261.33 8(d)

Nickel Oxide (1314-06-3) No No No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No

SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No

Reactivity: No (Pure / Solid)

WARNING:

THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

Australian Hazchem Code: None allocated.

Poison Schedule: None allocated.

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

SECTION 16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. COPYRIGHT 1997-2019 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.