


<a href="#">Iron Nickel Zinc Oxide</a>	<a href="#">Pricing &gt;</a>
<a href="#">Nickel Zinc Iron Oxide Nanoparticle Dispersion</a>	<a href="#">Pricing &gt;</a>
<a href="#">Nickel Zinc Iron Oxide Nanoparticles / Nanopowder</a>	<a href="#">Pricing &gt;</a>

<b>Linear Formula</b>	NiZnFe <sub>4</sub> O <sub>4</sub>
<b>Pubchem CID</b>	16217786
<b>MDL Number</b>	MFCD06200997
<b>EC No.</b>	N/A
<b>IUPAC Name</b>	copper; nickel(2+); oxido(oxo)iron
<b>Beilstein/Reaxys No.</b>	N/A
<b>SMILES</b>	[O-][Fe]=O.[O-][Fe]=O.[O-][Fe]=O.[O-][Fe]=O.[Ni+2].[Cu+2]
<b>Inchl Identifier</b>	1S/Cu.4Fe.Ni.8O/q+2;;;;;+2;;;;;4*-1
<b>Inchl Key</b>	ZVNYTSWDRSTIPL-UHFFFAOYSA-N
<b>Signal Word</b>	Warning
<b>Hazard Statements</b>	H315-H317-H319-H335
<b>Hazard Codes</b>	Xi
<b>Precautionary Statements</b>	P261-P264-P271-P272-P280-P302+P352-P304+P340-P305+P351+P338-P312-P321-P333+P313-P337+P313-P362-P403+P233-P405-P501
<b>Risk Codes</b>	49-36/37/38-43
<b>Safety Statements</b>	53-26-36/37-45
<b>RTECS Number</b>	NO7118000
<b>Transport Information</b>	N/A
<b>WGK Germany</b>	3
<b>GHS Pictograms</b>	<a href="#">GHS07 Exclamation Point</a> 

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## SAFETY DATA SHEET

Date Accessed: 04/18/2024

Date Revised: 01/15/2022

### SECTION 1. IDENTIFICATION

**Product Identifiers:** All applicable American Elements product codes for CAS #12645-50-0

**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:  
Domestic, North America +1 800-424-9300  
International +1 703-527-3887

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## SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture  
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)  
Skin irritation (Category 2), H315  
Eye irritation (Category 2A), H319  
Skin sensitisation (Category 1), H317  
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335  
For the full text of the H-Statements mentioned in this Section, see Section 16.  
GHS Label elements, including precautionary statements  
Pictogram



Signal word: Warning  
Hazard statement(s)  
H315  
Causes skin irritation.  
H317  
May cause an allergic skin reaction.  
H319  
Causes serious eye irritation.  
H335  
May cause respiratory irritation.  
Precautionary statement(s)  
P261  
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
P264  
Wash skin thoroughly after handling.  
P271  
Use only outdoors or in a well-ventilated area.  
P272  
Contaminated work clothing should not be allowed out of the workplace.  
P280  
Wear protective gloves/ eye protection/ face protection.  
P302 + P352  
IF ON SKIN: Wash with plenty of soap and water.  
P304 + P340  
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P305 + P351 + P338  
IF IN EYES: Rinse cautiously with water for several

minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P312

Call a POISON CENTER/doctor if you feel unwell.

P321

Specific treatment (see supplemental first aid instructions on this label).

P333 + P313

If skin irritation or rash occurs: Get medical advice/attention.

P337 + P313

If eye irritation persists: Get medical advice/attention.

P362

Take off contaminated clothing and wash before reuse.

P403 + P233

Store in a well-ventilated place. Keep container tightly closed.

P405

Store locked up.

P501

Dispose of contents/ container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS - none

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### **SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substances

Synonyms:

Zinc nickel iron oxide

Nickel zinc ferrite

Zinc nickel ferrite

Formula:  $\text{Fe}_4\text{NiO}_4\text{Zn}$

Molecular weight: 411.46 g/mol

CAS-No.: 12645-50-0

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### **SECTION 4. FIRST AID MEASURES**

Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a

physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of any immediate medical attention and special treatment needed

No data available

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## **SECTION 5. FIREFIGHTING MEASURES**

Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture

No data available

Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

Further information

No data available

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## **SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas.

Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

Environmental precautions

Do not let product enter drains.

Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust.

Sweep up and shovel. Keep in suitable, closed containers for disposal.

Reference to other sections

For disposal see section 13.

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## **SECTION 7. HANDLING AND STORAGE**

Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

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## **SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Do not let product enter drains.

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## **SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Information on basic physical and chemical properties

Appearance

Form: powder  
Colour: dark brown, black  
Odour  
No data available  
Odour Threshold  
No data available  
pH  
No data available  
Melting point/freezing point  
No data available  
Initial boiling point and boiling range  
No data available  
Flash point  
Not applicable  
Evaporation rate  
No data available  
Flammability (solid, gas)  
No data available  
Upper/lower flammability or explosive limits  
No data available  
Vapour pressure  
No data available  
Vapour density  
No data available  
Relative density  
2.81 g/mL at 25 °C (77 °F)  
Water solubility  
insoluble  
Partition coefficient: n-octanol/water  
No data available  
Auto-ignition temperature  
No data available  
Decomposition temperature  
No data available  
Viscosity  
No data available  
Explosive properties  
No data available  
Oxidizing properties  
No data available  
Other safety information  
No data available

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## **SECTION 10. STABILITY AND REACTIVITY**

Reactivity  
No data available  
Chemical stability  
Stable under recommended storage conditions.  
Possibility of hazardous reactions  
No data available  
Conditions to avoid  
No data available

Incompatible materials  
Strong oxidizing agents  
Hazardous decomposition products  
Hazardous decomposition products formed under fire conditions.  
- Nickel/nickel oxides, Iron oxides, Zinc/zinc oxides  
Other decomposition products  
- No data available  
In the event of fire: see section 5

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## **SECTION 11. TOXICOLOGICAL INFORMATION**

Information on toxicological effects  
Acute toxicity  
No data available  
Dermal:  
No data available  
No data available  
Skin corrosion/irritation  
No data available  
Serious eye damage/eye irritation  
No data available  
Respiratory or skin sensitisation  
Germ cell mutagenicity  
No data available  
Carcinogenicity  
May cause cancer by inhalation.  
IARC: 1-Group 1: Carcinogenic to humans (Nickel zinc ferrite)  
IARC: 1-Group 1: Carcinogenic to humans (Nickel zinc ferrite)  
NTP: Known-Known to be human carcinogen (Nickel zinc ferrite)  
NTP: Known-Known to be human carcinogen (Nickel zinc ferrite)  
OSHA:  
No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.  
No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.  
Reproductive toxicity  
No data available  
Reproductive toxicity-Rat-Inhalation  
Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count).  
Reproductive toxicity-Rat-Inhalation  
Effects on Fertility: Pre-implantation mortality (e.g., reduction in number corpora lutea). Effects on Embryo or Fetus: Fetal death.  
No data available

Specific target organ toxicity -single exposure  
Inhalation-May cause respiratory irritation.  
Specific target organ toxicity -repeated exposure  
No data available  
Aspiration hazard  
No data available  
Additional Information  
RTECS: NO7118000

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## **SECTION 12. ECOLOGICAL INFORMATION**

Toxicity  
No data available  
Persistence and degradability  
No data available  
Bioaccumulative potential  
No data available  
Mobility in soil  
No data available  
Results of PBT and vPvB assessment  
PBT/vPvB assessment not available as chemical  
safety assessment not required/not conducted  
Other adverse effects  
No data available

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## **SECTION 13. DISPOSAL CONSIDERATIONS**

Waste treatment methods  
Product  
Offer surplus and non-recyclable solutions to a  
licensed disposal company.  
Contact a licensed professional waste disposal  
service to dispose of this material.  
Contaminated packaging  
Dispose of as unused product.

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## **SECTION 14. TRANSPORT INFORMATION**

DOT (US)  
Not dangerous goods  
IMDG  
Not dangerous goods  
IATA  
Not dangerous goods

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## **SECTION 15. REGULATORY INFORMATION**

### **SARA 302 Components**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

### **SARA 313 Components**

The following components are subject to reporting levels established by SARA Title III, Section 313:

Nickel zinc ferrite

CAS-No.12645-50-0

Revision Date 2015-07-08

### **SARA 311/312**

#### **Hazards**

Acute Health Hazard, Chronic Health Hazard

#### **Massachusetts Right To Know**

##### **Components**

No components are subject to the Massachusetts Right to Know Act.

#### **Pennsylvania Right To Know**

##### **Components**

Nickel zinc ferrite

CAS-No.12645-50-0

Revision Date

2015-07-08

#### **New Jersey Right To Know**

##### **Components**

Nickel zinc ferrite

CAS-No.12645-50-0

Revision Date

2015-07-08

#### **California Prop. 65**

##### **Components**

WARNING! This product contains a chemical known to the

State of California to cause cancer.

Nickel zinc ferrite

CAS-No.12645-50-0

Revision Date

2007-09-28

WARNING! This product contains a chemical known to the

State of California to cause cancer.

Nickel zinc ferrite

CAS-No.12645-50-0

Revision Date

2007-09-28

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## **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 1997-2022 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.

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