Aluminum-doped Zinc Oxide (AZO)	Pricing >
Aluminum-doped Zinc Oxide (AZO) Sputtering Target	Pricing >
Aluminum-doped Zinc Oxide Nanoparticle Dispersion	Pricing >
Aluminum-doped Zinc Oxide Nanoparticle Ink	Pricing >
Aluminum-doped Zinc Oxide Nanoparticles / Nanopowder (AZO)	Pricing >
AZO Rotatable Sputtering Target	Pricing >

Linear Formula	Al_2O_3 : ZnO
Pubchem CID	9794068
MDL Number	MFCD21608491
EC No.	215-222-5
IUPAC Name	dialuminum; zinc; oxygen(2-)
SMILES	[O-2].[O-2].[O-2].[O-2].[Al+3].[Al+3].[Zn+2]
InchI Identifier	InChI=1S/2Al.4O.Zn/q2*+3;4*-2;+2
InchI Key	DSRXRJYQGIXPCQ-UHFFFAOYSA-N

Signal Word	Warning
Hazard Statements	H410
Hazard Codes	N
Precautionary Statements	P273-P391-P501
Risk Codes	50/53
Safety Statements	60-61
RTECS Number	N/A
Transport Information	UN 3077 9 / PGIII
WGK Germany	2

GHS Pictograms	GHS09 Environment 

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SAFETY DATA SHEET

Date Accessed: 03/28/2024
Date Revised: 01/15/2022

SECTION 1. IDENTIFICATION

Product Identifiers: All applicable American Elements product codes for CAS #37275-76-6

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

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

GHS Label elements, including precautionary statements
Pictogram

Signal word
Warning
Hazard statement(s)
H410
Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P273
Avoid release to the environment.
P391
Collect spillage.
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: AZO
Formula: Al2O3/ZnO
CAS-No.: 37275-76-6
EC-No.: 215-222-5
Index-No.: 030-013-00-7

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

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 availabl

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing Vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8
Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided
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.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.
Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Specific end use(s)
Apart from the uses mentioned in section 1.2 no other

specific uses are stipulated

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
Safety glasses with side - shields conforming to EN166 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
Impervious clothing, 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
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided

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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties
Appearance
Form: Powder
Odor
No data available
Odor 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
No data available
Evaporation rate
No data available
Flammability (solid, gas)
No data available
Upper/lower flammability or explosive limits
No data available
Vapor pressure
No data available
Vapor density
No data available
Relative density
No data available
Water solubility
No data available
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

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
No data available
Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects
Acute toxicity
LD50 Oral - Mouse - 7,950 mg/kg (Zinc oxide)
LC50 Inhalation - Mouse - 2,500 mg/m3 (Zinc oxide)
Dermal: No data available (Zinc oxide)
No data available (Zinc oxide)
Skin corrosion/irritation
Skin - Rabbit (Zinc oxide)
Result: Mild skin irritation - 24 h
Serious eye damage/eye irritation
Eyes - Rabbit (Zinc oxide)
Result: Mild eye irritation - 24 h
Eyes - Rabbit (Zinc oxide)
Result: Mild eye irritation - 24 h
Respiratory or skin sensitisation
No data available (Zinc oxide)
Germ cell mutagenicity
Hamster (Zinc oxide)
Embryo
Unscheduled DNA synthesis
Hamster (Zinc oxide)
Embryo
Morphological transformation.
Hamster (Zinc oxide)
Embryo
Sister chromatid exchange
(Zinc oxide)
Guinea pig
Unscheduled DNA synthesis
Carcinogenicity
IARC:
No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:
No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:
No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity
No data available (Zinc oxide)
No data available (Zinc oxide)
Specific target organ toxicity - single exposure
No data available (Zinc oxide)
Specific target organ toxicity - repeated exposure
No data available
Aspiration hazard

No data available (Zinc oxide)
Additional Information
RTECS: Not available
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Zinc oxide dust or fume can irritate the respiratory tract. Prolonged skin contact can
produce a severe dermatitis called oxide pox.
Exposure to high levels of dust or fume can cause metallic taste, marked thirst, coughing, fatigue, weakness, muscular pain, and nausea followed by fever and chills. Severe overexposure may result in bronchitis or pneumonia with a bluish tint to the skin., prolonged or repeated exposure can cause:, Reversible liver enzyme abnormalities., Diarrhea (Zinc oxide)
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. (Zinc oxide)
Liver - Irregularities - Based on Human Evidence
Liver - Irregularities - Based on Human Evidence (Aluminum oxide)

SECTION 12. ECOLOGICAL INFORMATION

Toxicity
Toxicity to fish
LC50 - Oncorhynchus mykiss (rainbow trout) - 1.1 mg/l - 96.0 h (Zinc oxide)
Toxicity to daphnia and other aquatic invertebrates
EC50 - Daphnia magna (Water flea) - 0.098 mg/l - 48 h (Zinc oxide)
Persistence and degradability
No data available
Bioaccumulative potential
No data available
Mobility in soil
No data available (Zinc oxide)
Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
Other adverse effects
Very toxic to aquatic life.
An environmental hazard cannot be excluded in the event of unprofessional handling or dispos

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SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.
Contaminated packaging
Dispose of as unused product

SECTION 14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods
IMDG
UN number: 3077
Class: 9
Packing group: III
EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide)
Marine pollutant: yes
IATA
UN number: 3077
Class: 9
Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Zinc oxide)
Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solid

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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:
CAS-No.
Revision Date
Aluminum oxide
1344-28-1
1994-04-01
Zinc oxide
1314-13-2
2007-03-01
SARA 311/312
Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
Aluminum oxide
CAS-No. 1344-28-1
Revision Date
1994-04-01
Zinc oxide
1314-13-2
2007-03-01
Pennsylvania Right To Know Components
Aluminum oxide
CAS-No. 1344-28-1
Revision Date
1994-04-01
Zinc oxide
1314-13-2
2007-03-01
New Jersey Right To Know
Components
Aluminum oxide
CAS-No. 1344-28-1
Revision Date
1994-04-01
Zinc oxide
1314-13-2
2007-03-01
California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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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.