


SECTION 1: Chemical Product and Company Identification

MSDS name: Zirconium Oxide
Product form: Solid beads
Product name: ZrOB015, ZrOB05, ZrOB10, ZrOB15, ZrOB20, ZrOB25 (BULK/RNA)
Company identification: Next Advance, Inc. 2113 State Highway Troy, NY 12180 USA www.nextadvance.com
For information, call: 518-674-3510
Emergency number: 518-674-3510
For CHEMTREC assistance, call: US:001-800-424-9300 / Europe:001-703-527-388
For Emergency, call: US:001-201-796-7100 / Europe: +32 14 57 52 99

SECTION 2: Composition, Information on Ingredients

CAS#	Chemical name	Percent
1314-23-4	Zirconium Oxide	95 % ZrO ₂ & 5% Y ₂ O ₃

SECTION 3: Hazards Identification

Potential Acute Health Effects: Slightly hazardous in case of skin contact, eye contact, ingestion or inhalation	 <table border="1" style="margin-top: 5px;"> <tr> <td>Health</td> <td>1</td> </tr> <tr> <td>Fire</td> <td>0</td> </tr> <tr> <td>Reactivity</td> <td>0</td> </tr> <tr> <td>Personal Protection</td> <td>E</td> </tr> </table>	Health	1	Fire	0	Reactivity	0	Personal Protection	E
Health		1							
Fire		0							
Reactivity		0							
Personal Protection	E								
Potential Chronic Health Effects: Carcinogenic effects, Mutagenic effects, Teratogenic effects and Developmental toxicity: Not available									
The substance may be toxic to upper respiratory tract									
Repeated or prolonged exposure to the substance can produce target organs damage									

SECTION 4: First Aid Measures

First-aid measures general	Consult a physician. Show this safety data sheet to the doctor in attendance.
First-aid measures after inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
First-aid measures after skin contact	Wash off with soap and plenty of water. Cover the irritated skin with an emollient. Get medical attention if irritate develops.
First-aid measures after eye contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.
First-aid measures after ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

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SECTION 5: Fire-fighting Measures

Flammability of the Product: Non-flammable.
Auto-Ignition Temperature: Not applicable.
Flash Points: Not applicable.
Flammable Limits: Not applicable.
Products of Combustion: Not available.
Fire Hazards in Presence of Various Substances: Not applicable.
Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.
Fire Fighting Media and Instructions: Not applicable.
Special Remarks on Fire Hazards: Not available.
Special Remarks on Explosion Hazards: Not available.

SECTION 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
Large Spill: Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

SECTION 7: Handling and Storage

Handling	Do not breathe dust
Storage	Keep container tightly closed. Keep container in a cool, well-ventilated area. Keep away from incompatibles such as oxidizing agents.

SECTION 8: Exposure Controls/ Personal Protection

Engineering Controls: Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.
Personal Protection in Case of a Large Spill: Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits: TWA: 5 CEIL: 10 from ACGIH (TLV) [United States]
Consult local authorities for acceptable exposure limits.

SECTION 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Powdered solid. Crystals solid. Amorphous solid powder)

Odor: Odorless.

Taste: Tasteless.

Molecular Weight: 123.22 g/mole

Color: White.

pH: Not applicable.

Boiling Point: 4300°C (7772°F)

Melting Point: 2680°C (4856°F)

Critical Temperature: Not available.

Specific Gravity: Density: 5.85 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coefficient: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water, hot water.

Slightly soluble in Hydrochloric acid, Nitric Acid.

Slowly soluble in HF.

Dissolves on heating with a mixture of 2 parts H₂SO₄ and 1 part water.

SECTION 10: Stability and Reactivity

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible substances, dust generation

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

SECTION 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals:

LD50: Not available.

LC50: Not available.

Chronic Effects on Humans: May cause damage to the following organs: upper respiratory tract.

Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Acute Potential Health Effects:

Skin: Dust may cause mechanical irritation.

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Eyes: Dust may cause mechanical irritation.
Inhalation: Dust irritating to the respiratory tract.
Ingestion: May cause gastrointestinal tract irritation with nausea, vomiting, and diarrhea.
Chronic Potential Health Effects:
Inhalation: Prolonged or repeated inhalation may cause chronic bronchitis or pulmonary fibrosis.
The toxicological properties of this substance have not been fully investigated.

SECTION 12: Ecological Information

Ecotoxicity: Not available.
BOD5 and COD: Not available.
Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.
Special Remarks on the Products of Biodegradation: Not available.

SECTION 13: Disposal Considerations

Waste Disposal: Waste must be disposed of in accordance with federal, state and local environmental control regulations.

SECTION 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).
Identification: Not applicable.
Special Provisions for Transport: Not applicable.

SECTION 15: Regulatory Information

Federal and State Regulations:
Massachusetts RTK: Zirconium Oxide
TSCA 8(b) inventory: Zirconium Oxide
Other Regulations: EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.
Other Classifications:
WHMIS (Canada): Not controlled under WHMIS (Canada).
DSCL (EEC):
This product is not classified according to the EU regulations.
S24/25- Avoid contact with skin and eyes.
S28- After contact with skin, wash immediately with plenty of water.
S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.
HMIS (U.S.A.):
Health Hazard: 1
Fire Hazard: 0
Reactivity: 0
Personal Protection: E

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National Fire Protection Association (U.S.A.):

Health: 1
Flammability: 0
Reactivity: 0
Specific hazard: 0

Protective Equipment:

Gloves.
Lab coat.
Dust respirator. Be sure to use an approved/certified respirator or equivalent.
Safety glasses.

SECTION 16: Other Information

References:

Merck Index, 13th ed., 2001.
Manufacturer's Material Safety Data Sheet.
Hazardous Substance Data Bank.
Ariel Global View.
Registry of Toxic Effects of Chemical Substances

Other Special Considerations: Not available.

Glossary of Terms:

ACGIH—American Conference of Governmental Industrial Hygienists. A professional organization devoted to worker health protection. In particular, the organization publishes "Threshold Limit Values for Chemical Substances in the Work Environment" and the "Documentation of TLVs." The TLV booklet is one source which may be used in hazard determination. www.acgih.org.

CAS Number—The CAS Number is an identification number assigned by the Chemical Abstracts Service (CAS) of the American Chemical Society. The CAS Number is used in various databases, including Chemical Abstracts, for identification and information retrieval.

HMIS—Hazardous Materials Identification System. This is an integrated approach to working with hazardous materials. The system includes information on assessing hazards, labeling and training. It was devised by the National Paint and Coatings Association.

TLV—Threshold Limit Value. The TLVs are a group of recommended concentrations established by the ACGIH for worker protection. They are based on toxicity data generated from human and animal studies and industrial experience. TLVs are only recommendations to industry, whereas OSHA enforces the PELs (Permissible Exposure Limits).

TWA—Time-weighted average. This type of Threshold Limit Value established by the ACGIH is "the time-weighted average concentration for a normal 8-hour day and 40 - hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect."

CEIL - The ceiling limit is the maximum concentration of a toxic substance to which a person can be exposed to. Unlike some other standardized limits, ceiling limits do not have an exposure time. It represents a concentration that is immediately hazardous and should be avoided for any amount of time.