

Jensen Zirconia Blanks (ECO, HT, XT, and Imagine)

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations

Revision Date: 06/01/2015

Rev 3

SECTION 1: IDENTIFICATION

Product Identifier

Product Form: Mixture

Product Name: Jensen Zirconia Blanks (ECO, HT, XT, and Imagine)

Intended Use of the Product

Zirconia blanks for milling.

Name, Address, and Telephone of the Responsible Party

Company

Jensen Industries Inc.
50 Stillman Road
North Haven, CT 06473
T 1-800-243-2000

Emergency Telephone Number

Emergency Number (USA & Canada Only): CHEMTREC 1-800-424-9300

Emergency Number (All other Countries): 203-239-2090

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

Classification (GHS-US)

Not classified

Label Elements

GHS-US Labeling: No labeling applicable

Other Hazards

Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions.

Aluminum Oxide: Inhalation of Aluminum oxide dust/fumes may cause pneumoconiosis, lower respiratory irritation, and neurotoxicity.

Hafnium Oxide: Inhalation of Hafnium oxide dust/fumes may cause upper respiratory irritation, irritation to skin and mucous membrane, and possible liver damage.

Yttrium Oxide: Inhalation of Yttrium oxide dust/fumes may cause pulmonary fibrosis (scarring of the lungs), eye irritation, and possible liver damage.

Zirconium Oxide: Inhalation of Zirconium oxide dust/fumes may cause lung granulomas (nodules caused by inflammation) and irritation to skin and mucous membrane.

Unknown Acute Toxicity (GHS-US) Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Name	Product Identifier	% (w/w)	Classification (GHS-US)
Zirconium oxide	(CAS No) 1314-23-4	80 - 100	Not classified
Yttrium oxide (Y2O3)	(CAS No) 1314-36-9	0 - 10	Not classified
Hafnium oxide (HfO2)	(CAS No) 12055-23-1	0 - 5	Not classified
Aluminum oxide	(CAS No) 1344-28-1	0 - 1	Comb. Dust

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

Description of First Aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice.

Inhalation: When symptoms occur: go into open air and ventilate suspected area.

Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Seek medical attention immediately if irritation develops or persists.



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Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. Obtain medical attention if irritation persists.

Ingestion: Rinse mouth. Do NOT induce vomiting.

Most Important Symptoms and Effects Both Acute and Delayed

General: Prolonged contact with large amounts of dust may cause mechanical irritation.

Inhalation: Inhalation of dusts and fumes can cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath. May cause lung irritation and or pulmonary fibrosis.

Skin Contact: Dust may cause irritation in skin folds or by contact in combination with tight clothing.

Eye Contact: Eye contact with dust or particulate may cause mechanical irritation or injury.

Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: Exposure to airborne dust and powder may cause long-term effects including loss of lung function, fibrosis, cough, dyspnea, decreased pulmonary function, and liver damage.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If you feel unwell, seek medical advice (show the label where possible).

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Dry chemical powder, alcohol-resistant foam, carbon dioxide (CO₂).

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: Product is not flammable.

Explosion Hazard: Fine dust clouds may form explosive mixtures with air.

Reactivity: Hazardous reactions will not occur under normal conditions.

Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Zirconium oxides. Nitrogen oxides. Ammonia. Burning material releases heavy metal oxide fumes.

Reference to Other Sections

Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not breathe dust. Avoid generation of dust during clean-up of spills.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

Environmental Precautions

Prevent entry to sewers and public waters.

Methods and Material for Containment and Cleaning Up

For Containment: Contain and collect as any solid.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Avoid actions that cause dust to become airborne during clean-up such as dry sweeping or using compressed air. Use HEPA vacuum or thoroughly wet with water to clean-up dust. Use PPE described in Section 8.

Reference to Other Sections

See Section 13, Disposal Considerations. See Section 8, Exposure Controls and Personal Protection.

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SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Precautions for Safe Handling: Do not breathe dust. Avoid creating or spreading dust. Use appropriate personal protection equipment (PPE).

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

Conditions for Safe Storage, Including Any Incompatibilities

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers. Hydrogen peroxide.

Specific End Use(s)

Zirconia blanks for milling.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government

Aluminum oxide (1344-28-1)		
Mexico	OEL TWA (mg/m ³)	10 mg/m ³
USA ACGIH	ACGIH TWA (mg/m ³)	10 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	15 mg/m ³ (total dust) 5 mg/m ³ (respirable fraction)
Alberta	OEL TWA (mg/m ³)	10 mg/m ³
New Brunswick	OEL TWA (mg/m ³)	10 mg/m ³ (particulate matter containing no Asbestos and <1% Crystalline silica)
Nunavut	OEL STEL (mg/m ³)	20 mg/m ³
Nunavut	OEL TWA (mg/m ³)	10 mg/m ³ 5 mg/m ³ (respirable mass) 10 mg/m ³ (total mass)
Northwest Territories	OEL STEL (mg/m ³)	20 mg/m ³
Northwest Territories	OEL TWA (mg/m ³)	10 mg/m ³ 5 mg/m ³ (respirable mass) 10 mg/m ³ (total mass)
Québec	VEMP (mg/m ³)	10 mg/m ³ (containing no Asbestos and <1% Crystalline silica-total dust)
Saskatchewan	OEL STEL (mg/m ³)	20 mg/m ³
Saskatchewan	OEL TWA (mg/m ³)	10 mg/m ³
Yukon	OEL STEL (mg/m ³)	20 mg/m ³ (Al ₂ O ₃)
Yukon	OEL TWA (mg/m ³)	30 mppcf (Al ₂ O ₃) 10 mg/m ³ (Al ₂ O ₃)
Zirconium compounds (RR-00624-6)		
Mexico	OEL TWA (mg/m ³)	5 mg/m ³
Mexico	OEL STEL (mg/m ³)	10 mg/m ³
USA ACGIH	ACGIH TWA (mg/m ³)	5 mg/m ³
USA ACGIH	ACGIH STEL (mg/m ³)	10 mg/m ³
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA OSHA	OSHA PEL (TWA) (mg/m ³)	5 mg/m ³
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	5 mg/m ³ (except Zirconium tetrachloride)
USA NIOSH	NIOSH REL (STEL) (mg/m ³)	10 mg/m ³ (except Zirconium tetrachloride)
USA IDLH	US IDLH (mg/m ³)	25 mg/m ³ (except Zirconium tetrachloride)
Alberta	OEL STEL (mg/m ³)	10 mg/m ³
Alberta	OEL TWA (mg/m ³)	5 mg/m ³
British Columbia	OEL STEL (mg/m ³)	10 mg/m ³

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British Columbia	OEL TWA (mg/m ³)	5 mg/m ³
Manitoba	OEL STEL (mg/m ³)	10 mg/m ³
Manitoba	OEL TWA (mg/m ³)	5 mg/m ³
New Brunswick	OEL STEL (mg/m ³)	10 mg/m ³
New Brunswick	OEL TWA (mg/m ³)	5 mg/m ³
Newfoundland & Labrador	OEL STEL (mg/m ³)	10 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	5 mg/m ³
Nova Scotia	OEL STEL (mg/m ³)	10 mg/m ³
Nova Scotia	OEL TWA (mg/m ³)	5 mg/m ³
Nunavut	OEL STEL (mg/m ³)	10 mg/m ³
Nunavut	OEL TWA (mg/m ³)	5 mg/m ³
Northwest Territories	OEL STEL (mg/m ³)	10 mg/m ³
Northwest Territories	OEL TWA (mg/m ³)	5 mg/m ³
Ontario	OEL STEL (mg/m ³)	10 mg/m ³
Ontario	OEL TWA (mg/m ³)	5 mg/m ³
Prince Edward Island	OEL STEL (mg/m ³)	10 mg/m ³
Prince Edward Island	OEL TWA (mg/m ³)	5 mg/m ³
Québec	VECD (mg/m ³)	10 mg/m ³
Québec	VEMP (mg/m ³)	5 mg/m ³
Saskatchewan	OEL STEL (mg/m ³)	10 mg/m ³
Saskatchewan	OEL TWA (mg/m ³)	5 mg/m ³
Yukon	OEL STEL (mg/m ³)	10 mg/m ³
Yukon	OEL TWA (mg/m ³)	5 mg/m ³

Exposure Controls

Appropriate Engineering Controls: Local exhaust and general ventilation must be adequate to meet exposure standards. Site-specific risk assessments should be conducted to determine the appropriate exposure control measures. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits.

Personal Protective Equipment: Protective goggles. Gloves. Dust formation: dust mask.



Materials for Protective Clothing: Wear suitable protective clothing.

Hand Protection: Protective Gloves.

Eye Protection: Chemical goggles or safety glasses.

Skin and Body Protection: In case of dust production: dustproof clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	: Solid
Appearance	: Varied
Odor	: None
Odor Threshold	: Not available
pH	: Not available
Evaporation Rate	: Not available
Melting Point	: ≈ 2680 °C (4856 °F)
Freezing Point	: Not available

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Boiling Point	: $\approx 4300\text{ }^{\circ}\text{C}$ (7772 $^{\circ}\text{F}$)
Flash Point	: Not available
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not available
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: Not available
Relative Vapor Density at 20 $^{\circ}\text{C}$: Not available
Relative Density	: Not available
Specific gravity / density	: 3 - 6 g/cm ³
Specific Gravity	: Not available
Solubility	: Insoluble in water.
Partition Coefficient: N-Octanol/Water	: Not available
Viscosity	: Not available
Explosion Data – Sensitivity to Mechanical Impact	: Not expected to present an explosion hazard due to mechanical impact
Explosion Data – Sensitivity to Static Discharge	: Not expected to present an explosion hazard due to static discharge

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Hazardous reactions will not occur under normal conditions.

Chemical Stability: Stable under recommended handling and storage conditions (see section 7).

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Direct sunlight, extremely high or low temperatures, and incompatible materials. Avoid creating or spreading dust.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers. Hydrogen peroxide.

Hazardous Decomposition Products: Zirconium oxides. Nitrogen oxides. Ammonia. Burning material releases heavy metal oxide fumes.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity: Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Not classified

Serious Eye Damage/Irritation: Not classified

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not classified

Carcinogenicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Inhalation of dusts and fumes can cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath. May cause lung irritation and or pulmonary fibrosis

Symptoms/Injuries After Skin Contact: Dust may cause irritation in skin folds or by contact in combination with tight clothing

Symptoms/Injuries After Eye Contact: Eye contact with dust or particulate may cause mechanical irritation or injury

Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects

Chronic Symptoms: Exposure to airborne dust and powder may cause long-term effects including loss of lung function, fibrosis, cough, dyspnea, decreased pulmonary function, and liver damage

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

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Aluminum oxide (1344-28-1)	
LD50 Oral Rat	> 15900 mg/kg
LC50 Inhalation Rat	> 2.3 mg/l/4h

SECTION 12: ECOLOGICAL INFORMATION

Toxicity

Aluminum oxide (1344-28-1)	
LC50 Fish 1	> 100 mg/l
EC50 Daphnia 1	> 100 mg/l
ErC50 (algae)	> 100 mg/l
NOEC (acute)	> 50 mg/l

Persistence and Degradability

Jensen Zirconia Blanks (ECO, HT, XT, and Imagine)	
Persistence and Degradability	Not established.

Bioaccumulative Potential

Jensen Zirconia Blanks (ECO, HT, XT, and Imagine)	
Bioaccumulative Potential	Not established.
Zirconium oxide (1314-23-4)	
BCF Fish 1	(no bioaccumulation)

Mobility in Soil Not available

Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

Ecology – Waste Materials: Avoid release to the environment.

SECTION 14: TRANSPORT INFORMATION

In Accordance with DOT Not regulated for transport

In Accordance with IMDG Not regulated for transport

In Accordance with IATA Not regulated for transport

In Accordance with TDG Not regulated for transport

SECTION 15: REGULATORY INFORMATION

US Federal Regulations

Zirconium oxide (1314-23-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Yttrium oxide (Y2O3) (1314-36-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Hafnium oxide (HfO2) (12055-23-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Aluminum oxide (1344-28-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on United States SARA Section 313	
SARA Section 313 - Emission Reporting	1.0 % (fibrous forms)
Zirconium compounds (RR-00624-6)	
EPA TSCA Regulatory Flag	P - P - indicates a commenced PMN substance.

US State Regulations

Zirconium oxide (1314-23-4)	
U.S. - Massachusetts - Right To Know List	

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Aluminum oxide (1344-28-1)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Canadian Regulations

Jensen Zirconia Blanks (ECO, HT, XT, and Imagine)	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

Zirconium oxide (1314-23-4)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

Yttrium oxide (Y2O3) (1314-36-9)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

Hafnium oxide (HfO2) (12055-23-1)	
Listed on the Canadian DSL (Domestic Substances List)	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

Aluminum oxide (1344-28-1)	
Listed on the Canadian DSL (Domestic Substances List)	
Listed on the Canadian IDL (Ingredient Disclosure List)	
IDL Concentration 1 %	
WHMIS Classification	Uncontrolled product according to WHMIS classification criteria

Zirconium compounds (RR-00624-6)	
Listed on the Canadian IDL (Ingredient Disclosure List)	
IDL Concentration 1 %	

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision Date : 06/01/2015
Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Comb. Dust	Combustible Dust
	May form combustible dust concentrations in air

Party Responsible for the Preparation of This Document

Jensen Industries
1-800-243-2000

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

North America GHS US 2012 & WHMIS 2