



MATERIAL SAFETY DATA SHEET  
COMPLIES WITH 29 CFR 1910.1200.  
OSHA HAZARD COMMUNICATION RULE

DATE OF LAST REVISION: 06-20-96

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## CHEMICAL IDENTITY

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LABEL IDENTITY	<b>ZIRCONIUM OXIDE-YTTRIUM OXIDE</b>			
FORMULA	<b>ZrO<sub>2</sub>-Y<sub>2</sub>O<sub>3</sub></b>			
CHEMICAL FAMILY	<b>METAL OXIDE BLEND</b>			
CAS REGISTRY NUMBER	<b>64417-98-7</b>			
HAZARDOUS INGREDIENTS				
	#	%	TLV	OSHA/PEL
<b>Zirconium Oxide</b>	<b>1314-23-4</b>	<b>&lt;95</b>	<b>5mg/m<sup>3</sup></b>	<b>5mg/m<sup>3</sup></b>
<b>Yttrium Oxide</b>	<b>1314-36-9</b>	<b>&gt; 5</b>	<b>1mg/m<sup>3</sup> (as Y)</b>	<b>1mg/m<sup>3</sup> (as Y)</b>

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## PHYSICAL AND CHEMICAL PROPERTIES

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COLOR, FORM AND ODOR	<b>White powder, pieces; odorless</b>
BOILING POINT	<b>ND</b>
DENSITY (gm/cc)	<b>Varies</b>
VAPOR PRESSURE @ 20°	<b>NA</b>
% VOLATILE BY VOLUME (%)	<b>NA</b>
REACTION WITH WATER	<b>None</b>
EVAPORATION RATE (H <sub>2</sub> O=1)	<b>NA</b>
SOLUBILITY IN WATER	<b>Insoluble</b>
MELTING POINT	<b>ND</b>

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## FIRE AND EXPLOSION HAZARD DATA

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FLASH POINT	<b>NA</b>
AUTOIGNITION TEMPERATURE (°C)	<b>NA</b>
FLAMMABLE LIMITS IN AIR	<b>None</b>
EXTINGUISHING MEDIA	<b>None</b>
SPECIAL FIRE FIGHTING PROCEDURES	<b>None</b>
UNUSUAL FIRE & EXPLOSION HAZARDS	<b>None</b>



## ZIRCONIUM OXIDE-YTTRIUM OXIDE MATERIAL SAFETY DATA SHEET

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### HEALTH HAZARD INFORMATION

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TOXICITY DATA Y2O3: **ipr-rat LD50-500mg/KG** ZrO2: **No data**

HMIS RATING:

HEALTH: **1** FLAMMABILITY: **0** REACTIVITY: **0** PERSONAL PROTECTION: **B**

ROUTES OF ENTRY

INHALATION: **Yes**  
SKIN: **Yes**  
INGESTION: **Yes**

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: **No data**

EFFECTS OF OVEREXPOSURE (acute and chronic):

INHALATION: **both Yttrium oxide and zirconium oxide may cause mild pulmonary irritation.**

**Yttrium has been reported to produce diffuse pulmonary fibrosis after repeated exposure.**

DERMAL/EYE: **mild irritation to the skin and eyes.**

OTHER: **zirconium oxide is relatively non-toxic. Yttrium compounds have been reported to cause liver injury in test animals and may increase blood clotting time.**

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CARCINOGENICITY: **no** NTP: **no** IARC MONOGRAPHS: **no** OSHA REGULATE: **no**

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EMERGENCY FIRST AID PROCEDURES:

INGESTION: **Induce vomiting, seek medical attention**

INHALATION: **Remove to fresh air**

SKIN CONTACT: **Wash affected area with soap and water**

EYE CONTACT: **Flush with plenty of water if irritation persists, seek medical attention**

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### REACTIVITY DATA

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STABILITY

**Stable**

CONDITIONS CONTRIBUTING TO UNSTABILITY

**None**

INCOMPATIBILITY (MATERIALS TO AVOID)

**None**

HAZARDOUS DECOMPOSITION PRODUCTS

**None**

HAZARDOUS POLYMERIZATION

**Will Not Occur**

CONDITIONS TO AVOID

**None**



## ZIRCONIUM OXIDE-YTTRIUM OXIDE MATERIAL SAFETY DATA SHEET

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### SAFE HANDLING AND USE

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STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

**Sweep or scoop up and remove.**

WASTE DISPOSAL METHOD:

**Dispose of with normal refuse.**

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### SPECIAL PROTECTIVE INFORMATION

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RESPIRATORY PROTECTION  
LOCAL EXHAUST

**Any respirator approved for dusts  
To control dusts and maintain exposure  
below TLV**

MECHANICAL (general)  
PROTECTIVE GLOVES

**Adequate for non-dusty work  
Any glove that limits skin contact**

EYE PROTECTION

**Safety glasses**

OTHER PROTECTIVE EQUIPMENT

**ND**

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### SPECIAL PRECAUTIONS

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PRECAUTIONS TO BE TAKEN IN HANDLING/STORAGE:

**Wash thoroughly after handling. Keep container closed.**

TRANSPORTATION REQUIREMENTS

DOT CLASS:

**Not Classified**

UN NUMBER:

**NC**

IMCO CLASS:

**NC**

OTHER:

PRECAUTIONARY LABELING

**NONE**

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THE ABOVE INFORMATION IS ACCURATE TO THE BEST OF OUR KNOWLEDGE. HOWEVER, SINCE DATA, SAFETY STANDARDS AND GOVERNMENT REGULATIONS ARE SUBJECT TO CHANGE THE CONDITIONS OF HANDLING AND USE, OR MISUSE ARE BEYOND OUR CONTROL, **ANGSTROM SCIENCES** MAKE NO WARRANTY, EITHER EXPRESSED OR IMPLIED, WITH RESPECT TO THE COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED HEREIN AND DISCLAIMS ALL LIABILITY FOR THE RELIANCE THEREON. USER SHOULD SATISFY HIMSELF THAT HE HAS ALL CURRENT DATA RELEVANT TO HIS PARTICULAR USE.

**NA= NOT APPLICABLE**

**ND= NO DATA FOUND**

**NR=NOT RECORDED**