

LTS RESEARCH LABORATORIES, INC.  
MATERIAL SAFETY DATA SHEET  
YTTRIA STABILIZED ZIRCONIUM OXIDE

GENERAL

MANUFACTURER/SUPPLIER: LTS RESEARCH LABORATORIES, INC.  
COMPANY'S STREET: 37 RAMLAND ROAD  
COMPANY'S CITY: ORANGEBURG  
COMPANY'S STATE: NEW YORK  
COMPANY'S ZIP CODE: 10962  
EMERGENCY CHEMTREC #: 800-262-8200  
COMPANY'S EMERGENCY TEL. #: 800-424-9300 (LOCAL)  
703-527-3887 (INTERNATIONAL)  
COMPANY'S TEL #: 845-494-2940  
DATE MSDS PREPARED: 06/02/11

1. PRODUCT IDENTIFICATION

PRODUCT NAME: YTTRIA STABILIZED ZIRCONIUM OXIDE (YSZ)  
FORMULA:  $ZrO_2/Y_2O_3$   
CAS #: 1314-23-4/1314-36-9

2. PHYSICAL AND CHEMICAL CHARACTERISTICS

BOILING POINT: N/A  
MELTING POINT: N/A  
SPECIFIC GRAVITY (H<sub>2</sub>O=1): N/A  
VAPOR DENSITY: N/A  
VAPOR PRESSURE: N/A  
EVAPORATION RATE: N/A  
% VOLATILES: N/A  
SOLUBILITY IN H<sub>2</sub>O: INSOLUBLE  
APPEARANCE AND ODOR: OFF-WHITE POWDER, PIECES, TARGET. ODORLESS

3. HAZARD IDENTIFICATION

HAZARD DESCRIPTION: N/A  
RISK PHRASES: N/A  
HMIS RATINGS:  
HEALTH: 1  
FLAMMABILITY: 0  
REACTIVITY: 0

4. FIRE FIGHTING MEASURES

FLASH POINT: N/A  
AUTOIGNITION TEMPERATURE: N/A  
FLAMMABLE LIMITS:  
UPPER: N/A  
LOWER: N/A  
EXTINGUISHING MEDIA: PRODUCT IS NOT FLAMMABLE. USE SUITABLE  
EXTINGUISHING MEDIA FOR SURROUNDING FIRE  
SPECIAL HAZARDS: NONE

5. HEALTH HAZARD INFORMATION

ACUTE EFFECTS:  
SKIN: GENERALLY DOES NOT IRRITATE SKIN  
EYE: IRRITATING EFFECT (POWDER)  
CHRONIC EFFECTS: INHALATION OF ZIRCONIUM COMPOUNDS MAY CAUSE  
PULMONARY GRANULOMAS.

YTTRIUM IS SIMILAR TO THE LANTHANONS AND MAY HAVE AN ANTICOAGULANT EFFECT ON BLOOD. EXPOSURE TO LANTHANONS MAY ALSO LEAD TO SENSITIVITY TO HEAT, ITCHING, INCREASED AWARENESS OF ODOR AND TASTE, AND LIVER DAMAGE.

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#### 6. STABILITY

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STABILITY:	STABLE
CONDITIONS TO AVOID:	NONE
MATERIAL TO AVOID:	ACIDS
DANGEROUS REACTIONS:	NONE KNOWN
HAZARDOUS DECOMPOSITION PRODUCTS:	NONE KNOWN

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#### 7. EMERGENCY AND FIRST AID PROCEDURES:

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INHALATION:	REMOVE TO FRESH AIR AND PROVIDE ARTIFICIAL RESPIRATION IF NECESSARY. SEEK IMMEDIATE MEDICAL ADVICE.
INGESTION:	SEEK IMMEDIATE MEDICAL ATTENTION.
SKIN:	WASH SKIN THOROUGHLY WITH MILD SOAP AND WATER. RINSE THOROUGHLY. SEEK IMMEDIATE MEDICAL ADVICE.
EYE:	FLUSH EYES WITH PLENTY OF WATER. SEEK IMMEDIATE MEDICAL ADVICE.

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#### 8. HANDLING AND STORAGE

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HANDLING & STORAGE:	STORE IN A COOL, DRY PLACE IN TIGHTLY SEALED CONTAINERS. ENSURE GOOD VENTILATION. NO SPECIAL REQUIREMENTS ARE NECESSARY IF USED CORRECTLY.
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#### 9. SPILL OR LEAK PROCEDURES

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STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:	
RESPIRATION:	WEAR NIOSH APPROVED DUST-MIST VAPOR RESPIRATOR.
VENTILATION:	LOCAL EXHAUST TO MAINTAIN CONCENTRATION AT OR BELOW THE PEL, TLV.
PROTECTIVE GLOVES:	RUBBER GLOVES.
EYE PROTECTION:	SAFETY GLASSES
PROTECTIVE CLOTHING:	PROTECTIVE GEAR SUITABLE TO PREVENT CONTAMINATION.
WASTE DISPOSAL METHOD:	DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

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#### 10. TOXICITY DATA

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CARCINOGENICITY:	NO CLASSIFICATION DATA ON CARCINOGENIC PROPERTIES OF THIS MATERIAL IS AVAILABLE FROM THE EPA, IARC, NTP, OSHA, OR ACGIH.
ADDITIONAL INFORMATION:	TO THE BEST OF OUR KNOWLEDGE THE ACUTE AND CHRONIC TOXICITY OF THIS SUBSTANCE IS NOT FULLY KNOWN.

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#### 11. TRANSPORTATION DATA

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UN NUMBER:	NONE
HAZARD CLASS:	NONE
ADR//RID CLASS:	NONE
IMDG CLASS:	NONE

ICAO/IATA CLASS:

NONE

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## 12. OTHER INFORMATION

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THIS SAFETY DATA SHEET SHOULD BE USED IN CONJUNCTION WITH TECHNICAL SHEETS. IT DOES NOT REPLACE THEM. THE INFORMATION GIVEN IS BASED ON OUR KNOWLEDGE OF THIS PRODUCT, AT THE TIME OF PUBLICATION. IT IS GIVEN IN GOOD FAITH. THE ATTENTION OF THE USER IS DRAWN TO THE POSSIBLE RISKS INCURRED BY USING THE PRODUCT FOR ANY OTHER PURPOSE OTHER THAN THAT FOR WHICH IT WAS INTENDED. THIS DOES NOT IN ANY WAY EXCUSE THE USER FROM KNOWING AND APPLYING ALL THE REGULATIONS GOVERNING HIS ACTIVITY. IT IS THE SOLE RESPONSIBILITY OF THE USER TO TAKE ALL PRECAUTIONS REQUIRED IN HANDLING THE PRODUCT. THE AIM OF THE MANDATORY REGULATIONS MENTIONED IS TO HELP THE USER TO FULFILL HIS OBLIGATIONS REGARDING THE USE OF HAZARDOUS PRODUCTS.

