

LTS RESEARCH LABORATORIES, INC  
MATERIAL SAFETY DATA SHEET  
NIOBIUM OXIDE

GENERAL

MANUFACTUER/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  
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COMPANY'S EMERGENCY TEL. #: 800-424-9300 (LOCAL)  
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COMPANY'S TEL #: 845-494-2940  
DATE MSDS PREPARED: 02/03/05  
DATE MSDS REVISED: 06/02/11

1. PRODUCT IDENTIFICATION

PRODUCT NAME: NIOBIUM OXIDE  
SYNONYM: NIOBIA, NIOBIUM PENTOXIDE, COLUMBIUM PENTOXIDE  
FORMULA:  $Nb_2O_5$ ,  $NbO_2$ ,  $NbO$ ,  $Nb_2O_x$ ,  $NbO_x$   
CAS #: 1313-96-8, 12034-59-2, 12034-57-0  
FORMULA WEIGHT: 265.82

2. PHYSICAL AND CHEMICAL CHARACTERISTICS

BOILING POINT 760 mm Hg: N/A  
MELTING POINT: 1520°C, 1902C  
SPECIFIC GRAVITY (WATER=1): 4.6  
VAPOR DENSITY: N/A  
VAPOR PRESSURE: N/A  
% VOLATILES: 0  
SOLUBILITY IN  $H_2O$ : INSOLUBLE  
APPEARANCE AND ODOR: WHITE, BLACK, GRANULES, POWDERS ODORLESS

3. HAZARD IDENTIFICATION

HAZARD DESCRIPTION: Xi IRRITANT  
RISK PHRASES: R 36/37/38 IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN  
HMIS RATINGS:  
HEALTH: 1  
FLAMMABILITY: 0  
REACTIVITY: 0

4. FIRE FIGHTING MEASURES

GENERAL INFORMATION: AS IN ANY FIRE, WEAR A SELF-CONTAINED BREATHING APPARATUS IN PRESSURE-DEMAND, MSHA/NIOSH (APPROVED OR EQUIVALENT), AND FULL PROTECTIVE GEAR. DURING A FIRE, IRRITATING AND HIGHLY TOXIC GASES MAY BE GENERATED BY THERMAL DECOMPOSITION OR COMBUSTION.  
FLASH POINT: N/A  
AUTOIGNITION TEMPERATURE: N/A  
FLAMMABLE LIMITS:  
UPPER: N/A  
LOWER: N/A  
FLAMMABILITY:  
UPPER: N/A  
LOWER: N/A

EXTINGUISHING MEDIA: OXIDE DOES NOT BURN, USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING FIRE.SPECIAL FIRE FIGHTING

PROCEDURES: N/A

UNUSUAL FIRE AND EXPLOSION HAZARDS: N/A

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#### 5. HEALTH HAZARD INFORMATION

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EFFECTS OF OVER EXPOSURE: N/E

ACUTE EFFECTS:

INHALATION: CAUSES RESPIRATORY TRACT IRRITATION.

INGESTION: MAY BE HARMFUL, EFFECT NOT KNOWN.

SKIN: MAY CAUSE IRRITATION.

EYE: MAY CAUSE IRRITATION.

CHRONIC EFFECTS: CHRONIC INGESTION OF NIOBIUM COMPOUNDS HAS CAUSED LIVER DAMAGE IN RATS & MICE. NIOBIUM HAS CAUSED KIDNEY DAMAGE IN EXPERIMENTAL ANIMALS VIA INTRAVENOUS ROUTE

ROUTES OF EXPOSURE: INGESTION

MEDICAL COND AGGRAVATED BY EXPOSURE: NONE KNOWN

TARGET ORGAN: NONE

CARCINOGENITY: NO

NTP: NO

IARC: NO

OSHA: NO

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#### 6. STABILITY

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STABILITY: STABLE

CONDITION TO AVOID: THERMAL DECOMPOSITION

INCOMPATIBILITY (MATERIAL TO AVOID): ACIDS, CHLORINE TRIFLUORIDE, LITHIUM, OXIDIZING AGENTS

DECOMPOSITION PRODUCTS: METAL OXIDE FUME

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

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

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INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. GET MEDICAL HELP

INGESTION: SEEK MEDICAL ATTENTION. IF SWALLOWED, IF CONSCIOUS, IMMEDIATELY INDUCE VOMITING.

SKIN: FLUSH WITH WATER. GET MEDICAL HELP

EYES: FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.

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#### 8. HANDLING AND STORAGE

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HANDLING AND STORAGE STORE IN CLOSED CONTAINER. SUITABLE FOR ANY GENERAL CHEMICAL STORAGE AREA.

OTHER PRECAUTIONS: NORMAL LAB COAT.

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#### 9. SPILL OR LEAK PROCEDURES

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STEPS TO BE TAKEN IN CASE MATERIAL IS

RELEASED OR SPILLED:	WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. WITH CLEAN SHOVEL, CAREFULLY PLACE MATERIALS INTO CLEAN, DRY CONTAINER AND COVER. REMOVE FROM AREA. FLUSH SPILL AREA WITH WATER.
RESPIRATORY PROTECTION:	WEAR APPROPRIATE NIOSH-APPROVED RESPIRATOR IF DUST OR FUME EXPOSURE LEVELS ARE EXCEEDED.
VENTILATION:	PROVIDE LOCAL EXHAUST VENTILATION SYSTEM. ENSURE COMPLIANCE WITH APPLICABLE EXPOSURE LIMITS.
PROTECTIVE GLOVES:	CHEMICAL RESISTANT GLOVES
SKIN/EYE PROTECTION:	SINCE SOME OF THE HAZARDS OF THIS PRODUCT ARE UNKNOWN, AN INDUSTRIAL HYGIENIST SHOULD BE CONSULTED ON VENTILATION AND PERSONAL PROTECTIVE EQUIPMENT. COVER THE BODY AS MUCH AS POSSIBLE TO AVOID CONTACT WITH THE CHEMICAL. WEAR SAFETY GOGGLES, GLOVES, AND IMPERVIOUS CLOTHING.
OTHER PROTECTIVE CLOTHING OR EQUIPMENT:	WEAR APPROPRIATE CHEMICAL RESISTANT CLOTHING.
WASTE DISPOSAL METHOD:	IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

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#### 10. TOXICITY DATA

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NIOBIUM OXIDE IS RELATIVELY NON-TOXIC	
ORAL, MOUSE: LD50 =	>4 GM/KG
ORAL, MOUSE: LD50 =	4000 MG/KG.
CARCINOGENICITY:	
NOT LISTED BY ACGIH, IARC, NTP	
EPIDEMIOLOGY:	NO INFORMATION AVAILABLE.
TERATOGENICITY:	NO INFORMATION AVAILABLE.
REPRODUCTIVE EFFECTS:	NO INFORMATION AVAILABLE.
MUTAGENICITY:	NO INFORMATION AVAILABLE.
NEUROTOXICITY:	NO INFORMATION AVAILABLE.

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#### 11. TRANSPORTATION DATA

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HAZARD CLASS:	N/A
ADR//RID CLASS:	NOT RESTRICTED
IMDG CLASS:	NOT RESTRICTED
AIR TRAN. ICAO/IATA CLASS:	NOT RESTRICTED
MARITIME TRAN. IMDG CLASS:	NOT RESTRICTED

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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.