

LTS (CHEMICAL) INC.
MATERIAL SAFETY DATA SHEET
BARIUM TITANIUM OXIDE - NIOBIUM

GENERAL

MANUFACTURER/SUPPLIER: LTS RESEARCH LABORATORIES, INC.

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1. PRODUCT IDENTIFICATION

PRODUCT NAME: BARIUM TITANIUM OXIDE - NIOBIUM
FORMULA: BaTiO₃Nb
CAS #: 12047-27-7/7440-03-1

2. PHYSICAL AND CHEMICAL CHARACTERISTICS

BOILING POINT: N/A
MELTING POINT: N/A
SPECIFIC GRAVITY (H₂O=1): N/A
VAPOR DENSITY: N/A
VAPOR PRESSURE: N/A
EVAPORATION RATE: N/A
% VOLATILES: N/A
SOLUBILITY IN H₂O: INSOLUBLE
APPEARANCE AND ODOR: GRAY TARGET, ODORLESS



3. HAZARD IDENTIFICATION

HAZARD DESCRIPTION: Xn HARMFUL
RISK PHRASES: 20/22 HARMFUL BY INHALATION AND IF SWALLOWED
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: IN CASE OF FIRE, BARIUM OXIDE AND METAL OXIDE
FUMES MAY BE RELEASED

5. HEALTH HAZARD INFORMATION

ACUTE EFFECTS:
SKIN: IRRITANT TO SKIN AND MUCOUS MEMBRANES
EYE: IRRITATING EFFECT

CHRONIC EFFECTS:

BARIUM COMPOUNDS MAY CAUSE SEVERE GASTROENTERITIS, INCLUDING ABDOMINAL PAIN, VOMITING AND DIARRHEA, TREMORS, FAINTNESS, PARALYSIS OF THE ARMS AND LEGS, AND SLOW OR IRREGULAR HEARTBEAT. SEVERE CASES MAY PRODUCE COLLAPSE AND DEATH DUE TO RESPIRATORY FAILURE. INHALATION OF FUMES MAY CAUSE SORE THROAT, COUGHING, LABORED BREATHING, AND IRRITATION OF THE RESPIRATORY TRACT AS WELL AS THE ABOVE SYMPTOMS.

TITANIUM COMPOUNDS ARE CONSIDERED PHYSIOLOGICALLY INERT. THERE ARE NO REPORTED CASES IN THE LITERATURE WHERE TITANIUM HAS CAUSED HUMAN INTOXICATION.

NIOBIUM COMPOUNDS HAVE CAUSED LIVER DAMAGE IN ANIMAL STUDIES. NIOBIUM METAL HAS CAUSED KIDNEY DAMAGE IN EXPERIMENTAL ANIMALS AND FIBROGENIC EFFECTS ON THE LUNGS OF EXPERIMENTAL ANIMALS.

6. STABILITY

STABILITY:	STABLE
CONDITIONS TO AVOID:	NONE
MATERIAL TO AVOID:	OXIDIZING AGENTS, HALOGENS, BASES
DAINGEROUS REACTIONS: HAZARDOUS	NONE KNOWN
DECOMPOSITION PRODUCTS:	BARIUM OXIDE FUMES, METAL OXIDE FUMES

7. EMERGENCY AND FIRST AID PROCEDURES:

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.

8. HANDLING AND STORAGE

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

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.

10. TOXICITY DATA

CARCINOGENICITY:

BARIUM TITANATE: EPA-D: NOT CLASSIFIABLE AS TO HUMAN CARCINOGENICITY – INADEQUATE HUMAN AND ANIMAL EVIDENCE OF CARCINOGENICTY OR NO DATA IS AVAILABLE

NIObIUM: 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.

11. TRANSPORTATION DATA

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

12. OTHER INFORMATION

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.

