

LTS RESEARCH LABORATORIES, INC.
MATERIAL SAFETY DATA SHEET
LANTHANUM STRONTIUM MANGANESE OXIDE

GENERAL

MANUFACTURER/SUPPLIER: LTS RESEARCH LABORATORIES, INC.

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DATE MSDS PREPARED: 01/15/10
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1. IDENTIFICATION

COMMON CHEMICAL NAME: LANTHANUM STRONTIUM MANGANESE OXIDE, LSM
CHEMICAL FORMULA: LaSrMnO_3 , $\text{La}_x\text{Sr}_y\text{MnO}_3$
CAS NUMBER: NIL

2. PHYSICAL AND CHEMICAL CHARACTERISTICS

MELTING POINT: N/A
BOILING POINT: N/A
DENSITY: N/A
VAPOR DENSITY: N/A
VAPOR PRESSURE: N/A
% VOLATILES: N/A
SOLUBILITY: MINERAL ACIDS
APPEARANCE AND ODOR: BLACK SPATTERING TARGET, PIECES, POWDER, ODORLESS

3. HAZARD IDENTIFICATION

HAZARD COMPONENTS:
Mn3O4 OSHA/ PEL- 5 mg/m3
TLV- 5 mg/m3

HAZARD DESCRIPTION:
LANTHANUM OXIDE: Xi IRRITANT
STRONTIUM OXIDE: C CORROSIVE
MANGANESE OXIDE: Xn HARMFUL

RISK PHRASES:
LANTHANUM OXIDE: 36/37 IRRITATING TO EYES AND RESPIRATORY SYSTEM
STRONTIUM OXIDE: 34 CAUSES BURNS
MANGANESE OXIDE: 20/21/22 HARMFUL BY INHALATION, IN CONTACT WITH SKIN, AND IF SWALLOWED.

HMIS RATINGS:
LANTHANUM OXIDE:
HEALTH: 1
FLAMMABILITY: 0
REACTIVITY: 0

STRONTIUM OXIDE:	
HEALTH:	2
FLAMMABILITY:	0
REACTIVITY:	1
MANGANESE OXIDE:	
HEALTH:	1
FLAMMABILITY:	0
REACTIVITY:	0

4. FIREFIGHTING MEASURES

FLASH POINT:	N/A
AUTO-IGNITION TEMPERATURE:	N/A
EXPLOSION LIMITS:	
LOWER:	N/A
UPPER:	N/A
EXTINGUISHING MEDIA:	CO ₂ , SAND, EXTINGUISHING POWDER. DO NOT USE WATER.
FIREFIGHTING PROCEDURES:	FIREFIGHTERS MUST WEAR NIOSH/MSHA APPROVED SELF-CONTAINED BREATHING APPARATUS, FLAME AND CHEMICAL RESISTANT CLOTHING; HATS, BOOTS AND GLOVES.
SPECIAL HAZARDS:	EXOTHERMIC REACTION WITH WATER

5. HEALTH HAAZARD INFORMATION

ACUTE EFFECTS:

LANTHANUM OXIDE:

SKIN: IRRITANT TO SKIN AND MUCOUS MEMBRANES
EYES: IRRITANT EFFECT

STRONTIUM OXIDE:

SKIN: CORROSIVE EFFECT ON SKIN AND MUCOUS MEMBRANES
EYES: STRONG CORROSIVE EFFECT, MAY CAUSE PERMANENT DAMAGE AND BLINDNESS

INGESTION: SWALLOWING WILL LEAD TO A STRONG CORROSIVE EFFECT ON THE MOUTH AND THROAT AND TO THE DANGER OF PERFORATION OF THE ESOPHAGUS AND STOMACH.

MANGANESE OXIDE:

SKIN: IRRITANT TO SKIN AND MUCOUS MEMBRANES, ABSORBED THROUGH SKIN
EYES: IRRITANT EFFECT

CHRONIC EFFECTS:

LANTHANUM OXIDE:

LANTHANONS CAN CAUSE DELAYED BLOOD CLOTTING LEADING TO HEMORRHAGES. EXPOSURE MAY ALSO LEAD TO SENSITIVITY TO HEAT, ITCHING, INCREASED AWARENESS OF ODOR AND TASTE, AND LIVER DAMAGE.

STRONTIUM OXIDE:

STRONTIUM HAS A LOW ORDER OF TOXICITY. HIGH DOSES HAVE CAUSED CHANGES IN BLOOD CLOTTING FACTORS, ADRENAL FUNCTION, AND RENAL FUNCTION. CORROSIVE MATERIALS ARE ACUTELY DESTRUCTIVE TO THE RESPIRATORY TRACT, EYES, SKIN, AND DIGESTIVE TRACT. EYE CONTACT MAY RESULT IN PERMANENT DAMAGE AND COMPLETE VISION LOSS. INHALATION MAY RESULT IN RESPIRATORY EFFECTS SUCH AS INFLAMMATION, EDEMA, AND CHEMICAL PNEUMONITIS. MAY CAUSE COUGHING, WHEEZING, LARYNGITIS, SHORTNESS OF BREATH, HEADACHE, NAUSEA, AND VOMITING. INGESTION MAY CAUSE DAMAGE TO

MANGANESE OXIDE:

THE MOUTH, THROAT, AND ESOPHAGUS. MAY CAUSE SKIN BURNS OR IRRITATION, DEPENDING ON THE SEVERITY OF THE EXPOSURE. CHRONIC EXPOSURE TO MANGANESE MAY CAUSE IMPAIRMENT TO THE CENTRAL NERVOUS SYSTEM. SYMPTOMS INCLUDE SLUGGISHNESS, SLEEPINESS, MUSCLE WEAKNESS, LOSS OF FACIAL MUSCLE CONTROL, EDEMA, EMOTIONAL DISTURBANCES, SPASTIC GAIT, AND FALLING. CHRONIC MANGANESE POISONING MAY DEVELOP AFTER AS LITTLE AS THREE MONTHS OF HEAVY EXPOSURE BUT USUALLY AFTER ONE TO THREE YEARS.

6. STABILITY

STABILITY:	STABLE
CONDITIONS TO AVOID:	NONE KNOWN
MATERIALS TO AVOID:	AIR, ACIDS, OXIDIZING AGENTS, WATER/MOISTURE, ALUMINUM/ALUMINUM ALLOYS, MAGNESIUM
DANGEROUS REACTIONS	EXOTHERMIC REACTION WITH WATER (STRONTIUM OXIDE)
DANGEROUS PRODUCTS OF DECOMPOSITION:	NONE KNOWN

7. EMERGENCY AND FIRST AID PROCEDURES

INHALATION:	MOVE THE AFFECTED PERSON AWAY FROM THE CONTAMINATED AREA. SUPPLY FRESH AIR AND PROVIDE ARTIFICIAL RESPIRATION IF NECESSARY. SEEK IMMEDIATE MEDICAL ATTENTION.
SKIN CONTACT:	WASH WITH PLENTY OF SOAP AND WATER. SEEK IMMEDIATE MEDICAL ADVICE.
EYE CONTACT:	RINSE WITH PLENTY OF WATER IMMEDIATELY FOR SEVERAL MINUTES. SEEK IMMEDIATE MEDICAL ATTENTION
INGESTION:	SEEK IMMEDIATE MEDICAL ATTENTION

8. HANDLING AND STORAGE

HANDLING:	STORE IN A COOL, DRY PLACE IN TIGHTLY CLOSED CONTAINERS. ENSURE GOOD VENTILATION. HANDLE UNDER DRY PROTECTIVE GAS.
STORAGE:	STORE AWAY FROM OXIDIZING AND ACIDIC MATERIALS

9. ACCIDENTAL RELEASE MEASURES

RESPIRATORY PROTECTION:	RESPIRATORY PROTECTIVE DEVICE WHEN HIGH CONCENTRATIONS ARE PRESENT
EYE PROTECTION:	SAFETY GLASSES
HAND PROTECTION:	IMPERVIOUS GLOVES
BODY PROTECTION:	PROTECTIVE WORK CLOTHING

10. TOXICOLOGICAL INFORMATION

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.

11. TRANSPORT INFORMATION

LANTHANUM OXIDE :
MANGANESE OXIDE:

NOT A HAZARDOUS MATERIAL FOR TRANSPORTATION
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STRONTIUM OXIDE:

HAZARD CLASS: 8
UN NUMBER: 3262
PACKING GROUP: II
SHIPPING NAME: CORROSIVE SOLID, BASIC, INORGANIC,
N.O.S. (STRONTIUM OXIDE)
ADR/RID CLASS: 8 (C6) CORROSIVE SUBSTANCES
IMDG CLASS: 8
ICAO/IATA CLASS: 8

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.

