



LTS RESEARCH LABORATORIES, INC.  
MATERIAL SAFETY DATA SHEET  
LCMO

1. PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME: LCMO (LANTHANUM CALCIUM MANGANESE OXIDE)  
CHEMICAL FORMULA:  $\text{La}_x\text{Ca}_{(1-x)}\text{MnO}_3$

MANUFACTURER/SUPPLIER: LTS RESEARCH LABORATORIES, INC.  
COMPANY'S STREET: 37 RAMLAND ROAD  
COMPANY'S CITY: OANGEBURG  
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

RECOMMENDED USE: SCIENTIFIC RESEARCH AND DEVELOPMENT

2. HAZARDS IDENTIFICATION

SIGNAL WORD: WARNING



HAZARD SYMBOLS: CAUSES BURNS  
HARMFUL BY INHALATION, SKIN CONTACT, SWALLOWING

HMIS HEALTH RATINGS (0-4):

HEALTH: 2  
FLAMMABILITY: 0  
REACTIVITY: 1

3. COMPOSITION

CHEMICAL FAMILY: METAL OXIDE  
ADDITIONAL NAMES: N/A

LANTHANUM OXIDE:  
PERCENTAGE: typically 35 mol%  
CAS #: 1312-81-8

CALCIUM OXIDE:  
PERCENTAGE: typically 15 mol%  
CAS #: 1305-78-8

MANGANESE OXIDE:  
PERCENTAGE: 50 mol%  
CAS #: 1344-43-0

4. FIRST AID PROCEDURES

IMPORTANT SYMPTOMS: NONE  
SPECIAL TREATMENT: NONE  
GENERAL TREATMENT: SEEK MEDICAL ATTENTION IF SYMPTOMS PERSIST.  
INHALATION: REMOVE VICTIM TO FRESH AIR GIVE OXYGEN IF BREATHING IS DIFFICULT.

INGESTION: GIVE 1-2 GLASSES OF MILK OR WATER AND INDUCE VOMITING. NEVER INDUCE VOMITING OR GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

SKIN: WASH AFFECTED AREA WITH MILD SOAP AND WATER. REMOVE CONTAMINATED CLOTHING.

EYES: FLUSH EYES WITH WATER, LIFTING UPPER AND LOWER EYELIDS, FOR 20 MINUTES.

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#### 5. FIRE AND EXPLOSION HAZARDS DATA

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FLAMMABILITY: NON-FLAMMABLE

FLASH POINT: N/A

AUTOIGNITION TEMPERATURE: N/A

EXTINGUISHING MEDIA: CO2, SAND, EXTINGUISHING POWDER; DO NOT USE WATER

SPEC. FIRE FIGHTING PROCEDURE: USE FULL-FACE, SELF-CONTAINED BREATHING APPARATUS WITH FULL PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

UNUSUAL FIRE HAZARDS: WHEN HEATED TO DECOMPOSITION, MAY EMIT TOXIC FUMES.

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#### 6. ACCIDENTAL RELEASE MEASURES

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IF MATERIAL IS RELEASED/ SPILLED: WEAR APPROPRIATE RESPIRATORY AND PROTECTIVE EQUIPMENT SPECIFIED IN SPECIAL PROTECTION INFORMATION. ISOLATE SPILL AREA AND PROVIDE VENTILATION. VACUUM UP SPILL USING A HIGH EFFICIENCY PARTICULATE ABSOLUTE (HEPA) AIR FILTER AND PLACE IN A CLOSED CONTAINER FOR DISPOSAL. TAKE CARE NOT TO RAISE DUST.

ENVIRONMENTAL PRECAUTIONS: ISOLATE RUNOFF TO PREVENT ENVIRONMENTAL POLLUTION.

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#### 7. HANDLING AND STORAGE

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HANDLING CONDITIONS: WASH THOROUGHLY AFTER HANDLING.

HMS PROTECTIVE EQUIPMENT: GLASSES, GLOVES, APRON, DUST RESPIRATOR

STORAGE CONDITIONS: STORE IN A COOL DRY PLACE IN A TIGHTLY SEALED CONTAINER.

WORK/HYGIENIC MAINTENANCE: DO NOT USE TOBACCO OR FOOD IN WORK AREA. WASH THOROUGHLY BEFORE EATING AND SMOKING. DO NOT BLOW DUST OFF CLOTHING OR SKIN WITH COMPRESSED AIR.

VENTILATION: PROVIDE SUFFICIENT VENTILATION TO MAINTAIN CONCENTRATION AT OR BELOW TLV.

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#### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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OSHA PEL: N/A

ACGIH TLV: N/A

SPECIAL EQUIPMENT: NONE

RESPIRATORY PROTECTION: NIOSH APPROVED DUST/MIST RESPIRATOR

PROTECTIVE GLOVES: RUBBER GLOVES

EYE PROTECTION: SAFETY GLASSES

BODY PROTECTION: PROTECTIVE WORK CLOTHING. WEAR CLOSE-TOED SHOES AND LONG SLEEVES/PANTS.

OTHER: N/A

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#### 9. PHYSICAL AND CHEMICAL CHARACTERISTICS

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COLOR BLACK

FORM:	POWDER, PIECES, PELLETS, GRANULES, SPUTTERING TARGET
ODOR:	ODORLESS
SOLUBILITY IN H <sub>2</sub> O:	INSOLUBLE
BOILING POINT:	N/A
MELTING POINT:	N/A
SPECIFIC GRAVITY (H <sub>2</sub> O=1):	N/A
MOLECULAR WEIGHT:	N/A

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#### 10. REACTIVITY

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STABILITY:	STABLE
INCOMPATIBILITY:	AIR, ACIDS, OXIDIZING AGENTS, MOISTURE
HAZ. DECOMPOSITION PRODUCTS:	NONE
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR

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#### 11. TOXICOLOGICAL INFORMATION

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POTENTIAL HEALTH EFFECTS:	
ACUTE:	MAY CAUSE BURNS TO SKIN AND MUCOUS MEMBRANES
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.
CALCIUM OXIDE:	CALCIUM OXIDE IS CORROSIVE TO THE SKIN, EYES, AND RESPIRATORY TRACT. MAY CAUSE ALKALI BURNS IN THE MOUTH AND THROAT. CHRONIC INHALATION OF DUST MAY CAUSE INFLAMMATION OF THE RESPIRATORY PASSAGES, ULCERS OF THE MUCOUS MEMBRANES, AND POSSIBLY PERFORATION OF THE NASAL SEPTUM. 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 THE MOUTH, THROAT, AND ESOPHAGUS. MAY CAUSE SKIN BURNS OR IRRITATION DEPENDING ON THE SEVERITY OF THE EXPOSURE.
MANGANESE OXIDE:	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.
ROUTES OF ENTRY:	INHALATION, SKIN, EYES, AND INGESTION.
SIGNS & SYMPTOMS OF EXPOSURE:	N/A
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:	N/A
LD50:	N/A
CARCINOGEN:	N/A

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#### 12. ECOLOGICAL INFORMATION

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ECOLOGICAL DATA IS NOT AVAILABLE.

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#### 13. DISPOSAL CONSIDERATIONS

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

14. TRANSPORTATION DATA

HAZARDOUS: HAZARDOUS AS POWDER ONLY



HAZARD CLASS: 8  
PACKING GROUP: III  
UN NUMBER: 1910  
UN PROPER SHIPPING NAME: METAL OXIDE POWDER  
ROAD ADR//RID CLASS: 8 (C6) CORROSIVE SUBSTANCES  
AIR IATA CLASS: 8  
MARITIME IMDG CLASS: 8

15. REGULATORY INFORMATION

SEC.302 (EHS): NO  
SEC.304 (RQ): N/A  
SEC.313 (SARA): NO

16. 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.

DATE MSDS PREPARED: 03/12/09  
DATE LAST REVISED: 07/01/14