

Lanthanum Strontium Manganite

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations

Revision Date: 10/01/2015

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Version: 1.0

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Substance

Product Name: Lanthanum Strontium Manganite

CAS No: 66402-68-4

Synonyms: LSM; LSMO; Lanthanum Strontium Manganese Oxide

1.2. Intended Use of the Product

Laboratory chemicals and manufacture of substances

1.3. Name, Address, and Telephone of the Supplier Company

Fuel Cell Store

1902 Pinon Drive, Unit B

College Station, Texas, USA 77845

T 979 703-1925

www.fuelcellstore.com

info@fuelcellstore.com

1.4. Emergency Telephone Number

Emergency Number : INFOTRAC: 1-800-535-5053

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

Classification (GHS-US)

Skin Corr. 1B H314

Eye Dam. 1 H318

Full text of H-phrases: see section 16

2.2. Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US) :



Signal Word (GHS-US) :

Danger

Hazard Statements (GHS-US) :

H314 - Causes severe skin burns and eye damage.

H318 - Causes serious eye damage.

Precautionary Statements (GHS-US) :

P260 - Do not breathe dusts, mists.

P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.

P280 - Wear eye protection, face shield, protective clothing, protective gloves.

P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P303+P361+P353 - IF ON SKIN (OR HAIR): Take off immediately all contaminated clothing.

Rinse skin with water/shower.

P304+P340 - IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.

P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 - Immediately call a poison center or doctor.

P321 - Specific treatment (see section 4 on this SDS).

P363 - Wash contaminated clothing before reuse.

P405 - Store locked up.

P501 - Dispose of contents/container in accordance with local, regional, provincial, territorial, national, and international regulations.

Lanthanum Strontium Manganite

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations

2.3. Other Hazards

Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions.

2.4. Unknown Acute Toxicity (GHS-US) No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Name : Lanthanum Strontium Manganite

Name	Product Identifier	% (w/w)	Classification (GHS-US)
Ceramic materials and wares, chemicals	(CAS No) 66402-68-4	100	Eye Dam. 1, H318
Contains	Product Identifier	% (w/w)	Classification (GHS-US)
Lanthanum oxide (La ₂ O ₃)	(CAS No) 1312-81-8	1 - 69	Not classified
Strontium oxide (SrO)	(CAS No) 1314-11-0	1 - 5; 5 - 10; 10 - 30; 30 - 59*	Skin Corr. 1B, H314
Manganese oxide (Mn ₃ O ₄)	(CAS No) 1317-35-7	30 - 45	Not classified

3.2. Mixture

Not applicable

*More than one of the ranges of concentration prescribed by the Controlled Products Regulations has been used where necessary, due to varying composition.

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of First Aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible). If exposed or concerned: Call a POISON CENTER or doctor/physician.

Inhalation: When symptoms occur: go into open air and ventilate suspected area. Remove to fresh air and keep at rest in a position comfortable for breathing. If exposed or concerned: Get medical advice/attention.

Skin Contact: Immediately flush skin with plenty of water for at least 60 minutes. Remove/Take off immediately all contaminated clothing. Seek medical attention for thermal burns. Wash contaminated clothing before reuse.

Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for at least 60 minutes. Immediately call a POISON CENTER or doctor/physician.

Ingestion: Rinse mouth. Do NOT induce vomiting. If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

General: Causes severe skin burns and eye damage.

Inhalation: Prolonged inhalation of dust may cause respiratory irritation.

Skin Contact: Prolonged exposure may cause skin irritation. Corrosive. Causes burns. Symptoms may include: Redness. Pain. Serious skin burns. Blisters.

Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva. Symptoms may include: Redness. Pain. Blurred vision. Severe burns.

Ingestion: May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

Chronic Symptoms: None expected under normal conditions of use.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: Do not use water jet. Use of heavy stream of water may spread fire.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Product is not flammable.

Explosion Hazard: Product itself is not explosive, but if dust is generated, dust clouds suspended in air can be explosive.

Reactivity: Hazardous reactions will not occur under normal conditions.

Lanthanum Strontium Manganite

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire. Under fire conditions, hazardous fumes will be present.

Firefighting Instructions: Avoid dust clouds in combination with static electricity. Avoid inhalation of material or combustion by-products.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Oxides of carbon, strontium, manganese, lanthanum.

Other Information: Do not allow run-off from fire fighting to enter drains or water sources.

Reference to Other Sections

Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Avoid all contact with skin, eyes, or clothing. Avoid breathing dust. Remove ignition sources. Use special care to avoid static electric charges.

6.1.1. For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Stop leak if safe to do so. Ventilate area.

6.2. Environmental Precautions

Prevent entry to sewers and public waters. Contact competent authorities after a spill.

6.3. Methods and Material for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Absorb and/or contain spill with inert material, then place in suitable container. Do not take up in combustible material such as: saw dust or cellulosic material.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Collect spillage. Utilize a dust suppressant when removing mechanically.

6.4. Reference to Other Sections

See Section 8, Exposure Controls and Personal Protection. See Section 13, Disposal Considerations.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: Accumulation and dispersion of dust with an ignition source can cause a combustible dust explosion. Keep dust levels to a minimum and follow applicable regulations. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Wash hands and forearms thoroughly after handling. Do not eat, drink, or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Ground/bond container and receiving equipment. Use explosion-proof lighting, ventilating equipment. Good housekeeping is needed during storage, transfer, handling, and use of this material to avoid excessive dust accumulation.

Storage Conditions: Store in a dry, cool, and well-ventilated place. Keep container closed when not in use. Keep in fireproof place.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers.

Storage Area: Store locked up. Store in a well-ventilated place. Keep cool.

7.3. Specific End Use(s)

 Laboratory chemicals and manufacture of substances

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

Lanthanum Strontium Manganite

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations

Manganese oxide (Mn3O4) (1317-35-7)		
Nunavut	OEL STEL (mg/m ³)	2 mg/m ³
Nunavut	OEL TWA (mg/m ³)	1 mg/m ³
Northwest Territories	OEL STEL (mg/m ³)	2 mg/m ³
Northwest Territories	OEL TWA (mg/m ³)	1 mg/m ³
Québec	VEMP (mg/m ³)	1 mg/m ³

8.2. Exposure Controls

Appropriate Engineering Controls: Proper grounding procedures to avoid static electricity should be followed. Ensure all national/local regulations are observed. Provide adequate ventilation to minimize dust concentrations. Ensure adequate ventilation, especially in confined areas. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Personal Protective Equipment: Face shield. Protective clothing. Protective goggles. Gloves. Insufficient ventilation: wear respiratory protection.



Materials for Protective Clothing: Corrosionproof clothing.

Hand Protection: Impermeable protective gloves.

Eye Protection: Chemical safety goggles and face shield.

Skin and Body Protection: In case of dust production: dustproof clothing. Corrosionproof clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn.

Other Information: When using, do not eat, drink, or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State	: Solid
Appearance	: Black/gray
Odor	: Not available
Odor Threshold	: Not available
pH	: Not available
Evaporation Rate	: Not available
Melting Point	: > 1650 °C (> 3002 °F)
Freezing Point	: Not available
Boiling Point	: Not available
Flash Point	: Not available
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not available
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: Not available
Relative Vapor Density at 20 °C	: Not available
Relative Density	: Not available
Specific Gravity	: Not available
Solubility	: Not available
Partition Coefficient: N-Octanol/Water	: Not available
Viscosity	: Not available
Explosion Data – Sensitivity to Mechanical Impact	: Not expected to present an explosion hazard due to mechanical impact.
Explosion Data – Sensitivity to Static Discharge	: Static discharge could act as an ignition source.

Lanthanum Strontium Manganite

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations

SECTION 10: STABILITY AND REACTIVITY

- 10.1. **Reactivity:** Hazardous reactions will not occur under normal conditions.
- 10.2. **Chemical Stability:** Stable under normal ambient conditions.
- 10.3. **Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.
- 10.4. **Conditions to Avoid:** Direct sunlight. Extremely high or low temperatures. Sparks. Heat. Overheating. Open flame.
- 10.5. **Incompatible Materials:** Strong acids. Strong bases. Strong oxidizers.
- 10.6. **Hazardous Decomposition Products:** Oxides of carbon, strontium, manganese, lanthanum.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects - Product

Acute Toxicity: Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Causes severe skin burns and eye damage.

Serious Eye Damage/Irritation: Causes serious eye damage.

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not classified

Carcinogenicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Prolonged inhalation of dust may cause respiratory irritation.

Symptoms/Injuries After Skin Contact: Prolonged exposure may cause skin irritation. Corrosive. Causes burns. Symptoms may include: Redness. Pain. Serious skin burns. Blisters.

Symptoms/Injuries After Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva. Symptoms may include: Redness. Pain. Blurred vision. Severe burns.

Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: None expected under normal conditions of use.

11.2. Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data: Not available

SECTION 12: ECOLOGICAL INFORMATION

- 12.1. **Toxicity** No additional information available
- 12.2. **Persistence and Degradability** Not available
- 12.3. **Bioaccumulative Potential** Not available
- 12.4. **Mobility in Soil** Not available
- 12.5. **Other Adverse Effects**

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Sewage Treatment Recommendations: Do not empty into drains; dispose of this material and its container in a safe way.

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

SECTION 14: TRANSPORT INFORMATION

14.1. In Accordance with DOT

Proper Shipping Name : CORROSIVE SOLIDS, N.O.S.(Strontium oxide)

Hazard Class : 8

Identification Number : UN1759



Lanthanum Strontium Manganite

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations

Label Codes : 8
Packing Group : II
ERG Number : 154

14.2. In Accordance with IMDG

Proper Shipping Name : CORROSIVE SOLID, N.O.S.(Strontium oxide)
Hazard Class : 8
Identification Number : UN1759
Packing Group : II
Label Codes : 8
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-B



14.3. In Accordance with IATA

Proper Shipping Name : CORROSIVE SOLID, N.O.S. (Strontium oxide)
Packing Group : II
Identification Number : UN1759
Hazard Class : 8
Label Codes : 8
ERG Code (IATA) : 8L



14.4. In Accordance with TDG

Proper Shipping Name : CORROSIVE SOLID, N.O.S.(Strontium oxide)
Packing Group : II
Hazard Class : 8
Identification Number : UN1759
Label Codes : 8



SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

Lanthanum Strontium Manganite (66402-68-4)	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
Ceramic materials and wares, chemicals (66402-68-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
Strontium oxide (SrO) (1314-11-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Lanthanum oxide (La2O3) (1312-81-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Manganese oxide (Mn3O4) (1317-35-7)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

15.2. US State Regulations

Ceramic materials and wares, chemicals (66402-68-4)	
U.S. - Texas - Effects Screening Levels - Long Term	
U.S. - Texas - Effects Screening Levels - Short Term	
Lanthanum oxide (La2O3) (1312-81-8)	
U.S. - Texas - Effects Screening Levels - Long Term	
U.S. - Texas - Effects Screening Levels - Short Term	
Manganese oxide (Mn3O4) (1317-35-7)	
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)	
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)	
RTK - U.S. - Massachusetts - Right To Know List	
U.S. - Michigan - Occupational Exposure Limits - TWAs	

Lanthanum Strontium Manganite

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations

U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - TWAs
RTK - U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New York - Occupational Exposure Limits - TWAs
U.S. - North Carolina - Control of Toxic Air Pollutants
RTK - U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Vermont - Permissible Exposure Limits - TWAs
U.S. - Washington - Permissible Exposure Limits - STELs
U.S. - Washington - Permissible Exposure Limits - TWAs

15.3. Canadian Regulations

Lanthanum Strontium Manganite (66402-68-4)

WHMIS Classification Class D Division 2 Subdivision B - Toxic material causing other toxic effects
Class E - Corrosive Material



Ceramic materials and wares, chemicals (66402-68-4)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification Class D Division 2 Subdivision B - Toxic material causing other toxic effects

Strontium oxide (SrO) (1314-11-0)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification Class E - Corrosive Material

Lanthanum oxide (La2O3) (1312-81-8)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification Uncontrolled Material

Manganese oxide (Mn3O4) (1317-35-7)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification Uncontrolled Material

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision Date : 10/01/2015

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Eye Dam. 1	Serious eye damage/eye irritation Category 1
Skin Corr. 1B	Skin corrosion/irritation Category 1B
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage

Party Responsible for the Preparation of This Document

Nexceris, LLC. 404 Enterprise Dr. Lewis Center, OH 43035. T 614-842-6606

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

North America GHS US 2012 & WHMIS 2