

Safety Data Sheet



Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Product Name • Lanthanum Chloride Crystal, Cerium Doped
Synonyms • B350

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified use(s) • Inorganic Scintillation Detector Crystal

1.3 Details of the supplier of the safety data sheet

Manufacturer • Saint-Gobain Crystals
17900 Great Lakes Parkway
Hiram, OH 44234
United States
www.crystals.saint-gobain.com
scintillation@saint-gobain.com
Telephone (General) • 440-834-5600

1.4 Emergency telephone number

Manufacturer • 1-800-424-9300 - ChemTrec
Manufacturer • 703-525-3887 - Outside U.S.

Section 2: Hazards Identification

EU/EEC

According to: Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]

According to: EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

CLP • Skin Irritation 2 - H315
Eye Irritation 2 - H319
Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation - H335
Hazardous to the aquatic environment Acute 1 - H400
Hazardous to the aquatic environment Chronic 1 - H410

DSD/DPD • Irritant (Xi)
Dangerous to the Environment (N)
R36/37/38, R50, R53

2.2 Label Elements

CLP

WARNING



- Hazard statements**
- H315 - Causes skin irritation
 - H319 - Causes serious eye irritation
 - H335 - May cause respiratory irritation
 - H400 - Very toxic to aquatic life
 - H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements

- Prevention**
- P261 - Avoid breathing dust, fume, gas, mist, vapours and/or spray.
 - P264 - Wash thoroughly after handling.
 - P271 - Use only outdoors or in a well-ventilated area.
 - P273 - Avoid release to the environment.
 - P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- Response**
- P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 - P312 - Call a POISON CENTER or doctor/physician if you feel unwell.
 - P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 - P337+P313 - If eye irritation persists: Get medical advice/attention.
 - P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
 - P362 - Take off contaminated clothing and wash before reuse.
 - P332+P313 - If skin irritation occurs: Get medical advice/attention.
 - P321 - Specific treatment, see supplemental first aid information.
 - P391 - Collect spillage.

- Storage/Disposal**
- P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
 - P405 - Store locked up.
 - P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

DSD/DPD



- Risk phrases**
- R36/37/38 - Irritating to eyes, respiratory system and skin.
 - R50 - Very toxic to aquatic organisms.
 - R53 - May cause long-term adverse effects in the aquatic environment.

- Safety phrases**
- S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
 - S57 - Use appropriate containment to avoid environmental contamination.

2.3 Other Hazards

- CLP**
- According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.
- DSD/DPD**
- According to European Directive 1999/45/EC this preparation is considered dangerous.

United States (US)

According to: OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

- OSHA HCS 2012**
- Skin Irritation 2
 - Eye Irritation 2
 - Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation

2.2 Label elements

OSHA HCS 2012

WARNING



- Hazard statements**
- Causes skin irritation
 - Causes serious eye irritation
 - May cause respiratory irritation

Precautionary statements

- Prevention**
- Avoid breathing dust, fume, gas, mist, vapours and/or spray.
 - Wash thoroughly after handling.
 - Use only outdoors or in a well-ventilated area.
 - Wear protective gloves/protective clothing/eye protection/face protection.
- Response**
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 - Call a POISON CENTER or doctor/physician if you feel unwell.
 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 - If eye irritation persists: Get medical advice/attention.
 - If on skin: Wash with plenty of water.
 - If skin irritation occurs: Get medical advice/attention.
 - Take off contaminated clothing and wash before reuse.
 - Specific treatment, see supplemental first aid information.

- Storage/Disposal**
- Store in a well-ventilated place. Keep container tightly closed.
 - Store locked up.
 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3 Other hazards

OSHA HCS 2012

- This product is not considered hazardous under the U.S. OSHA 29 CFR 1910.1200 Hazard Communication Standard.

Canada

According to: WHMIS

2.1 Classification of the substance or mixture

WHMIS

- Other Toxic Effects - D2B

2.2 Label elements

WHMIS



- Other Toxic Effects - D2B

2.3 Other hazards

WHMIS

- In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

Section 3 - Composition/Information on Ingredients

3.1 Substances

- Material does not meet the criteria of a substance.

3.2 Mixtures

Composition					
Chemical Name	Identifiers	%	LD50/LC50	Classifications According to Regulation/Directive	Comments
Lanthanum chloride	CAS:10099-58-8	90% TO 95%	Ingestion/Oral-Rat LD50 • 2370 mg/kg	EU DSD/DPD: Self Classified: N; R50-53 EU CLP: Self Classified: Aquatic Acute 1, H400; Aquatic Chronic 1, H410 OSHA HCS 2012: Not Classified	NDA
Cerium chloride	CAS:7790-86-5	5% TO 10%	Ingestion/Oral-Rat LD50 • 2111 mg/kg	EU DSD/DPD: Self Classified: N; R50-53 EU CLP: Self Classified: Aquatic Acute 1, H400; Aquatic Chronic 1, H410 OSHA HCS 2012: Not Classified	NDA

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation

- Move victim to fresh air. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult. If signs/symptoms continue, get medical attention.

Skin

- Wash skin with soap and water. If irritation develops and persists, get medical attention.

Eye

- Flush eyes with water for at least 15 minutes while holding eyelids open. If eye irritation persists: Get medical advice/attention.

Ingestion

- Rinse mouth. Do not give anything by mouth to an unconscious person. Do NOT induce vomiting. Obtain medical attention immediately if ingested.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician

- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media

- In case of fire use media as appropriate for surrounding fire.

Unsuitable Extinguishing Media

- No data available.

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards

- Material is non-combustible and is not expected to pose a fire or explosion hazard.

Hazardous Combustion Products

- Product will oxidize in air at temperatures exceeding 300°C, evolving chlorine gas.

5.3 Advice for firefighters

- Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

- Personal Precautions**
- Ventilate the area before entry. Do not walk through spilled material. Wear appropriate personal protective equipment, avoid direct contact.
- Emergency Procedures**
- As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (75 feet) in all directions. Keep unauthorized personnel away.

6.2 Environmental precautions

- Avoid release to the environment.

6.3 Methods and material for containment and cleaning up

- Containment/Clean-up Measures**
- Avoid generating dust.
SMALL DRY SPILLS: With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.
LARGE SPILLS: Cover powder spill with plastic sheet or tarp to minimize spreading.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

- Handling**
- Use only with adequate ventilation. Minimize dust generation and accumulation. Wear appropriate personal protective equipment, avoid direct contact. Avoid breathing dust. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

7.2 Conditions for safe storage, including any incompatibilities

- Storage**
- Store in a cool, dry, well ventilated area. Keep away from moisture and excessive heat. Unsealed/unfinished material is hygroscopic and can absorb CO₂; store in tightly closed container with desiccant.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

- Exposure Limits/Guidelines**
- No applicable exposure limits available for product or components.

8.2 Exposure controls

- Engineering Measures/Controls**
- Adequate ventilation systems as needed to control concentrations of airborne contaminants below applicable threshold limit values. Ensure that dust handling systems (such as exhaust ducts, dust collectors, vessels and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is not leakage from the equipment).

Personal Protective Equipment

Respiratory

- For limited exposure use an N95 dust mask. For prolonged exposure use an air-purifying respirator with high efficiency particulate air (HEPA) filters. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

Eye/Face

- Wear safety goggles.

Skin/Body

- Wear appropriate gloves. Wear long sleeves and/or protective coveralls.

Environmental Exposure Controls

- Follow best practice for site management and disposal of waste.

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Solid	Appearance/Description	Transparent crystal with no odor.
Color	Transparent	Odor	Odorless
Odor Threshold	Data lacking		
General Properties			
Boiling Point	> 1000 C(> 1832 F)	Melting Point	860 C(1580 F)
Decomposition Temperature	Data lacking	pH	Not relevant
Specific Gravity/Relative Density	= 3.86 Water=1	Water Solubility	Soluble 492 g/L @ 25 C(77 F) hygroscopic
Viscosity	Data lacking	Explosive Properties	Data lacking
Oxidizing Properties:	Data lacking		
Volatility			
Vapor Pressure	Data lacking	Vapor Density	Data lacking
Evaporation Rate	Data lacking		
Flammability			
Flash Point	Not relevant	UEL	Not relevant
LEL	Not relevant	Autoignition	Data lacking
Flammability (solid, gas)	Data lacking		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

- Hazardous polymerization not indicated.

10.4 Conditions to avoid

- Avoid dispersion of dust in air. Unfinished material is hygroscopic, store in airtight container.

10.5 Incompatible materials

- None known.

10.6 Hazardous decomposition products

- Product will oxidize in air at temperatures exceeding 300°C, evolving chlorine gas. Reacts with water at temperatures exceeding 150°C, with evolution of hydrochloric acid vapors.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Components		
Lanthanum chloride (90% TO 95%)	10099-58-8	Acute Toxicity: Ingestion/Oral-Rat LD50 • 2370 mg/kg; Multi-dose Toxicity: Inhalation-Rat TCLo • 100 mg/m ³ 2 Hour(s) 30 Day(s)-Intermittent; <i>Cardiac:EKG changes not diagnostic of above; Lungs, Thorax, or Respiration:Other changes; Blood:Leukopenia</i>
Cerium chloride (5% TO 10%)	7790-86-5	Acute Toxicity: Ingestion/Oral-Rat LD50 • 2111 mg/kg; Multi-dose Toxicity: Inhalation-Rat TCLo • 100 mg/m ³ 2 Hour(s) 30 Day(s)-Intermittent; <i>Cardiac:EKG changes not diagnostic of above; Lungs, Thorax, or Respiration:Other changes; Blood:Leukopenia</i>

GHS Properties	Classification
Acute toxicity	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Aspiration Hazard	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Carcinogenicity	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Germ Cell Mutagenicity	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Skin corrosion/Irritation	EU/CLP • Skin Irritation 2 OSHA HCS 2012 • Skin Irritation 2
Skin sensitization	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
STOT-RE	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
STOT-SE	EU/CLP • Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation OSHA HCS 2012 • Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation
Toxicity for Reproduction	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Respiratory sensitization	EU/CLP • Data lacking OSHA HCS 2012 • Data lacking
Serious eye damage/Irritation	EU/CLP • Eye Irritation 2 OSHA HCS 2012 • Eye Irritation 2

Potential Health Effects

Inhalation

Acute (Immediate)

- May cause respiratory irritation. Processes such as cutting, grinding, crushing, or impact may result in generation of excessive amounts of airborne dusts in the workplace. Nuisance dust may affect the lungs but reactions are typically reversible.

Chronic (Delayed)

- Repeated and prolonged exposure to dust may cause lung effects including pneumoconiosis.

Skin

Acute (Immediate)

- Causes skin irritation.

Chronic (Delayed)

- No data available.

Eye

Acute (Immediate)

- Causes serious eye irritation. Excessive concentrations of nuisance dust in the workplace may reduce visibility and may cause unpleasant deposits in eyes.

Chronic (Delayed)

- No data available.

Ingestion**Acute (Immediate)**

- Excessive concentrations of nuisance dust in the workplace may cause mechanical irritation to mucous membranes.

Chronic (Delayed)

- No data available.

Key to abbreviations

LD = Lethal Dose

TC = Toxic Concentration

Section 12 - Ecological Information

12.1 Toxicity

Lanthanum Chloride Crystal, Cerium Doped					
Dosage	Species	Duration	Results	Exposure Conditions	Comments
0.0432 mg/L	Crustacea: Daphnia carinata	2 Day(s)	EC50	NDA	Lanthanum chloride (10099-58-8)
0.74-0.85 mg/L	Aquatic Plant(s): Green Algae	3 Day(s)	EC50	NDA	Cerium chloride (7790-86-5)

- Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

- Material data lacking.

12.3 Bioaccumulative potential

- Material data lacking.

12.4 Mobility in Soil

- Material data lacking.

12.5 Results of PBT and vPvB assessment

- No PBT and vPvB assessment has been conducted.

12.6 Other adverse effects

- No studies have been found.

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	NDA	Not Regulated	NDA	NDA	NDA
TDG	NDA	Not Regulated	NDA	NDA	NDA

IMO/IMDG	NDA	Not Regulated	NDA	NDA	NDA
IATA/ICAO	NDA	Not Regulated	NDA	NDA	NDA

14.6 Special precautions for user

- None specified.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- No data available

Section 15 - Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**SARA Hazard Classifications**

- Acute

State Right To Know		
Component	CAS	PA
Cerium chloride	7790-86-5	No
Lanthanum chloride	10099-58-8	No

Inventory						
Component	CAS	Canada DSL	Canada NDSL	EU EINECS	EU ELNICS	Korea KECL
Cerium chloride	7790-86-5	Yes	No	Yes	No	Yes
Lanthanum chloride	10099-58-8	Yes	No	Yes	No	Yes

Inventory (Con't.)		
Component	CAS	TSCA
Cerium chloride	7790-86-5	Yes
Lanthanum chloride	10099-58-8	Yes

Canada**Labor****Canada - WHMIS - Classifications of Substances**

• Lanthanum chloride	10099-58-8	Uncontrolled product according to WHMIS classification criteria (including 10%)
• Cerium chloride	7790-86-5	Not Listed

Canada - WHMIS - Ingredient Disclosure List

• Lanthanum chloride	10099-58-8	Not Listed
• Cerium chloride	7790-86-5	Not Listed

Environment**Canada - CEPA - Priority Substances List**

• Lanthanum chloride	10099-58-8	Not Listed
• Cerium chloride	7790-86-5	Not Listed

United States

Labor**U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals**

• Lanthanum chloride	10099-58-8	Not Listed
• Cerium chloride	7790-86-5	Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

• Lanthanum chloride	10099-58-8	Not Listed
• Cerium chloride	7790-86-5	Not Listed

Environment**U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants**

• Lanthanum chloride	10099-58-8	Not Listed
• Cerium chloride	7790-86-5	Not Listed

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

• Lanthanum chloride	10099-58-8	Not Listed
• Cerium chloride	7790-86-5	Not Listed

U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

• Lanthanum chloride	10099-58-8	Not Listed
• Cerium chloride	7790-86-5	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

• Lanthanum chloride	10099-58-8	Not Listed
• Cerium chloride	7790-86-5	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

• Lanthanum chloride	10099-58-8	Not Listed
• Cerium chloride	7790-86-5	Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• Lanthanum chloride	10099-58-8	Not Listed
• Cerium chloride	7790-86-5	Not Listed

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing

• Lanthanum chloride	10099-58-8	Not Listed
• Cerium chloride	7790-86-5	Not Listed

United States - California**Environment****U.S. - California - Proposition 65 - Carcinogens List**

• Lanthanum chloride	10099-58-8	Not Listed
• Cerium chloride	7790-86-5	Not Listed

U.S. - California - Proposition 65 - Developmental Toxicity

• Lanthanum chloride	10099-58-8	Not Listed
• Cerium chloride	7790-86-5	Not Listed

U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

• Lanthanum chloride	10099-58-8	Not Listed
• Cerium chloride	7790-86-5	Not Listed

U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)

• Lanthanum chloride	10099-58-8	Not Listed
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• Cerium chloride	7790-86-5	Not Listed
U.S. - California - Proposition 65 - Reproductive Toxicity - Female		
• Lanthanum chloride	10099-58-8	Not Listed
• Cerium chloride	7790-86-5	Not Listed
U.S. - California - Proposition 65 - Reproductive Toxicity - Male		
• Lanthanum chloride	10099-58-8	Not Listed
• Cerium chloride	7790-86-5	Not Listed

United States - Pennsylvania

Labor

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

• Lanthanum chloride	10099-58-8	Not Listed
• Cerium chloride	7790-86-5	Not Listed

U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances

• Lanthanum chloride	10099-58-8	Not Listed
• Cerium chloride	7790-86-5	Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Last Revision Date	• 20/May/2015
Preparation Date	• 20/May/2015
Disclaimer/Statement of Liability	• Reasonable care has been taken in the preparation of this information, but the supplier gives no warranty of merchantability or of fitness for a particular purpose. Any product purchased is sold on the assumption the purchaser will make his own tests to determine the quality and suitability of the product. Supplier expressly disclaims any and all liability for incidental and/or consequential property damage arising out of the use of this product. No information provided shall be deemed to be a recommendation to use any product in conflict with any existing patent rights. Read the Safety Data Sheet before handling product.

Key to abbreviations

NDA = No data available