

# SAFETY DATA SHEET

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## SECTION 1. IDENTIFICATION

**Product Name:** Lithium Lanthanum Zirconate

**CAS #:**

**Relevant identified uses of the substance:** Scientific research and development

**Supplier details:**

Stanford Advanced Materials

E-mail: sales@samaterials.com

Tel: (949) 407-8904

Address: 23661 Birtcher Dr., Lake Forest, CA 92630 U.S.A.

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## SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

GHS05 corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

GHS07

STOT SE 3

H335 May cause respiratory irritation.

Other hazards that do not result in classification

No data available

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

The substance is classified and labelled according to the CLP regulation.

Hazard pictograms

GHS05 GHS07

Signal word

DangerHazard statements

H314 Causes severe skin burns and eye damage.

H335 May cause respiratory irritation.

Precautionary statements

P260

Do not breathe dust/fume/gas/mist/vapors/spray.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

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

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

P405

Store locked up.

P501

Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

Results of PBT and vPvB assessment

PBT:

N/A

vPvB:

N/A

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## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

CAS# Designation:

Lithium lanthanum zirconium oxide

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## **SECTION 4. FIRST AID MEASURES**

### 4.1 Description of first aid measures

#### General information

Instantly remove any clothing soiled by the product.

#### If inhaled:

Supply patient with fresh air. If not breathing, provide artificial respiration. Keep patient warm.

#### Consult

doctor if symptoms persist.

Seek immediate medical advice.

#### In case of skin contact:

Instantly wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

#### In case of eye contact:

Rinse opened eye for several minutes under running water. Then consult doctor.

#### If swallowed:

Seek medical treatment.

### 4.2 Most important symptoms and effects, both acute and delayed

Causes severe skin burns.

Causes serious eye damage.

### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

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## **SECTION 5. FIREFIGHTING MEASURES**

### 5.1 Extinguishing media

Suitable extinguishing agents

CO<sub>2</sub>, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

## 5.2 Special hazards arising from the substance or mixture

If this product is involved in a fire, the following can be released:

Lithium oxide

Zirconium oxide

Lanthanum oxide

## 5.3 Advice for firefighters

Protective equipment:

Wear self-contained breathing apparatus.

Wear full protective suit.

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# SECTION 6. ACCIDENTAL RELEASE MEASURES

## 6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

## 6.2 Environmental precautions:

Do not allow product to enter drains, sewage systems, or other water courses system or water bodies.

## 6.3 Methods and materials for containment and cleanup:

Use neutralizing agent.

Dispose of contaminated material as waste according to section 13.

Ensure adequate ventilation.

Prevention of secondary hazards:

No special measures required.

## 6.4 Reference to other sections

See Section 7 for information on safe handling

See section 8 for information on personal protection equipment.

See Section 13 for information on disposal.

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## **SECTION 7. HANDLING AND STORAGE**

### 7.1 Precautions for safe handling

Handle under dry protective gas.

Keep containers tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation/exhaustion at the workplace.

Information about protection against explosions and fires:

No data available

### 7.2 Conditions for safe storage, including any incompatibilities

Requirements to be met by storerooms and containers:

No special requirements.

Information about storage in one common storage facility:

Store away from air.

Store away from water.

Store away from oxidising agents.

Further information about storage conditions: Store under dry inert gas.

This product is moisture sensitive.

This product is air sensitive.

Keep container tightly sealed.

Store in cool, dry conditions in well-sealed containers.

Protect from humidity and keep away from water.

Store in a locked cabinet or with access restricted to technical experts or their assistants.

### 7.3 Specific end use(s)

No data available

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## **SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

### 8.1 Control parameters

Components with critical values that require monitoring at the workplace:

None.

Additional information:

No data

### 8.2 Exposure controls

Personal protective equipment

General protective and hygienic measures

The usual precautionary measures should be adhered to in handling the chemicals.

Keep away from foodstuffs, beverages and food.

Instantly remove any soiled and impregnated garments.

Wash hands during breaks and at the end of the work.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

Breathing equipment:

Use breathing protection with high concentrations.

Protection of hands:

Inspect gloves prior to use.

The selection of the suitable gloves does not only depend on the material, but also on further marks of

quality and varies from manufacturer to manufacturer.

Material of gloves

Impervious gloves

Eye protection:

Tightly sealed safety glasses.

Full face protection

Body protection:

Protective work clothing.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Appearance:

Form: Solid in various forms:

Colour: Pale grey

Smell: Odorless

Odor threshold: No data available.pH: N/A

Melting point/Melting range: No data available

Boiling point/Boiling range: No data available

Sublimation temperature / start: No data available

Inflammability (solid, gas)

No data available.

Ignition temperature: No data available

Decomposition temperature: No data available

Self-inflammability: No data available.

Danger of explosion: No data available.

Critical values for explosion:

Lower: No data available

Upper: No data available

Steam pressure: N/A

Density No data available

Relative density

No data available.

Vapor density

N/A

Evaporation rate

N/A

Solubility in Water (H

O): No data available

Partition coefficient (n-octanol/water): No data available.

Viscosity:

Dynamic: N/A

Kinematic: N/A

## 9.2 Other information

No data available

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# SECTION 10. STABILITY AND REACTIVITY

## 10.1 Reactivity

No data available

## 10.2 Chemical stability

Stable under recommended storage conditions.

Thermal decomposition / conditions to be avoided:

No decomposition if used and stored according to specifications.

## 10.3 Possibility of hazardous reactions

Reacts with strong oxidising agents

## 10.4 Conditions to avoid

No data available

## 10.5 Incompatible materials:

Air

Water/moisture

Oxidising agents

## 10.6 Hazardous decomposition products:

Lithium oxide

Zirconium oxide

Lanthanum oxide

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# SECTION 11. TOXICOLOGICAL INFORMATION

## 11.1 Information on toxicological effects

### Acute toxicity:

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

### LD/LC50 values that are relevant for classification:

No data

### Skin irritation or corrosion:

Causes severe skin burns.

### Eye irritation or corrosion:

Causes serious eye damage.

### Sensitization:

No sensitizing effect known.

### Germ cell mutagenicity:

No effects known.

### Carcinogenicity:

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

### Reproductive toxicity:

No effects known.

### Specific target organ system toxicity - repeated exposure:

No effects known.

### Specific target organ system toxicity - single exposure:

May cause respiratory irritation.

### Aspiration hazard:

No effects known.

### Subacute to chronic toxicity:

No effects known.

### Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

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## **SECTION 12. ECOLOGICAL INFORMATION**

### 12.1 Toxicity

Aquatic toxicity:

No data available

### 12.2 Persistence and degradability

No data available

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

Additional ecological information:

Water hazard class 1 (Self-assessment): slightly hazardous for water.

Do not allow undiluted product or large quantities to reach groundwater, water courses, or sewage systems.

Avoid transfer into the environment.

### 12.5 Results of PBT and vPvB assessment

PBT:

N/A

vPvB:

N/A

12.6 Other adverse effects  
No data available

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## **SECTION 13. DISPOSAL CONSIDERATIONS**

### 13.1 Waste treatment methods

Recommendation

Hand over to disposers of hazardous waste.

Must be specially treated under adherence to official regulations.

Consult official regulations for proper disposal.

Uncleaned packagings:

Recommendation:

Disposal must be made according to official regulations.

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## SECTION 14. TRANSPORT INFORMATION

UN-Number

ADR, IMDG, IATA

UN3262

14.2 UN proper shipping name

ADR

3262 CORROSIVE SOLID, BASIC, INORGANIC, N.O.S. (Lithium lanthanum zirconium oxide )

IMDG, IATA

CORROSIVE SOLID, BASIC, INORGANIC, N.O.S. (Lithium lanthanum zirconium oxide )

14.3 Transport hazard class(es)

ADR

Class

8 (C6) Corrosive substances.

Label

8

IMDG, IATA

Class

8 Corrosive substances.

Label

8

Packing group

ADR, IMDG, IATA

III

14.5 Environmental hazards:

N/A

14.6 Special precautions for user

Warning: Corrosive substances.

Kemler Number: 80

EMS Number: F-A,S-B

Segregation groups

Alkalis

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC

Code

N/A

Transport/Additional information:

ADRExcepted quantities (EQ):

E1

Limited quantities (LQ)

5 kg

Transport category

3

Tunnel restriction code

E

UN "Model Regulation":

UN3262, CORROSIVE SOLID, BASIC, INORGANIC, N.O.S. (Lithium lanthanum zirconium oxide ),  
8,

III

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## SECTION 15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Australian Inventory of Chemical Substances

Substance is not listed.

Standard for the Uniform Scheduling of Drugs and Poisons

Substance is not listed.

National regulations

Information about limitation of use:

For use only by technically qualified individuals.

Employment restrictions concerning young persons must be observed.

Water hazard class:

Water hazard class 1 (Self-assessment): slightly hazardous for water.

Other regulations, limitations and prohibitive regulations

ELINCS (European List of Notified Chemical Substances)

Substance is not listed.

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.

Substance is not listed.

The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.

Substance is not listed.

Annex XIV of the REACH Regulations (requiring Authorisation for use)

Substance is not listed.

15.2 Chemical safety assessment:

A Chemical Safety Assessment has not been carried out.

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## **SECTION 16. OTHER INFORMATION**

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.