

SAFETY DATA SHEET

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SECTION 1. IDENTIFICATION

Product Name: Lead Lanthanum Zirconium Titanate

CAS #: 12676-60-7

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.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification of the substance/mixture

Physical hazards: Not classified

Health hazards: Not classified

Environmental hazards: Not classified

GHS label elements

Hazard Pictograms: No symbol

Signal Word: None

Hazard Statement: None.

Precautionary statements

Prevention: None.

Response: None.

Storage: None.

Disposal: Dispose of contents/container in according to local regulations.

Other hazards: Avoid dust formation.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name / CAS Number / Concentration (%) Lead Lanthanum Zirconium Titanate / 12626-81-2 / 100%

SECTION 4. FIRST AID MEASURES

Inhalation: Remove to fresh air.

Skin contact:

Immediately wash skin with plenty of soap and water for 15 to 20 minutes, while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.

Eyes contact:

Immediately flush eyes with plenty of water for at least 15 to 20 minutes. Ensure adequate flushing of the eyes by separating the eyelids with fingers. Get immediate medical attention.

Ingestion:

Rinse mouth with water. Call a physician or poison control center immediately.

Most important symptoms and effects, both acute and delayed:

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Indication of any immediate medical attention and special treatment needed:

Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Extinguishing media:

Suitable extinguishing media: The product is not combustible.

Unsuitable extinguishing media: Direct water stream that will cause fire expansion.

Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors.

Special firefighting methods and special protective actions for fire-fighters

Special Fire Fighting Procedures

Evacuate area of unprotected personnel. Fight advanced or massive fires from safe distance or protected location. Use water to keep fire exposed containers cool and disperse vapors. Keep run-off water out of sewers and water sources. Dike for water control.

Protective equipment for fire-fighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Ensure adequate ventilation.

Avoid dust formation.

Environmental Precautions:

Avoid discharge into drains, water courses or onto the ground.

Methods for Containment and Cleaning up:

Collect the spillages into a closed container, then transit to a safety place.

Additional information:

Clean the leakage up immediately in case of pollution expansion.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling:

Wash thoroughly after handling.

Ensure adequate ventilation.

Avoid dust formation.

Conditions for safe storage, including any incompatibilities:

Store in a cool, dry, well ventilated area.

Specific end use(s): Not applicable.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters: Contains no substances with occupational exposure limit values.

Exposure controls

Appropriate engineering controls: Provide adequate ventilation, including appropriate local extraction, to ensure

that the defined occupational exposure limit is not exceeded.

Individual protection measures, such as personal protective equipment

Handle in accordance with good industrial hygiene and safety practice.

Eye/face protection: Wear safety glasses with side shields.

Hand protection: Wear gloves.

Body protection: Wear protective clothes.

Respiratory protection: Wear respiratory protection equipment in case of insufficient ventilation.

Thermal hazards: Wear suitable protective clothing if possible to prevent heat.

Environmental exposure controls: Avoid discharge into the environment.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state: Solid

Form: Powder or solid in various forms

Color: White

Odor: Slight odor

Odor threshold: No information available

pH: 7-8

Melting point/range: Not available

Boiling point/range: Not available

Flash point Not available

Evaporation rate: Not available

Flammability limit - lower (%): Not available

Flammability limit - upper (%): Not available

Vapor pressure: Not available

Vapor density: Not available

Relative Density: 7.7

Solubility(ies) Not available

Solubility(water): Insoluble

Partition coefficient

n-Octanol/Water: No information available

Auto-ignition temperature: No information available

Decomposition temperature: No information available

Flammability(solid, gas): No information available

Other dataExplosive properties: No information available

Oxidizing properties: No information available

SECTION 10. STABILITY AND REACTIVITY

Reactivity: No information available.

Chemical stability: Stable under normal temperature and pressure conditions.

Possibility of hazardous reactions: Will not occur.

Conditions to avoid: Moisture.

Incompatible materials: Alkaline metals.

Hazardous decomposition products: Zirconium oxide, lead oxide, titanium dioxide, lanthanum oxide

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicokinetics, metabolism and distribution:

Non-human toxicological data: No data available

Information on toxicological effects:

Acute toxicity

LD50(Oral, Rat): No data available

LD50(Dermal, Rabbit): No data available

LC50(Inhalation, Rat): No data available

Skin corrosion/Irritation: Not classified.

Serious eye damage/irritation: Not classified.

Respiratory or skin sensitization: Not classified.

Germ cell mutagenicity: Not classified.

Carcinogenicity: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity: Not classified.

STOT- single exposure: Not classified.

STOT-repeated exposure: Not classified.

Aspiration hazard: Not classified.

SECTION 12. ECOLOGICAL INFORMATION

Eco toxicity:

Persistence and degradability: No data available.

Bio accumulative potential: No data available.

Mobility in soil: No data available.

Other adverse effects: No data available.

SECTION 13. DISPOSAL CONSIDERATIONS

Residual waste:

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.

Contaminated packaging :

Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

Local disposal regulations:

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container.

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

SECTION 14. TRANSPORT INFORMATION

CNDG

UN Number 1564

UN proper shipping name BARIUM COMPOUND, N.O.S. (Contains Barium Titanate)

Transport hazard class(es) 111

Class T5

Subsidiary risk -

Packing group 111

Environmentally hazards Not available

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IATA

UN Number 1564

UN proper shipping name BARIUM COMPOUND, N.O.S. (Contains Barium Titanate)

Transport hazard class(es) 111

Class --

Subsidiary risk -

Labels A3

Packing group 111

Environmentally hazards Not available

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN Number 1564

UN proper shipping name BARIUM COMPOUND, N.O.S. (Contains Barium Titanate)

Transport hazard class(es) 111

Class --

Subsidiary risk -

Labels --

Packing group 111

Environmentally hazards --

Marine pollutant No

EmS F-A,S-A

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex

II of MARPOL 73/78 and the IBC Code

Not established

CNDG; IATA; IMDG

None.

Marine Pollutant

None.

SECTION 15. REGULATORY INFORMATION

Country(s) or region Inventory name yes/no

Australia Australian Inventory of Chemical Substances (AICS) Yes

Canada Domestic Substance List (DSL) Yes

Canada Non-Domestic Substances List(NDSL) No

China Inventory of Existing Chemical Substances in China (IECSS) Yes

Europe European Inventory of Existing Commercial Chemical
Substances(EINECS)

Yes

Europe European List of Notified Chemical Substances(ELINCS) No

Japan Inventory of Existing and New Chemical Substances (ENCS) Yes

Korea Existing Chemicals List(ECL) Yes

New Zealand New Zealand Inventory Yes

Philippines Philippine Inventory of Chemicals and Chemical Yes

United States & Puerto Rico Toxic Substances Control Act(TSCA) Inventory No

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.