# MATERION

# SAFETY DATA SHEET

Version #: 05

Issue date: 30-September-2013 Revision date: 05-June-2024 Supersedes date: 11-January-2018

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

**Registration number** 

**Synonyms** Lithium oxide (Li2O) \* Dilithium oxide \* LITHIUM OXIDE

**Materion Code** 

1.1. Product identifier

Name of the substance Lithium oxide (Li2O) **Identification number** 235-019-5 (EC number)

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

**Identified uses** Not available. Uses advised against None known.

#### 1.3. Details of the supplier of the safety data sheet

Supplier

**Company name** Materion Electronic Materials

**Address** 6070 Parkland Blvd

Mayfield Heights, OH 44124

**United States** 

**Division** 

1.216.383.4019 **Telephone** 

e-mail Materion-PS@materion.com **Contact person Product Stewardship Director** 

1.4. Emergency telephone

number

**Document number** 1LW

#### **SECTION 2: Hazards identification**

## 2.1. Classification of the substance or mixture

The substance has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

# Classification according to Regulation (EC) No 1272/2008 as amended

**Health hazards** 

Skin corrosion/irritation Category 1B H314 - Causes severe skin burns

and eye damage.

Serious eye damage/eye irritation Category 1

#### 2.2. Label elements

#### Label according to Regulation (EC) No. 1272/2008 as amended

**Contains:** Lithium oxide

**Hazard pictograms** None. Signal word None.

**Hazard statements** 

Causes severe skin burns and eye damage. H314

**Precautionary statements** 

**Prevention** 

P260 Do not breathe dust or mists. Wash thoroughly after handling. P264

Wear protective gloves/protective clothing/eye protection/face protection. P280

Response

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

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

water/shower.

Wash contaminated clothing before reuse. P363

IF INHALED: Remove person to fresh air and keep comfortable for breathing. P304 + P340

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

easy to do. Continue rinsing.

Storage Store away from incompatible materials.

**Disposal** 

Dispose of contents/container in accordance with local/regional/national/international regulations. P501

Supplemental label

2.3. Other hazards

information

For further information, please contact the Product Stewardship Department at +1.800.862.4118.

This substance does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII. The substance is not included in the list established in accordance with REACH Article 59(1) for

having endocrine disrupting properties.

# **SECTION 3: Composition/information on ingredients**

#### 3.1. Substances

#### **General information**

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Lithium oxide	100	12057-24-8 235-019-5	-	-	
Classification: Skin Corr. 1B;H314					

### List of abbreviations and symbols that may be used above

DSD: Directive 67/548/EEC. CLP: Regulation No. 1272/2008. ATE: Acute toxicity estimate.

M: M-factor

vPvB: very persistent and very bioaccumulative substance. PBT: persistent, bioaccumulative and toxic substance.

#: This substance has been assigned Community workplace exposure limit(s).

#: This substance has been assigned Union workplace exposure limit(s).

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

## **SECTION 4: First aid measures**

**General information** Ensure that medical personnel are aware of the material(s) involved, and take precautions to

protect themselves.

4.1. Description of first aid measures

**Inhalation** Move to fresh air. Call a physician if symptoms develop or persist.

Take off immediately all contaminated clothing. Wash off with soap and water. Chemical burns Skin contact

must be treated by a physician. Get medical attention if irritation develops and persists. Wash

contaminated clothing before reuse.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if

present and easy to do. Continue rinsing. Get medical attention immediately.

Ingestion Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects, both

acute and delayed

Burning pain and severe corrosive skin damage. Causes serious eye damage. Permanent eye damage including blindness could result.

4.3. Indication of any immediate medical attention and special treatment

Treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during

transport to hospital. Keep victim under observation.

# **SECTION 5: Firefighting measures**

**General fire hazards** No unusual fire or explosion hazards noted.

5.1. Extinguishing media

Suitable extinguishing

Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

media

Unsuitable extinguishing

media

None known.

Material name: Lithium oxide (Li2O) 1LW Version #: 05 Revision date: 05-June-2024 Issue date: 30-September-2013 5.2. Special hazards arising from the substance or

mixture

During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

Special protective equipment for firefighters

Wear suitable protective equipment.

Special firefighting

procedures

Use water spray to cool unopened containers.

**Specific methods** Use standard firefighting procedures and consider the hazards of other involved materials.

#### **SECTION 6: Accidental release measures**

## 6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Wear appropriate personal protective equipment.

For emergency responders

Keep unnecessary personnel away. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. Use personal protection recommended in Section 8 of

the SDS.

6.2. Environmental

precautions

No special environmental precautions required.

6.3. Methods and material for containment and cleaning up

Large Spills: Stop the flow of material, if this is without risk. Following product recovery, flush area

with water.

Small Spills: Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use.

6.4. Reference to other

sections

For personal protection, see section 8 of the SDS. For waste disposal, see section 13.

# **SECTION 7: Handling and storage**

7.1. Precautions for safe

handling

Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. Provide adequate ventilation.

Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Store in tightly closed container. Store away from incompatible materials (see Section 10 of the

7.2. Conditions for safe storage, including any incompatibilities

7.3. Specific end use(s) Observe industrial sector guidance on best practices.

## **SECTION 8: Exposure controls/personal protection**

## 8.1. Control parameters

#### Occupational exposure limits

#### Sweden. OELs (Annex 1). Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2018:1), as

amended

**Material Form Type** Value Lithium oxide (CAS Inhalable dust. Ceiling 0,02 mg/m3 12057-24-8)

**Biological limit values** 

No biological exposure limits noted for the ingredient(s).

**Recommended monitoring** 

procedures

Follow standard monitoring procedures.

**Derived no effect levels** 

(DNELs)

Not available.

**Predicted no effect** concentrations (PNECs) Not available.

## 8.2. Exposure controls

**Appropriate engineering** controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

# Individual protection measures, such as personal protective equipment

**General information** 

Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

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Eye/face protection Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection

- Hand protection Wear appropriate chemical resistant gloves.

- Other Wear suitable protective clothing. Personal protection equipment should be chosen according to the

CEN standards and in discussion with the supplier of the personal protective equipment.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

**Hygiene measures** Always observe good personal hygiene measures, such as washing after handling the material and

before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to

remove contaminants.

**Environmental exposure** 

controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Fume scrubbers, filters or

engineering modifications to the process equipment may be necessary to reduce emissions to

acceptable levels.

# **SECTION 9: Physical and chemical properties**

# 9.1. Information on basic physical and chemical properties

**Physical state** Solid. Form Solid.

Not available. Colour Odour Not available. Not available. Melting point/freezing point **Boiling point or initial boiling** Not available.

point and boiling range

Not available. **Flammability** 

Upper/lower flammability or explosive limits **Explosive limit - lower (** Not available.

%)

Explosive limit – upper

(%)

Not available.

Not available. Flash point Not available. **Auto-ignition temperature Decomposition temperature** Not available. Not available. pН Not available. Kinematic viscosity

**Solubility** 

Not available. Solubility (water) **Partition coefficient** Not available.

(n-octanol/water) (log value)

<0,0000001 kPa (25 °C (77 °F)) Vapour pressure

Density and/or relative

density

Not available.

Not available. Vapour density **Particle characteristics** Not available.

9.2. Other information

9.2.1. Information with regard to physical hazard No relevant additional information available.

classes

9.2.2. Other safety characteristics Molecular formula Li2O

# **SECTION 10: Stability and reactivity**

10.1. Reactivity Not available.

10.2. Chemical stability Material is stable under normal conditions.

10.3. Possibility of hazardous No dangerous reaction known under conditions of normal use.

reactions

10.4. Conditions to avoid Contact with incompatible materials.

Material name: Lithium oxide (Li2O)

10.5. Incompatible materials None known.

10.6. Hazardous

decomposition products

No hazardous decomposition products are known.

# **SECTION 11: Toxicological information**

**General information** Occupational exposure to the substance or mixture may cause adverse effects.

#### Information on likely routes of exposure

**Inhalation** Prolonged inhalation may be harmful.

Skin contact Due to lack of data the classification is not possible. **Eye contact** Due to lack of data the classification is not possible. Due to lack of data the classification is not possible. Ingestion

**Symptoms** Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and

blurred vision.

#### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

**Acute toxicity** Due to partial or complete lack of data the classification is not possible.

Skin corrosion/irritation Serious eye damage/eye

irritation

Due to lack of data the classification is not possible. Due to lack of data the classification is not possible.

Respiratory sensitisation Due to partial or complete lack of data the classification is not possible. Skin sensitisation Due to partial or complete lack of data the classification is not possible. Germ cell mutagenicity Due to partial or complete lack of data the classification is not possible. Carcinogenicity Due to partial or complete lack of data the classification is not possible. Reproductive toxicity Due to partial or complete lack of data the classification is not possible. Specific target organ toxicity Due to partial or complete lack of data the classification is not possible.

single exposure

Specific target organ toxicity

- repeated exposure

Due to partial or complete lack of data the classification is not possible.

**Aspiration hazard** Due to partial or complete lack of data the classification is not possible.

Mixture versus substance

information

No information available.

#### 11.2. Information on other hazards

**Endocrine disrupting** 

properties

This substance does not have endocrine disrupting properties with respect to human health, as if does not meet the assessment criteria laid out in Regulations (EC) No 1907/2006, (EU) No

2017/2100 and (EU) 2018/605.

Other information This product has no known adverse effect on human health.

# **SECTION 12: Ecological information**

Due to partial or complete lack of data the classification for hazardous to the aquatic environment, 12.1. Toxicity

is not possible.

12.2. Persistence and

degradability

No data is available on the degradability of this product.

12.3. Bioaccumulative

potential

No data available.

**Partition coefficient** n-octanol/water (log Kow) Not available.

**Bioconcentration factor (BCF)** Not available.

12.4. Mobility in soil 12.5. Results of PBT and

vPvB assessment

No data available.

12.6. Endocrine disrupting

properties

This substance does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII.

This substance does not have endocrine disrupting properties with respect to the environment, as it does not meet the assessment criteria laid out in Regulations (EC) No 1907/2006, (EU) No

2017/2100 and (EU) 2018/605.

12.7. Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

# **SECTION 13: Disposal considerations**

#### 13.1. Waste treatment methods

Material name: Lithium oxide (Li2O) SDS EU **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 (see: Disposal

instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

**EU** waste code Not available.

**Disposal** Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Discourage

methods/information sewage disposal. Waste should not be disposed of by release to sewers. Dispose of

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

**Special precautions** Dispose in accordance with all applicable regulations.

## **SECTION 14: Transport information**

#### **ADR**

**14.1. UN number** 

14.2. UN proper shipping Corrosive solid, basic, inorganic, n.o.s.

name

14.3. Transport hazard class(es)

Class 8 **Subsidiary risk** 8 Label(s)

Hazard No. (ADR) Not assigned. **Tunnel restriction** Not assigned.

code

14.4. Packing group ΙΙ 14.5. Environmental No.

hazards

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

for user

#### **RID**

**14.1. UN number LIN3262** 

14.2. UN proper shipping CORROSIVE SOLID, BASIC, INORGANIC, N.O.S.

name

#### 14.3. Transport hazard class(es)

Class 8 **Subsidiary risk** Label(s) 8 14.4. Packing group II 14.5. Environmental No.

hazards

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

for user

#### **ADN**

**14.1. UN number** 

14.2. UN proper shipping Corrosive solid, basic, inorganic, n.o.s.

name

## 14.3. Transport hazard class(es)

Class 8 **Subsidiary risk** 8 Label(s) ΙΙ 14.4. Packing group 14.5. Environmental No.

hazards

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

for user

#### **IATA**

**14.1. UN number** UN3262

14.2. UN proper shipping Corrosive solid, basic, inorganic, n.o.s.

#### 14.3. Transport hazard class(es)

**Class** R **Subsidiary risk** ΙΙ 14.4. Packing group 14.5. Environmental No.

hazards

**ERG Code** 8L

Material name: Lithium oxide (Li2O)

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

for user

Other information

Passenger and cargo Allowed with restrictions.

aircraft

Cargo aircraft only Allowed with restrictions.

**IMDG** 

**14.1. UN number** UN3262

14.2. UN proper shipping CORROSIVE SOLID, BASIC, INORGANIC, N.O.S.

name

14.3. Transport hazard class(es)

Class 8 Subsidiary risk 14.4. Packing group Η 14.5. Environmental hazards Marine pollutant No. **EmS** F-A, S-B

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

for user

ADN; ADR; IATA; IMDG; RID



# **SECTION 15: Regulatory information**

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

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Regulation (EU) 2019/1021 On persistent organic pollutants (recast), as amended

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA Not listed.

# **Authorisations**

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended Not listed.

# Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use, as amended - Conditions of restriction given for the associated entry number should be considered

Not listed.

Material name: Lithium oxide (Li2O)

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Regulation 2019/1148 on Marketing and Use of Explosive Precursors, Annex I, as amended

Regulation 2019/1148 on Marketing and Use of Explosive Precursors, Annex II, as amended

Not listed.

Other regulations This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006. The

> product is classified and labelled in accordance with EC directives or respective national laws. The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as

amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No

1907/2006, as amended.

**National regulations** Follow national regulation for work with chemical agents.

> Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work, as amended Use of this product by young persons under the age of 18 is not allowed in accordance with the Management of Health and Safety at Work Regulations 1999 [SI 1999/3242], as amended. Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as amended.

France regulations

**France INRS Table of Occupational Diseases** 

Not regulated.

15.2. Chemical safety

assessment

No Chemical Safety Assessment has been carried out.

## **SECTION 16: Other information**

List of abbreviations

ADN: European Agreement Concerning the International Carriage of Dangerous Goods by Inland

Waterways.

ADR: Agreement concerning the International Carriage of Dangerous Goods by Road.

AGW: Occupational threshold limit value (Arbeitsplatzgrenzwert – Germany).

CAS: Chemical Abstract Service.

CEN: European Committee for Standardization. IATA: International Air Transport Association.

IBC Code: International Code for the Construction and Equipment of Ships Carrying Dangerous

Chemicals in Bulk.

IMDG: International Maritime Dangerous Goods.

MAC: Maximum Allowed Concentration.

MARPOL: International Convention for the Prevention of Pollution from Ships.

PBT: Persistent, bioaccumulative and toxic.

RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.

STEL: Short term exposure limit. TLV: Threshold Limit Value. TWA: Time Weighted Average. VLE: Exposure Limit Value. VME: Exposure Average Value.

vPvB: Very persistent and very bioaccumulative.

References Information on evaluation

method leading to the classification of mixture

Not available. Not applicable.

Full text of any statements, which are not written out in

H314 Causes severe skin burns and eye damage.

full under sections 2 to 15 Revision information

This document has undergone significant changes and should be reviewed in its entirety.

**Training information** Follow training instructions when handling this material. **Further information** Transportation Emergency

> Call Chemtrec at: US: 800.424.9300

International: 703.741.5970 Spain: 900.868.538 Switzerland: 0800.564.402

Chemtrec's toll free, mobile-enabled number in Germany – 0800 1817059

South Korea Toll-free Number – 080-880-0468

Material name: Lithium oxide (Li2O)

SDS FU 8/9

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