

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

#### 1.1. Product identifier

Product form	: Article
Product name	: Lithium Manganese Oxide
Product code	: CR1/3N, CR2, CR123A , CR405050-P2 & CR34615 3.0V 12000mAh
Synonyms	: Primary Lithium Manganese Dioxide cylindrical cells

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

##### 1.2.1. Relevant identified uses

Use of the substance/mixture	: Small electronics control panels Wireless Security Non-Rechargeable Lithium batteries for small electronics and wireless security in commercial buildings.
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##### 1.2.2. Uses advised against

Restrictions on use	: Anything other than the above
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#### 1.3. Details of the supplier of product safety information sheet

Only representative:  
Europark Fichtenhain B 17  
47807 Krefeld  
Germany  
Telephone: +49 (0) 2151 82095 00  
E-mail: info@gs-yuasa.de

Supplier:  
GS Yuasa Battery Europe Limited  
Unit 22 Rassau Industrial Estate  
Ebbw Vale, Gwent  
Telephone: +44 (0) 1495 350121  
E-mail: tech.info@gs-yuasa.uk

#### 1.4. Emergency telephone number

Emergency number	: United Kingdom GS Yuasa Battery Sales UK Ltd. Telephone: (+44) 01793-833-560 E-mail: matthew.elwick@gs-yuasa.uk Language: English language only Monday - Friday 9:00am – 5:00pm (09:00 - 17:00)
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### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not classified

##### Adverse physicochemical, human health and environmental effects

No additional information available

#### 2.2. Label elements

##### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

No labelling applicable

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### 2.3. Other hazards

Other hazards which do not result in classification : This product meets the definition of an "article" as defined in Regulation (EC) No. 1907/2006 (REACH), and is therefore out of scope of CLP.

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

Contains no PBT/vPvB substances  $\geq 0.1\%$  assessed in accordance with REACH Annex XIII

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
manganese dioxide	CAS-No.: 1313-13-9 EC No.: 215-202-6 EC index No.: 025-001-00-3	36 – 85	Acute Tox. 4 (Oral), H302 (ATE=500 mg/kg bodyweight) Acute Tox. 4 (Inhalation), H332 (ATE=1.5 mg/l/4h) STOT RE 1, H372
Propylene carbonate	CAS-No.: 108-32-7 EC No.: 203-572-1 EC index No.: 607-194-00-1	5 - 10	Eye Irrit. 2, H319
1,2-dimethoxyethane substance listed as REACH Candidate (1, 2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME))	CAS-No.: 110-71-4 EC No.: 203-794-9 EC index No.: 603-031-00-3	1 - 5	Flam. Liq. 2, H225 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Repr. 1B, H360FD EUH019
lithium	CAS-No.: 7439-93-2 EC No.: 231-102-5 EC index No.: 003-001-00-4	1 - 5	Water-react. 1, H260 Skin Corr. 1B, H314 EUH014
Lithium perchlorate	CAS-No.: 7791-03-9 EC No.: 232-237-2	1 - 3	Ox. Sol. 1, H271 Acute Tox. 4 (Oral), H302 (ATE=500 mg/kg bodyweight) Skin Corr. 1, H314 Eye Dam. 1, H318
Copper substance with a Community workplace exposure limit	CAS-No.: 7440-50-8 EC No.: 231-159-6	1 - 3	Aquatic Acute 1, H400 Aquatic Chronic 3, H412
Nickel (Ni) substance with a Community workplace exposure limit	CAS-No.: 7440-02-0 EC No.: 231-111-4 EC index No.: 028-002-01-4	1 - 3	Carc. 2, H351 STOT RE 1, H372 Skin Sens. 1, H317 Aquatic Chronic 3, H412

Full text of H- and EUH-statements: see section 16

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

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).

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First-aid measures after inhalation	: If a battery ruptures, move to fresh air in case of accidental inhalation of mist. Remove person to fresh air and keep comfortable for breathing. If symptoms develop, obtain medical attention.
First-aid measures after skin contact	: If battery ruptures: Remove contaminated clothing immediately. Immediately call a POISON CENTRE or doctor/physician. Wash immediately with lots of water (15 minutes)/shower.
First-aid measures after eye contact	: If battery ruptures: Rinse immediately with plenty of water (for at least 15 minutes). Ensure that folded skin of eyelids is thoroughly washed with water. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.
First-aid measures after ingestion	: If battery ruptures: Rinse mouth. Do NOT induce vomiting. Give 100 - 200 ml of water to drink. Immediately call a POISON CENTRE or doctor/physician.

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

Symptoms/effects after inhalation	: Harmful if inhaled. If a battery ruptures, may be harmful or fatal if inhaled in a confined area.
Symptoms/effects after skin contact	: Causes severe burns. Direct contact with internal components of a battery can be severely irritating to the skin and may result in redness, swelling, burns and severe skin damage.
Symptoms/effects after eye contact	: Causes serious eye damage. If a battery ruptures, direct contact with the liquid or exposure to vapours or mists may cause tearing, redness, swelling, corneal damage and irreversible eye damage.
Symptoms/effects after ingestion	: Harmful if swallowed.

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

Treat symptomatically. Contact ophthalmologist immediately.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media	: Use extinguishing media appropriate for surrounding fire. If a battery ruptures, use dry chemical, soda ash, lime, sand or carbon dioxide.
Unsuitable extinguishing media	: None known.

### 5.2. Special hazards arising from the substance or mixture

Fire hazard	: Battery may rupture due to pressure buildup when exposed to excessive heat and may be result in the release of corrosive materials.
Hazardous decomposition products in case of fire	: Metal oxides. Carbon monoxide. Carbon dioxide. Lithium Oxide.

### 5.3. Advice for firefighters

Firefighting instructions	: Exercise caution when fighting any chemical fire. Use water spray or fog for cooling exposed containers. Avoid fire-fighting water entering the environment.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection.

## SECTION 6: Accidental release measures

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

#### 6.1.1. For non-emergency personnel

Protective equipment	: Use personal protective equipment as required.
Emergency procedures	: Ventilate area. Evacuate unnecessary personnel. Do not get in eyes, on skin, or on clothing.

#### 6.1.2. For emergency responders

Protective equipment	: Wear suitable protective clothing and eye or face protection. Where excessive dust may result, wear approved mask. Do not get in eyes, on skin, or on clothing. Do not breathe dust.
Emergency procedures	: Ventilate area. Do not get in eyes, on skin, or on clothing.

### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if large amounts of the product enters sewers or public waters. Do not allow contact with water.

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### 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.
- Methods for cleaning up : Small spills: collect all released material in a plastic lined metal container. Take up liquid spill into absorbent material or Neutralize with sodium bicarbonate. Large spills: Take up liquid spill into absorbent material, e.g.: sand/earth. Dispose in a safe manner in accordance with local/national regulations.

### 6.4. Reference to other sections

SECTION 8: Exposure controls/personal protection. SECTION 13: Disposal considerations.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

- Precautions for safe handling : Do not get in eyes, on skin, or on clothing. Prolonged short circuits will cause high cell temperatures which can cause skin burns. Accidental short circuit for a few seconds will not seriously affect the battery. However, this battery is capable of delivering very high short circuit currents.
- Hygiene measures : Do not eat, drink or smoke when using this product. Handle in accordance with good industrial hygiene and safety practice. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse.

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

- Technical measures : Take precautionary measures against static discharge. Provide local exhaust or general room ventilation.
- Storage conditions : Store in a dry, cool and well-ventilated place. Store away from direct sunlight or other heat sources.
- Incompatible materials : Strong oxidising agents.

### 7.3. Specific end use(s)

Small electronics. control panels. Wireless Security. Non-Rechargeable Lithium batteries for small electronics and wireless security in commercial buildings.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### 8.1.1 National occupational exposure and biological limit values

Graphite (7782-42-5)	
Ireland - Occupational Exposure Limits	
Local name	Graphite (all forms except fibres)
OEL (8 hours ref) (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup> R (Respirable Fraction)
Regulatory reference	Chemical Agents Code of Practice 2021
Aluminium powder (stabilised) (7429-90-5)	
Ireland - Occupational Exposure Limits	
Local name	Aluminium metal
OEL (8 hours ref) (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> R (Respirable)
Regulatory reference	Chemical Agents Code of Practice 2021

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<b>Aluminium powder (stabilised) (7429-90-5)</b>	
<b>United Kingdom - Occupational Exposure Limits</b>	
Local name	Aluminium
WEL TWA (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup> alkyl compounds 2 mg/m <sup>3</sup> salts, soluble 10 mg/m <sup>3</sup> metal, inhalable dust 4 mg/m <sup>3</sup> metal, respirable dust
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
<b>Nickel (Ni) (7440-02-0)</b>	
<b>EU - Indicative Occupational Exposure Limit (IOEL)</b>	
Local name	Nickel metal
IOELV TWA (mg/m <sup>3</sup> )	0.005 mg/m <sup>3</sup> (respirable fraction) 0.01 mg/m <sup>3</sup> (inhalable fraction)
Notes	(Year of adoption 2011) (Year of adoption 2011)
Regulatory reference	SCOEL Recommendations SCOEL Recommendations
<b>EU - Biological Limit Value (BLV)</b>	
Local name	Nickel and nickel compounds
Regulatory reference	SCOEL List of recommended health-based BLVs and BGVs
<b>Ireland - Occupational Exposure Limits</b>	
Local name	Nickel
OEL (8 hours ref) (mg/m <sup>3</sup> )	0.5 mg/m <sup>3</sup>
Remark	Sens. (In the workplace respiratory or dermal exposures to sensitising agents may occur. Sensitizers may evoke respiratory or dermal reactions, e.g. asthma, rhinitis and allergic contact dermatitis. The notation does not distinguish between respiratory or dermal sensitisation. Chemical agents that are sensitizers present special problems in the workplace. Should an employee become sensitised, subsequent exposure may cause intense responses, even at low exposure concentrations well below the OELV. Exposure should be eliminated or significantly reduced through control measures such as engineering and process controls and use of personal protective equipment (PPE))
Regulatory reference	Chemical Agents Code of Practice 2021
<b>Ireland - Biological limit values</b>	
Local name	Nickel
Ireland - BMGV	3 µg/l Parameter: Ni - Medium: urine - Sampling time: After several consecutive working shifts
Regulatory reference	Biological Monitoring Guidelines (HSA, 2011)
<b>United Kingdom - Occupational Exposure Limits</b>	
Local name	Nickel
WEL TWA (mg/m <sup>3</sup> )	0.1 mg/m <sup>3</sup> and its inorganic compounds (except nickel tetracarbonyl): water-soluble nickel compounds (as Ni) 0.5 mg/m <sup>3</sup> and its inorganic compounds (except nickel tetracarbonyl): nickel and water insoluble nickel compounds (as Ni)
Remark (WEL)	Sk (Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity), Carc (Capable of causing cancer and/or heritable genetic damage (nickel oxides and sulphides)), Sen (Capable of causing occupational asthma (nickel sulphate))

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<b>Nickel (Ni) (7440-02-0)</b>	
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
<b>Carbon black (1333-86-4)</b>	
<b>Ireland - Occupational Exposure Limits</b>	
Local name	Carbon black
OEL (8 hours ref) (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> I (Inhalable Fraction)
Regulatory reference	Chemical Agents Code of Practice 2021
<b>United Kingdom - Occupational Exposure Limits</b>	
Local name	Carbon black
WEL TWA (mg/m <sup>3</sup> )	3.5 mg/m <sup>3</sup>
WEL STEL (mg/m <sup>3</sup> )	7 mg/m <sup>3</sup>
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
<b>Copper (7440-50-8)</b>	
<b>EU - Indicative Occupational Exposure Limit (IOEL)</b>	
Local name	Copper
IOELV TWA (mg/m <sup>3</sup> )	0.01 mg/m <sup>3</sup> (respirable fraction)
Notes	(Year of adoption 2014)
Regulatory reference	SCOEL Recommendations
<b>Ireland - Occupational Exposure Limits</b>	
Local name	Copper (as Cu)
OEL (8 hours ref) (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup> Fume 1 mg/m <sup>3</sup> Dusts and mists
Regulatory reference	Chemical Agents Code of Practice 2021
<b>United Kingdom - Occupational Exposure Limits</b>	
Local name	Copper
WEL TWA (mg/m <sup>3</sup> )	0.2 mg/m <sup>3</sup> fume (as Cu) 1 mg/m <sup>3</sup> and compounds, dusts and mists (as Cu)
WEL STEL (mg/m <sup>3</sup> )	2 mg/m <sup>3</sup> and compounds, dusts and mists (as Cu)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

### 8.1.2. Recommended monitoring procedures

No additional information available

### 8.1.3. Air contaminants formed

No additional information available

### 8.1.4. DNEL and PNEC

No additional information available

### 8.1.5. Control banding

No additional information available

## 8.2. Exposure controls

### 8.2.1. Appropriate engineering controls

#### Appropriate engineering controls:

Emergency safety showers should be available in the immediate vicinity of any potential exposure. Provide adequate ventilation to minimise dust concentrations.

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### 8.2.2. Personal protection equipment

#### Personal protective equipment:

Avoid all unnecessary exposure.

#### 8.2.2.1. Eye and face protection

##### Eye protection:

Wear goggles or safety glasses with side shields if contact with the eyes is possible

#### 8.2.2.2. Skin protection

##### Skin and body protection:

Impervious clothing. EN 13034. Large quantities: EN 14605. Corrosionproof suit

##### Hand protection:

Not required for normal conditions of use. Use neoprene or natural rubber gloves if handling an open or leaking battery.

#### 8.2.2.3. Respiratory protection

##### Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment. Wear a respirator conforming to EN140 with Type A/P2 filter or better

#### 8.2.2.4. Thermal hazards

##### Thermal hazard protection:

Not required for normal conditions of use.

### 8.2.3. Environmental exposure controls

#### Environmental exposure controls:

Avoid release to the environment. Do not allow to enter drains or water courses.

#### Other information:

Do not eat, drink or smoke during use. Handle in accordance with good industrial hygiene and safety procedures. Contaminated work clothing should not be allowed out of the workplace. Keep away from food, drink and animal feeding stuffs.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Cylindrical.
Colour	: No data available
Odour	: Odourless.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: Not applicable
Relative vapour density at 20°C	: No data available
Relative density	: No data available
Solubility	: Not applicable.
Log Pow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

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### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Stable under recommended handling and storage conditions (see section 7).

### 10.2. Chemical stability

Stable under recommended handling and storage conditions (see section 7).

### 10.3. Possibility of hazardous reactions

Hazardous polymerisation will not occur.

### 10.4. Conditions to avoid

Overcharging. Remove all sources of ignition. If battery ruptures, avoid contact with organic materials and alkaline materials. mechanical impacts.

### 10.5. Incompatible materials

Strong oxidising agents.

### 10.6. Hazardous decomposition products

Metal oxides. Carbon monoxide. Carbon dioxide. Lithium Oxide.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

Acute toxicity (oral) : Not classified

Acute toxicity (dermal) : Not classified

Acute toxicity (inhalation) : Not classified

<b>Propylene carbonate (108-32-7)</b>	
LD50 oral, rat	5000 mg/kg bodyweight
LD50 dermal, rat	2000 mg/kg bodyweight
<b>1,2-dimethoxyethane (110-71-4)</b>	
LD50 oral, rat	5370 mg/kg bodyweight (OECD 401 method)
LD50 dermal, rat	> 5000 mg/kg (OECD 402 method)
LC50 inhalation, rat (mg/l)	> 20 – < 63 mg/l 6 Hours (OECD 403 method)
<b>Lithium perchlorate (7791-03-9)</b>	
LD50 oral, rat	> 300 – < 2000 mg/kg
<b>Nickel (Ni) (7440-02-0)</b>	
LD50 oral, rat	> 9000 mg/kg bodyweight
<b>Copper (7440-50-8)</b>	
LC50 inhalation, rat (mg/l)	> 5.11 mg/l - 4 Hours (OECD 436 method)

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Not classified

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified



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<b>Nickel (Ni) (7440-02-0)</b>	
IARC group	2B - Possibly carcinogenic to humans
Reproductive toxicity	: Not classified
<b>1,2-dimethoxyethane (110-71-4)</b>	
NOEC, Parental, Inhalation, rabbit	0.019 mg/l ((OECD 414 method))
NOAEL, Fetus, Inhalation, rabbit	0.06 mg/l ((OECD 414 method))
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
<b>manganese dioxide (1313-13-9)</b>	
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.
<b>1,2-dimethoxyethane (110-71-4)</b>	
NOAEC, Inhalation, rat	0.187 mg/l (28 days, (OECD 412 method))
<b>Nickel (Ni) (7440-02-0)</b>	
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard	: Not classified
<b>1,2-dimethoxyethane (110-71-4)</b>	
Viscosity, kinematic	0.483 mm <sup>2</sup> /s (20°C)

## SECTION 12: Ecological information

### 12.1. Toxicity

Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

<b>manganese dioxide (1313-13-9)</b>	
LC50 fish	> 100 - 96 Hours (Salmo gairdneri)
NOEC chronic fish	0.55 mg/l - 65 days (Salvelinus fontinalis)
<b>Propylene carbonate (108-32-7)</b>	
LC50 fish	> 1000 mg/l - 96 Hours (Cyprinus carpio)
EC50 Daphnia	> 1000 - 96 Hours (Daphnia magna)
<b>1,2-dimethoxyethane (110-71-4)</b>	
LC50 fish	> 5000 mg/l - 48 Hours (Danio rerio)
EC50 Daphnia	4000 mg/l - 48 Hours (Daphnia magna)(OECD 202 method)
ErC50 algae	9120 mg/l - 72 Hours (Pseudokirchneriella subcapitata)(OECD 201 method)
NOEC chronic algae	1250 mg/l - 72 Hours (Pseudokirchneriella subcapitata)(OECD 201 method)
<b>lithium (7439-93-2)</b>	
LC50 fish	109 mg/l - 96 Hours (Danio rerio)
EC50 Daphnia	19.1 mg/l - 48 Hours (Daphnia magna)
<b>Lithium perchlorate (7791-03-9)</b>	
EC50 Daphnia	> 100 mg/l

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Lithium perchlorate (7791-03-9)	
EC50 72h - Algae [1]	> 120 mg/l - 72 Hours (Pseudokirchneriella subcapitatai)
Nickel (Ni) (7440-02-0)	
LC50 fish	15.3 mg/l - 96 Hours (Oncorhynchus mykiss)
12.2. Persistence and degradability	
Propylene carbonate (108-32-7)	
Persistence and degradability	Readily biodegradable.
Biodegradation	83.5 % (29 days)
1,2-dimethoxyethane (110-71-4)	
Persistence and degradability	Not readily biodegradable.
Biodegradation	16 % - 48 days
lithium (7439-93-2)	
Persistence and degradability	Not relevant for inorganic substances.
Lithium perchlorate (7791-03-9)	
Persistence and degradability	Not relevant for inorganic substances.
Nickel (Ni) (7440-02-0)	
Persistence and degradability	Not relevant for inorganic substances.
Copper (7440-50-8)	
Persistence and degradability	Not relevant for inorganic substances.
12.3. Bioaccumulative potential	
Propylene carbonate (108-32-7)	
Log Kow	≤ 3
1,2-dimethoxyethane (110-71-4)	
Log Pow	-0.21 (25 °C)
Nickel (Ni) (7440-02-0)	
BCF - Fish [1]	45
12.4. Mobility in soil	
Propylene carbonate (108-32-7)	
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	0.81
Copper (7440-50-8)	
Ecology - soil	Insoluble in water.
12.5. Results of PBT and vPvB assessment	
Lithium Manganese Oxide	
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII	
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII	

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### Component

1,2-dimethoxyethane (110-71-4)

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII  
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

### 12.6. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.  
Ecology - waste materials : Avoid release to the environment. Dispose in a safe manner in accordance with local/national regulations.  
European List of Waste (LoW) code : 16 06 05 - other batteries and accumulators

## SECTION 14: Transport information

In accordance with ADR / IMDG / IATA

### 14.1 UN number

UN-No. (ADR) : UN 3090  
UN-No. (IMDG) : UN 3090  
UN-No. (IATA) : UN 3090

### 14.2. UN proper shipping name

Proper Shipping Name : LITHIUM METAL BATTERIES  
Proper Shipping Name (IMDG) : LITHIUM METAL BATTERIES  
Proper Shipping Name (IATA) : Lithium metal batteries  
Transport document description (ADR) : UN 3090 LITHIUM METAL BATTERIES, 9A, (E)  
Transport document description (IMDG) : UN 3090 LITHIUM METAL BATTERIES, 9  
Transport document description (IATA) : UN 3090 Lithium metal batteries, 9A

### 14.3. Transport hazard class(es)

#### ADR

Transport hazard class(es) (ADR) : 9A  
Hazard labels : 9A



#### IMDG

Transport hazard class(es) (IMDG) : 9  
Danger labels (IMDG) : 9



#### IATA

Transport hazard class(es) (IATA) : 9A  
Danger labels (IATA) : 9A

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### 14.4. Packing group

Packing group	: Not applicable
Packing group (IMDG)	: Not applicable
Packing group (IATA)	: Not applicable

### 14.5. Environmental hazards

Dangerous for the environment	: No
Marine pollutant	: No
Other information	: No supplementary information available

### 14.6. Special precautions for user

#### Overland transport

Tunnel restriction code (ADR)	: E
EAC code	: 4Y

#### Transport by sea

No data available

#### Air transport

No data available

### 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

## SECTION 15: Regulatory information

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

#### 15.1.1. EU-Regulations

##### REACH Annex XVII (Restriction List)

Not applicable.

##### REACH Annex XIV (Authorisation List)

Not applicable.

##### REACH Candidate List (SVHC)

Contains substance(s) listed on the REACH Candidate List in concentrations above or equal to 0.1 %: 1, 2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME) (EC 203-794-9, CAS 110-71-4)

##### PIC Regulation (Prior Informed Consent)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

##### POP Regulation (Persistent Organic Pollutants)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

##### Ozone Regulation (1005/2009)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 1005/2009 on substances that deplete the ozone layer)

##### Explosives Precursors Regulation (2019/1148)

Contains substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)  
Please see [https://ec.europa.eu/home-affairs/system/files/2021-11/list\\_of\\_competent\\_authorities\\_and\\_national\\_contact\\_points\\_en.pdf](https://ec.europa.eu/home-affairs/system/files/2021-11/list_of_competent_authorities_and_national_contact_points_en.pdf)

##### Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

# Lithium Manganese Oxide

## Product Safety Information Sheet

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### 15.1.2. National regulations

No additional information available

### 15.2. Chemical safety assessment

No additional information available

## SECTION 16: Other information

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Indication of changes			
Section	Changed item	Change	Comments
13	Disposal considerations	Modified	

Abbreviations and acronyms:	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
CAS-No.	Chemical Abstract Service number
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC No.	European Community number
EC50	Median effective concentration
ED	Endocrine disrupting properties
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
IOELV	Indicative Occupational Exposure Limit Value
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006

# Lithium Manganese Oxide

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### Abbreviations and acronyms:

RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
WGK	Water Hazard Class
vPvB	Very Persistent and Very Bioaccumulative

### Data sources

: REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006. Where 'Regulation (EC) No. 1272/2008' appears in the safety data sheet, this is a reference to Regulation (EC) No. 1272/2008, as retained and amended in UK law.

### Full text of H- and EUH-statements:

Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Aquatic Chronic 3	Hazardous to the aquatic environment – Chronic Hazard, Category 3
Carc. 2	Carcinogenicity, Category 2
EUH014	Reacts violently with water.
EUH019	May form explosive peroxides.
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 2	Flammable liquids, Category 2
H225	Highly flammable liquid and vapour.
H260	In contact with water releases flammable gases which may ignite spontaneously.
H271	May cause fire or explosion; strong oxidiser.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H360FD	May damage fertility. May damage the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.
Ox. Sol. 1	Oxidising Solids, Category 1
Repr. 1B	Reproductive toxicity, Category 1B
Skin Corr. 1	Skin corrosion/irritation, Category 1

# Lithium Manganese Oxide

## Product Safety Information Sheet

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Full text of H- and EUH-statements:	
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
STOT RE 1	Specific target organ toxicity – Repeated exposure, Category 1
Water-react. 1	Substances and Mixtures which, in contact with water, emit flammable gases, Category 1

### Safety Data Sheet (SDS), EU

- BATTERY WARNING: KEEP OUT OF REACH OF CHILDREN
- Store spare batteries securely
- Dispose of used batteries immediately and safely; and
- If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention
  
- All batteries are supplied with only a residual charge and should be charged at the continuous charge rate before use - they are not pre-charged for use
- Do not mix different types of battery
- Always install the batteries correctly as per instruction
- Ensure that the contact points are clean and conductive

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.