

**SAFETY DATA SHEET**

According to EC 1907/2006 (REACH)

Date last verification : 2015-01-30  
Revision date : 2012-07-21  
Publication date : 2005-06-17

Version number : 2.1

**1. Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

SDS : 22606  
Product code 12nc : 9898 031 21381  
Supplier : MICRO POWER ELECTRONICS, INC.

13955 SW Millikan Way  
OR 97005 Beaverton  
Oregon  
United States of America  
TEL:+1 503-693-7600  
FAX:+1 503-648-9625

Tradename : HS1/FRX LIMNO2 BATTERY (M5070A) (453564141462) : LITHIUM METAL BATTERIES [5.04 G LITHIUM]

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

General description : BATTERY  
Use : Various  
Uses advised against : Data not available.

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

Supplier safety data sheet : Philips Electronics Nederland B.V., P.O. Box 218, 5600 MD Eindhoven, Tel. +31 (0)40 2747588  
Responsible department : dangerous.goods@philips.com

**1.4. Emergency telephone number**

Emergency telephone number : +31 (0)497-598315

**2. Hazards identification****2.1. Classification of the substance or mixture****GHS: (EC) No 1272/2008**

Not classified according to GHS classification.

**EC: (EC) No 67/548 or 1999/45**

Not classified according to EC classification.

**2.2. Label elements****GHS: (EC) No 1272/2008**

GHS-Label : not applicable

Remarks on GHS-labelling : none

**EC: (EC) No 67/548 or 1999/45**

EC-Label : not applicable

Remarks on EC-labelling : none

**2.3. Other hazards**

Data not available.

### 3. Composition/information on ingredients

Component	CAS-no.	Index No.	Percentage(%)	GHS-Label
	EC-no.	Registration no.		EC-Label
LITHIUM	7439-93-2	003-001-00-4		GHS02
	231-102-5	01-2119966143-38		GHS05 H260 Water-react. 1 H314 Skin corr. 1B EUH014 F,C;R: 14/15 34
MANGANESE DIOXIDE	1313-13-9	025-001-00-3		GHS07
	215-202-6	01-2119452801-43		GHS08 H302 Acute tox. 4 H332 Acute tox. 4 H361fd Repr. 2 Xn;R: 62 63 20/22 Repr.Cat. 3
LITHIUM TRIFLUOROMETHANESULPHONATE	33454-82-9			GHS07
	251-528-5			H315 Skin irrit. 2 H319 Eye irrit. 2 H335 STOT SE 3 Xi;R: 36/37/38
PROPYLENE CARBONATE	108-32-7	607-194-00-1		GHS07
	203-572-1	01-2119537232-48		H319 Eye irrit. 2 Xi;R: 36
DIMETHOXYETHANE, 1,2-	110-71-4	603-031-00-3		GHS02
	203-794-9	01-2119485981-24		GHS07 GHS08 H225 Flam. liq. 2 H332 Acute tox. 4 H360FD Repr. 1B EUH019 F,T;R: 60 61 11 19 20 Repr.Cat. 2

For the full text of the H-sentences, hazard statements and R-sentences mentioned in this section, see section 16.

### 4. First aid measures

#### 4.1. Description of first aid measures

**Skin** : Not applicable.  
**Ingestion** : Not applicable.  
**Inhalation** : Not applicable.  
**Eyes** : Not applicable.

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

Skin local : Not applicable.  
general : Not applicable.  
Ingestion local : Not applicable.  
general : Not applicable.  
Inhalation local : Not applicable.  
general : Not applicable.  
Eyes local : Not applicable.  
Remarks symptoms : None

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

None

## 5. Firefighting measures

### 5.1. Extinguishing media

**Suitable fire-extinguisher**

determined by surrounding

**Unsuitable fire-extinguisher**

not traceable

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

**Hazardous decomposition products in fire** : lithium oxide, manganese oxides, carbon monoxide, hydrogen fluoride, sulphur oxides

### 5.3. Advice for firefighters

In the event of fire, wear protective clothing and use breathing apparatus that is independent of the ambient air.

## 6. Accidental release measures

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

**Precautions**

Use protective equipment. See section 8.

**Emergency procedure**

Is not to be expected.

### 6.2. Environmental precautions

Remainder material has to be incinerated in\_a proper installation or dumped on an approved landfill, in accordance with local and national legislation.

### 6.3. Methods and material for containment and cleaning up

**Spillage procedure**

not applicable

### 6.4. Reference to other sections

See section 8 for appropriate personal protection.

See section 13 for additional information on waste treatment.

## 7. Handling and storage

### 7.1. Precautions for safe handling

Observe label precautions.

Do not eat, drink or smoke in work areas. Remove contaminated clothing and protective equipment. Wash hands after leaving the work area.

**Local exhausting** : Under normal circumstances not applicable.

**Storage code (on behalf of PGS** : M4  
15)

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

**Storage conditions** : See also any precautionary statements and S-phrases in section 2.2.  
Store product protected from proximity to other sources of heat, dry.

### 7.3. Specific end use(s)

Data not available.

## 8. Exposure controls/personal protection

### 8.1. Control parameters

**Exposure limits** :

**applicable to: The Netherlands (20 °C; 1013 mbar)**

No TWA has been laid down.	LITHIUM
TWA(8 hours): 1 mg/m3	MANGANESE DIOXIDE(as manganese)
TWA(15 minutes): 3 mg/m3	MANGANESE DIOXIDE(as manganese)
No TWA has been laid down.	LITHIUM TRIFLUOROMETHANESULPHONATE
No TWA has been laid down.	PROPYLENE CARBONATE
No TWA has been laid down.	DIMETHOXYETHANE, 1,2-

**applicable to: Belgium (20 °C; 1013 mbar)**

TWA(8 hours): 0.2 mg/m3	MANGANESE DIOXIDE(as manganese)
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**applicable to: Germany (20 °C; 1013 mbar)**

TWA(8 hours): 0.5 mg/m3	MANGANESE DIOXIDE(as manganese, inhalable dust)
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**applicable to: United States of America (25 °C; 1013 mbar)**

TWA(8 hours): 0.02 mg/m3	MANGANESE DIOXIDE(as manganese, respirable dust) - [according to ACGIH]
TWA(8 hours): 0.1 mg/m3	MANGANESE DIOXIDE(as manganese, inhalable dust) - [according to ACGIH]
TWA(8 hours): 5 mg/m3 C	MANGANESE DIOXIDE(as manganese) - [according to OSHA]

**applicable to: Sweden (20 °C; 1013 mbar)**

TWA(8 hours): 0.02 mg/m3 C	LITHIUM(as inhalable dust)
TWA(8 hours): 0.2 mg/m3	MANGANESE DIOXIDE(as manganese, dust)
TWA(8 hours): 0.1 mg/m3	MANGANESE DIOXIDE(as manganese, respirable dust)
TWA(8 hours): 0.02 mg/m3 C	LITHIUM TRIFLUOROMETHANESULPHONATE(as lithium, inhalable dust)

**applicable to: Switzerland (20 °C; 1013 mbar)**

TWA(8 hours): 0.5 mg/m3	MANGANESE DIOXIDE(as manganese, inhalable dust)
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**applicable to: China (20 °C; 1013 mbar)**

TWA(8 hours): 0.15 mg/m3	MANGANESE DIOXIDE
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C=Ceiling; S=Skin

**Remarks exposure limits :**

none

**DNEL (Derived No Effect Level)**

Data not available.

**PNEC (Predicted No Effect Concentration)**

Data not available.

**8.2. Exposure controls****Advised personal protection :**

Hands	:	not applicable
Breakthrough time	:	not applicable
Eyes	:	not applicable
Inhalation	:	not applicable
Skin	:	none (when used normally)

**9. Physical and chemical properties****9.1. Information on basic physical and chemical properties**

<b>Physical state</b>	:	battery	
<b>Colour</b>	:	type dependent	
<b>Odour</b>	:	odourless	
<b>Odour threshold (20°C; 1013 mbar)</b>	:	not traceable	
<b>pH</b>	:	not applicable	
<b>Melting point/range</b>	:	not traceable	
<b>Boiling point/range</b>	:	not traceable	
<b>Flash point/range</b>	:	not applicable	
<b>Vapor rate/range</b>	:	not applicable	
<b>Flammability (solid, gas)</b>	:	data not available	
<b>Explosive limits</b>	:	not applicable	
<b>Vapour pressure</b>	:	not applicable	
<b>Density</b>	:	not traceable	
<b>Solubility in water</b>	:	not applicable	
<b>Log Po/w</b>	:	<0	MANGANESE DIOXIDE
		-0.49	LITHIUM TRIFLUOROMETHANESULPHONATE
		-0.48	PROPYLENE CARBONATE
			<b>Source</b> : IUCLID
			<b>Source</b> : Easi View
			<b>Source</b> : IUCLID

-0.21  
**Autoignition temperature** : not applicable  
**Decomposition temperature** : not traceable  
**Viscosity** : not applicable  
**Dust explosions possible in air** : not applicable  
**Oxidising properties** : no

DIMETHOXYETHANE, 1,2-

**Source** : ChemDat (Merck)

## 9.2. Other information

**Solubility in fat** : not applicable  
**Electrostatic chargement** : not traceable

## 10. Stability and reactivity

### 10.1. Reactivity

See section 10.2 - 10.6.

### 10.2. Chemical stability

The substance or mixture is stable under normal conditions. See also section 10.4.

### 10.3. Possibility of hazardous reactions

**Reactions with water** : no  
**Other hazardous conditions** : Data not available.

### 10.4. Conditions to avoid

Data not available.

### 10.5. Incompatible materials

**Hazardous reactions with** : none

### 10.6. Hazardous decomposition products

**Hazardous decomposition products at heating** : none

## 11. Toxicological information

### 11.1. Information on toxicological effects

#### Acute oral toxicity

LD-50: >3.478 g/kg (ORL-RAT)  
LD-50: 29 g/kg (ORL-RAT)  
LD-50: 5.37 mg/kg (ORL-RAT)  
LD-50: 3.2 g/kg (ORL-MUS)

MANGANESE DIOXIDE  
PROPYLENE CARBONATE  
DIMETHOXYETHANE, 1,2-  
DIMETHOXYETHANE, 1,2-

**Source** : ChemDat (Merck)  
**Source** : IUCLID  
**Source** : ChemDat (Merck)  
**Source** : Sigma-Aldrich

#### Acute dermal toxicity

LD-50: >5 g/kg (SKN-RAT)

DIMETHOXYETHANE, 1,2-

**Source** : ChemDat (Merck)

#### Acute inhalation toxicity

There are no data available.

#### Ames test

negative  
negative

PROPYLENE CARBONATE  
DIMETHOXYETHANE, 1,2-

**Source** : IUCLID  
**Source** : ChemDat (Merck)

#### Skin corrosion/irritation

The substance or mixture is not classified for skin corrosion/-irritation.

#### Serious eye damage/irritation

The substance or mixture is not classified for serious eye damage/irritation.

#### Respiratory or skin sensitisation

The substance or mixture is not classified for respiratory or skin sensitisation.

#### Germ cell mutagenicity

The substance or mixture is not classified for germ cell mutagenicity.

#### Carcinogenicity

The substance or mixture is not classified for carcinogenicity.

### Reproductive toxicity

The substance or mixture is not classified for reproductive toxicity.

### Specific target organ toxicity-single exposure

The substance or mixture is not classified for specific target organ toxicity-single exposure.

### Specific target organ toxicity-repeated exposure

The substance or mixture is not classified for specific target organ toxicity-repeated exposure.

### Aspiration hazard

The substance or mixture is not classified for aspiration hazard.

### Symptoms

Skin	local	: Not applicable.
	general	: Not applicable.
Ingestion	local	: Not applicable.
	general	: Not applicable.
Inhalation	local	: Not applicable.
	general	: Not applicable.
Eyes	local	: Not applicable.
Remarks symptoms		: None

## 12. Ecological information

### 12.1. Toxicity

#### Ecotoxicity

LC-50: 5300 mg/l/96H (Fish)	PROPYLENE CARBONATE	Source	: IUCLID
EC-50: >500 mg/l/48H (Daphnia)	PROPYLENE CARBONATE	Source	: IUCLID
IC-50: >500 mg/l/72H (Algae)	PROPYLENE CARBONATE	Source	: IUCLID
LC-50: >500 mg/l/96H (Fish)	DIMETHOXYETHANE, 1,2-	Source	: ACROS

### 12.2. Persistence and degradability

Biological oxygen demand (5)	: 0.025 g/g	PROPYLENE CARBONATE	Source	: IUCLID
Chemical oxygen demand	: 1.29 g/g	PROPYLENE CARBONATE	Source	: IUCLID
Biological(5)/chemical oxygen demand ratio	: 0.019	PROPYLENE CARBONATE		
Degradability	: not readily	MANGANESE DIOXIDE	Source	: ACROS
		PROPYLENE CARBONATE	Source	: IUCLID

### 12.3. Bioaccumulative potential

Biochemical factor	: not traceable			
Log Po/w	: <0	MANGANESE DIOXIDE	Source	: IUCLID
	-0.49	LITHIUM TRIFLUOROMETHANESULPHONATE	Source	: Easi View
	-0.48	PROPYLENE CARBONATE	Source	: IUCLID
	-0.21	DIMETHOXYETHANE, 1,2-	Source	: ChemDat (Merck)

### 12.4. Mobility in soil

Henry Constant	: 9.92E-8 atm m3/mol	LITHIUM TRIFLUOROMETHANESULPHONATE	Source	: Easi View
	3.63E-4 atm m3/mol	PROPYLENE CARBONATE	Source	: Easi View

### 12.5. Results of PBT and vPvB assessment

Data not available.

### 12.6. Other adverse effects

Remarks on ecotoxicity : none

## 13. Disposal considerations

### 13.1. Waste treatment methods

Remainder material has to be incinerated in\_a proper installation or dumped on an approved landfill, in accordance with local and national legislation.

## 14. Transport information

### 14.1. UN number

ADR/RID : 3090  
IMDG/IMO : 3090  
IATA/ICAO : 3090

Remarks IATA/ICAO : The product must be transported in accordance with the regulations of IATA PACKING INSTRUCTION 968 - SECTION IA (Meets the GENERAL REQUIREMENTS of IATA PACKING INSTRUCTION 968).  
The batteries meet the requirements of each test of the "UN Manual of Tests and Criteria, Part III, subsection 38.3".

### 14.2. UN proper shipping name

ADR/RID : LITHIUM METAL BATTERIES  
IMDG/IMO : LITHIUM METAL BATTERIES  
IATA/ICAO : LITHIUM METAL BATTERIES

### 14.3. Transport hazard class(es)

ADR/RID : 9                      IMDG/IMO : 9                      IATA/ICAO : 9

### 14.4. Packing group

ADR/RID : none                      IMDG/IMO : none                      IATA/ICAO : none

### 14.5. Environmental hazards

Marine pollutant : no

### 14.6. Special precautions for user

Hazard identification number (ADR/RID) : none  
EmS (IMDG/IMO) : F-A, S-I

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

Data not available.

## 15. Regulatory information

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

- Data not available.

### 15.2. Chemical safety assessment

- Data not available.

## 16. Other information

Remarks on SDS : The presence of lithium-batteries gives an enlarged risk of fire.

#### Overview relevant H-sentences from all components in section 3

H225                      Highly flammable liquid and vapour.  
H260                      In contact with water releases flammable gases which may ignite spontaneously.  
H302                      Harmful if swallowed.  
H314                      Causes severe skin burns and eye damage.  
H315                      Causes skin irritation.  
H319                      Causes serious eye irritation.  
H332                      Harmful if inhaled.  
H335                      May cause respiratory irritation.  
H360FD                      May damage fertility. May damage the unborn child.  
H361fd                      Suspected of damaging fertility. Suspected of damaging the unborn child.  
EUH014                      Reacts violently with water.  
EUH019                      May form explosive peroxides.

#### Overview relevant hazard statements from all components in section 3

C	CORROSIVE
F	HIGHLY FLAMMABLE
T	TOXIC
Xi	IRRITANT
Xn	HARMFUL

### Overview relevant R-sentences from all components in section 3

11	Highly flammable.
14/15	Reacts violently with water, liberating extremely flammable gases.
19	May form explosive peroxides.
20	Harmful by inhalation.
20/22	Harmful by inhalation and if swallowed.
34	Causes burns.
36	Irritating to eyes.
36/37/38	Irritating to eyes, respiratory system and skin.
60	May impair fertility.
61	May cause harm to the unborn child.
62	Possible risk of impaired fertility.
63	Possible risk of harm to the unborn child.

### Training advice

Provide adequate information, instruction and training for operators.

### A key or legend to abbreviations and acronyms used in the safety data sheet

REACH	Registration, Evaluation and Authorisation of CHemicals
GHS	Globally Harmonised System of Classification and Labelling of Chemicals
CAS	Chemical Abstracts Service
TGG = TWA	Time Weighted Average
LEL	Lower Explosive Limit
UEL	Upper Explosive Limit
ADR	Accord européen relatif au transport international des marchandises Dangereuses par Route
RID	Règlement concernant le transport international ferroviaire des marchandises dangereuses
UN	United Nations
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
EmS	Emergency Schedule

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\* Point to alterations with regard to the previous version.

The information provided in this Material Safety Data Sheet is correct to the best of the knowledge, information and belief of Philips Electronics Nederland B.V. at the date of its printing.