

**SECTION 1: PRODUCT AND COMPANY IDENTIFICATION**

**Product name:** Lithium Iron Manganese Phosphate  
**Company:** Intercel BV  
**Address:** Waarderveldweg 3, 2031BK Haarlem, The Netherlands  
**E-mail:** Sales@intercel.nl  
**Tel:** +31 23 51 49 900  
**Fax:** +31 23 53 22 583

**SECTION 2: INFORMATION ON INGREDIENTS**

**Product name:** Lithium Iron Manganese Phosphate

Chemical Name	Molecular Formula	CAS No.	Weight %
Lithium Iron Manganese Phosphate	LiFeMnPO <sub>4</sub>	--	38,1
Graphite	C	7782-42-5	18,1
Aluminum	Al	7429-90-5	7,6
Diaphragm Paper (PP)	(C <sub>3</sub> H <sub>6</sub> ) <sub>n</sub>	9003-07-0	4,5
Electrolyte (Lithium Hexafluorophosphate)	LiPF <sub>6</sub>	1324-40-3	20,3

**SECTION 3: HAZARDS IDENTIFICATION****Health Hazards (Acute and Chronic)**

These chemicals are contained in a sealed can. Risk of exposure occurs only if the battery is mechanically or electrically abused. Contact of electrolyte and extruded lithium with skin and eyes should be avoided.

**Sign/Symptoms of Exposure**

A shorted lithium battery can cause thermal and chemical burns upon contact with the skin.

**SECTION 4: FIRST-AID MEASURES****Skin Exposure:**

If the internal battery materials of an opened battery cell come into contact with the skin, immediately flush with plenty of water for at least 15 minutes. Seek immediate medical attention.

**Eye Exposure:**

In case of contact the electrolyte contained inside the battery with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Seek immediate medical attention.

**Inhalation Exposure:**

If potential for exposure to mist or dusts occurs, remove immediately to fresh air and seek medical attention.

**Oral Exposure:**

If swallowed, give at least 2 glasses of milk or water. Induce vomiting unless patient is unconscious. Seek immediate medical attention.

**SECTION 5: FIRE FIGHTING MEASURES****Extinguishing Media:**

Suitable: Dry chemical, CO<sub>2</sub>.

**Firefighting:**

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

**Specific hazards:**

Cell may vent when subjected to excessive heat-exposing battery contents.

**SECTION 6: ACCIDENTAL RELEASE MEASURES****Steps to be Taken in case Material is Released or Spilled**

If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. Wipe it up with a cloth, and dispose of it in a plastic bag and put into a steel can. The preferred response is to leave the area and allow the batteries to cool and vapors to dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerate.

**Waste Disposal Method**

It is recommended to discharge the battery to the end, handing in the abandoned batteries to related department unified, dispose of the batteries in accordance with approved local, requirements. Consult local environmental protection agency.

**SECTION 7: HANDLING AND STORAGE**

The batteries should not be opened, destroyed or incinerate, since they may leak or rupture and release to the environment the ingredients that they contain in the hermetically sealed container. Do not short circuit terminals, or over charge the battery, forced over-discharge, throw to fire. Do not crush or puncture the battery, or immerse in liquids.

**Precautions to be taken in handling and storing**

Avoid mechanical or electrical abuse. Storage preferably in cool, dry and ventilated area, which is subject to little temperature change. Storage at high temperatures should be avoided. Do not place the battery near heating equipment, nor expose to direct sunlight for long periods.

**Other Precautions**

Batteries may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

**SECTION 8: EXPOSURE CONTROL/PPE****Respiratory Protection**

In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting batteries. Respiratory Protection is not necessary under conditions of normal use.

**Ventilation**

Not necessary under conditions of normal use.

**Protective Gloves**



Not necessary under conditions of use.

normal

**Other Protective Clothing or Equipment**

Not necessary under conditions of normal use.

Personal Protection is recommended for venting batteries: Respiratory Protection, Protective Gloves, Protective Clothing and safety glass with side shields.

**SECTION 9: PHYSICAL/CHEMICAL PROPERTIES**

Appearance: Odor:	Blue, quadrate, with odorless solid battery Odorless
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**SECTION 10: STABILITY AND REACTIVITY**

<b>Stability:</b>	Stable under normal temperatures and pressures.
<b>Conditions to Avoid:</b>	Avoid exposure to heat and open flame, Avoid mechanical or electrical abuse and overcharge. Prevent short circuits. Prevent movement which could lead to short circuits.
<b>Hazardous Polymerization:</b>	Will not occur.
<b>Hazardous Decomposition Products:</b>	N/A

**SECTION 11: TOXICOLOGICAL INFORMATION**

Inhalation, skin contact and eye contact are possible when the battery is opened. Exposure to internal contents, the corrosive fumes will be very irritating to skin, eyes and mucous membranes. Overexposure can cause symptoms of non-fibroid lung injury and membrane irritation.

**SECTION 12: ECOLOGICAL INFORMATION**

**Environmental Effect**

When promptly used or disposed the battery does not present environmental hazard.

When disposed, keep away from water, rain and snow.

**SECTION 13: DISPOSAL CONSIDERATIONS**

**APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION:**

If batteries are still fully charged or only partially discharged, they can be considered a reactive hazardous waste because of significant amount of not creation, or unconsumed lithium remaining in the spent battery. The batteries must be neutralized through an approved secondary treatment facility prior to disposal as a hazardous waste. Recycling of battery can be done in authorized facility, through licensed waste carrier.

**SECTION 14: TRANSPORT INFORMATION**

**14.1 Classification:**

UN-number : UN 3480  
Shipping name : Lithium Ion Batteries  
Class : 9  
Packing Group : N/A

**14.2 Air transport:**

Personnel handling/preparing need to be trained according to the guidelines set out in the "IATA Dangerous Goods Regulations 61st edition" chapter 1.5. or the current ICAO-TI Chapter 4.

**14.3 For Road Transport:**

We recommend that personnel handling and preparing the goods for transport should have had sufficient training.

**14.4 For Sea Transport:**

We recommend that personnel handling and preparing the goods for transport should have had sufficient training.

**14.5 For Rail Transport:**

We recommend that personnel handling and preparing the goods for transport should have had sufficient training.

**14.6 For River Transport:**

We recommend that personnel handling and preparing the goods for transport should have had sufficient training.

Training requirements may diver from country to country, check with your national transport authority what training may be required.

**14.7 Other :**

Each cell and battery is of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, subsection 38.3

**SECTION 15: REGULATORY INFORMATION****SECTION 16: OTHER INFORMATION****Legal Remark (U.S.A.)**

Safety Data Sheets are a sub-requirement of the Occupational Safety and Health administration (OSHA) Hazard Communication Standard, 29 CFR Subpart 1910.1200. This Hazard Communication Standard does not apply to various subcategories including anything defined by OSHA as an "article". According to OSHA, Article means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees.

Because all of our batteries are defined as "articles", they are exempted from the requirements of the Hazard Communication Standard.

**Legal remark (EU)**

These batteries are no "substances" or "mixtures" according to Regulation (EC) No 1907/2006 EC. Instead they have to be regarded as "articles", no substances are intended to be released during handling. Therefore there is no obligation to supply a "safety data sheet according to Regulation (EC) 1907/2006, Article 31".

**General remark:**

This Safety Data Sheet is provided as a service to our customers. The details presented are in accordance with our present knowledge and experiences. They are no contractual assurances of product attributes.