

1 IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY

Important Note: As a solid manufactured article, exposure to hazardous ingredients is not expected with normal use. This battery is an article and as such, is not subject to the OSHA Hazard Communication Standard requirement. The information contained in this Material Safety Data Sheet contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Product identifier

Product name: Lithium Ion battery - LFP - LiFePO4 – Lithium iron phosphate

Details of the supplier of the safety data sheet

Company name: Cegasa Energia, S.L.U.

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Remark:

The information and recommendations set forth are made in good faith and believed to be accurate as of the date of preparation. CEGASA ENERGY S.L.U. makes no warranty, expressed or implied, with respect to this information and disclaims all liabilities from reliance on it.

2 HAZARDS IDENTIFICATION

Hazards identification: Class 9, miscellaneous. The batteries have passed the test items of UN Model Regulations, Manual of Test and Criteria Section UN 38.3.

Emergency Overview: Under normal conditions of use, the solid electrode materials and liquid electrolyte they contain are non-reactive provided the battery integrity is maintained and seals remain intact. Caution, do not open or disassemble. Do not expose to fire or open flame. Do not mix with batteries of varying sizes, chemistries or types. Risk of fire, explosion and burns. Do not short-circuit, crush, incinerate or disassemble battery.

Classification of the substance or mixture

Not a dangerous substance according to GHS.

This product is not classified as dangerous according to REACH directive.

3 COMPOSITION/INFORMATION ON INGREDIENTS

The battery is manufactured with Lithium ion cells - LFP – LiFePO4 - Lithium Iron Phosphate.

Components

CAS-No.	Chemical name	Quantity
15365-14-7	Lithium iron phosphate	30 - 50 %
7782-42-5	Graphite	10 - 20 %
7440-50-8	Copper	15 - 25 %
24937-79-9	Polyvinylidene fluoride (PVdF)	< 5 %
7429-90-5	Aluminium	2 - 10 %
-	Steel	20 - 30 %

Hazardous components: 0% Mercury

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.

Eye Exposure: In case of the internal materials come into contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Inhalation Exposure: If inhaled the internal materials of battery, remove immediately to fresh air and seek medical attention.

Oral Exposure: If swallowed the internal materials of battery, do not induce vomiting. Seek immediate medical attention.

5 FIREFIGHTING MEASURES

Extinguishing media

Suitable: Dry chemical, Sandy soil, Carbon dioxide or appropriate foam.

Fire fighting:

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

Specific hazards: Emit toxic fumes under fire conditions.

6 ACCIDENTAL RELEASE MEASURES

Procedure of Personal precautions:

If batteries show signs of leaking, avoid skin or eye contact with the material leaking from the battery. Use chemical resistant rubber gloves and non-flammable absorbent materials for clean up. Mix with inert material (e.g. dry sand, vermiculite) and transfer to sealed container for disposal.

7 HANDLING AND STORAGE

Handling

Keep away ignition sources, heat and flame. Such batteries must be packed in inner packages in such a manner as to effectively prevent short circuits and to prevent movement which could lead to short circuits.

Avoid mechanical or electrical abuse. More than a momentary short circuit will generally reduce the battery service life. Avoid reversing battery polarity within the battery assembly. In case of a battery unintentionally be crushed, rubber gloves must be used to handle all battery components. Avoid contact with eyes, skin. Avoid inhalation. No smoking at working site. Materials to Avoid: Strong oxidising agents, corrosives.

Storage

Store in a cool, well-ventilated area. Keep away from ignition sources, heat and flame. Such batteries must be packed in inner packages in such a manner as to effectively prevent short circuits and to prevent movement which could lead to short circuits. Materials to Avoid: Strong oxidizing agents, Corrosives.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls

Use ventilation equipment if available. Safety shower and eye bath.

Personal protective equipment

Respiratory System: Not required under normal use. If exposed to ingredients, wear safety mask.

Eyes: Not required under normal use. If exposed to ingredients, wear safety glasses.

Clothing: Not required under normal use. If exposed to ingredients, wear appropriate protections clothing.

Hand: Not required under normal use. If exposed to ingredients, wear chemical-resistant protection gloves.

Other Protect

No smoking, drinking and eating at working site. Wash thoroughly after handling

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Prismatic block
Odor	Odorless
Melting point (°C)	>300°C
Solubility	Partial soluble in water

10 STABILITY AND REACTIVITY

Stability

Stable under normal temperature and pressures.

Conditions to Avoid

Avoid exposure to heat and open flame. Avoid mechanical or electrical abuse. Prevent short circuits. Prevent movement which could lead to short circuits.

Materials to Avoid

Strong oxidizing agents, Corrosives.

Hazardous Polymerization

Will not occurs.

Hazardous Decomposition Products

Metal oxides, CO. CO₂.

11 TOXICOLOGICAL INFORMATION

Toxicity Data

Not available.

Irritation Data

The internal battery materials may cause irritation to eyes and skin.

12 ECOLOGICAL INFORMATION

Not data available.

13 DISPOSAL CONSIDERATIONS

Appropriate Method of Disposal of Substance

Lithium batteries are best disposed of as a non-hazardous waste when fully or mostly discharged. Contact a licensed professional waste disposal service to dispose of large quantities materials.

14 TRANSPORT INFORMATION

The battery has passed the test items of UN Model Regulations, Manual of Test and Criteria Section UN 38.3

United Nations

- UN 3480
- Class 9
- Proper Shipping name: LITHIUM ION BATTERIES

International Conventions

ADR/RID – Transportation by Road/Rail

- UN 3480
- Class 9
- Proper name: LITHIUM ION BATTERIES

IMDG – Sea Transportation

- UN 3480
- Class 9
- Proper Shipping name: LITHIUM ION BATTERIES
- Packing instructions P903
- Emergency Schedule F-A, S-I
- Marine pollutant: NO

IATA – AIR Transportation

- UN 3480
- Class 9
- Proper Shipping name: LITHIUM ION BATTERIES
- Packing instructions 965

Other: In USA Code of Federal Regulation, 49+ CFR Ch.1 §173-185

- UN 3480
- Class 9
- Proper Shipping name: LITHIUM ION BATTERIES

15 REGULATORY INFORMATION

The transport of rechargeable Lithium-ion batteries are regulated by the United Nations as detailed in the “Model Regulations on the Transport of Dangerous Goods”.

16 OTHER INFORMATION

This information has been compiled from sources considered to be dependable and is, to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty (ether expressed or implied) or guarantee is made to the accuracy, reliability or completeness of the information contained herein.

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