



## Safety Data Sheet

### 1. Identification of the product and supplier

Identification of the product: Rechargeable Li-Ion Battery Pack SDI ICR 18650-26JM 10S3P  
Ref. 3070020

Manufacturer: NRG srl  
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### 2. Hazards identification

Lithium-Ion battery pack described in this MSDS is a sealed unit which is not hazardous when used according to the technical specifications.

The battery pack may be dangerous only if is mechanically, electrically or thermally damaged.

**Attention:** do not open or disassemble the batteries, avoid exposure to fire. Do not short circuit, punch, burn, crush, overcharge, over-discharge or heat above indicated temperatures. In this cases, risks of explosion, fire or gas and fumes release may occur.

### 3. Composition and information about the ingredients

Hazardous components

	Symbol or chemical name	Approx % on mass range	CAS No
Anode	Graphite	10-30	7782-42-5
Catodo	Lithium cobalt oxide	20-50	12190-79-3
Electrolyte	Contains salt and solvents	5-20	
Electrolyte salt	Lithium hexafluorophosphate	0.05-5	21324-40-3
Electrolyte solvent	Contain one or more of the following: -Ethylene carbonate -Propylene carbonate -Diethyl carbonate -Ethil propionate	5-20	96-49-1 108-32-7 105-58-8 105-37-3
PVDF	Polyvinylidenfluoride	<1	24937-79-9
Aluminium	Al	2-10	7429-90-5
Copper	Cu	3-15	7440-50-8
Steel, Nickel and inert components		Balance	Various

### 4. First aid measures

In case of electrolyte leakage, please take all the necessary precautions to avoid any contact with clothes wore. If it occurs, by accident, following measures must be taken:

**Inhalation:** Remove from exposure, move to fresh air, aerate the contaminate area. Wash mouth and nose with water and seek medical advice.

**Skin contact:** Remove contaminated clothes and wash the contaminated body parts with plenty of water. Seek medical advice

**Eye contact:** Irrigate thoroughly with water for at least 15 minutes. Go to nearest Hospital immediately and seek medical advice

**Ingestion:** Wash out mouth thoroughly with water and give plenty of water to drink, only if the injured person is conscious. Go to nearest Hospital immediately.

**Further treatments:** All cases of eye contamination, persistent skin irritation, ingestion and vapour inhalation should be seen by a doctor.

## 5. Fire-fighting measures

Extinguish media: Dry extinguishers, class D, dry sand

Cold water or powder in big quantity are allowed.

Particular dangers: Irritant vapours. It is not possible to exclude gas formation as *Hydrogen Fluoride, Carbon Monoxide and Carbon Dioxide*

Protective equipment: Use protective glasses, gloves and clothes.

## 6. Accidental release measures

In case of breakage of one or more cells part of the battery, all persons must move at least 25 meters (75 feet) away from the place where the accident occurred and return only after the leaking gases have dissolved.

Using protective glasses and gloves and put solid parts in a proper container and clean the electrolyte with a dry cloth or sand and put them in the same container.

Avoid inhalation or skin contact.

## 7. Handling and storage

### Handling

In normal conditions, there are no particular rules regarding handling of Lithium Ion cells or battery packs.

### Precautions:

- Avoid short circuits
- Use insulated workbenches
- Avoid wet surfaces
- To check cell dimensions, use plastic caliber or insulate metallic surfaces of the cells or of the battery packs
- Avoid rings on fingers and use insulating gloves
- Move the batteries in their original packages
- Do not disassemble the battery, do not throw into the fire, do not punch, do not overheat or immerse in water.

### Storage





- The storage area of Lithium Ion cells or battery packs must be cool, dry, ventilated, far from heat sources.
- Use of non-combustible walls with adequate space between walls and batteries is recommended.
- Storage at ambient temperature ( about 20°C and relative humidity of 20~60%).
- Do not store at temperatures above 40° C or below 0°C
- Keep proper protection to avoid shock to the batteries

- Keep the batteries in their original packaging till usage
- Do not expose on direct solar light
- Avoid contacts with acid or oxidant agents
- Keep cells and battery packs far from food and beverages

## 8. Exposure controls/personal protection

In normal conditions, there are no particular protections regarding use and handling of Lithium Ion cells or battery packs.

Do not smoke, eat food or beverages during the handling. In case of cell damage, move immediately from the area and ventilate.

	Occupational exposure standard	See point 2
	Respiratory protection	In all fire situations, use self-contained breathing apparatus.
	Hand protection	In the event of leakage or rupture of the cells wear gloves.
	Eye Protection	Safety glasses are recommended in case of leakage or rupture of the cells
	Other	In the event of leakage or rupture of the cells, wear appropriate clothes.

## 9. Physical and chemical properties

**Physical state:** solid

**Appearance:** Parallelepiped covered with PVC film

**Odour:** Odourless

**pH:** Not applicable

**Flash Point:** Not applicable.

**Flammability:** Not applicable

**Relative density:** Not applicable

**Solubility (water):** Not soluble in water

## 10. Stability and reactivity

**Stability:** stable under normal conditions (see point 7)

**Reactivity:** when heated at high temperatures, crushed, deformed, short circuited, may release irritant, harmful gas or harmful volatile components

**Materials to avoid:** water, acid or alkaline solution, strong oxidizing agents.

## 11. Toxicological information

**Signs & symptoms:** None, unless cells or battery ruptures. In the event of exposure to internal contents, corrosive fumes will be very irritating to skin, eyes and mucous membranes. Overexposure can cause symptoms of non-fibrotic lung injury and membrane irritation.

**Inhalation:** Lung irritant.

**Skin contact:** Skin irritant

**Eye contact:** Eye irritant

**Ingestion:** Tissue damage to throat and gastro-respiratory tract if ingested.

**Medical conditions generally aggravated by exposure:** In the event of exposure to internal contents, eczema, skin allergies, lung injuries, asthma and other respiratory disorders may occur.

## 12. Ecological information

**Mammalian effects:** None known if used/disposed of correctly.

**Eco-toxicity:** None known if used/disposed of correctly.

**Bioaccumulation potential:** None known if used/disposed of correctly.

**Environmental risks:** None known if used/disposed of correctly.

## 13. Disposal consideration

Dispose of or re-cycle refer to specialized companies in accordance with appropriate local regulations.

## 14. Transport information

This kind of batteries are subjected to transportation regulations.

UN code: 3480 for batteries transported in bulk

3481 for batteries contained in equipment

Classification: *Lithium Ion Batteries*

Packaging instructions: PI965 section I A

UN classification: class 9 (dangerous and heterogeneous goods)

ADR class: class 9

IMDG: special provisions 188,230,310,348,376,377,384,387

USA: dangerous goods in accordance to 49CFR section 173.185 regulation.

### **PRECAUTIONS DURING TRANSPORTATION:**

Avoid high temperature and prevent condensation.

Put the cartons carefully in order to avoid accidental falls. Cover them to avoid rain damages.

For other instructions see point 7

## 15. Regulation information

Refer to, Manual of Test and Criteria 38.3 Lithium Batteries, revision 3, amendment 1 and subsequent revisions, of UN recommendation for dangerous goods transportation.

Air transportations are regulated from ICAO and IATA according to special provision for dangerous goods.

Sea transportations are regulated by IMDG.

### **EC Classification for the Substance/Preparation**

These products are not classified as hazardous according to Regulation (EC)

N° 1272/2008. Keep out of the reach of children.

### **EU**

Regulations n° 453/2010, REACH annex XVII.

### **USA**

**TSCA:** all substances are included in TSCA list.

**OSHA:** these products do not satisfy the criteria indicated in part 1910.1200 (manufacture)

**SARA EPA Title III:** n.a.

**Sec. 302/304:** n.a.

**Sec. 311/312:** n.a.

**Sec. 313:** n.a.

**CERCLA RQ:** n.a.



## Canada

These products have been classified in accordance with dangerous criteria exposed in *Controlled Products Regulations* and the SDS contains all the information requested.

Classification **VHMIS**: not controlled (manufacture)

**New Substances Notification Regulations**: Lithium Hexafluorophosphate is included in the list of non-domestic substances (NDSL). All other ingredients are included, as required, in the *Canadas Domestic Substances List (DSL)* required.

**National Pollutant Release Inventory (NPRI) Substances**: these products do not contain any chemical substance mentioned in NPRI.

## Australia and Nuova Zelanda

**SUSMP**: n.a.

**AICS**: all the components are on the AICS list

**HSNO Approval Number**: n.a.

**HSNO Group Title**: n.a.

**NOHSC: Risk Phrases10008**:

R34: cause fires

**NOHSC: Safety Phrases1008**

S1: keep locked up

S2: keep out of reach of children

S23: do not breath vapor

S24: avoid contact with skin

S25: avoid contact with eyes

S26: in case of contact with eyes, wash immediately with plenty of water and seek medical advice

S27/S28: after contact with skin, take off all the contaminated clothing immediately and wash with plenty of water.

S36/ S37/ S39: wear suitable protective clothing, gloves and eye/face protection.

S56: dispose of the exhausted batteries and its containers in appropriate bins in the designate collection point

S62: if swallowed DO NOT induce vomiting; seek medical advice immediately and show him the container or label of the product.

S64: if swallowed, wash mouth with water (only if person is conscious).

## Japan

Japanese Industrial Standards (JIS) JIS Z 7253: 2012.

Waste disposal law and public cleaning

Law for the promotion and effective use of resources.

## Taiwan

Regulation of the labeling and communication of dangerousness of hazardous and noxious materials: there are no particular requirements for labeling or other provisions of chemical components as this product is not classified as dangerous goods.

Law on the control of chemical and toxic substances: product not mentioned.

CNS 1030016 Safety of primary and secondary lithium cells and batteries during transport.

## **China**

General rules for hazard classification and communication of chemical components (GB 13690-2009): specify the classification, labeling and hazard communication of chemical components in accordance with the GHS legislation for chemical production sites and the labeling of consumption goods.

General rules for the preparation of precautionary labels for chemical components (GB 15258-2009): specify the relevant methods of applying precautionary labels for chemical components.

Safety Data Sheet for Chemical Products and Order Section (GB / T 16483-2008)

## **16. Other information**

Lithium Ion cells or batteries must be handled only by expert personnel. Furthermore, they must be used following the technical specifications and never exceed the indicated values. The information contained in the present safety data sheet are based on the current technical knowledge and relative to the current way of usage known. The information has been taken from reliable sources. However, no warranty is offered concerning the completeness of the information and NRG Srl could not be considered responsible for any damage, even indirect or due to an unforeseeable event connected to the use of the information itself. NRG Srl is not responsible in any way and in any measure for the use of the product not in compliance with the technical specifications of the present MSDS. This information relates to the specific materials designated and may not be valid for such material used in combination with any other material or in any process. The risk and responsibility of a different kind of use is exclusively of the person who makes it.

Edition 03/NRG/19    Date: November 2019