



## Material Safety Data Sheet

### 1. Product & Company Identification

Product	Li Ion Polymer Battery
Manufacturer:	Conrad Electronic SE
Model:	LiPo 1500 mAh 12C
Nominal capacity:	1500 mAh
Nominal voltage:	11,1 V
Address:	Klaus-Conrad-Strasse 1, D-92242 Hirschau
Telephone:	+ 49 9604408833
Date of issue:	04.03.2015

### 2. Composition/information on ingredients

Material or Ingredient	PEL (OSHA)	TLV (ACGIH)	% wt
Graphite (CAS# 7782-42-5)	5mg/m <sup>3</sup> TWA (respirable fraction) 15mg/m <sup>3</sup> TWA(total dust)	2mg/m <sup>3</sup> TWA (respirable fraction)	15-35
Lithium Cobalt Oxide (CAS# 12190-79-3)	0.1 mg/m <sup>3</sup> TWA (as Co)	0.02mg/m <sup>3</sup> TWA (as Co)	20-50
Lithium Hexafluorophosphate (CAS# 21324-40-3)	None established	None established	0-5
Acetylene Black (CAS# 1333-86-4)	3.5mg/m <sup>3</sup> TWA (as carbon black)	3.5mg/m <sup>3</sup> TWA (as carbon black)	0-10
Diethyl Carbonate (CAS# 105-58-8)	None established	None established	0-30
E Dimethyl Carbonate (CAS# 616-38-6)	None established	None established	0-30
Ethyl Methyl Carbonate (CAS# 623-53-0)	None established	None established	0-30
Propylene Carbonate (CAS# 108-32-7)	None established	None established	0-30
Ethylene Carbonate (CAS# 96-49-1)	None established	None established	0-30



## Material Safety Data Sheet

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### 3. Hazard Identification

Chemical Nature:	White color solid
CAS-No/EINECS NO.:	N/A
INCI CTFA-Description:	Lithium ion polymer rechargeable battery series
Ingestion:	No effect under routine handling and use.
Inhalation:	No effect under routine handling and use.
Skin contact:	No effect under routine handling and use.
Eye contact:	No effect under routine handling and use.
Skin absorption:	No effect under routine handling and use.
Reported as carcinogen:	Not applicable

### 4. First aid measures

Under normal conditions of use, the battery is hermetically sealed.

#### Ingestion:

Swallowing a battery can be harmful.

Contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract. If battery or open battery is ingested, do not induce vomiting or give food or drink. Seek medical attention immediately.

#### Inhalation:

Contents of an open battery can cause respiratory irritation. Inhalation of vapors may cause irritation of the upper respiratory tract and lungs. Provide fresh air and seek medical attention.

#### Skin Absorption:

Ethylene carbonate, diethyl carbonate and dimethyl carbonate may be absorbed through the skin causing localized inflammation.

#### Skin Contact:

Contents of an open battery can cause skin irritation and/or chemical burns. Remove contaminated clothing and wash skin with soap and water. If a chemical burn occurs or if irritation persists, seek medical attention.

#### Eye Contact:

Contents of an open battery can cause severe irritation and chemical burns. Immediately flush eyes thoroughly with water for at least 15 minutes, lifting upper and lower lids, until no evidence of the chemical remains. Seek medical attention.

#### Note:

Acetylene black and cobalt compounds are listed as possible carcinogens by the International Agency for Research on Cancer (IARC).



## Material Safety Data Sheet

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### 5. Fire fighting measures

If fire or explosion occurs when batteries are on charge, shut off power to charger.

In case of fire where lithium ion batteries are present, flood the area with water. If any batteries are burning, water may not extinguish them, but will cool the adjacent batteries and control the spread of fire. CO<sub>2</sub>, dry chemical, and foam extinguishers are preferred for small fires, but also may not extinguish burning lithium ion batteries. Burning batteries will burn themselves out. Virtually all fires involving lithium ion batteries can be controlled with water. When water is used, however, hydrogen gas may be evolved which can form an explosive mixture with air. LITH-X (powdered graphite) or copper powder fire extinguishers, sand, dry ground dolomite or soda ash may also be used. These materials act as smothering agents.

Fire fighters should wear self-contained breathing apparatus. Burning lithium ion batteries can produce toxic fumes including HF, oxides of carbon, aluminum, lithium, copper, and cobalt. Volatile phosphorus pent fluoride may form at a temperature above 230° Fahrenheit.

### 6. Accidental release measures

#### On land:

Place material into suitable containers and call local fire/police department.

#### In water:

If possible. Remove from water and call local fire/police department.

### 7. Handling and storage

#### Handling:

Do not expose the battery to excessive physical shock or vibration. Short-circuiting should be avoided; however, accidental short-circuiting for a few seconds will not seriously affect the battery. Prolonged short circuits will cause the battery to rapidly lose energy, could generate enough heat to burn skin. Sources of short circuits include jumbled batteries in bulk containers, coins, metal jewelry, metal covered tables, or metal belts used for assembly of batteries in devices. To minimize risk of short-circuiting, the protective case supplied with the battery should be used to cover the terminals when transporting or storing the battery. Do not disassemble or deform the battery. Should an individual cell within a battery become ruptured, do not allow contact with water.

#### Storage:

The lithium ion battery should be between 25% and 75% of full charge when stored for a long period of time. Stored in a cool, dry, and well ventilated area. Elevated temperatures can result in loss of battery performance, leakage, or rust. Do not expose the battery to open flames.



## Material Safety Data Sheet

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### 8. Exposure controls, personal protection

**Engineering Control:**

Keep away from heat and open flame. Stored in a cool dry place.

**Personal Protection:**

Respiratory Protection: Not necessary under normal conditions.

**Eye/Face Protection:**

Not necessary under normal conditions. Wear safety glasses with side shields if handling an open or leaking battery.

**Gloves:**

Not necessary under normal conditions. Use neoprene or natural rubber gloves if handling an open or leaking battery.

**Foot Protection:**

Steel toed shoes recommended for large container handling.

### 9. Chemical and Physical Properties

Physical state	Solid
Color	White
Odor	No
Flash Point	Not Applicable
Solubility in ethanol soluble	Not Applicable
Boiling Point	Not Applicable
Solubility in water:	Not Applicable
Vapor pressure	Not Applicable
Explosion limit	Not Applicable
Auto flammability	Not Applicable
Melting Point	Not Applicable
Freezing Point	Not Applicable
Energy	0.01~60Wh Energy (Note:Wh=nominal voltage x Rated Ah, marked on each battery)

### 10. Stability and reactivity

**Stability:**

Good stability at standard temperature.

**Reactivity:**

None

Avoid contact with water and acids. Hazardous decomposition products: If Al package foil of battery is damaged, the battery should avoid to contact strong oxidizer, acids and high temperature, and the electrolyte will be formed HF.



## Material Safety Data Sheet

### 11. Toxicological information

This product does not elicit toxicological properties during routine handling and use.

### 12. Ecological information

If the battery is scrapped, it should be selected and disposed by professional company.

### 13. Disposal considerations

Do not dispose of battery into environment or sewerage. It should be recycled and disposed basing on your local legislation and regulations.

### 14. Transport information

The watt-hour rating of the battery models listed is not more than 100Wh. The product is not classified as dangerous under the current edition of the IATA dangerous goods regulations. The product is safe for air transportation and not regulated by IATA DGR and meets all requirements under UN Manual of Tests and Criteria Part III, subsection 38.3. Each package is labelled and well passed the 1.2m drop test.

No	ITEMS	RESULT	REMARKS
1	Altitude simulation	Pass	Test 1 to 5 must be conducted in sequence on the same cell or battery.
2	Thermal test	Pass	
3	Vibration	Pass	
4	Shock	Pass	
5	External short circuit	Pass	
6	Impact	Pass	
7	Overcharge	Pass	Only battery do need this test.
8	Forced Discharge	Pass	

### 15. Regulatory

See ACGIH exposure limits information as noted in Section 3.

US: This MSDS meets/exceeds OSHA requirements.

International: This MSDS conforms to European Union (UN), the International Standards Organization (ISO) and the International Labor Organization (ILO) and as documental in ANSI (American National Standards Institute) Standard Z400.1-1993.