

# Material Safety Data Sheet MSDS 853028

1/4

Modular Energy Devices

401-921-5370

Manufacturer

Phone Number (For Information)

20 Altieri Way, Unit 4,

Chemtrek Domestic 1-800-424-93

Street Address

Emergency Phone Number

Warwick, RI 02886

CHEMTREC INT'L: 703-527-3877

City, State, Zip

## SECTION 1- PRODUCT IDENTIFICATION

**Product name:** Battery Pack, includes High Energy Lithium ion Batteries

**Model:** RKU, ARM, PNU, MPS Series

**Nominal Voltage:** 12, 24, 36, 48V

**Designated for recharge:** Yes

## SECTION 2-MATERIAL IDENTIFICATION AND INFORMATION

COMPONENTS-Chemical Name and Common Names (Hazardous Components 1% or greater, Carcinogens 0.1% or greater)	% by wt.	OSHA PEL	ACGIH TLV	OTHER LIMITS RECOMMENDED
Lithium Ion Cell - Contents:		/	/	/
1. Lithium Cobaltite	28.0			
2. Graphite Carbon	16.0	/	/	15 mppcfa 2
3. Lithium Hexafluorophosphate	1.5			
4. Organic solvent	6.5	/	/	/
5. Non-Hazardous Ingredients	48.0			
Subtotal of contents of Lithium Ion Battery	100	/	/	/
Percent by wt of Battery	78-80			
Percent wt of non-battery components	20-22			
Total battery + non-battery components	100			

## SECTION 3- PHYSICAL /CHEMICAL CHARACTERISTICS

**Specific Gravity (H2O=1)**

LiCoO2: 3.80 Graphite: 2.0 - 2.2

**Melting Point**

LiCoO2: 1130°C

**Appearance and Odor**

A manufactured article containing lithium ion cells. LiCoO2 is a gray odorless powder; Graphite is a black or odorless powder; Organic solvent is a colorless liquid; Lithium salt is a white, crystalline and odorless powder.

## SECTION 4- FIRE AND EXPLOSION HAZARD DATA

**Extinguisher Media**

Water, CO<sub>2</sub> or dry chemical powder

**Special Fire-Fighting Procedures**

Smoke may contain irritants to skin, eyes and respiratory track. The battery packs are constructed of many small cells. Cells can expel hot gas and smoke if they are exposed to temperatures of greater than 130°C for more than 10 minutes. CO<sub>2</sub> or chemical powder may extinguish flammable materials surrounding battery, but battery container must be cooled to prevent restart of fire. Water is a suitable material for extinguishing flames and cooling battery. Wait until there is no new release of smoke for 1 hour before assuming the battery is extinguished. Residue left after burning is primarily carbon but may contain small amounts of Hydrofluoric Acid. Use protective gloves and eye protection. Avoid inhalation of fumes from residue.

**SECTION 5- REACTIVITY HAZARD DATA 2/4****STABILITY**

- Stable
- Unstable

**Conditions to Avoid**

Do not heat or incinerate the battery. Never impact, pierce or crush the battery. Do not disassemble or modify the battery. Do not operate the battery under high temperature conditions exceeding 65°C. Do not short-circuit the battery. Do not allow the battery to get wet or be immersed in water except in the case of fire suppression.

**Incompatibility**

(Materials to Avoid) Water (except for fire suppression), Salt or Fresh, Strong Oxidizers, Strong Acids

**Hazardous**

Decomposition Products N/A

**HAZARDOUS POLYMERIZATION**

- May Occur
- Will Not Occur

**Conditions to Avoid****SECTION 6- HEALTH HAZARD DATA****PRIMARY ROUTES**

- Inhalation
- Ingestion
- Skin Absorption
- Not Hazardous

**CARCINOGEN**

NTP

OSHA

**OF ENTRY****LISTED IN**

LARC Monograph

NOT Listed

**HEALTH HAZARDS****Acute and chronic**

All chemicals are contained in a sealed can. Risk of exposure occurs only if the battery is mechanically or electrically abused.

**Signs and Symptoms of Exposure**

N/A

**Medical Conditions****Generally Aggravated By Exposure**

An acute exposure will not generally aggravate any medical condition.

**EMERGENCY FIRST AID PROCEDURES - Seek medical assistance for further treatment, observation and support if necessary**

**Eye Contact**

In case of eye contact, flush with lots of water for 15 minutes.

**Skin Contact**

In case of skin contact with contents of battery, flush immediately with water except in the case of fire suppression.

**Inhalation**

In case of light inhalation, move to an area with fresh air immediately. If irritation persists, get medical help.

**Ingestion**

In case of ingestion, get medical help.

**SECTION 7- CONTROL AND PROTECTIVE MEASURES****Respiratory Protection**

(Specify Type) Not necessary under conditions of Normal use.

**Protective Gloves**

Not necessary under conditions of Normal use.

**Eye Protection**

Not necessary under conditions of Normal use.

**VENTILATION**

Local Exhaust

Mechanical (General)

Not necessary under conditions of Normal use.

**TO BE USED**

Not necessary under conditions of Normal use.

Special

Not necessary under conditions of Normal use.

Other (Specify)

Not necessary under conditions of Normal use.

**Other Protective****Clothing and Equipment**

Not necessary under conditions of Normal use.

**Hygienic Work****Practices**

Not necessary under conditions of Normal use.

**SECTION 8- PRECAUTIONS FOR SAFE HANDLING AND USE/LEAK PROCEDURES****Steps to be taken if Material Is Spilled Or Released**

If battery has expelled materials, liquids or gas, allow the batteries to cool down, let the vapors dissipate. Avoid skin and eye contact or inhalation of vapors. Wearing plastic gloves, Remove any spilled liquid with absorbent and dispose of absorbent as hazardous waste.

**Waste Disposal Methods**

Contact the local, State, or Federal government regulations for proper recycling and/or disposal.

**Precautions to be Taken in Handling and Storage**

Take all precautions mentioned in this document. Operate and store the battery at ambient temperature in a clean, dry environment without airborne contaminants. Operate the battery within the temperature range of -40°C and 55°C . Improper handling of lithium-ion batteries may result in injury or damage from electrolyte leakage, heating, ignition or explosion.

**Other Precautions and /or Special Hazards**

N/A

**NFPA**

Rating Health=0 Flammability=1 Reactivity=1

**U.S. DOT:**

The transportation of Lithium Ion Batteries within the continental United States is regulated by the U.S. DOT through the Code of Federal Regulations, Title 49 (49 CFR). These regulations classify these types of batteries as a hazardous material. Refer to 49 CFR 173.185 for more details pertaining to the transportation of Lithium Ion Batteries. Relief from some requirements may be found for small batteries if requirements of provisions 188 and 189 are met.

**Shipping information as follows:**

Proper Shipping Name:	Litium Battery
UN Identification	UN3090
Hazard Class:	9
Packaging Group:	II
Label/Placard:	Miscellaneous

**IATA:**

The transportation of Lithium Ion Batteries is regulated by the International Air Transport Association (IATA) Dangerous Goods Regulations (DGR) 5.9. These regulations classify these types of batteries as **dangerous goods**. Refer to IATA Packaging Instructions 965 and special provision A164 for more details pertaining to the transportation of Lithium Ion Batteries.

**Shipping information as follows:**

Proper Shipping Name:	Lithium Ion Battery
UN Identification	UN3480
Hazard Class:	9
Packaging Group:	II
Packing Instructions:	965
Label/Placard:	Miscellaneous
Additional Labeling:	Lithium battery handling label (As defined in PI968)

Passenger Aircraft:	Packing Instruction 965
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Max of 5 kg gross
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Cargo Aircraft:	Packing Instruction 965
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Max of 35 kg gross
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**IMDG:**

The transportation of Lithium Ion Batteries is regulated by the International Maritime Dangerous Goods (IMDG) 4.1.4. These regulations classify these types of batteries as **dangerous goods**. Refer to IMDG Code Packaging Instructions P903 for more details pertaining to the transportation of Lithium Ion Batteries. Additional requirements, or relief from some requirements, may be found in special provisions 188 and 230.

Shipping information as follows:

Proper Shipping Name:	Lithium Ion Battery
UN Identification	UN3480
Hazard Class:	9
Packaging Group:	II
Packing Instructions:	P903
Label/Placard:	Miscellaneous

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