

Product Safety Data



PRODUCT: Inspired Energy Rechargeable Battery Pack

CHEMICAL SYSTEM: Lithium Ion

SECTION I - MANUFACTURER INFORMATION

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SECTION II - PRECAUTIONS FOR HANDLING & USE

- Avoid shorting the battery
- Do not immerse in water.
- Do not disassemble or deform the battery
- Do not expose to, or dispose of the battery in fire.
- Avoid excessive physical shock or vibration.
- Keep out of the reach of children.
- Battery must be charged in approved charger.
- Never use a modified or damaged charger.
- For specified product use only.
- Store in a cool, dry and well-ventilated area.
- Never use a battery that has suffered abuse.
- 0% Cd, 0%Hg, 0%Pb
- Each battery contains < 8g of equivalent Lithium
- Each battery stores <100Wh or energy
- Refer to data sheet for operating instructions

Refer to the cell manufacturers' Product Safety Data Sheets for details of the Li Ion cells; available at www.inspiredenergy.com

SECTION III - PRODUCTS

2 & 3-cell Batteries	4-cell Batteries	6-Cell Batteries	7-Cell Batteries	8-Cell Batteries	9-cell Batteries	12-cell Batteries
NB2037xxxx 7.2V	ND2053xxxx 3.6V	NF2047xxxx 7.2V	PG3665xxxx 25.2V	NH2054xxxx 14.4V	Ni2020xxxx 10.8V	NL2020xxxx 10.8V
NC2040xxxx 10.8V	ND2017xxxx 7.2V	NF2030xxxx 10.8V		NH2057xxxx 7.2V	Ni2040xxxx 10.8V	NL2024xxxx 14.4V
NC2560xxxx 10.8V	ND2037xxxx 7.2V	NF2040xxxx 10.8V		PH2059xxxx 28.8V		NL2044xxxx 14.4V
	ND2057xxxx 7.2V			NH2034xxxx 14.4V		NL2050xxxx 10.8V
	ND2034xxxx 14.4V					NL2054xxxx 14.4V
	ND2054xxxx 14.4V					

Where "xxxx" indicates all different custom & standard model variants identified by alphanumeric suffixes.

The information contained within is provided for your information only. This battery is an article pursuant to 29 CFR 1910.1200 and, as such, is not subject to the OSHA Hazard Communication standard requirement for preparation of a material safety data sheet. The information and recommendations set forth herein are made in good faith and are believed to be accurate as of the date of preparation. However, INSPIRED ENERGY, INC. MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, WITH RESPECT TO THIS INFORMATION AND DISCLAIMS ALL LIABILITY FROM RELIANCE ON IT.

Product Information Sheet

Panasonic Batteries

Panasonic Industrial Company
 A Division of Panasonic Corporation of North America
 5201 Tollview Drive, 1F-3
 Rolling Meadows, IL 60008
 Toll Free: 877-726-2228
 Fax: 847-468-5750
 e-mail: oembatteries@us.panasonic.com
 Internet: www.panasonic.com/batteries

Product: Lithium-ion Batteries
 (Li-ion)
Applicable models/sizes: All Cylindrical
 and Prismatic Lithium-ion batteries
Revision: – January 1, 2013

The batteries referenced herein are exempt articles and are not subject to the OSHA Hazard Communication Standard requirement. This sheet is provided as a service to our customers.

MSDS

Material Safety Data Sheets (MSDS) 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". OSHA has defined "article" as 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, and does not pose a physical hazard or health risk to employees.

Because all of our batteries are defined as "articles", they are exempt from the requirements of the Hazard Communication Standard, hence a MSDS is not required.

The following components are found in a Panasonic Lithium Ion battery:

Nickel Manganese Cobalt Type

Component	Material	Formula
Positive Electrode	Lithium Nickel Manganese Cobalt Oxide	LiMnCoO ₂
Negative Electrode	Graphite	C
Electrolyte	Ethylene Carbonate – Solvent	C ₃ H ₄ O ₃
	Diethyl Carbonate – Solvent	C ₅ H ₁₀ O ₃
	Lithium Hexafluorophosphate – Salt	LiPF ₆

Cobalt Type

Component	Material	Formula
Positive Electrode	Lithium Cobalt Oxide	LiCoO ₂
Negative Electrode	Graphite	C
Electrolyte	Ethylene Carbonate – Solvent	C ₃ H ₄ O ₃
	Diethyl Carbonate – Solvent	C ₅ H ₁₀ O ₃
	Lithium Hexafluorophosphate – Salt	LiPF ₆

Nickel Cobalt Aluminum Type

Component	Material	Formula
Positive Electrode	Lithium Cobalt Nickel Aluminum Oxide	LiCoNiAlO ₂
Negative Electrode	Graphite	C
Electrolyte	Ethylene Carbonate – Solvent	C ₃ H ₄ O ₃
	Diethyl Carbonate – Solvent	C ₅ H ₁₀ O ₃
	Lithium Hexafluorophosphate – Salt	LiPF ₆

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DISPOSAL

All Panasonic Lithium ion batteries are classified by the federal government as non-hazardous waste and are safe for disposal in the normal municipal waste stream. These batteries, however, do contain recyclable materials and are accepted for recycling by the Call2Recycle Battery Recycling Program. Please call 1-800-8-BATTERY for information on recycling your used Lithium Ion battery or go to the Call2Recycle website at www.rbc.org for additional information.

TRANSPORTATION

All Panasonic lithium ion batteries are not subject to the other requirements of the US Department of Transportation (DOT) Subchapter C, Hazardous Materials Regulations if shipped in compliance with 49 CFR 173.185 and Special Provision 188.

Effective January 1, 2013 all Panasonic lithium ion batteries can be shipped by air in accordance with International Civil Aviation Organization (ICAO) 2013-2014 edition, Section II or Section 1B or International Air Transport Association (IATA), 54th edition, Section II or 1B, Packing Instructions (PI) 965 (Batteries), PI 966 (Batteries, packed with equipment) and PI 967 (Batteries, contained in equipment) as appropriate.

Currently all Panasonic lithium ion batteries are regulated by the International Maritime Organization (IMO), 2010 edition, 35th amendment, under Special Provisions 188 and 230.

All Panasonic lithium ion cells are tested and comply with the UN Model Regulations, Manual of Test and Criteria, Part III, subsection 38.3.

If you build any of our lithium ion cells into a battery pack, you must also assure that they are tested in accordance with the UN Model Regulations, Manual of Test and Criteria, Part III, subsection 38.3, 5th revised edition, Amendment 1.

If you plan on transporting any untested prototype battery packs contact your Panasonic Sales Representative for regulatory information.

FIRST AID

If you get electrolyte in your eyes, flush with water for 15 minutes without rubbing and immediately contact a physician. If you get electrolyte on your skin wash the area immediately with soap and water. If irritation continues, contact a physician. If the battery is ingested, call the National Capital Poison Center (NCPC) at 202-625-3333 (Collect) or your local poison center immediately.

GENERAL RECOMMENDATIONS

CAUTION: Risk of fire, explosion and burns. Do not short-circuit, crush, incinerate or disassemble battery.

FIRE SAFETY

In case of fire, you can use dry chemical, alcohol resistant foam or carbon dioxide fire extinguishers. Cooling the exterior of the batteries will help prevent rupturing. Burning of these batteries will generate toxic fumes. Fire fighters should use self-contained breathing apparatus. Detailed information on fighting a lithium ion battery fire can be found in Guide 147 (Lithium Ion Batteries) of the US DOT Emergency Response Guide.