Material Safety Data Sheet

1. PRODUCTS AND MANUFACTURER

Item Identification: **HD220R-Li, HDR202-Li** Lithium-ion (Li-ion) battery

Hazardous Characteristic Code: C1
National Stock Number: (for Agency use ONLY)
Type Number:
Common Name: Sealed Lithium-ion (Li-ion) battery Weight of Item (grams): < 460g ea
Item Dimensions (inches): Width: 3.50 in (89mm), Length: 5.83 in (148.1mm), Height: 0.765 in (19.4mm)
Contract Number:

Battery Pack Manufacturer's Identification:
Battery Pack Manufacturer's Name and Address and ZIP code: Global Technology Systems, Inc. /Honeywell Batteries
550 Cochituate Road, Framingham, MA, 10701
Repairer's Federal Supply Code (CAGE): 81349
Preparers: Global Technology Systems, Inc.
550 Cochituate Road
Framingham, MA, 10701
Emergency & Information telephone numbers: CML: 732-427-3112, DSN: 987-3112
800-793-4093

2. COMPOSITION OF ITEM: Panasonic battery company cell

Hazardous & Non-hazardous Components (Chemical Name, (Symbol), and [CAS#])	Exposure Limits OSHA PEL	ACGIH	Other * Recommended Limits NIOSH	% by Item Weight
Lithium cobaltite ($LiCoO_2$)[12190-79-3]		---		~10-30
Lithium hexaflurorphosphate ($LiPF_6$)[21324-40-3]		---		~1-5
Carbon (C)[7782-42-5]			2.5	~10-30
Diethyl Carbonate ($C_5H_{10}O_3$)[105-58-8],		---		~5-17
Ethylene Carbonate ($C_3H_4O_3$)[96-49-1], and		---		
Propylene Carbonate ($C_4H_6O_3$)[108-32-7]		---		
Aluminum (Al)[7429-90-5]			2	<1
Copper (Cu)[7440-50-8]			0.2	<1
Polyvinylidene fluoride ($(C_2H_2F_6)_x$)[24937-79-9]		---		<1
Biphenyl ($C_{12}H_{10}$)[92-52-4]			0.2	<0.3

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3. PHYSICAL AND CHEMICAL PROPERTIES: N/A for item

Boiling Point:
Melting Point:
Vapor Pressure (mmHg):
Vapor Density (Air=1):
Evaporation Rate (butyl acetate=1):
Solubility in Water:
Specific Gravity (water=l):
pH:
Odor and Appearance:

4. STABILITY AND REACTIVITY:

Chemical Stability: Stable: **X** Unstable:
Conditions to avoid: **DO NOT:**
- **Expose to fire or excessive heat, or overcharge.**
- **Abuse, mutilate or short circuit the battery.**

Incompatibility: Store in separate stacks from hazardous materials.

Hazardous Decomposition Products: When exposed to extreme heat/fire batteries may rupture leaking corrosive material and/or emit toxic fumes. Burning batteries may emit acrid smoke irritating fumes, and toxic fumes of fluoride.

Hazardous Polymerization: May Occur: ____ Will not Occur: **X**
Conditions to avoid:

5. HEALTH HAZARD IDENTIFICATION

Emergency Overview (including **Signs** and **Symptoms, Route(s) of Entry,** etc.)
Intact batteries present no specific hazards.

Acute Health Hazards (e.g., Inhalation, Eye Contact, Skin Contact, Ingestion, etc.)**:**
Burning batteries: **AVOID** inhalation of toxic fumes. Burning batteries emit toxic fumes, which are irritating to the lungs.
Leaking batteries: **AVOID** exposure to leaking electrolyte, it can cause severe irritation and/or damage to the skin, mucous membrane or eyes.

Chronic Health Effects (e.g., Carcinogen, Teratology, Reproduction, Mutagenicity, etc.)**:**
Cobalt: Suspected human carcinogenic agent.

Medical Conditions Generally Aggravated by Exposure: None.

6. FIRST AID MEASURES:

Inhalation: If battery is burning, leave the area immediately. If exposed to fumes, seek medical attention promptly.

Skin Contact: If battery electrolyte leaks on to the skin flush the affected area for at least 15 minutes with clean water. **DO NOT** attempt to neutralize, Seek medical attention promptly.

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7. FIRE FIGHTING and EXPLOSION HAZARD DATA:

Flammable Properties: N/A
Flashpoint: Method:
Auto ignition Temperature:
Flammable Limits: N/A
Lower flammable limit: Upper flammable limit:
Hazardous Combustion Products: Burning batteries may emit acrid smoke irritating fumes, and toxic fumes of fluoride.

Extinguishing Media: Carbon dioxide (CO_2) or dry chemical fire extinguisher, 10-B: C.

Fire Fighting Instructions:

Personnel: Fight the fire in a defensive mode, while exiting the area.. When using a CO_2 fire extinguisher, **DO NOT** re-enter the area until it has been thoroughly ventilated (i.e., purged) of the CO_2 extinguishing agent.

Firefighters: Use a self-contained breathing apparatus (SCBA).

8. ACCIDENTAL RELEASE MEASURES:

Small Spill: 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. Coordinate disposition with the Installation Environmental Office.

9. HANDLING AND STORAGE:

Handling: Recharge batteries IAW methods specified in applicable technical manuals.
DO NOT:
- Overcharge this battery.
- Abuse, mutilate or short circuit the battery.

Storage: Gain approval for storage areas from the Installation Fire Department.
Store batteries in a cool (i.e., <130°F), dry and well ventilated area.
DO NOT:
- Store batteries in direct sunlight or under hot conditions.
- Smoke and keep batteries away from open flame or heat.
- Store batteries in the same stacks with hazardous materials.
- Store batteries in office areas, or other areas where personnel congregate.

Work/Hygienic Practices: Thoroughly wash hands after cleaning-up a battery spill (i.e., leaking or venting batteries). NO eating, drinking or smoking in battery storage areas.

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10. EXPOSURE CONTROL/PERSONAL PROTECTION EQUIPMENT

Engineering Controls: NA
General Exhaust: Local Exhaust:
Special: If the battery is damaged and leaking, protect hands with chemical resistant rubber gloves. If the battery is burning, leave the area immediately.

Protective Equipment:
Respiratory Protection: During fire fighting firemen should use SCBA.
Skin Protection: Use chemical resistant rubber gloves, when cleaning-up leaking batteries

11. DISPOSAL CONSIDERATIONS/ECOLOGICAL INFORMATION:

Waste Disposal Method: <u>DO NOT</u> incinerate

1. Li-ion batteries are non-hazardous solid waste (NHSW) under Resource Conservation and Recovery Act (RCRA) regulations. They are HW in the states of AK, CA, MN, RI and WA, which utilize bioassay to characterize HW in addition to RCRA requirements. All batteries will be managed IAW equipment TM requirements, and disposal will be IAW requirements under the Universal Waste Rule (USEPA), state and local regulations.

2. These batteries should be recycled, if possible. Coordinate battery disposition and disposal with the Installation Environmental Office and the servicing Defense Reutilization and Marketing Office.

12. TRANSPORTATION INFORMATION:

IAW US DOT regulations "Dry batteries" are not subject to transportation requirements when they are offered for transportation in a manner that prevents the dangerous evolution of heat (e.g., effective insulation of exposed terminals to prevent short circuiting of the battery).

Procedures: Securely package batteries to withstand conditions normal to shipping.
Protect batteries against short-circuiting.

Special Precautions: Isolate and remove damaged and/or leaking batteries, if possible.
Notify local health, safety and environmental agencies.

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