ACR ELECTRONICS, INC.
Material Safety Data Sheet

MSDS 13 **Revision D** **9-08-2009**

SECTION 1: Product and Company Identification

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Hours of Operation: 9am to 5pm Mon. through Fri.
EMERGENCY 24-HOUR TELEPHONE NUMBERS: CHEM-TEL, INC, Inside U.S. (800) 255-3924, Outside U.S. (813) 248-0585 and FAX (813) 248-0582 see www.chemtelinc.com for more information about Chem-Tel, Inc.

Battery Packs
1067 Battery (NiCad) MaxCap SR-103 (One battery pack. Each Pack contains eight AA cells)

Batteries Contained in Equipment
2711, 2711.1, 2713, 2713.1
MaxCap Battery Charger SR-103 (One battery pack. Each Pack contains eight AA cells)

SECTION 2: HAZARDS IDENTIFICATION

Physical Appearance: Small cylindrical batteries

EMERGENCY OVERVIEW

CAUTION: Battery can explode or leak if heated, disassembled, shorted, recharged, exposed to fire or high temperature or inserted incorrectly. Keep in original package until ready to use. Do not carry batteries loose in your pocket or purse. Keep batteries away from children. If swallowed, consult a physician at once. For information on treatment, call the NATIONAL BUTTON BATTERY INGESTION HOTLINE, collect day or night, at (202) 625-3333. Under certain misuse conditions and by abusively opening the battery, exposed lithium can react with water or moisture in the air causing potential thermal burns or fire.

Potential Health Effects: The chemicals and metals in this product are contained in a sealed can. Exposure to the contents will not occur unless the battery leaks, is exposed to high temperatures or is mechanically, physically, or electrically abused.

Eye Contact: Contact with battery contents may cause irritation.

Skin Contact: Contact with battery contents may cause irritation.

Inhalation: Inhalation of vapors or fumes released due to heat or a large number of leaking batteries may cause respiratory and eye irritation.

Ingestion: Swallowing is not anticipated for larger batteries due to battery size. Smaller batteries may be swallowed. If battery is swallowed, seek immediate medical advice. Batteries lodged in the esophagus should be removed immediately since leakage, caustic burns and perforation can occur as soon as two hours after ingestion. Irritation to the internal/external mouth areas may occur following exposure to a leaking battery. Do not give ipecac.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

IMPORTANT NOTE: The battery cell should not be opened or exposed to heat because exposure to the following ingredients contained within could be harmful under some circumstances.

Chemical Name	CAS No.	%[1]	PEL	TLV
Cadmium	7440-43-9	11-26	0.005 TWA[2]	0.05 TWA
Cadmium hydroxide	21041-95-2	11-26	0.005 TWA	0.05 TWA
Nickel (powder)	7440-02-0	8-17	1 TWA	1 TWA
Nickel hydroxide	12054-48-7	5-12	1 TWA	1 TWA
Potassium hydroxide	1310-58-3	< 3	2 Ceiling	2 Ceiling
Nylon	N/A	< 2	N/A	N/A
Steel	N/A	12-13	N/A	N/A
Other	N/A	< 1	N/A	N/A
Total		**100**		

Notes: 1. Concentrations vary depending on the state of charge or discharge.

2. TWA is the time weighted average concentration over an 8-hour period.

SECTION 4: FIRST AID MEASURES

Eye Contact: If battery is leaking and material contacts the eye, flush thoroughly with copious amounts of running water for 30 minutes. Seek immediate medical attention.

Skin Contact: If battery is leaking and material contacts the skin, remove any contaminated clothing and flush exposed skin with copious amounts of running water for at least 15 minutes. If irritation, injury or pain persists, seek medical attention.

Inhaled: If battery is leaking, contents may be irritating to respiratory passages. Move to fresh air. If irritation persists, seek medical attention.

Swallowed: If battery is swallowed seek immediate medical advice. Batteries lodged in the esophagus should be removed immediately since leakage, caustic burns and perforation can occur as soon as two hours after ingestion. If mouth area irritation or burning has occurred, rinse the mouth and surrounding area with tepid water for at least 15 minutes. Do not give ipecac.

Note to Physician: Published reports recommend removal from the esophagus is done endoscopically (under direct visualization). Batteries beyond the esophagus need not be retrieved unless there are signs of injury to the GI tract or a large diameter battery fails to pass the pylorus. If asymptomatic, follow-up x-rays are necessary only to confirm the passage of larger batteries. Confirmation by stool inspection is preferable under most circumstances. For information on treatment, telephone (202) 625-3333 collect, day or night. Potential leakage of dimethoxyethane, propylene carbonate and lithium perchlorate. Dimethoxyethane rapidly evaporates. Do not give ipecac.

SECTION 5: FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Batteries may burst and release hazardous decomposition products when exposed to a fire situation.

Extinguishing Media: Any class of extinguishing medium may be used on the batteries or their packing material.

Special Fire Fighting Procedures: Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing. Fight fire from a distance or protected area. Cool fire exposed batteries to prevent rupture. Use caution when handling fire-exposed containers (batteries may explode in heat of fire).

Hazardous Combustion Products: Exposure to temperatures of above 212°F can cause evaporation of the liquid content of the potassium hydroxide electrolyte resulting in the rupture of the cell. Potential for exposure to cadmium fumes during fire; use self-contained breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Notify safety personnel of large spills. Irritating vapors and flammable may be released from leaking or ruptured batteries. Eliminate all ignition sources. Evacuate the area and allow the vapors to dissipate. Clean-up personnel should wear appropriate protective clothing to avoid eye and skin contact and inhalation of vapors or fumes. Increase ventilation. Carefully collect batteries and place in an appropriate container for disposal. Remove spilled liquid with absorbent and contain for disposal.

SECTION 7: HANDLING AND STORAGE

Storage: Store in a cool place, but prevent condensation on cell or battery terminals. Elevated temperatures may result in reduced battery life. Optimum storage temperatures are between -31F and 95F

Handling: Accidental short circuit will bring high temperature elevation to the battery as well as shorten the battery life. Be sure to avoid prolonged short circuit since the heat can burn attendant skin and even rupture the battery cell case. Batteries packaged in bulk containers should not be shaken. Metal covered tables or belts used for assembly of batteries into devices can be the source of short circuits; apply insulating material to assembly work surface. Install batteries in accordance with equipment instructions. Replace all batteries in equipment at the same time.

Charging: This battery is designed for recharging. A loss of voltage and capacity of batteries due to self-discharge during prolonged storage is unavoidable. Charge battery before use. Observe the specified charge rate since higher rates can cause a rise in internal gas pressure which may result in damaging heat generation or cell rupture and or venting.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

The following occupational exposure limits are provided for informational purposes. No exposure to the battery components should occur during normal consumer use.

Ventilation: No special ventilation is needed for normal use.

Respiratory Protection: None required for normal use.

Skin Protection: None required for normal use. Use butyl rubber gloves when handling leaking batteries.

Eye Protection: None required for normal use. Wear safety goggles when handling leaking batteries.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Chemical Name	Melting Point (F°)	Boiling Point (F°)	% Volatile by Volume	Vapor Pressure (mm Hg)	Evaporation Rate	Vapor Density (Air= 1)	Specific Gravity (H2O)	Solubility in Water	Appearance and Oder
Cadmium:	610	1,407					8.65 @77¡F	Insoluble	Silver-white, blue-tinged, lustrous metal
Cadmium Hydroxide:							4.79	Practically insoluble	Powder
Nickel Powder	2,831	5,134					8.90	Insoluble	Powder
Nickel Hydroxide	*1							Insoluble	Apple Green Power
Potassium Hydroxide	*2							Soluble in 0.9 part water, 0.6 part in boiling water	White or slightly yellow

Note 1: Decomposes above 392iF into NiO and H2O

Note 2: Potassium hydroxide is present as a liquid or paste and acts as the electrolyte in the battery cell.

SECTION 10: STABILITY AND REACTIVITY

Stability: This product is stable.

Incompatibility/Conditions to Avoid: Contents are incompatible with strong oxidizing agents. Do not heat, crush, disassemble, short circuit or recharge.

Hazardous Decomposition Products: Thermal decomposition may produce hazardous fumes of lithium and manganese; hydrofluoric acid, oxides of carbon and sulfur and other toxic by-products.

Hazardous Polymerization: Will not occur

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Toxicity Data:
Inhalation: During normal use inhalation is an unlikely route of exposure due to containment of hazardous materials within the battery case. However, should the batteries be exposed to extreme heat or pressures causing a breach in the battery cell case, cadmium dusts and fumes may be emitted. Inhalation of cadmium dusts or fumes may cause throat dryness, respiratory irritation, headache, nausea, vomiting, chest pain, extreme restlessness and irritability, pneumonitis, and bronchopneumonia. In the case of high concentration exposures (e.g., above 1 to 5 mg/m^3 during an eight hour period) death may occur within several days after the exposure.

Chronic Effects: Repeated overexposures to cadmium may result in lung cancer; lung, kidney, and liver dysfunction; skeletal disease (e.g., osteoporosis) and reproductive toxicity. Chronic overexposure to nickel may result in cancer; dermal contact may result in dermatitis in sensitive individuals. The chemicals in this product are contained in a sealed can and exposure does not occur during normal handling and use. No chronic effects would be expected from handling a leaking battery.

Carcinogenicity: Cadmium and nickel have been identified by the National Toxicology Program (NTP) as reasonably anticipated to be carcinogens. U.S. EPA classified cadmium as a "B1" probable human carcinogen. The International Agency for Research on Cancer (IARC) recommended that cadmium be listed as a "2A" probable human carcinogen, and the American Conference of Governmental Industrial Hygienists (ACGIH) has proposed listing cadmium as an A2 carcinogen.

Target Organs: Skin, eyes and respiratory system.

SECTION 12: ECOLOGICAL INFORMATION

No ecotoxicity data is available. This product is not expected to present an environmental hazard.

SECTION 13: DISPOSAL INFORMATION

All NiCad batteries are classified as a Hazardous Waste because of the presence of Cadmium. The materials contained within are classified as a hazardous waste because of toxicity, not corrosiveness and therefore must be disposed of properly.

Nickel Cadmium batteries are recyclable through the Rechargeable Battery Recycling Corporation's (RBRC) ***Charge Up to Recycle!*** Program. For information call 1-800-8-BATTERY or see their website at www.rbrc.org. Ni-Cd batteries must be handled in accordance with all applicable state and federal laws and regulations.

DO NOT INCINERATE or subject battery cells to temperatures in excess of 212°F. Such treatment can cause cell rupture.

Contact your local government for disposal practices in your area.

SECTION 14: TRANSPORT INFORMATION

Sealed NiCad battery packs are considered to be "dry cell" batteries and are not subject to dangerous goods regulations for purposes of transportation by the U.S. Department of Transportation (DOT), International Civil Aviation Administration (ICAO), International Air Transport Association (IATA) and the International Maritime Dangerous Goods regulations (IMDG).

Air shipments must comply with ICAO and IATA Special Provision A123, which includes the requirement that "Any electrical battery or battery powered device having the potential of dangerous evolution of heat that is not prepared so as to prevent a short-circuit (e.g. in the case of batteries, by the effective insulation of exposed terminals; or, in the case of equipment, by disconnection of the battery and protection of exposed terminals) is forbidden from transport."

Under IATA regulations, effective January 1, 2009, any waybill accompanying a consignment of these batteries must contain the words "Non-restricted" and "Special Provision A123".

DOT shipments must comply with Special Provision 130. Ocean shipments must comply with IMO Special Provision 304. These Special Provisions have requirements which are similar to the requirements found in IATA Special Provision A123.

The requirements for shipping these batteries, in all modes of transportation, are that they be separated from each other to prevent short-circuits and to prevent movement that could lead to short-circuits. Products must also be packed in strong packaging that can withstand the rigors normal to transportation. These products are labeled in accordance to requirements for cargo shipments of NiCad batteries and cells.

SECTION 15: REGULATORY INFORMATION

United States

The products referenced herein are "articles" under 29 CFR 1910.1200(c) and are not subject to OSHA's requirements for material safety data sheets under its Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: OTHER INFORMATION

P&G Hazard Rating: Health: 0 Fire: 0 Reactivity: 0

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Data supplied is for use only in connection with occupational safety and health.

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