ACR ELECTRONICS, INC.
Material Safety Data Sheet

MSDS 46 **Revision M** **10-01-2008**

Product and Company Identification

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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.

Primary Batteries SHIPPING NAME **LITHIUM BATTERIES**
1097 Battery (Lithium) for GYPSI 406 PLB

Batteries Contained in Equipment SHIPPING NAME **LITHIUM BATTERIES CONTAINED IN EQUIPMENT**
2790 GYPSI 406 PLB 406 MHz Personal Locator Beacon with GPS Interface Approvals: Europe, Canada, Australia & Other
2791 406 PLB EPIRB w/o GPS
2792 **406 MHz Personal Locator Beacon** FCC Approved July 1, 2003
2793 GYPSI 406 PLB 406 MHz Personal Locator Beacon with GPS Interface FCC Approved July 1, 2003

Transport Information

Transportation in the United States

Primary Batteries Shipping name: LITHIUM BATTERIES **UN Number 3090 Class 9 Packing Group II**
Batteries Contained in Equipment Shipping name: **LITHIUM BATTERIES CONTAINED IN EQUIPMENT UN Number 3091 Class 9**
The listed batteries and battery packs were tested and meets requirements for shipping per The UN Manual of Tests and Criteria, Part III, Subsection 38.3, UN T1-T8 Tests ST/SG/AC.10/11.

If Transported By Motor Vehicle Or Rail Car in the United States "Excepted" from Class 9 markings, label, specification packaging, and shipping papers. *Must be marked* **Contains Lithium***, provide procedures if box is damaged and labeled "***Not to be transported by aircraft or Vessel***".*
Reference 49 CFR parts 171, 172, 173 and 175, and IATA Dangerous Goods Regulations 49th Edition.

Passenger Aircraft Ban (for batteries only)

Effective December 29, 2004, all primary lithium batteries are banned as cargo on passenger aircraft. In addition this rule requires that the outside of each package that contains primary lithium batteries, regardless of size or number of batteries, be labeled with the following statement: "**PRIMARY LITHIUM BATTERIES- FORBIDDEN FOR TRANSPORT ABOARD PASSENGER AIRCRAFT**". See DOT 49 CFR 173.185 for more information.

International Air Transportation

Effective January 1, 2003, primary lithium batteries and lithium batteries contained in equipment require Class 9 markings, labeling and shipping papers. The outer packaging (shipping box) for ***Battery Packs only*** must meet Group II test criteria. Please consult with your local authorities for additional requirements.

International Transportation (IATA)	Primary Batteries	Batteries Contained in Equipment
UN Number	UN3090	UN3091
Shipping Name	Lithium Batteries	Lithium Batteries Contained in Equipment
Hazard Classification	Class 9 (Miscellaneous)	Class 9 (Miscellaneous)
Packing Group	II	N/A – Requires Strong Outer Packaging

Composition / Hazardous Ingredients

Equipment contains THREE 5/4C size Lithium Sulfur Dioxide Cells

Ingredient	OSHA PEL	ACGIH TLV	Other Limits Recommended	CAS Number	% (optional) (typically) per cell	% (typically) per Battery Pack
LITHIUM	N/A	N/A	N/A	7439-93-2	1.735 grams	5.2 grams
SULFUR DIOXIDE	5ppm	5 ppm	N/A	7446-09-5	< 25%	< 25%
ACETONITRILE	40ppm	40ppm	N/A	75-05-8	< 6%	< 6%
ACETYLENE BLACK	N/A	3.5 ppm	N/A	1333864	< 5%	< 5%

Physical and Chemical Properties

N/A

Fire-and Explosion Data

Extinguishing Media: Use water or CO_2 on burning equipment or lithium batteries. Use a class D fire extinguishing agent only on a raw lithium fire.

Special Fire-Fighting Procedures: Use self-contained breathing apparatus.

Unusual Fire and Explosion Hazards: Battery or battery in product may vent when subjected to excessive heat-exposing battery contents. Hazardous combustion products are Carbon Monoxide and Carbon Dioxide and Lithium Oxide fumes.

Reactivity Data

Stability: Batteries and Batteries contained in Equipment are stable.

Conditions to Avoid: Battery contains hermetically sealed cells and is non-reactive provided the battery integrity is maintained and the cell seal remains intact.

Conditions to Avoid: Heating, mechanical abuse and electrical abuse (such as recharging, voltage reversal and short-circuiting) may result in venting.

y: Inhalation - Yes Skin - Yes

Health Hazards (Acute and Chronic): These chemicals are contained in a sealed can. Risk of exposure occurs only if the battery is mechanically or electrically abused. Contact of electrolyte and extruded lithium with skin and eyes should be avoided.

Carcinogenicity: No NTP: None IARC Monograph: None OSHA Regulated: None

Signs / Symptoms of Exposure: A shorted Lithium battery can cause thermal and chemical burns upon contact with the skin.

Medical Conditions Generally Aggravated by Exposure: An acute exposure will not generally aggravate any medical condition.

Emergency and First Aid Procedures: In case of skin contact with contents of battery, flush immediately with water. For eye contact, flush with copious amounts of water for 15 minutes. Do not inhale leaked material. If irritation persists, get medical help.

Precautions for Safe Handling and Use

Handling Precautions: AVOID MECHANICAL OR ELECTRICAL ABUSE.

If Battery Material is released: Remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. Batteries will not release hazardous gases under normal operating conditions.

Batteries are capable of long term storage at temperatures as high as 160°F (71°C). Storage at lower temperatures will not affect the product. Temperatures above 160°F (71°C) and storage at elevated temperatures should be avoided.

Waste Disposal Method: Follow applicable Federal, state, and local regulations for disposal/recycling of products with Lithium Batteries.

Disposal

Lithium batteries are best disposed of as a non-hazardous waste when fully or mostly discharged. The Federal Environmental Protection Agency (EPA) (governed by the Resource Conservation and Recovery Act (RCRA)) do not list or exempt Lithium as a hazardous waste. However, if waste lithium batteries are still fully charged or only partially discharged, they can be considered a reactive hazardous waste because of significant amounts of unreacted lithium in the battery. The batteries must be neutralized through an approved secondary treatment facility prior to disposal as a hazardous waste (as required by the U.S. Land Ban Restrictions for the hazardous and Solid Waste Amendments of 1984.) Secondary treatment centers receive these batteries as manifested hazardous waste under code "D003 - reactive." Use a professional disposal firm for disposal of mass quantities of undischarged lithium batteries. DO NOT INCINERATE or subject battery cells to temperatures in excess of 212°F. Such treatment can cause cell rupture.

Exposure Controls / Personal Protection

Ventilation: in case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting batteries. Respiratory Protection is not necessary under conditions of normal use.

Personal Protection is recommended for venting batteries: Respiratory Protection, Protective Gloves, Protective Clothing and safety glasses with side shields.

Document Information

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