

MATERIAL SAFETY DATA SHEET

SECTION 1 - Product Identification and Use

Product: Lithium Carbon Monofluoride Downhole Battery
Identifier: D-size Prototype Cell

Manufacturer Name: EaglePicher™ Technologies, LLC
A VECTRA Company
P.O. Box 47
Joplin, MO 64801-0047

Supplier's Name: as above

SECTION 2 - Hazardous Ingredients

Hazardous Ingredients & CAS #	Percent	LD of Ingredient	Species & Route
Lithium Metal (7439-93-2)		5.1 g	
Carbon Monofluoride		21.6 g	
Organic proprietary electrolyte		17 g	

SECTION 3 - Physical Data

(1) Physical State:	Solid	(8)	Freezing Point (°C):	n/a
(2) Odour and Appearance:	n/a	(9)	pH:	n/a
(3) Odour Threshold (ppm):	n/a	(10)	Spec. Gravity:	n/a
(4) Vapour Pressure (mm Hg):	n/a	(11)	Coefficient of water oil	
(5) Vapour Density(air=1):	n/a		Distribution:	n/a
(6) Evaporate Rate:	n/a			
(7) Boiling Point (C):	n/a			

SECTION 4 - Fire and Explosion Data

FLAMMABLE: Lithium is a flammable solid and will react with water to form flammable hydrogen gas.

MEANS OF EXTINCTION: For burning batteries use class D extinguishers; Lithium - X (preferred), powdered graphite, Met-L-X. Use CO₂ to lower temperature and extinguish fires in packing material. Use self-contained breathing apparatus and full protective clothing.

The information contained within this report is competition sensitive and shall not be conveyed to a third party without the express written consent of EaglePicher Technologies, LLC.

HAZARDOUS COMBUSTION PRODUCTS: Carbon Monoxide; Carbon Dioxide; hydrogen fluoride; Lithium Oxide fumes; gases or particulates.

SECTION 5 - Reactivity Data

STABILITY: Stable to 160°C.
INCOMPATIBILITIES: Lithium reacts with water to form Hydrogen.
REACTIVITY: Lithium reacts with air, water and most materials.
Carbon Monofluoride reacts with reducing agents.
Solvents can react with strong oxidizing agents, strong acids and water.

SECTION 6 - Toxicological Properties

ROUTE OF ENTRY: Inhalation, skin absorption.
EFFECT OF ACUTE EXPOSURE: n/a
EFFECT OF CHRONIC EXPOSURE: n/a
EXPOSURE LIMITS: 500µL skin-rabbit severe
IRRITANCY: Solvents / electrolyte: to skin and eyes.
CARCINOGENICITY: n/a
TERATOGENICITY: n/a
REPRODUCTIVE TOXICITY: 25g/kg (oral rat) TDL0: 20 day(s) male
MUTAGENICITY: n/a
SYNERGISTIC PRODUCTS: n/a

SECTION 7 - Preventative Measures

PERSONAL PROTECTIVE EQUIPMENT: Needed only in case of fire; gloves needed for handling leaking batteries.
RESPIRATOR: Organic vapour mask for leaking batteries.
WASTE DISPOSAL: According to local regulations.
STORAGE: Store in well ventilated area equipped with sprinkler systems, away from flammable materials.
Never store above 160°C.
SPECIAL SHIPPING INSTRUCTIONS: According to DOT, ICAO, IATA regulations.

SECTION 8 - First Aid Measures

SPECIFIC: For solvent / electrolyte exposure:
Skin exposure - remove to ventilated area, thoroughly wash exposed skin. Get medical attention.
Eye exposure - immediately flush eyes with large amounts of water for at least 15 minutes. Get medical attention.

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SECTION 9 - Preparation of MSDS

PREPARED BY: EaglePicher Technologies, R&D Department
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DATE: March 31, 2015