

Name of Company	:	Contour Energy Systems
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The batteries are exempt articles and are not subject to the OSHA Hazard Communication Standard Requirement. This sheet is provided as technical information only. The information and recommendations set forth are made in good faith and are believed to be accurate as of the date of preparation. However, Contour Energy Systems makes no warranty expressed or implied.

### **Section 1-Product and Company Identification**

Product Name Lithium Metal Batteries	Type No: 2032P	Volts: 3V	Date of preparation: Mar 01 2011
CHEMICAL SYSTEM: Lithium Manganese Dioxide	Approximate Weight: 3.1g		Designed for Recharge: NO
Company: Contour Energy Systems		Telephone Numbers: 626-610-0660	
Address (Number, Street, City, State, and ZIP Code): 1300 W. Optical Drive, Suite 300 Azusa, CA 91702		Fax Numbers: 626-389-5089	

### **Section 2- Composition/Information on Ingredients**

Ingredient	CAS NO.	Content (wt%)
Lithium	7439-93-2	2.0
Propylene Carbonate	108-32-7	6.1
Manganese dioxide	1313-13-9	29
1,2-Dimethoxyethane	110-71-4	4.2
Lithium perchlorate	7791-03-9	0.9
Graphite	7782-72-5 1333-86-4	3.4

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### **Section 3 – Hazards Identification**

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This contains lithium, organic solvent, and other combustible materials. For this reason, improper handling of the battery could lead to distortion, leakage\*, overheating, explosion of fire and cause human injury or equipment trouble. Please strictly observe safety instruction.

(\*Leakage is defined as an unintended escape of liquid from a battery.)

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### **Section 4 – First Aid Measures**

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None, unless internal materials exposure. If contents have leaked out, observe the following instructions:

Inhalation	Fumes can cause respiratory irritation. Remove to fresh air and consult a physician.
Skin	Immediately flush skin plenty of water. If itch or irritation by chemical burn persists, consult a physician.
Eyes	Immediately flush eye with plenty of water for at least 15 minutes. Consult a physician immediately
Ingestion	If swallowing a battery, consult a physician immediately. If contents come into mouth, immediately rinse by plenty of water and consult a physician.

Contact the National Battery Ingestion Hotline (202-625-3333) collect, day or night for detailed medical advice on first aid measures for the ingestion of a lithium coin battery.

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### **Section 5-Fire Fighting Measures**

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**Extinguishing Media** Extinguisher of alkaline metal fire is effective.  
Plenty of cold water is also effective to cool the surrounding area and control the spread fire. But hydrogen gas may be evolved by the reaction of water and lithium and it can form an explosive mixture. Therefore in the case that lots of lithium batteries are burning in a confined space, use a smothering agent.

**Fire Fighting Procedure** Use self-contained breathing apparatus and full protective gear not to inhale harmful gas.

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### **Section 6-Accidental Release Measures**

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Accidental Releases: Do not breathe vapors or touch liquid with bare hands (see section 4).

Waste Disposal Methods: Evacuate area. If possible, a trained person should attempt to stop or contain the leak by neutralizing spill with soda lime or baking soda. A NIOSH Approved Acid Gas Filter Mask or Self-Contained Breathing Apparatus should be worn. Seal leaking battery and soda lime or baking soda in a plastic bag and dispose of as hazardous waste.

Other: Follow North American Emergency Response Guide (NAERG)#138 for cells involved in an accident, cells that have vented, or have exploded.

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## **Section 7-Handling and Storage**

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### 1) Handling

Never swallow. Never reverse the positive and negative terminals when mounting . Never short-circuit the battery. Never heat. Never expose to open flame. Never disassemble. Never weld the terminal or wire to the body of the battery directly. Never touch the liquid leaked out of battery . Never bring fire close to battery liquid. Never keep in touch with battery.

### 2) Storage

Never let the battery contact with water. Never store the battery in hot and high humid place.

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## **Section 8 – Exposure Controls, Personal Protection**

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Respiratory Protection		NA
Ventilation	Local Exhaust	NA
	Mechanical	NA
	Special	NA
	Other	NA
Eye Protection		NA
Protective Gloves		NA
Other protective clothing		NA

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## **Section 9 – Physical/Chemical Characteristics**

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Boiling Point:	1,2-Dimethoxyethane : 83°C
Vapor Pressure:	1,2-Dimethoxyethane :6.40(20°C)
Vapor Density:	1,2-Dimethoxyethane : 3.11
Solubility in Water:	1,2-Dimethoxyethane : :diffluence contact with water
Specific Gravity:	1,2-Dimethoxyethane :1.63
Melting Point:	1,2-Dimethoxyethane :-67°C
Evaporation Rate:	N/A
Water Reactive:	1,2-Dimethoxyethane : :diffluence contact with water

Appearance & Odor: 1,2-Dimethoxyethane : achromatism liquid; slight aether odor.

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## **Section 10 – Stability and Reactivity**

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Stability	Stable
Incompatibility	Water
Hazardous polymerization	Will not occur.
Condition to avoid	See section 7.
Hazardous Decomposition or Byproducts	Hydrogen

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## **Section 11 – Toxicological Information**

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Acute Toxicity:

1,2-Dimethoxyethane:

LC<sub>50</sub> (Inhalation): N/A

LD<sub>50</sub> : N/A

Eye Effects: Corrosive

Skin Effects: Corrosive

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## **Section 12 –Ecological Information**

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Aquatic Toxicity: Do not let internal components enter marine environments. Avoid releases into waterways, wastewater or groundwater.

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## **Section 13 – Disposal condition**

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The battery may be regulated by national or local regulation. Please follow the instructions of Proper regulation. As electric capacity is left in a discarded battery and it comes into contact With other metals, it could lead to distortion, leakage, overheating, or explosion, so make sure to cover the (+) and (-) terminals with friction tape or some other insulator before disposal.

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## **Section 14 – Transportation Information**

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Lithium battery model CR2032 is considered as “Not Restricted” cargo because they complied with IATA Dangerous Goods Regulations 51<sup>st</sup> Edition of 2010 & Section II of Packing Instruction PI 968.

Shipping Name        Lithium        Metal Batteries  
UN Number            UN3090  
Hazard Classification    Class    9 (Miscellaneous)

Organizations governing the transport of lithium batteries

Area	Method	Organization	Special Provision
International	Air	IATA, ICAO	Best Practice 008
International	Water	IMO	188
U.S.A	Air, Rail, Highway, Water	DOT	49 CFR Section 173.185

These regulations are based on the UN Recommendations . Each special provision provides specifications on exceptions and packaging for shipping lithium batteries. All the Lithium metal cells of Contour Energy Systems comply in all respects can be shipped as “ Not Restricted” cargo in accordance with IATA Dangerous Goods Regulations 51 Edition & Section II of Packing Instruction PI 968

If all of following 3 requirements are satisfied, lithium metal batteries can be transported as “Not Restricted” cargo.

1) Lithium weight or equivalent lithium content must be less than value in table.

	Lithium Cell/Battery (Lithium weight)
Cell	1g or less
Battery	2g or less

\*Equivalent lithium content (g) is calculated as 0.3 (g/Ah) times the rated capacity (Ah) .

2) Each cell or battery is of the type proven to meet the requirements of each test in the UN Manual of Tests and Criteria, Part III, section 38.3 Cells

3) Section II of Packing Instruction PI 968:

- a) Be marked to indicate that it contains lithium metal cells & batteries, and that special procedures be followed in the event that the package is damaged.
- b) Each package must be labeled with a lithium battery handling label.
- c) Be accompanied by a shipping paper explaining that the cells and batteries are excepted from regulations.
- d) Gross Weight no more than 2.5Kgs for Pax / Cargo.
- e) Be capable of withstanding a 1.2m drop test in any orientation without shifting of the contents that would allow short-circuiting, and without release of package contents.

Because the consignor has to take the responsibility, the customer has to confirm the exception conditions when shipping.

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## **Section 15-Regulatory Information**

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EC Labeling : None

Risk Phrases :None

Safety Phrases : None

Labeling is not required because batteries are classified as “articles” under the Dangerous Preparations Directive and as such are exempt from the requirements of the Directive.

Last data revised 2011.03.08

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