## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

**GHS product identifier**

**Product Name** **LITHIUM BCX 85 CELLS AND BATTERIES**

**Other means of identification**

**UN-Number** UN3090 (if packed in or with equipment use UN3091)

**Synonyms** Hermetically-Sealed Lithium Bromine Chloride in Thionyl Chloride Cells and Batteries

**Recommended use of the chemical and restrictions on use**

**Recommended Use** No information available

**Uses advised against** Do not short circuit or expose to temperatures higher than the maximum temperature rating specified by the manufacturer. Do not recharge, over charge or crush any cell or pack. Ensure cells and batteries are safely handled and stored. Review Section 7 completely before use.

**Supplier's details**

**Supplier Address**
Integer Holdings Corp.
2595 Dallas Pkwy #310
Frisco, TX 75034
TEL: 214-618-5248

**Manufacturer Address**
Electrochem Solutions
670 Paramount Drive
Raynham, MA 02767
TEL: 781-830-5800

**Emergency telephone number**

**Emergency Telephone Number** 1-800-424-9300 (Chemtrec Account 24706)

## 2. HAZARDS IDENTIFICATION

**Classification**

This product is not considered hazardous by the OSHA Hazard Communication Standard 2012 (29 CFR 1910.1200). This product is an article which is a sealed battery and as such does not require an SDS per the OSHA hazard communication standard unless ruptured. The hazards indicated are for a ruptured battery.

| | |
|---|---|
| Acute Oral Toxicity | Category 4 |
| Acute Inhalation Toxicity - Gas | Category 3 |
| Acute Inhalation Toxicity - Dusts and Mists | Category 4 |
| Skin Corrosion/Irritation | Category 1 Subcategory 1A |
| Serious Eye Damage/Eye Irritation | Category 1 |
| Specific Target Organ Systemic Toxicity (Single Exposure) | Category 3 |

**GHS Label elements, including precautionary statements**

## Emergency Overview

**Signal Word** **Danger**

**Hazard Statements**
- Harmful if swallowed
- Toxic if inhaled
- Causes severe skin burns and eye damage
- May cause respiratory irritation. May cause drowsiness or dizziness

**This is a battery. In case of rupture, the above hazards exist.**

**Appearance** No information available. **Physical State** Solid. **Odor** None.

**Precautionary Statements**

**Prevention**
- Use only outdoors or in a well-ventilated area.
- Wash face, hands and any exposed skin thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Do not breathe dust/fume/gas/mist/vapors/spray.
- Wear protective gloves/protective clothing/eye protection/face protection.

**General Advice**
- Specific treatment (see supplemental first aid instructions on this label)
- Immediately call a POISON CENTER or doctor/physician.
- Specific treatment (see supplemental instructions on the administration of antidotes on this label)

**Eyes**
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Immediately call a POISON CENTER or doctor/physician.

**Skin**
- IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- Wash contaminated clothing before reuse.

**Inhalation**
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- Call a POISON CENTER or doctor/physician.

**Ingestion**
- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- Rinse mouth.
- Do NOT induce vomiting.

**Storage**
- Store in a well-ventilated place. Keep container tightly closed.
- Store locked up.

**Disposal**
- Dispose of contents/container to an approved waste disposal plant.

**Hazard Not Otherwise Classified (HNOC)**

Cells and batteries may be explosive if exposed to higher temperatures. Do not expose cells or batteries to temperatures above the maximum rated temperature as specified by the manufacturer.

**Other information**

12.5% of the mixture consists of ingredient(s) of unknown toxicity.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Synonyms** Hermetically-Sealed Lithium Bromine Chloride in Thionyl Chloride Cells and Batteries

| Chemical Name | CAS-No | Weight % | Trade secret |
|---|---|---|---|
| Thionyl chloride | 7719-09-7 | 16-37 | * |
| Lithium | 7439-93-2 | 3-5 | * |

**The exact percentage (concentration) of composition has been withheld as a trade secret.*

## 4. FIRST AID MEASURES

**Description of necessary first-aid measures**

**General Advice** First aid is upon rupture of sealed battery:

**Eye Contact** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or Poison Control Center immediately.

**Skin Contact** IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/ attention.

**Inhalation** IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician.

**Ingestion** IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth. Do NOT induce vomiting. Never give anything by mouth to an unconscious person.

**Most important symptoms/effects, acute and delayed**

**Most Important Symptoms/Effects** Itching. Burning. Difficulty in breathing. Coughing and/ or wheezing. Serious eye irritation or damage.

**Indication of immediate medical attention and special treatment needed, if necessary**

**Notes to Physician** Treat symptomatically.

## 5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable Extinguishing Media** Use of water spray when fighting a lithium fire may be inefficient. However, copious amounts of water may be used to cool a battery fire and extinguish any surrounding combustible fires.

**Specific Hazards Arising from the Chemical**

The electrolyte will release toxic sulfur dioxide gas.

**Explosion Data**

**Sensitivity to Mechanical Impact** None.

**Sensitivity to Static Discharge** None.

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

**Personal Precautions** Avoid contact with skin, eyes and clothing. Ensure adequate ventilation. Use personal protective equipment. Wash thoroughly after handling. Refer to Section 8 for personal protective equipment.

**Environmental Precautions**

**Environmental Precautions** See Section 12 for additional Ecological Information.

**Methods and materials for containment and cleaning up**

**Methods for Containment** Prevent further leakage or spillage if safe to do so and properly trained.

**Methods for Cleaning Up** During a release, ensure the Personal Protection listed in Section 8 is worn. Neutralize any electrolyte contaminated surfaces with baking soda, soda line or sodium bicarbonate. Transfer damaged battery and any clean up materials to a sealed container a neutralizing material as stated above. Ensure the container is properly labeled.

## 7. HANDLING AND STORAGE

**Precautions for safe handling**

**Handling** Do not crush, pierce, short circuit (+) and (-) battery terminals with conductive (metal) goods. Do not directly heat or solder. Do not throw into fire. Do not mix batteries of different types and brands. Do not mix new and used batteries. Keep batteries in non-conductive (plastic) trays. Cells or batteries that have been dropped or experience mechanical shock should be isolated and monitored for approximately 5 days to identify a possible internal short circuit and resulting fire. In case of rupture: Handle in accordance with good industrial hygiene and safety practice. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Do not breathe vapors/dust. Wear personal protective equipment.

**Conditions for safe storage, including any incompatibilities**

**Storage** Store at room temperature. Do not store in high humidity environments. Do not store near combustible or flammable materials. Never stack heavy objects on top of battery boxes. Keep batteries in original packaging until use and do not expose them to unnecessary or excessive handling.

**Incompatible Products** Under normal use, batteries are not incompatible. The electrolyte is incompatible with: Strong acids. Strong bases. Strong oxidizing agents.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Control parameters**

**Exposure Guidelines** The following exposure limits are provided for information only; exposure is not expected under normal conditions of use or storage.

| Chemical Name | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|---|---|---|---|
| Thionyl chloride<br>7719-09-7 | Ceiling: 0.2 ppm | (vacated) Ceiling: 1 ppm<br>(vacated) Ceiling: 5 mg/m$^3$ | Ceiling: 1 ppm<br>Ceiling: 5 mg/m$^3$ |

**Appropriate engineering controls**

**Engineering Measures** Showers
Eyewash stations
Ventilation systems

**Individual protection measures, such as personal protective equipment**

**Eye/Face Protection** None required for normal handling of the finished product. If necessary to handle damaged product where exposure to the electrolyte is a possibility, chemical splash goggles and a face shield are recommended.

**Skin and Body Protection** None required for normal handling of the finished product. If necessary to handle damaged product where exposure to the electrolyte is a possibility, chemically resistant gloves and apron are recommended.

**Respiratory Protection** None required under normal usage. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

**Physical State** Solid. **Appearance** No information available.
**Odor** None. **Odor Threshold** No information available.

| Property | Values | Remarks/ - Method |
|---|---|---|
| **pH** | Not applicable unless there is exposure to an electrolyte. | None known |
| **Melting Point/Range** | Not applicable unless there is exposure to an electrolyte. | Thionyl Chloride: -104.44 °C |
| **Boiling Point/Boiling Range** | Not applicable unless there is exposure to an electrolyte. | Thionyl Chloride: 76.11 °C |
| **Flash Point** | Not applicable unless there is exposure to an electrolyte. | None known |
| **Evaporation rate** | Not applicable unless there is exposure to an electrolyte. | None known |
| **Flammability (solid, gas)** | Not applicable unless there is exposure to an electrolyte. | None known |
| **Flammability Limits in Air** | | |
| **upper flammability limit** | Not applicable unless there is exposure to an electrolyte. | |
| **lower flammability limit** | Not applicable unless there is exposure to an electrolyte. | |
| **Vapor Pressure** | Not applicable unless there is exposure to an electrolyte. | Thionyl Chloride: 97 mm Hg @ 20 °C |
| **Vapor Density** | Not applicable unless there is exposure to an electrolyte. | None known |
| **Specific Gravity** | Not applicable unless there is exposure to an electrolyte. | Thionyl Chloride: 1.635 |
| **Water Solubility** | Not applicable unless there is exposure to an electrolyte. | Thionyl Chloride: Decomposes violently on contact with water. |
| **Solubility in other solvents** | Not applicable unless there is exposure to an electrolyte. | None known |
| **Partition coefficient: n-octanol/water** | Not applicable unless there is exposure to an electrolyte. | None known |
| **Autoignition Temperature** | Not applicable unless there is exposure to an electrolyte. | None known |
| **Decomposition Temperature** | Not applicable unless there is | None known |

exposure to an electrolyte.

| | | |
|---|---|---|
| **Viscosity** | Not applicable unless there is exposure to an electrolyte. | Thionyl Chloride: ca. 0.6 mPas @ 25°C |
| **Flammable Properties** | Not flammable | |
| **Explosive Properties** | Not applicable unless there is exposure to an electrolyte. | |
| **Oxidizing Properties** | Not applicable unless there is exposure to an electrolyte. | |

**Other information**

**VOC Content (%)** Not applicable unless there is exposure to an electrolyte.

## 10. STABILITY AND REACTIVITY

**Reactivity**

No dangerous reaction known under conditions of normal use.

**Chemical stability**

Stable under recommended storage conditions.

**Possibility of hazardous reactions**

None under normal use.
In the event of a leak or rupture: electrolyte and lithium will react with water.

**Hazardous Polymerization**

Hazardous polymerization does not occur.

**Conditions to avoid**

Ignitions sources - heat, sparks and open flames.

**Incompatible materials**

Under normal use, batteries are not incompatible. The electrolyte is incompatible with: Strong acids. Strong bases. Strong oxidizing agents.

**Hazardous decomposition products**

Lithium oxides, Sulfur dioxide, Hydrogen chloride, Bromine, Chlorine.

## 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

| | |
|---|---|
| **Product Information** | Exposure is not expected for product under normal conditions of use. In the event of an exposure to electrolyte the following toxicological information is provided: |
| **Inhalation** | Toxic by inhalation. |
| **Eye Contact** | Corrosive to the eyes and may cause severe damage including blindness. |
| **Skin Contact** | Irritating to skin. |
| **Ingestion** | Harmful if swallowed. |

**Symptoms related to the physical, chemical and toxicological characteristics**

**Symptoms** Burning. Eye and skin redness, tearing, hives, blurry vision. May cause blindness.

**Delayed and immediate effects and also chronic effects from short and long term exposure**

**Sensitization** No information available.
**Mutagenic Effects** No information available.
**Carcinogenicity** Contains no ingredients above reportable quantities listed as a carcinogen.

**Reproductive Toxicity** No information available.
**STOT - single exposure** Contains a component known to cause systemic target organ toxicity from acute exposure.
**STOT - repeated exposure** No information available.
**Target Organ Effects** Eyes. Skin. Respiratory system. Gastrointestinal tract (GI). Kidney. Liver.
**Aspiration Hazard** No information available.

**Numerical measures of toxicity - Product**
**Unknown acute toxicity** 12.5% of the mixture consists of ingredient(s) of unknown toxicity.
*The following values are calculated based on chapter 3.1 of the GHS document:*
**LD50 Oral** 1182 mg/kg; Acute toxicity estimate
**Inhalation**
**gas** 1655
**dust/mist** 3.6 mg/L; Acute toxicity estimate
**Vapor** 26 mg/L; Acute toxicity estimate

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity**
Avoid any release to waterways, groundwater, or any environmental media. Harmful effects due to pH shift are expected.

**Persistence and Degradability** No information available.

**Bioaccumulation** For Thionyl Chloride: Does not bioaccumulate.

**Other Adverse Effects**
No information available.

## 13. DISPOSAL CONSIDERATIONS

**Waste Disposal Methods** This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261).

**Contaminated Packaging** Do not re-use empty containers.

## 14. TRANSPORT INFORMATION

**Note:** Lithium batteries shipped as "Lithium batteries", "Lithium batteries packed with equipment", or "Lithium batteries contained in equipement" may not be classified as "Dangerous Goods" when shipped in accodance with "special provision A45 of IATA-DGR" or "special provision 188 of IMO-IMDG Code". For Specific transport information for all variations of BCX cells, please review the Product Data Sheet. This can be sent upon request. Please contact the manufacturer.

**DOT**
**UN-Number** UN3090 (if packed in or with equipment use UN3091)
**Proper shipping name** Lithium metal battery
**Hazard Class** 9
**Description** UN3090, Lithium metal batteries, 9
**Emergency Response Guide Number** 138

**IATA** Forbidden by Passenger Air

| | |
|---|---|
| **UN-Number** | UN3090 (if packed in or with equipment use UN3091) |
| **Proper Shipping Name** | Lithium metal batteries |
| **Hazard Class** | 9 |
| **ERG Code** | 9FZ |
| **Description** | UN3090, Lithium metal batteries, 9 |

**IMDG/IMO**

| | |
|---|---|
| **UN-Number** | UN3090 (if packed in or with equipment use UN3091) |
| **Proper Shipping Name** | Lithium metal batteries |
| **Hazard Class** | 9 |
| **EmS No.** | F-A, S-I |
| **Description** | UN3090, Lithium metal batteries, 9 |

## 15. REGULATORY INFORMATION

### International Inventories

**TSCA** All components of this product are either listed or are exempt on the TSCA inventory.

### Legend

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

### U.S. Federal Regulations

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

**SARA 311/312 Hazard Categories**

| | |
|---|---|
| **Acute Health Hazard** | No |
| **Chronic Health Hazard** | No |
| **Fire Hazard** | No |
| **Sudden Release of Pressure Hazard** | No |
| **Reactive Hazard** | No |

**Clean Water Act**

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

**CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

### U.S. State Regulations

**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

### U.S. State Right-to-Know Regulations

| Chemical Name | New Jersey | Massachusetts | Pennsylvania | Illinois | Rhode Island |
|---|---|---|---|---|---|
| Thionyl chloride | X | X | X | | X |
| Bromine chloride | X | | | | |
| Lithium | X | X | X | | X |

**U.S. EPA Label Information**

**EPA Pesticide Registration Number** Not applicable

## 16. OTHER INFORMATION

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **NFPA** | **Health Hazard** | 0 | **Flammability** | 0 | **Instability** | 0 | **Physical and Chemical Hazards** - |
| **HMIS** | **Health Hazard** | 0 | **Flammability** | 0 | **Physical Hazard** | 0 | **Personal Protection** X |

**Prepared By**

Product Stewardship
23 British American Blvd.
Latham, NY 12110
1-800-572-6501

**Issuing Date** 12-Dec-2016
**Revision Date** 25-Apri-2018
**Revision Note** Edits to Transportation and Physical Property Information.

**General Disclaimer**

**The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.**

**End of Safety Data Sheet**