

Material Safety Data Sheet (MSDS)

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: Marine Safety Light Systems: CS-CL2-WS0/CS-CL2-WS3/CS-SL2-WS3

Product Identification: Lithium powered marine safety light systems are designed to be stored for up to five years before use. The battery cells are hermetically sealed. Pressurised primary lithium/sulphur dioxide and as supplied are electronically protected from external environment by a moulded and sealed plastic casing. In this state the units constitute no definable hazard to health. However disassembly, abuse or destruction of the battery cell will expose the contents and the following Health and Safety Hazards.

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Company Identification

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SECTION 2: HAZARDS IDENTIFICATION

Physical Appearance: Sealed marine safety light with battery.

EMERGENCY OVERVIEW

CAUTION: Battery can explode or leak if heated, disassembled, shorted, recharged, exposed to fire or high temperature or inserted incorrectly.

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

Chemical Name	CAS Number	Amount
Manganese Dioxide	1313-13-9	15-45%
1,2-Dimethoxyethane	110-71-4	5-10%
Propylene Carbonate	108-32-7	1-10%
Lithium	7439-93-2	1-5%
Lithium Trifluoromethane Sulfonate	33454-82-9	0-5%
Carbon Black	1333-86-4	0-5%
Ethylene Carbonate	96-49-1	0-5%
Graphite	7782-42-5	0-5%

SECTION 4: FIRST AID MEASURES

Eye Contact: Flush thoroughly with copious amounts of running water for 30 minutes. Seek immediate medical attention.

Skin Contact: 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: Contents may be irritating to respiratory passages. Move to fresh air. If irritation persists, seek medical attention.

Swallowed: Wash out mouth thoroughly with water and give plenty of water to drink. Obtain medical attention.

Further Treatment: All cases of eye contamination, persistent skin irritation and casualties who have swallowed this substance or been affected by breathing its vapours should be seen by a doctor.

Emergency and first aid procedures: If cell vents, personnel should be evacuated from contaminated areas. Other materials are either inert or have low hazard associated with their exposure.

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: Use dry chemical, alcohol foam, water or carbon dioxide as appropriate for the surrounding fire. For incipient fires, carbon dioxide extinguishers are more effective than water.

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

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

HANDLING: Do not short circuit or expose to temperatures above the temperature rating of the battery. Do not recharge, over-discharge, force discharge, immerse, puncture or crush.

STORAGE: Store in a cool place but prevent condensation on cells and batteries. Elevated temperatures can result in shortened battery life and degrade performance. Do not store batteries in high humidity environments for long periods. External corrosion of the Nickel plated can and tags could result in the formation of toxic metal salts. Avoid ingestion, observe personal hygiene wash hands after contact.

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.

Chemical Name	Exposure Limits
Manganese Dioxide	5 mg/m ³ Ceiling OSHA PEL 0.2 mg/m ³ TWA ACGIH TLV
1,2-Dimethoxyethane	None Established
Propylene Carbonate	2 mg/m ³ Ceiling ACGIH TLV
Lithium	None Established
Lithium Trifluoromethane Sulfonate	None Established
Carbon Black	3.5 mg/m ³ TWA OSHA PEL/ACGIH TLV
Ethylene Carbonate	None Established
Graphite (natural-non-fibrous)	15 mppcf TWA OSHA PEL 2 mg/m ³ TWA (respirable dust) ACGIH TLV
Graphite (synthetic non-fibrous)	5 mg/m ³ TWA (respirable dust), 15 mg/m ³ TWA (total dust) OSHA PEL 2 mg/m ³ TWA (respirable dust) ACGIH TLV

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

Appearance and Odor: Light in plastic housing.

Specific Gravity: Not applicable

Water Solubility: Insoluble

Vapor Pressure: Not applicable

Vapor Density: Not applicable

Boiling Point: Not applicable

Melting Point: Not applicable

Flash Point: 29°F (-2°C) (1,2-Dimethoxyethane)

Autoignition Point: Not applicable

SECTION 10: STABILITY AND REACTIVITY

Stability: Hazardous materials are housed within a hermetically sealed unit. Under normal conditions this unit is Non-hazardous.

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:

Manganese Dioxide: LD50 oral rat >3478 mg/kg

1,2-Dimethoxyethane: LDLo oral rat 1000 mg/kg, LCLo inhalation rat 63 g/m³/6 hr

Propylene Carbonate: LD50 oral rat 29100 uL/kg; LD50 dermal rabbit >20 mL/kg; LC50 inhalation rat >5 g/m³

Ethylene Carbonate: LD50 oral rat 10,000 mg/kg; LD50 dermal rabbit >3000 mg/kg

Lithium Trifluoromethane Sulfonate: LD50 oral rat 1250-1500 mg/kg

Chronic Effects: 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.

Target Organs: Skin, eyes and respiratory system.

Carcinogenicity: Carbon Black is classified by IARC as Possibly Carcinogenic to Humans (Group 2B). None of the other components of this product are listed as carcinogens by ACGIH, IARC, NTP or OSHA.

SECTION 12: ECOLOGICAL INFORMATION

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

SECTION 13: DISPOSAL INFORMATION

Disposal should be in accordance with Federal, state/provincial and local regulations. Large quantities of open batteries should be treated as hazardous waste. Do not incinerate except for disposal in a controlled incinerator.

Some communities offer recycling or collection of batteries – contact your local government for disposal practices in your area.

SECTION 14: TRANSPORT INFORMATION
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Emergency Phone Number:

**CHEMTREC 24 Hour Emergency Response Hotline
+703 527 3887 (United States of America)**

UN Hazard Code.	Excepted from transport packing, marking and labelling regulations under surface ADR & IMDG Special Provision 188, IATA 59th Edition Packing Instruction 970 Section II. Meets the conditions of IMDG Special Provision 230.
UN Number	3091 38.3 Transport Tests: The battery supplier, DURACELL, has certified that all of its lithium batteries meet that requirements of the UN Manual of Test and Criteria, Part III subsection 38.3.
UN Proper Shipping Name	Lithium Metal Batteries Contained in Equipment II
Packing Group.	II
Lithium Content	0.55g (lithium metal battery)
Lithium Battery Weight	18g/battery
Note	Packages should be labelled with the Lithium Battery Handling label.

SECTION 15: REGULATORY INFORMATION

Classification.	Non Hazardous.		
Hazard Symbol.	N/A		
Risk Phrases.	R8	Contact with combustible material may cause fire.	
	R11	Highly flammable.	
	R14/15	Reacts violently with water liberating extremely flammable gases.	
	R17	Spontaneously flammable in air.	
	R19	May form explosive peroxides.	
	R20	Harmful by inhalation.	
	R22	Harmful if swallowed.	
	R34	Causes burns.	
	R36/37/38	Irritating to eyes, respiratory system and skin.	
	Safety Phrases.	S1/2	Keep locked up and out of the reach of children.
		S8	Keep away from moisture.
		S16	Keep away from sources of ignition - no smoking.
		S17	Keep away from combustible material.
		S24/25	When using do not eat drink or smoke.
		S26/27	In case of contact with eyes, rinse immediately with plenty of water.
		S29	Do not empty into drains.
		S33	Take precautionary measures against static discharges.
S36		Wear suitable protective clothing.	
S37		Wear suitable gloves.	
S38		In case of insufficient ventilation wear suitable respiratory equipment.	
S43		In case of fire, see fire fighting precautions.	
S45		In case of incident, seek medical attention.	

SECTION 16: OTHER INFORMATION

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