



# MATERIAL SAFETY DATA SHEET

## Product Name: Ram Litho Shock

4949 Greenhouse Road Houston, TX 77084-2205 281/856-7600 - 800/456-3459 - Fax 281/856-7015

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### I - PRODUCT IDENTIFICATION

Product: Lithium Hypochlorite  
Chemical Family: Alkali Hypochlorite  
Formula: LiOCl  
CAS Number: 13840-33-0  
Synonyms:

#### 24 HR EMERGENCY TELEPHONE NUMBER

INFOTRAC (Transportation): (800)535-5053

### II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Chemical or Common Name: CAS#	Exposure Limits	
	OSHA PEL:	ACGIH TLV:
Lithium hypochlorite	13840-33-0	25-32%
Sodium Chloride	7647-14-5	36
Sodium Sulfate	7757-82-6	13
Potassium Sulfate	7646-93-7	6
Lithium Chloride	7447-41-8	4
Lithium Carbonate	554-13-2	2
Lithium Chlorate	36355-96-1	2
Lithium Hydroxide	1310-65-2	1
Water	7732-18-5	7

### III - HAZARDS IDENTIFICATION

Precautionary Statement: Highly corrosive. May cause skin and eye damage. Avoid breathing dust. May be fatal if swallowed. Do not get in eyes, on skin or on clothing. Wear goggles or face shield, and rubber gloves when handling. Irritating to nose and throat. Remove and wash contaminated clothing before reuse.

Primary Route(s) of Entry:

Ingestion:            ()  
Inhalation:            ()  
Skin Contact:         ()  
Eye Contact:          ()

Primary Health Hazards (Acute and Chronic):

Potential Health effects: Corrosive to eyes, skin, respiratory tract, and mucous membranes.

Carcinogeny Listings:

OSHA: Not Listed

NTP: Not Listed

IARC: Not Listed

ACGIH: Not Listed

Signs & Symptoms of Exposure:

Ingestion:

Inhalation:

Skin Contact:

Eye Contact:

Medical Conditions Aggravated By Exposure:

#### **IV – FIRST AID MEASURES**

Emergency and First Aid Procedures:

Ingestion: Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. See a medical doctor immediately.

Inhalation: Remove to fresh air. If breathing difficultly or discomfort occurs and persist, see a medical doctor. If breathing has stopped, give artificial respiration and see a medical doctor immediately.

Skin Contact: Immediately flush with plenty of water while removing contaminated clothing and/or shoes, and thoroughly wash with soap and water. Obtain immediate medical attention. Contact a medical doctor if necessary.

Eye Contact: Immediately flush with water for at least 15 minutes, lifting the upper and lower eyelids intermittently. See a medical doctor or ophthalmologist immediately.

Note to Physician: Lithium hypochlorite is corrosive to eyes, skin and mucous membranes. Consideration should be given to careful endoscopy as stomach or esophageal burns, perforations or strictures may occur. Careful gastric lavage with an endotracheal tube in place should be considered. Observation may be warranted. Treatment is controlled removal of exposure with symptomatic and supportive care.

#### **V – FIRE FIGHTING MEASURES**

##### **FIRE AND EXPLOSION HAZARD DATA**

Flash Point (Method Used): Not applicable

Flammable Limits:

LEL:

UEL:

Auto-ignition temperature: Not applicable

Extinguishing Media: Use water only. Do not use dry chemical, CO<sub>2</sub> or Halon.

Special Fire-fighting Procedures: Wear full protective clothing and self-contained breathing apparatus (SCBA) approved for fire fighting. This is necessary to protect against the hazards of heat, products of combustion and oxygen deficiency. Do not breathe smoke, gases or vapors generated.

Unusual Fire and Explosion Hazards:

General Hazard: Oxidizer. Contact with easily oxidizable or combustible materials can cause fire or explosion upon ignition from any source.

Statement of physical and Chemical Hazards: Strong-oxidizing agent. Mix only with water. Use clean, dry utensils. Do not add this product to any dispensing device containing remnants of any other product. Such use may cause a violent reaction leading to fire or explosion. Contamination with moisture, organic matter, or other chemicals may start a chemical reaction with generation of heat, liberation of hazardous gases, and possible generation of fire and explosion. In case of contamination or decomposition, do not reseal container. If possible, isolate container in open air and well-ventilated area. Flood with large quantities of water, if necessary.

Hazardous combustion products: Oxygen and toxic chlorine vapors.

Sensitivity to Static Discharge: Not applicable

Sensitivity to Impact: Not applicable

## **VI – ACCIDENTAL RELEASE MEASURES**

Steps To Be Taken In Case Material Is Spilled Or Released:

Notes: Keep combustibles (wood, paper, oil etc.) away from spilled material. With clean shovel, place into clean dry container, and cover loosely. Dispose of waste according to local and Federal laws and regulations. Before cleanup measures begin, review the entire MSDS.

## **VII – HANDLING AND STORAGE**

Precautions to Be Taken in Handling and Storage:

Handling: Do not get in eyes, on skin or clothing. Avoid breathing dust. Wash thoroughly after handling.

Storage: Store away from readily oxidizable materials, strong acids, and flammable materials. Protect from moisture. Keep container closed.

Storage and disposal statement: Store in a cool dry place. Do not transfer into unlabeled containers. Close container tightly after each use. Protect from moisture and heat. Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by state and local

authorities. If drum is not to be used or is contaminated and cannot be reused, dispose of in the same manner. Do not contaminate water, food or feed by storage or disposal.

## **VIII – EXPOSURE CONTROLS/PERSONAL PROTECTION**

Respiratory Protection: When adequate ventilation is not available, wear a NIOSH/MSHA respirator approved for protection against inorganic and hypochlorite dusts.

Ventilation:

Local Exhaust: Use local exhaust ventilation to keep airborne concentrations below exposure limits.

Mechanical Exhaust:

Other Protective Clothing or Equipment: Safely glasses or goggles, Rubber gloves

Work/ Hygienic Practices: Quick-drench eyewash and safety shower.

Exposure limits: Particulates Not Otherwise Classified (PNOC): ACGIH/TWA 10 mg/m<sup>3</sup> (inhalable particulate); 3 mg/m<sup>3</sup> (respirable particulate).

## **IX - PHYSICAL/CHEMICAL CHARACTERISTICS**

Boiling Point: Not applicable

Vapor Pressure (mm Hg): Not applicable

Vapor Density (Air=1): Not applicable

Solubility in Water: 43% by wt. @ 25°C (77°F)

Appearance and odor: White granular solid. Burning, chlorine-like odor

Specific Gravity (H<sub>2</sub>O=1): 0.9 to 1.0 g/cc

Percent volatile by volume:

Melting Point: Decomposes @ 135°C (275°F)

Evaporation Rate: Not applicable

pH: (1% solution) @ 25°C: 11

Percent Volatile: Not applicable

Molecular Weight: 58.39

Coefficient. Oil/Water: Not applicable

## **X – STABILITY AND REACTIVITY**

Stability:         Unstable                       Stable

Conditions to Avoid: Contact with combustible materials (wood, paper, oil).

Contamination with moisture. Strong oxidizer. Contact with combustible material may cause fire.

Incompatibility: Acids, oxidizable materials, combustible materials.

Hazardous Decomposition Products: Oxygen, lithium hydroxide, and lithium chlorates.

Hazardous Polymerization:                       May Occur                       Will Not Occur

Conditions to Avoid:

## **XI - TOXICOLOGICAL INFORMATION**

Eye effects: Lithium hypochlorite: Severe irritant/corrosive (rabbit) [FMC I87-0987]

Skin effects: Lithium hypochlorite: Corrosive (rabbit) [FMC I87-0988, FMC I90-1162, FMC I91-1204]

Dermal LD<sub>50</sub>: Lithium Hypochlorite: 8100 mg/kg (rabbit) [FMC I87-0986]

Not a sensitizer (10% saline in guinea pig) [FMC I87-0985]

Oral LD<sub>50</sub>: Lithium Hypochlorite: 555 mg/kg (rat) [FMC I87-0982]

Inhalation LC<sub>50</sub>: Lithium Hypochlorite: LC50= 1.8 mg/L (male); 2.1 mg/L (female); 2.0 mg/l (combined) (rat) [FMC I98-2252]

Acute Effects from Overexposure: This product is severally irritating/corrosive to the eyes (may cause blindness), skin, respiratory tract, and mucous membranes. Chlorate salts (a minor component) may produce irritation of the stomach, central nervous system depression and kidney effects. Ingestion of sodium sulfate may cause gastrointestinal purging.

Chronic Effects from Overexposure: Lithium hypochlorite did not cause development effects in a study with laboratory animals. It was not mutagenic or genotoxic in several in vitro tests. Excess ingestion of sodium chloride, an ingredient in the mixture, is linked with hypertension and may cause kidney and heart failure.

The use of this product in industrial and commercial applications presents no significant toxicity hazard. The symptoms described below are based on therapeutic applications where relatively large doses are taken orally by medically supervised patients.

Lithium Carbonate is used therapeutically at 500-2000 mg/day oral doses for specific mental disorders. Therapeutic effects occur at blood levels of 2.8-8.3 mg of lithium per liter. Minimal signs of toxicity may also occur at these therapeutic levels and involve primarily gastrointestinal upset. Increased dosage can produce tremors, drowsiness and unsteady gait. Signs of toxicity resolve rapidly on cessation of treatment. Prolonged treatment at toxic levels result in dehydration, kidney damage, weight loss and thyroid disturbances.

Some studies of pregnant mice and rats were associated with birth defects but only at dose levels large enough to produce signs of severe maternal toxicity. Although data from the 1970's and 1980's suggested an increase in cardiovascular defects in babies born in women on lithium carbonate therapy, more recent studies have not found any association between lithium exposure and birth defects. Woman receiving therapeutic lithium carbonate treatment at the time of confinement have the potential for delivery of a fetus with poor muscle tone, slowed heart rate and cyanosis. Full recovery usually occurs within 2-10 days postpartum. Therapeutic and greater levels of lithium may pose a risk to the conceptus and potential benefits to the mother are weighed carefully in clinical situations.

Exposure to lithium in industrial settings is not considered to pose a risk to human health. NIOSH studied 25 workers exposed to lithium-containing dust at air concentrations exceeding 10 mg/m<sup>3</sup> (nuisance dust limit) and found that typical industrial exposure to lithium will not result in blood levels sufficiently high to produce toxicity in either adults or their offspring. [Health Hazard Evaluation report HHE80-036-922]

Acute Toxicity:  
Target Organ Toxicity:  
Reproductive and Development Toxicity:  
Carcinogenicity:  
Mutagenicity:

## **XII- ECOLOGICAL INFORMATION**

This product is toxic to fish and invertebrates. It may be moderately toxic to birds.

Lithium Hypochlorite:

Mallard duck: Acute oral LD50 = 567 mg/kg (slightly toxic) [FMC I87-0992]; 5 day dietary LC50>5000 ppm (practically non-toxic) [FMC I87-0990]

Bobwhite quail: 5 day dietary LC50>5000 ppm (Practically non-toxic) [FMC I87-0989]

Rainbow trout: 96 hour LC50 (static)= 0.2 mg/L (highly toxic) [FMC I87-0995]

Bluegill: 96 hour LC50 (static)= 0.28 mg/L (highly toxic) [FMC I87-0993]

Daphnia: 48 hour LC50 (static)= 23 ug/L (very highly toxic) [FMC I87-0994]

Lithium carbonate is expected to be slightly toxic to aquatic invertebrates and freshwater fish.

Daphnia magna: 48 hour EC50= 33.2 mg/L [FMC I96-2085]

Rainbow trout: 96 hour LC50= 30.3 mg/L [FMC I96-2086]

Chemical Fate Information: No data available for the product.

## **ENVIRONMENTAL HAZARDS (PR Notice 93-10)**

Comments: Statement of Environmental Hazards:

This product is toxic to fish and aquatic organisms. Do not contaminate water by cleaning of equipment or disposal of wastes. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water board or Regional Office of the EPA.

## **XIII – DISPOSAL CONSIDERATIONS**

Waste Disposal Method: Dispose off waste according to local and Federal laws and regulations.

## **XIV - TRANSPORTATION DATA**

U.S. Department of Transportation - 49 CFR

Proper Shipping Name: Oxidizing solid, N.O.S. (lithium hypochlorite, mixture)  
Hazard Class/Division Number: 5.1, Oxidizer  
ID Number: UN 1479  
Packing Group: III  
Label Required: Oxidizer  
Placard Required:  
Marine Pollutant: No

International Maritime Organization - IMDG

Proper Shipping Name: Oxidizing solid, N.O.S. (lithium hypochlorite, mixture)  
Hazard Class/Division Number: 5.1, Oxidizer  
ID Number: UN 1479  
Packing Group: III  
Label Required: Oxidizer  
Placard Required:  
Custom Tariff No: 2828.90.0000  
Marine Pollutant: No

**XV - REGULATORY INFORMATION**

UNITED STATES:

SARA TITLE III (Superfund Amendments and Reauthorization Act)

SARA Section 311 Hazard Category (40 CFR 370): Immediate (acute) health hazard, reactive.

SARA Section 313 Reportable Ingredients (40 CFR 372): this product contains lithium carbonate which is subject to the reporting requirements of Section 313 of the Emergency Planning and Right-To-Know Act of 1986. This information must be included in all MSDS's that are copied and distributed for this material.

SARA Section 302 Extremely Hazardous Substances: Not listed.

CERCLA (Comprehensive Environmental Response Compensation and Liability Act)

CERCLA Regulatory (40 CFR 302.4): Not listed.

TSCA (Toxic Substance Control Act)

TSCA Regulatory (40 CFR 707.60): This product is not subject to TSCA 12 (b) Export Notification Requirements.

TSCA Status (40 CFR 710): All components except for Lithium Chlorate, an impurity, are listed.

STATE REGULATIONS:

California Proposition 65: WARNING. This product contains a chemical known to the State of California to cause reproductive toxicity.

CANADA:

WHMIS (Workers Hazardous Material Information)

Product Identification No: 1479  
Hazard Classification: Class C (Oxidizer)  
Class E (Corrosive)  
Ingredient Disclosure List: Not listed

NFPA RATING:

3 Health  
0 Flammability  
1 Reactivity  
OXY Special (Oxidizer)

**XVI - ADDITIONAL INFORMATION**

This MSDS replaces the 09/29/2003 version. Any changes in information are as follows:  
In Section I - 24 hr emergency telephone number

**ALWAYS COMPLY WITH ALL APPLICABLE INTERNATIONAL, FEDERAL, STATE AND LOCAL REGULATIONS REGARDING THE TRANSPORTATION, STORAGE, USE AND DISPOSAL OF THIS CHEMICAL.**

Due to the changing nature of regulatory requirements, the REGULATORY INFORMATION listed in Section XV of this document should NOT be considered all-inclusive or authoritative. International, Federal, State and Local regulations should be consulted to determine compliance with all required reporting requirements.

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