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Material Safety Data Sheet

Lithium Hypochlorite, mixture, dry MSDS

Section 1: Chemical Product and Company Identification

Product Name: Lithium Hypochlorite, mixture, dry

Catalog Codes: SLL1066

CAS#: Mixture.

RTECS: NH3486000

TSCA: TSCA 8(b) inventory: Lithium Hypochlorite, dry; Sodium chloride; Sodium sulfate anhydrous; Potassium bisulfate; Lithium chloride; Lithium carbonate; Lithium hydroxide; Water

CI#: Not applicable.

Synonym: Lithium Chloride Oxide; Lithium oxychloride

Chemical Name: Hypochlorous acid, lithium salt

Chemical Formula: Not applicable.

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Lithium Hypochlorite, dry	13840-33-0	25-30
Sodium chloride	7647-14-5	36
Sodium sulfate anhydrous	7757-82-6	13
Potassium bisulfate	7646-93-7	6
Lithium chloride	7447-41-8	4
Lithium carbonate	554-13-2	2
Lithium hydroxide	1310-65-2	1
Water	7732-18-5	4-9
Lithium Chlorate	36355-96-1	2

Toxicological Data on Ingredients: Lithium Hypochlorite, dry: Acute: 555 mg/kg [Rat]. Acute: 8100 mg/kg [Rabbit]. Sodium chloride: ORAL (LD50): Acute: 3000 mg/kg [Rat]. 4000 mg/kg [Mouse]. DERMAL (LD50): Acute: >10000 mg/kg [Rabbit]. DUST (LC50): Acute: >42000 mg/m 1 hours [Rat]. Potassium bisulfate: ORAL (LD50): Acute: 2340 mg/kg [Rat]. Lithium chloride: ORAL (LD50): Acute: 526 mg/kg [Rat]. 1165 mg/kg [Mouse]. DERMAL (LD50): Acute: >2000 mg/kg [Rabbit]. DUST (LC50): Acute: 5.57 mg/l 4 hours [Rat]. Lithium carbonate: ORAL (LD50): Acute: 525 mg/kg [Rat]. 531 mg/kg [Mouse].

DERMAL (LD50): Acute: >2000 mg/kg [Rat]. Lithium hydroxide: ORAL (LD50): Acute: 210 mg/kg [Rat]. 363 mg/kg [Mouse].
DUST (LC50): Acute: 960 mg/m 4 hours [Rat]. Lithium Chlorate LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:

Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion. Hazardous in case of skin contact (corrosive), of eye contact (corrosive). The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death. Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Lithium Hypochlorite, dry]. **MUTAGENIC EFFECTS:** Mutagenic for mammalian somatic cells. [Sodium chloride]. Mutagenic for bacteria and/or yeast. [Sodium chloride]. Mutagenic for mammalian somatic cells. [Lithium chloride]. Mutagenic for bacteria and/or yeast. [Lithium chloride]. Mutagenic for mammalian somatic cells. [Lithium carbonate]. **TERATOGENIC EFFECTS:** Classified POSSIBLE for human [Lithium chloride]. **DEVELOPMENTAL TOXICITY:** Classified Reproductive system/toxin/female, Reproductive system/toxin/male [POSSIBLE] [Lithium chloride]. The substance may be toxic to kidneys, peripheral nervous system, gastrointestinal tract, cardiovascular system, upper respiratory tract, skin, eyes, central nervous system (CNS), thyroid. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: of combustible materials of organic materials

Explosion Hazards in Presence of Various Substances:

Slightly explosive in presence of heat. Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:

Contact with combustible or organic materials may cause fire. Hazardous Decomposition Products: oxygen, lithium hydroxide, and lithium chlorates.

Special Remarks on Explosion Hazards:

Electrolysis of sodium chloride in presence of nitrogenous compounds to produce chlorine may lead to formation of explosive nitrogen trichloride. Potentially explosive reaction with dichloromaleic anhydride + urea. (Sodium chloride)

Section 6: Accidental Release Measures

Small Spill:

Use appropriate tools to put the spilled solid in a convenient waste disposal container. If necessary: Neutralize the residue with a dilute solution of acetic acid.

Large Spill:

Oxidizing material. Corrosive solid. Poisonous solid. Stop leak if without risk. Do not get water inside container. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substance damp using water spray. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of acetic acid. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep away from heat. Keep away from sources of ignition. Keep away from combustible material.. Do not ingest. Do not breathe dust. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, combustible materials, organic materials, acids.

Storage:

Keep container tightly closed. Keep container in a cool, well-ventilated area. Separate from acids, alkalis, reducing agents and combustibles. See NFPA 43A, Code for the Storage of Liquid and Solid Oxidizers.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:

Splash goggles. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor and dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

Lithium hydroxide STEL: 1 (mg/m³) [United Kingdom (UK)] CEIL: 1 from AIHA [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Granular solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: Not applicable.

Color: White.

pH (1% soln/water): Basic.

Boiling Point: Not available.

Melting Point: Decomposition temperature: 135°C (275°F)

Critical Temperature: Not available.

Specific Gravity: 0.9 - 1.0 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility:

Soluble in cold water, acetone. Solubility in Water: 43% by weight @ 25 deg. C.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances:

Reactive with combustible materials, organic materials, acids. Slightly reactive to reactive with metals, alkalis.

Corrosivity: Not available

Special Remarks on Reactivity: Incompatible with oxidizable materials

Special Remarks on Corrosivity:

The rates of corrosion of iron and steel in water are a function of the specific mineral quality as well as the alkalinity and pH values. Sodium sulfate ... is a strong contributor to the rate of corrosion. For example, in water with 400 mg/l of alkalinity (as CaCO₃) at pH 7, the corrosion rate will be zero at 200 mg/l of Na₂SO₄, but when the concentration of sodium sulfate is 400 mg/l, the corrosion rate will be about 100 mg per square cm per day. (Sodium sulfate anhydrous)

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals:

Acute oral toxicity (LD₅₀): 210 mg/kg [Rat]. (Lithium hydroxide). Acute dermal toxicity (LD₅₀): >2000 mg/kg [Rabbit]. (Lithium chloride).

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Lithium Hypochlorite, dry]. **MUTAGENIC EFFECTS:** Mutagenic for mammalian somatic cells. [Sodium chloride]. Mutagenic for bacteria and/or yeast. [Sodium chloride]. Mutagenic for mammalian somatic cells. [Lithium chloride]. Mutagenic for bacteria and/or yeast. [Lithium chloride]. Mutagenic for mammalian somatic cells. [Lithium carbonate]. **TERATOGENIC EFFECTS:** Classified POSSIBLE for human [Lithium chloride]. **DEVELOPMENTAL TOXICITY:** Classified Reproductive system/toxin/female, Reproductive system/toxin/male [POSSIBLE] [Lithium chloride]. Contains material which may cause damage to the following organs: kidneys, peripheral nervous system, gastrointestinal tract, cardiovascular system, upper respiratory tract, skin, eyes, central nervous system (CNS), thyroid.

Other Toxic Effects on Humans:

Very hazardous in case of skin contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (corrosive), of eye contact (corrosive).

Special Remarks on Toxicity to Animals: Lowest Published Lethal Dose (LDL) [Man] - Route: Oral; Dose: 1000 mg/kg (Sodium chloride)

Special Remarks on Chronic Effects on Humans:

Causes adverse reproductive effects in humans (fetotoxicity, abortion,) by intraplacental route. High intake of sodium chloride, whether from occupational exposure or in the diet, may increase risk of TOXEMIA OF PREGNANCY in susceptible women (Bishop, 1978). Hypertonic sodium chloride solutions have been used to induce abortion in late pregnancy by direct infusion into the uterus (Brown et al, 1972), but this route of administration is not relevant to occupational exposures. May cause adverse reproductive effects and birth defects in animals, particularly rats and mice (fetotoxicity, abortion, musculoskeletal abnormalities, and maternal effects (effects on ovaries, fallopian tubes) by oral, intraperitoneal, intraplacental, intrauterine, parenteral, and subcutaneous routes. While sodium chloride has been used as a negative control in some reproductive studies, it has also been used as an example that almost any chemical can cause birth defects in experimental animals if studied under the right conditions (Nishimura & Miyamoto, 1969). In experimental animals, sodium chloride has caused delayed effects on newborns, has been fetotoxic, and has caused birth defects and abortions in rats and mice (RTECS, 1997). May affect genetic material (mutagenic) (Sodium chloride)

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: Corrosive. Can cause severe skin irritation and burns. Eyes: Corrosive. Can cause severe irritation and burns. Can cause severe corneal and conjunctival edema. Inhalation: It causes respiratory tract (nose, throat, lungs) irritation. It can be corrosive to the mucous membranes and may cause chemical burns to the respiratory tract. It can cause inflammation, bronchospasm, edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. It can affect respiration (shortness of breath) and cause burning sensation, coughing, wheezing, laryngitis. It may also cause nausea, vomiting, and headache. Ingestion: Corrosive. Harmful if swallowed. Causes severe gastrointestinal/digestive tract irritation, and burns. May cause permanent tissue destruction (burns), perforations, strictures of the esophagus and other parts parts of digestive tract (e.g. stomach). Symptoms may include abdominal pain, nausea, vomiting, diarrhea, and burning sensation in the mouth, throat (esophagus), stomach. May also affect behavior/central nervous system/nervous system (headache, somnolence, tremors, disorientation, confusion, irritability, impaired concentration, lethargy, confusion, drowsiness, dizziness, slurred speech, hallucinations, distorted perceptions, ataxia, seizures, excitement, muscle weakness, tremor, apathy, convulsions, coma), metabolism (metabolic acidosis, loss of appetite, weight loss). May cause kidney damage. May also affect respiration (shortness of breath, respiratory depression), eye (pupillary constriction, blurred vision),

cardiovascular system, liver, blood, and brain (degenerative changes). It may also cause coughing, wheezing and laryngitis. Chronic Potential Health Effects: Ingestion: Lithium's toxicity is due to its cumulative effects. It causes poor appetite, weight loss, weakness, fatigue, dehydration, thirst, dryness of mouth. Finer tremors of the hands, lips, or jaw may be apparent signs of involvement of the nervous system/central nervous system, together with loss of coordination, mental confusion, dizziness, slurred speech, blurred vision, drowsiness, and hyperactivity of the nervous system, including twitching and seizures, as well as coma. It may also cause "restless leg syndrome", a peripheral neuropathy involving a

Section 12: Ecological Information

Ecotoxicity:

Ecotoxicity in water (LC50): 0.2 mg/l 96 hours [Fish (Rainbow trout)]. 0.3 ppm 96 hours [Fish (Blue gill)]. 0.1 ppm 48 hours [Daphnia]. (Lithium Hypochlorite, dry)

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: Not available.

Special Remarks on the Products of Biodegradation:

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 Pollution Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product into sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water board or Regional office of the EPA.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 5.1: Oxidizing material.

Identification:

: Lithium Hypochlorite mixtures, dry with more than 39% available chlorine (Lithium Hypochlorite, dry) UNNA: 1471 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Lithium carbonate California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Lithium carbonate Connecticut hazardous material survey.: Lithium Hypochlorite, dry; Potassium bisulfate Pennsylvania RTK: Sodium sulfate anhydrous Minnesota: Lithium hydroxide Massachusetts RTK: Sodium sulfate anhydrous; Lithium carbonate New Jersey: Lithium Hypochlorite, dry; Potassium bisulfate; Lithium carbonate New Jersey spill list: Lithium carbonate TSCA 8(b) inventory: Lithium Hypochlorite, dry; Sodium chloride; Sodium sulfate anhydrous; Potassium bisulfate; Lithium chloride; Lithium carbonate; Lithium hydroxide; Water SARA 313 toxic chemical notification and release reporting: Lithium carbonate 2%

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:**WHMIS (Canada):**

CLASS C: Oxidizing material. CLASS E: Corrosive solid.

DSCL (EEC):

R8- Contact with combustible material may cause fire. R22- Harmful if swallowed. R34- Causes burns. S17- Keep away from combustible material. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S28- After contact with skin, wash immediately with plenty of water. S36/37/39- Wear suitable protective clothing, gloves and eye/face protection. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S56- Dispose of this material and its container at hazardous or special waste collection point.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

Reactivity: 0

Personal Protection: j

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 0

Reactivity: 1

Specific hazard:

Protective Equipment:

Gloves. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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