1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name: SAFT LITHIUM THIONYL CHLORIDE (LI-SOCL2) NON-RECHARGEABLE

Synonym(s):

1.2 Uses and uses advised against

Use(s):
- GPS • NWSPO
- BATTERIES

1.3 Details of the supplier of the safety data sheet

Supplier name: SAFT AUSTRALIA

Address: Unit 18, 167 Prospect Hwy, Seven Hills, NSW, Australia, 2141

Telephone: (02) 9674 0700

Fax: (02) 9620 9990

Email: Not supplied

Website: http://www.saftbatteries.com

1.4 Emergency telephone number(s)

Emergency: +61 3 9573 3112 (24hrs) or 1800 039 008 (24hrs)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

GHS Classification(s):
- Acute Toxicity: Oral: Category 4
- Acute Toxicity: Skin: Category 4
- Skin Corrosion/Irritation: Category 1A
- Serious Eye Damage / Eye Irritation: Category 1
- Acute Toxicity: Inhalation: Category 4
- Contact with water liberates toxic gas

2.2 Label elements

Signal word: DANGER

Pictograms:

Hazard statement(s):
- H302 Harmful if swallowed.
- H312 Harmful in contact with skin.
- H314 Causes severe skin burns and eye damage.
- H318 Causes serious eye damage.
- H332 Harmful if inhaled.
- AUH029 Contact with water liberates toxic gas

Prevention statement(s)
Product name: SAFT LITHIUM THIONYL CHLORIDE (LI-SOCL2) NON-RECHARGEABLE

P260  Do not breathe dust/fume/gas/mist/vapours/spray.
P264  Wash thoroughly after handling.
P270  Do not eat, drink or smoke when using this product.
P271  Use only outdoors or in a well-ventilated area.
P280  Wear protective gloves/protective clothing/eye protection/face protection.

Response statement(s)
P301 + P330 + P331  IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353  IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340  IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310  Immediately call a POISON CENTER or doctor/physician.
P321  Specific treatment is advised - see first aid instructions.
P363  Wash contaminated clothing before reuse.

Storage statement(s)
P405  Store locked up.

Disposal statement(s)
P501  Dispose of contents/container in accordance with relevant regulations.

2.3 Other Hazards
NOTE: Hazard statement relates to battery contents. Potential for exposure should not exist unless the battery leaks, is exposed to high temperatures or is mechanically, physically or electrically abused.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS number</th>
<th>EC number</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDITIVE(S)</td>
<td>Not Available</td>
<td>Not Available</td>
<td>remainder</td>
</tr>
<tr>
<td>THIONYL CHLORIDE</td>
<td>7719-09-7</td>
<td>231-748-8</td>
<td>40 - 50%</td>
</tr>
<tr>
<td>LITHIUM</td>
<td>7439-93-2</td>
<td>231-102-5</td>
<td>1 - 4.9%</td>
</tr>
<tr>
<td>LITHIUM COMPLEX</td>
<td>Not Available</td>
<td>Not Available</td>
<td>4 - 7%</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye  Exposure is considered unlikely unless casing is damaged. Flush gently with running water. Seek medical attention if irritation develops.

Inhalation  Exposure is considered unlikely. Due to product form / nature of use, an inhalation hazard is not anticipated.

Skin  Exposure is considered unlikely unless casing is damaged. Gently flush affected areas with water. Seek medical attention if irritation develops.

Ingestion  For advice, contact a Poison Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting. Ingestion is considered unlikely due to product form. Rinse mouth out with water and give plenty of water to drink.

First aid facilities  Eye wash facilities should be available.

4.2 Most important symptoms and effects, both acute and delayed
Adverse effects not expected from this product. Exposure to battery contents may cause irritation and potential burns.

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.
SAFT LITHIUM THIONYL CHLORIDE (LI-SOCL2) NON-RECHARGEABLE

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Dry agent. Do NOT use water. Prevent contamination of drains and waterways.

5.2 Special hazards arising from the substance or mixture

Contents react with water. May explode if exposed to high temperatures due to pressure build up in battery casing. Lithium may burn in a fire situation and may be ejected from the battery. Damaged cells may evolve toxic and flammable vapours. May evolve sulphur oxides and hydrogen chloride when heated to decomposition.

5.3 Advice for firefighters

Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code

4W

4 Risk of violent reaction or explosion. Wear liquid-tight chemical protective clothing and breathing apparatus. Contain spill and run-off.

W Dry Agent (water MUST NOT be allowed to come into contact with substance).

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS.

6.2 Environmental precautions

Prevent product from entering drains and waterways.

6.3 Methods of cleaning up

If spilt, collect and reuse where possible. If battery is broken or damaged, absorb liquid with sand or similar. Contain spillage, then collect and place in suitable containers for disposal. CAUTION: Avoid exposure to contents.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities

Store tightly sealed in a cool, dry, well ventilated area, removed from water, incompatible substances, heat or ignition sources and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Check regularly for leaks or spills.

7.3 Specific end use(s)

No information provided.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1 Control parameters

<table>
<thead>
<tr>
<th>Substance</th>
<th>Reference</th>
<th>TWA</th>
<th>STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ppm</td>
<td>mg/m³</td>
</tr>
<tr>
<td>Thionyl chloride</td>
<td>SWA (AUS)</td>
<td>1</td>
<td>4.9</td>
</tr>
</tbody>
</table>

This report was compiled based on the SDS dated 16 Apr 2013

Reviewed: 08 Dec 2014
Printed: 10 Oct 2016
Product name: SAFT LITHIUM THIONYL CHLORIDE (LI-SOCL2) NON-RECHARGEABLE

8.2 Exposure controls

Engineering Controls: Avoid inhalation. Use in well ventilated areas. Maintain vapour levels below the recommended exposure standard.

PPE

Eye/Face: No PPE specified.
Hand: Wear PVC or rubber gloves.
Body: No PPE specified.
Respiratory: No PPE specified.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>SOLID</td>
</tr>
<tr>
<td>Odour</td>
<td>SLIGHT ODOUR</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>pH</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Melting Point</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Flash Point</td>
<td>NOT RELEVANT</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Flammability</td>
<td>NON FLAMMABLE</td>
</tr>
<tr>
<td>Upper Explosion Limit</td>
<td>NOT RELEVANT</td>
</tr>
<tr>
<td>Lower Explosion Limit</td>
<td>NOT RELEVANT</td>
</tr>
<tr>
<td>Vapour Pressure</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Vapour Density</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Solubility (water)</td>
<td>INSOLUBLE</td>
</tr>
<tr>
<td>Partition Coefficient</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Viscosity</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Explosive Properties</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Oxidising Properties</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>NOT AVAILABLE</td>
</tr>
</tbody>
</table>

9.2 Other information

% Volatiles: NOT AVAILABLE
Product name: SAFT LITHIUM THIONYL CHLORIDE (LI-SOCL2) NON-RECHARGEABLE

**10. STABILITY AND REACTIVITY**

**10.1 Reactivity**
Carefully review all information in sections 10.2 to 10.6.

**10.2 Chemical stability**
Stable under recommended conditions of storage.

**10.3 Possibility of hazardous reactions**
Polymerization will not occur.

**10.4 Conditions to avoid**

**10.5 Incompatible materials**
Battery contents are incompatible with water (evolving flammable gas), oxidising agents (e.g. hypochlorites), acids (e.g. nitric acid), alkalis (e.g. sodium hydroxide), heat and ignition sources.

**10.6 Hazardous decomposition products**
May evolve hydrogen and lithium oxides when heated to decomposition.

**11. TOXICOLOGICAL INFORMATION**

**11.1 Information on toxicological effects**

**Acute toxicity**
No specific acute toxicity data exists for this product. Batteries consist of a hermetically sealed metallic container containing a number of chemicals and materials of construction that may be hazardous upon release. Over exposure considered unlikely unless battery ruptures and contact with contents occurs. Contents may be harmful.

**Skin**
Not classified as a skin irritant unless the battery ruptures. Battery contents may be corrosive and cause irritation, redness, dermatitis and possible skin burns.

**Eye**
Not classified as an eye irritant unless the battery ruptures. Battery contents may be corrosive and cause irritation, redness and possible eye burns.

**Mutagenicity**
No evidence of mutagenic effects.

**Carcinogenicity**
No evidence of carcinogenic effects.

**Reproductive**
No relevant or reliable studies were identified.

**STOT - single exposure**
Not classified as causing organ damage from single exposure. Due to the product form and nature of use, exposure to internal contents is not anticipated unless the battery ruptures. Exposure to contents may cause respiratory irritation.

**STOT - repeated exposure**
Not expected to cause organ effects from repeated exposure. Due to the product form and nature of use, exposure to internal contents is not anticipated unless the battery ruptures.

**Aspiration**
Not relevant.

**Sensitisation**
Not classified as causing skin or respiratory sensitisation.
SAFT LITHIUM THIONYL CHLORIDE (LI-SOCL2) NON-RECHARGEABLE

12. ECOLOGICAL INFORMATION

12.1 Toxicity
This product may be hazardous to the environment.

12.2 Persistence and degradability
This product is not readily biodegradable.

12.3 Bioaccumulative potential
Limited information was available at the time of this review.

12.4 Mobility in soil
This product has low mobility in soil.

12.5 Results of PBT and vPvB assessment
No information provided.

12.6 Other adverse effects
No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Waste disposal
Reuse or recycle where possible. Return to manufacturer/supplier. Contact your state EPA or the manufacturer for additional information.

Legislation
Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

<table>
<thead>
<tr>
<th>Land Transport (ADG)</th>
<th>Sea Transport (IMDG/IMO)</th>
<th>Air Transport (IATA/ICAO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.1 UN number</td>
<td>3090</td>
<td>3090</td>
</tr>
<tr>
<td>14.2 UN proper shipping name</td>
<td>LITHIUM METAL BATTERIES (including lithium alloy batteries)</td>
<td></td>
</tr>
<tr>
<td>14.3 Transport hazard classes</td>
<td>DG Class 9</td>
<td>9</td>
</tr>
<tr>
<td>Subsidiary risk(s)</td>
<td>None Allocated</td>
<td>-</td>
</tr>
<tr>
<td>14.4 Packing group</td>
<td>II</td>
<td>II</td>
</tr>
<tr>
<td>14.5 Environmental hazards</td>
<td>None Allocated</td>
<td></td>
</tr>
<tr>
<td>14.6 Special precautions for user</td>
<td>Hazchem Code 4W</td>
<td>EMS F-A, S-I</td>
</tr>
</tbody>
</table>

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Poison schedule
A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications
C - Corrosive
F+ - Extremely flammable
SAFT LITHIUM THIONYL CHLORIDE (LI-SOCL2) NON-RECHARGEABLE

Xi - Irritant
Xn - Harmful

Risk phrases
R15/29: Contact with water liberates toxic, highly flammable gas.
R20/21/22: Harmful by inhalation, in contact with skin and if swallowed.
R35: Causes severe burns.
R41: Risk of serious damage to eyes.

Safety phrases
S1: Keep locked up.
S8: Keep container dry.
S9: Keep container in a well ventilated place.
S13: Keep away from food, drink and animal feeding stuffs.
S24/25: Avoid contact with skin and eyes.
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S27: Take off immediately all contaminated clothing.
S30: Never add water to this product.
S35: This material and its container must be disposed of in a safe way.
S36/37/39: Wear suitable protective clothing, gloves and eye/face protection.
S38: In case of insufficient ventilation, wear suitable respiratory equipment.
S45: In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).
S51: Use only in well ventilated areas.
S60: This material and its container must be disposed of as hazardous waste.

Inventory listing(s)
AUSTRALIA: AICS (Australian Inventory of Chemical Substances)
All components are listed on AICS, or are exempt.

15.2 Chemical safety assessment
No information provided.

16. OTHER INFORMATION

Additional information
The manufacturer describes the ingredient lithium complex as lithium aluminium chloride salts, unspecified (CAS number 14024-11-4).

EXPOSURE STANDARDS - TIME WEIGHTED AVERAGES: Exposure standards are established on the premise of an 8 hour work period of normal intensity, under normal climatic conditions and where a 16 hour break between shifts exists to enable the body to eliminate absorbed contaminants. In the following circumstances, exposure standards must be reduced: Strenuous work conditions; hot, humid climates; high altitude conditions; extended shifts (which increase the exposure period and shorten the period of recuperation).

WORKPLACE CONTROLS AND PRACTICES: Unless a less toxic chemical can be substituted for a hazardous substance, ENGINEERING CONTROLS are the most effective way of reducing exposure. The best protection is to enclose operations and/or provide local exhaust ventilation at the site of chemical release. Isolating operations can also reduce exposure. Using respirators or protective equipment is less effective than the controls mentioned above, but is sometimes necessary.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a ChemAlert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.
SAFT LITHIUM THIONYL CHLORIDE (LI-SOCL2) NON-RECHARGEABLE

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

Abbreviations

- ACGIH: American Conference of Governmental Industrial Hygienists
- CAS #: Chemical Abstract Service number - used to uniquely identify chemical compounds
- CNS: Central Nervous System
- EC No.: EC No - European Community Number
- EMS: Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
- GHS: Globally Harmonized System
- GTEPG: Group Text Emergency Procedure Guide
- IARC: International Agency for Research on Cancer
- LC50: Lethal Concentration, 50% / Median Lethal Concentration
- LD50: Lethal Dose, 50% / Median Lethal Dose
- mg/m³: Milligrams per Cubic Metre
- OEL: Occupational Exposure Limit
- pH: relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
- ppm: Parts Per Million
- STEL: Short-Term Exposure Limit
- STOT-RE: Specific target organ toxicity (repeated exposure)
- STOT-SE: Specific target organ toxicity (single exposure)
- SUSMP: Standard for the Uniform Scheduling of Medicines and Poisons
- SWA: Safe Work Australia
- TLV: Threshold Limit Value
- TWA: Time Weighted Average

Report Status

This ChemAlert report has been independently compiled by RMT's scientific department utilising the original Safety Data Sheet ("SDS") for the product provided to RMT by the manufacturer. The information is based on the latest chemical and toxicological research and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. It is an independent collation by RMT of information obtained from the original SDS for this product. Its content has not been authorised or verified by the manufacturer / distributor of the chemical to which it relates.

This ChemAlert report does not constitute the manufacturer's original SDS and is not intended to be a replacement for same. It is provided to subscribers of ChemAlert as a reference tool only, is not all-inclusive and does not represent any guarantee as to the properties of the product. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer.

While RMT has taken all due care to include accurate and up-to-date information in this ChemAlert report, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this ChemAlert report.

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SAFT LITHIUM THIONYL CHLORIDE (LI-SOCL2) NON-RECHARGEABLE

Last Reviewed: 08 Dec 2014
Date Printed: 10 Oct 2016
Based on SDS dated: 16 Apr 2013

End of Report