LITHIUM (-6, -7)

Chemwatch: **1415-2**
Version No: **4.1.1.1**
Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Issue Date: **01/01/2013**
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Initial Date: **Not Available**
S.GHS.USA.EN

SECTION 1 IDENTIFICATION

Product Identifier

Product name	LITHIUM
Chemical Name	Lithium
Synonyms	Lithium
Proper shipping name	Lithium
Chemical formula	Li
Other means of identification	Not Available
CAS number	7439-93-2

Relevant identified uses of the substance

	Medical and research applications

Details of the manufacturer

Registered company name	Oak Ridge National Laboratory
Address	P.O. Box 2008, Oak Ridge, Tennessee 37831-6158
Telephone	(865) 574-6984
Fax	(865) 574-6986
Website	http://isotopes.gov/
Email	isotopes@ornl.gov

Emergency telephone number

Association / Organization	Oak Ridge National Laboratory
Emergency telephone numbers	(865) 574-6606
Other emergency telephone numbers	CHEMTREC: 1-800-424-9300

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability	4		
Toxicity	2		
Body Contact	3		
Reactivity	2		
Chronic	2		

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

	Emit Flammable Gases with Water Category 1, Skin Corrosion/Irritation Category 1B, Serious Eye Damage Category 1

Label elements

Continued...

Hazard statement(s)

H260	In contact with water releases flammable gases which may ignite spontaneously
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage

Precautionary statement(s) Prevention

P231+P232	Handle under inert gas. Protect from moisture.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P223	Do not allow contact with water.

Precautionary statement(s) Response

P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
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/doctor/physician/first aider

Precautionary statement(s) Storage

P405	Store locked up.
P402+P404	Store in a dry place. Store in a closed container.

Precautionary statement(s) Disposal

	Dispose of contents/container to authorized chemical landfill or if organic to high temperature incineration

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

CAS No	%[weight]	Name
7439-93-2	100	lithium

Mixtures

See section above for composition of Substances

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: ▪ Immediately hold eyelids apart and flush the eye continuously with running water. ▪ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▪ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▪ Transport to hospital or doctor without delay. ▪ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. ▪ **DO NOT** attempt to remove particles attached to or embedded in eye. ▪ Lay victim down, on stretcher if available and pad both eyes, make sure dressing does not press on the injured eye by placing thick pads under dressing, above and below the eye. ▪ Seek urgent medical assistance, or transport to hospital.
Skin Contact	If skin or hair contact occurs: ▪ Immediately flush body and clothes with large amounts of water, using safety shower if available. ▪ Quickly remove all contaminated clothing, including footwear. ▪ Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre. ▪ Transport to hospital, or doctor.
Inhalation	▪ If fumes or combustion products are inhaled remove from contaminated area. ▪ Lay patient down. Keep warm and rested. ▪ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▪ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▪ Transport to hospital, or doctor.
Ingestion	▪ For advice, contact a Poisons Information Centre or a doctor at once. ▪ Urgent hospital treatment is likely to be needed. ▪ If swallowed do **NOT** induce vomiting. ▪ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▪ Observe the patient carefully. ▪ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▪ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.

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Indication of any immediate medical attention and special treatment needed

Copper, magnesium, aluminum, antimony, iron, manganese, nickel, zinc (and their compounds) in welding, brazing, galvanizing or smelting operations all give rise to thermally produced particulates of smaller dimension than may be produced if the metals are divided mechanically. Where insufficient ventilation or respiratory protection is available these particulates may produce "metal fume fever" in workers from an acute or long term exposure.

- Onset occurs in 4-6 hours generally on the evening following exposure. Tolerance develops in workers but may be lost over the weekend. (Monday Morning Fever)
- Pulmonary function tests may indicate reduced lung volumes, small airway obstruction and decreased carbon monoxide diffusing capacity but these abnormalities resolve after several months.
- Although mildly elevated urinary levels of heavy metal may occur they do not correlate with clinical effects.
- The general approach to treatment is recognition of the disease, supportive care and prevention of exposure.
- Seriously symptomatic patients should receive chest x-rays, have arterial blood gases determined and be observed for the development of tracheobronchitis and pulmonary edema.

[Ellenhorn and Barceloux: Medical Toxicology]
For acute or short-term repeated exposures to highly alkaline materials:

- Respiratory stress is uncommon but present occasionally because of soft tissue edema.
- Unless endotracheal intubation can be accomplished under direct vision, cricothyroidotomy or tracheotomy may be necessary.
- Oxygen is given as indicated.
- The presence of shock suggests perforation and mandates an intravenous line and fluid administration.
- Damage due to alkaline corrosives occurs by liquefaction necrosis whereby the saponification of fats and solubilization of proteins allow deep penetration into the tissue.

Alkalis continue to cause damage after exposure.
INGESTION:

- Milk and water are the preferred diluents

No more than 2 glasses of water should be given to an adult.

- Neutralizing agents should never be given since exothermic heat reaction may compound injury.

* Catharsis and emesis are absolutely contra-indicated.
* Activated charcoal does not absorb alkali.
* Gastric lavage should not be used.

Supportive care involves the following:

- Withhold oral feedings initially.
- If endoscopy confirms transmucosal injury start steroids only within the first 48 hours.
- Carefully evaluate the amount of tissue necrosis before assessing the need for surgical intervention.
- Patients should be instructed to seek medical attention whenever they develop difficulty in swallowing (dysphagia).

SKIN AND EYE:

- Injury should be irrigated for 20-30 minutes.

Eye injuries require saline. [Ellenhorn & Barceloux: Medical Toxicology]
Clinical effects of lithium intoxication appear to relate to duration of exposure as well as to level.

- Lithium produces a generalized slowing of the electroencephalogram; the anion gap may increase in severe cases.
- Emesis (or lavage if the patient is obtunded or convulsing) is indicated for ingestions exceeding 40 mg (Li)/Kg.
- Overdose may delay absorption; decontamination measures may be more effective several hours after cathartics.
- Charcoal is not useful. No clinical data are available to guide the administration of catharsis.
- Hemodialysis significantly increases lithium clearance; indications for hemodialysis include patients with serum levels above 4 mEq/L
- There are no antidotes.

[Ellenhorn and Barceloux: Medical Toxicology]

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

Metal dust fires need to be smothered with sand, inert dry powders.
DO NOT USE WATER, CO2 or FOAM.

- Use DRY sand, graphite powder, dry sodium chloride based extinguishers, G-1 or Met L-X to smother fire.
- Confining or smothering material is preferable to applying water as chemical reaction may produce flammable and explosive hydrogen gas.

Special hazards arising from the substrate or mixture

- Reacts with acids producing flammable / explosive hydrogen (H2) gas
- Segregate from alcohol, water.
- **NOTE:** May develop pressure in containers; open carefully. Vent periodically.
- Keep dry

Advice for firefighters

Fire Fighting	• Alert Fire Brigade and tell them location and nature of hazard. • May be violently or explosively reactive. • Wear full protective clothing plus breathing apparatus. • Prevent, by any means available, spillage from entering drains or water course.
Fire/Explosion Hazard	• Solid in contact with water or moisture may generate sufficient heat to ignite combustible materials. Combustion products include:, metal oxides • **DO NOT** disturb burning dust. Explosion may result if dust is stirred into a cloud, by providing oxygen to a large surface of hot metal. • **DO NOT** use water or foam as generation of explosive hydrogen may result.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Minor Spills	• Material from spill may be contaminated with water resulting in generation of gas which subsequently may pressure closed containers. • Hold spill material in vented containers only and plan for prompt disposal • Eliminate all ignition sources. • Cover with **DRY** earth, sand or other non-combustible material. • Then cover with plastic sheet to minimize spreading and to prevent exposure to rain or other sources of water.
Major Spills	• Clear area of personnel and move upwind. • Alert Fire Brigade and tell them location and nature of hazard. • Eliminate all ignition sources (no smoking, flares, sparks or flames) • Stop leak if safe to do so; prevent entry into waterways, drains or confined spaces.

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	▪

	Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	▪ Avoid all personal contact, including inhalation. ▪ Wear protective clothing when risk of overexposure occurs. ▪ Use in a well-ventilated area. ▪ Avoid contact with moisture.
Other information	**KEEP DRY!** Packages must be protected from water ingress. **FOR MINOR QUANTITIES**: ▪ Store in an indoor fireproof cabinet or in a room of noncombustible construction and ▪ provide adequate portable fire-extinguishers in or near the storage area. **FOR PACKAGE STORAGE**: ▪ Store in original containers in approved flame-proof area. ▪ No smoking, naked lights, heat or ignition sources.

Conditions for safe storage, including any incompatibilities

Suitable container	▪ Storage containers must be hermetically sealed; the product must be stored under an inert, dry gas. For low viscosity materials and solids: Drums and jerricans must be of the non-removable head type. Where a can is to be used as an inner package, the can must have a screwed enclosure. For materials with a viscosity of at least 2680 cSt.
Storage incompatibility	▪ Metals and their oxides or salts may react violently with chlorine trifluoride and bromine trifluoride. ▪ These trifluorides are hypergolic oxidizers. They ignite on contact (without external source of heat or ignition) with recognized fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition. ▪ The state of subdivision may affect the results.

PACKAGE MATERIAL INCOMPATIBILITIES

Not Available

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
US ACGIH Threshold Limit Values (TLV)	hydrogen	* Hydrogen	Not Available	Not Available	Not Available	TLV® Basis: Asphyxia; Simple asphyxiant (D); see Appendix F: Minimal Oxygen Content

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
lithium	Lithium	0.56 mg/m3	6.1 mg/m3	220 mg/m3
lithium hydroxide	Lithium hydroxide	0.091 mg/m3	1 mg/m3	42 mg/m3
lithium hydroxide	Lithium hydroxide monohydrate	0.091 mg/m3	1 mg/m3	42 mg/m3
hydrogen	Hydrogen	65,000 ppm	230000 ppm	400000 ppm

Ingredient	Original IDLH	Revised IDLH
lithium	Not Available	Not Available
lithium hydroxide	Not Available	Not Available
hydrogen	Not Available	Not Available

Exposure controls

Appropriate engineering controls	Metal dusts must be collected at the source of generation as they are potentially explosive. ▪ Avoid ignition sources. ▪ Good housekeeping practices must be maintained. ▪ Dust accumulation on the floor, ledges and beams can present a risk of ignition, flame propagation and secondary explosions.
Personal protection	
Eye and face protection	▪ Chemical goggles. ▪ Full face shield may be required for supplementary but never for primary protection of eyes. ▪ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task.
Skin protection	See Hand protection below

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Hands/feet protection	▪ Wear chemical protective gloves, e.g. PVC. ▪ Wear safety footwear or safety gumboots, e.g. Rubber The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application. The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.
Body protection	See Other protection below
Other protection	▪ Protective overalls, closely fitted at neck and wrist. ▪ Eye-wash unit. **IN CONFINED SPACES:** ▪ Non-sparking protective boots ▪ Static-free clothing. ▪ Ensure availability of lifeline.
Thermal hazards	Not Available

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:
"Forsberg Clothing Performance Index".
The effect(s) of the following substance(s) are taken into account in the computer generated selection:
LITHIUM Not Available

Material	CPI

* CPI - Chemwatch Performance Index
A: Best Selection
B: Satisfactory; may degrade after 4 hours continuous immersion
C: Poor to Dangerous Choice for other than short term immersion
NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -
* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

Respiratory protection

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	P1 Air-line*	- -	PAPR-P1 -
up to 50 x ES	Air-line**	P2	PAPR-P2
up to 100 x ES	-	P3	-
		Air-line*	-
100+ x ES	-	Air-line**	PAPR-P3

* - Negative pressure demand ** - Continuous flow
A(All classes) = Organic vapors, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

	Silvery-white, ductile, light, soft metal. Must always be kept under mineral oil or other liquid free from oxygen or water. Reacts violently with water evolving hydrogen.

Physical state	Solid	**Relative density (Water = 1)**	0.534 @ 20 C
Odor	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odor threshold	Not Available	**Auto-ignition temperature (°C)**	>179
pH (as supplied)	Not Applicable	**Decomposition temperature**	Not Applicable
Melting point / freezing point (°C)	180.54	**Viscosity (cSt)**	Not Applicable
Initial boiling point and boiling range (°C)	1317	**Molecular weight (g/mol)**	6.94
Flash point (°C)	Not Available	**Taste**	Not Available
Evaporation rate	Not Applicable	**Explosive properties**	Not Available
Flammability	Not Available	**Oxidizing properties**	Not Available
Upper Explosive Limit (%)	Not Applicable	**Surface Tension (dyn/cm or mN/m)**	Not Applicable
Lower Explosive Limit (%)	Not Applicable	**Volatile Component (%vol)**	Not Applicable
Vapor pressure (kPa)	0.13 @ 723 C	**Gas group**	Not Available
Solubility in water (g/L)	Immiscible	**pH as a solution(1%)**	Not Applicable
Vapor density (Air = 1)	Not Applicable	**VOC g/L**	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	▪ May heat spontaneously ▪ Identify and remove sources of ignition and heating. ▪ Incompatible material, especially oxidizers, and/or other sources of oxygen may produce unstable product(s). ▪ Avoid sources of water contamination (e.g. rain water, moisture, high humidity). ▪ Avoid contact with oxygenated solvents/ reagents such as alcohols.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7

Continued...

	See section 7
	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual. Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled. If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures. The inhalation of small particles of metal oxide results in sudden thirst, a sweet, metallic foul taste, throat irritation, cough, dry mucous membranes, tiredness and general unwellness.
Ingestion	The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion. Accidental ingestion of the material may be damaging to the health of the individual. Lithium, in large doses, can cause dizziness and weakness. If a low salt diet is in place, kidney damage can result.
Skin Contact	The material can produce chemical burns following direct contact with the skin. Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	The material can produce chemical burns to the eye following direct contact. Vapors or mists may be extremely irritating. If applied to the eyes, this material causes severe eye damage.
Chronic	Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Lithium compounds can affect the nervous system and muscle.

lithium		
	Not Available	Not Available
lithium hydroxide		
	Inhalation (Rat) LC50: 960 mg/m3/4h	
	Oral (Mouse) LD50: 363 mg/kg	
	Oral (Rat) LD50: 210 mg/kg	
	Not Available	Not Available
hydrogen		
	Not Available	Not Available

** Value obtained from manufacturer's msds*
unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances

HYDROGEN	No significant acute toxicological data identified in literature search.
LITHIUM, LITHIUM HYDROXIDE	Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS.

Acute Toxicity	⊘	**Carcinogenicity**	⊘
Skin Irritation/Corrosion	✔	**Reproductivity**	⊘
Serious Eye Damage/Irritation	✔	**STOT - Single Exposure**	⊘
Respiratory or Skin sensitization	⊘	**STOT - Repeated Exposure**	⊘
Mutagenicity	⊘	**Aspiration Hazard**	⊘

Legend: ✔ *– Data required to make classification available*
✖ *– Data available but does not fill the criteria for classification*
⊘ *– Data Not Available to make classification*

CMR STATUS

	lithium	ILO Chemicals in the electronics industry that have toxic effects on reproduction

Continued...

	lithium	US Environmental Defense Scorecard Suspected Carcinogens	P65-MC

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

For Metal:
Atmospheric Fate - Metal-containing inorganic substances generally have negligible vapor pressure and are not expected to partition to air.
Environmental Fate: Environmental processes, such as oxidation, the presence of acids or bases and microbiological processes, may transform insoluble metals to more soluble ionic forms. Environmental processes may enhance bioavailability and may also be important in changing solubilities.
Aquatic/Terrestrial Fate: When released to dry soil, most metals will exhibit limited mobility and remain in the upper layer; some will leach locally into ground water and/ or surface water ecosystems when soaked by rain or melt ice. A metal ion is considered infinitely persistent because it cannot degrade further.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
	No Data available for all ingredients	No Data available for all ingredients

Bioaccumulative potential

Ingredient	Bioaccumulation
	No Data available for all ingredients

Mobility in soil

Ingredient	Mobility
	No Data available for all ingredients

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.
A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.

SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant	NO

Land transport (DOT)

UN number	1415*
Packing group	I
UN proper shipping name	Lithium
Environmental hazard	No relevant data
Transport hazard class(es)	Class: 4.3
Special precautions for user	Special provisions: A7, A19, IB4, IP1, N45

Air transport (ICAO-IATA / DGR)

	1415*
	I
	Lithium
	No relevant data
	ICAO/IATA Class: 4.3 ICAO / IATA Subrisk: Not Applicable ERG Code: 4W
	Special provisions: A1 Cargo Only Packing Instructions: 487 Cargo Only Maximum Qty / Pack: 15 kg

	Passenger and Cargo Packing Instructions	Forbidden
	Passenger and Cargo Maximum Qty / Pack	Forbidden
	Passenger and Cargo Limited Quantity Packing Instructions	Forbidden
	Passenger and Cargo Limited Maximum Qty / Pack	Forbidden

Sea transport (IMDG-Code / GGVSee)

UN number	1415*
Packing group	I
UN proper shipping name	LITHIUM
Environmental hazard	No relevant data
Transport hazard class(es)	IMDG Class: 4.3 IMDG Subrisk: Not Applicable
Special precautions for user	EMS Number: F-G , S-N Special provisions: Not Applicable Limited Quantities: 0

SECTION 15 REGULATORY INFORMATION

Safety, health and environmental regulations / legislation specific for the substance or mixture

Lithium (7439-93-2) is found on the following regulatory lists	"US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"
lithium hydroxide (1310-66-3) is found on the following regulatory lists	"US AIHA Workplace Environmental Exposure Levels (WEELs)","US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"
Hydrogen (1333-74-0) is found on the following regulatory lists	"US - California Permissible Exposure Limits for Chemical Contaminants","US - Oregon Permissible Exposure Limits (Z-1)","US - Washington Permissible exposure limits of air contaminants","US Spacecraft Maximum Allowable Concentrations (SMACs) for Airborne Contaminants","US ACGIH Threshold Limit Values (TLV)","US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

SECTION 16 OTHER INFORMATION

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

www.chemwatch.net/references

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.