



SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name THIONYL CHLORIDE LITHIUM BATTERIES (S9185FA, S9883FA)
Synonym(s) ER3V, ER4V, ER6V, ER17330V, ER17500V • ER3V, ER4V, ER6V, ER17330V, ER17500V - PRODUCT CODE

1.2 Uses and uses advised against

Use(s) BATTERIES

1.3 Details of the supplier of the product

Supplier name YOKOGAWA AUSTRALIA PTY LTD
Address Tower A, 112 Talavera Road, North Ryde, NSW, 2113, AUSTRALIA
Telephone (02) 8870 1100
Fax (02) 8870 1111
Email info@au.yokogawa.com
Website <http://www.yokogawa.com/au/>

1.4 Emergency telephone number(s)

Emergency (02) 8870 1100

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

2.2 Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

Chemical ingredient is hermetically sealed in a vessel, so the product is neither dangerous nor toxic as a cell. If the lithium metal of contents touches the skin, a chemical burn is caused. In addition, the lithium metal is oxidized and creates corrosive lithium oxide. If reacting with water, lithium metal produces hydrogen gas that may fire as a combustible gas. Thionyl chloride, contained in a battery, is a corrosive, acutely toxic substance, and reacts with water and produces hydrogen chloride gas and sulphur dioxide gas. If a cell burnt, generated steam may stimulate eyes, skin and throat.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
THIONYL CHLORIDE	7719-09-7	231-748-8	25 to 45%
ALUMINIUM CHLORIDE ANHYDROUS	7446-70-0	231-208-1	2 to 5%
CARBON BLACK	1333-86-4	215-609-9	1 to 5%
LITHIUM CHLORIDE	7447-41-8	231-212-3	<2%
LITHIUM	7439-93-2	231-102-5	<1%

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 Poisons 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.
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.

5. FIRE FIGHTING 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.

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

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

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

Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m ³	ppm	mg/m ³
Aluminium, soluble salts (as Al)	SWA (AUS)	--	2	--	--
Carbon black	SWA (AUS)	--	3	--	--
Thionyl chloride	SWA (AUS)	1 (Peak)	4.9 (Peak)	--	--

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas.

PPE

Eye / Face	Not required under normal conditions of use.
Hands	Wear PVC or rubber gloves.
Body	Not required under normal conditions of use.
Respiratory	Not required under normal conditions of use.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	CYLINDRICAL SOLID
Odour	SLIGHT ODOUR
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	NOT AVAILABLE
Evaporation rate	NOT AVAILABLE
pH	NOT AVAILABLE
Vapour density	NOT AVAILABLE
Specific gravity	NOT AVAILABLE
Solubility (water)	INSOLUBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

PRODUCT NAME THIONYL CHLORIDE LITHIUM BATTERIES (S9185FA, S9883FA)

10.3 Possibility of hazardous reactions

Polymerization will not occur.

10.4 Conditions to avoid

Heat above 70°C or incinerate. Deform. Mutilate. Crush. Pierce. Disassemble. Recharge. Short circuit. Expose over a long period to humid conditions.

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.

Information available for the ingredient(s):

Ingredient	Oral Toxicity (LD50)	Dermal Toxicity (LD50)	Inhalation Toxicity (LC50)
THIONYL CHLORIDE	--	--	500 ppm/1 hour (rat)
ALUMINIUM CHLORIDE ANHYDROUS	770 mg/kg (mouse)	--	--
CARBON BLACK	> 8000 mg/kg (rat)	--	--
LITHIUM CHLORIDE	526 mg/kg (rat)	> 2000 mg/kg (rat)	> 5.57 mg/L/4h (rat)

Skin Not classified as a skin irritant unless the battery ruptures. Contact with contents may cause irritation, redness, dermatitis and possible burns with prolonged contact.

Eye Not classified as an eye irritant unless the battery ruptures. Contact with contents may cause irritation, redness and possible burns with prolonged contact.

Sensitisation Not classified as causing skin or respiratory sensitisation.

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.

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 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



	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	3090	3090	3090
14.2 Proper Shipping Name	LITHIUM BATTERIES	LITHIUM BATTERIES	LITHIUM BATTERIES
14.3 Transport hazard class	9	9	9
14.4 Packing Group	II	II	II

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code 4W
GTEPG 9A3
EMS F-A, S-I

Other information When cell/batteries is contained in equipment and packed with equipment, UN is 3091.

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 Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

The classifications and phrases listed below are based on the Approved Criteria for Classifying Hazardous Substances [NOHSC: 1008(2004)].

Hazard codes None allocated.

Risk phrases None allocated.

Safety phrases None allocated.

Inventory listing(s) **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
 All components are listed on AICS, or are exempt.
JAPAN: MITI (Japanese Handbook of Existing and New Chemical Substances)
 All components are listed in the Handbook, or are exempt.

16. OTHER INFORMATION

Additional information

PRODUCT NAME THIONYL CHLORIDE LITHIUM BATTERIES (S9185FA, S9883FA)

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.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:

The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, 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.

HEALTH EFFECTS FROM EXPOSURE:

It should be noted that the effects from exposure to this product will depend on several factors including: form of product; 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 report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

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/m ³	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 document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources 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. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, 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 SDS.

PRODUCT NAME THIONYL CHLORIDE LITHIUM BATTERIES (S9185FA, S9883FA)

Prepared by

Risk Management Technologies
5 Ventnor Ave, West Perth
Western Australia 6005
Phone: +61 8 9322 1711
Fax: +61 8 9322 1794
Email: info@rmt.com.au
Web: www.rmt.com.au

[End of SDS]