i-ALERT®2
Sensor Safety Data Sheet

1. Identification of the product and supplier

Product	i-ALERT2 Sensor
Manufacturer	ITT Goulds Pumps, Inc.
Address	240 Fall Street, Seneca Falls, NY 13148, U.S.A.
Telephone	+1(315) 568-7808

2. Composition and information about the ingredients

The i-ALERT2 sensor contains a Primary Lithium Thionyl Chloride cell.

	Percent of total weight	Chemical Abstracts service #	Chip Classification
Lithium (Li)	3.0～4.1	7439-93-2	
Thionyl Chloride (SOCl2)	39.2～45.5	7719-09-7	
Aluminum Chloride Anhydrous (AlCl3)	1～4.9	7446-70-0	
Carbon (C)	2.8～3.6	1333-86-4	

3. Hazards identification

The i-ALERT2 sensor under normal conditions of use is not a physical or health hazard to people.
Do not incinerate, crush or expose to temperatures above the declared operating temperature range of the product.

Risk of fire or explosion: The Lithium-Thionyl Chloride battery described in this Product Safety Data Sheet is sealed and is not hazardous when used according to the recommendations of the manufacturer.

4. First aid measures

Inhalation	Remove from exposure, rest and keep warm. In severe cases, obtain medical attention.
Skin contact	Wash off skin thoroughly with tap water. Remove contaminated clothing and wash before reuse. In severe cases, obtain medical attention.
Eye contact	Irrigate eye thoroughly with water for at least 15 minutes. Obtain medical attention.
Ingestion	Wash out mouth thoroughly with water and give plenty of water to drink. Obtain medical attention.
Further treatment	All cases of eye contamination, persistent skin irritation and casualties who have swallowed this substance or been affected by breathing its vapors should be seen by a doctor.

5. Fire-fighting measures

- CO2 extinguishers or copious quantities of water-based foam can be used to cool down burning Li-SOCl2 cells and batteries, as long as the extend of the fire has not progressed to the point that the Lithium metal they contain is exposed.
- Do not use for this purpose sand, dry powder or soda ash, graphite powder or fire blankets.
- Use only metal (Class D) extinguishers on raw lithium.
- Extinguishing Media: Use water or CO2 on burning Li-SOCl2 cells or batteries and class D fire extinguishing agent only on raw lithium.

6. Accidental release measures

- Do not breathe vapors or touch liquid with bare hands.
- If the skin has come into contact with the electrolyte, it should be washed thoroughly with water.
- Earth or sand should be used to absorb the exudation. Seal the leaking battery and earth in a heavy-duty polythene bag and dispose of as Special Waste in accordance with local regulations.

7. Handling and storage

Handling	DO NOT crush or pierce. DO NOT throw into fire.
Storage	Store in a cool (preferably below 30°C / 86ºF) place. Temperature above 100°C / 212ºF may result in battery leakage and rupture.

8. Exposure controls/personal protection

	Occupational exposure standard	Compound Sulfur dioxide Hydrogen chloride	8hr TWA 1 ppm 1 ppm	15min TWA 1 ppm 5 ppm	SK - -
	**Respiratory protection**	In all fire situations, use self-contained breathing apparatus			
	**Hand protection**	In the event of battery leakage wear gloves.			
	**Eye Protection**	**If battery is damaged, safety glasses are recommended.**			
	**Other**	**In the event of battery leakage, wear chemical apron.**			

9. Physical and chemical properties

Appearance	Cubic shape
Odor	If battery IS leaking, gives off a pungent corrosive odor
pH	Not applicable
Flash point	Not applicable unless battery components are exposed
Flammability	Not applicable unless battery components are exposed
Relative density	Not applicable unless battery components are exposed
Solubility (water)	Not applicable unless battery components are exposed
Solubility (other)	Not applicable unless battery components are exposed

10. Stability and reactivity

Product is stable under conditions described in Section 7.

Conditions to avoid	• Heat above 100°C / 212ºF or incinerate. Deform. Mutilate. Crush. Pierce. Disassemble.
Materials to avoid **If battery is exposed**	• Oxidizing agents, alkalis, water. • Avoid electrolyte contact with aluminum or zinc
Hazardous decomposition Products	• Hydrogen (H2) as well as Lithium oxide (Li2O) and Lithium hydroxide (LiOH) dust is produced in case of reaction of lithium metal with water. • Chlorine (Cl2), Sulfur dioxide (SO2) and Disulfur dichloride (S2Cl2) are produced in case of thermal decomposition of *thionyl chloride* above 140°C / 284ºF. • Hydrochloric acid (HCl) and Sulfur dioxide (SO2) are produced in case of reaction of *Thionyl* chloride with water at room temperature. • Hydrochloric acid (HCl) fumes, Lithium oxide, (Li2O), Lithium hydroxide (LiOH) and Aluminum hydroxide (Al(OH)3) dust are produced in case of reaction of Lithium tetrachloroaluminate (LiAlCl4) with water.

11. Toxicological information

Signs & symptoms:

None, unless battery ruptures	In the event of exposure to internal contents, corrosive fumes will be very irritating to skin, eyes and mucous membranes. Overexposure can cause symptoms of non-fibrotic lung injury and membrane irritation.
Inhalation	Lung irritant
Skin contact	Skin irritant
Eye contact	Eye irritant
Ingestion	Tissue damage to throat and gastro-respiratory tract if swallowed.
Medical conditions generally aggravated by exposure	In the event of exposure to internal contents, eczema, skin allergies, lung injuries, asthma and other respiratory disorders may occur.

12. Ecological information

Mammalian effects	None known if used/disposed of correctly.
Eco-toxicity	None known if used/disposed of correctly.
Bioaccumulation potential	None known if used/disposed of correctly.
Environmental fate	None known if used/disposed of correctly.

13. Disposal consideration

Do not incinerate, or subject product to temperatures in excess of 100°C / 212ºF. Such abuse can result in loss of seal, leakage, and/or cell explosion. Dispose of in accordance with appropriate local regulations.

14. Transport information

The i-ALERT2 sensor contains a Lithium metal cell that contains less than 1 gram of Lithium. There is only one Lithium Cell in an i-ALERT2 sensor.

Classification (DGR 3.9.2.6): UN 3091, Lithium metal batteries contained in equipment

Packing Instruction: PI 970 - Section II

Lithium Battery Label

15. Regulation information

Here below are the nature of special risks and the advices of caution.

Risk phrases	Lithium	R14/15 R21 R22 R35 R41 R42/43	• Reacts violently with water, liberating extremely flammable gases • Harmful in contact with skin • Harmful if swallowed • Causes burns • Risk of serious damage to eye • May cause sensitization by inhalation and skin contact
	Thionyl chloride (SOCl2)	R14 R22 R35 R37 R41 R42/43	• Reacts with water • Harmful if swallowed • Causes burns • Irritating to respiratory system • Risk of serious damage to eye • May cause sensitization by inhalation and skin contact
	Aluminum chloride anhydrous (AlCl3)	R14 R22 R37 R41 R43	• Reacts with water. • Harmful if swallowed. • Irritating to respiratory system. • Risk of serious damage to eye. • May cause sensitization by skin contact.

Safety phrases	**Lithium (Li)**	S2 S8 S45	• Keep out of reach of children • Keep away from moisture • In case of incident, seek medical attention
	Thionyl Chloride (SOCl2)	S2 S8 S24 S26 S36 S37 S45	• Keep out of reach of children. • Keep away from moisture. • Avoid contact with skin. • In case of contact with eyes, rinse immediately with plenty of water. • Wear suitable protective clothing. • Wear suitable gloves. • In case of incident, seek medical attention.
	Aluminum Chloride Anhydrous (AlCl3)	S2 S8 S22 S24 S26 S36	• Keep out of reach of children. • Keep away from moisture. • Do not breathe dust. • Avoid contact with skin. • In case of contact with eyes, rinse immediately with plenty of water. • Wear suitable protective clothing.
	UK regulatory references		• Classified under CHIP

- Move to fresh air immediately and avoid any eye and skin contact.
- Use self-contained breathing apparatus and full protective gear and do not inhale harmful gas.

16. Other information

This information has been compiled from sources considered to be dependable and is, to the best of our knowledge and belief, accurate and reliable as of the date compiled, However, no representation, warranty (either expressed or implied) or guarantee is made to the accuracy, reliability, or completeness of the information contained herein. It is the user's responsibility to satisfy themselves as to the suitability and completeness of this information for their particular use.