



## PRODUCT SAFETY DATA SHEET

### PRODUCTS: DAN M2/MR2/W2/WR2

#### SECTION 1: IDENTIFICATION

<b>PRODUCT NAME</b>	Marine Safety Light Systems DAN M2/MR2/W2/WR2
<b>MANUFACTURERS NAME</b>	<b>DANIAMANT A/S</b>
<b>ADDRESS</b> <b>TELEPHONE NO.</b> <b>FAX NO.</b>	Industrivej 24C, DK-3550 Slangerup, Denmark. +45 47 37 38 00 +45 47 37 38 09
<b>EMERGENCY NOS.</b>	<b>FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE EXPOSURE OR ACCIDENT CALL CHEMTREC DAY OR NIGHT:</b>  <b>00 1 703 527 3887 (SHIPMENT TO AND FROM USA) (CHEMTREC OFFICE)</b>  <b>800 424 9300 (INTERNAL N.AMERICA MOVEMENTS) (CHEMTREC OFFICE)</b>  <b>D806 CHEMTREC COMPANY CODE 205617 COMPANY NUMBER</b>
<b>DESCRIPTION</b>	Lithium powered marine safety light systems are designed to be stored for up to five years before use. The battery cells are hermetically sealed. Pressurised primary lithium/ Manganese Dioxide and as supplied are electronically protected by a fuse and from external environment by a moulded plastic casing. In this state the units constitute no definable hazard to health. However, disassembly, abuse or destruction of the battery cell will expose the contents and the following Health and Safety Hazards.

#### SECTION 2: INFORMATION OF INGREDIENTS

##### HAZARDOUS COMPONENTS:

	CAS NUMBER	% OPTIONAL	OSHA/PEL	ACGIH TLV 5 TEL
Carbon	1333-86-4	2.25%		
Lithium Metal	7439-93-2	3.24%	N/A	N/A
Manganese Dioxide	1313-13-9	40.56%	5 mg/m3	5 mg/m3
Propylene Carbonate	108-32-7	6.75%	N/A	N/A
1,2 Dimethoxyethane	110-71-4	5.78%	N/A	N/A
Lithium Perchlorate	7791-03-9	1.53%	N/A	N/A
Tetrahydrofuran	109-99-9	5.89%	200 ppm	200 ppm

Reference : Sax's dangerous properties of industrial materials.

**NOTE: These products do not contain asbestos.**

### SECTION 3: HAZARD IDENTIFICATION

<b>LITHIUM METAL:</b>	This is flammable when in contact with water. It reacts violently to produce hydrogen and lithium hydroxide. Use only soda ash, sodium chloride or graphite to extinguish flames.
<b>MANGANESE DIOXIDE:</b>	Poison by intravenous and intratracheal routes moderately toxic by subcutaneous route. Experimental reproductive effects. A powerful oxidiser, flammable by chemical reaction. Must not be heated or rubbed in contact with easily oxidizable matter.
<b>1.2 Dimethoxyethane:</b>	Experimental teratogen. Other experimental reproduction effects readily forms an explosive peroxide. A very dangerous fire hazard when exposed to flame, heat or oxidisers. When heated to decomposition it emits acrid smoke and fumes.
<b>Lithium Perchlorate</b>	Moderately toxic. Skin, eye and mucous membrane irritant an oxidiser which is incompatible with nitromethane acetone hydrogen and oxygen. When heated to decomposition it emits very toxic fumes.

### SECTION 4: FIRST AID MEASURES

<b>EYES:</b>	Irrigate thoroughly with water for at least 15 minutes. Obtain medical attention.
<b>INHALATION:</b>	Remove from exposure, rest and keep warm. In severe cases, or if exposure has been great, obtain medical attention.
<b>SKIN:</b>	Drench the skin thoroughly with water. Remove contaminated clothing and wash before re-use. Unless contact has been slight, obtain medical attention.
<b>INGESTION:</b>	Wash out mouth thoroughly with water and give plenty of water to drink. Obtain medical attention.
<b>FURTHER TREATMENT:</b>	All cases of eye contamination, persistent skin irritation and casualties who have swallowed this substance or been affected by breathing its vapours should be seen by a doctor.
<b>EMERGENCY AND FIRST AID PROCEDURES:</b>	If cell vents, personnel should be evacuated from contaminated areas. Other materials are either inert or have low hazard associated with their exposure.

### SECTION 5: FIRE FIGHTING MEASURES

If cells are directly involved in fire, DO NOT USE SAND, DRY POWDER OR SODA ASH, GRAPHITE, METAL CLASS D EXTINGUISHERS OR A FIRE BLANKET. Copious quantities of a water based foam is the only recommended extinguishing media for fires involving cells. If a fire is in an adjacent area, and cells are packed in their original containers, the fire can be fought based on fuelling material e.g. paper and plastic products. Avoid fume inhalation.

In the case where significant quantities of Lithium / Manganese Dioxide batteries have been involved in a fire, account must be taken of the possibility that flammable gases might be evolved should water come into contact with the cold battery residues. These gases might include Acetylene, Hydrogen and Cyanide. It is recommended that ventilation should be maximised should this scenario be realised.

**EXTINGUISHING MEDIA:** Copious quantities of a water based foam.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

Do not breathe vapours 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 leaking battery and earth in a heavy-duty polythene bag and dispose of as special waste.

## SECTION 7: HANDLING AND STORAGE

Handle and store in cool, well-ventilated area. Keep out of direct sunlight.

## SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>HANDLING:</b>	Do not short circuit or expose to temperatures above the temperature rating of the battery. Do not recharge, over-discharge, force discharge, immerse, puncture or crush.
<b>STORAGE:</b>	Store in a cool place but prevent condensation on cells and batteries. Elevated temperatures can result in shortened battery life and degrade performance. Do not store batteries in high humidity environments for long periods. External corrosion of the Nickel plated can and tags could result in the formation of toxic metal salts. Avoid ingestion, observe personal hygiene was hands after contact.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<b>APPEARANCE</b>	Light in a plastic housing.
<b>ODOUR:</b>	If leaking, smells of medical ether.
<b>STABILITY IN WATER:</b>	Product is waterproof.
<b>REACTION WITH WATER:</b>	Only if damaged.
<b>FLASH POINT:</b>	Not applicable unless individual components exposed.
<b>FLAMMABILITY:</b>	Not applicable unless individual components exposed.
<b>RELATIVE DENSITY:</b>	Not applicable unless individual components exposed.
<b>SOLUBILITY IN WATER:</b>	Not applicable unless individual components exposed.
<b>SOLUBILITY OTHER:</b>	Not applicable unless individual components exposed.

## SECTION 10: STABILITY AND REACTIVITY

Hazardous materials are housed within a hermetically sealed unit, under normal conditions this unit is Non-Hazardous.

<b>HAZARDOUS REACTIONS</b>	Lithium metal reacts with water to produce highly flammable gasses.
<b>HAZARDOUS DECOMPOSITION REACTIONS</b>	Toxic fumes and may form peroxides.

## SECTION 11: TOXICOLOGICAL INFORMATION

<b>SIGNS &amp; SYMPTOMS</b>	NONE, unless battery ruptures. In the event of exposure to internal contents, corrosive fumes will be very irritating to skin, eyes and mucous membranes. Over-exposure can cause symptoms of non-fibrotic lung injury and membrane irritation.
<b>INHALATION</b>	Lung irritation.
<b>SKIN CONTACT</b>	Skin irritation.
<b>EYE CONTACT</b>	Eye irritation.
<b>INGESTION</b>	Poisoning if swallowed.
<b>MEDICAL CONDITIONS GENERALLY AGGREGATED BY EXPOSURE.</b>	In the event of exposure to internal contents, eczema, skin allergies, lung injuries, asthma and other respiratory disorders may occur.

## SECTION 12: ECOLOGICAL INFORMATION

<b>MAMMALIAN EFFECTS</b>	None known if used / disposed of correctly.
<b>ECO-TOXICITY</b>	None known if used / disposed of correctly.
<b>BIOACCUMULATION POTENTIAL</b>	Slowly bio-degradable.
<b>ENVIRONMENTAL FATE</b>	None known if used / disposed of correctly.

## SECTION 13: DISPOSAL

<b>DISPOSAL</b>	DO NOT INCINERATE or subject cells to temperatures in excess of 90°C. Such abuse can result in loss of seal, leakage, and/or cell explosion. Dispose only through a recognised disposer. DO NOT ATTEMPT TO DISMANTLE THIS PRODUCT.
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## SECTION 14: TRANSPORT INFORMATION

<b>UN Hazard Code</b>	Class 9
<b>UN Number</b>	3091
<b>UN Proper Shipping Name</b>	Lithium Metal Batteries Contained in Equipment.
<b>IATA Packing Instructions for air</b>	970, Section II
<b>Packing instructions for road and sea</b>	Special Provision 188 & 230
<b>Lithium Content</b>	0.54g ( $\leq$ 1 gram lithium metal cell)
<b>Total Battery Weight</b>	18g (Weight of Individual Cell 18g)
<b>Labelling</b>	As per IATA, IMDG & ADR requirements - Precautionary label
<b>Battery Test Criteria</b>	Tested to UN ST/SG/AC.10/11/Rev.5/Amend.1 Criteria III Section 38.3. (Test Certificate available on request). Each cell and battery incorporates a safety venting device. Each cell and battery is equipped with an effective means of preventing external short circuits and reverse current flow.

## SECTION 15: REGULATORY INFORMATION

<b>Classification</b>	Class 9	
<b>Hazard Symbol</b>	N/A	
<b>Risk Phrases</b>	R8 R11 R14/15 R17 R19 R20 R22 R34 R36/37/38 R41	Contact with combustible material may cause fire. Highly flammable. Reacts violently with water liberating extremely flammable gasses. Spontaneously flammable in air. May form explosive peroxides. Harmful by inhalation. Harmful if swallowed. Causes burns. Irritating to eyes, respiratory system and skin. Risk of serious damage to the eyes.
<b>Safety Phrases</b>	S1/2 S8 S16 S17	Keep locked up and out of the reach of children. Keep away from moisture. Keep away from sources of ignition – no smoking. Keep away from combustible material.

S24/25	When using do not eat drink or smoke.
S26/27	In case of contact with eyes, rinse immediately with plenty of water.
S29	Do not empty into drains.
S33	Take precautionary measures against static discharges.
S36	Wear suitable protective clothing.
S37	Wear suitable gloves.
S38	In case of insufficient ventilation wear suitable respiratory equipment.
S43	In case of fire, see fire fighting precautions.
S45	In case of incident, seek medical attention.

## SECTION 16: OTHER INFORMATION

<b>Disclaimer</b>	This PSDS is provided for information only The information and recommendations set forth herein are made in good faith and are believed to be accurate as of the date of preparation. However the company makes no warranty, either expressed or implied with respect to this information and disclaims all liability from reliance on. It is the shippers responsibility to ensure that they are trained and competent in handling and shipping lithium batteries by all transport modes.
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13 March 2019