

PRODUCT SAFETY DATA SHEET

PRODUCTS: Odeo Distress Flare and Odeo Strobe (Lithium Variant)

SECTION 1: IDENTIFICATION

PRODUCT NAME	Marine Safety Light Systems Odeo Distress Flare and Odeo Strobe
MANUFACTURERS NAME	DANIAMANT LIMITED
DESCRIPTION	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-iron-disulfide 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	EC Number	Amount		
Lithium-Aluminium Alloy (Li-Al)	7439-93-2	231-102-5	4 – 6%		
Iron Disulfide (FeS ₂)	1309-36-0	215-167-7	25 – 40%		
Propylene Carbonate (PC)	108-32-7	203-572-1	<5%		
1,2 – Dimethoxyethane (DME)	110-71-4	203-794-9	<5%		
1,3 – Dioxolane (DOL)	646-06-0	211-463-5	<10%		
Lithium Perchlorate	7791-03-9	232-237-2	<1%		
Graphite	7782-42-5	231-955-3	1-3%		
Stainless Steel (Fe)	7439-89-6	231-096-4	30-40%		
Aluminium (Al)	7429-90-5	231-072-3	2-5%		
Carbon Black	1333-86-4	215-609-9	1-2%		
Polypropylene	9003-07-0	618-352-4	2-5%		
Adhesive CMC	9085-26-1		0.1-2%		
Adhesive SBR	9003-55-8	618-370-2	0.1-2%		
Reference: Sax's dangerous properties of industrial materials. NOTE: This product does not contain asbestos.					

SECTION 3: HAZARD IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION: Battery can explode or leak if heated, disassembled, shorted, recharged, exposed to fire or high temperature or inserted incorrectly. Keep in original package until ready to use. Do not carry batteries loose in your pocket or purse. Keep batteries away from children. Under certain misuse conditions and by abusively opening the battery, exposed lithium can react with water or moisture in the air causing potential thermal burns or fire. Liquid released from damaged battery is flammable and may present a fire hazard.

Potential Health Effects:	The chemicals and metals in this product are contained in a sealed can. Exposure to the contents will not occur unless the battery leaks, is exposed to high temperatures or is mechanically, physically, or electrically abused. Contact with battery contents may cause severe irritation.
Eye Contact:	Contact with battery contents may cause severe irritation.
Skin Contact:	Contact with battery contents may cause irritation.
Inhalation:	Inhalation of vapours or fumes released due to heat or a large number of leaking batteries may cause respiratory and eye irritation. High concentration may cause central nervous system effects including headache, dizziness and nausea.
Ingestion:	Swallowing is not anticipated for larger batteries due to battery size. Irritation to the internal/external mouth areas may occur following exposure to a leaking battery.

SECTION 4: FIRST AID MEASURES

EYE CONTACT:	If battery is leaking and material contacts the eye, flush thoroughly with copious amounts of running water for 30 minutes. Seek immediate medical attention.
SKIN CONTACT:	If battery is leaking and material contacts the skin, remove any contaminated clothing and flush exposed skin with copious amounts of running water for at least 15 minutes. If irritation, injury or pain persists, seek medical attention.
INHALED:	If battery is leaking, contents may be irritating to respiratory passages. Move to fresh air. If irritation persists, seek medical attention.
SWALLOWED:	If battery is leaking and mouth area irritation or burning has occurred, rinse the mouth and surrounding area with tepid water for at least 15 minutes. Get medical attention immediately for treatment and to rule out the involvement of the gastrointestinal tract.
NOTE TO PHYSICIAN:	The primary toxic ingredients are lithium, lithium bis-trifluoromethanesulfonimide and sulfolane. Anticipated potential leakage volume is 1 to 5 mL depending upon battery size. Maximum leakage from an AA cell is 1.8 mL.
EMERGENCY AND FIRST AID PROCEDURES:	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

Fire and Explosion Hazards:	Batteries may burst and release hazardous decomposition products when exposed to a fire situation.
Extinguishing Media:	Use dry chemical, alcohol foam, water or carbon dioxide as appropriate for the surrounding fire. For incipient fires, carbon dioxide extinguishers are more effective than water.
Special Fire Fighting Procedures:	Fire fighters should wear positive pressure self-contained breathing apparatus and full protective clothing. Fight fire from a distance or protected area. Cool fire exposed batteries to prevent rupture. Use caution when handling fire-exposed containers (batteries may explode in heat of fire).
Hazardous Combustion Products:	Thermal degradation may produce hazardous fumes of lithium; hydrofluoric acid, oxides of carbon and sulphur and other toxic by-products.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Notify safety personnel of large spills. Irritating and flammable vapours may be released from leaking or ruptured batteries. Eliminate all ignition sources. Evacuate the area and allow the vapours to dissipate. Clean-up personnel should wear appropriate protective clothing to avoid eye and skin contact and inhalation of vapours or fumes. Increase ventilation. Carefully collect batteries and place in an appropriate container for disposal. Remove spilled liquid with absorbent and contain for disposal.

SECTION 7: HANDLING AND STORAGE

Avoid mechanical or electrical abuse. DO NOT short circuit or install incorrectly. Batteries may explode pyrolyze or vent if disassembled, crushed, recharged or exposed to high temperatures. Install in accordance with equipment instructions.

Storage: Store batteries in a dry place at normal room temperature.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation:	No special ventilation is needed for normal use.
Respiratory Protection:	None required for normal use.
Skin Protection:	None required for normal use. Use butyl rubber gloves when handling leaking batteries.
Eye Protection:	None required for normal use. Wear safety goggles when handling leaking batteries.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Light in a plastic housing.
STABILITY IN WATER	Product is waterproof.
REACTION WITH WATER	Only if damaged.
FLASH POINT	Not applicable unless individual components exposed.
FLAMMABILITY	Not applicable unless individual components exposed.
RELATIVE DENSITY	Not applicable unless individual components exposed.
SOLUBILITY IN WATER	Not applicable unless individual components exposed.
SOLUBILITY OTHER	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.

STABILITY	This product is stable.
INCOMPATIBILITY/CONDITIONS TO AVOID	Contents are incompatible with strong oxidizing agents and acids. Do not heat, crush, disassemble, short circuit or recharge.
HAZARDOUS DECOMPOSITION PRODUCTS:	Thermal decomposition may produce hazardous fumes of lithium; hydrofluoric acid, oxides of carbon and sulphur and other toxic by-products. Iron disulphide will react with oxidizers to form sulphur dioxide and with acids to form hydrogen sulphide.
HAZARDOUS POLYMERIZATION:	Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

ACUTE TOXICITY DATA:

Iron Disulfide	No data available.
1,3 – Dioxolane	LD50 oral rat 5200 mg./kg, LD50 dermal rabbit 15,000 mg/kg, LC50 inhalation rat 68.4 mg/L/4 hr
Lithium bis-Trifluoromethanesulfonimide	LD50 oral rat 160-210 mg/kg
Sulfolane	LD50 oral rat 1941 mg/kg, LD50 dermal rabbit 4009 mg/kg, LC50 inhalation rat >12 mg/L/4 hr
Chronic Effects:	The chemicals in this product are contained in a sealed can and exposure does not occur during normal handling and use. No chronic effects would be expected from handling a leaking battery.
Target Organs:	Skin, eyes and respiratory system.
Carcinogenicity	None of the components of this product are listed as carcinogens by ACGIH, IARC, NTP or OSHA.

SECTION 12: ECOLOGICAL INFORMATION

1,3-Dioxolane	EC50 daphnia magna 6950 mg/L/48 hr, LC50 sheepshead minnow 8294-12057 mg/L/96 hr.
Sulfolane	LC50 mosquito fish 1930 mg/L/96 hr.

This product is not expected to present an environmental hazard.

SECTION 13: DISPOSAL

DISPOSAL	DO NOT INCINERATE or subject cells to temperature in excess of 100°C. Such abuse can result in loss of seal. Leakage and/or cell explosion. Dispose of in accordance with appropriate local regulations. DO NOT ATTEMPT TO DISMANTLE THIS PRODUCT
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SECTION 14: TRANSPORT INFORMATION

UN Hazard Code	Class 9
UN Number	3091
UN Proper Shipping Name	Lithium Metal Batteries Packed with Equipment
IATA Packing Instructions for air	969, Section II
Packing instructions for road and sea	P903, Special Provisions 230, 188.
Lithium Content	0.9g (Lithium metal cell) x 4
Total Battery Weight	62g (Weight of Individual Cell 15.5g)
Labelling	As per IATA, IMDG and ADR requirements
Battery Test Criteria	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

Risk Phrases	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.
Safety Phrases	S1/2 S8 S16 S17 S24/25 S26/27 S29 S33 S36 S37 S38 S43 S45	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. When using do not eat drink or smoke. In case of contact with eyes, rinse immediately with plenty of water. Do not empty into drains. Take precautionary measures against static discharges. Wear suitable protective clothing. Wear suitable gloves. In case of insufficient ventilation wear suitable respiratory equipment. In case of fire, see fire fighting precautions. In case of incident, seek medical attention.

SECTION 16: OTHER INFORMATION

Disclaimer	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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07 October 2019

PRODUCT SAFETY DATA SHEET

PRODUCTS: Odeo Distress Flare and Odeo Strobe (Alkaline Variant)

SECTION 1: IDENTIFICATION

PRODUCT NAME	Marine Safety Light Systems Odeo Distress Flare and Odeo Strobe (Alkaline)
MANUFACTURERS NAME	DANIAMANT LIMITED
DESCRIPTION	Alkaline cell powered marine safety light system. The battery cells are hermetically sealed pressurised primary Alkaline Manganese Dioxide and as supplied are protected 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	EC Number	% OPTIONAL	OSHA/PEL	ACGIH TLV 5 TEL
Manganese Dioxide	1313-13-9	215-202-6	35-40%	N/A	N/A
Zinc	7440-66-6	231-175-3	10-25%	N/A	N/A
Potassium Hydroxide (35%)	1310-58-3	215-181-3	5-10%	N/A	N/A
	Reference : Sax's dangerous properties of industrial materials. NOTE: This product does not contain asbestos.				

SECTION 3: HAZARD IDENTIFICATION

Critical Hazards to man:	If battery leaking, exposure to caustic ingredients may occur.
Critical Hazards to the environment:	Dispose of battery properly (See Section 13). Contains mercury compounds which may present a hazard to aquatic environments.
Other information:	Keep batteries away from small children.

SECTION 4: FIRST AID MEASURES

In the unlikely event of the battery becoming damaged the user may come into contact with the above components.

GENERAL ADVICE:	These chemicals and metals are contained in a sealed can. Potential for exposure should not exist unless the battery leaks, is exposed to high temperatures or is mechanically, physically, or electrically abused. Contains concentrated (35%) potassium hydroxide, which is caustic. Anticipated potential leakage of potassium hydroxide is 2 to 20 ml, depending on battery size. A similar amount of zinc/zinc oxide may also leak.
INHALATION:	If inhaled respiratory and eye irritation may occur if fumes are released due to heat or an abundance of leaking batteries. Remove to fresh air. Contact physician if irritation persists.
SKIN:	Irritation, including caustic burns/injury, may occur following exposure to a leaking battery. Irrigate exposed skin with copious amounts of clear, tepid water for at least 15 minutes. If irrigation, injury or pain persists, consult a physician.
INGESTION:	Not anticipated due to size of batteries; choking may occur with the smaller AAA battery. Irritation, including caustic burns/injury may occur following exposure to a leaking battery. Rinse the mouth and surrounding area with clear, tepid water for at least 15 minutes. Consult a physician immediately for treatment and to rule out involvement of the oesophagus and other tissues.
NOTES TO PHYSICIAN:	The primary acutely toxic ingredient is concentrated (35%) potassium hydroxide. Anticipated potential leakage of potassium hydroxide is 2 to 20 ml, depending on battery size. Other materials are either inert or have low hazard associated with their exposure.

SECTION 5: FIRE FIGHTING MEASURES

Extinguishing Media:	As appropriate for adjacent fire.
Special Fire Fighting Procedures:	In fires involving large quantities of product, use self-contained breathing apparatus and full protective clothing.
Further information:	Hazardous decomposition products may be produced.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Notify safety personnel of large spills. Caustic potassium hydroxide may be released from leaking or ruptured batteries. Avoid eye or skin contact and inhalation of vapours. Increase ventilation. Clean up personnel should wear appropriate protective gear.
Environmental Precautions:	Not applicable.
Methods for cleaning up:	Not applicable.

SECTION 7: HANDLING AND STORAGE

Handle and store in cool, well ventilated area. Keep out of direct sunlight and away from heat sources. DO NOT short or install cells incorrectly. Batteries may explode, pyrolyze or vent if disassembled, crushed, recharged or exposed to high temperatures. Install batteries in accordance with equipment instructions. Do not mix battery systems, such as alkaline and zinc carbon, in the same equipment. Replace all batteries in equipment at the same time. Do not carry batteries loose in pocket or bag.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

External corrosion of the Nickel plated can and tags could result in the formation of toxic metal salts. Avoid ingestion. Observe personal hygiene. Wash hands after contact. Use neoprene, rubber or nitrile gloves and safety glasses when handling leaking batteries.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Light in a plastic housing.
STABILITY IN WATER	Product is waterproof.
REACTION WITH WATER	Only if damaged.
BOILING POINT	N/A
VAPOUR PRESSURE mm/hg	N/A
VAPOUR DENSITY	N/A
SOLUBILITY IN WATER	Not soluble in water
APPEARANCE & ODOUR	N/A
SPECIFIC GRAVITY	N/A
MELTING POINT	N/A
EVAPORATION POINT	N/A

SECTION 10: STABILITY AND REACTIVITY

HAZARDOUS DECOMPOSITION REACTIONS	Thermal degradation may produce hazardous fumes of zinc and manganese; hydrogen gas; caustic vapours of potassium hydroxide and other toxic by-products.
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SECTION 11: TOXICOLOGICAL INFORMATION

NONE, unless battery ruptures, then see Section 2.

SECTION 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.

SECTION 13: DISPOSAL

DISPOSAL	Dispose in accordance with appropriate regulations. Do not incinerate, since batteries may explode at excessive temperatures.
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SECTION 14: TRANSPORT INFORMATION

UN Hazard Code	Not applicable.
UN Number	Not applicable.
UN Name	Not applicable.
Other information for air transport (IATA)	Not restricted as per special provision A123 must be marked on the AWB (8.2.6.1).
Total Battery Weight	96g (Weight of Individual Cell 24g)

SECTION 15: REGULATORY INFORMATION

Classification	Not controlled under ADNR (Europe)
Hazard Symbol	None.
Risk Phrases	This product is not classified according to the EU regulations.

SECTION 16: OTHER INFORMATION

	N/A
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The above information is given based on the present state of our knowledge of this product and is, to the best of our knowledge and belief, accurate at the time of publication. No warranty given, either express or implied, with respect to the accuracy, reliability or completeness of the information contained herein and we will assume no liability resulting from its use. The users must satisfy themselves that the information provided is entirely suitable for their particular use.

07 October 2019

TEST CERTIFICATE

CLIENT: TÜV SÜD Product Service
 Octagon House
 Concorde Way
 Fareham
 Hampshire
 PO15 5RL

CERTIFICATE NUMBER 16619/01 Issue 02

CUSTOMER ORDER NUMBER 2600004502

TUV Reference: 75940187

PAGE 1 OF 1

DATE OF RECEIPT 4 September 2017

EQUIPMENT SUPPLIER Daniamant Limited

TEST ITEM(S)

Description	Serial N°	Model N°	PTL ID
Distress Flare	Sample N° 3	ODEO (Omni Directional Electrical Optical)	13084

TEST SPECIFICATION / ISSUE BS EN 60529:1992 +A2:2013 IP6X Category 1

DATES OF TEST 6 September 2017

TEST(S) APPLIED Protection Against Solid Foreign Objects, Dust-Tight

The unit was initially examined for apertures and openings allowing penetration of a 1mm diameter probe applied with a force of 1N.

Prior to testing a 19.9 mbar vacuum was applied to the unit, the air flow was below measureable therefore a test period of 8 hours was required. The test conditions were as follows:

Dust Grade: BS EN 60529 Talc Test Dust

Concentration: 2 kg/m³

Duration: 8 hrs

Temperature/Humidity: 21.0 °C / 43% rh

RESULT(S) OF TEST

IP6X


There were no apertures or openings on any of the samples permitting entry with a 1mm diameter probe when applying a force of 1N.

On completion of the dust test excess dust was removed by light brushing, no conspicuous damage was noticed on the exterior of the unit.

The unit was opened for inspection and there was no visible dust ingress.

COMPLIANCE

The ODEO Distress Flare conformed to the standard required of BS EN 60529 IP6X Cat1

Approved by 
 Greg Spicer, MEng
 Managing Director

Date: 20 September 2017

CE DECLARATION OF CONFORMITY

We declare that the product(s) stated in this declaration comply with the safety requirements of the following:

EN 60946:2002 Inc.Corrigendum 1:2008
IEC 61000-4-3:2006
IEC61000-4-2:2001
CISPR 16-1-4:2007
BS EN 60529:1992+A2 IP6X Category 1
EN 60945:1992 +A2:2013 Tables III, VIII & Clause 14.2.8 (IPX8)

Products covered by this Declaration:

Product Type: **Electronic Visual Distress Signal**

Models : **ODEO Distress Flare**

Intended usage of products:

Electronic Visual Distress Signal for marine and outdoor activity use.

The product will carry this Conformity Marking:



Issued on behalf of Daniamant Limited:

Signed :

A handwritten signature in blue ink, appearing to be 'K J Rough', written over a blue circular stamp or mark.

Name: **K J Rough**
Title: **Chief Executive Officer**

Date:

17/10/17

Tested By:

TÜV Product Services, Octagon House, Concorde Way, Fareham, Hampshire. PO15 5RL

Report: 75940187-01 Issue 1

Test Certificate No: 2600004502 (IP6X) Protection Against Solid Foreign Objects, Dust-Tight.

Statement of Test: 75940187 THC 02 Issue 1 (IPX8) Protection Against the Ingress of Water by Immersion 50m.

Technical Construction File held by:

Daniamant Limited

Production Quality Monitoring is carried out in conformance with ISO9001:2015 by:

Lloyds Register Quality Assurance