

PRODUCT SAFETY DATA SHEET

PRODUCTS: L162 and L163

SECTION 1: IDENTIFICATION

PRODUCT NAME	Marine Safety Light Systems L162 and L163
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 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	EC Number	% OPTIONAL	OSHA/PEL	ACGIH TLV 5 TEL
Carbon Black	1333-86-4	215-609-9	2.25%		
Lithium Metal	7439-93-2	231-102-5	3.24%	N/A	N/A
Manganese Dioxide	1313-13-9	215-202-6	40.56%	5 mg/m3	5 mg/m3
Propylene Carbonate	108-32-7	203-572-1	6.75%	N/A	N/A
1,2 Dimethoxyethane	110-71-4	203-794-9	5.78%	N/A	N/A
Lithium Perchlorate	7791-03-9	232-237-2	1.53%	N/A	N/A
Tetrahydrofuran	109-99-9	203-726-8	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

Lithium Metal:	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.
Manganese Dioxide:	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.
1.2 Dimethoxyethane:	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.

SECTION 4: FIRST AID MEASURES

EYES:	Irrigate thoroughly with water for at least 15 minutes. Obtain medical attention.
INHALATION:	Remove from exposure, rest and keep warm. In severe cases, or if exposure has been great. Obtain medical attention.
SKIN:	Wash off skin thoroughly with water. Remove contaminated clothing and wash before re-use. 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 vapours should be seen by a doctor.
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

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

HANDLING:	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.
STORAGE:	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 wash hands after contact.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

IN ALL FIRE SITUATIONS:	Use self-contained breathing apparatus.
IN THE EVENT OF A BATTERY CELL LEAKAGE:	Wear gloves, safety glasses and chemical apron.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Light in a plastic housing.
ODOUR:	If leaking, smells of medical ether.
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.

HAZARDOUS REACTIONS:

Lithium metal reacts with water to produce highly flammable gasses.

HAZARDOUS DECOMPOSITION REACTIONS:

Toxic fumes and may form peroxides.

SECTION 11: TOXICOLOGICAL INFORMATION

SIGNS & SYMPTOMS:

None, unless battery ruptures. In 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.

INHALATION:

Lung irritant.

SKIN CONTACT:

Skin irritant.

EYE CONTACT:

Eye irritant.

INGESTION MEDICAL CONDITIONS:

Poisoning if swallowed.

GENERALLY AGGRAVATED BY EXPOSURE:

In the event of exposure to internal contents, eczema, skin allergies, lung injuries, asthma and other respiratory disorders may occur.

SECTION 12: ECOLOGICAL INFORMATION

MAMMALIAN EFFECTS

None known at present.

ECO-TOXICITY

None known at present.

BIOACCUMULATION POTENTIAL

Slowly bio-degradable.

ENVIRONMENTAL FATE

None known environmental hazards at present.

SECTION 13: DISPOSAL

DISPOSAL	DO NOT INCINERATE or subject cells to temperature in excess of 90°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.
-----------------	---

SECTION 14: TRANSPORT INFORMATION

UN Hazard Code	Class 9
UN Number	3091
UN Proper Shipping Name	Lithium Metal Batteries Contained in Equipment.
IATA Packing Instructions for air	970, Section II
Packing instructions for road and sea	P903 Special Provisions 230, 188.
Lithium Content	1.56g (Lithium metal battery pack)
Total Battery Weight	50g (Weight of Individual Cell 25g)
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 eyes.
Safety Phrases	S1/2 S8	Keep locked up and out of the reach of children. Keep away from moisture.

	S16 S17 S24/25 S26/27 S29 S33 S36 S37 S38 S43 S45	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.
-------------------	--

07 October 2019



LITHIUM CELL/BATTERY TEST SUMMARY

IN ACCORDANCE WITH UN MANUAL OF TESTS AND CRITERIA SUB SECTION 38.3.5

SECTION 1: NAME OF CELL/BATTERY	
PRODUCT NAME	Battery for L162 & L163 Lifebuoy Light
SECTION 2: MANUFACTURER OF CELL/BATTERY	
NAME	DANIAMANT LIMITED

SECTION 3: TEST LAB OF CELL/BATTERY	
NAME	TUV SUD PRODUCT SERVICE LTD

SECTION 4: TEST REPORT DETAILS	
TEST REPORT NUMBER	75922374
TEST REPORT DATE	July 2013
SECTION 5: DESCRIPTION OF CELL/BATTERY	
BATTERY/CELL TYPE	LITHIUM METAL
BATTERY/CELL MASS	50 Grams
BATTERY/CELL LITHIUM CONTENT	1.56 Grams
BATTERY/CELL PHYSICAL DESCRIPTION	Lithium Manganese Dioxide battery comprised of two x CR17505 connected in series
BATTERY/CELL MODEL NUMBER	62-003A, 62-004A

SECTION 6: LIST OF TESTS CONDUCTED AND RESULTS

	N/A	PASS	FAIL
T1 – ALTITUDE SIMULATION		X	
T2 – THERMAL TEST		X	
T3 – VIBRATION		X	
T4 – SHOCK		X	
T5 – EXTERNAL SHORT CIRCUIT		X	
T6 – IMPACT/CRUSH	X		
T7 – OVERCHARGE	X		
T8 – FORCED DISCHARGE	X		
ASSEMBLED BATTERY TESTING REQUIREMENTS	UN 38.3.3 (f)		

SECTION 7: REFERENCE TO THE REVISED EDITION OF THE MANUAL OF TESTS AND CRITERIA

UN ST/SG/AC.10/11/Rev 5/Amend 1. Criteria III, Section 38.3 Dated 2011

SECTION 8: NAME AND TITLE OF SIGNATORY

SIGNATURE	
NAME	Clare Palmer
TITLE	Trade Compliance Manager
DATE	26.05.2020

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED). This Certificate is issued by DNV GL SE based on the notification of the Federal Maritime and Hydrographic Agency of Germany.

This is to certify:

That the Position indicating lights for life-saving appliances: (b) for lifebuoys

with type designation(s)
L162

Issued to
Daniamant Ltd
Portsmouth, Hampshire, United Kingdom

is found to comply with the requirements in the following Regulations/Standards:
Regulation (EU) 2019/1397,
item No. MED/1.2b. SOLAS 74 as amended, Regulation III/4, III/7, III/22, III/32, III/34 &
X/3, LSA Code, 2000 HSC Code 8

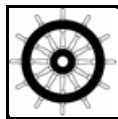
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until 2024-10-10.

Issued at Hamburg on 2019-10-11

DNV GL local station:
Denmark CMC

Approval Engineer:
Nicolay Horn



Notified Body
No.: 0098

for DNV GL SE

Gerhard Aulbert
Head of Notified Body

A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F), as allowed by the "Agreement between the European Community and the United States of America on Mutual Recognition of Certificates of Conformity for Marine Equipment", signed February 27th, 2004.

The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU. This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL SE of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled. Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

Job Id: 344.1-009922-1
Certificate No: MEDB0000611

Product description

Self-activated lights for use on lifebuoys – Type L162

Application/Limitation

Lights powered by batteries shall be marked with means of determining their age or the date by which they are to be replaced.

For compliance with SOLAS Regulation III/35 and III/36, fully detailed operations and maintenance manuals shall be supplied with each light.

Maximum installation Height: 76 m.

Type Examination documentation

Technical file doc. No. TF013, revision 04, September 2017
Installation and Maintenance Instruction, 62-128-001 Issue 08 (C6725)

Test report No	Title	Date
14-05	"L160, L161, L162 and L163 Life test", witnessed by TUV product service Ltd	2014-04-24
J-5036	Microbiological test report	2013-10-15
09-10	Alternative cell CR123A cell and Able CR17505	2009-10-20
75925967, report 01, Issue 1	"Temperature cycling test, Luminous intensity test, Chromatic test, Vibration test", witnessed by TUV product service Ltd	2014-06
	"Evaluation and test report per MSC 81(70), dated 09-03A"	2009-08-06

Tests carried out

-IMO Resolution MSC.81(70), part 1, as amended
-IEC 60945:2002 incl. IEC 60945 Corr. 1 (2008)

Marking of product

To be marked with information requested by the LSA Code Paragraph 1.2.2.9 and 1.2.3

- Manufacturer name
- Type identification
- Serial or Lot number
- Date of expiry
- USCG Approval Number: USCG 161.110/EC0098/ MEDB0000611

END OF CERTIFICATE



U. S. Department of Homeland Security
United States Coast Guard
Certificate of Approval

Coast Guard Approval Number: 161.010/28/0

Expires: 22 January 2025

FLOATING ELECTRIC WATER LIGHT

DANIAMANT LIMITED

Daniamant L162 flashing floating electric water light.

A strobe floating electric light to be attached to a lifebuoy.

Meets the requirements of ANSI/UL 1196.

Identifying Data: Daniamant Ltd. Dwg #62-003A, Issue 3, dtd 10/12/2009; TUV-witnessed Daniamant Test Report 09-11, Issue 2, dtd 02/24/2010.

Extends certificate dated January 22, 2015, updated certificate verbiage.

*** End ***

THIS IS TO CERTIFY THAT the above named manufacturer has submitted to the undersigned satisfactory evidence that the item specified herein complies with the applicable laws and regulations as outlined on the reverse side of this Certificate, and approval is hereby given. This approval shall be in effect until the expiration date hereon unless sooner canceled or suspended by proper authority.



GIVEN UNDER MY HAND THIS 22nd DAY OF
JANUARY 2020, AT WASHINGTON D.C.

B. A. BALDWIN
Chief, Lifesaving and Fire Safety Division
BY DIRECTION OF THE COMMANDANT

TERMS: The approval of the item described on the face of the Certificate has been based upon the submittal of satisfactory evidence that the item complies with the applicable provisions of the navigation and shipping laws and the applicable regulations in Title 33 and/or Title 46 of the Code of Federal Regulations. The approval is subject to any conditions noted on this Certificate and in the applicable laws and regulations governing the use of the item on vessels subject to Coast Guard inspection or on other vessels and boats.

Consideration will be given to an extension of this approval provided application is made 3 months prior to the expiration date of this Certificate.

The approval holder is responsible for making sure that the required inspections or tests of materials or devices covered by this approval are carried out during production as prescribed in the applicable regulations.

The approval of the item covered by this certificate is valid only so long as the item is manufactured in conformance with the details of the approved drawings, specifications, or other data referred to. No modification in the approved design, construction, or materials is to be adopted until the modification has been presented for consideration by the Commandant and confirmation received that the proposed alteration is acceptable.

NOTICE: Where a manufacturer of safety-at-sea equipment is offering for sale to the maritime industry, directly or indirectly, equipment represented to be approved, which fails to conform with either the design details or material specifications, or both, as approved by the Coast Guard, immediate action may be taken to invoke the various penalties and sanctions provided by law including prosecution under 46 U.S.C. 3318, which provides:

"A person that knowingly manufactures, sells, offers for sale, or possesses with intent to sell, any equipment subject to this part (*Part B. of Subtitle II of Title 46 U.S.C.*) and the equipment is so defective as to be insufficient to accomplish the purpose for which it is intended, shall be fined not more than \$10,000, imprisoned for not more than 5 years or both."

TEST CERTIFICATE

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

CERTIFICATE NUMBER 13063/01 Issue 02

CUSTOMER ORDER NUMBER 10010649

TÜV REFERENCE 75929303

DATE OF RECEIPT

17 February 2015

EQUIPMENT SUPPLIER

Daniamant Limited

TEST ITEM(S)

TSR	Identity	Description	Quantity	PTL ID
010	Rescue Master 2B	Life Raft Light	1	19486
011	L170	Lifebuoy Light	1	19487
012	L160	Lifebuoy Light	1	19489
013	L161	Lifebuoy Light	1	19490
014	L162	Lifebuoy Light	1	19491
015	L163	Lifebuoy Light	1	19492
016	ODEO Mk.3	Hand Held LED Distress Flare	1	19493
017	L90	Lifebuoy Light	1	19494
018	RL6	Life Raft External Light	1	19495

TEST SPECIFICATION / ISSUE

BS EN 60529:1992 +A2:2013 IP6X Cat 1

DATE OF TEST

18 February 2015

TEST(S) APPLIED

Protection Against Solid Foreign Objects, Dust-Tight

Initially the units were examined for apertures and openings allowing penetration of a 1mm diameter probe applied with a force of 1 N.

Prior to testing a vacuum of 19.9 mbar was applied to each item individually, the airflow was below measurable therefore an 8 hour test was required. A 19.9 mbar vacuum was applied to each of the units for the duration of the test. The test conditions were as follows:

Dust Grade: BS EN 60529 Talc Test Dust

Concentration: 2 kg/m³

Duration: 8 hrs

Temperature/Humidity: 26 °C / 35% rh

TEST CERTIFICATE

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

CERTIFICATE NUMBER 13063/01 Issue 02

CUSTOMER ORDER NUMBER 10010649

TÜV REFERENCE 75929303

PAGE 2 OF 2

RESULT(S) OF TEST

IP6X

There were no apertures permitting entry with a 1 mm diameter probe when using a force of 1 N.

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

Instructions were supplied by the customer to perform functional assessment on the units (with the exception of 010 & 018). All lights performed satisfactorily.

Each unit was opened for inspection, where necessary the units were cut open; there was no visible dust ingress into the Survivor Location Lights.

COMPLIANCE

The Survivor Location Lights conform to the standard required by BS EN 60529:1992 +A2:2013 IP6X Category 1.



Approved by
G J Spicer, MEng
Managing Director

Date: 04 March 2015