

MATERIAL SAFETY DATA SHEET

SECTION 1: IDENTIFICATION

**PRODUCT NAME; LITHIUM, MANGANESE DIOXIDE (LI-MNO2)
NON RECHARGEABLE BATTERIES**

Trident Diving Equipment
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SECTION 2: COMPOSITION / INFORMATION ON INGREDIENTS

Active materials; Appx percent of total weights (%)

Lithium (Li)	1.865
Carbon black (C)	2.27
Electrolyte	13.69
Manganese Dioxide (MnO ₂)	20.65

Passive materials

Base Metal, Steel	59.15
Others, Plastic	2.375

SECTION 3: HAZARD IDENTIFICATION

Do not short circuit, recharge, puncture, incinerate, crush, immerse, force discharge or expose to temperatures above the declared operating temperature range of the product. Risk of fire or explosion. The Lithium-Manganese dioxide batteries described in this Product Safety Data Sheet are sealed units which are not hazardous when used according to the recommendations of the manufacture.

Under normal conditions of use, the electrode materials and electrolyte they contain are not exposed to the outside, provided the battery integrity is maintained and seals remain intact, Risk of exposure only in case of abuse (mechanical, thermal, electrical) which leadsto the activation of safety valves and or the rupture of the battery containers. Electrolyte leakage or battery vent explosion/fire may follow, depending upon the circumstances.

SECTION 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 thoroughly with waster 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 vapours should be seen by a doctor.

SECTION 5: FIRE FIGHTING MEASURES

CO2 extinguishers or copious quantities of water based foam can be used to cool down burning Li-MnO2 cells and batteries, as long as the extent of the fire has not progressed to the point that the Lithium metal they contain is exposed.

Use only metal (class D) extinguishers on raw lithium.

Extinguishing media; Use water or CO2 on burning Li-MnO2 cells or batteries and class D fire extinguishing agent only on raw lithium

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 in accordance with local regulations.

SECTION 7: HANDLING & 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 of times.

Other: Lithium Manganese dioxide batteries are not rechargeable and should not be tentatively charged. Follow manufactures recommendations regarding maximum recommended currents and operating temperature range. Applying pressure on deforming the battery may lead to disassembly.

SECTION 8: CONTROL MEASURES

RESPIRATORY PROTECTION

WEAR A NIOSH APPROVED SELF CONTAINED BREATHING APPARATUS IN THE PRESSURE DEMAND MODE, OR A FULLFACE SUPPLIED AIR RESPIRATOR.

VENTILATION

MECHANICAL VENTILATION AND / OR LOCAL EXHAUST, SUFFICIENT IN PATTERN AND VOLUME, TO MEET TLV REQUIREMENTS

PROTECTIVE GLOVES

USE POLYETHYLENE OR NITRILE GLOVES IF FREQUENT SKIN CONTACT IS LIKELY.

EYE PROTECTION

SAFETY GLASSES WITH SPLASH GUARDS OR SIDE SHIELDING RECOMMENDED.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT

WEAR IMPERVIOUS CLOTHING IF BODILY EXPOSURE IS ANTICIPATED.

WORK / HYGIENIC PRACTICES

DO NOT WEAR CONTACT LENSES. WASH CONTAMINATED CLOTHING BEFORE REUSE.

WEAR PROTECTIVE SAFETY EQUIPMENT AS NECESSARY TO MINIMIZE CONTACT.
WASH HANDS WITH SOAP AND WATER.

SECTION 9: PHYSICAL & CHEMICAL CHARACTERISTICS

Appearance: Cylindrical shape or disc shaped

Odor; If leaking, smells of medical ether

PH: na

Flash point; not applicable

Flammability: na

Relative density; na

Solubility in water; na

Solubility (other) na

SECTION 10: STABILITY & REACTIVE DATA

Product is stable under conditions described in Section 7

Conditions to avoid; Heat above 70C or incinerate. Deform, mutilate, crush, Pierce, disassemble, recharge, short circuit. expose over a long period to humid conditions.

Materials to avoid; Oxidising agents, alkalis, water.

Hazardous reactions; Lithium metal reacts with water to produce highly flammable gasses.

SECTION 11: TOXICOLOGICAL INFORMATION

Signs & symptoms; None, unless battery ruptures. in the event of exposure to internal contents, vapor fumes may be very irritating to the eyes and skin.

Inhalation; Lung irritant

Skin contact; Skin irritant

Eye contact; Eye irritant

Ingestion; Poisoning if swallowed

Medical conditions generally aggravated by exposure; In the event of exposure to internal contents, moderate to severe irritation, burning and dryness of the skin may occur, target organs nerves, liver and kidneys.

SECTION 12: ECOLOGICAL INFORMATION

Mammalian effects; none known

Eco-toxicity; none known

Bioaccumulation potential; Slowly bio-degradable

Environmental fate; none known environmental hazards at present

SECTION 13: DISPOSAL CONSIDERATIONS

DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION 14: TRANSPORTATION INFORMATION

Label for conveyance; For the single cell batteries and multicell battery packs which are non-restricted to transport. Use lithium batteries inside label.

For the single cell batteries and multicell batteries and multicell battery packs which are non-restricted to transport (assigned to the miscellaneous class 9) Miscellaneous dangerous goods and UN identification number labels.

In all cases, refer to the product transport certificate issued by the manufacture.

UN number; UN3090

Shippin name; Lithium Batteries

Hazaard classification; Depending on their lithium metal content, some single cells and small multicell battery packs may be non-assigned to class 9 (refer to transport certification)

Packing group; II

EmS No; 4.1-06

Marine pollutant; No

ADR class; Class 9

SECTION 15: REGULATORY INFORMATION

Here below are shown the nature of special risk and the advices of caution

Nature of special risks

r14/15 reacts with water and yields flammable gases

r21 harmful in contact with skin

r22 harmful if swallowed

r35 causes severe burns

r41 risk of serious damage to the eye

r42/43 may cause sensitiation by inhalation and skin contact

Safety advises

s2 keep out of reach from children

s8 keep away from moisture

s22 do not breathe dust

s24 avoid contact with skin

s26 in case of contact with eyes, rinse immediately with plenty of water and seek medical attention

s36 wear suitable protective clothing

s37 wear suitable gloves

s43 in case of fire use extinguisher type D. DO NOT USE WATER

s45 in case of incident or indisposition seek medical attention

SECTION 16: OTHER INFORMATION

MSDS PREPARED BY: QUALITY CONTROL DEPT.
REVISION DATE; NOT APPLICABLE

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