



Safety Data Sheet (SDS)



SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: AED 3 Non-rechargeable Battery Pack

Product Identification: Non-rechargeable battery pack containing Lithium Manganese Dioxide Cells

Product Designations: 1008-002003-01

Product Use: Energy source for automated external defibrillator

Company Identification: ZOLL Medical Corporation, 269 Mill Road, Chelmsford, MA USA 01824, (978) 421-9655

SECTION 2: HAZARDS IDENTIFICATION

The AED 3 Non-rechargeable Battery Pack contains 123A Lithium Manganese Dioxide Cells. No other potentially hazardous substances are present in the AED 3 Non-rechargeable Battery Pack. Hazards identification information concerning the battery pack is as follows:

EMERGENCY OVERVIEW

CAUTION:

Do not disassemble the battery pack or dispose of it in fire. Do not try to recharge the battery pack. If mistreated, a battery pack might explode. Dispose of battery packs in accordance with federal, state, and local regulations. Battery packs should be shipped to a reclamation facility for recovery of metal and plastic compounds as the proper method of waste management. Internal battery cells can explode or leak if heated, disassembled, shorted, recharged, exposed to fire or high temperature or inserted incorrectly. 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.

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.

Eye Contact: Contact with battery contents may cause irritation.

Skin Contact: Contact with battery contents may cause irritation.

Inhalation: Inhalation of vapors or fumes released due to heat or a large number of leaking batteries may cause respiratory and eye irritation.

Ingestion: Swallowing is not anticipated due to battery pack size. Internal battery cells may be swallowed if internal contents are exposed. If battery cell is swallowed, seek immediate medical advice. Battery cells lodged in the esophagus should be removed immediately since leakage, caustic burns and perforation can

occur as soon as two hours after ingestion. Irritation to the internal/external mouth areas, may occur following exposure to a leaking battery. Do not give ipecac.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

The AED 3 Non-rechargeable Battery Pack contains 123A Lithium Manganese Dioxide Cells. Composition and information on ingredients for the cells is as follows:

Chemical Name	CAS Number	Amount
Manganese Dioxide	1313-13-9	15-45%
1,2-Dimethoxyethane	110-71-4	5-10%
Propylene Carbonate	108-32-7	1-10%
Lithium	7439-93-2	1-5%
Lithium Trifluoromethane Sulfonate	33454-82-9	0-5%
Carbon Black	1333-86-4	0-5%
Ethylene Carbonate	96-49-1	0-5%
Graphite	7782-42-5	0-5%
Polypropylene	9003-07-0	0-10%

SECTION 4: FIRST AID MEASURES

First aid measures for the 123A cells contained in the AED 3 Non-rechargeable Battery Pack are as follows:

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 internal battery cell is swallowed, seek immediate medical advice. Battery cells lodged in the esophagus should be removed immediately since leakage, caustic burns and perforation can occur as soon as two hours after ingestion. If mouth area irritation or burning has occurred, rinse the mouth and surrounding area with tepid water for at least 15 minutes. Do not give ipecac.

Note to Physician: Published reports recommend removal from the esophagus be done endoscopically (under direct visualization). Batteries beyond the esophagus need not be retrieved unless there are signs of injury to the GI tract or a large diameter battery fails to pass the pylorus. If asymptomatic, follow-up x-rays are necessary only to confirm the passage of larger batteries. Confirmation by stool inspection is preferable under most circumstances. For information on treatment, telephone (202) 625-3333 collect, day or night. Potential leakage of dimethoxyethane, propylene carbonate and lithium trifluoromethane sulfonate. Dimethoxyethane rapidly evaporates. Do not give ipecac.

SECTION 5: FIRE FIGHTING MEASURES

Fire-fighting measures for the 123A cells contained in the AED 3 Non-rechargeable Battery Pack are as follows:

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: Firefighters 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 and manganese; hydrofluoric acid, oxides of carbon and sulfur and other toxic by-products.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental release measures for the 123A cells contained in the AED 3 Non-rechargeable Battery Pack are as follows:

Notify safety personnel of large spills. Irritating vapors and flammable may be released from leaking or ruptured batteries. Eliminate all ignition sources. Evacuate the area and allow the vapors to dissipate. Clean-up personnel should wear appropriate protective clothing to avoid eye and skin contact and inhalation of vapors 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

Handling and storage information for the AED 3 Non-rechargeable Battery Pack is as follows:

Avoid mechanical or electrical abuse. DO NOT short circuit battery pack or install incorrectly. Battery pack may explode, leak or vent if disassembled, crushed, recharged or exposed to high temperatures. Replace battery pack in accordance with equipment manufacturer's instructions and recommendations.

Storage: Store battery pack in accordance with equipment manufacturer's instructions and recommendations.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits: Occupational exposure limits for substances contained in the Duracell DL123 cells are as follows:

Chemical Name	Exposure Limits
Manganese Dioxide	5 mg/m ³ Ceiling OSHA PEL 0.2 mg/m ³ TWA ACGIH TLV
1,2-Dimethoxyethane	None Established
Propylene Carbonate	2 mg/m ³ Ceiling ACGIH TLV
Lithium	None Established
Lithium Trifluoromethane Sulfonate	None Established
Carbon Black	3.5 mg/m ³ TWA OSHA PEL/ACGIH TLV
Ethylene Carbonate	None Established
Graphite (natural-non-fibrous)	15 mppcf TWA OSHA PEL 2 mg/m ³ TWA (respirable dust) ACGIH TLV
Graphite (synthetic non-fibrous)	5 mg/m ³ TWA (respirable dust), 15 mg/m ³ TWA (total dust) OSHA PEL 2 mg/m ³ TWA (respirable dust) ACGIH TLV

Personal Protection: Personal protection information for the AED 3 Non-rechargeable Battery Pack is as follows:

Ventilation: No special ventilation is needed for the AED 3 Non-rechargeable Battery Pack in normal use.

Respiratory Protection: No respiratory protection is needed for the AED 3 Non-rechargeable Battery Pack in normal use.

Skin Protection: No skin protection is needed for the AED 3 Non-rechargeable Battery Pack in normal use.

Eye Protection: No eye protection is needed for the AED 3 Non-rechargeable Battery Pack in normal use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical and chemical properties of the 123A cells contained in the AED 3 Non-rechargeable Battery Pack are as follows:

Appearance and Odor: Small cylindrical batteries. Contents dark in color.

Specific Gravity: Not applicable

Boiling Point: Not applicable

Water solubility: Insoluble

Melting Point: Not applicable

Vapor Pressure: Not applicable

Flash Point: 29 °F (2 °C) (1,2-Dimethoxyethane)

Vapor Density: Not applicable

Autoignition Point: Not applicable

SECTION 10: STABILITY AND REACTIVITY

Stability and reactivity information for the 123A cells contained in the AED 3 Non-rechargeable Battery Pack is as follows:

Stability: This product is stable.

Incompatibility/Conditions to Avoid: Contents are incompatible with strong oxidizing agents. Do not heat, crush, disassemble, short circuit or recharge.

Hazardous Decomposition Products: Thermal decomposition may produce hazardous fumes of lithium and manganese; hydrofluoric acid, oxides of carbon and sulfur and other toxic by-products.

Hazardous Polymerization: Will not occur

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicological information for the 123A cells contained in the AED 3 Non-rechargeable Battery Pack is as follows:

Acute Toxicity Data:

Manganese Dioxide: LD50 oral rat >3478 mg/kg

1,2-Dimethoxyethane: LDLo oral rat 1000 mg/kg, LCLo inhalation rat 63 g/m³/6 hr

Propylene Carbonate: LD50 oral rat 29100 uL/kg; LD50 dermal rabbit >20 mL/kg; LC50 inhalation rat >5 g/m³

Ethylene Carbonate: LD50 oral rat 10,000 mg/kg; LD50 dermal rabbit >3000 mg/kg

Lithium Trifluoromethane Sulfonate: LD50 oral rat 1250-1500 mg/kg

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: Carbon Black is classified by IARC as Possibly Carcinogenic to Humans (Group 2B). None of the other components of this product are listed as carcinogens by ACGIH, IARC, NTP or OSHA.

SECTION 12: ECOLOGICAL INFORMATION

Ecological information for the 123A cells contained in the AED 3 Non-rechargeable Battery Pack is as follows:

No ecotoxicity data is available. This product is not expected to present an environmental hazard.

SECTION 13: DISPOSAL INFORMATION

Disposal of batteries or battery packs should be in accordance with equipment manufacturer's instructions and recommendations, and with Federal, state/provincial and local regulations.

Contact your local government for information concerning recycling or collection of batteries or battery packs, and for disposal practices in your area.

SECTION 14: TRANSPORT INFORMATION

AED 3 Non-rechargeable Battery Packs can be shipped in accordance with ICAO, 2018-2019 edition or IATA 59th edition. Persons who prepare or offer lithium batteries for transport are required by regulation to be trained and certified. The information in this section is provided for informational purposes only.

DOT Except for personal use, the shipment of lithium batteries aboard passenger aircraft is not allowed. For more information, air travelers should consult the US Department of Transportation (DOT) Safety Travel web site at <http://safetravel.dot.gov>.

Shipping packages containing non-rechargeable lithium number of batteries, with the following statement: "PRIMARY LITHIUM BATTERIES – FORBIDDEN FOR TRANSPORT ABOARD PASSENGER AIRCRAFT."

The transportation of lithium metal batteries is regulated as UN3090 by ICAO, IATA, IMO and US DOT. ZOLL AED 3 Non-rechargeable Battery PackS are not subject to the other provisions of the Dangerous Goods regulations as long as they are packaged and marked in accordance with the ICAO regulations. The gram weight of lithium metal in Duracell lithium manganese dioxide batteries and cells is:

Total Lithium Content	Total cell/battery weight
6.6 g	0.48 kg

UN 38.3 Transportation Tests: The AED 3 Non-rechargeable Battery Pack has been tested and shown to meet the requirements of the UN Manual of Tests and Criteria, Part III, Subsection 38.3.

SECTION 15: REGULATORY INFORMATION

Regulatory information for the cells contained in the AED 3 Non-rechargeable Battery Pack is as follows:

United States

OSHA Status: While the finished product(s) is considered an article and not covered by the OSHA Hazard Communication Standard, 29 CFR 1910.1200, this PSDS contains valuable information critical to the safe handling and proper use of the product".

EPA TSCA Status: All intentionally-added components of this product are listed on the US TSCA Inventory.

SARA 313/302/304/311/312 chemicals: Manganese compounds 15-45%

California: This product has been evaluated and does not require warning labeling under California Proposition 65.

State Right-to-Know and CERCLA:

The following ingredients present in the finished product are listed on state right-to-know lists or state worker exposure lists

Ingredient	CAS #	Level	CERCLA	State				
			RQ	IL	MA	NJ	PA	RI
Manganese Dioxide	1313-13-9	15-45%	NONE	Y	Y	N	Y	Y
1,2-Dimethoxyethane	110-71-4	5-10%	NONE	Y	Y	Y	Y	N
Propylene Carbonate	108-32-7	1-10%	NONE	Y	Y	Y	Y	Y
Lithium	7439-93-2	1-5%	NONE	Y	Y	Y	Y	Y
Lithium Trifluoromethane Sulfonate	33454-82-9	0-5%	NONE	N	N	N	N	N
Carbon Black	1333-86-4	0-5%	NONE	Y	Y	N	Y	Y
Ethylene Carbonate	96-49-1	0-5%	NONE	Y	Y	N	Y	Y
Graphite	7782-42-5 7440-44-0	0-5%	NONE	Y	Y	N	Y	Y

Canada

All intentionally-added components of this product are listed on the Canadian DSL. This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and this PSDS contains all information required by the Controlled Products Regulations.

SECTION 16: OTHER INFORMATION

SDS Date of Preparation: June 6, 2018

DISCLAIMER:

This SDS is a brief summary of our knowledge and guidance regarding the use of this product. The information contained herein is accurate to the best of our knowledge. Each user of this product must evaluate the conditions of use and implement appropriate protective measures to prevent employee exposures, property damage or release to the environment. ZOLL Medical Corporation assumes no responsibility for injury or property damage resulting from misuse of this product.