

**Material Safety Data Sheet**

May be used to comply with  
 OSHA's Hazard Communication Standard,  
 29 CFR 1910.1200. Standard must be  
 consulted for specific requirements.

**U.S. Department of Labor**

(msds.a)

Occupational Safety and Health Administration  
 (Non-Mandatory Form)  
 Form Approved  
 OMB No. 1218-0072

**IDENTITY** (As Used on Label and List)

Dry Silver-Zinc Cells w/Mercuric Oxide

Note: Blank spaces are not permitted. If any item is not applicable, or no  
 information is available, the space must be marked to indicate that.

**Section I***Manufacturer's Name*

Yardney Technical Products, Inc.

*Emergency Telephone Number*

(800) 255-3924

*Address (Number, Street, City, State, and Zip Code)*

82 Mechanic Street

*Telephone Number for Information*

860-599-1100

Pawcatuck, CT 06379

*Date Prepared*

8/11/2004

*Signature of Preparer (optional)***Section II - Hazardous Ingredients/Identity Information**

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits	
			Recommended	% (optional)
Silver Compounds (Dust or Fume)	.01 mg/m <sup>3</sup>			
Zinc (as Fume)	5.0 mg/m <sup>3</sup>			
Mercuric Oxide (Fume)			0.025 mg/m <sup>3</sup>	1 mg/10m <sup>3</sup> OSHA ceiling

Under normal conditions of use or service, this product does not expose the user to toxic fumes.

Prior to use, care must be taken when filling a dry cell with electrolyte in order to avoid a severe  
 chemical burn to exposed tissue. Skin and eye protection is strongly recommended for the cell fill operation.

This product contains the following EPCRA Section 313 chemicals: Mercury, Silver, and Zinc Compounds

**Section III - Physical/Chemical Characteristics**

<i>Boiling Point</i>	N/A	<i>Specific Gravity (H<sub>2</sub>O = 1)</i>	N/A
<i>Vapor Pressure (mm Hg.)</i>	N/A	<i>Melting Point</i>	N/A
<i>Vapor Density (AIR = 1)</i>	N/A	<i>Evaporation Rate (Butyl Acetate = 1)</i>	N/A
<i>Solubility in Water</i>	N/A		
<i>Appearance and Odor</i>	No Odor		

**Section IV - Fire and Explosion Hazard Data**

<i>Flash Point (Method Used)</i>	N/A	<i>Flammable Limits</i>	N/A	<i>LEL</i>	N/A	<i>UEL</i>	N/A
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*Extinguishing Media*

Dry Chemical Extinguisher

*Special Fire Fighting Procedures*

Avoid Breathing Fumes, wear self contained breathing apparatus.

*Unusual Fire and Explosion Hazards*

Intense Acrid Smoke from Burning Metal and Plastic Components.

**Section V - Reactivity Data**

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<i>Stability</i>	<i>Unstable</i>		<i>Conditions to Avoid</i> Do not short circuit positive and negative terminals
	<i>Stable</i>	X	

*Incompatibility (Materials to Avoid)*

Acids, Solvents

*Hazardous Decomposition or Byproducts*

Mercuric oxide fumes, hydrogen gas

<i>Hazardous Polymerization</i>	<i>May Occur</i>		<i>Conditions to Avoid</i> N/A
	<i>Will Not Occur</i>	X	

**Section VI - Health Hazard Data**

<i>Route(s) of Entry:</i>	<i>Inhalation?</i>	<i>Skin?</i>	<i>Ingestion?</i>
	X	X	X

*Health Hazards (Acute and Chronic)*

Potassium Hydroxide is corrosive to skin and eyes. Mercuric Oxide bio accumulates in human tissues. Silver bio accumulates in human tissues. Zinc bio accumulates in human tissue. Zinc fumes can cause respiratory distress.

<i>Carcinogenicity:</i>	<i>NTP?</i>	<i>IARC Monographs?</i>	<i>OSHA Regulated?</i>
	No	No	No

*Signs and Symptoms of Exposure*

To potassium Hydroxide: Skin and eye irritation. To Silver: Agryia. To Mercuric Oxide: Loss of memory, tremors. To Zinc: Metal fume fever. metallic taste in mouth.

*Medical Conditions*

Generally Aggravated by Exposure NA

*Emergency and First Aid Procedures*

Remove injured personnel from area immediately. Flush eyes and skin with copious amounts of water for Potassium Hydroxide involvement and seek medical attention immediately.

**Section VII - Precautions for Safe Handling and Use***Steps to Be Taken in Case Material is Released or Spilled*

Contain Potassium Hydroxide, ventilate the area. Neutralize the Potassium Hydroxide with boric acid. Do not flush to sanitary sewer, collect all spillage and debris for proper disposal.

*Waste Disposal Method*

Silver-Zinc cells and batteries with mercury contain RCRA regulated metals and a corrosive liquid. They should be recycled to reclaim the silver, in accordance with local, state and federal hazard waste regulations.

*Precautions to Be Taken in Handling and Storage*

Avoid short circuiting the terminals. Avoid exposure to intense heat or fire. Do not open these cells and expose the internal components.

*Other Precautions*

Wet batteries are regulated. Proper shipping name - Batteries Wet, filled with Alkali, Hazard Class 8, UN2795.

**Section VIII - Control Measures***Respiratory Protection (Specific Type)*

N/A		
<i>Ventilation</i>	<i>Local Exhaust</i>	<i>Special</i>
	Yes	N/A
	<i>Mechanical (General)</i>	<i>Other</i>
	Per ACGI Handbook recommendation.	N/A
<i>Protective Gloves</i>		<i>Eye Protection</i>
Chemical Resistant (Fill Operation)		

*Other Protective Clothing or Equipment*

Chemical resistant apron (Fill Operation)

*Work Hygienic Practices*

Wash thoroughly after working with Ag-Zn batteries.