ENERGIZER 522

Specifications

Classification: Alkaline
Chemical System: Zinc-Manganese Dioxide (Zn/MnO₂)
No added mercury or cadmium
Designation: ANSI-160A, IEC-GLR61
Nominal Voltage: 9.0 volts
Operating Temp: -18°C to 55°C (0°F to 130°F)
Typical Weight: 45.6 grams (1.6 oz.)
Typical Volume: 21.1 cubic-centimeters (1.3 cubic inch)
Jacket: Metal
Shelf Life: 5 years at 21°C (80% of initial capacity)
Terminal: Miniature Snap

Industry Standard Dimensions

<table>
<thead>
<tr>
<th>mm (inches)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>17.50 (0.689)</td>
<td>15.50 (0.610)</td>
</tr>
<tr>
<td>12.45 (0.490)</td>
<td>24.50 (0.965)</td>
</tr>
<tr>
<td>26.50 (1.043)</td>
<td></td>
</tr>
</tbody>
</table>

Maximum

46.40 (1.827)

46.50 (1.831)

Milliamp-Hours Capacity
Continuous discharge to 4.8 volts at 21°C

Battery Selection Indicator

High Drain Devices

Moderate Drain Devices

Low Drain Devices

Important Notice
This datasheet contains typical information specific to products manufactured at the time of its publication.
©Energizer Holdings, Inc. - Contents herein do not constitute a warranty.
ENERGIZER 522

Constant Resistance Performance
Typical Characteristics (21°C)

Constant Current Performance
Typical Characteristics (21°C)

Industry Standard Tests (21°C)

RADIO
620 ohm 2 hrs/day

TOY
270 ohm 1 hr/day

ACCELERATED SMOKE DETECTOR
10k/620 ohm 1 sec/hr pulse

Important Notice
This datasheet contains typical information specific to products manufactured at the time of its publication.
©Energizer Holdings, Inc. - Contents herein do not constitute a warranty.
As a courtesy to our customers, Energizer has prepared copyrighted Product Safety Datasheets to provide information on the different Eveready/Energizer battery systems. As defined in OSHA Hazard Communication Standard, Section 1910.1200 (c), Eveready/Energizer batteries are manufactured "articles", which do not result in exposure to a hazardous chemical under normal conditions of use. For this reason, Material Safety Datasheets are not required. The information and recommendations set forth herein are made in good faith, for information only, and are believed to be accurate as of the date of preparation. However, Energizer Battery Manufacturing, Inc., makes no warranty, either express or implied, with respect to this information and disclaims all liability from reference on it.

**PRODUCT SAFETY DATA SHEET**

**PRODUCT NAME:** Eveready / Energizer Battery

**TRADE NAMES:** Energizer, Energizer e+, Industrial ZMA, Hercules, Eveready, Wonder

**CHEMICAL SYSTEM:** Alkaline Manganese Dioxide-Zinc

**SECTION 1 - MANUFACTURER INFORMATION**

Energizer Battery Manufacturing, Inc.  
25225 Detroit Rd.  
Westlake, OH 44145

Telephone Number for Information: 800-383-7323 (USA / CANADA)

Date Prepared: February 2009

**SECTION 2 – HAZARDS IDENTIFICATION**

Under normal conditions of use, the battery is hermetically sealed.

**Ingestion:** Swallowing a battery can be harmful. Contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.

**Inhalation:** Contents of an open battery can cause respiratory irritation.

**Skin Contact:** Contents of an open battery can cause skin irritation and/or chemical burns.

**Eye Contact:** Contents of an open battery can cause severe irritation and chemical burns.

**SECTION 3 - INGREDIENTS**

**IMPORTANT NOTE:** The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

<table>
<thead>
<tr>
<th>MATERIAL OR INGREDIENT</th>
<th>PEL (OSHA)</th>
<th>TLV (ACGIH)</th>
<th>%/wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphite (CAS# 7782-42-5)</td>
<td>15 mg/m³ TWA (total dust) 5 mg/m³ TWA (respirable fraction)</td>
<td>2 mg/m³ TWA (respirable fraction)</td>
<td>2-6</td>
</tr>
<tr>
<td>Manganese Dioxide (CAS# 1312-13-9)</td>
<td>5 mg/m³ Ceiling (as Mn)</td>
<td>0.2 mg/m³ TWA (as Mn)</td>
<td>30-45</td>
</tr>
<tr>
<td>Potassium Hydroxide (CAS# 1310-58-3)</td>
<td>None established</td>
<td>2 mg/m³ Ceiling</td>
<td>4-6</td>
</tr>
<tr>
<td>Zinc (CAS# 7440-66-6)</td>
<td>15 mg/m³ TWA PNCR* (total dust) 5 mg/m³ TWA PNCR* (respirable fraction)</td>
<td>10 mg/m³ TWA PNOC** (inhalable particulate) 3 mg/m³ TWA PNOC** (respirable particulate)</td>
<td>12-25</td>
</tr>
<tr>
<td>Non-Hazardous Components Steel (Iron CAS# 7439-99-6) Water, Paper, Plastic and Other</td>
<td>None established</td>
<td>None established</td>
<td>18-22</td>
</tr>
</tbody>
</table>

* PNCR: Particulates not otherwise regulated  
**PNOC: Particulates not otherwise classified

©2009 Energizer
SECTION 4 - FIRST AID MEASURES

**Ingestion:** Do not induce vomiting or give food or drink. Seek medical attention immediately. CALL NATIONAL BATTERY INGESTION HOTLINE for advice and follow-up (202-625-3333) collect day or night.

**Inhalation:** Provide fresh air and seek medical attention.

**Skin Contact:** Remove contaminated clothing and wash skin with soap and water. If a chemical burn occurs or if irritation persists, seek medical attention.

**Eye Contact:** Immediately flush eyes thoroughly with water for at least 15 minutes, lifting upper and lower lids, until no evidence of the chemical remains. Seek medical attention.

SECTION 5 - FIRE FIGHTING MEASURES

In case of fire, it is permissible to use any class of extinguishing medium on these batteries or their packing material. Cool exterior of batteries if exposed to fire to prevent rupture.

Fire fighters should wear self-contained breathing apparatus.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

To cleanup leaking batteries:

**Ventilation Requirements:** Room ventilation may be required in areas where there are open or leaking batteries.

**Eye Protection:** Wear safety glasses with side shields if handling an open or leaking battery.

**Gloves:** Use neoprene or natural rubber gloves if handling an open or leaking battery.

Battery materials should be collected in a leak-proof container.

SECTION 7 - HANDLING AND STORAGE

**Storage:** Store in a cool, well ventilated area. Elevated temperatures can result in shortened battery life.

**Mechanical Containment:** If potting or sealing the battery in an airtight or watertight container is required, consult your Energizer Battery Manufacturing, Inc. representative for precautionary suggestions. Batteries normally evolve hydrogen which, when combined with oxygen from the air, can produce a combustible or explosive mixture unless vented. If such a mixture is present, short circuits, high temperature, or static sparks can cause an ignition.

Do not obstruct safety release vents on batteries. Encapsulation (potting) of batteries will not allow cell venting and can cause high pressure rupture.

**Handling:** Accidental short circuit for a few seconds will not seriously affect the battery. Prolonged short circuit will cause the battery to lose energy, and can cause the safety release vent to open. Sources of short circuits include jumblled batteries in bulk containers, metal jewelry, metal covered tables or metal belts used for assembly of batteries into devices.

If soldering or welding to the battery is required, consult your Energizer Battery Manufacturing, Inc. representative for proper precautions to prevent seal damage or short circuit.

**Charging:** This battery is manufactured in a charged state. It is not designed for recharging. Recharging can cause battery leakage or, in some cases, high pressure rupture. Inadvertent charging can occur if a battery is installed backwards.

**Labeling:** If the Eveready / Energizer Battery label or package warnings are not visible, it is important to provide a package and/or device label stating:

**WARNING:** do not install backwards, charge, put in fire, or mix with other battery types. May explode or leak causing injury. Replace all batteries at the same time.

Where accidental ingestion of small batteries is possible, the label should include:

Keep away from small children. If swallowed, promptly see doctor; have doctor phone (202) 625-3333 collect.
SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation Requirements: Not necessary under normal conditions.
Respiratory Protection: Not necessary under normal conditions.
Eye Protection: Not necessary under normal conditions.
Gloves: Not necessary under normal conditions.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling Point @ 760 mm Hg (°C)</td>
<td>Not applicable for an Article</td>
</tr>
<tr>
<td>Vapor Pressure (mm Hg @ 25°C)</td>
<td>Not applicable for an Article</td>
</tr>
<tr>
<td>Vapor Density (Air = 1)</td>
<td>Not applicable for an Article</td>
</tr>
<tr>
<td>Density (g/cm³)</td>
<td>2.0 – 3.0</td>
</tr>
<tr>
<td>Percent Volatile by Volume (%)</td>
<td>Not applicable for an Article</td>
</tr>
<tr>
<td>Evaporation Rate (Butyl Acetate = 1)</td>
<td>Not applicable for an Article</td>
</tr>
<tr>
<td>Physical State</td>
<td>Solid</td>
</tr>
<tr>
<td>Solubility in Water (% by weight)</td>
<td>Not applicable for an Article</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable for an Article</td>
</tr>
<tr>
<td>Appearance and Odor</td>
<td>Solid object / no odor</td>
</tr>
</tbody>
</table>

SECTION 10 – STABILITY AND REACTIVITY

Alkaline batteries do not meet any of the criteria established in 40 CFR 261.2 for reactivity.

SECTION 11 – TOXICOLOGICAL INFORMATION

Alkaline batteries are not hazardous waste. Under normal conditions of use, alkaline batteries are non-toxic.

SECTION 12 – ECOLOGICAL INFORMATION

Issues such as ecotoxicity, persistence and bioaccumulation are not applicable for articles.

SECTION 13 – DISPOSAL CONSIDERATIONS

Dispose of in accordance with all applicable federal, state and local regulations. Appropriate disposal technologies include incineration and land filling.

©2009 Energizer