

Products Information Data Sheet

These products are hermetically sealed state in a vessel, and are exempted from Safety Data Sheet regulations. However, this manual provides you with referential information to safety use the products.

Section 1 - Products and Company Identification

Products name : Alkaline Dry Batteries (LR)
 Products sizes : LR20 LR14 LR6 LR03 LR1
 Company : TOSHIBA LIFESTYLE PRODUCTS & SERVICES CORPORATION
 Address : 25-1, Ekimae-honcho, Kawasaki-ku, Kawasaki,
 Kanagawa 210-8543, Japan
 Telephone : +81-44-331-7299
 Fax : +81-44-222-6279

Section 2 - Composition/ Information on Ingredients

| Ingredients | CAS# | PRTR | Weight/Content |
|---------------------------------------|-----------|---------------|----------------|
| Manganese dioxide (MnO ₂) | 1313-13-9 | 1-412 | 55 wt% |
| Graphite (C) | 7782-42-5 | Not regulated | 5 wt% |
| Potassium hydroxide (KOH) | 1310-58-3 | Not regulated | 10 wt% |
| Zinc (Zn) | 7440-66-6 | Not regulated | 30 wt% |

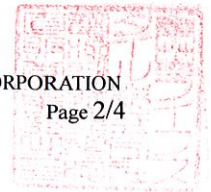
Section 3 - Summary of Danger and Toxicity

Fatal danger and toxicity : No information available
 Danger and toxicity : Chemical ingredient is hermetically sealed in a vessel, so the product is neither dangerous nor toxic as a cell.
 Potassium hydroxide which is the contents of cell is an acute toxic substance and so corrosive. If adhering to skin, it ulcerates skin. If getting into eyes, cornea and conjunctiva are acutely attacked, causing poor eyesight and blindness. If inhaled, bronchi, lung and throat are attacked, resulting possibly in pulmonary edema.
 Effect to environment : Although no information is available as a cell.
 Potassium hydroxide is reported as LC₅₀ (24 hours): 80 mg/L in mosquito fish as a result of a fish toxicity survey.
 Overview of prospective emergency : A cell may break or be shorted by an external mechanical or electrical stress.

Section 4 - First Aid Measures

There is no problem in the normal state. But take the following measures when the contents have begun to leak by the destruction of the battery.

Inhalation : If a person inhaled steam, move to the place where air is fresh immediately. If he/her feels ill, immediately call a doctor for therapy and treatment.
 Skin : If the content adheres to skin, immediately wash it with a large amount of clean water and soap promptly. If irritating, consult a doctor.
 Eyes : If the content enters eyes, rinse eyes with a large amount of clean water for more than 15 minutes, and consult a doctor.



Ingestion : If a cell is swallowed, immediately call a doctor for therapy and treatment.

Section 5 - Fire Fighting Measures

Fire extinguishers : Powder extinguisher, foam extinguisher, carbon dioxide gas extinguisher, large amount of dry sand

Specific fire fighting method : In the initial state of a fire, move cells/batteries from near the fire source, to a safe location. At that time, work at a windward location, as far as possible, and be sure to put on a protective breathing mask.

Protection of fire fighting personnel : Be wear protective breathing masks, gloves, glasses and helmet for the keeping safe. (Preferably, use a self-feeding type mask.)

Section 6 - Action upon Leakage and Removing Method

A cell hermetically contains constituents in a vessel, so contents normally may not leak out. However, if the contents leaks because of a mechanical or electrical stress, wipe with liquid-boric to absorb it, and collect in a vessel. After that, flush the site with a large amount of water. At that time, be sure to put on protective-gloves, glasses and mask. (Preferably, use a self-feeding type mask.)

Section 7 - Handling and Storage

Handling : Never solder a cell body.
Do not contact cell terminals between each other, or with another conductor. Neither throws into fire, decompose, heat, dent, deform, charge nor drop a battery. Do not dip a cell in water or seawater.

Storage : Store cells without direct sunlight, high temperature, high humidity, rain, dew, etc., and select a storage location with a temperature as low as possible (preferable temperature 10-25°C and relative humidity 70% or less). In addition, keep cells away from dangerous matter such as combustible or ignitable materials. Absolutely never place a cell in contact with a combustible or conductive substance. Prepare appropriate firefighting equipment.

Note : See handling and storing precautions described in the product catalog, specification, etc.

Section 8 - Prevention from Exposure

Protection of respiratory organs : Not required in a normal operating state

Protection of eyes : Not required in a normal operating state

Other protective tools etc. : Not required in a normal operating state

Section 9 - Physical and Chemical Properties

Shape : Cylindrical. Contents are sealed in a stiff stainless steel vessel.

PH : Not applicable because a cell is not soluble with water.

Boiling point/boiling range : No information

Melting point : No information

Decomposition temperature : No information

Flash point : No information

Section 10 - Stability and Reactivity

- Conditions to be avoided : If a number of cells are mixed up without insulating terminals, they may short and possibly heat, break and ignite. When a cell is charged, possibly in bursting the electrolyte etc. Or, it may possibly burst or fire. If a cell is heated or thrown into fire, it may explode or fire with the electrolyte etc. bursting from inside of the cell.
- If decomposed, there is a possibility of overheating or fire due to short circuit, and ignition of some material around etc.

Section 11 - Information on Toxicity

There is no toxicity because chemical substances are hermetically sealed in a metal vessel.

As a reference, chemical substances composing a cell are described below.

Manganese dioxide

- Acute toxicity : LD₅₀:45mg/kg (Intravenous injection, rabbit)
LD₅₀:422mg/kg (Hypodermic injection, mouse)
- Irritation : Irritating eyes, nose, throat and skin.
- Chronic toxicity : If a person is exposed to powder for a long time or repeatedly, the lung and the nervous system may be affected, possibly causing bronchitis, pneumonia, nervous disease or mental disease.
- Procreation toxicity : TCL₀:49mg/m³ (Inhalation, mouse)

Graphite

- Chronic toxicity : If inhaled for a long time without protective tools, local ventilation, etc., graphite lung may result.
- Breathing toxicity : If inhaled for a long time without protective tools, local ventilation, etc., graphite lung may result.

Potassium hydroxide

- Acute toxicity : LD₅₀:273mg/kg (rat, oral)
- Acute and chronic toxicity : If skin repeatedly contacts a dilute solution, various tissues on the skin surface are attacked, causing dermatitis due to direct irritation or chronic eczema.
- Mutagenesis : Hamster, ovary, positive

Zinc powder

- Acute toxicity : LC₅₀:2500mg/m³(rat, Inhalation)
TCL₀:124 mg/m³/50min (Human, via respiratory tract)

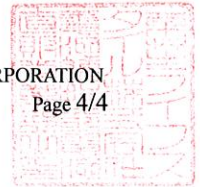
Section 12 - Ecological Information

No information as batteries.

Section 13 - Disposal Precautions

Disposal of the substance should be done according to the laws and regulations.

Although used cells can be discarded basically as "nonflammable refuse," some local governments sort and collect them at their own discretion. Therefore, observe instructions of the government you belong to, to dispose of the substance.



Keep the following discarding precautions :

- Even a used cell sometimes stores electric energy. Therefore, to prevent the battery from short-circuit, isolate cells from each other by a method such as taping +, - terminals of cells, or using the individual housing case of a cell, used when you bought the battery, and orderly encasing batteries in a box, then submit an application of disposal to the local government of your residence, using the designated form.
- Packing cells so that they are not shorted, and prevent the package from being wetted.
- If cells must be discarded in a country other than Japan, observe the instructions of the country and local government.

Section 14 - Transportation Precautions

TOSHIBA Alkaline Dry Batteries are considered to be "dry cell" batteries and are not regulated for purposes of transportation by the U.S. Department of Transportation (DOT), International Civil Aviation Administration (ICAO), International Air Transport Association (IATA) and International Maritime Dangerous Goods Regulations (IMDG). Shipping these batteries is subject to the only requirements by DOT is Special Provision 130 i.e. "Batteries, dry are not subject to the requirements of this subchapter only when they are offered for transportation in a manner that prevents the dangerous evolution of heat (for example, by the effective insulation of exposed terminals)". Shipping these batteries is subject to the only requirements by ICAO and IATA is Special Provision A123 i.e. "An electrical battery or battery powered device having the potential of dangerous evolutions of heat that is not prepared so as to prevent a short-circuit (e.g. in the case of batteries, by the effective insulation of exposed terminals; or in the case of equipment, by disconnection of the battery and protection of exposed terminals) is forbidden from transportation." The International Maritime Dangerous Goods Code (IMDG) regulate them for ocean transportation under Special Provision 304 which says: "Batteries, dry, containing corrosive electrolyte which will not flow out of the battery case is cracked are not subject to the provisions of this Code provided the batteries are securely packed and protected against short-circuits. Examples of such batteries are: alkali-manganese, zinc carbon, nickel metal hydride and nickel-cadmium batteries.

Section 15 - Applicable Laws and Regulations

The laws and ordinances about the battery shall obey the latest laws and ordinances.

Section 16 - Other Information

The Alkaline dry cells/batteries fall in the category of "Article" defined by EPA (U.S. Environment Protection Agency), and chemical substances used in a battery satisfy the application exemption conditions (40.crf.720.3.c) as part of "Article," so the batteries are not regulated by TSCA.

| | | |
|------------------------|---|---|
| Prepared Day | : | January 27, 2009 |
| Revised Day | : | January 01, 2017 |
| Preparation This Sheet | : | TOSHIBA LIFESTYLE PRODUCTS & SERVICES CORPORATION Engineering Group Planning & Procurement Dept. Battery Business Div. |



Material Safety Data Sheet

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name: DURACELL ALKALINE BATTERIES

Product Identification: Alkaline Manganese Dioxide Cells –

Duracell Designations: 7K67; MN1203; MN1300; MN1400; MN1500; MN2400; MN1604; MN908; MN918; MN9100; MX1604; MX2500; MX1300; MX1400; MX1500; MX2400

Product Use: Energy Source

MSDS Date of Preparation: August 24, 2009

Company Identification

US Office

Duracell, a division of P&G
Berkshire Corporate Park
14 Research Drive
Bethel, CT USA 06401
(203) 796-4000

Canadian Office

Duracell, a division of P&G
4711 Yonge Street
Toronto, Ontario
Canada M2N 6K8
(416) 730-4711

Emergency Phone Number: INFOTRAC Emergency Response Hotline 1-800-535-5053 (US & Canada)

SECTION 2: HAZARDS IDENTIFICATION

Physical Appearance: Copper top battery.

EMERGENCY OVERVIEW

CAUTION: May explode or leak, and cause burn injury, if recharged, disposed of in fire, mixed with a different battery type, inserted backwards or disassembled. Replace all used batteries at the same time. Do not carry batteries loose in your pocket or purse. Do not remove the battery label.

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. Damaged battery will release concentrated potassium hydroxide, which is caustic. Anticipated potential leakage of potassium hydroxide is 2 to 20 mL, depending on battery size.

Eye Contact: Contact with battery contents may cause severe irritation and burns. Eye damage is possible.

Skin Contact: Contact with battery contents may cause severe irritation and burns.

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 size. Choking may occur if smaller AAA batteries are swallowed. Ingestion of battery contents (from a leaking battery) may cause mouth, throat and intestinal burns and damage.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Name | CAS Number | Amount |
|---------------------------------|----------------------|--------|
| Manganese Dioxide | 1313-13-9 | 35-40% |
| Zinc | 7440-66-6 | 10-25% |
| Potassium Hydroxide (35%) | 1310-58-3 | 5-10% |
| Graphite (natural or synthetic) | 7782-42-5, 7440-44-0 | 1-5% |

SECTION 4: FIRST AID MEASURES

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 battery contents are swallowed, do not induce vomiting. If the victim is alert, have them rinse their mouth and the surrounding skin with water for at least 15 minutes. Seek immediate medical attention.

Note: This MSDS does not include or address the small button cell batteries which can be ingested.

SECTION 5: FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Batteries may burst and release hazardous decomposition products when exposed to a fire situation.

Extinguishing Media: Use any extinguishing media that is appropriate for the surrounding fire.

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 (containers may rocket or explode in heat of fire).

Hazardous Combustion Products: Thermal degradation may produce hazardous fumes of zinc and manganese; hydrogen gas, caustic vapors of potassium hydroxide and other toxic by-products.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Notify safety personnel of large spills. Caustic potassium hydroxide may be released from leaking or ruptured batteries. 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.

SECTION 7: HANDLING AND STORAGE

Avoid mechanical or electrical abuse. DO NOT short circuit or install incorrectly. Batteries may explode, pyrolyze or vent if disassembled, crushed, recharged or exposed to high temperatures. Install batteries in accordance with equipment instructions. Do not mix battery systems, such as alkaline and zinc carbon, in the same equipment. Replace all batteries in equipment at the same time. Do not carry batteries loose in a pocket or bag. Do not remove battery tester or battery label.

Storage: Store batteries in a dry place at normal room temperature. Do not refrigerate – this will not make them last longer.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

The following occupational exposure limits are provided for informational purposes. No exposure to the battery components should occur during normal consumer use.

| Chemical Name | Exposure Limits |
|----------------------------------|--|
| Manganese Dioxide | 5 mg/m ³ Ceiling OSHA PEL 0.2 mg/m ³ TWA ACGIH TLV |
| Zinc | None established for zinc metal |
| Potassium Hydroxide | 2 mg/m ³ Ceiling ACGIH TLV |
| 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 |

Ventilation: No special ventilation is needed for normal use.

Respiratory Protection: None required for normal use.

Skin Protection: None required for normal use. Use neoprene, rubber or latex gloves when handling leaking batteries.

Eye Protection: None required for normal use. Wear safety goggles when handling leaking batteries.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Copper top battery.

Specific Gravity: Not applicable

Water Solubility: Insoluble

Vapor Pressure: Not applicable

Vapor Density: Not applicable

Boiling Point: Not applicable

Melting Point: Not applicable

Flash Point: Not applicable

Autoignition Point: Not applicable

SECTION 10: STABILITY AND REACTIVITY

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 zinc and manganese; caustic vapors of potassium hydroxide and other toxic by-products.

Hazardous Polymerization: Will not occur

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Toxicity Data:

Manganese Dioxide: LD50 oral rat >3478 mg/kg

Potassium Hydroxide: LD50 oral rat 273 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: None of the components of this product are listed as carcinogens by ACGIH, IARC, NTP or OSHA.

SECTION 12: ECOLOGICAL INFORMATION

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

SECTION 13: DISPOSAL INFORMATION

Disposal should be in accordance with Federal, state/provincial and local regulations. Products covered by this MSDS, in their original form, when disposed as waste, are considered non hazardous waste according to Federal RCRA regulations (40 CFR 261).

Alkaline batteries can be safely disposed of with normal household waste. Due to concerns about mercury in the municipal solid waste stream, Duracell has voluntarily eliminated all of the added mercury from its alkaline batteries since 1993. Individual consumers may dispose of spent (used) batteries with household trash. Duracell does not recommend that spent batteries be accumulated and disposed of in large quantities. Do not incinerate except for disposal in a controlled incinerator.

Some communities offer recycling or collection of alkaline batteries – contact your local government for disposal practices in your area.

SECTION 14: TRANSPORT INFORMATION

Products covered by this MSDS, in their original form, are considered “dry cell” batteries and are not regulated for transportation as “DANGEROUS GOODS.” The batteries must be packaged in a manner that prevents the generation of a dangerous quantity of heat and short circuits.

For finished packaged product transported by ground (US DOT): – not regulated

For finished packaged product transported by sea (IMDG) – not regulated

For finished packaged product transported by air (IATA): – not regulated

Special provisions apply and shippers should consult the most current versions of the transportation regulations.

Special Provision A123 in the IATA Dangerous Goods Regulations and ICAO Technical Instructions and Special Provision 130 in 49 CFR 172.102 of the U.S. DOT regulations require alkaline batteries be packed in such a way to prevent short circuits or generating a dangerous quantity of heat. In addition, the IATA Dangerous Goods Regulations and ICAO Technical Instructions require the words “not restricted” and the Special Provision number “A123” be provided on the air waybill, when an air waybill is issued. Special Provision 304 of the IMDG Code (Amdt. 33-06) provides batteries, dry, containing corrosive electrolyte which will not flow out of the battery if the battery case is cracked are not subject to the provisions of this Code provided the batteries are securely packed and protected against short-circuits. Examples of such batteries are alkali-manganese, zinc-carbon, nickel-metal hydride and nickel-cadmium batteries.

SECTION 15: REGULATORY INFORMATION

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 MSDS 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 35-40%, Zinc 10-25%

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 RQ | State | | | | |
|---------------------|------------------------|--------|-----------|-------|----|----|----|----|
| | | | | IL | MA | NJ | PA | RI |
| Manganese Dioxide | 1313-13-9 | 35-40% | None | Y | Y | N | Y | Y |
| Zinc | 7440-66-6 | 10-25% | 1000 lb | Y | Y | Y | Y | N |
| Potassium Hydroxide | 1310-58-3 | 5-10% | 1000 lb | Y | Y | Y | Y | Y |
| Graphite | 7782-42-5 7440-44-0 | 1-5% | 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 MSDS contains all information required by the Controlled Products Regulations.

SECTION 16: OTHER INFORMATION

P&G Hazard Rating: Health: 0 Fire: 0 Reactivity: 0

Data supplied is for use only in connection with occupational safety and health.

DISCLAIMER: This MSDS is intended to provide a brief summary of our knowledge and guidance regarding the use of this material. The information contained here has been compiled from sources considered by Procter & Gamble to be dependable and is accurate to the best of the Company's knowledge. It is not meant to be an all-inclusive document on worldwide hazard communication regulations.

This information is offered in good faith. Each user of this material needs to evaluate the conditions of use and design the appropriate protective mechanisms to prevent employee exposures, property damage or release to the environment. Procter & Gamble assumed no responsibility for injury to the recipient or third persons, or for any damage to any property resulting from misuse of the product.



Products Information Data Sheet

These products are hermetically sealed state in a vessel, and are exempted from Safety Data Sheet regulations. However, this manual provides you with referential information to safety use the products.

Section 1 - Products and Company Identification

Products name : Carbon Zinc Batteries(R)
 Products sizes : R20 R14 R6 R03
 Company : TOSHIBA LIFESTYLE PRODUCTS & SERVICES CORPORATION
 Address : 25-1, Ekimae-honcho, Kawasaki-ku, Kawasaki,
 Kanagawa 210-8543, Japan
 Telephone : +81-44-331-7299
 Fax : +81-44-222-6279

Section 2 - Composition/ Information on Ingredients

| Ingredients | CAS# | PRTR | Weight/Content |
|--|------------|---------------|----------------|
| Manganese dioxide (MnO ₂) | 1313-13-9 | 1-412 | 45 wt% |
| Acetylene black (C) | 1333-86-4 | Not regulated | 10 wt% |
| Zinc chloride (ZnCl ₂) | 7646-85-7 | 1-1 | 10 wt% |
| Ammonium chloride (NH ₄ Cl) | 12125-02-9 | Not regulated | 5 wt% |
| Zinc (Zn) | 7440-66-6 | Not regulated | 25 wt% |
| Lead (Pb) | 7439-92-1 | 1-304 | 5 wt% |

Section 3 - Summary of Danger and Toxicity

Fatal danger and toxicity : No information available
 Danger and toxicity : Chemical ingredient is hermetically sealed in a vessel, so the product is neither dangerous nor toxic as a cell.
 Zinc chloride which is the contents of cell is an acute toxic. If adhering to skin, skin may cause inflammation.
 Effect to environment : Although no information is available as a cell.
 Overview of prospective emergency : A cell may break or be shorted by an external mechanical or electrical stress.

Section 4 - First Aid Measures

There is no problem in the normal state. But take the following measures when the contents have begun to leak by the destruction of the battery.

Inhalation : If a person inhaled steam, move to the place where air is fresh immediately. If he/her feels ill, immediately call a doctor for therapy and treatment.
 Skin : If the content adheres to skin, immediately wash it with a large amount of clean water and soap promptly. If irritating, consult a doctor.
 Eyes : If the content enters eyes, rinse eyes with a large amount of clean water for more than 15 minutes, and consult a doctor.
 Ingestion : If a cell is swallowed, immediately call a doctor for therapy and treatment.



Section 5 - Fire Fighting Measures

- Fire extinguishers : Powder extinguisher, foam extinguisher, carbon dioxide gas extinguisher, large amount of dry sand
- Specific fire fighting method : In the initial state of a fire, move cells/batteries from near the fire source, to a safe location. At that time, work at a windward location, as far as possible, and be sure to put on a protective breathing mask.
- Protection of fire fighting personnel : Be wear protective breathing masks, gloves, glasses and helmet for the keeping safe. (Preferably, use a self-feeding type mask.)

Section 6 - Action upon Leakage and Removing Method

A cell hermetically contains constituents in a vessel, so contents normally may not leak out. However, if the contents leaks because of a mechanical or electrical stress, wipe with liquid-boric to absorb it, and collect in a vessel. After that, flush the site with a large amount of water. At that time, be sure to put on protective-gloves, glasses and mask. (Preferably, use a self-feeding type mask.)

Section 7 - Handling and Storage

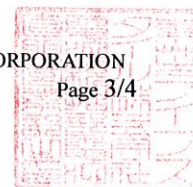
- Handling : Never solder a cell body.
Do not contact cell terminals between each other, or with another conductor. Neither throws into fire, decompose, heat, dent, deform, charge nor drop a battery. Do not dip a cell in water or seawater.
- Storage : Store cells without direct sunlight, high temperature, high humidity, rain, dew, etc., and select a storage location with a temperature as low as possible (preferable temperature 10-25°C and relative humidity 70% or less). In addition, keep cells away from dangerous matter such as combustible or ignitable materials. Absolutely never place a cell in contact with a combustible or conductive substance. Prepare appropriate firefighting equipment.
- Note : See handling and storing precautions described in the product catalog, specification, etc.

Section 8 - Prevention from Exposure

- Protection of respiratory organs : Not required in a normal operating state
- Protection of eyes : Not required in a normal operating state
- Other protective tools etc. : Not required in a normal operating state

Section 9 - Physical and Chemical Properties

- Shape : Cylindrical. Contents are sealed in a stiff stainless steel vessel.
- PH : Not applicable because a cell is not soluble with water.
- Boiling point/boiling range : No information
- Melting point : No information
- Decomposition temperature : No information
- Flash point : No information



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- Conditions to be avoided : If a number of cells are mixed up without insulating terminals, they may short and possibly heat, break and ignite. When a cell is charged, possibly in bursting the electrolyte etc. Or, it may possibly burst or fire. If a cell is heated or thrown into fire, it may explode or fire with the electrolyte etc. bursting from inside of the cell.
- If decomposed, there is a possibility of overheating or fire due to short circuit, and ignition of some material around etc.

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Manganese dioxide

- Acute toxicity : LD₅₀:45 mg/kg (Intravenous injection, rabbit)
LD₅₀:422 mg/kg (Hypodermic injection, mouse)
- Irritation : Irritating eyes, nose, throat and skin.
- Chronic toxicity : If a person is exposed to powder for a long time or repeatedly, the lung and the nervous system may be affected, possibly causing bronchitis, pneumonia, nervous disease or mental disease.

- Procreation toxicity : TCL₀:49mg/m³ (Inhalation, mouse)

Acetylene black

- Acute toxicity : LD₅₀:2,000mg/kg > (Rat)
- Carcinogenic property : IARC group 2 (May be carcinogenic)

Zinc chloride

- Acute toxicity : TCL₀:4800mg/m³/30min.
LD₅₀:350mg/kg(oral, rat)

Ammonium chloride

- Acute toxicity : LD₅₀:1650mg/kg(oral, rat)

Zinc

- Acute toxicity : LC₅₀:2500mg/m³(Rat inhalation)
TCL₀:124mg/m³/50min.(Human, via respiratory tract)

Lead

- Acute toxicity : LC₅₀:1000ppm/7hours(Rat inhalation)

Section 12 - Ecological Information

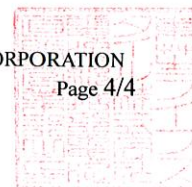
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- Packing cells so that they are not shorted, and prevent the package from being wetted.
- If cells must be discarded in a country other than Japan, observe the instructions of the country and local government.

Section 14 - Transportation Precautions

TOSHIBA Carbon Zinc Batteries are considered to be “dry cell” batteries and are not regulated for purposes of transportation by the U.S. Department of Transportation (DOT), International Civil Aviation Administration (ICAO), International Air Transport Association (IATA) and International Maritime Dangerous Goods Regulations (IMDG). Shipping these batteries is subject to the only requirements by DOT is Special Provision 130 i.e. “Batteries, dry are not subject to the requirements of this subchapter only when they are offered for transportation in a manner that prevents the dangerous evolution of heat (for example, by the effective insulation of exposed terminals)”. Shipping these batteries is subject to the only requirements by ICAO and IATA is Special Provision A123 i.e. “An electrical battery or battery powered device having the potential of dangerous evolutions of heat that is not prepared so as to prevent a short-circuit (e.g. in the case of batteries, by the effective insulation of exposed terminals; or in the case of equipment, by disconnection of the battery and protection of exposed terminals) is forbidden from transportation.” The International Maritime Dangerous Goods Code (IMDG) regulate them for ocean transportation under Special Provision 304 which says: “Batteries, dry, containing corrosive electrolyte which will not flow out of the battery case is cracked are not subject to the provisions of this Code provided the batteries are securely packed and protected against short-circuits. Examples of such batteries are: alkali-manganese, zinc carbon, nickel metal hydride and nickel-cadmium batteries.

Section 15 - Applicable Laws and Regulations

The laws and ordinances about the battery obey the latest laws and ordinances.

Section 16 - Other Information

The Carbon Zinc cells/batteries fall in the category of “Article” defined by EPA (U.S. Environment Protection Agency), and chemical substances used in a battery satisfy the application exemption conditions (40.cfr.720.3.c) as part of “Article,” so the batteries are not regulated by TSCA.

| | | |
|------------------------|---|---|
| Prepared Day | : | January 27, 2009 |
| Revised Day | : | January 01, 2017 |
| Preparation This Sheet | : | TOSHIBA LIFESTYLE PRODUCTS & SERVICES CORPORATION Engineering Group Planning & Procurement Dept. Battery Business Div. |

SAFETY DATA SHEET

Issuing Date 15-Jun-2015

Revision Date 13-Apr-2016

Revision Number 2



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1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name E91BP-4, E91BP-4UP, E91BP-8, E91BP-12, E91BP-20W

Other means of identification

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended Use Alkaline battery

Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier Name Energizer Battery

Supplier Address 533 Maryville University Drive
St. Louis
MO
63141
US

Supplier Phone Number Phone:314-985-2000

Supplier Email travisr.stevener@energizer.com

Emergency telephone number

Company Emergency Phone Number 314-985-1500

2. HAZARDS IDENTIFICATION

Classification


This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200). This product is an article which is a sealed battery and as such does not require an MSDS per the OSHA hazard communication standard unless ruptured. The hazards indicated are for a ruptured battery.



| | |
|--|---------------------------|
| Acute toxicity - Oral | Category 4 |
| Acute toxicity - Inhalation (Gases) | Category 2 |
| Acute toxicity - Inhalation (Vapors) | Category 2 |
| Acute toxicity - Inhalation (Dusts/Mists) | Category 2 |
| Skin corrosion/irritation | Category 1 Sub-category A |
| Serious eye damage/eye irritation | Category 1 |
| Skin sensitization | Category 1 |
| Carcinogenicity | Category 1A |
| Reproductive Toxicity | Category 1A |
| Specific target organ toxicity (single exposure) | Category 3 |
| Specific target organ toxicity (repeated exposure) | Category 1 |

GHS Label elements, including precautionary statements

Emergency Overview

| | |
|---|-----------------------------|
| Signal word | Danger |
| Hazard Statements | |
| Harmful if swallowed Fatal if inhaled Causes severe skin burns and eye damage May cause an allergic skin reaction May cause cancer May damage fertility or the unborn child May cause respiratory irritation. May cause drowsiness or dizziness | |
|  | |
| This product is an article which contains a chemical substance. Safety information is given for exposure to the article as sold. Intended use of the product should not result in exposure to the chemical substance. This is a battery. In case of rupture: the above hazards exist. | |
| Appearance Silver | Physical state Solid |
| Odor None | |

Precautionary Statements - Prevention

- Obtain special instructions before use
- Do not handle until all safety precautions have been read and understood
- Use personal protective equipment as required
- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Do not breathe dust/fume/gas/mist/vapors/spray
- Use only outdoors or in a well-ventilated area
- Wear respiratory protection
- Contaminated work clothing should not be allowed out of the workplace
- Wear protective gloves

Precautionary Statements - Response

- Specific treatment is urgent (see .? on this label)
- Immediately call a POISON CENTER or doctor/physician



Specific treatment (see supplemental first aid instructions on this label)

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician

Skin

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
If skin irritation or rash occurs: Get medical advice/attention

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
Call a POISON CENTER or doctor/physician if you feel unwell

Ingestion

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Do NOT induce vomiting

Precautionary Statements - Storage

Store locked up
Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Not applicable

Unknown Toxicity

6 % of the mixture consists of ingredient(s) of unknown toxicity

Other information

Very toxic to aquatic life with long lasting effects
Repeated or prolonged skin contact may cause allergic reactions with susceptible persons

Interactions with Other Chemicals

No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical name | CAS No | Weight-% | Trade Secret |
|------------------------------|------------|----------|--------------|
| Manganese dioxide | 1313-13-9 | 30 - 60 | * |
| Zinc | 7440-66-6 | 10 - 30 | * |
| Steel manufacture, chemicals | 65997-19-5 | 10 - 30 | * |
| Potassium hydroxide | 1310-58-3 | 5 - 10 | * |
| Graphite | 7782-42-5 | 3 - 7 | * |

*The exact percentage (concentration) of composition has been withheld as a trade secret

4. FIRST AID MEASURES



First aid measures**General Advice**

This is a battery. In case of rupture: Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical attention/advice.

Skin contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Seek immediate medical attention/advice. May cause an allergic skin reaction.

Inhalation

Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get medical attention immediately if symptoms occur. Do not breathe dust.

Ingestion

Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

Self-protection of the first aider

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wear personal protective clothing (see section 8). Do not breathe dust. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Most important symptoms and effects, both acute and delayed**Most Important Symptoms and Effects**

Burning sensation. Coughing and/ or wheezing. Difficulty in breathing. Itching. Rashes. Hives.

Indication of any immediate medical attention and special treatment needed**Notes to Physician**

Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure. May cause sensitization in susceptible persons. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors. In the event of fire and/or explosion do not breathe fumes. Product is or contains a sensitizer. May cause sensitization by skin contact.

Explosion Data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Attention! Corrosive material. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Avoid generation of dust. Do not breathe dust.

Other Information Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling In case of rupture. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Use personal protection equipment.

Conditions for safe storage, including any incompatibilities

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

Incompatible Products Acids. Bases. Oxidizing agent.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

| Chemical name | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|---|--|---|---|
| Manganese dioxide 1313-13-9 | TWA: 0.02 mg/m ³ Mn TWA: 0.1 mg/m ³ Mn | (vacated) Ceiling: 5 mg/m ³ Ceiling: 5 mg/m ³ Mn | IDLH: 500 mg/m ³ Mn TWA: 1 mg/m ³ Mn STEL: 3 mg/m ³ Mn |
| Zinc 7440-66-6 | STEL: 10 mg/m ³ respirable fraction TWA: 2 mg/m ³ respirable fraction | TWA: 5 mg/m ³ fume TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction | IDLH: 500 mg/m ³ Ceiling: 15 mg/m ³ dust TWA: 5 mg/m ³ dust and fume STEL: 10 mg/m ³ fume |
| Steel manufacture, chemicals 65997-19-5 | STEL: 10 mg/m ³ Zr TWA: 0.05 mg/m ³ Pb TWA: 0.00005 mg/m ³ Be inhalable fraction TWA: 1 mg/m ³ Cu dust and mist TWA: 0.2 mg/m ³ Se TWA: 1 mg/m ³ Y TWA: 5 mg/m ³ Zr TWA: 0.02 mg/m ³ Mn TWA: 0.1 mg/m ³ Mn TWA: 0.5 mg/m ³ Hf S* | TWA: 50 µg/m ³ Pb TWA: 2 µg/m ³ Be TWA: 0.2 mg/m ³ Se TWA: 5 mg/m ³ Zr Action Level: 30 µg/m ³ Pb Poison, See 29 CFR 1910.1025 (vacated) TWA: 2 µg/m ³ Be (vacated) TWA: 0.2 mg/m ³ Se (vacated) TWA: 5 mg/m ³ Zr (vacated) STEL: 25 µg/m ³ 30 min (vacated) STEL: 10 mg/m ³ Zr (vacated) Ceiling: 5 µg/m ³ (vacated) Ceiling: 5 mg/m ³ Ceiling: 5 µg/m ³ Be Ceiling: 5 mg/m ³ Mn | IDLH: 4 mg/m ³ Be IDLH: 100 mg/m ³ Cu dust and mist IDLH: 500 mg/m ³ Mn IDLH: 1 mg/m ³ Se IDLH: 500 mg/m ³ Y IDLH: 25 mg/m ³ Zr IDLH: 100 mg/m ³ Pb IDLH: 10 mg/m ³ Ni IDLH: 50 mg/m ³ Hf Ceiling: 0.05 mg/m ³ V dust and fume 15 min Ceiling: 0.0005 mg/m ³ Be TWA: 1 mg/m ³ Cu dust and mist TWA: 1 mg/m ³ Mn TWA: 0.2 mg/m ³ except Selenium hexafluoride Se TWA: 1 mg/m ³ Y TWA: 5 mg/m ³ except Zirconium tetrachloride Zr TWA: 0.050 mg/m ³ Pb TWA: 0.015 mg/m ³ except Nickel carbonyl Ni TWA: 0.5 mg/m ³ Hf STEL: 3 mg/m ³ Mn STEL: 10 mg/m ³ Zr |
| Potassium hydroxide 1310-58-3 | Ceiling: 2 mg/m ³ | (vacated) Ceiling: 2 mg/m ³ | Ceiling: 2 mg/m ³ |
| Graphite 7782-42-5 | TWA: 2 mg/m ³ respirable fraction all forms except graphite fibers | TWA: 15 mg/m ³ total dust synthetic TWA: 5 mg/m ³ respirable fraction synthetic | IDLH: 1250 mg/m ³ TWA: 2.5 mg/m ³ respirable dust |

| | | | |
|--|--|---|--|
| | | (vacated) TWA: 2.5 mg/m ³ respirable dust natural (vacated) TWA: 10 mg/m ³ total dust synthetic (vacated) TWA: 5 mg/m ³ respirable fraction synthetic TWA: 15 mppcf natural | |
|--|--|---|--|

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits Immediately Dangerous to Life or Health

Other Exposure Guidelines Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992)

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection Face protection shield.

Skin and body protection Wear protective gloves and protective clothing. Long sleeved clothing. Chemical resistant apron. Impervious gloves.

Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. For environmental protection, remove and wash all contaminated protective equipment before re-use. Do not breathe dust.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

| | | | |
|-----------------------|--------------------------|-----------------------|--------------------------|
| Physical state | Solid | Odor | None |
| Appearance | Silver | Odor Threshold | No information available |
| Color | No information available | | |

| <u>Property</u> | <u>Values</u> | <u>Remarks</u> | <u>Method</u> |
|-------------------------------|-------------------|----------------|---------------|
| pH | No data available | None known | |
| Melting / freezing point | No data available | None known | |
| Boiling point / boiling range | No data available | None known | |
| Flash Point | No data available | None known | |
| Evaporation Rate | No data available | None known | |
| Flammability (solid, gas) | No data available | None known | |
| Flammability Limit in Air | | | |
| Upper flammability limit | No data available | | |



| | | |
|---|--------------------|------------|
| Lower flammability limit | No data available | |
| Vapor pressure | No data available | None known |
| Vapor density | No data available | None known |
| Specific Gravity | No data available | None known |
| Water Solubility | Insoluble in water | None known |
| Solubility in other solvents | No data available | None known |
| Partition coefficient: n-octanol/water | No data available | None known |
| Autoignition temperature | No data available | None known |
| Decomposition temperature | No data available | None known |
| Kinematic viscosity | No data available | None known |
| Dynamic viscosity | No data available | None known |
| Explosive properties | No data available | |
| Oxidizing properties | No data available | |

Other Information

| | |
|-----------------------------------|-------------------|
| Softening Point | No data available |
| VOC Content (%) | No data available |
| Particle Size | No data available |
| Particle Size Distribution | |

10. STABILITY AND REACTIVITY

Reactivity

No data available.

Chemical stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to avoid

Exposure to air or moisture over prolonged periods. Excessive heat.

Incompatible materials

Acids. Bases. Oxidizing agent.

Hazardous Decomposition Products

None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure**Product Information**

Product does not present an acute toxicity hazard based on known or supplied information. In case of rupture:.

Inhalation

Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal. May cause irritation of respiratory tract. Fatal if inhaled.

| | |
|---------------------|---|
| Eye contact | Specific test data for the substance or mixture is not available. Causes burns. (based on components). Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes. |
| Skin contact | Specific test data for the substance or mixture is not available. Corrosive. (based on components). Causes burns. |
| Ingestion | Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Harmful if swallowed. |

Component Information

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|----------------------------------|----------------------|-------------|-----------------|
| Manganese dioxide 1313-13-9 | = 9000 mg/kg (Rat) | - | - |
| Potassium hydroxide 1310-58-3 | = 284 mg/kg (Rat) | - | - |

Information on toxicological effects

Symptoms Erythema (skin redness). Burning. May cause blindness. Coughing and/ or wheezing. Difficulty in breathing. Itching. Rashes. Hives.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization May cause sensitization in susceptible persons. May cause sensitization by skin contact.

Mutagenic Effects No information available.

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Chemical name | ACGIH | IARC | NTP | OSHA |
|---|----------|--|---------------------------------|------|
| Steel manufacture, chemicals 65997-19-5 | A1 A3 | Group 1 Group 2A Group 2B Group 3 | Known Reasonably Anticipated | X |

Reproductive toxicity Contains a known or suspected reproductive toxin.

STOT - single exposure No information available.

STOT - repeated exposure Causes damage to organs through prolonged or repeated exposure. Based on classification criteria from the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200), this product has been determined to cause systemic target organ toxicity from chronic or repeated exposure. (STOT RE).

Chronic Toxicity Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen. Effects from this product caused by acute exposure may cause permanent damage to target organs and/or may

cause chronic conditions. Contains a known or suspected carcinogen. Contains a known or suspected reproductive toxin. Possible risk of irreversible effects. Avoid repeated exposure. Prolonged exposure may cause chronic effects.

Target Organ Effects

Eyes. Respiratory system. Skin. Gastrointestinal tract (GI). Systemic Toxicity. Reproductive System.

Aspiration Hazard

No information available.

Numerical measures of toxicity Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)

307.00 mg/kg

ATEmix (inhalation-gas)

435.00 ppm (4 hr)

ATEmix (inhalation-dust/mist)

0.21 mg/l

ATEmix (inhalation-vapor)

2.00 ATEmix

12. ECOLOGICAL INFORMATION

Ecotoxicity

Harmful to aquatic life. Very toxic to aquatic life with long lasting effects.

| Chemical name | Toxicity to Algae | Toxicity to Fish | Toxicity to Microorganisms | Daphnia Magna (Water Flea) |
|----------------------------------|---|---|----------------------------|------------------------------|
| Zinc 7440-66-6 | 96h EC50: 0.11 - 0.271 mg/L (Pseudokirchneriella subcapitata) 72h EC50: 0.09 - 0.125 mg/L (Pseudokirchneriella subcapitata) | 96h LC50: = 3.5 mg/L (Lepomis macrochirus) 96h LC50: = 7.8 mg/L (Cyprinus carpio) 96h LC50: = 0.24 mg/L (Oncorhynchus mykiss) 96h LC50: = 0.59 mg/L (Oncorhynchus mykiss) 96h LC50: = 0.41 mg/L (Oncorhynchus mykiss) 96h LC50: 0.211 - 0.269 mg/L (Pimephales promelas) 96h LC50: = 2.66 mg/L (Pimephales promelas) 96h LC50: = 30 mg/L (Cyprinus carpio) 96h LC50: = 0.45 mg/L (Cyprinus carpio) 96h LC50: 2.16 - 3.05 mg/L (Pimephales promelas) | | 48h EC50: 0.139 - 0.908 mg/L |
| Potassium hydroxide 1310-58-3 | | 96h LC50: = 80 mg/L (Gambusia affinis) | | |

Persistence and Degradability

No information available.

Bioaccumulation

No information available

| Chemical name | Log Pow |
|----------------------------------|---------|
| Manganese dioxide 1313-13-9 | <0 |
| Potassium hydroxide 1310-58-3 | 0.83 |

Other adverse effects

No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal methods

This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated Packaging

Do not reuse empty containers.

California Hazardous Waste Codes 141

This product contains one or more substances that are listed with the State of California as a hazardous waste.

| Chemical name | California Hazardous Waste |
|--|----------------------------|
| Zinc 7440-66-6 | Ignitable powder Toxic |
| Steel manufacture, chemicals 65997-19-5 | Toxic |
| Potassium hydroxide 1310-58-3 | Toxic Corrosive |

14. TRANSPORT INFORMATION

DOT
 Proper Shipping Name NOT REGULATED
 Hazard Class NON REGULATED
 N/A

TDG Not regulated

MEX Not regulated

ICAO Not regulated

IATA
 Proper Shipping Name Not regulated
 Hazard Class NON REGULATED
 N/A

IMDG/IMO
 Hazard Class Not regulated
 N/A

RID Not regulated

ADR Not regulated

ADN Not regulated

15. REGULATORY INFORMATION

International Inventories



TSCA Complies
 DSL All components are listed either on the DSL or NDSL.

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

| Chemical name | CAS No | Weight-% | SARA 313 - Threshold Values % |
|---|------------|----------|-------------------------------|
| Manganese dioxide - 1313-13-9 | 1313-13-9 | 30 - 60 | 1.0 |
| Zinc - 7440-66-6 | 7440-66-6 | 10 - 30 | 1.0 |
| Steel manufacture, chemicals - 65997-19-5 | 65997-19-5 | 10 - 30 | 1.0 |
| | | | 0.1 |

SARA 311/312 Hazard Categories

| | |
|--|----|
| Acute Health Hazard | No |
| Chronic Health Hazard | No |
| Fire Hazard | No |
| Sudden release of pressure hazard | No |
| Reactive Hazard | No |

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

| Chemical name | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants | CWA - Hazardous Substances |
|---|-----------------------------|------------------------|---------------------------|----------------------------|
| Zinc 7440-66-6 | | X | X | |
| Steel manufacture, chemicals 65997-19-5 | | X | | |
| Potassium hydroxide 1310-58-3 | 1000 lb | | | X |

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

| Chemical name | Hazardous Substances RQs | Extremely Hazardous Substances RQs | RQ |
|----------------------------------|--------------------------|------------------------------------|---|
| Zinc 7440-66-6 | 1000 lb | | RQ 454 kg final RQ RQ 1000 lb final RQ |
| Potassium hydroxide 1310-58-3 | 1000 lb | | RQ 1000 lb final RQ RQ 454 kg final RQ |

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated by state right-to-know regulations.

| Chemical name | New Jersey | Massachusetts | Pennsylvania | Rhode Island | Illinois |
|---------------|------------|---------------|--------------|--------------|----------|
| | | | | | |



| | | | | | |
|----------------------------------|---|---|---|---|---|
| Zinc 7440-66-6 | X | X | X | X | |
| Potassium hydroxide 1310-58-3 | X | X | X | X | |
| Manganese dioxide 1313-13-9 | | | X | X | X |
| Graphite 7782-42-5 | X | X | X | | |

International Regulations

| Chemical name | Carcinogen Status | Exposure Limits |
|------------------------------|-------------------|--|
| Manganese dioxide | | Mexico: TWA= 0.2 mg/m ³ |
| Steel manufacture, chemicals | A3 A2 | Mexico: TWA 0.15 mg/m ³ Mexico: TWA 0.002 mg/m ³ Mexico: TWA 0.2 mg/m ³ Mexico: TWA 5 mg/m ³ Mexico: STEL 10 mg/m ³ |
| Graphite | | Mexico: TWA= 2 mg/m ³ |

Canada

WHMIS Hazard Class

Not determined

16. OTHER INFORMATION

| | | | | |
|-------------|-------------------------|-----------------------|--------------------------|--|
| NFPA | Health Hazards 1 | Flammability 0 | Instability 0 | Physical and Chemical Hazards - |
| HMIS | Health Hazards 0 | Flammability 0 | Physical Hazard 0 | Personal Protection X |

Prepared By Product Stewardship
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Latham, NY 12110
1-800-572-6501

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Revision Date 13-Apr-2016
Revision Note No information available

Disclaimer

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End of Safety Data Sheet

