

Material Safety Data Sheet

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Revision Number 2

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Toshiba battery

Recommended Use Alkaline battery.

Supplier Name Toshiba Home Appliance Corporation
Supplier Address 2-15 Sotokanda
2-Chome
Chiyoda-ku
Tokyo
101-0021
JP

Supplier Phone Number Phone:+81-80-6888-5276
Fax:+81-3-3257-5916
Contact Phone+81-3-3257-5871

Supplier Email takayuki.kagiwada@toshiba.co.jp
Supplier Contact Name Takayuki Kagiwada

2. HAZARDS IDENTIFICATION

Emergency Overview

This product is an article. No exposure to hazardous chemicals is expected to occur during intended product use. Misuse of the product may result in exposure to hazardous chemicals.

Appearance Blue

Physical state Solid.

Odor None

Potential Health Effects

Principle Routes of Exposure

Eye contact. Skin contact.

Acute Toxicity

Eyes

In case of rupture Causes burns Corrosive to the eyes and may cause severe damage including blindness

Skin

In case of rupture Causes burns.

Inhalation

Not an expected route of exposure

Ingestion

In case of rupture Harmful if swallowed. Can burn mouth, throat, and stomach.

Chronic Effects

No known effect based on information supplied

Aggravated Medical Conditions

None known

Environmental Hazard

See Section 12 for additional Ecological Information Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical name | CAS No | Weight-% |
|---------------------|-----------|----------|
| Manganese dioxide | 1313-13-9 | 30-60 |
| Zinc | 7440-66-6 | 10-30 |
| Iron | 7439-89-6 | 7-13 |
| Potassium hydroxide | 1310-58-3 | 7-13 |
| Graphite | 7782-42-5 | 3-7 |
| Copper | 7440-50-8 | 1 - 5 |
| Nickel | 7440-02-0 | 0.1 - 1 |

4. FIRST AID MEASURES

| | |
|---|---|
| General Advice | First aid is upon rupture of sealed battery. |
| Eye contact | Immediate medical attention is required. 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. |
| Skin contact | Immediate medical attention is required. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. |
| Inhalation | Remove to fresh air. Call a physician or poison control center immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. |
| Ingestion | Call a physician immediately. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. |
| Notes to Physician | Treat symptomatically. |
| Self-protection of the first aider | Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. |

5. FIRE-FIGHTING MEASURES

| | |
|--|---|
| Flammable properties | Not flammable. |
| Flash Point | Not determined. |
| Suitable Extinguishing Media | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Hazardous Combustion Products | Hazardous metal fumes and oxides. |
| <u>Explosion Data</u> | |
| Sensitivity to Mechanical Impact | No. |
| Sensitivity to Static Discharge | No. |
| 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. Sealed containers may rupture when heated. |
| 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. |

NFPA **Health Hazards 1** **Flammability 0** **Stability 0** **Physical and Chemical Hazards -**

6. ACCIDENTAL RELEASE MEASURES

| | |
|----------------------------------|--|
| Personal precautions | Use personal protective equipment as required. Keep people away from and upwind of spill/leak. |
| Environmental precautions | Prevent product from entering drains. |
| Methods for containment | Prevent further leakage or spillage if safe to do so. |
| Methods for cleaning up | Sweep up and shovel into suitable containers for disposal. Clean contaminated surface thoroughly. Use personal protective equipment as required. |
| Other Information | Refer to protective measures listed in Sections 7 and 8. |

7. HANDLING AND STORAGE

| | |
|-----------------|--|
| Handling | In case of rupture. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. |
| Storage | Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers. Keep out of the reach of children. |

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

| Chemical name | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|----------------------------------|--|---|--|
| Manganese dioxide 1313-13-9 | TWA: 0.02 mg/m ³ Mn respirable particulate matter TWA: 0.1 mg/m ³ Mn inhalable particulate matter | (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 |
| 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 particulate matter all forms except graphite fibers | TWA: 15 mg/m ³ total dust synthetic TWA: 5 mg/m ³ respirable fraction synthetic (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 | IDLH: 1250 mg/m ³ TWA: 2.5 mg/m ³ respirable dust |
| Copper 7440-50-8 | TWA: 0.2 mg/m ³ fume TWA: 1 mg/m ³ Cu dust and mist | TWA: 0.1 mg/m ³ fume TWA: 1 mg/m ³ dust and mist (vacated) TWA: 0.1 mg/m ³ Cu dust, fume, mist | IDLH: 100 mg/m ³ dust, fume and mist TWA: 1 mg/m ³ dust and mist TWA: 0.1 mg/m ³ fume |
| Nickel 7440-02-0 | TWA: 1.5 mg/m ³ | TWA: 1 mg/m ³ (vacated) TWA: 1 mg/m ³ | IDLH: 10 mg/m ³ TWA: 0.015 mg/m ³ |

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits NIOSH IDLH 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).

Engineering Measures Showers
Eyewash stations
Ventilation systems

Personal Protective Equipment
Eye/face protection Tight sealing safety goggles
Skin and body protection Protective gloves
Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

| | | | |
|----------------------------------|--------------------------|--------------------------------------|---------------------------|
| Appearance | Blue. | Odor | None. |
| Odor Threshold | No information available | Physical state | Solid |
| pH | No information available | Autoignition Temperature | No information available |
| Flash Point | No information available | Boiling point / boiling range | No information available |
| Decomposition temperature | No information available | Flammability Limits in Air | No information available |
| Melting Point/Range | No information available | Solubility | No information available. |
| Explosion Limits | No information available | Vapor pressure | No data available |
| Water Solubility | Immiscible in water | | |
| Evaporation Rate | No information available | | |
| Vapor density | No data available | | |

10. STABILITY AND REACTIVITY

| | |
|---|---|
| Stability | Stable under recommended storage conditions. |
| Incompatible Products | Incompatible with strong acids and bases. Incompatible with oxidizing agents. |
| Conditions to avoid | Exposure to air or moisture over prolonged periods. |
| Hazardous Decomposition Products | Thermal decomposition can lead to release of irritating gases and vapors. Metal oxides. |
| Hazardous Polymerization | Hazardous polymerization does not occur. |

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information

LD50 Oral VALUE 9334.438 mg/kg (rat) Estimated

Chronic Toxicity

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

| Chemical name | ACGIH | IARC | NTP | OSHA |
|---------------|-------|----------|------------------------|------|
| Nickel | | Group 2B | Reasonably Anticipated | X |

IARC (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Group 2B - Possibly Carcinogenic to Humans

NTP (National Toxicology Program)

Known - Known Carcinogen

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

X - Present

Target Organ Effects Blood. Central Nervous System (CNS). Central Vascular System (CVS). Eyes. Kidney. Liver. Respiratory system. Skin.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Harmful to aquatic organisms. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

| Chemical name | Toxicity to Algae | Toxicity to Fish | Toxicity to Microorganisms | Daphnia Magna (Water Flea) |
|----------------------|---|---|----------------------------|---|
| Zinc | 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 |
| Iron | | 96h LC50: = 13.6 mg/L (Morone saxatilis) | | |
| Potassium hydroxide | | 96h LC50: = 80 mg/L (Gambusia affinis) | | |
| Copper | 96h EC50: 0.031 - 0.054 mg/L (Pseudokirchneriella subcapitata) 72h EC50: 0.0426 - 0.0535 mg/L (Pseudokirchneriella subcapitata) | 96h LC50: 0.0068 - 0.0156 mg/L (Pimephales promelas) 96h LC50: = 1.25 mg/L (Lepomis macrochirus) 96h LC50: = 0.052 mg/L (Oncorhynchus mykiss) 96h LC50: = 0.2 mg/L (Pimephales promelas) 96h LC50: < 0.3 mg/L (Pimephales promelas) 96h LC50: = 0.112 mg/L (Poecilia reticulata) 96h LC50: = 0.3 mg/L (Cyprinus carpio) 96h LC50: = 0.8 mg/L (Cyprinus carpio) | | 48h EC50: = 0.03 mg/L |
| Nickel | 72h EC50: = 0.18 mg/L (Pseudokirchneriella subcapitata) 96h EC50: 0.174 - 0.311 mg/L (Pseudokirchneriella subcapitata) | 96h LC50: > 100 mg/L (Brachydanio rerio) 96h LC50: = 1.3 mg/L (Cyprinus carpio) 96h LC50: = 10.4 mg/L (Cyprinus carpio) | | 48h EC50: > 100 mg/L 48h EC50: = 1 mg/L |
| Chemical name | | Log Pow | | |
| Manganese dioxide | | <0 | | |
| Potassium hydroxide | | 0.83 | | |

13. DISPOSAL CONSIDERATIONS

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

| Chemical name | RCRA | RCRA - Basis for Listing | RCRA - D Series Wastes | RCRA - U Series Wastes |
|---------------|------|--------------------------|------------------------|------------------------|
| | | | | |

| | | | | |
|--------------------|---|---------------------------------------|--|--|
| Nickel - 7440-02-0 | (hazardous constituent - no waste number) | Included in waste streams: F006, F039 | | |
|--------------------|---|---------------------------------------|--|--|

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 EHW | California Carc | California Hazardous Waste | California Waste - Part 2 |
|---------------------|----------------|-----------------|----------------------------------|--|
| Zinc | | | Ignitable powder Toxic | STLC (for PBTs): 250 mg/L TTLC (for PBTs): 5000 mg/kg |
| Potassium hydroxide | | | Toxic Corrosive | |
| Copper | | | Toxic | STLC (for PBTs): 25 mg/L TTLC (for PBTs): 2500 mg/kg |
| Nickel | | | Toxic powder Ignitable powder | STLC (for PBTs): 20 mg/L TTLC (for PBTs): 2000 mg/kg |

14. TRANSPORT INFORMATION

| | |
|------------------------|---------------|
| <u>DOT</u> | NOT REGULATED |
| <u>TDG</u> | Not regulated |
| <u>MEX</u> | Not regulated |
| <u>ICAO</u> | Not regulated |
| <u>IATA</u> | Not regulated |
| <u>IMDG/IMO</u> | Not regulated |

15. REGULATORY INFORMATION

International Inventories

TSCA Complies
 DSL Not determined

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or 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 | 30-60 | 1.0 |
| Zinc | 7440-66-6 | 10-30 | 1.0 |
| Copper | 7440-50-8 | 1 - 5 | 1.0 |
| Nickel | 7440-02-0 | 0.1 - 1 | 0.1 |

SARA 311/312 Hazard Categories

Acute Health Hazard Yes
 Chronic Health Hazard Yes
 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 | | X | X | |
| Potassium hydroxide | 1000 lb | | | X |
| Copper | | X | X | |
| Nickel | | X | X | |

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product contains the following substances which are listed hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act:

| Chemical name | CAS No | Weight-% | HAPS data | VOC Chemicals | Class 1 Ozone Depletors | Class 2 Ozone Depletors |
|-------------------|-----------|----------|-----------|---------------|-------------------------|-------------------------|
| Manganese dioxide | 1313-13-9 | 30-60 | | | | |
| Nickel | 7440-02-0 | 0.1 - 1 | | | | |

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 |
|---------------------|--------------------------|------------------------------------|
| Zinc | 1000 lb | |
| Potassium hydroxide | 1000 lb | |
| Copper | 5000 lb | |
| Nickel | 100 lb | |

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals

| Chemical name | CAS No | California Proposition 65 |
|---------------|-----------|---------------------------|
| Nickel | 7440-02-0 | Carcinogen |

U.S. State Right-to-Know Regulations

| Chemical name | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|---------------------|---------------|------------|--------------|----------|--------------|
| Manganese dioxide | | X | X | X | X |
| Zinc | X | X | X | | X |
| Potassium hydroxide | X | X | X | | X |
| Graphite | X | X | X | | |
| Copper | X | X | X | X | X |
| Nickel | X | X | X | X | X |

International Regulations

Mexico - Grade

Minimum risk, Grade 0

| Chemical name | Carcinogen Status | Exposure Limits |
|-------------------|-------------------|---|
| Manganese dioxide | | Mexico: TWA= 0.2 mg/m ³ |
| Graphite | | Mexico: TWA= 2 mg/m ³ |
| Copper | | Mexico: TWA= 1 mg/m ³ Mexico: TWA= 0.2 mg/m ³ Mexico: STEL= 2 mg/m ³ |
| Nickel | | Mexico: TWA 1 mg/m ³ |

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

Not determined



| Chemical name | NPRI |
|-------------------|------|
| Manganese dioxide | X |
| Zinc | X |
| Nickel | X |

Legend

NPRI - National Pollutant Release Inventory

16. OTHER INFORMATION

Prepared By Product Stewardship
23 British American Blvd.
Latham, NY 12110
1-800-572-6501

Revision Date 21-Feb-2013

Revision Note No information available.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet