

Material Safety Data Sheet

Issuing Date No data available

Revision Date 21-Feb-2013

Revision Number 2

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Toshiba battery

Recommended Use Alkaline battery.

Supplier Address

Toshiba Home Appliance Corporation

2-15 Sotokanda

2-Chome

Chiyoda-ku

Tokyo

101-0021

JP

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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	40-70

Zinc	7440-66-6	15-40
Iron	7439-89-6	10-30
Potassium hydroxide	1310-58-3	10-30
Graphite	7782-42-5	5-10
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 removing all contaminated clothes and shoes.
Inhalation	Move 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.
Protection of First-aiders	Use personal protective equipment. Avoid contact with skin, eyes and 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.
Explosion Data	
Sensitivity to Mechanical Impact	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
Sensitivity to Static Discharge	No.
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 Hazard** 1 **Flammability** 0 **Stability** 0 **Physical and Chemical Hazards** -

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Use personal protective equipment. 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.
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 and 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: 0.2 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
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 total dust 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: 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 Skin and Body Protection Respiratory Protection

Tightly fitting safety goggles.
Protective gloves.
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/Range	No information available
Decomposition Temperature	No information available	Explosion Limits	No information available
Melting Point/Range	No information available	Solubility	No information available
Flammability Limits in Air	No information available	Vapor Pressure	No data available
Water Solubility	Immiscible in water	VOC Content (%)	Not applicable
Evaporation Rate	No information available		
Vapor Density	No data available		
Partition Coefficient: n-octanol/water			

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

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Manganese dioxide	= 9000 mg/kg (Rat)	-	-
Iron	984 mg/kg (Rat)	-	-
Potassium hydroxide	= 214 mg/kg (Rat)	-	-
Graphite	> 10000 mg/kg (Rat)	-	-
Nickel	> 9000 mg/kg (Rat)	-	-

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 1 Group 2B	Known Reasonably Anticipated	X

IARC: (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

Known - Known Carcinogen

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

OSHA: (Occupational Safety & Health Administration)

X - Present

Target Organ Effects

Blood. Central nervous system (CNS). Central Vascular System (CVS). Eyes. Kidney. Liver. Respiratory system. Skin.

12. ECOLOGICAL INFORMATION

This product contains a chemical which is listed as a severe marine pollutant according to DOT.

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	EC50: 0.09 - 0.125 mg/L (72 h static) <i>Pseudokirchneriella subcapitata</i> EC50: 0.11 - 0.271 mg/L (96 h static) <i>Pseudokirchneriella subcapitata</i>	LC50: 2.16-3.05 mg/L (96 h flow-through) <i>Pimephales promelas</i> LC50: 7.8 mg/L (96 h static) <i>Cyprinus carpio</i> LC50: 0.45 mg/L (96 h semi-static) <i>Cyprinus carpio</i> LC50: 30 mg/L (96 h) <i>Cyprinus carpio</i> LC50: 0.59 mg/L (96 h semi-static) <i>Oncorhynchus mykiss</i> LC50: 0.41 mg/L (96 h static) <i>Oncorhynchus mykiss</i> LC50: 3.5 mg/L (96 h static) <i>Lepomis macrochirus</i> LC50: 0.211-0.269 mg/L (96 h semi-static) <i>Pimephales promelas</i> LC50: 0.24 mg/L (96 h flow-through) <i>Oncorhynchus mykiss</i> LC50: 2.66 mg/L (96 h static) <i>Pimephales promelas</i>		EC50: 0.139 - 0.908 mg/L (48 h Static) <i>Daphnia magna</i>
Iron		LC50: 0.56 mg/L (96 h semi-static) <i>Cyprinus carpio</i> LC50: 13.6 mg/L (96 h static) <i>Morone saxatilis</i>		
Potassium hydroxide		LC50: 80 mg/L (96 h static) <i>Gambusia affinis</i>		
Copper	EC50: 0.031 - 0.054 mg/L (96 h static) <i>Pseudokirchneriella subcapitata</i> EC50: 0.0426 - 0.0535 mg/L (72 h static) <i>Pseudokirchneriella subcapitata</i>	LC50: 1.25 mg/L (96 h static) <i>Lepomis macrochirus</i> LC50: 0.112 mg/L (96 h flow-through) <i>Poecilia reticulata</i> LC50: 0.8 mg/L (96 h static) <i>Cyprinus carpio</i> LC50: 0.3 mg/L (96 h semi-static) <i>Cyprinus carpio</i> LC50: 0.052 mg/L (96 h flow-through) <i>Oncorhynchus mykiss</i> LC50: 0.0068 - 0.0156 mg/L (96 h) <i>Pimephales promelas</i> LC50: 0.2 mg/L (96 h flow-through) <i>Pimephales promelas</i> LC50: < 0.3 mg/L (96 h static) <i>Pimephales promelas</i>		EC50: 0.03 mg/L (48 h Static) <i>Daphnia magna</i>
Nickel	EC50: 0.174 - 0.311 mg/L (96 h static) <i>Pseudokirchneriella subcapitata</i> EC50: 0.18 mg/L (72 h) <i>Pseudokirchneriella subcapitata</i>	LC50: 10.4 mg/L (96 h static) <i>Cyprinus carpio</i> LC50: 1.3 mg/L (96 h semi-static) <i>Cyprinus carpio</i> LC50: > 100 mg/L (96 h) <i>Brachydanio rerio</i>		EC50: 1 mg/L (48 h Static) <i>Daphnia magna</i> EC50: > 100 mg/L (48 h) <i>Daphnia magna</i>

Chemical Name	Log Pow
Manganese dioxide	0
Potassium hydroxide	0.83

13. DISPOSAL CONSIDERATIONS

Waste 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. Dispose of in accordance with local regulations

Contaminated Packaging

Do not re-use 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 181

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	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

DOT NOT REGULATED

TDG Not regulated

MEX Not regulated

ICAO Not regulated

IATA Not regulated

IMDG/IMO Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA Complies
DSL Not determined

U.S. 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	40-70	1.0
Zinc	7440-66-6	15-40	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

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	40-70				
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	

U.S. State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals:

Chemical Name	CAS-No	California Prop. 65
Nickel	7440-02-0	Carcinogen

U.S. State Right-to-Know Regulations

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Potassium hydroxide	X	X	X		X
Manganese dioxide			X	X	X
Nickel	X	X	X	X	X
Copper	X	X	X	X	X
Zinc	X	X	X		X
Graphite	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
Nickel		Mexico: TWA 1 mg/m ³
Copper		Mexico: TWA= 1 mg/m ³ Mexico: TWA= 0.2 mg/m ³ Mexico: STEL= 2 mg/m ³
Graphite		Mexico: TWA= 2 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

Non-controlled



Chemical Name	NPRI
Manganese dioxide	X
Nickel	X
Zinc	X

Legend

NPRI - National Pollutant Release Inventory

16. OTHER INFORMATION

Prepared By Product Stewardship
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Revision Date 21-Feb-2013

Revision Note No information available

General 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