

## SAFETY DATA SHEETS

Date: 10<sup>th</sup> Jan., 2019

The batteries are articles and are not subject to the OSHA Hazard Communication Standard Requirement as shown in paragraph (b)(6)(v) of §1910.1200. This sheet is provided as technical information only. The information and recommendations set forth are made in good faith and are believed to be accurate as of the date of preparation. However, Golden Power **makes no warranty expressed or implied.**

**Section 1. Product and Company Identification**

<b>a) Product Name:</b>	<b>Sizes:</b>
Alkaline battery/Golden Power/1.5V/+	LR1/LR03/LR6/LR14/LR20/6LF22
<b>Company Name:</b>	<b>Telephone Numbers:</b>
Golden Power Corporation (HK) Ltd	(852) 3125 2288
<b>Address:</b>	<b>Fax Numbers:</b>
Flat C, 20/F., Block 1, Tai Ping Industrial Centre, 57 Ting Kok Road, Tai Po, N.T., Hong Kong	(852) 3125 2000

(b) Recommended use of the chemical and restrictions on use See Section 7. Handling and storage

(c) Emergency phone number.

Tel: +86-0750-3500088-1201

**Section 2. Hazard(s) identification Section 2. Identification des dangers**

(a) Classification of the chemical in accordance with paragraph (d) of §1910.1200 Chemical battery (Primary)

(b) Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with paragraph (f) of §1910.1200. (Hazard symbols may be provided as graphical reproductions in black and white or the name of the symbol, e.g., flame, skull and crossbones)  
N/A

(c) Describe any hazards not otherwise classified that have been identified during the classification process.

Such batteries are not dangerous, but because of internal battery electrolyte has a corrosive, if not handled properly, it may lead to battery leakage and hot. Please strictly observe safety instructions.

(\* Leakage is defined as an unintended escape of liquid from a battery.)

(d) Where an ingredient with unknown acute toxicity is used in a mixture at a concentration  $\geq 1\%$  and the mixture is not classified based on testing of the mixture as a whole, a statement that X% of the mixture consists of ingredient(s) of unknown acute toxicity is required

No such an ingredient is contained in the product.

### **Section 3. Composition/information on ingredients**

Except as provided for in paragraph (i) of §1910.1200 on trade secrets: For Substances:

(a) Chemical name a)

(b) Common name and synonyms

(c) CAS number and other unique identifiers

Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance

Chemical Name	Common Name and Synonyms	CAS #	Content (Wt %)
Manganese Dioxide	MnO <sub>2</sub>	1313-13-9	30~40
Zinc	Zn	7440-66-6	15~20
Graphite	C	7782-42-5	2~4
Potassium Hydroxide	KOH	1310-58-3	5~10

For Mixtures In addition to the information required for substances:

(a) The chemical name and concentration (exact percentage) or concentration ranges of all ingredients which are classified as health hazards in accordance with paragraph (d) of §1910.1200 and

(1) Are present above their cut-off/concentration limits; or

(2) Present a health risk below the cut-off/concentration limits. No such an ingredient is contained

in the product.

- (b) The concentration (exact percentage) shall be specified unless a trade secret claim is made in accordance with paragraph (i) of §1910.1200, when there is batch-to-batch variability in the production of a mixture, or for a group of substantially similar mixtures (See A.0.5.1.2) with similar chemical composition. In these cases, concentration ranges may be used.

No such a situation would happen during the production from batch to batch.

For All Chemicals Where a Trade Secret is claimed

Where a trade secret is claimed in accordance with paragraph (i) of §1910.1200, a statement that the specific chemical identity and/or exact percentage (concentration) of composition has been

#### **Section 4. First-aid measures**

- (a) Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, and ingestion

Inhalation	Fumes can cause respiratory irritation. consult a physician.	Remove to fresh air and
Skin Contact	Immediately flush skin with plenty of water. If itch or irritation by chemical burn persists, consult a physician.	If itch or irritation by
Eye Contact	Immediately flush eye with plenty of water for at least 15 minutes. Consult a physician immediately	
Ingestion	If swallowing a battery, consult a physician immediately. If contents come into mouth, immediately rinse by plenty of water and consult a physician.	
Inhalation	Fumes can cause respiratory irritation. consult a physician.	Remove to fresh air and
Skin Contact	Immediately flush skin with plenty of water. If itch or irritation by chemical burn persists, consult a physician.	If itch or irritation by

- (c) Most important symptoms/ effects, acute and delayed

NA.

- (d) Indication of immediate medical attention and special treatment needed, if necessary

Wash with clean water immediately.

#### **Section 5. Fire-fighting measures Section**

- (a) Suitable (and unsuitable) extinguishing media.

You can use the usual fire extinguisher, no special requirements.

- (b) Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products).

No flammable material inside the battery, combustion does not produce high-risk chemicals.

(c) Special protective equipment and precautions for fire-fighters.

No specific requirements

### **Section 6. Accidental release measures**

(a) Personal precautions, protective equipment, and emergency procedures.

Wear protective clothing. Keep unprotected persons away.

(b) Methods and materials for containment and cleaning up. When the liquid leaks out of the battery, absorb and wipe it with cloth. Keep the battery away from fire or heat.

### **Section 7. Handling and storage**

(a) Precautions for safe handling.

#### **• Never swallow.**

#### **• Never charge.**

The battery is not designed to be charged by any other electrical source. Charging could generate gas and internal short-circuiting, leading to distortion, leakage, overheating, explosion, or fire.

#### **• Never heat.**

Heating the battery to more than 100 degree centigrade could increase the internal pressure,

causing distortion, leakage, overheating, explosion, or fire.

#### **• Never expose to open flames.**

Exposing to flames could cause the battery to catch on fire and explosion.

#### **• Never disassemble the battery.**

Do not disassemble the battery, because the separator or gasket could be damaged, leading to distortion, leakage, overheating, explosion or fire.

#### **• Never reverse the positive and negative terminals when mounting.**

Improper mounting of the battery could lead to short-circuiting, charging or forced-discharging.

This could cause distortion, leakage, overheating, explosion, or fire

#### **• Never short-circuit the battery.**

Do not allow the positive and negative terminals to short-circuit. Never carry or store the battery with metal objects such as a necklace or a hairpin. Do not take multiple batteries out of the package and pile or mix them when storing. Otherwise, this could lead to distortion, leakage, overheating, explosion, or fire.

#### **• Never weld the terminals or weld a wire to the body of the battery directly.**

The heat of welding or soldering could cause damage to the insulating material in the battery. This

could cause distortion, leakage, overheating, explosion, or fire.

**• Never use different batteries together.**

Using different batteries together, i.e. different type or used and new or different manufacturer could cause distortion, leakage, overheating, explosion, or fire because of the differences in battery property.

**• Never allow liquid leaking from the battery to get in your eyes or mouth.**

If the liquid comes into eyes, or mouth, see Section 4 -First Aid Measures.

**• Never touch the battery electrodes.**

Do not allow the battery electrodes to come in contact with your skin or fingers. Otherwise, the moisture from your skin could cause a discharge of the battery, which could produce certain chemical substances causing you to receive a chemical burns.

b) Conditions for safe storage, including any incompatibilities. Never store the battery in hot and high humid place.

**Section 8. Exposure controls/personal protection**

(a) OSHA permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available.

N/A

(b) Appropriate engineering controls. Do not disassemble the product without professional basis.

(c) Individual protection measures, such as personal protective equipment.

No special equipment is required for handling, carrying or using the product. The chemical materials concluded in the Product is sealed up, thus being stable, safe and eco-friendly under common conditions.

**Section 9. Physical and chemical properties Section 9. Propriétés physiques et chimiques**

(a) Appearance (physical state, color, etc.) The appearance is a cylindrical shape and it is a battery with 1.5V nominal voltage.

(b) Odor :not applicable

(c) Odor threshold :not applicable

(d) Ph: not applicable

(e) melting point/freezing point: not applicable

(f) Initial boiling point and boiling range: not applicable

(g) Flash point not applicable not applicable

(h) Evaporation rate :not applicable

(i) Flammability (solid, gas): not applicable

(j) Upper/lower flammability or explosive limits: not applicable

- (k) Relative density: not applicable
- (l) Solubility(ies) not applicable
- (m) Auto-ignition temperature: not applicable
- (n) Viscosity: not applicable

**Section 10. Stability and reactivity**

- (a) Reactivity: not applicable
- (b) Chemical stability Stable (performance deterioration depends on circumstance.)
- (c) Possibility of hazardous reactions: No
- (d) Conditions to avoid (e.g., static discharge, shock, or vibration) See Section 7. Handling and storage
- (e) Incompatible materials: No
- (f) Hazardous decomposition products: No

**Section 11. Toxicological information Section**

Description of the various toxicological (health) effects and the available data used to identify those effects, including

(a) Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact) As the contents are sealed in the battery case, there is no toxicity.

(b) Symptoms related to the physical, chemical and toxicological characteristics

If the liquid inside the battery stick to human skin, which may cause skin rot.

(c) Delayed and immediate effects and also chronic effects from short- and long-term exposure  
N/A

(d) Numerical measures of toxicity (such as acute toxicity estimates) N/A

(e) Whether the hazardous chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by OSHA  
No.

**Section 12. Ecological information** (Non-mandatory) (non obligatoire)

(a) Ecotoxicity (aquatic and terrestrial, where available): N/A

(b) Persistence and degradability: N/A

(c) Bio-accumulative potential: N/A

(d) Mobility in soil: N/A

(e) Other adverse effects (such as hazardous to the ozone layer) :If the battery is disposed in land or water, battery case may be corroded and the liquid may leak out of the battery. Information regarding ecological concerns has not been reported.

**Section 13. Disposal considerations** (Non-mandatory)

Description of waste residues and information on their safe handling and methods of disposal,

including the disposal of any contaminated packaging. The battery may be regulated by national or local regulation. Please follow the instructions of proper regulation. As electric capacity is left in a discarded battery and it comes into contact with other metals, it could lead to distortion, leakage, overheating, or explosion, so make sure to cover the (+) and (-) terminals with friction tape or some other insulator before disposal.

**Section 14. Transport information** (Non-mandatory)

1) Shipping Name (UN Number): NA

2) Hazard Classification: NA

3) Method of transportation:

No special requirements, but the condition of high temperature, high humidity should be avoided.

**Section 15. Regulatory information Section**

Alkaline batteries are non-dangerous goods, no special transport regulations, according to general cargo transport.

Major environmental regulations are as follows: EU BATTERY DIRECTIVE (2006/66/EC)

**Section 16. Other information Section**

The date of preparation of the SDS or the last change to it. If you want further information, please contact Golden Power sales representative.

#### **Section 4. First-aid measures**

- (a) Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, and ingestion

(b)

# SAFETY DATA SHEET

Issuing Date 23-Apr-2020

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Revision Number 2

NGHS / English



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## 1. IDENTIFICATION

### Product identifier

**Product Name** LR03 LR6 LR14 LR20 LR61 6LR61 LR1 LR8D425

### Other means of identification

**Product Code(s)** 1416199

### Recommended use of the chemical and restrictions on use

**Recommended Use** Alkaline battery

**Restrictions on use** No information available

### Details of the supplier of the safety data sheet

**Supplier Identification** ChangZhou Anyida Power Technology Co., Ltd

**Address** ChangZhou Xinbei District TianShan Road No. 60  
Changzhou  
Jiangsu  
213000  
CN

**Telephone** Phone:0519-83270441

**E-mail** j10732@163.com

### Emergency telephone number

**Company Emergency Phone Number** 0519-83270441

## 2. HAZARDS IDENTIFICATION

### Classification

Acute toxicity - Oral	Category 4
Acute toxicity - Inhalation (Vapors)	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 1 Sub-category A



Serious eye damage/eye irritation	Category 1
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This is a battery. In case of rupture: the above hazards exist.

**Appearance** No information available

**Physical state** Solid

**Odor** No information available

**GHS Label elements, including precautionary statements**

**Danger**

**Hazard statements**

Harmful if swallowed

Harmful if inhaled

Causes severe skin burns and eye damage



**Precautionary Statements - Prevention**

Wash face, hands and any exposed skin thoroughly after handling

Do not eat, drink or smoke when using this product

Use only outdoors or in a well-ventilated area

Do not breathe dusts or mists

Wear protective gloves/protective clothing/eye protection/face protection

**Precautionary Statements - Response**

Immediately call a POISON CENTER or doctor

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

**Skin**

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower

Wash contaminated clothing before reuse

**Inhalation**

IF INHALED: Remove person to fresh air and keep comfortable for breathing

Immediately call a POISON CENTER or doctor

**Ingestion**

IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell

Rinse mouth

Do NOT induce vomiting

**Precautionary Statements - Storage**

Store locked up

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**Other information**

Very toxic to aquatic life with long lasting effects.

**Unknown acute toxicity** 92.39 % of the mixture consists of ingredient(s) of unknown toxicity  
 29.68 % of the mixture consists of ingredient(s) of unknown acute oral toxicity  
 92.39 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity  
 61.13 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)  
 61.13 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)  
 61.13 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Substance**

Not applicable.

**Mixture**

Chemical name	CAS No.	Weight-%	Hazardous Material Information Review Act registry number (HMIRA registry #)	Date HMIRA filed and date exemption granted (if applicable)
Manganese dioxide	1313-13-9	31.26	-	-
Iron	7439-89-6	25.8	-	-
Zinc	7440-66-6	12.48	-	-
Potassium hydroxide	1310-58-3	5.65	-	-
Copper	7440-50-8	3.21	-	-
Polyvinyl chloride	9002-86-2	1.99	-	-
Graphite	7782-42-5	1.91	-	-
Zinc oxide	1314-13-2	0.36	-	-

### 4. FIRST AID MEASURES

**Description of first aid measures**

**General advice** First aid is upon rupture of sealed battery. Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

**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 immediate medical advice/attention.

**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. Get immediate medical advice/attention.

**Skin contact** Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical advice/attention.

**Ingestion** Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.

**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. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.



Avoid breathing dust/fume/gas/mist/vapors/spray. Use personal protective equipment as required. See section 8 for more information.

**Most important symptoms and effects, both acute and delayed**

**Symptoms** Burning sensation. Coughing and/ or wheezing. Difficulty in breathing.

**Indication of any immediate medical attention and special treatment needed**

**Note to physicians** 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.

**5. FIRE-FIGHTING MEASURES**

**Suitable Extinguishing Media** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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

**Unsuitable extinguishing media** Do not scatter spilled material with high pressure water streams.

**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.

**Hazardous Combustion Products** Carbon oxides.

**Explosion Data**

**Sensitivity to Mechanical Impact** None.

**Sensitivity to Static Discharge** None.

**Special protective equipment for fire-fighters** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

**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.

**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**

**Advice on safe handling**

In case of rupture: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid generation of dust.

**Conditions for safe storage, including any incompatibilities**

**Storage Conditions**

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

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Control parameters**

**Exposure Limits**

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Manganese dioxide 1313-13-9	TWA: 0.02 mg/m <sup>3</sup> Mn respirable particulate matter TWA: 0.1 mg/m <sup>3</sup> Mn inhalable particulate matter	(vacated) Ceiling: 5 mg/m <sup>3</sup> Ceiling: 5 mg/m <sup>3</sup> Mn	IDLH: 500 mg/m <sup>3</sup> Mn TWA: 1 mg/m <sup>3</sup> Mn STEL: 3 mg/m <sup>3</sup> Mn
Zinc 7440-66-6	STEL: 10 mg/m <sup>3</sup> respirable fraction TWA: 2 mg/m <sup>3</sup> respirable fraction	TWA: 5 mg/m <sup>3</sup> fume TWA: 15 mg/m <sup>3</sup> total dust TWA: 5 mg/m <sup>3</sup> respirable fraction	IDLH: 500 mg/m <sup>3</sup> Ceiling: 15 mg/m <sup>3</sup> dust TWA: 5 mg/m <sup>3</sup> dust and fume STEL: 10 mg/m <sup>3</sup> fume
Potassium hydroxide 1310-58-3	Ceiling: 2 mg/m <sup>3</sup>	(vacated) Ceiling: 2 mg/m <sup>3</sup>	Ceiling: 2 mg/m <sup>3</sup>
Copper 7440-50-8	TWA: 0.2 mg/m <sup>3</sup> fume	TWA: 0.1 mg/m <sup>3</sup> fume TWA: 1 mg/m <sup>3</sup> dust and mist (vacated) TWA: 0.1 mg/m <sup>3</sup> Cu dust, fume, mist	IDLH: 100 mg/m <sup>3</sup> dust, fume and mist TWA: 1 mg/m <sup>3</sup> dust and mist TWA: 0.1 mg/m <sup>3</sup> fume
Polyvinyl chloride 9002-86-2	TWA: 1 mg/m <sup>3</sup> respirable particulate matter	-	
Graphite 7782-42-5	TWA: 2 mg/m <sup>3</sup> respirable particulate matter all forms except graphite fibers	TWA: 15 mg/m <sup>3</sup> total dust synthetic TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic (vacated) TWA: 2.5 mg/m <sup>3</sup> respirable dust natural (vacated) TWA: 10 mg/m <sup>3</sup> total dust synthetic (vacated) TWA: 5 mg/m <sup>3</sup> respirable fraction synthetic TWA: 15 mppcf natural	IDLH: 1250 mg/m <sup>3</sup> TWA: 2.5 mg/m <sup>3</sup> respirable dust
Zinc oxide 1314-13-2	STEL: 10 mg/m <sup>3</sup> respirable particulate matter TWA: 2 mg/m <sup>3</sup> respirable particulate matter	TWA: 5 mg/m <sup>3</sup> fume TWA: 15 mg/m <sup>3</sup> total dust TWA: 5 mg/m <sup>3</sup> respirable fraction (vacated) TWA: 5 mg/m <sup>3</sup> fume (vacated) TWA: 10 mg/m <sup>3</sup> total	IDLH: 500 mg/m <sup>3</sup> Ceiling: 15 mg/m <sup>3</sup> dust TWA: 5 mg/m <sup>3</sup> dust and fume STEL: 10 mg/m <sup>3</sup> fume



Chemical name	Alberta	British Columbia	Ontario TWAEV	Quebec
Manganese dioxide 1313-13-9	TWA: 0.2 mg/m <sup>3</sup>	TWA: 0.2 mg/m <sup>3</sup> TWA: 0.02 mg/m <sup>3</sup>	TWA: 0.02 mg/m <sup>3</sup> TWA: 0.1 mg/m <sup>3</sup>	TWA: 0.2 mg/m <sup>3</sup>
Potassium hydroxide 1310-58-3	Ceiling: 2 mg/m <sup>3</sup>	Ceiling: 2 mg/m <sup>3</sup>	CEV: 2 mg/m <sup>3</sup>	Ceiling: 2 mg/m <sup>3</sup>
Copper 7440-50-8	TWA: 0.2 mg/m <sup>3</sup> TWA: 1 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup> TWA: 0.2 mg/m <sup>3</sup>	TWA: 0.2 mg/m <sup>3</sup> TWA: 1 mg/m <sup>3</sup>	TWA: 0.2 mg/m <sup>3</sup> TWA: 1 mg/m <sup>3</sup>
Polyvinyl chloride 9002-86-2		TWA: 1 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup>	
Graphite 7782-42-5	TWA: 2 mg/m <sup>3</sup>	TWA: 2 mg/m <sup>3</sup>	TWA: 2 mg/m <sup>3</sup>	TWA: 2 mg/m <sup>3</sup>
Zinc oxide 1314-13-2	TWA: 2 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>	TWA: 2 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>	TWA: 2 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>	TWA: 2 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>

**Other Exposure Guidelines**

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992). See section 15 for national exposure control parameters.

**Appropriate engineering controls**

**Engineering controls**

Showers  
Eyewash stations  
Ventilation systems.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**

Face protection shield.

**Hand protection**

Wear suitable gloves. Impervious gloves.

**Skin and body protection**

Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

**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.

**General hygiene considerations**

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. 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. Avoid breathing dust/fume/gas/mist/vapors/spray.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Information on basic physical and chemical properties**

Physical state	Solid
Appearance	No information available
Odor	No information available
Color	No information available
Odor Threshold	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		None known	
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	
Relative density	No data available	None known	
Water Solubility	Insoluble in water		
Solubility(ies)	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	
<b><u>Other Information</u></b>			
Explosive properties	No information available		
Oxidizing properties	No information available		
Softening Point	No information available		
Molecular Weight	No information available		
VOC Content (%)	No information available		
Liquid Density	No information available		
Bulk Density	No information available		
Particle Size	No information available		
Particle Size Distribution	No information available		

## 10. STABILITY AND REACTIVITY

<b>Reactivity</b>	No information available.
<b>Chemical stability</b>	Stable under normal conditions.
<b>Possibility of Hazardous Reactions</b>	None under normal processing.
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Conditions to avoid</b>	Exposure to air or moisture over prolonged periods. Excessive heat.
<b>Incompatible materials</b>	Acids. Bases. Oxidizing agent.
<b>Hazardous Decomposition Products</b>	Carbon oxides.

## 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

<b>Product Information</b>	Product does not present an acute toxicity hazard based on known or supplied information. In case of rupture:
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<b>Inhalation</b>	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. Harmful by inhalation.
<b>Eye contact</b>	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.
<b>Skin contact</b>	Specific test data for the substance or mixture is not available. Corrosive. (based on components). Causes burns.
<b>Ingestion</b>	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.

**Symptoms related to the physical, chemical and toxicological characteristics**

**Symptoms** Redness. Burning. May cause blindness. Coughing and/ or wheezing.

**Numerical measures of toxicity**

**Acute Toxicity**

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

<b>ATEmix (oral)</b>	561.00 mg/kg
<b>ATEmix (inhalation-gas)</b>	5,595.00 mg/L
<b>ATEmix (inhalation-dust/mist)</b>	1.87 mg/L
<b>ATEmix (inhalation-vapor)</b>	13.68 mg/L

**Unknown acute toxicity** 92.39 % of the mixture consists of ingredient(s) of unknown toxicity  
 29.68 % of the mixture consists of ingredient(s) of unknown acute oral toxicity  
 92.39 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity  
 61.13 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)  
 61.13 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)  
 61.13 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

**Component Information**

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Manganese dioxide	= 9000 mg/kg ( Rat )	-	> 1500 mg/m <sup>3</sup> ( Rat ) 4 h
Iron	= 30 g/kg ( Rat )	-	-
Zinc	= 630 mg/kg ( Rat )	-	-
Potassium hydroxide	= 284 mg/kg ( Rat )	-	-
Graphite	-	-	> 2000 mg/m <sup>3</sup> ( Rat ) 4 h
Zinc oxide	> 5000 mg/kg ( Rat )	-	-

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

**Skin corrosion/irritation** Classification based on data available for ingredients. Causes burns.

**Serious eye damage/eye irritation** Classification based on data available for ingredients. Risk of serious damage to eyes. Causes burns.



**Respiratory or skin sensitization** No information available.

**Germ cell mutagenicity** No information available.

**Carcinogenicity** No information available.

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

Chemical name	ACGIH	IARC	NTP	OSHA
Polyvinyl chloride 9002-86-2	-	Group 3	-	-

**IARC (International Agency for Research on Cancer)**

Group 3 - Not Classifiable as to Carcinogenicity in Humans

**Reproductive toxicity** No information available.

**STOT - single exposure** No information available.

**STOT - repeated exposure** No information available.

**Aspiration hazard** No information available.

**12. ECOLOGICAL INFORMATION**

**Marine Pollutant** This product contains a chemical which is listed as a severe marine pollutant according to DOT

**Ecotoxicity** Very toxic to aquatic life with long lasting effects.

Chemical name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Iron	-	96h LC50: = 13.6 mg/L (Morone saxatilis)	-	-
Zinc	96h EC50: 0.11 - 0.271 mg/L (Pseudokirchneriella subcapitata) 72h EC50: 0.09 - 0.125 mg/L (Pseudokirchneriella subcapitata)	96h LC50: = 7.8 mg/L (Cyprinus carpio) 96h LC50: = 0.24 mg/L (Oncorhynchus mykiss) 96h LC50: 2.16 - 3.05 mg/L (Pimephales promelas) 96h LC50: = 0.41 mg/L (Oncorhynchus mykiss) 96h LC50: = 0.59 mg/L (Oncorhynchus mykiss) 96h LC50: = 2.66 mg/L (Pimephales promelas) 96h LC50: = 3.5 mg/L (Lepomis macrochirus) 96h LC50: 0.211 - 0.269 mg/L (Pimephales promelas) 96h LC50: = 0.45 mg/L (Cyprinus carpio) 96h LC50: = 30 mg/L (Cyprinus carpio)	-	48h EC50: 0.139 - 0.908 mg/L (Daphnia magna)
Potassium hydroxide	-	96h LC50: = 80 mg/L (Gambusia affinis)	-	-



Copper	72h EC50: 0.0426 - 0.0535 mg/L (Pseudokirchneriella subcapitata) 96h EC50: 0.031 - 0.054 mg/L (Pseudokirchneriella subcapitata)	96h LC50: = 0.2 mg/L (Pimephales promelas) 96h LC50: 0.0068 - 0.0156 mg/L (Pimephales promelas) 96h LC50: = 0.052 mg/L (Oncorhynchus mykiss) 96h LC50: < 0.3 mg/L (Pimephales promelas) 96h LC50: = 0.3 mg/L (Cyprinus carpio) 96h LC50: = 0.8 mg/L (Cyprinus carpio) 96h LC50: = 1.25 mg/L (Lepomis macrochirus) 96h LC50: = 0.112 mg/L (Poecilia reticulata)	-	48h EC50: = 0.03 mg/L (Daphnia magna)
Graphite	-	96h LC50: > 100 mg/L (Danio rerio)	-	-
Zinc oxide	-	96h LC50: = 1.55 mg/L (Danio rerio)	-	-

**Persistence and Degradability** No information available.

**Bioaccumulation**

Chemical name	Log Pow
Manganese dioxide	<0
Potassium hydroxide	0.83

**Mobility** No information available.

**Other adverse effects** No information available.

**13. DISPOSAL CONSIDERATIONS**

**Waste treatment methods**

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

**California 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
Potassium hydroxide 1310-58-3	Toxic Corrosive
Copper 7440-50-8	Toxic



Zinc oxide 1314-13-2	Toxic
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**14. TRANSPORT INFORMATION**

<b>DOT</b>	NOT REGULATED
<b>Proper Shipping Name</b>	NON-REGULATED
<b>Hazard Class</b>	N/A
<b>Marine Pollutant</b>	This product contains a chemical which is listed as a severe marine pollutant according to DOT
<b>TDG</b>	Not regulated
<b>Marine Pollutant</b>	This product contains a chemical which is listed as a severe marine pollutant according to TDG.
<b>MEX</b>	Not regulated
<b>ICAO</b>	Not regulated
<b>IATA</b>	Not regulated
<b>Proper Shipping Name</b>	NON REGULATED
<b>Hazard Class</b>	N/A
<b>IMDG/IMO</b>	Not regulated
<b>Hazard Class</b>	N/A
<b>RID</b>	Not regulated
<b>ADR</b>	Not regulated
<b>ADN</b>	Not regulated

**15. REGULATORY INFORMATION**

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

**International Regulations**

**The Montreal Protocol on Substances that Deplete the Ozone Layer** Not applicable

**The Stockholm Convention on Persistent Organic Pollutants** Not applicable

**The Rotterdam Convention** Not applicable

**International Inventories**

<b>TSCA</b>	Contact supplier for inventory compliance status.
<b>DSL/NDSL</b>	Contact supplier for inventory compliance status.
<b>EINECS/ELINCS</b>	Contact supplier for inventory compliance status.
<b>ENCS</b>	Contact supplier for inventory compliance status.
<b>KECL</b>	Contact supplier for inventory compliance status.
<b>PICCS</b>	Contact supplier for inventory compliance status.
<b>AICS</b>	Contact supplier for inventory compliance status.

**Legend**

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



**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances  
**ENCS** - Japan Existing and New Chemical Substances  
**KECL** - Korean Existing and Evaluated Chemical Substances  
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**AICS** - Australian Inventory of Chemical Substances

**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	1313-13-9	31.26	1.0
Zinc - 7440-66-6	7440-66-6	12.48	1.0
Copper - 7440-50-8	7440-50-8	3.21	1.0
Zinc oxide - 1314-13-2	1314-13-2	0.36	1.0

**SARA 311/312 Hazard Categories**

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications. Under the amended regulations at 40 CFR 370, EPCRA 311/312 Tier II reporting for the 2017 calendar year will need to be consistent with updated hazard classifications.

**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	
Potassium hydroxide 1310-58-3	1000 lb			X
Copper 7440-50-8		X	X	
Zinc oxide 1314-13-2		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
Copper 7440-50-8	5000 lb		RQ 5000 lb final RQ RQ 2270 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 may contain substances regulated by state right-to-know regulations.

Chemical name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Manganese dioxide 1313-13-9	X		X	X	X
Zinc 7440-66-6	X	X	X	X	
Potassium hydroxide 1310-58-3	X	X	X	X	
Copper 7440-50-8	X	X	X	X	X
Polyvinyl chloride 9002-86-2	X				
Graphite 7782-42-5	X	X	X		
Zinc oxide 1314-13-2	X	X	X	X	

**16. OTHER INFORMATION**

<b>NFPA</b>	Health hazards 1	Flammability 0	Instability 0	Physical and Chemical Properties -
<b>HMIS</b>	Health hazards 0	Flammability 0	Physical hazards 0	Personal Protection X

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**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**

