Issuing Date No data available

SAFETY DATA SHEET

Revision Date 12-May-2015

Revision Number 2



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

Product identifier	
Product Name	Alkaline Battery LR03 Wuxi Noran Battery Co Ltd
Other means of identification	
Synonyms	None
Recommended use of the chemic	cal and restrictions on use
Recommended Use	Alkaline battery
Uses advised against	No information available
Details of the supplier of the safe	ety data sheet
Supplier Name	Whalen LLC
Supplier Address	1578 Air Wing Road San Diego CA 92154 US
Supplier Phone Number	Phone:619-992-7593 Fax:619-423-1419 Contact Phone1-619-213-1719
Supplier Email	productcompliance@whalenus.com
Emergency telephone number	

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 4



Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 1 Sub-category A
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (repeated exposure)	Category 2

GHS Label elements, including precautionary statements

Signal word	Danger	nergency Overview	
Hazard Statements Harmful if swallowed Harmful if inhaled Causes severe skin burns May cause damage to org	s and eye damage gans through prolonged or repe	ated exposure	
	oduct should not result in expos		en for exposure to the article as sold. s is a battery. In case of rupture: the
Appearance Solid	Pr	ysical state Solid	Odor Odorle

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 dust/fume/gas/mist/vapors/spray Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response

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

Inhalation

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

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

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

Interactions with Other Chemicals

Use of alcoholic beverages may enhance toxic effects.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%	Trade Secret
Manganese dioxide	1313-13-9	30 - 60	*
Iron	7439-89-6	10 - 30	*
Zinc	7440-66-6	10 - 30	*
Potassium hydroxide	1310-58-3	5 - 10	*
Graphite	7782-42-5	1 - 5	*
Copper	7440-50-8	1 - 5	*

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

4. FIRST AID MEASURES

First aid measures

General Advice	First aid is upon rupture of sealed battery.
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.
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.
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



 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. Use personal protective equipment as required. Wear personal protective clothing (see section 8).

 Most important symptoms and effects, both acute and delayed

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

Indication of any immediate medical attention and special treatment needed

Notes to PhysicianProduct 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.

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.

Explosion Data

Effects

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		

StorageKeep 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.

Acids. Bases. Oxidizing agent.

Incompatible Products

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Manganese dioxide	TWA: 0.02 mg/m ³ Mn	(vacated) Ceiling: 5 mg/m ³	IDLH: 500 mg/m ³ Mn
1313-13-9	TWA: 0.1 mg/m³ Mn	Ceiling: 5 mg/m ³ Mn	TWA: 1 mg/m ³ Mn
			STEL: 3 mg/m ³ Mn
Zinc	STEL: 10 mg/m ³ respirable	TWA: 5 mg/m ³ fume	IDLH: 500 mg/m ³
7440-66-6	fraction	TWA: 15 mg/m ³ total dust	Ceiling: 15 mg/m ³ dust
	TWA: 2 mg/m ³ respirable fraction	TWA: 5 mg/m ³ respirable fraction	
			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	TWA: 2 mg/m ³ respirable fraction	TWA: 15 mg/m ³ total dust	IDLH: 1250 mg/m ³
7782-42-5	all forms except graphite fibers	synthetic	TWA: 2.5 mg/m ³ respirable dust
		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	
Copper	TWA: 0.2 mg/m ³ fume TWA: 1	TWA: 0.1 mg/m ³ fume	IDLH: 100 mg/m ³ dust, fume and
7440-50-8	mg/m ³ Cu dust and mist	TWA: 1 mg/m ³ dust and mist	mist
		(vacated) TWA: 0.1 mg/m ³ Cu	TWA: 1 mg/m ³ dust and mist
		dust, fume, mist	TWA: 0.1 mg/m ³ fume

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)

Appropriate engineering controls

Engineering Measures	Showers Eyewash stations Ventilation systems
Individual protection measures, suc	ch 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	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. 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. Take off contaminated clothing and wash before reuse. Do not breathe dust.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Physical state Appearance Color	Solid Solid No information available	Odor Odor Threshold
<u>Property</u>	<u>Values</u>	Remarks Method
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



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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	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/w	aterNo 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	
	NI 1.4 111	

No data available No data available

10. STABILITY AND REACTIVITY

Reactivity

No data available.

VOC Content (%)

Particle Size Distribution

Particle Size

<u>Chemical stability</u> Stable under recommended storage conditions. <u>Possibility of Hazardous Reactions</u> None under normal processing. <u>Conditions to avoid</u> Exposure to air or moisture over prolonged periods. Excessive heat. <u>Incompatible materials</u> Acids. Bases. Oxidizing agent. <u>Hazardous Decomposition Products</u> 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. Harmful 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.
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 contactSpecific test data for the substance or mixture is not available. Corrosive. (based on
components). Causes burns.IngestionSpecific test data for the substance or mixture is not available. Causes burns. Harmful if
swallowed. (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.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Manganese dioxide 1313-13-9	= 9000 mg/kg (Rat)	-	-
lron 7439-89-6	= 984 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.

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

Sensitization	No information available.
Mutagenic Effects	No information available.
Carcinogenicity	Contains no ingredient listed as a carcinogen.
Reproductive toxicity	No information available.
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. Avoid repeated exposure. Prolonged exposure may cause chronic effects. May cause adverse effects on the bone marrow and blood-forming system. May cause adverse liver effects.
Target Organ Effects	Respiratory system. Eyes. Skin. Gastrointestinal tract (GI). Blood. Central Nervous System (CNS). Central Vascular System (CVS). Kidney. Liver. Cardiovascular system.
Aspiration Hazard	No information available.
Numerical measures of toxicity. Pr	aduct Information

Numerical measures of toxicity Product Information



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

ATEmix (oral) 883.00 mg/kg ATEmix (inhalation-gas) 11,250.00 ppm (4 hr) ATEmix (inhalation-dust/mist) 3.80 mg/l ATEmix (inhalation-vapor) 28.00 ATEmix



12. ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic life with long lasting effects.

Chemical Name	themical Name Toxicity to Algae Toxicity to Fish		Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Iron		96h LC50: = 13.6 mg/L		,
7439-89-6		(Morone saxatilis)		
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: = 0.41 o.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		48h EC50: 0.139 - 0.908 mg/L
Dete e si una la una suide		promelas)		
Potassium hydroxide 1310-58-3		96h LC50: = 80 mg/L		
Copper 7440-50-8	96h EC50: 0.031 - 0.054 mg/L (Pseudokirchneriella subcapitata) 72h EC50: 0.0426 - 0.0535 mg/L (Pseudokirchneriella subcapitata)	(Gambusia affinis) 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: = 0.112 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

Persistence and Degradability

No information available.

Bioaccumulation

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	Dispose of contents/containers in accordance with local regulations.

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

14. TRANSPORT INFORMATION

DOT Proper Shipping Name Hazard Class	NOT REGULATED NON REGULATED N/A
TDG	Not regulated
MEX	Not regulated
ICAO	Not regulated
IATA Proper Shipping Name Hazard Class	Not regulated 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 DSL	Complies 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 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	30 - 60	1.0
Zinc - 7440-66-6	7440-66-6	10 - 30	1.0
Copper - 7440-50-8	7440-50-8	1 - 5	1.0
SARA 311/312 Hazard Categories	-	·	
Acute Health Hazard	No		
Chronic Health Hazard	No		
Fire Hazard	No		
Sudden release of pressure hazard	No		

No

CWA (Clean Water Act)

Reactive Hazard

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		Х	X	
Potassium hydroxide 1310-58-3	1000 lb			Х
Copper 7440-50-8		Х	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

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Manganese dioxide 1313-13-9			Х	Х	Х
Zinc 7440-66-6	Х	Х	Х	Х	
Potassium hydroxide	Х	X	Х	Х	



1310-58-3					
Graphite 7782-42-5	Х	Х	Х		
Copper 7440-50-8	Х	Х	Х	Х	Х

International Regulations

Mexico

National occupational exposure limits

Component	Carcinogen Status	Exposure Limits
Manganese dioxide 1313-13-9 (30 - 60)		Mexico: TWA= 0.2 mg/m ³
Graphite 7782-42-5 (1 - 5)		Mexico: TWA= 2 mg/m ³
Copper 7440-50-8(1-5)		Mexico: TWA= 1 mg/m ³ Mexico: TWA= 0.2 mg/m ³ Mexico: STEL= 2 mg/m ³

Mexico - Occupational Exposure Limits - Carcinogens

Canada WHMIS Hazard Class

Non-controlled

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		
Prepared By	23 British	Stewardship American Blvd. NY 12110 2-6501				
Revision Date Revision Note	12-May-2 No inform	015 nation 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