MATERIAL SAFETY DATA SHEET

Expiry Date: 31 Dec. 2013

1. Chemical Product and Company Identification

Product name：DRY BATTERY

Chemical name： ZINC-MANGANESE DRY BATTERY

Chemical formula ：Zn-MnO2

Manufacturer/supplier: SUZHOU SOUTH LARGE BATTETY CO., LTD.

Address:. NO.16 LOUSHANG ROAD，WEITING TOWN，SIP，JIANGSU，CHINA

Tel: 0512-65071576 Fax: 0512-65071721

2. Composition and information on ingredients

DESCRIPTION	R20P	R14P	R6P	R03P	3R12C	4R25C	6F22	CAS NO.
AVERAGE WEIGHT	84.5g	43.5g	15.0g	7.5g	112.0g	540g	35.5g	
MAIN INGREDIENTS								
ZINC	22.62%	26.51%	32.65%	37.40%	23.25%	16.27%	8.95%	07440-66-6
MANGANESE DIOXIDE	29.23%	26.28%	24.80%	23.15%	27.76%	32.96%	27.09%	01313-13-9
CARBON ROD	6.25%	5.36%	6.70%	6.90%	3.85%	5.85%	/	/
ACETYLENE BLACK	5.25%	5.36%	5.04%	4.20%	3.95%	4.48%	5.72%	1333-86-4
ZINC CHLORIDE	6.77%	6.50%	5.85%	4.79%	3.10%	3.13%	3.51%	7646-85-7
AMMONIUM CHLORIDE	1.40%	1.30%	1.12%	1.00%	9.65%	11.57%	8.80%	12125-02-9
TIN	2.90%	2.09%	1.30%	1.30%	/	0.33%	21.25%	/
BRASS	/	/	1.30%	1.32%	0.98%	0.85%	3.80%	12597-71-6
PAPER	1.80%	2.15%	1.90%	2.65%	2.75%	0.81%	2.30%	/
PLASTIC	2.90%	4.14%	2.65%	2.10%	11.77%	11.96%	5.66%	/
WATER	18.65%	17.52%	15.60%	14.10%	9.15%	10.09%	6.10%	/
ASPHALT（WAX）	2.00%	2.30%	0.90%	0.84%	1.60%	1.30%	6.50%	8052-42-4
MERCURY	<1PPM	<1PPM	<1PPM	<1PPM	<1PPM	<1PPM	<1PPM	7439-97-6

CADMIUM	<80PPM	<90PPM	<100PPM	<130PPM	<80PPM	<60PPM	<80PPM	7440-43-9
LEAD	<900PPM	<1000PPM	<1200PPM	<1500PPM	<900PPM	<645PPM	<950PPM	7782-42-5
STANNUM（TIN）	/	/	/	/	1.05%	0.28%	0.15%	7440-31-5
OTHER	0.23%	0.49%	0.19%	0.25%	1.14%	0.12%	0.17%	
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	

3. Hazards Identification

General advice: The common known rules for handling of chemicals should be obeyed. These chemicals are contained in a sealed steel can. For consumer use, adequate hazard warnings are printed on both the package and the battery. Potential for exposure should not exist unless the battery leaks, is exposed to high temperatures or is mechanically or electrically abused. Concentrated potassium hydroxide contained is caustic. Anticipated potential leakage of potassium hydroxide is 2-20 ml, depending on battery size. Do not eat and drink batteries. Keep batteries away from small children.

Physical-Chemical Hazards: This preparation is not classified as dangerous according to the criteria of directive 99/45/EEC.

Hazards to man: If battery leaking, exposure to caustic ingredients may occur. Therefore, may cause sensitization by skin contract.

Hazards to environment: N.A..

4. First aid Measures

Inhalation: In case of excessive in halation due to leaking batteries remove to fresh air. Obtain medial advice. Skin Contact: If exposed to a leaking battery, remove contaminated clothing. Wash exposed areas with plenty of water and soap. IF irritation occurs, consult a physician. Eye contact: Not anticipated due to size of batteries. Choking may occur with the smaller size batteries. If exposed to a leaking battery, rinse mouth and surrounding areas with running water for at least 15minutes. Give plenty of water to drink. Do not induce vomiting. Obtain medical advice.

5. Fire and Explosion Data

Suitable extinguishing media: Carbon dioxide, foam, dry chemical powder.

Extinguishing media not to be used: Never use a direct water jet.

Exposure hazards from combustion products: In case of fire, carbon monoxide and other toxic organic substances will be generated. Do not inhale fumes and smoke.

Personal protective equipments: Wear full protective clothing. Use self-contained breathing apparatus.

6. Accidental Release Measures

Personal precautions: Notify safety personnel of large spills. Caustic potassium hydroxide

may be released from leaking or ruptured batteries. Avoid eye or skin contact and in halation of vapors. Increase the ventilation. Wear protective clothing. Keep unprotected persons away. Environmental precautions: Avoid discharge and penetration into sewerage systems, waterways, pits, and cellars. Methods for cleaning up: Collect spilled material with an insert standard absorbent like sand or silica. Care for well-ventilated conditions. Recycle or dispose of the materials in an appropriate way.

7. Handling and Storage

General handling: follow the common known rules and prec chemicals. Avoid mechanical and electrical abuse. Do not install incorrectly. Batteries may explode, pyrolyze or Crushed, recharged or exposed to high temperatures. Follow equipment instructions. Do not mix battery systems, zinc-carbon. Replace all batteries in equipment at the batteries loose in pocket or bag. Do not remove battery labels. Storage: Store product in well-filled, appropriate coated and tightly closed containers avoiding influence of oxygen/air, light and humidity. Storage at room temperate.

8. Exposure Controls and Personal Protection

Exposition/Technical measures: Atmospheric vapor concentrations must be minimized by adequate ventilation. Protection of hands, eyes and skin: None required under normal use conditions. When handling leaking batteries, use neoprene, rubber or nitrile gloves and wear safety glasses to protect hands, eyes and skin. General safety and hygiene measures: use only as directed.

9. Physical and Chemical properties

Physical state: Stainless steel top battery Cover: Contents dark and gray in color
Odour: N.A.
Melting point: N.A.
Boiling point: N.A.
Flash point: N.A.
Explosion limit: Not available
Ignition temperature: Not available
Vapor pressure: Not available
Specific gravity: N.A.
Solubility in water: N.A.
Solubility in other solvents: N.A.
PH valve: Not available
Partition coefficient: Not available
Viscosity: Not available

10. Stability and Reactivity Data

Thermal decomposition: batteries may burst and release hazardous decomposition

products when exposed to fire. Substances to avoid: Strong Oxidation agents. Hazardous reactions: Contents incompatible with strong oxidizing agents. Hazardous decomposition products: Thermal degradation may produce hazardous fumes of zinc and manganese; hydrogen gas; caustic vapors of potassium hydroxide and other toxic by-products

11. Toxicological Information

Toxicity in formation is available on the battery ingredients noted in Section Product: Dispose in accordance with appropriate, contact your local government office concerned incinerate, since batteries may explode at excessive temperatures.

12. Ecological Information

Not available

13. Disposal Consideration

Product: Dispose in accordance with appropriate regulations. If in doubt, contact your local government office concerned for information. Do not incinerate, since batteries may explode at excessive temperatures.

14. Transport Information

The “dry battery” is non-dangerous goods according to IMO IMDG CODE and meets shipping standards. These batteries are not regulated by international agencies as hazardous materials or dangerous goods when shipped. A shipping name of “zinc-manganese dry battery” may be used on all domestic and international bills of lading.

15. Other Regulatory Information

Symbol: N/A

EC labeling: None

Risk phrases: None

Safety phrases: None

Labeling is not required because alkaline batteries are classified as “articles” under the Dangerous Preparations Directive and as such are exempt from the requirements of the Directive.

16. Other Information

References: N/A

Guidance departments: N/A

Data audit units: N/A

Amended: N/A

Other information: N/A