Material Safety Data Sheet for GP Cylindrical Alkaline Battery

Revision:31 Page 1 of 5
Note: Blank spaces are not permitted if any item is not
applicable or no information is available, the space must be
marked to indicate that.
Telephone Number for information
852-2484-3111
Date of prepared and revision
01 Jan, 2024
Cianatura of Dranaua (antional)
Signature of Prepare (optional)

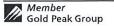
Section 2 - Hazards Identification

This contains potassium hydroxide solution (KOH), and other combustible materials, all sealed in steel can. For this reason, improper handling of the battery could lead to distortion, leakage*, overheating, explosion and cause human injury or equipment trouble. Please strictly observe safety instructions. (*leakage is defined as an unintended escape of liquid from a battery.)

Section 3 - Composition/Information on Ingredients

Ingredient	CAS#	EINECS No.	Approximate Content (wt%)					
			15A (LR6)	24A (LR03)	14A (LR14)	13A (LR20)	910A (LR1)	25A (LR8D425)
Manganese Dioxide (MnO₂)	1313-13-9	215-202-6	42.6	40.9	40.6	41.8	34.2	36.0
Zinc (Zn)	7440-66-6	231-175-3	16.1	14.8	16.0	17.4	13.5	17.0
Water (H ₂ O)	7732-18-5	231-791-2	12.2	11.7	11.0	11.1	9.5	6.5
Potassium Hydroxide (KOH)	1310-58-3	215-181-3	5.2	4.8	7.0	7.0	4.2	1.3
Graphite	7782-42-5	231-955-3	3.0	1.7	3.2	3.4	3.0	2.3
Brass	12597-71-6	603-111-8	2.4	3.0	1.2	0.8	2.3	3.5
Steel	7439-89-6	231-096-4	15.7	20.4	18.6	16.3	29.5	30.0
Ni-plating	7440-02-0	231-111-4	0.3	0.3	0.2	0.2	0.3	0.6
Nylon-66	32131-17-2	608-706-6	1.6	1.5	1.6	1.4	2.9	2.2
Fiber	None	None	0.9	0.9	0.6	0.6	0.6	0.6





Material Safety Data Sheet for GP Cylindrical Alkaline Battery

Document Number: MAA100 Revision:31 Page 2 of 5

Section 4 - First Aid Measures

None unless internal materials exposure. If contents are leaked out, observe following instructions:

Inhalation

Fumes can cause respiratory irritation. Remove to fresh air and consult a physician.

Skin

Immediately flush skin with plenty of water. If itch or irritation by chemical burn persists,

consult a physician.

Eyes

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.

 Section 5 – Fire-Fighting Measures

 Flash Point (Method Used)
 Ignition Temp.
 Flammable Limits
 LEL
 UEL

 N.A.
 N.A.
 N.A.
 N.A.

Extinguishing Media

Carbon Dioxide, Dry Chemical or Foam extinguishers

Special Fire Fighting Procedures

N.A.

Unusual Fire and Explosion Hazards

Do not dispose of battery in fire - may explode.

Do not short-circuit battery - may cause burns.

Section 6 - Accidental Release Measures

Steps to Be Taken in Case Material is Released or Spilled

Batteries that are leakage should be handled with rubber gloves.

Avoid direct contact with electrolyte.

Wear protective clothing and a positive pressure Self-Contained Breathing Apparatus (SCBA).

Section 7 - Handling and Storage

1) Handling

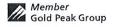
Never swallow. Never charge. Never heat. Never expose to open flame. Never disassemble.

Never reverse the positive and negative terminals when mounting.

Never short-circuit the battery. Never weld the terminal or wire to the body of the battery directly.

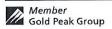
Never use different batteries together. Never touch the liquid leaked out of battery.

Never bring fire close to battery liquid. Never keep in touch with battery.



Material Safety Data Sheet for GP Cylindrical Alkaline Battery

Document Number: MAA100 Revision:31 Page Page 3 of 5 2) Storage Never store the battery in hot and high humid place. Section 8- Exposure Controls / Person Protection STEP Occupational Exposure Limits: N.A. Respiratory Protection (Specify Type) Ventilation Local Exhausts Special N.A. N.A. Mechanical (General) Other N.A. N.A. Eye Protection Protective Gloves N.A. N.A. Other Protective Clothing or Equipment N.A. Work / Hygienic Practices N.A. Section 9 - Physical / Chemical Properties Specific Gravity (H₂O=1) **Boiling Point** N.A. N.A. Melting Point Vapor Pressure (mm Hg) N.A. N.A Evaporation Rate (Butyl Acetate) Vapor Density (AIR=1) N.A. N.A Solubility in Water N.A. Appearance and Odor Cylindrical Shape, odorless Section 10 - Stability and Reactivity Conditions to Avoid Stability Unstable Stable Incompatibility (Materials to Avoid) Hazardous Decomposition or Byproducts Conditions to Avoid Hazardous May Occur Polymerization Will Not Occur X



Material Safety Data Sheet for GP Cylindrical Alkaline Battery

Document Number: MAA100 Revision:31 Page 4 of 5

Section 11 – Toxicological Information

Route(s) of Inhalation? Skin? Ingestion?

Entry N.A. N.A. N.A. N.A.

Health Hazard (Acute and Chronic) / Toxicological information

In case of electrolyte leakage, skin will be itchy when contaminated with electrolyte.

In contact with electrolyte can cause severe irritation and chemical burns.

Inhalation of electrolyte vapors may cause irritation of the upper respiratory tract and lungs.

Section 12 - Ecological Information

NA

Section 13 - Disposal Considerations

Dispose of batteries according to government regulations. 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 - Transportation Information

In general, all batteries in all forms of transportation (ground, air, or ocean) must be packaged in a safe and responsible manner. Regulatory concerns from all agencies for safe packaging require that batteries be packaged in a manner that prevents short circuits and be contained in "strong outer packaging" that prevents spillage of contents. All original packaging for GP alkaline batteries has been designed to be compliant with these regulatory concerns.

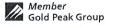
Alkaline batteries (sometimes referred to as "Dry cell" batteries) are not listed as dangerous goods under the ADR European Agreement Concerning the International Carriage of Dangerous Goods by Road, the IMDG International Maritime Dangerous Goods Code, UN Dangerous Good Regulations, IATA Dangerous Goods Regulations, ICAO Technical Instructions and the U.S. hazardous materials regulations (49 CFR). These batteries are not subject to the dangerous goods regulations provided they meet the requirements contained in the following special provisions.

Regulatory Body	Special Provisions			
ADR	Not regulated			
IMDG	Not regulated			
UN	Not regulated			
US DOT	49 CFR 172.102 Provision 130			
IATA	A123			
ICAO	Not regulated			

All GP alkaline batteries are packed in such a way to prevent short circuits or the generation of dangerous quantities of heat and meet the special provisions listed above. In addition, the 2024 IATA (65th edition) Dangerous Goods Regulations and ICAO Technical Instructions require the words "not restricted" and the Special Provision number A123 be provided on the air waybill, when an air waybill is issued.

Section 15 – Regulatory Information

Special requirements according to local regulations.





Material Safety Data Sheet for GP Cylindrical Alkaline Battery Document Number: MAA100 Revision:31 Page

Document Number: MAA100

Page 5 of 5

Section 16 – Other Information

The data in this Material Safety Data Sheet relates only to the specific material designated herein.

Section 17 - Measures for fire extinction

In case of fire, it is permissible to use any class of extinguishing medium on these batteries or their packing material. Cool exterior of batteries if exposed to fire to prevent rupture.

Fire fighters should wear self-contained breathing apparatus.

