MATERIAL SAFETY DATA SHEET

1. Substance/preparation and company name

Chener Alkaline Button Cells: Alkaline Manganese Dioxide Button Cells - AG1, AG2, AG3, AG4, AG5, AG6, AG7,AG8, AG9, AG10, AG11, AG12, AG13/LR44/A76, 11A, 23A, 27A, LR50, A640.

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Telephone Number for Information:
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2. Composition/information on ingredients

Chemical nature:	Wt. %	CAS No.	EEC No.	Index No.	Classification
Manganese Dioxide	15-30	1313-13-9	215-202-6	025-001-00-3	Xn;R20/22
Potassium Hydroxide	0-12	1310-58-3	215-181-3	019-002-00-8	Xn;R22, C;R35
Zinc	8-10	7440-66-6	231-175-3	030-002-00-7	N;R50/53
Mercury (as Mercuric Oxide)	<1	7439-97-6	231-106-7	080-001-00-0	T;R23,R33,N;R50-53
Graphite	1-3	7748-42-5	231-955-3		Xi;R36/37
Sodium Hydroxide	0-12	1310-73-2	215-185-5	011-002-00-6	C;S24/25;S37/39;S45

3. Possible hazards

Critical hazards to man: If battery leaking, exposure to caustic ingredients may occur.
Critical hazards to the environment: Dispose of battery properly (see Section 13). Contains zinc compounds which may present a hazard to aquatic environments
Other Information: Keep batteries away from small children.

4. First aid measures

General advice: These chemicals and metals are contained in a sealed can. For consumer use, adequate hazard warnings are included on both the package and on the battery. Potential for exposure should not exist unless the battery leaks, is exposed to high temperatures, is accidentally swallowed or is mechanically, physically or electrically abused. Contains concentrated (35%) potassium hydroxide, which is caustic. Anticipated potential leakage of potassium hydroxide is 0.05 to 0.5 ml, depending on battery size.

If inhaled: Respiratory and eye irritation may occur if fumes are released due to heat or an abundance of leaking batteries. Remove to fresh air. Contact physician if irritation persists.

On skin contact: Irritation, including caustic burns/injury, may occur following exposure to a leaking battery. If battery is leaking, irrigate exposed skin with copious amounts of clear, tepid water for at least 15 minutes. If irritation, injury or pain persists, consult a physician.

On contact with eyes: Irritation, including caustic burns/injury, may occur following exposure to a leaking battery. If battery is leaking and material contacts eyes, flush with copious amounts of clear, tepid water for 30 minutes. Contact physician at once.

MATERIAL SAFETY DATA SHEET

4. **First aid measures (continued)**

On ingestion: Batteries lodged in the esophagus should be removed immediately since leakage, caustic burns and perforation can occur as soon as 4-6 hours after ingestion. Irritation, including caustic burns to the internal/external mouth areas, may occur following exposure to a leaking battery. An initial x-ray should be obtained promptly to determine battery location. Published reports recommend removal from the esophagus be done endoscopically (under direct visualization). Batteries beyond the esophagus need not be retrieved unless there are signs of injury to the GI tract or a large diameter battery fails to pass the pylorus. If asymptomatic, follow-up x-rays are necessary only to confirm passage of larger batteries. Confirmation by stool inspection is preferable under most circumstances. If mouth area irritation/burning has occurred, rinse the mouth and surrounding area with clear, tepid water for at least 15 minutes. If irritation, injury or pain persists, consult a physician.

Notes to Physician: The primary acutely toxic ingredient is concentrated (35%) potassium hydroxide. Anticipated potential leakage of potassium hydroxide is 0.05 to 0.5 ml.

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5. Fire fighting measures

Suitable extinguishing media: As appropriate for adjacent fire.

Special protective equipment: In fires involving large quantities of product, use self-contained breathing apparatus and full protective clothing.

Further information: Hazardous decomposition products may be produced. (Sec. 10).

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6. Accidental release measures

Personal precautions: Caustic potassium hydroxide may be released from leaking or ruptured batteries. Avoid eye or skin contact and inhalation of vapours. Increase ventilation. Clean up personnel should wear appropriate protective gear.
Environmental precautions: Not applicable
Methods for cleaning up: Not applicable

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7. Handling and storage

Handling
Avoid mechanical or electrical abuse. Batteries may explode, pyrolize or vent if disassembled, crushed, recharged or exposed to high temperatures. Install batteries in accordance with equipment instructions. Replace all batteries in equipment at the same time. Do not carry batteries loose in pocket or bag.

Storage
Store at room temperature.

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8. Exposure controls and personal protection

Personal protective equipment

Respiratory equipment: None required under normal use conditions.
Hand protection: None required under normal use conditions. Use neoprene, rubber or nitrile gloves when handling leaking batteries.
Eye protection: None required under normal use conditions. Wear safety glasses when handling leaking batteries.
General safety and hygiene measures: Use only as directed.

MATERIAL SAFETY DATA SHEET

9. Physical and chemical properties

Form and Colour: Button cells. Contents dark in colour.
Odour: Not applicable

Change in physical state

Melting point/melting range: Not available
Boiling point/boiling range: Not available

Flash point: Not applicable

Explosion limits: Not available

Ignition temperature: Not available

Vapour pressure: Not available

Specific Gravity: Not applicable

% Volatiles: Not available

Solubility in water: Not applicable

Solubility in other solvents: Not applicable

pH value: Not available

Octanol/water partition coefficient (log POW): Not available

Viscosity: Not available

10. Stability and reactivity

Thermal decomposition: Batteries may burst and release hazardous decomposition products when exposed to a fire situation.

Substance(s) to avoid: Strong oxidisers

Hazardous reactions: Contents incompatible with strong oxidising agents.

Hazardous decomposition products: Thermal degradation may produce hazardous fumes of mercury, zinc and manganese; hydrogen gas; caustic vapours of potassium hydroxide and other toxic by-products.

11. Toxicological information

Toxicity information is available on the battery ingredients noted in Section 2, but, generally not applicable to intact batteries.

Chronic Health Effects: Not applicable to intact batteries.

MATERIAL SAFETY DATA SHEET

12. Ecological information

Not available

13. Disposal considerations

Disposal: Dispose in accordance with all applicable federal, state and local regulations. Appropriate disposal technologies include incineration and land filling.

The contects of this battery, as a waste, may be regulated by Resorece Conservation and Recovery Act (RCRA) as a D009 (mercury) Hazardous waste.

14. Transport information

UN Number:	None
IMDG Classification:	None
ADR/RID Classification:	None
ICAO/IATA Classification:	None

These batteries are not regulated by U. S. DOT or international agencies as hazardous materials or dangerous goods when shipped. A shipping name of 'Alkaline Batteries - Non-hazardous' may be used on all domestic and international bills of lading.
The consigments is fully described by Proper Shipping Name and packed (short-circuit prevented), marked and in proper condition for carriage by air. The consignment is not classified as dangerous under the current edition of IATA DANGEROUS GOODS REGULATIONS (edition 53rd), with complying the the provision A123, and all applicable carrier and governmental regulations.

15. Regulatory information

EC Labeling:	None
Risk Phrases:	None
Safety Phrases:	None

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

16. Other information:

None