



Material Safety Data Sheet

1. Product & Company Identification

Product:	Non-Rechargeable Alkaline Button Cell Set AG1 (LR621, 364), AG3 (LR41, 392), AG4 (LR626, 377), AG10 (LR1130, 389), AG12 (LR43, 386), AG13 (LR44, 357).
Manufacturer:	Conrad Electronic SE
Nominal voltage:	1,5 V
Nominal capacity:	AG1 = 13 mAh, AG3 = 31 mAh, AG4 = 18 mAh, AG10 = 72 mAh, AG12 = 108 mAh, AG13 = 145 mAh
Address:	Klaus-Conrad-Str. 1, D-92240 Hirschau
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2. Ingredients

Hazardous Components (Specific Chemical Identity, Common Names), Compiled with 98/101/EEC & 91/157/EEC	Specification (%)
Mercury Content	< 0.0001
Cadmium Content	< 0.001
Lead Content	< 0.001

3. Hazards Identification

Boiling Point	KOH aqua solution = 140 degree Celsius
Specific Gravity (H2O = 1)	MnO2 = 4.4, Zn = 7.1, KOH = 2.0
Vapor Pressure (mm Indium)	KOH aqua solution = 0.2mm Indium at 20 degree Celsius
Melting Point	MnO2 - decomposes at 535 degree Celsius Zn = 420 degree Celsius, KOH aqua = -35 degree Celsius
Vapor Density (Air -1)	N/A
Evaporation Rate (Butyl Acetate = 1)	N/A
Solubility in Water	KOH – complete

Appearance and Color

MnO2 is a black powder, Graphite is also a black powder, Zinc is a silver metal.

KOH aqua is a colorless liquid with stimulated odor.



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4. First Aid Measures

In case of skin contact with content of battery, flush immediately with water. For eye contact, flush with copious amount of water for 10 minutes. If irritation persists, get medical help.

5. Fire Fighting Measures

Flash point (Method used)	Incombustible
Flammable Limits LBL UEL	Not Applicable
Extinguishing Media	-DO-
Special Fire Fighting Procedure	-DO-
Unusual Fire and Explosion Hazards	-DO-

6. Accidental Release Measures

Route(s) of entry

Inhalation:	YES
Skin:	YES
Ingestion:	YES

Health Hazards (Acute and Chronic)

These chemicals are contained in a sealed can. Risk of exposure occurs, only if battery is mechanically or electrically abused. The most likely risk is acute exposure when a cell vents KOH is caustic alkali and attack the skin and eyes. Contact of electrolyte with skin and eyes should be avoided.

Cardnogenicity NTP:	None
IARC Monographs:	None
OSHA Regulated:	None

Signs and Symptoms of exposure

KOH can cause chemical burn upon contact with skin.

Medical Conditions

Generally aggravated by exposure.

An acute exposure will not generally aggravate any medical help.

Emergency and First Aid Procedures

In case of skin contact with content of battery, flush immediately with water. For eye contact, flush with copious amount of water for 10 minutes. If irritation persists, get medical help.



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7. Handling and Storage

Steps to be taken in case material is released or spilled

Wipe out by wet duster

Waste Disposal Method

General abandonment

Precautions to be taken in handling and storing

Avoid mechanical or electrical abuse.

Other precautions

Do not short circuit, charge or dispose of in fire. Battery may explode or leak.

8. Exposure Controls/Personal Protection

Flash point (Method used)	Incombustible
Flammable Limits LBL UEL	N/A
Extngushing Media	N/A
Special Fire Figting Procedure	N/A
Unusual Fire and Explosion Hazards	N/A

9. Physical and Chemical Properties

Compiled with 98/101/EEC & 91/157/EEC Specification (%)

1) Mercury Content	< 0.0001
2) Cadmium Content	< 0.001
3) Lead Content	< 0.001

10. Stability and Reactivity

Stability	stable
Conditions to avoid	do not short-circuit, charge or dispose of in fire
Incompatibility (Materials to Avoid)	N/A
Hazardous polymerization	will not occur
Hazardous Decomposition or byproducts	N/A



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11. Toxicological Information

Route(s) of entry:

Inhalation: YES

Skin: YES

Ingestion: YES

Health Hazards (Acute and Chronic)

These chemicals are contained in a sealed can. Risk of exposure occurs, only if battery is mechanically or electrically abused. The most likely risk is acute exposure when a cell vents KOH is caustic alkali and attack the skin and eyes.

Contact of electrolyte with skin and eyes should be avoided.

Carinogenicity NTP: None

IARC Monographs: None

OSHA Regulated: None

Signs and Symptoms of exposure

KOH can cause chemical burn upon contact with skin.

Medical Conditions

Generally aggravated by exposure.

An acute exposure will not generally aggravate any medical help.

Emergency and First Aid Procedures

In case of skin contact with content of battery, flush immediately with water. For eye contact, flush with copious amount of water for 10 minutes. If irritation persists, get medical help.

12. Disposal Condition

Waste Disposal Method: General abandonment.



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13. Regulatory Information

- Battery should be kept away from the reach of children.
- If the battery is accidentally swallowed, s/he should consult the doctor immediately.
- If the battery is used in the applications for children, the battery compartment should be capable of bombardment.
- If the applications have alternate power supply, the integrated circuit can only use primary battery instead of secondary battery.
- The battery should be placed correctly for the positive and negative terminals.
- Please do not try to heat, recharge or use other mean to recycle the primary battery.
- Please do not heat or throw the battery in fire or try to dismantle the battery by yourself.
- Please do not short circuit the battery.
- Please do not use electrical welding to weld the positive and negative terminals of battery directly.
- After the use of applications, please switch off the power supply.
- If the applications will not be used for a long period of time, the battery should be removed.
- Please change all the batteries at the same time instead of changing some of them only. Newly added batteries should not be mixed with the used ones as they have different chemical systems, grade and brand, etc. Otherwise, some batteries may be subject to leakage due to the extreme use.

14. Other Information

Products are according to IEC60086-2000 and 98/101/EC standard.

Do not short circuit, charge or dispose of in fire. Battery may explode or leak.

15. Transportation

We further declare the battery terminals are protect and the cargo is in all respects in proper condition for transport.

Alkaline batteries are considered to be „dry cell“ batteries and are not subject to dangerous goods regulation for the purpose of transportation by the International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA) or the International Maritime Dangerous Goods regulations (IMDG). Alkaline batteries offered for transport are not subject to other provisions of these Regulations if they meet the following : „Cells and batteries are separated so as to prevent short circuits and are packed in strong packaging.“

„Referring the captioned shipment of battery, such battery have been packed in inner packing in such a manner as to effectively prevent from short circuits and the movements which could lead to short circuits.“

16. Other Information

Steps to be taken in case material is released or spilled:

Wipe out by wet duster. Avoid mechanical or electrical abuse.