

## Operating rules for cells and batteries in non-rechargeable alkaline technology LR (1,5V and 9V)

Cells in alkaline technology LR are high-energy products. Incorrect handling may result in energy release in a short time by short circuit, cell unsealing and release highly harmful substances!



Alkaline cells are industrial products designed for professional use with appropriate processing and electrical connection technology. Under no circumstances should they be sold to users who do not know the basic principles of their use and are therefore exposed to **potential personal injury** and **damage to the property** (e.g. short circuit, burn, cell unsealing, caustic or poisonous substances release).

It is absolutely necessary to comply with these Operating Rules and to use the cells only in accordance with the parameters contained in the cell's Data Sheets issued by cell's Manufactures. The information contained therein defines permissible electrical parameters and has direct impact on the SAFETY of alkaline cells and batteries usage.

### SAFETY RECOMMENDATIONS



Alkaline cells and batteries should be used only in accordance with the manufacturer's cell Data Sheet.

#### In particular:

- It is forbidden to charge the alkaline cells. It may cause cells damage, unsealing (even explosive) with caustic or poisonous substances release, or burn.
- It is forbidden to short-circuit the battery +/- poles due to the risk of high-current flow, cell damage, cell unsealing and caustic or poisonous substances release, personal injury to the user and fire threat to the property.



**ATTENTION:** Inserting the cell(s) into a pocket with keys or other metal parts can cause short circuit or person's burn.

- Do not subject the cells to excessive electrical stress (excessive discharge current) due to the risk of damage, overheat or cell unsealing with caustic substances release!
- Under no circumstances should the cells and batteries be used in reverse polarity.
- Do not allow cells to be heated up above +60°C. Risk of unsealing and caustic substances release.



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- Neither cells nor batteries must be thrown into fire or water.
- Do not subject the cells to mechanical shocks, drop or fall, vibrations or mechanical pressure.
- Always store cells out of the reach of unauthorized persons, especially children.
- It is not allowed to repair, disassemble and deform the cells or battery packs.
- Soldering cables to the surface of cells and batteries is prohibited. Risk of overheating, parameters loss or cell unsealing.
- Do not touch any liquid or substance which leaks from the cell. A leaking cell must be disposed of (see section of this document entitled „Disposal and recycling“). In the event of contact of liquid with the eyes, do not rub the eyes. Immediately start rinsing the eyes with water and continue for at least 15 minutes, lifting the upper and lower eyelids until all traces of liquid have disappeared. Then get medical attention.
- Alkaline cells and batteries should be disposed of (recycling) after consumption. Disposal of cells and batteries should be made in designated places. Do not dispose them of in municipal waste landfills.

## INSTALLING AND USAGE OF ALKALINE CELLS



Besides the explicitly labelled consumer products, industrial alkaline cells may be installed by qualified persons with technical knowledge in the field of safe usage.

Appropriate tools must be used to assure safe and secure connection of cells and their connection to the device.



**ATTENTION:** Failure to comply with these rules, attempting to install, repair or run alkaline cells and batteries, making changes in product design by unauthorised and unqualified individuals can jeopardize the user and result in loss of warranty.

## GENERAL INFORMATION



Alkaline cells provide good performance when used in accordance with the cell manufacturer's guidelines.

Alkaline technology is characterised by relatively low self-discharging, allowing for a few years storage and stable operation in reasonable period of time.

Alkaline cells and batteries naturally slowly lose their parameters, and self-discharge during usage and storage.

A typical estimated lifetime of alkaline cells and batteries is up to 5 years, depending on power profile and powered device.

Do not leave alkaline cells unattended for a long time, above 1 year, both in the product being powered and during storage. If the alkaline cell or battery is not used for a long time, check its voltage level. In case of voltage lower than 1,0V/cell, such cell must be disposed of.



Check the status and voltage level of alkaline cells. The instructions for using the alkaline cells or batteries-powered device usually contain information on how to check the cells status as well as instructions on how to exchange them. Always follow the instructions supplied with the products and battery Data Sheet guidelines.



## USAGE AND MAINTENANCE OF ALKALINE CELLS



It is forbidden to charge the alkaline cells. Risk of cells damage, unsealing (even explosive) with caustic or poisonous substances release, and possible user's burn.

### DISCHARGING

The range of parameters for discharging alkaline cells specified by the Manufacturer must not be exceeded (cell's Data Sheets). Exceeding the maximum operating parameters may cause cell unsealing and overheating. It may result a harmful substances release and possible user's burn.

- Do not exceed allowed ranges of discharge (operational) current and end-discharge voltage (cut-off voltage) specified in the cell Data Sheet.
- Do not exceed allowed operational temperature ranges of the cells.

## STORAGE



1. Alkaline cells and batteries should be stored in manufacturer's packaging or other packaging ensuring electrical insulation and tightness not less than that of the cell manufacturer.
2. Do not store alkaline cells and batteries under the direct sun exposure.
3. Alkaline cells and batteries must be stored not connected to any electrical circuit.
4. Unused alkaline cell or battery slowly self-discharges, therefore it is recommended to check periodically the level of voltage/ state of charge during long-term storage.
5. A brand new alkaline cell or battery can be stored for a maximum 2 years without losing performance under the recommended optimal temperature and humidity conditions. Maintenance activities are not required in the first cycle of storage.
6. Long-term storage is possible provided that the parameters of the cells are regularly inspected and possible maintenance activities. It is recommended to check the battery's voltage when it is stored for a longer time. In case of voltage  $< 1,0V$ , cells can not be used and stored, disposal is recommended. When stored in higher temperature, verifying activities should be made after a shorter period of storage.



**Recommended storage conditions:**

<b>Storage temperature:</b>	+10°C - +25°C (recommended)
<b>Relative humidity:</b>	< 70% , no condensations on cells and/or packaging
<b>General conditions:</b>	Dry, cool and clean room, in particular free from corrosive agents. Cells in the manufacturer's factory packaging (or similar), ensuring good insulation and protection.

At temperature higher than +25°C, chemical self-discharge and aging processes occur faster. Avoid storage at higher temperatures.

Do not store or use deeply discharged alkaline cells and batteries. Used alkaline cells are considered as hazardous waste. (see „Disposal“ below).

**TRANSPORT** 

Transport of cells and batteries is regulated by safety rules.

Before transporting the alkaline cells and batteries, check the local, national and international regulations in force. The easiest way is to order transport to a professional transport company with documented authorization for dangerous goods transport.

Used (discharged) alkaline cells are considered as hazardous waste. Transport of a used (withdrawn from usage) alkaline cells and batteries, defective or withdrawn from the market, may in some circumstances be clearly restricted or prohibited.

**ALKALINE CELLS DISPOSAL AND RECYCLING** 

Alkaline cells and batteries are subject to disposal and recycling regulations that vary from country to country, and region to region. Cells and batteries are considered as hazardous waste after use.

Before disposing of any cell or battery, check the applicable local regulations and comply with them. To dispose of the cells and batteries, contact your local organization of chemical power sources recycling.

Dispose of used electronic equipment, including all cells and batteries, in standard waste containers (municipal waste landfill) is strictly **prohibited**.

Used (discharged) alkaline cells and batteries may only be placed in collection containers. To prevent short circuits, secure the leads / contacts / connection points of the power cables, e.g. with electrical insulation tape or other approved protective material.



**COUNTERPARTY'S STATEMENT**



Wamtechnik Limited Liability Company (hereinafter referred to as the „Company“) shall not be liable for damages that may result from the use of the offered alkaline cells and batteries made of alkaline cells contrary to their intended use and these Operating Rules (hereinafter referred to as the "Manual").

The purchase of alkaline cells and batteries offered by the Company is connected with getting acquainted with and accepting the above mentioned Manual. The Company's Counterparty, purchasing the cells and batteries in question from the Company, declares that he has familiarized himself with this Manual and is aware of the risks and threats that may result from using, storing and transporting the cells and batteries in a manner inconsistent with this Manual.

