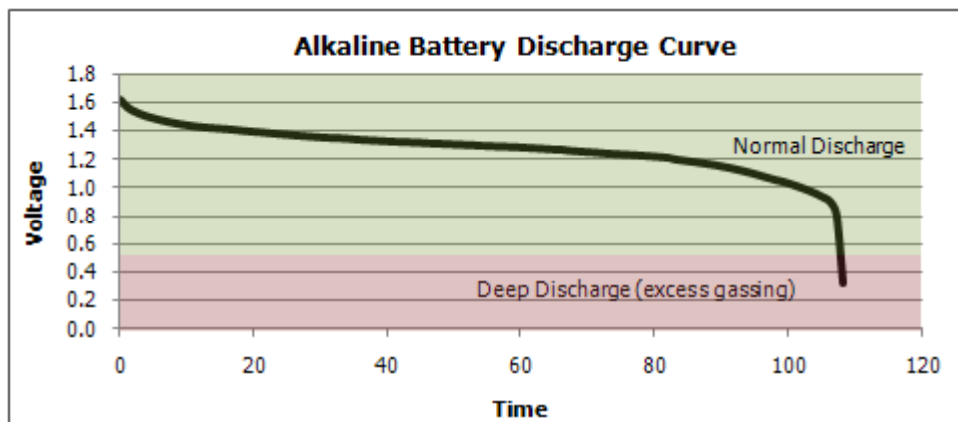




# Cutoff Voltage

(recommended cutoff voltage for alkaline batteries)

- Alkaline batteries are designed to operate in devices from 1.65 volts to 0.5 volts per cell. However, when the batteries closed circuit voltage (CCV) reaches 0.8 volts, approximately 90% or more of the batteries capacity has been removed. As the alkaline battery is discharged, the potential for hydrogen gas generation due to electrolysis increases as the CCV drops below 0.5 volts. To avoid excessive internal gassing, we recommend that the batteries be removed from the load prior to reaching 0.5 volts per cell. If the batteries remain on load past this recommended cutoff voltage, the internal pressure from gassing will increase the potential for battery leakage over time.



- There are applications where the complete removal of the load is not possible. For example, when a memory function cannot be lost. Under these conditions, we recommend reducing the discharge current to 50uA or less on batteries that are below 0.5 volts.
- Deep discharge leakage can also occur due to customers mixing fresh and used batteries in an application. By designing an application with a 0.5volt cutoff, this problem is reduced by limiting the time a device would work with an exhausted battery.
- In general, Energizer recommends that devices be designed with a 0.5 volt per cell cutoff to avoid excess gassing that can occur during deep discharge.

**Important Notice**

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