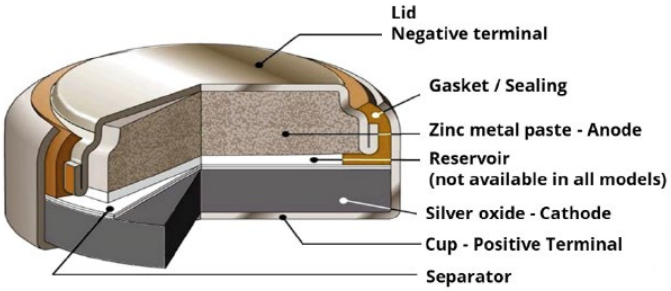
Chemistry and construction

Chemistry of RENATA silver oxide coin cells

RENATA silver oxide coin cells use an aqueous electrolyte containing either sodium hydroxide (NaOH – for Low drain) or potassium hydroxide (KOH – for High drain). The anode material is a paste based on zinc metal, and the cathode material consists of a mixture of silver oxide and other specific components.

The cell reactions for this electrochemical system are:
Anode: $Zn + 2OH^- \rightarrow Zn(OH)_2 + 2e^-$
Cathode: $Ag_2O + 2H^+ + 2e^- \rightarrow 2Ag + H_2O$
Overall cell reaction: $Zn + Ag_2O + H_2O \rightarrow Zn(OH)_2 + 2Ag$

The silver oxide is reduced at the cathode to silver, while the zinc is oxidized at the anode.



Chemistry of RENATA Li/MnO_2 coin cells

RENATA CR lithium coin cells use a non-aqueous, aprotic organic electrolyte containing lithium perchlorate. The proprietary formulation of the active cathode material consists of a heat-treated mixture of electrolytic MnO_2 and other specific components.

The cell reactions for this electrochemical system are:
Anode: $Li \rightarrow Li^+ + e^-$
Cathode: $MnO_2 + Li^+ + e^- \rightarrow LiMnO_2$
Overall cell reaction: $Li + MnO_2 \rightarrow LiMnO_2$

Manganese dioxide is reduced from the tetravalent to the trivalent state by lithium. The separator system in RENATA coin cells is especially designed to ensure the best performance in terms of mechanical strength, ion permeability over a wide temperature range (–40 to +80 °C) and a low self-discharge rate.