

The present invention provides an aqueous electrolyte for use in rechargeable zinc-halide storage batteries that possesses improved stability and durability and improves zinc-halide battery performance. One aspect of the present invention provides an electrolyte for use in a secondary zinc bromine electrochemical cell comprising from about 30 wt% to about 40 wt% of  $\text{ZnBr}_2$  by weight of the electrolyte; from about 5 wt% to about 15 wt% of KBr; from about 5 wt% to about 15 wt% of KCl; and one or more quaternary ammonium agents, wherein the electrolyte comprises from about 0.5 wt% to about 10 wt% of the one or more quaternary ammonium agents.