

QUESTION



Meals Ready to Eat (MREs) were developed during the Vietnam War. They need hot water to be reconstituted. The military includes a small packet of metal to heat the water through an oxidation-reduction reaction. Which metal do you think is in the packet?

A) Copper

B) Zinc C) Magnesium

D) Manganese E) Iron

Electrochemistry**QUESTIONElectrochemical Processes in BatteriesS** 12 + 2e⁻ > Pb $E^{1} = -0.13 \vee$ S $^{12} + 2e^{-} > Sh$ $E^{1} = -0.13 \vee$ S $^{12} + 2e^{-} > Sh$ $E^{1} = -0.13 \vee$ S $^{12} + 2e^{-} > Sh$ $E^{1} = -0.13 \vee$ S $^{12} + 2e^{-} > Sh$ $E^{1} = -0.13 \vee$ S $^{12} + 2e^{-} > Sh$ $E^{1} = -0.13 \vee$ S $^{12} + 2e^{-} > Sh$ $E^{1} = -0.14 \vee$ When this cell is allowed to discharge spontaneously at 25°C, which of the following statements is true?A. Electrons will flow from left to right through the wire.B. P 2 ions will be reduced to Pb metal.C. The concentration of Sn² ions in the left compartment will increase.D. The tin electrode will be the cathode.E. No noticeable change will occur, because the cell is at equilibrium.









QUESTION

Which statement is true?

- A. Since the voltages for AA, AAA, C, and D alkaline batteries are the same, it does not matter what device they are used in.
- B. A battery's voltage depends on the amount of material in the voltaic cell.
- C. The leaking material often found on the outside of old alkaline batteries is a neutral pH salt.
- D. The current produced by a AAA alkaline battery would be higher than a AA battery.
- E. Primary batteries such as alkaline batteries cannot be recharged.

Chemistry of Batteries

Alkaline Battery

Anode (oxidation): $Zn_{(s)} + 2 OH_{(aq)}$ Cathode (reduction): → $ZnO_{(s)} + H_2O_{(1)} + 2 e^{-1}$ $MnO_{2(s)} + 2 H_2O_{(1)} + 2 e^{-} \longrightarrow Mn(OH)_{2(s)} + 2 OH^{-}_{(aq)}$ Overall (cell) reaction: $Zn_{(s)} + MnO_{2(s)} + H_2O_{(l)}$ \rightarrow ZnO_(s) + Mn(OH)_{2 (s)} $E_{cell} = 1.5 \text{ V}$



battery.





































QUESTION

Which of the following statements about batteries is false?

- A. A battery is a group of galvanic cells connected in series.
- in series.
 B. Lead storage batteries contain lead at the anode and lead coated with lead dioxide at the cathode.
 C. The alkaline dry cell battery can last longer than a nickel-cadmium battery.
 D. A fuel cell is a galvanic cell for which the reactants are continuously supplied.

