Answer on Question #50035 – Chemistry – Physical Chemistry

Question:

For the electrochemical cell : Zn | Zn^{2+} (1M) II H^+ (1M) | H_2 (1 atm), Pt the e.m.f. of the cell has been found to be 0.76. The standard oxidation potential of zinc is :

Answer:

Standard Reduction Potential can be calculated from the following formula:

$$E^o_{cell} = E^o_{hydrogen} + (-E^o_{zink}) = E^o_{hydrogen} - E^o_{zink}$$

In our case $E^o_{cell} = 0.76$ and standard reduction potential for hydrogen electrode is 0.

Then

$$E^o_{zink} = E^o_{hydrogen} - E^o_{cell} = 0 - 0.76 = -0.76$$

Answer: $E^o_{zink} = -0.76$