

REDOX REACTIONS

SDSU CHEM 251

OXIDATION & REDUCTION

- REDOX reactions involve the transfer of electrons from one species to another.
- The total reaction can be broken into two half-reactions:
 - A **reduction**: $B + e^- \rightarrow B^-$
 - An **oxidation**: $A \rightarrow A^+ + e^-$
- The reaction is balanced by the number of electrons involved in the reaction.

REACTION CONDITIONS

- In order for a REDOX reaction to proceed certain conditions must be met:
 - One reactant must be able to be reduced.
 - One reactant must be able to be oxidized.
 - The **net potential** for the REDOX reaction **must be positive** ($E^{\circ}_{\text{cell}} > 0\text{V}$)

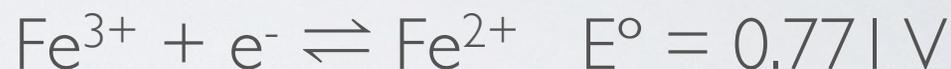
CELL POTENTIALS

- The cell potential for the REDOX reaction can be calculated from the standard reduction potentials for the two half reactions (tabulated): $E^{\circ}_{\text{cell}} = E^{\circ}_{+} - E^{\circ}_{-}$.
- Where E°_{+} is the standard reduction potential for the **reduction half reaction**, and E°_{-} is the standard reduction potential for the **oxidation half reaction**.
- An important note is that the potential for the oxidation half of the reaction is treated as a reduction in the equation.

IDENTIFY THE PROPER REACTANT

If a solution contains Fe^{3+} , which of the reactants listed below could be used to reduce Fe^{3+} to Fe^{2+} ?

Reduction Potentials



Options:

