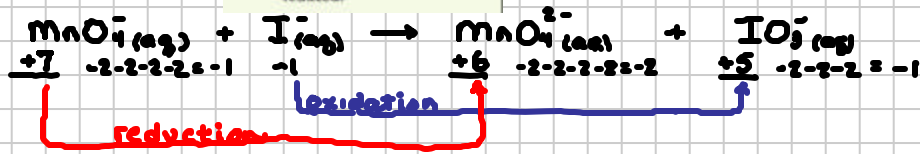


Lecture 203 Balancing Redox Reactions

Note Title

11/11/2011

Step 1 Assign oxidation states to all atoms and identify the substances being oxidized and reduced.



oxidation 1/2 rxn.



Step 2 Separate the overall reaction into two half-reactions: one for oxidation and one for reduction.

reduction 1/2 rxn.

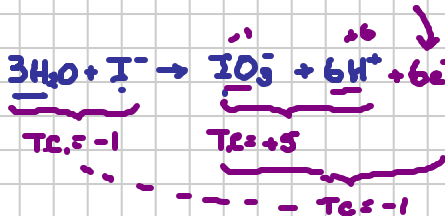


Step 3 Balance each half-reaction with respect to mass in the following order:

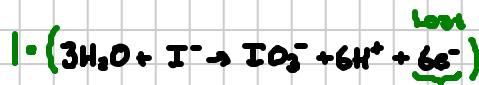
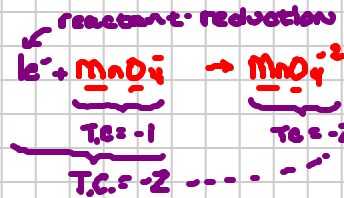
- ✓ Balance all elements other than H and O.
- ✓ Balance O by adding H₂O.
- ✓ Balance H by adding H⁺.



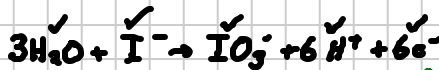
oxid: prod



Step 4 Balance each half-reaction with respect to charge by adding electrons. (The sum of the charges on both sides of the equation should be made equal by adding as many electrons as necessary.)

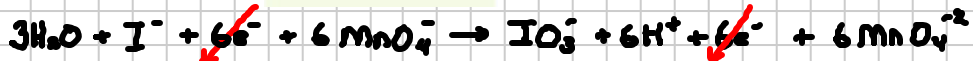
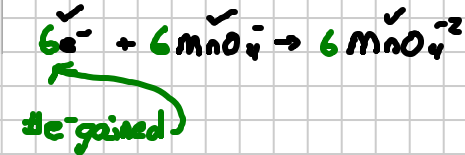


Step 5 Make the number of electrons in both half-reactions equal by multiplying one or both half-reactions by a small whole number.



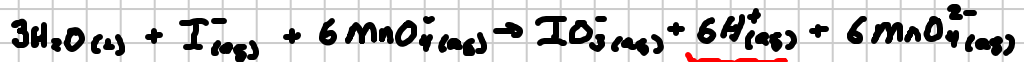
e⁻ lost

Step 6 Add the two half-reactions together, canceling electrons and other species as necessary.



Balanced Redox

Acidic Environment



acidic

BASIC ENV.

- Neutralize H⁺ by adding enough OH⁻ to neutralize each H⁺. Add the same number of OH⁻ ions to each side of the equation.

Balanced Redox
Basic

