EXAMPLE OF NEUTRAL COMPOUND EQUATION:

20. $\overset{5+}{H I O_3}$ + $H_2 \overset{4+}{S O_3}$ $\rightarrow$ $\overset{0}{I_2}$ + $H_2 \overset{6+}{S O_4}$ + $H_2 O$

1. Assign oxidation states.

EXAMPLE OF NEUTRAL COMPOUND EQUATION:
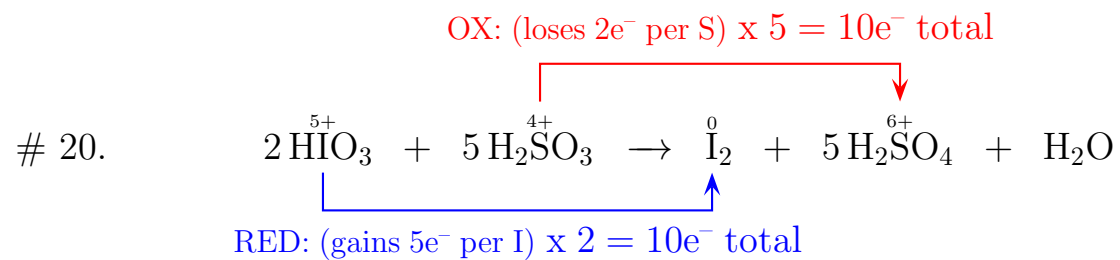
OX: (loses 2e$^-$ per S)

20. $\overset{5+}{H}IO_3$ + $H_2\overset{4+}{S}O_3$ $\rightarrow$ $\overset{0}{I}_2$ + $H_2\overset{6+}{S}O_4$ + H_2O

RED: (gains 5e$^-$ per I)
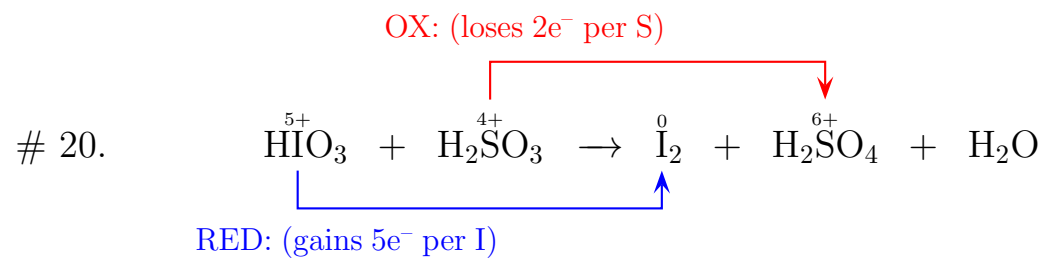
1. Assign oxidation states.

2. Identify the losers and gainers.

EXAMPLE OF NEUTRAL COMPOUND EQUATION:

OX: (loses $2e^-$ per S) x $5 = 10e^-$ total

20.
$$2 \overset{5+}{\text{H}}\text{IO}_3 \; + \; 5 \, \text{H}_2\overset{4+}{\text{S}}\text{O}_3 \; \longrightarrow \; \overset{0}{\text{I}}_2 \; + \; 5 \, \text{H}_2\overset{6+}{\text{S}}\text{O}_4 \; + \; \text{H}_2\text{O}$$

RED: (gains $5e^-$ per I) x $2 = 10e^-$ total

1. Assign oxidation states.

2. Identify the losers and gainers.

3. Balance the number of electrons lost and gained (pay attention to any additional stoichiometric considerations).

EXAMPLE OF NEUTRAL COMPOUND EQUATION:
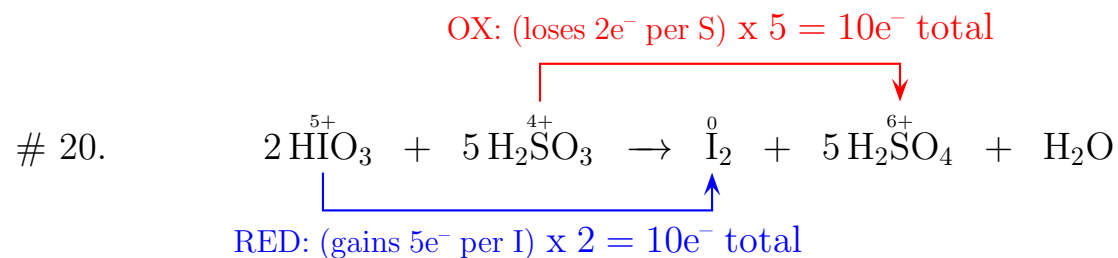
$$\text{OX: (loses 2e}^- \text{ per S) x } 5 = 10\text{e}^- \text{ total}$$

20. $\qquad 2\,\overset{5+}{\text{H}}\text{IO}_3 \; + \; 5\,\text{H}_2\overset{4+}{\text{S}}\text{O}_3 \; \longrightarrow \; \overset{0}{\text{I}}_2 \; + \; 5\,\text{H}_2\overset{6+}{\text{S}}\text{O}_4 \; + \; \text{H}_2\text{O}$

$$\text{RED: (gains 5e}^- \text{ per I) x } 2 = 10\text{e}^- \text{ total}$$

1. Assign oxidation states.

2. Identify the losers and gainers.

3. Balance the number of electrons lost and gained (pay attention to any additional stoichiometric considerations).

4. Balance the remainder of the equation using:

   • charge balance if ions are present
   • other atoms
   • hydrogen
   • oxygen