

Standard Enthalpy Change of Formation

Write chemical equations for the following enthalpy changes.

1. $\Delta H_f^\ominus[\text{Na}_2\text{O}(\text{s})]$
2. $\Delta H_f^\ominus[\text{CO}(\text{g})]$
3. $\Delta H_f^\ominus[\text{K}_2\text{Cr}_2\text{O}_7(\text{s})]$
4. $\Delta H_f^\ominus[\text{O}_2(\text{g})]$
5. $\Delta H_f^\ominus[\text{CH}_3\text{CH}_2\text{OH}(\text{l})]$

Suggested Answer

1. $\Delta H_f^\ominus[\text{Na}_2\text{O}(\text{s})]$
 $2\text{Na}(\text{s}) + \frac{1}{2}\text{O}_2(\text{g}) \longrightarrow \text{Na}_2\text{O}(\text{s})$
2. $\Delta H_f^\ominus[\text{CO}(\text{g})]$
 $\text{C}(\text{s}) + \frac{1}{2}\text{O}_2(\text{g}) \longrightarrow \text{CO}(\text{g})$
3. $\Delta H_f^\ominus[\text{K}_2\text{Cr}_2\text{O}_7(\text{s})]$
 $2\text{K}(\text{s}) + 2\text{Cr}(\text{s}) + 3\frac{1}{2}\text{O}_2(\text{g}) \longrightarrow \text{K}_2\text{Cr}_2\text{O}_7(\text{s})$
4. $\Delta H_f^\ominus[\text{O}_2(\text{g})]$
 $\text{O}_2(\text{g}) \longrightarrow \text{O}_2(\text{g})$
5. $\Delta H_f^\ominus[\text{CH}_3\text{CH}_2\text{OH}(\text{l})]$
 $2\text{C}(\text{s}) + 3\text{H}_2(\text{g}) + \frac{1}{2}\text{O}_2(\text{g}) \longrightarrow \text{CH}_3\text{CH}_2\text{OH}(\text{l})$