Heat Stoich- How much heat?

1. How much heat is produced if 25.00 g of methanol (CH<sub>3</sub>OH) is burned in excess O<sub>2</sub>?  $2 \text{ CH}_3\text{OH}(I) + 3 \text{ O}_2(g) \rightarrow 2 \text{ CO}_2(g) + 4\text{H}_2\text{O}(g)$   $\Delta H = -1453 \text{ kJ}$ 

2. How much heat is produced if 16.00 g of methanol (CH<sub>3</sub>OH) is burned in excess O<sub>2</sub>?  $2 \text{ CH}_3\text{OH}(I) + 3 \text{ O}_2(g) \rightarrow 2 \text{ CO}_2(g) + 4\text{H}_2\text{O}(g)$   $\Delta H = -1453 \text{ kJ}$ 

3. How much energy is changed if 45g of  $P_4$  is used with unlimited  $Cl_2$ ?  $P_4$  (s) + 6  $Cl_2$  (g)  $\rightarrow$  4  $PCl_3$  (g)  $\Delta H = -2439$  kJ

4. How much does the energy change if 23g of  $Cl_2$  is used with unlimited  $P_4$ ?  $P_4$  (s) + 6  $Cl_2$  (g)  $\rightarrow$  4  $PCl_3$  (g)  $\Delta H = -2439$  kJ

$$2 \text{ NH}_3 (g) \rightarrow \text{N}_2 (g) + 3 \text{ H}_2 (g)$$

$$\Delta H = -3438 \text{ kJ}$$

$$2 \text{ NH}_3 (g) \rightarrow \text{N}_2 (g) + 3 \text{ H}_2 (g)$$

$$\Delta H = -3438 \text{ kJ}$$

$$2~NH_3~(g) \rightarrow ~N_2~(g) + 3~H_2~(g)$$

$$\Delta H = -3438 \text{ kJ}$$

## How much heat?

1. What is the heat if 25.00 g of methanol (CH $_3$ OH) is burned in excess O<sub>2</sub>? The reaction is

 $2 \text{ CH}_3\text{OH}(I) + 3 \text{ O}_2(g) \rightarrow 2 \text{ CO}_2(g) + 4\text{H}_2\text{O}(g)$ 

∆H = -1453 kJ

-567.578kJ

-567.6kJ

2. What is the heat if 16.00 g of methanol (CH $_3$ OH) is burned in excess O $_2$ ? The reaction is

 $2 \text{ CH}_3\text{OH}(I) + 3 \text{ O}_2(g) \rightarrow 2 \text{ CO}_2(g) + 4\text{H}_2\text{O}(g)$ 

∆H = -1453 kJ

-363.25kJ

-363.3kJ

3. What is the heat if 45g of P<sub>4</sub> is used with unlimited Cl<sub>2</sub>?

 $P_4(s) + 6 Cl_2(g) \rightarrow 4 PCl_3(g)$ 

 $\Delta H = -2439 \text{ kJ}$ 

-885.12kJ

-890kJ

4. What is the heat if 23g of Cl<sub>2</sub> is used with unlimited P<sub>4</sub>?

 $P_4(s) + 6 Cl_2(g) \rightarrow 4 PCl_3(g)$ 

 $\Delta H = -2439 \text{ kJ}$ 

-790.09859kJ

-790kJ

5. What is the heat if you use 245g of NH<sub>3</sub>?

 $2 \text{ NH}_3 (g) \rightarrow \text{N}_2 (g) + 3 \text{ H}_2 (g)$ 

 $\Delta H = -3438 \text{ kJ}$ 

-24,773.82kJ

-24,800kJ

6. You produce 6 grams of N2, what is the heat?

 $2 \text{ NH}_3 (g) \rightarrow \text{N}_2 (g) + 3 \text{ H}_2 (g)$ 

 $\Delta H = -3438 \text{ kJ}$ 

-736.7kJ

-700kJ

7. You produce 6 grams of  $H_2$ , what is the heat?

 $2 \text{ NH}_3 (g) \rightarrow \text{N}_2 (g) + 3 \text{ H}_2 (g)$ 

 $\Delta H = -3438 \text{ kJ}$ 

-3438kJ

-3000kJ