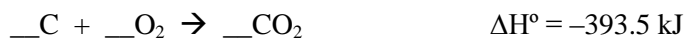


Chemistry Unit 9 Worksheet 5 - E_{ch} & Stoichiometry

Answer the following on your own paper. Show all reasoning; include BCA tables as necessary. Reactions are unbalanced unless otherwise noted.

1. How many kJ of heat will be released when 4.72 g of carbon react with excess oxygen gas to produce carbon dioxide?



2. How much heat should be transferred when 38.2 g of liquid bromine reacts with excess hydrogen gas to form hydrogen bromide?
Is the heat being transferred from the system to the surroundings or from the surroundings to the system?



3. How many kJ of heat would you expect to be transferred when 6.44 g of sulfur react with 10.30 g of oxygen gas to produce sulfur trioxide? Is this reaction endothermic or exothermic?



4. Nitrogen gas and oxygen gas can combine to produce nitric oxide, NO. If such a reaction absorbs 88.0 kJ of heat from the surroundings, how many grams of nitrogen gas do you predict were consumed in the reaction?



5. Ammonia gas combines with excess oxygen gas to produce nitric oxide and water. If 256 kJ of energy were released in such a reaction, how many grams of ammonia gas were reacted?



6. Carbon in the form of graphite combines with excess hydrogen gas to form benzene, C₆H₆. In the following reaction 3.95 kJ of heat were transferred. Calculate the grams of graphite reacted. Is the reaction endothermic or exothermic?



7. How much heat will be released if 30.0 g of octane (C₈H₁₈) is burned in excess oxygen?



How much heat would be released by burning one gallon of octane? The density of octane is 0.703g/mL. 1 gallon = 3.79 liters.

1. 155 kJ	2. 17.4 kJ	3. 79.5 kJ	4. 13.7 g
5. 14.9 g	6. 5.80 g	7. 1440 kJ,	128,000 kJ