

## Thermochemistry Podcast #5: Energy Stoichiometry; SC5 a,c

1. Nitrogen reacts with hydrogen according to the following equation.



How much energy will be released when 13.0-g of nitrogen reacts?

How much energy will be released when 2.5L of hydrogen reacts?

2. Carbon disulfide is an important industrial solvent. It is prepared by the reaction of coke with sulfur dioxide:



How much energy will be required when 32.4-g of Carbon disulfide is produced?

How much energy will be required to react 21.1-L of sulfur dioxide?

3. Silver nitrate reacts with calcium to make calcium nitrate and silver. The reaction is exothermic and produces 18.7 kJ/mol of energy.



How much energy will be produced when 12.3-g of silver nitrate react?

How many grams of silver nitrate reacted if 13.7 kJ of energy is released?

4. Magnesium reacts with hydrochloric acid in a single replacement reaction. The value of  $\Delta H = -221$  kJ/mol. (You will need to write the balanced chemical equation.)

How many grams of magnesium will be made if 365-kJ is released?

How much energy will be released if 9.45-g of magnesium reacts?

5. Ammonium sulfate reacts with barium hydroxide endothermically.  $\Delta H = + 127$  kJ/mol. (You will need to write the balanced chemical equation.)

How much energy will be required to react completely 34.5-g of barium hydroxide?

If 395-kJ of energy is absorbed, how many grams of ppt will be formed?