SCH 3U
LIMITING REACTANT

- **When the masses of both reactants are given, unless the amounts are stoichiometric equivalent, one of the reactants will limit the reaction. This reactant is labeled the LR.**

- **The LR gets used up entirely in the reaction.**
- **The ER is the excess reactant. The mass of the left over excess reactant if often determined as part of your calculations.**

EXAMPLES:

① 10.0 g of nitrogen gas and 10.0 g of hydrogen gas react to form ammonia gas.

A) Which is the limiting reactant?
B) What mass of ammonia is formed?
C) How much excess reactant is leftover?

② 15.3 grams of butane (C_4H_{10}) is combusted using 75.4 g of oxygen.

A) What is the limiting reactant?
B) What mass of carbon dioxide gas is produced?
C) What mass of excess reactant is leftover?

③ 24.2 g of aluminum carbide is placed in a container with 19.8 g of water to form methane gas, CH_4, and aluminum hydroxide. Determine...

A) the limiting reactant.
B) the mass of aluminum hydroxide produced.
C) the mass of excess reactant leftover.

④ 24.00 grams of hydrogen chloride gas is mixed with 48.00 grams of sodium hydroxide.

A) Write a balanced equation for the reaction.
B) Determine the mass of each product and the mass of excess reactant.
C) Is the final mixture acidic, basic, or neutral? Explain.