

Solutions

2.1 B Calculate the amount available for each reactant and divide by its coefficient. The smaller ratio limits the reaction. Use that reactant to calculate the maximum product before comparing actual yield.

2.2 $n = m/M = (5.0 \text{ g}) / (100 \text{ g/mol}) = 0.050 \text{ mol}$.

2.3 False. Excess acid means acid does not limit the stated calculation. A coefficient of 2 before HCl does not double the hydrogen amount.

2.4 mole. mole means The SI unit of amount of substance.

3.1 HCl limits: $0.12/2 = 0.060 \text{ mol}$ reaction. H_2 0.060 mol ; Mg left 0.040 mol . Stoichiometric coefficients, not equal starting amounts, determine the limit.