

Answer on Question #55380 – Chemistry – General Chemistry

Question:

1. How many milliliters of a 0.360 M KOH solution contain 1.75×10^{-2} mol of KOH?

2. Which of the following solutions will not form a precipitate when added to 0.10 M NaOH?

0.10 M NH_4Br , 0.10 M MgBr_2 , 0.10 M FeCl_2

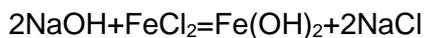
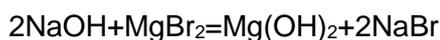
3. How many grams of butanethiol can be deodorized by reaction with 4.00 mL of 9.95×10^{-2} M NaOCl? Express the mass in grams to three significant digits.

Answer:

$$\tilde{N}_M = \frac{v}{V} \quad V = \frac{v}{\tilde{N}_M}$$

1)

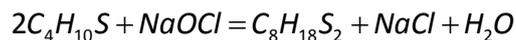
$$V(\text{KOH}) = \frac{1.75 \cdot 10^{-2}}{0.360} = 0.05 \text{ L} = 48.61 \text{ ml}$$



No of the formed products is insoluble compound.

All the listed solutions will not form precipitate.

3)



$$v(\text{C}_4\text{H}_{10}\text{S}) = 2 \cdot v(\text{NaOCl})$$

$$v(\text{NaOCl}) = C_M(\text{NaOCl}) \cdot V(\text{NaOCl})$$

$$v(\text{NaOCl}) = 0.0995 \cdot \frac{4.00}{1000} = 0.0004 \text{ mol}$$

$$v(\text{C}_4\text{H}_{10}\text{S}) = 2 \cdot 0.0004 = 0.0008 \text{ mol}$$

$$v = \frac{m}{M} \quad m = v \cdot M$$

$$M(\text{C}_4\text{H}_{10}\text{S}) = 90.1881 \text{ g / mol}$$

$$m(\text{C}_4\text{H}_{10}\text{S}) = 0.0008 \cdot 90.1881 = 0.072 \text{ g}$$