Review

#1

A solution containing 30% by mass sodium sulfate in an aqueous solutions contains how many grams of sodium sulfate in a 200 g sample?

$\frac{\text{mass solute}}{\text{mass solution}} \times 100$

$\frac{X}{200g} = \frac{0.30}{1}$

$\frac{X\ g\ Na_2SO_4}{200g\ sol.} \times 100 = 30\%$

$\frac{100}{100}$

$60g\ Na_2SO_4$

Apr 27-8:00 AM

Review

Determine the percent by mass of a solution containing 10 moles of sodium sulfide and 100 grams of water.

$Na^{+1}\ S^{-2} \rightarrow Na_2S$

$10mol\ Na_2S \times \frac{78g\ Na_2S}{1\ mol\ Na_2S} = 780g\ Na_2S$

$Na = 2 \times 23 = 46$

$S = 1 \times 32 = 32$

$78g/mol$

$\frac{780g\ Na_2S}{880g\ sol.} \times 100 = 88.6\%\ g\ Na_2S$

Apr 27-8:01 AM

Review

What is the molality of a solution that has 50 moles of solute in 1000 mL of water?

$m = \frac{mol}{kg}$

$1000\,mL = 1000\,g \times \frac{1\,kg}{1000\,g} = 1\,kg$

$m = \frac{50\,mol}{1\,kg} = 50\,m$

Apr 27-8:03 AM

Review

What is the volume of a 0.5 M solution that has 10 moles of solute?

$M = \frac{mol}{L}$

$\frac{0.5\,M}{1} = \frac{10\,mol}{X\,L} = 20\,L$

Apr 27-8:03 AM

Dilutions

-- adding solvent to decrease the concentration

Concentrated Solution : has a large amount of solute per solvent

Dilute Solution : has a smaller amount of solute per solvent

Mar 7-10:18 AM

Creating a Dilute Solution

$$M_1V_1 = M_2V_2$$

M_1 = molarity (M) of the original solution – stock solution

V_1 = volume (mL or L) of the original solution

M_2 = molarity (M) of the dilute solution

V_2 = volume (mL or L) of the dilute solution

Mar 7-10:31 AM

Practice:

What volume of a 3.00 M KI stock solution (original solution) would you use to make 0.300 L of a 1.25 M KI solution?

$M_1V_1 = M_2V_2$

$3.00M \cdot V_1 = 1.25M \cdot 0.300L$

$\frac{3.00M \cdot V_1}{3.00} = \frac{0.375}{3.00}$

$V_1 = 0.125\,L$

Mar 7-10:31 AM

Practice:

How many milliters of a 5.0 M H_2SO_4 stock solution would you need to prepare 100.0 mL of 0.25 M H_2SO_4?

$M_1V_1 = M_2V_2$

$5.0M \cdot V_1 = 0.25M \cdot 100mL$

$V_1 = 5mL$

Mar 7-10:31 AM

Practice:

If 0.50 L of 5.00 M stock solution of HCl is diluted to make 2.0 L of solution, how much HCl, in grams, is in the solution?

$M_1V_1 = M_2V_2$

$0.50L \cdot 5.00M = 2.0L \cdot M_2$

$M_2 = \frac{1.25M}{1} = \frac{x\ mol}{2.0L}$

$2.50\ mol\ HCl \times \frac{36g\ HCl}{1\ mol\ HCl}$

$= 90g\ HCl$

Mar 7-10:31 AM

Attachments

solutionSalt.zip

clipboard(20615).galleryitem