'Concept - ppm'

* To Prepare 1000ppm sol^{n} of 1L ?

$$1\ ppm = \frac{1g}{1000ml} = 0.001g$$

{1g/L = 1000 ppm}

{0.001g = 1mg}

& (1mg/L = 1 ppm)

→ Now, $\frac{1g}{1000ml} \times 10^6 = 1000ppm$

→ Now, — for 100ml of 1000 ppm —!

$$\frac{0.1g}{100ml} \times 10^6 = 1000ppm$$

→ NOW,

$$\frac{0.01}{10ml} \times 10^6 = 1000ppm$$

* To Prepare 10ppm sol^{n} of 1L;

{ 1 PPm = 1 mg/L or 0.001g/L
10 ppm = 10 mg/L or 0.01g/L }

So,

→ $\frac{0.01g}{1000ml} \times 10^6 = 10ppm$ {0.01g = 10mg}

→ Now, for 100ml of 10 ppm sol^{n}.!

So, $\frac{0.001g}{100ml} \times 10^6 = 10ppm$ {where, 0.001g = 1mg}

→ Now, for 10ml of 10 ppm sol^{n}.!

So,

$$\frac{0.0001}{10} \times 10^6 = 10ppm$$ {where, 0.0001g = 0.1mg}

* To Prepare 15 ppm sol-n of 1L, then;

So,

$$\rightarrow \frac{0.015\,g}{1000ml} \times 10^6 = 15\ ppm$$

1 ppm = 1 mg/L or 0.001 g/L
15 ppm = 15 mg/L = 0.015 g/L

{0.015 g = 15 mg}

Now, for 100ml of 15 ppm, then;

So,

$$\rightarrow \frac{0.0015\,g}{100ml} \times 10^6 = 15\ ppm$$

{

Now, for 10 ml of 15 ppm, then;

So,

$$\rightarrow \frac{0.0015\,g}{10ml} \times 10^6 = 15\ ppm.$$

{1.5 mg = 0.0015 g}

* To Prepare 20 ppm Sol-n of 1L, then;

So,

$$\rightarrow \frac{0.02\,g}{1000ml} \times 10^6 = 20\ ppm$$

{1 ppm = 1 mg/L
20 ppm = 20 mg/L}

{0.02 g = 20 mg}

→ Now, for 100ml of 20 ppm;

$$\frac{0.002\,g}{100ml} \times 10^6 = 20\ ppm$$

{0.002 g = 2 mg}

→ Now, for 10 ml of 20 ppm;

$$\frac{0.0002\,g}{10ml} \times 10^6 = 20\ ppm$$

{0.0002 g = 0.2 mg}

'PPM'

Minimum Solid recommended = 100mg

if 100mg is dissolved in 100ml, we get 1000ppm.

$$\frac{100mg}{100ml} \times 1000 = 1000ppm$$

if to make from this stock sol-, then;

$$\frac{100mg}{100ml} \times \frac{5ml}{100ml} \times 1000 = 50ppm$$

{100 mg = 0.1g}

if to make 100ppm sol-- then;

$$\frac{100mg}{100ml} \times \frac{10ml}{100ml} \times 1000 = 100ppm$$

if to make 200 ppm sol-- then;

$$\frac{100mg}{100ml} \times \frac{20ml}{100ml} \times 1000 = 200ppm$$

* Now, if to prepare 100ppm then;

[1g/1000ml → 1000ppm
0.1g/1000ml → 100ppm]

Remember:- 1000ppm → 1g

So, 1 ppm → $\frac{1}{1000}$

So, 100ppm → $\frac{1}{1000} \times 100 = 0.1g$

means that 0.1g of solute dissolved in 1000ml.

* To prepare 1000ppm soln in 100ml;

1000ml → 1g (1000ppm)

1 — $\frac{1}{1000}$

{1 mg = 0.001 g}

Now, we are preparing 100ppm;

100 → $\frac{1}{1000} \times 100 = 0.1g$

So, 0.1g of solute added to 100ml → 1000ppm.

'PPM' ~~Concept~~

* To Prepare 10 ppm, 15 ppm and 20 ppm Sol-- !

1st-Step:-

To make 1000 ppm stock Sol--.

Rule:- 1 mg into 1 ml is our 1000 ppm Sol--. (concept)

Similarly;

i) 1 g into 1000 ml (1L).

ii) 0.1 g (100 mg) in to 100 ml. (At least this amount is Recommended.)

iii) 0.05 g (50 mg) into 50 ml.

∴ Observation:- Conceptually 1 mg has to be there in 1 ml of solvent. This is said to be our 1000 ppm Sol--.

Assumption:- Now, dissolving 100 mg into 100 ml, to make 1000 ppm - - stock Sol--.

So,

100 mg into 100 ml ⟶ 1000 ppm (stock Sol--.)

Now,

if to make 10 ppm Sol-- from this 1000 ppm stock Sol--.

then;

The formula :- $C_1V_1 = C_2V_2$ (for the dilution)

Let's say,

C_1 (stock sol--) = 1000 ppm

V_1 (Required Vol--) = ?

C_2 (Required Concentration = 10 ppm

V_2 (final volume) = 100 ml

Now, Applying above values directly into the formula —

$$1000\ ppm \times V_1 = 10_{ppm} \times 100_{ml}$$

Rearranging — $$V_1 = \frac{10 \times 100}{1000} = 1\ ml \text{ be required.}$$

So,

* After above mentioned details, I am directly going into the Mathematics to prepare 15 ppm Sol-- of 100 ml !

$$1000\ ppm \times V_1 = 15\ ppm \times 100\ ml$$

$$V_1 = \frac{15 \times 100}{1000} = 1.5\ ml \text{ be required.}$$

* Now, To make 20 ppm Sol-- of 100 ml !

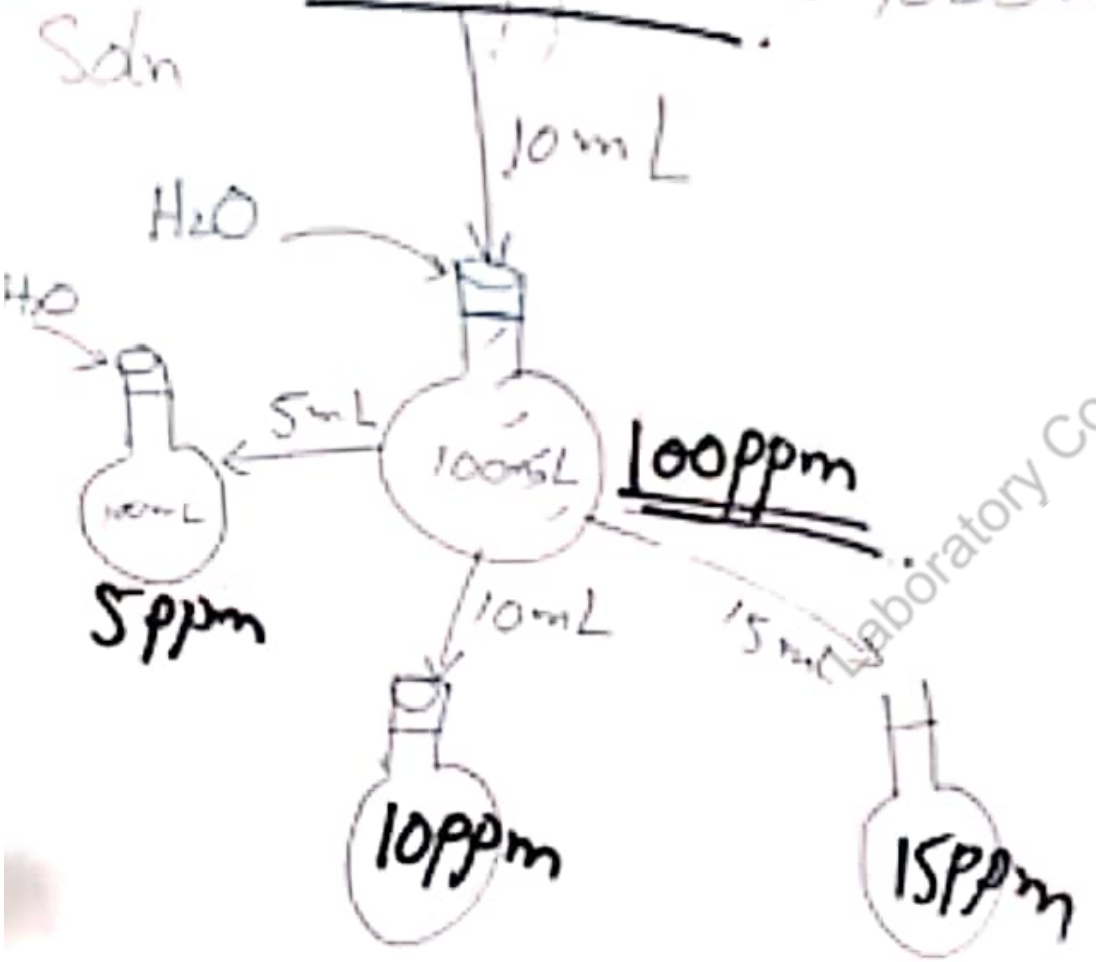
Again, going directly into the formula.

$$1000\ ppm \times V_1 = 20\ ppm \times 100\ ml$$

$$V_1 = \frac{20 \times 100}{1000} = 2\ ml \text{ be required.}$$

PPm Solution of whole Compound

Stock Soln = 1000ppm = 1000mg/L = 1g/L



Req = Given.

$C_1V_1 = C_2V_2$

$5ppm \times 100mL = 100ppm \times V_2$

$\frac{5 \times 100}{100} = V_2$

$5mL = V_2$