

## Solutions:

**Homogenous:** constant composition

**Solute:** substance being dissolved (smaller quantity, usually)

**Solvent:** substance doing dissolving

**Solubility:** maximum amount of solute that can be dissolved at a given temp. in 100g of the solvent.

~ SOLIDS → increases as temp. increases (generally)

~ GASES → decreases as temp. increases.

### Formulas:

1.  $n = cv$       # of moles (mol) = concentration(mol/L) x volume (L)

- IB uses  $\text{dm}^3$  instead of L (1L =  $1\text{dm}^3$ )
- Higher the concentration, higher the molarity

2.  $\text{mass \%} = \frac{\text{mass of solute (g)}}{\text{mass of solute} + \text{mass of solvent}} \times 100$

3.  $\text{volume \%} = \frac{\text{volume of solute}}{\text{volume of solution}} \times 100$

4. day,

### making solutions:

ex. Calculate the volume of water required and calculate the solution required when 5.5% beer is diluted to a high glass container with 100mL of water, diluted into 1.25% stock

stock

$c = 5.5\%$

$v = ?$

diluted:

$c = 1.25\%$

$v = 100\text{mL}$

$$C_1V_1 = C_2V_2$$

$$V_1 = \frac{(1.25)(100)}{5.5\%}$$

$$= 22.7\text{mL of stock beer}$$

the volume of water in the flask is:

$$100 - 22.7 = 77.3\text{mL}$$

### mass of gravimetric analysis

### problems: