Mole Concept

Content 

Formula List for Mole Concept

Name	Formula
Number of moles	$\frac{Mass\ of\ substance\ (g)}{Molar\ Mass\ of\ subtance}$
Percentage Composition	$\frac{Number\ of\ atoms \times Atomic\ Mass\ of\ element}{Molar\ mass\ of\ compound}$ x 100%
Number of moles (gases at r.t.p)	$\frac{Volume\ of\ gas}{24dm^3}$
Concentration (g/dm^3)	$\frac{Mass\ of\ substance}{Volume}$
Concentration (mol/dm^3)	$\frac{Mass\ of\ substance}{Volume}$ ÷ Molar Mass of solute OR $\frac{Number\ of\ moles\ of\ solute}{Volume}$
Percentage Purity	$\frac{Calculated\ mass\ of\ substance\ in\ sample}{Mass\ of\ sample}$ x 100%
Percentage Yield	$\frac{mass\ of\ substance\ obtained}{Theoretical\ mass\ yield}$ x 100%
1 mol of substance	6 x 10^{23} particles

Test yourself 

1. Define *Relative Atomic Mass*
2. Define *Relative Molecular/Formula Mass*
3. State the formula to find
   i. Number of moles
   ii. Percentage Composition
   iii. Number of moles (gases at r.t.p)
   iv. Concentration g/dm^3
   v. Concentration mol/dm^3
   vi. Percentage Purity
   vii. Percentage Yield
   viii. 1 mol of substance
4. At r.t.p, Mole ratio = _____?

Glossary of Terms

Relative Atomic Mass	The average mass of one atom of an element as compared to 1/12 of the mass of one Carbon-12 atom
Relative Molecular Mass	The average mass of one molecule of an element or compound as compared to 1/12 of the mass of one Carbon-12 atom