CAIE Chemistry IGCSE

3.2 Relative masses of atoms and molecules

Flashcards

Define relative atomic mass (A_r)

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The relative atomic mass, Ar, of an element is the average mass of the isotopes of an element compared to 1/12th of the mass of an atom of carbon-12

Give the relative atomic mass (A_r) for chlorine

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The A_r for chlorine is 35.5

What does the term relative formula mass, M_r, mean?

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The sum of the relative atomic masses of atoms in a formula unit. Used for giant ionic structures.

Give the relative formula mass for sodium chloride (NaCl)

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M_r of NaCl: A_r of Na + A_r of Cl

M_r of NaCl: 23 + 35.5 = 58.5

What does the term relative molecular mass, M_r, mean?

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The sum of the relative atomic masses of atoms in a molecule.

Give the relative molecular mass, M_r, of calcium carbonate ($CaCO_3$)

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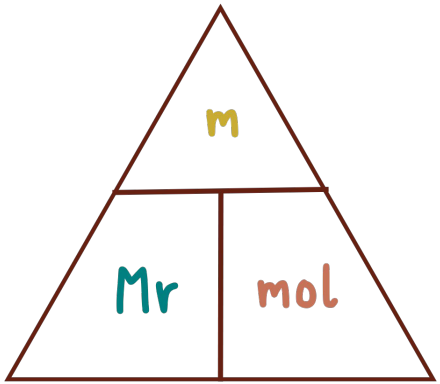
The M_r of $CaCO_3$:
A_r of Ca + A_r of C + (A_r of O x 3)
M_r of $CaCO_3$: 40 + 12 + (16 x 3) = 100

What equation links moles, mass and relative atomic mass?

What equation links moles, mass and relative molecular mass?

Mass (g) = Moles (mol) x Relative molecular mass (M_r)



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1. Find the M_r of magnesium: 24
2. Find the M_r of magnesium oxide: (A_r of Mg is 24 and A_r of oxygen is 16)
3. Find the mol of magnesium oxide: mass of MgO ÷ Mr of MgO
   12 ÷ 40= 0.3
4. The moles of magnesium is also 0.3 since the balancing numbers of Mg and MgO are the same
5. Calculate the mass of magnesium: Mr of Mg x mol of Mg
   24 x 0.3 =7.2g