

AQA GCSE · 8462

GCSE Chemistry Formula Sheet

Moles, yield, atom economy, rate and Rf, with Higher tier marked.

1 Quantitative chemistry

Section 4.3 of the specification.

Relative formula mass	M_r = sum of the relative atomic masses in the formula
Moles from mass HT	$\text{moles} = \frac{\text{mass}}{M_r}$
Avogadro constant HT	6.02×10^{23} per mole
Concentration (g/dm ³)	$\text{concentration} = \frac{\text{mass of solute (g)}}{\text{volume (dm}^3\text{)}}$
Percentage yield Chemistry only	$\% \text{ yield} = \frac{\text{mass of product actually made}}{\text{maximum theoretical mass of product}} \times 100$
Atom economy Chemistry only	$\frac{M_r \text{ of desired product}}{\text{sum of } M_r \text{ of all reactants}} \times 100$
Concentration (mol/dm ³) Chemistry only, HT	$\text{concentration} = \frac{\text{moles}}{\text{volume (dm}^3\text{)}}$
Gas volume at room temperature and pressure Chemistry only, HT	1 mole of any gas = 24 dm ³

2 Rate of reaction and chromatography

Sections 4.6 and 4.8.

Mean rate of reaction	$\text{mean rate} = \frac{\text{quantity of reactant used}}{\text{time taken}}$
Mean rate of reaction	$\text{mean rate} = \frac{\text{quantity of product formed}}{\text{time taken}}$
Rf value (chromatography)	$R_f = \frac{\text{distance moved by substance}}{\text{distance moved by solvent}}$

3 Chemical formulas of common compounds

A compound formula list for the substances you meet most.

Water, carbon dioxide, carbon monoxide	H ₂ O, CO ₂ , CO
Ammonia, methane, sulfur dioxide	NH ₃ , CH ₄ , SO ₂
Hydrochloric, sulfuric and nitric acid	HCl, H ₂ SO ₄ , HNO ₃
Sodium hydroxide, sodium chloride	NaOH, NaCl
Calcium carbonate, calcium oxide	CaCO ₃ , CaO
Copper(II) sulfate, iron(III) oxide, aluminium oxide	CuSO ₄ , Fe ₂ O ₃ , Al ₂ O ₃
Ethene, ethanol, ethanoic acid	C ₂ H ₄ , C ₂ H ₅ OH, CH ₃ COOH
Glucose	C ₆ H ₁₂ O ₆

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