Quantitative chemistry

Answers

GCSE science knowledge recall

This topic online

Q	Answer	Remember
1	conservation of mass	Atoms only swap partners - they never vanish or appear from nowhere.
2	atoms	Count each element on the left and on the right - change only the big numbers in front, never the small ones.
3	Mr	Ar is for one atom; Mr is for a whole formula.
4	atomic	Look up each Ar on the periodic table and add them, remembering any small numbers.
5	18	Two hydrogens (2) plus one oxygen (16) makes 18. Mr has no unit.
6	44	12 + 16 + 16 = 44. Do not forget the second oxygen.
7	40	One of each atom, so just 24 + 16.
8	increases	Oxygen from the air joins on to the magnesium, so the solid gains mass.
9	decreases	Carbon dioxide gas is given off and escapes into the air.
10	A gas is given off and escapes, or a gas from the air is taken in, and its mass is not measured on the balance.	In a sealed flask the mass would stay exactly the same.
11	mean	Leave out any anomalous results before you work out the mean.
12	range	The uncertainty can be estimated as half the range either side of the mean.
13	g/dm^3	Grams of solute in each cubic decimetre of solution.
14	1000	To change cm^3 into dm^3, divide by 1000.
15	volume	The volume must be in dm^3, not cm^3.
16	mole	A mole is just a counting number, like a dozen but far bigger.
17	6.02×10^{23}	One mole of anything contains this many particles.
18	relative formula mass	Mass on top, Mr underneath - a formula triangle helps.
19	12 g	The mass of one mole in grams is the same number as the Ar or Mr.
20	2	36 ÷ 18 = 2.
21	2	The big numbers in a balanced equation give the mole ratio: 1 O_2 to 2 H_2O.
22	limiting reactant	It limits how much product can be made.

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Q	Answer	Remember
23	excess	Adding one reactant in excess makes sure all of the other one reacts.
24	maximum theoretical mass	Actual over theoretical - the yield can never honestly go above 100%.
25	The reaction may be reversible, some product can be lost when it is separated, or other unwanted reactions may happen.	Any one of these reasons is enough.
26	atom economy	High atom economy means less waste, which is better for the planet and for profit.
27	100%	Every atom ends up in the product you want, so nothing is wasted.
28	mol/dm^3	Moles of solute in each cubic decimetre of solution.
29	titration	Repeat until you get concordant results - within 0.10 cm^3 of each other.
30	24 dm^3	It is the same for every gas, whatever its formula.

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