

2. Atoms, molecules and stoichiometry

Starter Quiz · 课前小测

A-Level Chemistry

Name: _____ Score: _____

- The weighted mean mass of an element's atoms, compared to carbon-12, is the relative _____ mass.

- One mole of any substance contains 6.02×10^{23} _____.

- A balanced equation has the same number of each type of atom on both sides.
☐ True ☐ False
- The simplest whole-number ratio of atoms in a compound is the _____ formula.

- Percentage yield is the actual yield divided by the theoretical yield, times 100.
☐ True ☐ False
- At room temperature and pressure, one mole of any gas occupies about _____ dm^3 .

- The relative atomic mass (Ar) of an element is:
☐ the weighted average mass of its atoms over all isotopes, compared with 1/12 of carbon-12
☐ the mass of its heaviest isotope
☐ its number of protons
☐ its mass in grams
- One mole of any substance contains:
☐ 6.02×10^{23} particles
☐ 12 particles
☐ 100 particles
☐ exactly 1 gram of particles
- A Group 2 element usually forms an ion with charge:
☐ +2
☐ +1
☐ -2

☐ -1

10. Ethane has empirical formula CH_3 and molecular formula C_2H_6 . This shows:

- ☐ the empirical formula is the simplest ratio; the molecular formula is the actual count
- ☐ they are the same thing
- ☐ the molecular formula is simpler
- ☐ ethane has no formula

1. **atomic**

A_r (relative atomic mass) accounts for the abundance of each isotope.

2. **particles**

This number is the Avogadro constant.

3. **True**

Atoms are neither created nor destroyed, so mass is conserved.

4. **empirical**

The molecular formula is a whole-number multiple of the empirical formula.

5. **True**

It measures how much product you actually obtained compared with the maximum possible.

6. **24**

This is the molar gas volume at rtp (24 dm^3 per mole).

7. **the weighted average mass of its atoms over all isotopes, compared with 1/12 of carbon-12**

A_r is the average over all isotopes (weighted by abundance), measured against $1/12$ of a carbon-12 atom.

8. **6.02×10^{23} particles**

A mole always contains the Avogadro number of particles, 6.02×10^{23} .

9. **+2**

Group 2 elements lose two electrons to form $2+$ ions; Group 17 form -1 ions.

10. **the empirical formula is the simplest ratio; the molecular formula is the actual count**

Empirical = simplest whole-number ratio; molecular = the real number of atoms per molecule.