

Quantitative Chemistry

Reading : pages 41-45

Knowledge

1. How is formula mass calculated?
2. What is the formula mass of CH_4 NH_4Cl
3. What is a 'mole'?
4. How many atoms or molecules are there in a mole?
5. What does the term 'limiting reactant' mean?
6. What happens to mass during a chemical reaction?
7. What do the symbols (s), (l), (g) and (aq) mean?
8. What is the equation linking mass, molar mass and moles?
9. How many cm^3 are there in 1dm^3 ?
10. What is the equation linking mass, volume and concentration?

Application

1. What is the % mass of calcium in calcium chloride (CaCl_2)

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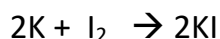
2. Work out the mass of 5 moles of NaF.

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3. If you have 20g of hydrogen gas (H_2), how many moles do you have?

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4. For the reaction below, calculate the mass of potassium needed to make 50g of potassium iodide



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5. 1.62 g of hydrogen bromide (HBr) reacts with 0.98 g of sulfuric acid (H₂SO₄) to produce 0.36 g of water, 0.64 g of sulfur dioxide (SO₂) and 1.60 g of bromine (Br₂). Use the masses to write the balanced equation

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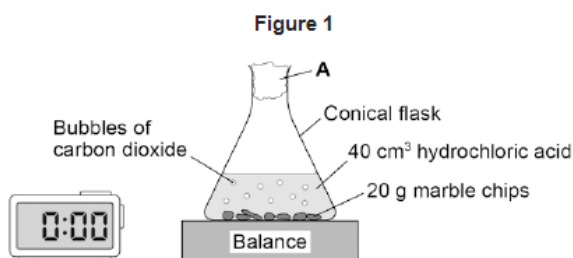
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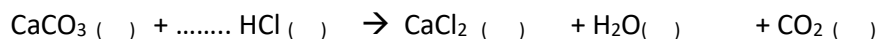
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6. Some students carried out the following experiment :



The reaction can be represented by the equation:



a) Balance the equation

b) Add state symbols to the brackets

c) Why was cotton wool put into the conical flask?

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6d) The students measured the change in mass. Their results are shown below:

Repeat	1	2	3	mean
Mass lost (g)	8.6	8.2	8.3	8.4

Calculate the uncertainty in the students' results.

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7. A solution of sodium chloride has 35g dissolved in 200cm³. Calculate the concentration in g/dm³.

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