

Worksheet 6.1

Chemical proportions

1 Complete these sentences using the words below to fill in the gaps.

compound elements twice react relative atomic mass

The atoms of different all have different masses. So that we know how the masses of different atoms compare with each other, we use their
..... (A_r). This enables us to say that an atom of magnesium, for instance, is the mass of a carbon-12 atom. Then we can work out the relative formula mass (M_r) of a, which is the sum of all the masses of the atoms in the compound. These masses are very useful when we are measuring out substances to together.

2 The relative formula mass is found by adding together the relative atomic masses of all the atoms in a molecule. Calculate the relative formula mass of each of the following substances.

a ammonia, NH_3

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b magnesium chloride, MgCl_2

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c copper sulfate, CuSO_4

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d ethanol, $\text{C}_2\text{H}_5\text{OH}$

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.....

3 Pure silicon can be extracted from silicon dioxide (SiO_2). (A_r values: Si = 28, O = 16)

a If the silicon is extracted from 240 g of silicon dioxide, what mass of silicon would you expect?

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b In industry, if 360 tonnes of silicon dioxide are processed, what mass of silicon would you expect?

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