Worksheet 1.2

Moles

Use the A_r values in Data sheet 7 (Periodic Table) to answer these questions.

1 What is the mass in grams of one mole of each of the following?

a zinc atoms
b lead atoms
c hydrogen atoms
d hydrogen molecules
e sulfur atoms
f sulfur molecules (S_8)
g copper(II) nitrate(V) formula units
h water molecules
i sodium chloride formula units [9]

2 **a** How many moles of atoms are there in each of the following?
Give your answers to 3 significant figures.

i 4.6 g of zinc
ii 79 g of oxygen
iii 0.156 g of calcium
iv 109.6 g of sodium
v 0.31 g of lead
vi 5.3 g of hydrogen

b Which of these samples contains the greatest number of atoms?
c Which of these samples contains the smallest number of atoms? [8]

3 How many moles of molecules are there in each of the following?
Give your answers to 3 significant figures.

a 9.0 g of water
b 0.088 g of carbon dioxide
c 56.3 g of carbon monoxide
d 0.0465 g of ammonia [4]

4 How many moles of formula units are there in each of the following?
Give your answers to 3 significant figures.

a 1.00 g of calcium carbonate
b 26.0 g of copper(II) nitrate(V)
c 74.63 g of zinc chloride
d 0.163 g of aluminium oxide [4]

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