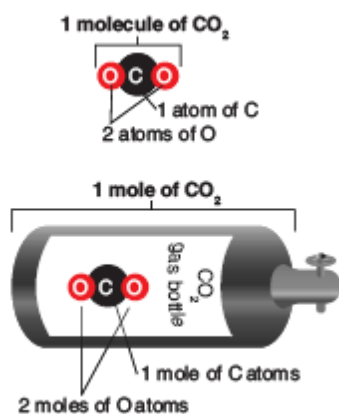


If the molecule contains more than one kind of atom, we can calculate the number of different atoms present in one mole of the substance. Remember 1 mole = 6.02×10^{23}



1 mole (can be shortened to mol) of carbon dioxide molecules contains:

- 1 mol of CO₂ molecules.
- 6.02×10^{23} CO₂ molecules.
- 1 mol C atoms
- 6.02×10^{23} C atoms
- 2 mol O atoms.
- 12.04×10^{23} or 1.204×10^{24} (Scientific notation) O atoms
- The molar mass of CO₂ is 44 grams

Calculate the number of chlorine atoms or chloride ions in:

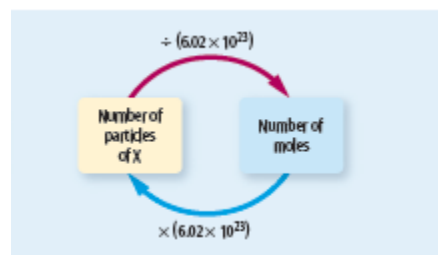
- 2.3 mol of chlorine atoms. = 1.38×10^{24} chlorine atoms
- 15.8 mol of chlorine molecules, Cl₂ = 1.90×10^{25} chlorine atoms
- 3.5 mol of sodium chloride, NaCl = 2.10×10^{24} chloride ions
- 0.5 mol of magnesium chloride, MgCl₂ = 6.02×10^{23} chloride ions
- What is the total number of ions present in 0.5 mol of magnesium chloride, MgCl₂ = 1.81×10^{24} ions

Use the following formula to answer the questions below

The formula

$$n = \frac{\text{number of particles}}{6.02 \times 10^{23}}$$

can be used to calculate the number of moles.



Calculate

- The number of atoms of neon in 3 mol of Ne = 1.81×10^{24} atoms
- The number of molecules of sulfur trioxide in 0.125 mol of SO₃ = 7.53×10^{22} molecules
- The number of mol in 1.44×10^{24} atoms of silver = 2.39 mol
- The number of mol in 1000 atoms of mercury = 1.66×10^{-21} mol
- The total number of particles present in 5.6 mol of lactic acid (C₃H₆O₃) = 4.05×10^{25} atoms