

Notes 2

Molar Mass Calculations

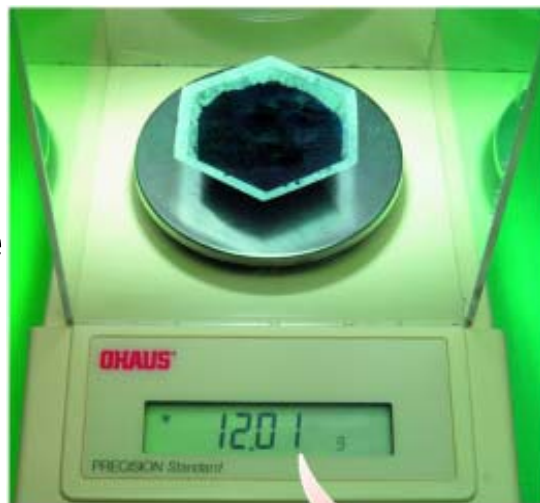


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Molar Mass

The **molar mass**

- is the mass of one mole of an element or compound.
- For an element it is the atomic mass expressed in grams.



$6.02^2 \times 10^{23}$ atoms C



1 mol C atoms



12.01 g C atoms

Learning Check

Give the molar mass for each.

A. 1 mole K atoms = _____

B. 1 mol Sn atoms = _____

Solution

Give the molar mass for each.

A. 1 mole K atoms = 39.098 g

B. 1 mole Sn atoms = 118.710 g

Molar Mass of a Compound

The molar mass of a compound is the sum of the molar masses of the elements in the formula.

Example: Calculate the molar mass of CaCl_2 .

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Element	Number of Moles	Atomic Mass	Total Mass
Ca	1	40.078 g/mole	40.078 g
Cl	2	35.453 g/mole	70.906 g
CaCl_2			110.984 g

Molar Mass of K_3PO_4

Calculate the molar mass of K_3PO_4 .

Molar Mass of K_3PO_4

Calculate the molar mass of K_3PO_4 .

Element	Number of Moles	Atomic Mass	Total Mass in K_3PO_4
K	3	39.098 g/mole	117.294 g
P	1	30.974 g/mole	30.974 g
O	4	15.999 g/mole	63.996 g
K_3PO_4			212.264 g

Some One-mole Quantities

One-Mole Quantities



S

32.066 g



Fe

55.847 g



NaCl

58.443 g



$K_2Cr_2O_7$

294.185 g



$C_{12}H_{22}O_{11}$

342.296 g

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