Molecular Weight = M

@wikipedia

Synonym: Molar Mass = Molecular Weight

Material property defined as the mass of a given substance (chemical element or chemical compound) contained within one mole of the substance.

Symbol	Dimension	SI units	Oil metric units	Oil field units	Additional
M	M N^{-1}	kg/mol	kg/mol	lb_m / mol = 0.453592 37 kg/mol	g/mol = 0.001 kg/mol

It measures as ratio of substance mass m to amount of substance ν:

$$M = \frac{m}{\nu}$$

It relates to molecular mass m_u and Avogadro constant N_A as:

$$M = m_u \cdot N_A$$
$$M = \frac{m}{\nu} = m \cdot \frac{N_A}{N} = m_u \cdot N_A$$

where

N	number of molecules in a substance of amount ν

The molar mass of a mixture is:

$$M = \sum_k M_k \cdot x_k$$

where

M_k	molar mass of the k-th mixture component
x_k	mole fraction of the k-th mixture component

$$M = \frac{m}{\nu} = \frac{N_A}{N} \cdot m = \frac{N_A}{N} \cdot \sum_k m_{u,k} \cdot N_k = \frac{N_A}{N} \cdot \sum_k \frac{M_k}{N_A} \cdot N \cdot x_k = \sum_k M_k \cdot x_k$$

where

N_k	number of particles in the k-th mixture component

$N = \sum_k N_k$	total number of particles in mixture
$m_{u,k}$	molecular mass of the particles in the k-th mixture component

See also

Natural Science / Physics / Molecular Physics