

Table of concentration measures

Frequently used standards of concentration			
Measurement	Notation	Generic formula	Typical units
Molarity	M	$\left(\frac{\text{moles solute}}{\text{liters solution}} \right)$	mol/L (or M)
Mass percentage	wt%	$\left(\frac{\text{grams solute} \times 100}{\text{grams solution}} \right) \%$	
Molality	<i>m</i>	$\left(\frac{\text{moles solute}}{\text{kilograms solvent}} \right)$	mol/kg (or m ^{**})
Mole fraction	χ (chi)	$\left(\frac{\text{moles solute}}{\text{moles solution}} \right)$	(decimal)

Boiling point elevation = $BP_{\text{normal}} + \Delta T$

Where $\Delta T = K_b (m)i$

Freezing Point Depression = $FP_{\text{normal}} - \Delta T$

Where $\Delta T = K_f (m)i$

Dilution equation

$MV = MV$

Freezing Point Depression and Boiling Point Elevation

Solvent	Formula	Freezing Point (°C)	Boiling Point (°C)	K_f (°C/m)	K_b (°C/m)
Water	H ₂ O	0.000	100.000	1.858	0.512
Acetic acid	HC ₂ H ₃ O ₂	16.60	118.5	3.90	3.08
Benzene	C ₆ H ₆	5.455	80.2	5.12	2.53
Chloroform	CH ₃ O	-63.5	61.3	4.68	3.63
Carbon disulfide	CS ₂	-112	46.3	3.8	2.34
Cyclohexane	C ₆ H ₁₂	6.55	80.74	20.0	2.79
Ethanol	C ₂ H ₅ OH	-114.6	78.3	1.99	1.07