



# Dissolution / Dilution

TECHNIQUE	DISSOLUTION OF A CHEMICAL SPECIES	DILUTION OF A CHEMICAL SPECIES	
<b>Formulas and justifications</b>	<p>We wish to obtain a solution with a mass concentration of chemical A <math>C_m = \frac{m}{V}</math></p> <p><b>A mass <math>m = C_m \cdot V</math> grams of A has to be measured.</b></p> <p>We wish to obtain a solution with a molar concentration of chemical A <math>C = \frac{n}{V}</math></p> <p><b>A mass <math>m = C \cdot V \cdot M</math> grams of A has to be measured.</b></p>	<p>We wish to obtain a daughter solution of mass concentration <math>C_{md}</math> and volume <math>V_d</math>, from a stock solution of mass concentration <math>C_{ms}</math>.</p>	<p>We wish to obtain a daughter solution of molar concentration <math>C_d</math> and volume <math>V_d</math>, from a stock solution of concentration <math>C_s</math>.</p>
		<p><b>What volume <math>V_s</math> of the stock solution should be taken?</b></p> <p><b>! During dilution, the mass of solute does not vary !</b></p> $m_d = m_s$ $C_{md}V_d = C_{ms}V_s$ $V_s = \frac{C_{md}V_d}{C_{ms}}$	<p><b>! During dilution, the number of moles of solute does not vary !</b></p> $n_d = n_s$ $C_dV_d = C_sV_s$ $V_s = \frac{C_dV_d}{C_s}$
<b>Method</b>	<ul style="list-style-type: none"> <li>➤ In a dish, weigh the mass calculated above.</li> <li>➤ Using a funnel, pour solid chemical species A into a <b>volumetric flask</b> of volume V, then add approx. 20 mL of <b>distilled water</b>, taking care to entrain the remaining chemical on the funnel.</li> <li>➤ Cap the volumetric flask and shake.</li> <li>➤ Then fill up to the <b>dipstick mark</b> (bottom of meniscus) with <b>distilled water</b>.</li> <li>➤ Cap and shake.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Pour about 50 mL of the stock solution into a beaker.</li> <li>➤ Using a <b>volumetric pipette</b>, take a volume <math>V_s</math> of the solution from the beaker and pour it into a <b>volumetric flask</b> of volume <math>V_d</math> already containing a little distilled water.</li> <li>➤ Then fill up to the <b>dipstick mark</b> (bottom of meniscus) with <b>distilled water</b>.</li> <li>➤ Cap the volumetric flask and shake.</li> </ul>	
<b>Method in drawings</b>			