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$$m = \frac{\text{mass of glycerol} / \text{MM glycerol}}{\text{mass of water (kg)}}$$

	glycerol (g)	water (g)	molality	freezing point (°C)
1				
2				
⋮				
8				

$\Delta T_f = -k_f \cdot m \cdot i$ Since the solute for this experiment is glycerol, which does not dissociate to any appreciable extent in solution, the ionization factor (i) is equal to one.

$\Delta T_f = -k_f \cdot m \hookrightarrow k_f = -\frac{\Delta T_f}{m}$ (ΔT_f: y-axis; m: x-axis; slope)

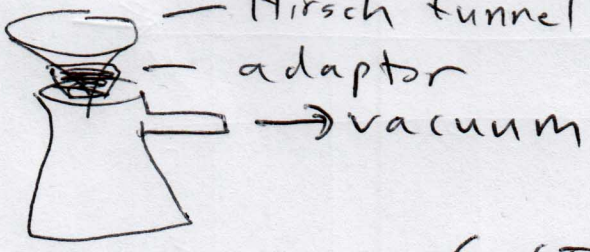
$$\%\ \text{error} = \frac{\text{experimental value} - \text{theoretical value}}{\text{theoretical value}} \times 100\%$$

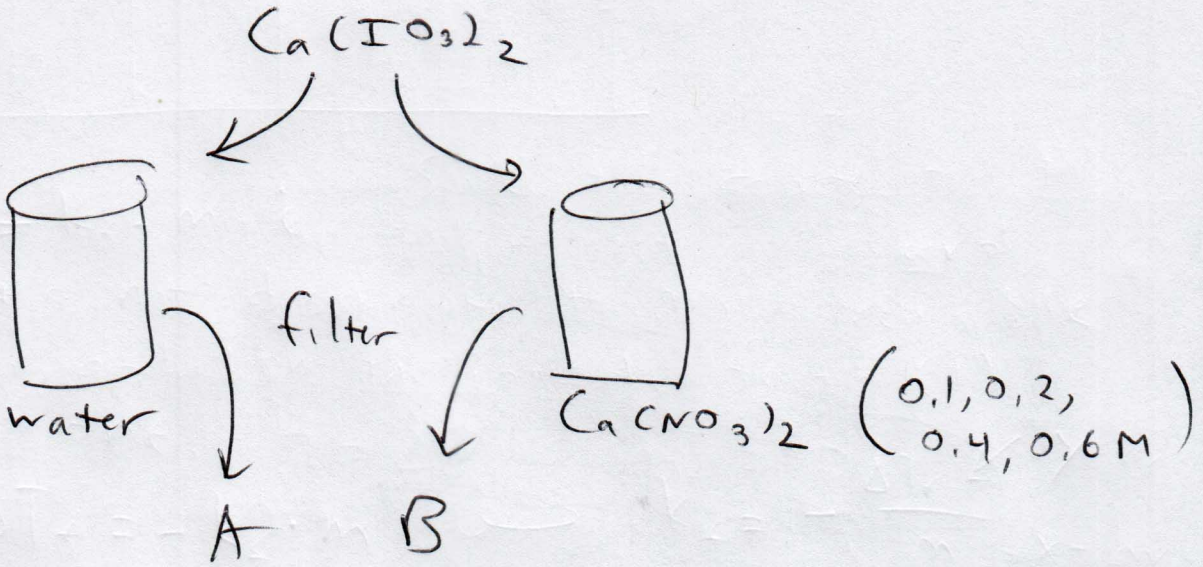
common-ion effect

$Ca(IO_3)_2(s) \rightleftharpoons Ca^{+2}(aq) + 2\,IO_3^-(aq)$

$K_{sp} = [Ca^{+2}][IO_3^-]^2$

$Ca(NO_3)_2(aq) + 2KIO_3(aq) \rightarrow Ca(IO_3)_2(s) + 2KNO_3(aq)$





In pure water, $[Ca^{+2}] = \frac{1}{2}[IO_3^-]$

$K_{sp} = [Ca^{+2}][IO_3^-]^2 = \frac{1}{2}[IO_3^-]^3$

(K)

$IO_3^-(aq) + 5KI(aq) + 3H_2SO_4(aq) \rightarrow$

$3I_2(aq) + 3K_2SO_4(aq) + 3H_2O(\ell)$

$I_2(aq) + 2Na_2S_2O_3(aq) \rightarrow$

$2NaI(aq) + Na_2S_4O_6(aq)$