



Polyjuice Potion at Hogwarts



Polynectar has to be prepared very carefully to be effective! This potion enables the drinker to physically transform into another person for a few hours...

Into a big enough conical flask, introduce 6.0×10^{-2} mol sodium hydroxide...
Strange Erlenmeyer!

I add 7 moles of water and 1.6×10^{-2} moles of glucose powder...



I stir until the mixture is homogeneous.
Let's see...

A dozen drops of Methylene Blue... I shake... It seems to me that the potion is ready...





Oops! I must have forgotten something...
Could you help me make the potion again?

Chemical	Solid sodium hydroxide	Solid glucose	Water
Formula	NaOH	C ₆ H ₁₂ O ₆	H ₂ O

Identifying soda hazards

Warning statement:

Danger

Hazard statements:

H290 May be corrosive to metals

H314 Causes severe skin burns and eye damage



Note

Density of water is
 $\rho = 1.0 \text{ g.mL}^{-1}$

Atomic molar masses

$M(\text{Na}) = 23.0 \text{ g.mol}^{-1}$

$M(\text{O}) = 16.0 \text{ g.mol}^{-1}$

$M(\text{H}) = 1.00 \text{ g.mol}^{-1}$

$M(\text{C}) = 12.0 \text{ g.mol}^{-1}$

1. Prepare the potion according to the safety instructions, then leave it to stand for a few moments... You'll need to stir it regularly for it to work effectively.
2. Determine mass concentrations of sodium hydroxide (t_{m1}) and of glucose (t_{m2}) in the potion.
Mass concentrations are measured in g.L^{-1} .
3. Determine molar concentrations of sodium hydroxide (C_1) and of glucose (C_2) in the potion.
Molar concentrations are measured in mol.L^{-1} .

Note: When a solid is dissolved in a solvent, the change in volume of the solvent is negligible.