Question #48868, Chemistry, Other

A NaOH solution is standardized by titration with 0.835 g KHP (monoprotic standard acid, MW = 204.2 g/mol). 23.47 mL of the unknown NaOH solution is needed to titrate the 0.835 g KHP to the endpoint. Calculate the concentration of the NaOH solution.

Answer:

V_{NaOH}=23.47 mL

m_{KHP}=0.834 g

M_{KHP}=204.2 g/mol

$$n_{NaOH}=n_{KHP}$$

$$n=c\cdot V$$

$$n=m/M$$

$$c_{NaOH}\cdot V_{NaOH} = m_{KHP}/M_{KHP}$$

$$c_{NaOH}= m_{KHP}/(M_{KHP}\cdot V_{NaOH})$$

c_{NaOH}=0.834/(204.2*0.02347)=**0.1740 mol/L**