# Answer on Question #76319, Chemistry / General Chemistry

A chemist must prepare 875.mL

of 3.00M

aqueous nickel(II) chloride NiCl2

working solution. He'll do this by pouring out some 3.43M

aqueous nickel(II) chloride stock solution into a graduated cylinder and diluting it with distilled water.
Calculate the volume in mL

of the nickel(II) chloride stock solution that the chemist should pour out.

**Solution**

$V_2$ = 875 mL =0.875L

$c_2$ =3.00 M

$c_1$ = 3.43M

$V_1$ -?

Find amount of chemical substance of $NiCl_2$ in the working solution:

$c=n/V \Rightarrow n=c \cdot V$

$n_2(NiCl_2) = c_2 \cdot V_2$;

$n_2 (NiCl_2)=3.00 \cdot 0.875 = 2.625$ (mol).

Amount of chemical substance is the same in the working solution and in the stock solution:

$n_2 (NiCl_2) = n_1(NiCl_2)$;

$n_1 (NiCl_2) = 2.625$ mol.

Find volume of stock solution:

$c=n/V \Rightarrow V=n/c$;

$V_1 =n_1 (NiCl_2)/c_1$;

$V_1 =2.625/3.43 = 0.765$ (L) = 765 mL.

**Answer:** 765 mL