

### Answer on Question #52599 – Chemistry – Inorganic Chemistry

#### Question:

If 25mL of a 2.5M solution of NaOH is placed in 250mL of water, then what is the new solution?

#### Answer:

Molar concentration or molarity is most commonly expressed in units of moles of solute per litre of solution.

$$c = \frac{n}{V}$$

Here,  $n$  is the amount of the solute in moles,  $n$  is the number of molecules present in the volume  $V$  (in litres).

In our case is the amount of the solute does not change, but change the volume of solution.

That's why we can write the following expression:

$$n = c_1V_1 = c_2V_2$$

then

$$c_2 = \frac{c_1V_1}{V_2} = \frac{2.5 \times 0.025}{0.25} = 0.25 \text{ mol/L}$$

**Answer:** The concentration of the new solution of NaOH is **0.25 mol/L**.