

## How to Prepare a Chemical Solution from Scratch

posted on **OCTOBER 23, 2017**

<https://masterconceptsinchemistry.com/index.php/2017/10/23/prepare-chemical-solution-scratch/>

To prepare a chemical **solution**, you will need at least **two** things:

- A Solute
- A Solvent

The **solute** is the chemical in **lesser amount**. e.g. air

The **solvent** is a chemical in **larger amount**.

The solute usually dissolves in the solvent.

The solute or solvent can be solid, liquid, or gas.

For example, to prepare sodium chloride (NaCl) solution from scratch, you must first decide on the concentration of sodium chloride you want. Since we will dissolve our NaCl in water, we will call water our solvent and NaCl our solute.

**To prepare 500 mL of 5.0 M NaCl solution from scratch**, you will need to do the following:

- i) Calculate the amount of NaCl you will need to mass.
- ii) You must first convert the 500 mL to liters, then to moles, and then to grams

## Procedure:

- mass 146.1 g of NaCl into a volumetric flask.
- Add enough water and swirl until all the NaCl dissolves.
- Top it up with more water to the 500 mL **mark** on the volumetric flask.

