

# CHEMISTRY

## Design 4: Solubility of Salts

Common salt (sodium chloride) is soluble in water. That doesn't mean that we can dissolve infinite amounts of salt in a specific amount of water. There is a certain point where no more salt can be dissolved and the solution is then called "saturated".

- How can we measure what is the maximum mass of salt that can be dissolved in a specific volume of water?
- Do we have to measure how much has been dissolved or is it enough to measure how much has *not* been dissolved?
- Do we have to measure the salt itself or we can measure one of its ions? Which one? Have we performed already an experiment where the amount of such ions was measured?

What factors may affect solubility?

- If we change the metal part of the salt (K instead of Na), will the solubility change?
- If we change the temperature of water, will the solubility change?
- If we change solvent (ethanol instead of water), will the solubility change?
- What other parameters may affect the solubility of salts?

You are asked to design an experiment to investigate the solubility of salts. The general research question is the following:

**“Investigate a parameter that affects the solubility of salts made from Group 1 metals and halogens (Group 7).”**

Select dependent, independent and controlled variables, write your specific research question and describe the detailed procedure required for investigating this question.