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Experimental Determination of the Impact of Different Solvents on Precipitation

Compare the impact of water and solvents other than water on water purity and precipitation

- Here you will be experimenting with different solvents (different polarities) and observe the effect of solvent polarity has on salt dissolving and precipitation formation.

[http://www.youtube.com/watch?feature=player_embedded&v=Q_pngJu2igE]

Hypothesize what would happen if you add acetone to saturated $\text{CuSO}_4(\text{aq})$

[http://www.youtube.com/watch?feature=player_embedded&v=_nBeHnGiVuk]

Let's look at what happens when acetone is added to the saturated Copper(II) sulfate.

[http://www.youtube.com/watch?feature=player_embedded&v=IFE0fyfm71Q]

- The less polar solvent, acetone, is added to the most polar solvent, water (copper (II) sulfate solution).
- Acetone will mix with the water due to the fact that acetone is moderately charged (so there will not be two separate layers of solution).
- As the acetone is mixed with the copper(II) sulfate, it decreases the polarity of the overall solution.
- The salt (copper(II) sulfate) solubility decreases, causing the blue salt to precipitate out.

Remember:

- Water is the most polar solvent; when salt is dissolved in water, the ions are separated and protected by the water shell.
- Other moderately polar solvents, such as acetone, will mix with the water and decrease the polarity.
- Non-polar solvents, such as hexanes, will not mix with water and two distinct layers will be observed.
- Salt solubility (how much you can dissolve) will change as the solvent or its polarity is changed.