

Chemistry 201

Solubility

NC State University

Volumetric flasks

Use volumetric flasks when accurate solution volumes are desired. Weighed components added to the precise volume provide a means to obtain accurate concentrations.



Solubility

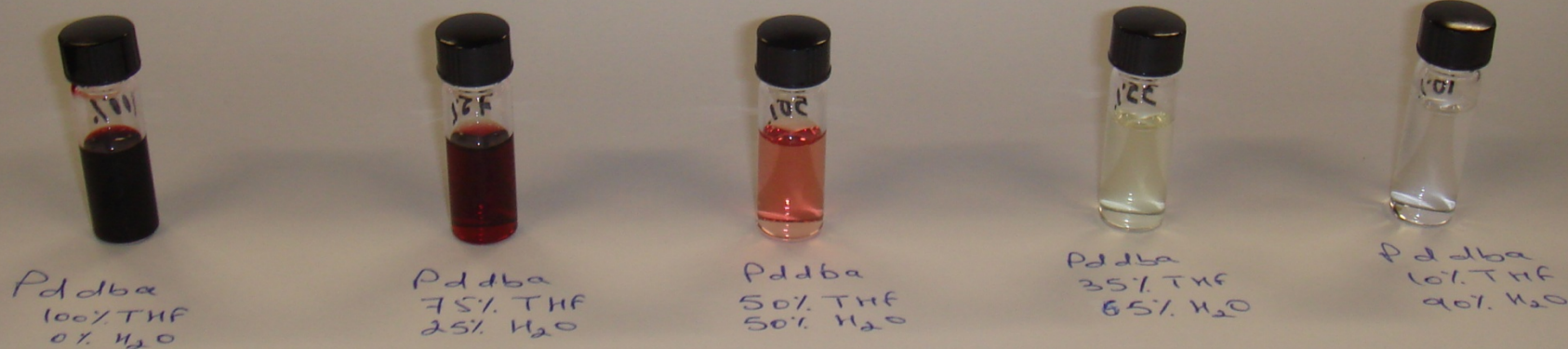
Compounds that are soluble in water are often insoluble in organic solvents and vice versa.

To measure the solubility you first create a saturated solution. Then centrifuge that solution and measure the amount of the analyte in the supernatant.

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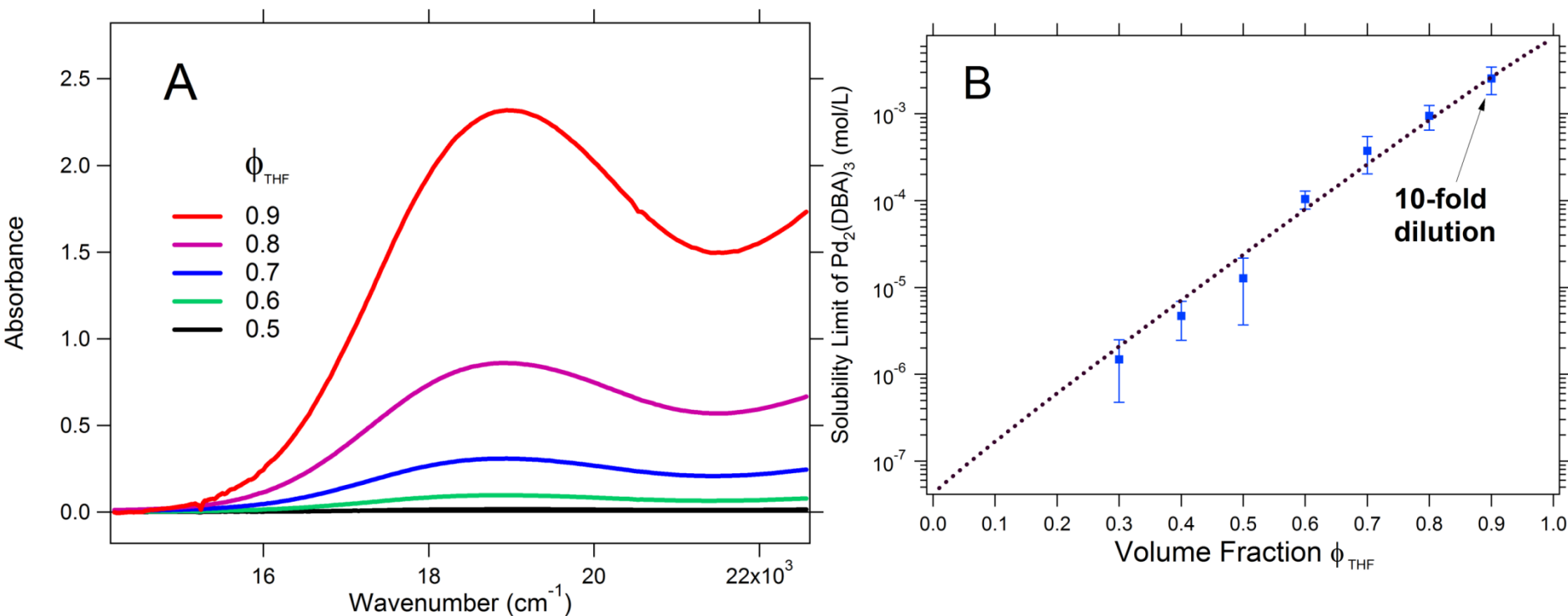
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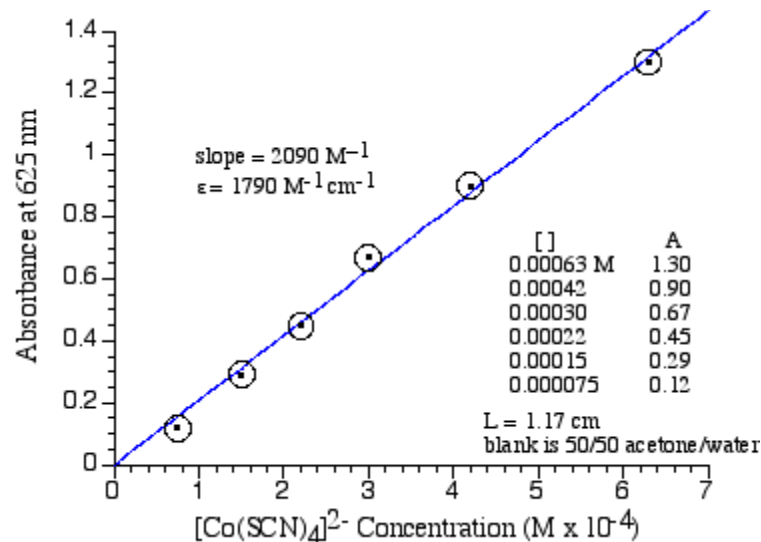
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One can measure the spectrum and calculate the concentration of $\text{Pd}_2(\text{dba})_3$ in various solvents to determine the limit of solubility. This organometallic Compound is soluble in THF and insoluble in water.



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Analysis can use absorption spectrometry. However, to determine the calculation using the absorption spectrum one needs the extinction coefficient.



From an undergraduate laboratory at Dartmouth College.

Solubility rules

One can use the solubility rules:

1. Compounds of NH_4^+ and group 1A metal ions are soluble.
2. Compounds of NO_3^- , ClO_4^- , ClO_3^- and $\text{C}_2\text{H}_3\text{O}_2^-$ are soluble.
3. Compounds of Cl^- , Br^- and I^- are soluble, except those of Ag^+ , Cu^+ , Tl^+ , Hg^{2+} and Pb^{2+} .
4. Compounds of SO_4^{2-} are soluble, except those of Ca^{2+} , Sr^{2+} , Ba^{2+} and Pb^{2+} .
5. Most other ionic compounds are insoluble.