
DETERMINATION OF SOLUBILITY LIMITS FOR PDTC AND Cu[PDTC]Br (POSTER)

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Carbon tetrachloride (CCl₄) is an organic compound that once widely used as an industrial solvent, degreaser, and grain fumigant. Improper disposal and ground water solubility issues led to CCl₄ being listed as a priority pollutant by the U.S. EPA. We are currently investigating the use of 2,6-pyridinedithiocarboxylic (PDTC) and its copper coordination compound [Cu(PDTC)L]⁺ as a potential CCl₄ environmental remediation technology. PDTC and Cu[PDTC]Cl have a very low solubility in water, which decreases the effectiveness of the molecule as a remediation technique. Using a ligated iron UV-Vis spectroscopy assay PDTC's solubility was determined to be 39 mM in a pH 7.6 (check this number) buffer. The solubility of Cu(PDTC)Br in pH 7.6 buffer was determined to be 50 mM via oversaturation UV-VIS assay. The results from both solubility studies were used to confirm a high throughput assay based on dynamic light scattering. The solubilities determined in this study will act as an initial benchmark for the comparison of future novel PDTC derivatives.