



The Solubilities of Dicarboxylic Acids in Multicomponent Aqueous Aerosols

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The chemical composition of aerosol organic matter is complex and not fully understood. Although a variety of thermodynamic models have been developed to predict an inorganic gas-aerosol equilibrium, the prediction of organic/inorganic aerosols has been gathered much less attention and still scarce. Presented here is a fundamental laboratory approach for measuring the solubilities of atmospheric aerosol containing inorganic electrolyte salts NaCl, NH_4NO_3 , $(\text{NH}_4)_2\text{SO}_4$ and dicarboxylic acids of oxalic, malonic, succinic, glutaric and adipic acid. The pattern of the solubilities will be summarized in a brief table with the effects of two fold, “salting in” and “salting out” influence. Simple salting in means an increase in the solubility of the organic compound with a corresponding increase in solubilities of one more of the salts in the mixture. Salting out implies the opposite effect. These data are really important in addition to chamber experiments investigating organic aerosol formation with the studies of the deliquescence, nucleation and water properties of aqueous dicarboxylic acids and their mixtures with salts.