Studies on the Solid State Structures and Properties of Metal Arenedisulfonates

Jiwen Cai, *School of Chemistry and Chemical Engineering, Sun Yat-Sen University, Guangzhou 510275, P. R. China.* E-mail: puscjw@zsu.edu.cn

Recent progress in the solid state coordination and structural chemistry of aromatic disulfonates, as well as the amine interaction properties of crystalline Cd^{2+} sulfonate complexes with amines will be presented. [1]

Due to the weak coordination strength, most of the metal monosulfonates obtained from aqueous solution are water-coordinated metal sulfonate salts. [2] However, by employing arenedisulfonates, which can provide multiple coordination sites, stable frameworks sustained by sulfonate-metal interactions can be obtained with various dimensionalities. [1] Moreover, due to the flexible coordination modes, the 1,5-naphthalenedisulfonate ligand shows variant coordination modes in complexes obtained from different reaction conditions, resulting in polymorphism. [3] Finally, layered sulfonate- and water-coordinated Cd^{2+} complexes can selectively uptake amine vapor via solid-state substitution reaction, which is a reversible process at room conditions. [4,5]

[1] Cai J., *Coord. Chem. Rev*., 2004, **248**, 1061. [2] Côté A. P., Shimizu G. K. H., *Coord. Chem. Rev*., 2003, **245**, 49. [3] Cai J., Wang L., *unpublished results*. [4] Cai J., Zhou J.-S., Lin M.-L., *J. Mater. Chem.*, 2003, **13**, 1806. [5] Zhou J.-S., Cai J., Wang L., Ng S. W., *J. Chem. Soc., Dalton Trans*., 2004**,** 1493.

Keywords: sulfonate, coordination chemistry, solid state structure and property