

Nucleation mechanism of metal sulfide films

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Abstract

The chemism of thiourea and metal salts interactions is considered. By the results of kinetic researches the assumption, that the most probable hydrolytic thiourea's decomposition product is amidocyanogen, is stated. It is offered to expand the idea about activation of thiourea in solutions from the positions of nucleophilic bonding of various anions. By means of quantum-chemical calculations the influence of a nature of attached nucleophile on C = S bonding ratio in thiourea is shown. The influence of colloidal compound of metal's hydroxide phase on nucleation process is considered. Nucleation of a metal sulfide film is the consequence of destruction of surface reactionary complexes in thiourea-metal ion-nucleophile structure, arisen as a result of adsorptive interactions between thiourea molecules and metal hydroxide.