

Thematic course: Hydrochemical synthesis of metal chalcogenide films. Part 22.

Thermal stability of hydrochemically deposited $\text{Cd}_x\text{Pb}_{1-x}\text{S}$ supersaturated solid solutions

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Abstract

It was found that the upper temperature limit of stability of hydrochemical deposited supersaturated solid solutions $\text{Cd}_x\text{Pb}_{1-x}\text{S}$ ($0 < x \leq 0.18$) is 405-410 K. At higher temperatures, heating decomposes these compounds in two phases: a solid solution with the equilibrium at a given temperature sulfide content cadmium and X-ray amorphous CdS. The greatest changes in the photovoltaic properties of the films of supersaturated solid solutions $\text{Cd}_x\text{Pb}_{1-x}\text{S}$ during the first two years of storage at room conditions were observed in the first 2-3 months. Dark resistance varied by 20-40% during this period, the maximum change in voltage sensitivity was 20-25% of the original value.