

# Structural and Morphological Changes in Silver Myristate During Formation, Thermal Decomposition and Development Processes

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## Abstract

In-situ small and wide angle X-ray scattering, electron and optical microscopy, and thermal analytical investigation of the structure and morphology changes in silver myristate during formation, thermal decomposition and development processes of photothermographic materials were investigated. It was found that at the initial stage of the reaction of sodium myristate with silver nitrate in water the layered structure of silver myristate is formed. Pure silver myristate undergoes an irreversible Martensitic phase change in the 110 – 120°C temperature range. This phase change is characterized by the formation of a more symmetrical phase, compared to the initial crystalline silver carboxylate. The thermal decomposition of silver myristate at 180°C-200°C led to the formation of nanosized silver particles. In contrast to the

decomposition of pure silver myristate, the structural and morphological characteristics of the developed silver particles in photothermographic materials depend on the thermal development temperature.

## Biography

Boris B. Bokhonov graduated from Novosibirsk State University, Russia, in 1979. He received his PhD in 1986. Currently he is a senior scientific researcher at the Institute of Solid State Chemistry. The scope of interest concerns the investigation of structural and morphological changes in solids under mechanical activation, mechanical alloying, the formation of nano-particles during decomposition, irradiation and development of photographic materials, interaction of thin films using TEM and SEM methods. Bokhonov is a author more than 80 scientific publications