

## **An EXAFS study of photographic development in thermographic films**

Silver K edge extended X-ray absorption fine structure (EXAFS) spectroscopy of films containing silver behenate (AgBeh) in the unprocessed, fully processed, and step-processed states has been performed. The results of the EXAFS analysis indicate that the intensity for the real-space peak for the Ag-O distance (similar to 2.3 angstrom) decreases while the real-space peak for the Ag-Ag distance (similar to 2.9 angstrom) grows with increasing thermal processing of the film. The changes observed in the real-space EXAFS signal indicate the growth of metallic silver at the expense of AgBeh. The X-ray absorption near-edge spectroscopy (XANES) portion of the signal shows that the absorption edge position varies stepwise, with unprocessed films and pure AgBeh having an edge location at 25 506 eV, films processed from steps 1 through 10 have an absorption edge at 25 508 eV, and the fully processed film has an edge location at 25 512 eV.

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