

Preserving the Nation's Cultural Heritage Through Chemistry: Analytical Materials Science at the Library of Congress

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Eastern Michigan University
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The Library of Congress is the largest library in the world and is the oldest cultural institution in the United States. Its mission is to sustain and preserve a universal collection of knowledge and creativity for future generations. The Library is the steward of over 130 million collection items that fill over 530 miles of shelving covering over 4 million gross square feet. The Library's diverse collection includes traditional materials (books, manuscripts, maps, posters), analog audiovisual materials (magnetic tape, film, microforms, photographs), and digital materials (audiovisual CDs, DVDs, digital tapes). The common feature of these collections is that they are comprised of organic materials that inevitably degrade over time. The materials include natural (cellulose, protein) and synthetic (cellulose acetate, polyesterurethane) polymers plus organic media (ink, binders, glues) superimposed on the polymers. All these materials degrade differently depending on their chemical composition and storage conditions. This talk will describe how the Library's Preservation Research and Testing Division uses modern analytical instrumentation housed in 14,000 sq. ft of laboratory space to perform research to characterize the collection materials and their degradation processes with the goal of extending their lifetimes.

Brief biography:

Dr. Jeanette Adams joined the Library of Congress Preservation Research and Testing Division in 2005 as Chemist. Prior to joining the Library, Dr. Adams spent most of her career as a professor in the Department of Chemistry at Emory University where she performed research in mass spectrometry and gas-phase ion chemistry, and taught graduate courses. She has published over 40 papers involving the analysis of organic chemicals in environmental chemistry, analytical chemistry, and mass spectrometry books and journals. Her specialty at the Library of Congress is in using mass spectrometry to answer questions and solve problems that involve the long-term preservation of the Library's collection.

Dr. Adams' presentation is made possible by the EMU Graduate School; the EMU Chapter of Sigma Xi, The Scientific Research Society; the EMU Chemistry Department; and the Huron Valley Section of the American Chemical Society.

