

Revisiting Paper pH Determination: 40 Years of Evolving Practice in the Library of Congress Preservation Research and Testing Laboratory

The pH of paper is a fundamental indicator of its long-term stability and is routinely considered by conservators, cultural heritage scientists, and collection care professionals in the process of making decisions about collection storage, handling, and access policies. The results of pH are frequently considered as part of conservation treatment planning and are nearly always included in research studies related to paper preservation. An assortment of measurement methods are currently in use. This seemingly basic and familiar measurement, however, contains a depth and complexity that becomes apparent when pondering the differences between the industrial, ISO standard, and numerous published variant methods, including surface measurements, miniaturized methods, cold extraction, and hot extraction. Are the results comparable from the different methods? Which approach is best? Over the past few years, the Library of Congress Preservation Research and Testing Division (PRTD) has revisited its standard protocols for pH measurement of paper and board in the contexts of quality assurance needs for collection housing and exhibition materials, special collections needs, and scientific research samples. This talk will include a short discussion of the fundamentals of paper pH measurement, focusing on how aspects of sampling, sample preparation, and measurement method affect the results obtained. The various methods in use in our lab from the early 1970s to the present will be discussed, with a focus on our recent efforts to streamline our semiautomated measurements, to conduct direct comparisons between methods

and to develop a reliable miniaturized pH determination method.

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