



Members of the Materials Working Group at their November 2019 meeting in New York.

Materials Working Group: Building Community & Collating Resources

By Rebecca Kaczowski, Melissa King, and Lisa Imamura

MWG Introduction

The Working Group for Materials Selection and Specification (Materials Working Group or MWG) is creating a centralized resource to assist with collection and conservation materials selection and to facilitate information exchange. The group is engaging approximately 90+ preservation professionals from a wide array of allied fields to actively work toward defining the multi-faceted challenges related to materials selection.

Formed in early 2018 as a new initiative of AIC's Collection Care Network (CCN), the MWG has held three in-person two-day meetings, with monthly progress check-in conference calls. The group mission is to develop methods for evaluating and selecting materials for storage, transport, and display while sharing electronic resources related to these endeavors. The MWG is eager to welcome more participants to contribute to the myriad of projects and resources under development, and the group is forming a plan for long-term sustainability and relevance.

Collection
Care
Network

Materials Working Group: Building Community & Collating Resources

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MWG Structure

The MWG is chaired by Becky Kaczkowski (Museum Conservation Institute, kaczkowskir@si.edu) and guided by a central Steering Committee. Steering Committee members lead three committees, each with their own structure:

- › **Selection & Specifications:** Jenifer Bosworth, co-chair (National Museum of Asian Art; bosworthj@si.edu); Luci Ciperia, co-chair (Canadian Museum of Nature, lciperia@nature.ca); Carolyn Leckie, co-chair (Canadian Museum of Nature, cleckie@nature.ca); Antje Neumann (National Museum of African American History & Culture); and Andrew Robb (Library of Congress).
- › **Testing & Standards:** Eric Breitung, co-chair (Metropolitan Museum of Art, eric.breitung@metmuseum.org); Cathy Hawks (National Museum of Natural History); Susan Heald (National Museum of the American Indian); Emily Kaplan (National Museum of the American Indian); Chris Maines, co-chair (National Gallery of Art, c-maines@nga.gov); Julia Sybalsky (American Museum of Natural History); and Elena Torok (Dallas Museum of Art).
- › **Resources & Dissemination:** Rachael Arenstein (AM Art Conservation LLC); Mary Coughlin (The George Washington University); Lisa Elkin (American Museum of Natural History); and Lisa Goldberg, chair (Goldberg Preservation Services LLC, lgoldberg@stny.rr.com).

Current Status and Continuing Goals

To break the larger goals into projects with achievable end products, the MWG and its committees met for its third annual meeting on November 7-8, 2019, at the Metropolitan Museum of Art (The Met) in New York City, New York. The meeting followed a similar format to previous meetings, with round-table discussions by committee, task-based assignments, whole-group brainstorming, and lightning-round talks meant to spark fruitful discussion. Because this meeting coincided with the IMLS-funded Materials Testing Symposium at The Met, several colleagues from organizations outside of North America (see box at right) were able to attend the MWG meeting and provide perspectives on European efforts towards similar goals.

As a standing AIC Working Group, the MWG is nearing the end of its first term; this article reports on the progress and projects of the three subcommittees and our vision going forward. It is anticipated that the broad-based collaboration the working group offers will continue and spark sustained community and resource development.

Committee Updates

SELECTIONS & SPECIFICATIONS (S&S)

The S&S committee has been tasked with imagining and designing resources to aid museum professionals when making informed decisions in selecting materials for storage, transport, and exhibition.

The committee has evolved into two groups working on two distinct projects:

- › **FACT sheets:** This group is creating downloadable resource sheets for materials used within a collection context. This effort is modeled after the Pest Fact Sheets available on MuseumPests.net. These sheets aim to provide quickly identifiable information about material working qualities and potential risks when used with collection items. They are designed to provide information

European Counterparts

Recent participants included colleagues from English Heritage, Historic Royal Palaces, Natural History Museum London, the German Federal Institute for Materials Research and Testing (Bundesanstalt für Materialforschung und -prüfung, also known as BAM), and the University of Turin (Università degli Studi di Torino).

The MEMORI Project

“Measurement, Effect Assessment and Mitigation of Pollutant Impact on Moveable Cultural Assets”
<http://www.memori.fraunhofer.de>; <http://memori.nilu.no>

The MEMORI project included 14 European partners and 3 subcontractors that were research organizations, conservation schools, museums, and enterprises. The project outcome was presented at an international conference in Madrid, Spain, on October 4, 2013, and now has an End User Group consisting of museums, conservation research institutions, and conservation equipment companies.

The project resulted in a method for effectively measuring pollutants including nitrogen dioxide, sulfur dioxide, ozone, organic acids, and sulfides using a specifically designed dosimeter. In addition, the project developed a material response table that can be used as an aid to indicate a material's sensitivity to environmental factors, and to help guide and prioritize risk parameters.

The MEMORI dosimeter was designed to be an early warning tool to tell users if the air quality within a particular enclosure poses a probable risk to cultural heritage objects. The dosimeter has two sensitive parts: glass (GDS) and a synthetic polymer (EWO) that react with pollutants, UV radiation, temperature, and relative humidity. Results are recorded and translated on the website into a color-coded scheme representing risk for classes of cultural heritage materials. Unfortunately, due to supply chain issues, it is reported that the dosimeter is not commercially available. The [decision-making tool](#), however, is available and provides a table that translates risks from particular types of pollutants generated by storage and display materials.

The APACHE Project

“Active & intelligent PACKaging materials and display cases as a tool for preventive conservation of Cultural Heritage” <https://www.apacheproject.eu/>

The APACHE Project is a new European collaborative of professionals working toward acknowledging and adopting international standards and recommendations for environmental conditions, light exposure, and pollution. The current research and development stages are based upon multi-scale modeling of enclosures that allow predictions about the degradation of cultural heritage materials enclosed within. In addition, the goals for this project include effectively developing a network among cultural heritage institutions, associations, and universities, through website design and social media tools, as well as workshops, seminars, and conferences.

- › Starting date: January 1, 2019
- › Duration: 42 months
- › Topic: NMBP-33-2018 | Innovative and affordable solutions for the preventive conservation of cultural heritage (IA)

that is relevant to all exhibition stakeholders including designers, fabricators, conservators, scientists, collection managers, archivists, preparators, and more. During the 2019 MWG meeting at The Met, the group determined that these forms could be incorporated into the Museum of Fine Art Boston's Conservation and Art Materials Encyclopedia Online (CAMEO) Wiki (http://cameo.mfa.org/wiki/Main_Page), with an MWG focus on improving this long-standing resource.

- › Decision-Making: This sub-committee is developing a decision-making tool to help in paring down options in a selection process. To do so, the group is currently participating in the editing and re-design of the National Park Service (NPS) content from the 1999 CD-ROM, *Exhibit Conservation Guidelines*, by Toby Raphael with major contributions by Nancy Davis and Kevin Brookes. This project was made possible by a recent agreement between the NPS and AIC, permitting access to the original text for updating and revision. Content from the *Exhibit Conservation Guidelines* is being incorporated into the AIC Wiki and the group is currently expanding on and updating specific sections, including “General Exhibit Planning” and “Technical Notes.” This group is working alongside an NPS/AIC group whose aim is to edit, update, and re-publish the entire *Exhibit Conservation Guidelines* on the AIC Wiki. Using the wiki format will allow for quick navigation to term descriptions and colocation of information between wiki pages, along with the potential for linking to additional resources.



The MWG Testing & Standards committee is testing materials using a round-robin method at several institutions. The samples in test tubes (above) and lead acetate test papers (below right) were tested at National Museum of the American Indian, Smithsonian Institution. Courtesy Lisa Imamura.

TESTING & STANDARDS (T&S)

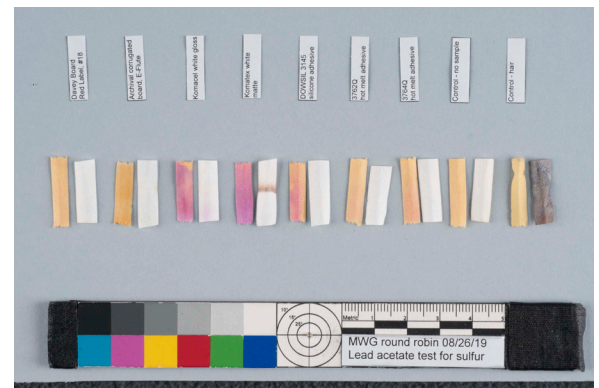
The T&S committee's mission is identifying and refining methods for evaluating materials and improving means for their implementation and interpretation by end users within the collection care community.

At the end of 2018, this committee focused on a testing "round-robin" with the goals of investigating trends in material testing techniques and evaluating the repeatability and reproducibility of common methods. Throughout 2019, the group collaborated in preparing and distributing sample materials, conducting analytical tests based on standardized protocols, and compiling results (see *New Materials & Research*, page 25). In November 2019, the group reviewed initial results and quickly reached consensus that further testing was needed while discussing modifications for another round of testing. Participants worked together and in smaller focus groups assigned to specific analytical techniques, such as gas chromatography-mass spectrometry volatiles analyses, Oddy test variations, or microchemical and pH tests. The group made great strides towards identifying and refining materials testing methods, and also identified and distinguished future complexities in assuring consistency in test execution and interpretation, especially in grappling with experimental design and scientific rigor.

With the challenges and lessons learned from the first round-robin, the committee moved forward into a second round of testing, scheduled to conclude in early summer of 2020. By this fall, T&S will be ready to integrate the results of their work with the other two groups, as the larger MWG tackles shared considerations involving test result interpretation and the successful delivery of outcomes to the wider collection care community.

RESOURCES & DISSEMINATION (R&D)

The R&D committee has been working toward delineating the parameters of an online tool in smaller groups and continues to investigate avenues and resources required to move forward in its creation. In 2018, R&D distributed a survey worldwide via professional organizations and associated listservs, in an effort to understand audience and preferred resources in use by a wide range of allied professionals. The R&D steering committee convened a small meeting with select members of the other two MWG committees at the American Museum of Natural History, New York, in September 2019 and conversations continued at the November 2019 MWG meeting to discuss:

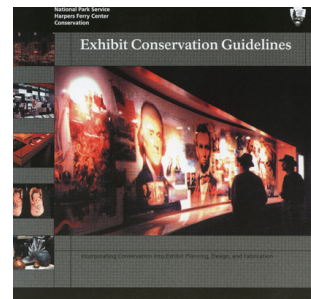


Lead acetate test papers from a recent round-robin. Courtesy Lisa Imamura.

- ✓ **Defining audience groups, based on survey data and participant discussions.** At the September meeting, the group created a model for audience groups, using the position descriptors defined by the survey and discussion among participants. The three-part model (makers, users, interpreters) was received at the November MWG meeting with significant discussion, suggesting that more work is needed to characterize audience groups and create a working model. Refining this audience model will continue with more input from the MWG at large and a closer look at the survey data using data visualization tools.
- › **Evaluating models for an online resource.** The group focused on the NPS *Exhibit Conservation Guidelines* and Goppion's Hypermaterial model (a visualization tool for exhibit case design) as springboards for discussion about how development of a functional online tool should proceed. This group currently envisions that the structure for the NPS *Exhibit Conservation Guidelines* may be used to create a framework for an online resource, combined with elements of the Hypermaterial model. This layered approach will assist in creating an organizational structure that will allow users to focus on specific material choices and their properties.
- › **Continuing to use the AIC Wiki as an information sharing platform.** The AIC Wiki MWG pages are currently under revision by members of all MWG committees. The MWG sees the AIC Wiki pages as a place to deposit information, create content, and realize the elements needed for an online resource.
- › **Identifying partners in the development of an online tool.** At both meetings and during conference calls, the R&D group emphasized the need to include individuals proficient in website building as well as members of the library/data management field in our conversations. Funding opportunities for creating a new website or standalone resource are limited. R&D members are actively considering available funding opportunities and potential avenues for combining website development with other AIC initiatives.

During the November 2019 meeting at The Met, R&D divided into focus groups to work on specific and tangible projects:

- › **Zotero:** A small group of members focused on the creation of a Zotero bibliographic database to collect topical abstracts for published work on materials used in collection care. This group has created its working process, delineated copyright issues, and compiled a set of tags and definitions. This spring, the group will share submission guidelines and will begin to fill its folders.
- › **Image Gallery:** A small group of members is actively collecting images of objects that have been damaged by use of unsuitable storage, exhibit, or transport materials. The main location for the image gallery is currently on the AIC Wiki page for [Choosing Materials for Storage, Exhibition & Transport](#). Ongoing work includes formatting the images to match a submission form and other additions to the page that were accomplished during the January 2020 annual AIC Wiki Edit-a-thon.
- › **FACT Sheets:** R&D is partnering with S&S to ensure that these resources will correspond effectively with the CAMEO website. In addition, lists submitted in a broad, community-wide request for information about specific materials in use and/or approved by specific institutions were collated to provide direction for adding information to CAMEO and for highlighting materials to be featured as FACT sheets.
- › **NPS *Exhibition Conservation Guidelines*:** R&D is working collaboratively with the NPS, staff from the Smithsonian Institution, and S&S on editing the *Exhibition Conservation Guidelines*. The group will work to ensure that content within this wiki format will form the basis for a layered online resource that can serve multiple allied communities.



NPS *Exhibit Conservation Guidelines* in CD format.

Hypermaterial

Bruno Goppion (Goppion Museum Projects) has designed a web-based model that allows users to choose a specific case element, explore options for materials choice, and see the visual impact of their choice on overall case design. Hypermaterial is currently under development and a wireframe model has been presented to the MWG.

GOALS & FUTURE PLANS

The MWG provides a unique and rich opportunity for allied professionals to work together and explore how to reach multiple audiences concerned with material selection when making preventive care decisions. By including many voices (and actively working to recruit more), we hope to encourage new approaches, full-faceted discussions, and more complete and inclusive methods of disseminating crucial information about preservation to collections stewards. Although we are nearing the end of the initial prescribed AIC charge as a working group, the multiple specific projects generated by the committees are now beginning to take shape. As these groups work toward refining their products, we are hopeful that the MWG community will move toward the ultimate goal of creating a faceted and layered online resource that can broadly serve the needs of the preservation community.

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