Charleston Foundation, Please Touch Museum, Science City at Union Station, New Mexico Museum of Natural History and Science, Virginia Museum of Natural History and the Santa Barbara Museum of Natural History. "Kit Matthew has a long and distinguished career helping a wide variety of museums achieve success in community engagement, communications and financial stability," said current AAM President Ford W. Bell.

American Association for State and Local History (AASLH)

BOOK PROPOSALS SOUGHT

The Editorial Board for AASLH's book series is actively seeking new book proposals in collaboration with Rowman & Littlefield Press. They are seeking good writers who would like to share their expertise with their professional colleagues.

What does writing a book for this series entail? Most books in the series are around 75,000 words (250 double-spaced pages). Most authors take about 10-12 months after contract issuance to write their manuscript.

AASLH is particularly interested in books on:

- Technology — for management, for enhancing visitor experiences, for website/virtual collections — in museums and historic houses
- Public History — especially books that can be used as textbooks
- Fundraising
- Easily replicated programming ideas and strategies
- Assessment and evaluation measures and techniques of all kinds
- Management of history organizations in the 21st century including sustainability, mergers, and institutional life cycles
- Collections/Archives preservation and conservation, techniques, collecting (and deaccession) strategies

In addition, AASLH is continually seeking proposals for its *Interpreting History* series.

Thus far published books focus on topics such as on interpreting African American History, Prohibition, LGBT, Slavery, and American Indians. There are more titles in the pipeline, including books on interpreting Food, Difficult History, and Maritime History.

Books in this series are intended for local history organizations to draw on when thinking of ways to better use their own collections/local stories that relate to larger themes in history. Possible topics for this series include Latino/a History, Medicine/Medical History, Civil War and Reconstruction, Vietnam Era, Music, World War I and World War II (two books), and The Civil Rights Movement. AASLH is always open to considering other topics, so proposals are welcome.

To download the AASLH/Rowman & Littlefield Press Book Proposal Outline, visit http://blogs.aaslh.org/wp-content/uploads/sites/23/2014/06/book-proposal-outline-for-AASLH-series.pdf.

Sustainability Committee

An Introduction to How the Manufacturing and Disposal of Adhesives and Paints Affects our Environment

by Robin O'Hern, Geneva Griswold, Mary Elizabeth Haude, and Jia-sun Tsang, The Sustainability Committee

The manufacture of conservation materials occurs near where many of us live. Do you live in Philadelphia? You are neighbors with the manufacturer of Paraloid B-72. Given the proximity of these industrial processing plants to our homes and workplaces, the AIC Sustainability Committee researched the effect of the manufacture and disposal of several conservation materials on the environment.

This article seeks to answer two questions regarding the use of synthetic adhesives and paints: How does the manufacturing process affect the environment and how does disposal affect the environment? While their disposal is not the main focus, we also include simple guidelines for the disposal of these materials. The materials we selected to evaluate include Paraloid B-72, polyvinyl acetate (PVAc), Beva 371b, acrylic emulsion paints, and solvent-based alkyd paints. These materials were chosen to represent some of the most frequently used adhesives and paints by the various specialty groups within the broader field of art conservation.

Information about each material was gathered from several sources, including Safety Data Sheets (SDS) (formerly called Material Safety Data Sheets or MSDS), company websites, conversations with industry representatives, the Boston Museum of Fine Art's CAMEO database, and information available through the Resource Conservation and Recovery Act (RCRA). Manufacturers are required to provide SDS, which include information regarding the potential hazards of manufactured materials, for each product they produce or import. The 1976 RCRA is a federal law governing the disposal of solid waste and hazardous waste in the U.S. at active or future facilities.

This preliminary study includes as much information as possible about the materials mentioned above, yet also highlights areas available for additional research. It does not cover environmental or human health issues associated with the solvents that are mixed with these adhesives, as that information is available in the materials' SDS as well as within other online resources. The authors hope that by establishing the relationship between conservation materials and the environment, we will employ them with a greater awareness about their manufacturing and disposal risks. We are not advocating that conservators stop using these adhesives and paints, but use and dispose of them thoughtfully.

PARALOID (™) B-72 RESIN

PARALOID B-72 is an ethyl-methacrylate (70%) and methyl acrylate (30%) copolymer produced by the Dow Chemical Company (formerly Rohm and Haas). It is widely used in conservation as an adhesive and consolidant due to its versatility, but it was initially developed for use as a thermoplastic surface coating and ink vehicle.

Environmental Effects of Manufacture

The resin is produced at facilities in Louisville, KY, and Bristol, PA. These facilities were contacted to ask how the bulk material is sourced, yet no response was received. Notably, however, the United

States Environmental Protection Agency (U.S. EPA) considers the Bristol plant as one of the EPA region's high priority RCRA corrective action sites. The 800-acre facility, which abuts the Delaware River, has produced plastics, resins, and emulsion polymers since 1917. As part of ongoing RCRA remediation efforts, a 60-acre landfill containing plant waste accrued between 1952-1975 was encased in a hydraulic barrier (slurry wall). Use of land and groundwater is restricted as investigations continue.

Environmental Effects of Disposal

Due to the lack of public information regarding the current manufacture of B-72, it is not possible to conclude much about the product's environmental impact. According to the SDS (section 13 on disposal), solid B-72 is stable and non-hazardous: the solid product is not defined as ignitable, corrosive, or reactive. Spills and cleaning runoff should be kept out of municipal sewers and open bodies of water. Ecotoxicological and human health data in SDS sheets for Paraloid B-72 relates to the <0.8% of toluene present in the material. The SDS provides no ecotoxicological data about the polymer and the toxicity characteristic (TC) has not yet been evaluated. Dow Chemical could not comment on the sustainability of the product itself, instead directing attention to the company's general sustainable initiatives.

The disposal of solid B-72 should be performed in accordance with institutional protocols and state and federal regulations. The MSDS sheet recommends that it be incinerated at a local, state, and federally-compliant facility. While the direct environmental impact of B-72 production and disposal is inconclusive, thoughtful use of the product is encouraged.

POLYVINYL ACETATE

Polyvinyl acetate (PVAc) resins are thermoplastic co-polymers used to make flexible paints, adhesives, and coatings. Conservation applications of PVAc include its use as an adhesive, including as a hot melt adhesive, for the construction of housings for artifacts (PVAc AYAA), as a consolidant for bones in archaeological conservation (e.g. Mowilith 50), or as an inpainting medium (e.g. Mowilith 20).

Environmental Effects of Manufacture

PVAc is made by the polymerization of the vinyl acetate monomer (VAM). VAM is a colorless liquid made from a vapor-phase reaction of ethylene and acetic acid with a palladium catalyst (Skeist 1977, 466). Manufacturers of PVAc obtain VAM from large chemical companies. In the U.S. the major manufactures of VAM are LyondellBasel, Dow, and Dupont and Celanese, and all have plants in southeast Texas.

Environmental Effects of Disposal

PVAc is considered to be non-hazardous and is not considered a RCRA hazardous waste (Talas MSDS on Elvace.). However, documentation indicates that VAM, the monomer that makes up PVAc, presents environmental concerns, such as moderate toxicity to aquatic organisms, high toxicity to fish, and flammability. If accidentally released, VAM photochemically degrades in the air, and aerobically and anaerobically degrades in the soil and water (Dow Product Safety (PSA): Vinyl Acetate, Environmental Information). While the research suggests that PVAc is non-toxic and non-hazardous, there is less information about its environmental impact than VAM.

Consult federal, state, and local regulations to identify the correct ways to dispose of PVAc. Since polyvinyl acetate is a chemical-containing adhesive, it is not advisable to wash liquid PVAc adhesives down the drain unless local, state, and federal codes have been reviewed. According to the SDS, small amounts of solidified PVAc adhesives can be disposed of in the trash. Again a review of local, state, and federal codes is advised before disposing of solid PVAc residues, especially in large amounts (Franklin Adhesives and Polymers). Given the limited public information about the environmental effects of PVAc, best practices from a sustainability perspective would encourage the use of only the amount needed and proper disposal.

BEVA 371

Conservators use Beva 371 (also written as BEVA 371) to reline paintings, repair leather, and mount artwork. It can be purchased in several forms: as a dry resin mix, a solution, a film, and coated onto a non-woven polyester fabric (Beva-TEX). Each Beva product has a slightly different composition, however Beva 371b as a dry resin is composed of 60% ethylene vinyl acetate polymer, 27% cyclohexanone homopolymer, 9% paraffin wax, and 4% phthalate ester of hydroabityl alcohol. The composition of Beva 371 products changed in 2008 when one of the original components, Larapal K80, was discontinued. This component was replaced by an aldehyde ketone resin in the new formula and is now known as Beva 371b (Chludzinski, G. R. and Conservator's Products Company).

Environmental Effects of Manufacture

Beva 371 products are manufactured by Conservator's Products Company in Flanders, New Jersey. Conservator's Products purchases the polymer components and then combines them to manufacture Beva 371 products. The solvents used to produce Beva 371 products are re-used, thus minimizing their environmental impact. Other manufacturing byproducts are incinerated, producing carbon dioxide and water (Chludzinski 2014).

Environmental Effects of Disposal

Disposal of unused Beva 371 products should be minimal, since the material has good aging properties and can be re-solubilized easily. According to the SDS for the dry resin, waste and unused product can be landfilled or incinerated. Beva 371 as a dry resin forms carbon monoxide and carbon dioxide as hazardous waste products, both of which can affect the environment. The disposal of Beva 371 solution is more complicated due to the presence of solvents. According to the SDS, Beva 371 solution is toxic for aquatic organisms and may result in long-term adverse effects for aquatic environments, although this is likely due to the solvents and not to the polymer itself. Whether disposing of solution or dry resin, the disposal of the container and unused contents should be done in accordance with federal, state, and local requirements. Dry resin can be incinerated or landfilled, according to local regulations. The information from the SDS suggests that Beva environmental impacts include the generation of carbon monoxide and carbon dioxide as hazardous waste products and long-term adverse effects to aquatic organisms.

ACRYLIC EMULSION PAINT

The development of water-borne acrylic emulsion paint dates back to the early 1950s as a house paint, and was subsequently used by artists. The binder is based on homopolymers or co-polymers

of ethenyl ethanoate (vinyl acetate) and a propenoate (acrylic) ester. Latex household paints and acrylic emulsion adhesives used in conservation share the same characteristics as artists' acrylic emulsion paint.

Environmental Effects of Manufacture

Acrylics are produced in many parts of the country, but Rohm-Haas (now The Dow Chemical Company) in Philadelphia, PA, is the major producer of acrylic in the United States.

Information about the environmental impacts of the industry's manufacturing process is not readily available to the public; however, the paint industry is closely regulated by the EPA for contamination of groundwater, deteriorating chemical storage facilities, maintaining a list of monitoring regulations, and removal of hazardous wastes. The EPA and its regulatory partners conduct inspections under the majority of statutory and regulatory programs. Paint companies list their goals for sustainability as reducing waste disposal, recycling wash water and unwanted paint, and focusing on formaldehyde abatement technology.

Environmental Effects of Disposal

There is limited information available about the environmental impact of disposal. Acrylic paint is considered a non-hazardous material, but it is not biodegradable and can support combustion. If the paint is not solidified properly before disposal, it can contaminate the environmental or water.

The EPA, state agencies, and local authorities all have regulations affecting acrylic paint disposal. Disposal of liquid acrylic paint in regular household trash or into storm sewers is not recommended. Instead, it can be solidified and included in regular refuse collection. One can easily solidify the acrylic paint by removing the container's lid and placing the container in a well-ventilated area, then pouring liquid paint into kitty litter, sawdust, or shredded paper to speed drying, and finally emptying the container before disposal. Paints that contain mercury, lead, or cadmium are banned from landfills and may require special disposal.

SOLVENT-BASED ALKYD PAINTS

Solvent-based alkyd paints are available as fine art paints and interior household paints. They produce a glossy and durable finish. Developed in the 1920s, alkyd-based enamel paints were once one of the most important types of surface coating. Owing to the incorporation of organic solvents and a propensity for darkening and lower durability on exterior surfaces, they yielded preeminence to newer polymer-like water-based latex and newly developed waterborne acrylic-alkyd and waterborne alkyd paints.

Environmental Effects of Manufacture

Alkyd resin, a complex oil modified polyester, is a film-forming agent in paint and clear coatings. The production of one ton of paint can result in up to 30 tons of waste of low biodegradable material. The primary drying mechanism for alkyd paint is solvent evaporation (like a resin) rather than oxidation (like an oil). Alkyd paints are composed of pigments (25%), additives (5%), binder (30%), and solvent (40%). The production of alkyd resins via azeotropic distillation of water has traditionally employed low molecular weight aromatic solvents, such as xylene. Since xylene is included on the Hazardous Air Pollutants (HAPS) list, companies such as Dow now use alternative solvents and solvent blends as media for alkyd-resin synthesis. Efforts toward sustainability in the paint industry are reducing the inclusion of titanium dioxide and solvents.

Environmental Effects of Disposal

Waste from alkyd paints may be hazardous, as defined under the RCRA 40 CFR 261. Hazardous waste should not be disposed of in municipal waste, and liquid alkyd-based paints or solvents should never be placed in regular trash. Paints that contain mercury, lead, or cadmium are banned from landfills and may require special disposal. Alkyd paint is not biodegradable and it supports combustion. Solvent-based alkyd paints are ignitable and should not be emptied into storm sewers, household drains (especially septic tanks), or on the ground. Precautions must be taken for proper disposal and it is best to check with your local regulations to ensure proper handling.

CONCLUSION

Making environmentally conscious decisions about the use of synthetic paints and adhesives in conservation applications will involve some detective work on the part of the conservator. As previously mentioned, the Safety Data Sheets are a good first place to start but the environmental impacts of the components of the adhesive and paints should also be carefully considered. While this article focuses on the materials themselves, they are often used in combination with solvents such as toluene, xylene, acetone, and ethanol. The environmental effects of the solvents are significant and in many cases well documented, particularly for toluene and xylene. Proper disposal of solvents used for adhesives is important for the environment (see AIC wiki page on

Characteristics of a SDS

Safety Data Sheets, (or SDS, formerly Material Safety Data Sheets or MSDS) are a source for essential information about health and safety of a given material as well as information about its environmental affects. By June 1, 2015, OSHA expects all MSDS sheets and chemical labels to be transcribed into the SDS format. The SDS format is the international standard, and is required to include 16 sections. However, OSHA will not be enforcing information contained in sections 12-15, which fall outside the Agency's jurisdiction. Of the sixteen sections listed below, sections 11 - 13 have information about how that material affects the environment.

The sections of an SDS sheet that contain environmental information are in bold:

1. Identification
2. Hazard(s) Identification
3. Composition/Ingredient Information
4. First-Aid Measures
5. Fire-Fighting Measures
6. Accidental Release Measures
7. Handling and Storage
8. Exposure Control/Personal Protection
9. Physical & Chemical Properties
10. Stability & Reactivity
11. **Toxicological Information**
12. **Ecological Information**
13. **Disposal Considerations**
14. Transport Information
15. Regulatory Information
16. Other Information

Solvent Disposal www.conservation-wiki.com/wiki/Sustainable_Solvent_Use#3.5_Disposal:_Evaporate.2C_Dump.2C_or_Dispose_as_Hazardous_Waste.3F_3.5 for more information). The environmental side effects of conservation materials like those discussed in this article require further research and analysis, and may be best accomplished in partnership with specialists outside the conservation field who also use or manufacture these materials. Additional information about the materials covered here can be found on the AIC wiki (www.conservation-wiki.com/wiki/Studio_and_Lab_Practices#2.6_Information_About_the_Sustainability_of_Conservation_Materials_2.6).

As conservators our primary responsibility is to protect and preserve artifacts in our care. All of the adhesives and paints mentioned in this article play an integral role in the preservation and conservation of art and historical artifacts, and discontinuing their use is not recommended here. Instead, the aim is to provide conservators with the resources they can use to investigate the environmental impacts of materials common to all of us, and to remind conservators and preservation professionals that we all have a role to play in making the overall environment a safe and healthy place.

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Health & Safety Committee

Respirator Fit Tests in YOUR Neighborhood: AIC Partners with Local Conservation and Industrial Hygiene Groups!

Your respirator is one of your most important pieces of personal protective equipment! Yet how many conservators know how to properly select the type that they really need for the work that they do? Or know the right filter or cartridge to match the chemical or material to which they are exposed?

As many of you know, you need re-fitting every time major changes occur to your facial structure and *at least* on an annual basis, according to OSHA.

Just because a respirator "feels tight" does not mean it truly seals well on your face and you may still be inhaling hazardous vapors. A fit-testing affords you the opportunity to try on several respirators made by different manufacturers and in different sizes and then verifies the fit by qualitative or quantitative means.

Many conservators have access to fit-testing by health and safety professionals through their workplace. Conservators in private practice or in smaller facilities and studios may not have