Visit Heritage Preservation's MayDay site (http://tinyurl.com/3or9vqz) for project ideas, information on prizes, and the book sale. All activities hosted by Heritage Preservation for MayDay 2013 are sponsored by Polygon Group.

CONNECTING TO COLLECTIONS ONLINE COMMUNITY

The *Connecting to Collections* Online Community (www.connectingtocollections.org) now has more than 2,800 members. In January, the Community launched a new series of free, online courses, called *Caring for Yesterday's Treasures—Today*, focused on the preservation of archival and historical collections and tailored to the needs of staff and volunteers at libraries and archives as well as museums. Each course consists of four to six webinars. Links to webinar recordings and extensive resources for each course, from collections care basics to care of digital materials, are archived on the Online Community. Three more courses are scheduled for the fall. In addition, the Community plans to continue hosting regular, hour-long live chat webinars on a range of collections care topics each month. If you have suggestions for topics or would like to present one of these webinars, please contact us at info[at]heritagepreservation__org.

The Society of American Archivists (SAA)

NEW WEBSITE RESOURCES FOR PRESERVATION

The Preservation Section of the Society of American Archivists promotes the preservation of archives and manuscript collections managed by collecting repositories, including government, academic, and cultural heritage institutions throughout the nation. The Section's mission is to raise awareness of and disseminate information about the preservation of archival materials regardless of format.

The website maintained by members of the Steering Committee provides information on the Section's activities: future, present, and past. It boasts a variety of preservation resources available to the membership of the Preservation Section, membership of the Society of American Archivists, and to anyone interested in preservation. Resources include information about workshops, training, and exhibits; links to sites covering the topics of electronic records and digital preservation; select bibliographies; and information about conservation, book and paper preservation, and audio-visual material preservation. Additionally, information about grant and employment opportunities are updated regularly, so please visit often!

Visit the site at www2.archivists.org/groups/preservation-section, or access the Selected Preservation Resources at www2.archivists.org/groups/preservation-section/selected-preservation-resources.

Please direct your feedback, questions and concerns to Kate Elgayeva at kelgayeva[at]gmail__com.

—SAA Preservation Section Steering Committee

Health & Safety Committee

Some Chemical Things Considered: Glycol Ethers and Glymes: Making sense of confusing terminology

Conservators often work very closely with solvents, so it is important to be informed about their hazards and to stay up-to-date on terminology and naming conventions, in order to recognize which solvents may require more caution.

Glycol ethers are a large class of solvents. They may be found in many common household products, including latex paints, paint strippers, household cleaners and detergents, batteries, brake fluid, printing inks, plastics, adhesives, perfumes, and cosmetics.

Glycol ethers have historically been used in the conservation field as solvents or diluents in coatings and varnishes, adhesives such as B-72, and solvent mixtures for cleaning. Because of concerns about their safety, the use of glycol ethers in conservation has been reduced over the past 30 years. Glycol ether solvents are used in the ninhydrin test for protein, and the AIC Paper Conservation Catalog (www.conservation-wiki.com/wiki/Paper_Conservation_Catalog) lists a glycol ether as a possible additive in Jade 454 PVA adhesive.

Glycol ethers often do not appear on product labels, and may be listed by a confusing variety of names, including chemical names, trivial names, acronyms, and proprietary names. For example, the chemical "ethylene glycol monoethyl ether" may also be known as EEGE, Cellosolve, ethyl Cellosolve, or 2-Ethoxyethanol.

While conservators probably know glycol ethers can be dangerous, you might not be familiar with all of the various names by which they may be identified (see table). In particular the name "glyme" has been used recently by the EPA: "glyme" is a trivial name which properly refers only to **gl**ycol **m**ethyl **e**thers but is confusingly used by the EPA to also refer to other glycol ethers including diethyl and dibutyl ethers.

Of the many glycol ether solvents, only a few have been studied in depth. Several glycol ethers have been found to cause adverse reproductive, developmental, and other health effects. According to the California Department of Health:

> "Overexposure to glycol ethers can cause anemia...intoxication similar to the effects of alcohol, and irritation of the eyes, nose, or skin. In laboratory animals, low-level exposure to certain glycol ethers can cause birth defects and can damage a male's sperm and testicles. There is some evidence that workplace exposure can reduce human sperm counts."

Exposure routes may include inhalation of solvent vapors and absorption through the skin; some glycol ethers can penetrate gloves without changing their appearance.

Recently, the EPA proposed a *Significant New Use Rule (SNUR)* related to a list of 14 glycol ethers, which would allow the EPA to evaluate and possibly prohibit the use of these chemicals in consumer products. The EPA has found that while potential exposure to the 14 chemicals is currently limited, there is reason to believe their use might become more common in products including printing inks, paints and coatings, and batteries. The SNUR was issued because of the potential health

hazards of glycol ethers:

> "EPA has concerns about the 14 glymes listed in this SNUR, all of which have similar chemical structures. EPA is concerned about the reproductive and/or developmental toxicity of monoglyme, diglyme, and ethylglyme and believes that individuals could suffer adverse effects from their use. In addition, EPA has concerns about the remaining 11 glymes due to the lack of available use, exposure, and toxicity information."

Glymes and glycol ethers have been of concern to conservators for quite some time, and alternatives to the use of glycol ethers in conservation have been discussed for decades, but conservators may still use these chemicals or have older supplies in chemical storage. In 2003, OSHA withdrew its proposed standards on workplace exposure to 2-ethoxyethanol and 2-methoxyethanol and their acetates because there were "few, if any, remaining opportunities for workplace exposure to these glycol ethers." It is important to keep in mind that conservators often use chemicals in ways and situations that many other workers do not, and therefore government authorities such as OSHA and the EPA are less likely to take common conservation exposures into account when creating regulations. EPA and OSHA regulations may also be delayed by requirements for lengthy congressional hearings.

Toxicological data on these chemicals still exists regardless of the status of government regulation, however, and conservators should be aware of other sources for safety information, including the more current 2012 occupational exposure limits established by the American Conference of Governmental Industrial Hygienists. The ACGIH exposure limits for 2-ethoxyethanol and 2-methoxyethanol are extremely low (5.0 ppm and 0.1 ppm, respectively, as an 8-hour time weighted average) as reflects their high toxicity. For additional resources, see the Health and Safety Committee Guide to Technical Resources for the Conservator (www.conservation-wiki.com/wiki/HS_Health_and_Safety_Technical_Resources_for_the_Conservator). Safe working controls are definitely needed for glycol ethers, and conservators should take care to handle these chemicals with precaution.

—Lisa Nelson, lisa.clare.nelson[at]gmail__com, and members of the AIC Health and Safety Committee

Alternate names for some Glycol Ethers

Common Name	Abbreviation, other names
ethylene glycol monomethyl ether	EGME, 2-methoxyethanol, methyl Cellosolve
ethylene glycol monomethyl ether acetate	EGMEA, 2-methoxyethyl acetate, methyl Cellosolve acetate
ethylene glycol monoethyl ether	EGEE, 2-ethoxyethanol, Cellosolve, ethyl Cellosolve
ethylene glycol monoethyl ether acetate	EGEEA, 2-ethoxyethyl acetate, Cellosolve acetate
ethylene glycol monopropyl ether	EGPE, 2-propoxyethanol, propyl Cellosolve
ethylene glycol monobutyl ether	EGBE, 2-butoxyethanol, butyl Cellosolve
**ethylene glycol dimethyl ether	EGDME, 1,2-dimethoxyethane, monoglyme
**ethylene glycol diethyl ether	EGDEE, 1,2-diethoxyethane, ethylglyme
diethylene glycol	DEG
diethylene glycol monomethyl ether	DEGME, 2-(2-methoxyethoxy)ethanol, methyl Carbitol
diethylene glycol monoethyl ether	DEGEE, 2-(2-ethoxyethoxy)ethanol, Carbitol
diethylene glycol monobutyl ether	DEGBE, 2-(2-butoxyethoxy)ethanol, butyl Carbitol
**diethylene glycol dibutyl ether	Butyldiglyme
**diethylene glycol dimethyl ether	DEGDME, bis(2-methoxyethyl)ether, diglyme
**diethylene glycol diethyl ether	bis(2-methoxyethyl)ether, ethyldiglyme
**triethylene glycol dimethyl ether	TEGDME, triglyme
propylene glycol monomethyl ether	PGME, 1-methoxy-2-propanol, Dowanol, methylproxitol
propylene glycol monomethyl ether acetate	PGMEA
dipropylene glycol	DPG
dipropylene glycol monomethyl ether	DPGME
**Tetraethylene glycol dibutyl ether	
**Tetraethylene glycol dimethyl ether	tetraglyme
**Tetraethylene glycol diethyl ether	
**pentaethylene glycol diethyl ether	
**polyethylene glycol dimethyl ether	polyglyme
**Polyethylene glycol dibutyl ether	
**Pentaethylene glycol dibutyl ether	
**Triethylene glycol dibutyl ether	butyltriglyme

***glycol ethers referenced in the EPA SNUR*

REFERENCES AND FURTHER INFORMATION:

AIC. Health and Safety Committee. Health and Safety Technical Resources for the Conservator. www.conservation-wiki.com/wiki/HS_Health_and_Safety_Technical_Resources_for_the_Conservator

Arts, Crafts and Theater Safety (ACTS). August 2011. Another Acronym for Glycol Ethers: Glymes. ACTS Facts 25(8).

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ACGIH. 2012. 2012 TLVs® and BEIs®, Based on the Documentation of the Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices. Cincinnati: American Conference of Governmental Industrial Hygienists. 238 pp.

Have a question about health and safety in your conservation work? AIC's Health and Safety Committee now has an email address! Send us your questions or concerns at HealthandSafety@conservation-us.org. We look forward to hearing from you!

—AIC's Health and Safety Committee

Committee for Sustainable Conservation Practices (CSCP)

2013 Lunch Session Presents A Work in Progress: Three Life Cycle Assessments of Museum Loans and Exhibitions

On May 30, 2013, the Committee for Sustainable Conservation Practices (CSCP) will host its second annual lunch session at this year's AIC meeting in Indianapolis. The session, "Linking the Environment and Heritage Preservation: Life Cycle Assessment (LCA) of Loans, Relative Humidity Parameters, and Lights," will include a progress report on three LCA projects that environmental engineers at Northeastern University have carried out in collaboration with the CSCP.

In recent years, AIC has engaged in a series of national and international meetings and conversations with conservators, museum directors, and collections care managers concerning the environmental impact of loans and exhibitions. The 2010 AIC/Museum of Fine Arts, Boston (MFA) international meeting Rethinking the Museum Climate focused on environmental control and energy use. At the AIC/MFA 2012 meeting Climate Control Standards: Fact or Fallacy in Albuquerque, the discussion continued, with more targeted questions concerning the relationship between environmental control standards and energy savings and costs. Through these meetings, the AIC community has begun to re-evaluate environmental guidelines in an effort to make loans and exhibitions more sustainable in all ways. Discussions have mostly concentrated on energy savings that can be attained by reducing demands on HVAC systems and by changing lighting sources to compact fluorescents, halogen bulbs, and LEDs. Although energy savings have been explored more fully than material usage, crucial issues concerning the waste produced from packing art, shipping art, and fabricating exhibition cases, and the work and energy required to put together and carry out loans and exhibitions have yet to be considered fully.

Progressing climate change and hard-felt recent climate disasters drive home the importance of continuing work to improve sustainability. We must pursue the goal to reduce carbon footprints and stop needlessly generating overwhelming amounts of waste. With a hotter climate in our future and depletions in virgin resources, energy costs will skyrocket and waste disposal will increasingly become more challenging. Fine art and heritage conservators must step up and recognize the important role we can take in implementing necessary changes, not only to manage the high costs required to carry out our work, but also—and more importantly—to preserve our heritage.

Before significant, effective changes can be made, a quantitative understanding of the environmental impact from the energy we use and the waste we produce is essential. Since the 1990s, industries throughout the world have used a tool called Life Cycle Assessment (LCA) to quantitatively evaluate materials and energy use from cradle to grave. The CSCP has teamed with Northeastern University Environmental Engineer Dr. Mathew Eckelman and his students to carry out several assessments at

What is an LCA?

Life Cycle Assessment (LCA) evaluates the environmental impact of a system over its entire life cycle by compiling an inventory of relevant energy uses, materials inputs, and environmental releases. The inventory aims at capturing all aspects of a life cycle from cradle to grave, including extraction and treatment of raw materials, educational tools, product manufacturing, transportation and distribution, product use, and end of life disposal. After the inventory is assembled, a computer program is used to quantify the potential environmental impacts associated with the identified inputs and releases, allowing for informed choices about materials and energy use, and ultimately economic planning. LCA must be coordinated within a broader sustainability management approach in order to deliver the desired results.

www.epa.gov
www.iso.org
www.quanits-intl.com