

The Modular Cleaning Program is designed for the conservator to modify and extend. Since all of the calculations are based on physical properties, integration of a new material is simply a matter of entering it into the components database, adding the required physical properties, and building some cleaning solutions.

While using the database, one can easily consult the chemical and physical properties of selected materials via a simple navigation button, eliminating the need to pull various reference books off the shelf. Health and safety information can be accessed in the same way. The database is set up so that it is easy to quickly note the results of the cleaning into the database. The results are tabulated and can be printed or kept for future reference.

The Modular Cleaning System is evolving. In the next version there are plans to add:

- A discussion of test solutions clearance (rinsing) and recommendations for clearance of each test solution.
- The ability to use two surfactants in the same test solution.
- The ability to add co-solvents, small amounts of organic solvents that extend the capabilities of an aqueous cleaning system.
- The ability to add ionic strength buffers
- The ability to add metal ion buffers to prevent chelation of desirable metal ions from the substrate.
- Add a help system.

Mixing test solutions in this manner is so convenient that the following major extensions to the system are being developed, and they will be presented at the AIC Annual Meeting's general session:

- A modular system of solvent gel components that can be mixed to make almost any solvent gel desired.
- A system to assist with testing of liquid solvents based on Hansen solubility parameters.

The system has some problems and limitations:

- It will never adequately handle emulsion-based cleaning systems.
- FileMaker Pro does not support extremely complex mathematics or the generation of dynamic charts or graphs. (Although Mac users can look forward to being able to use a separate freeware 3D visualization program to view Hansen and possibly Teas solubility diagrams.)
- The Modular Cleaning System is a tool for conservators to use. Computers cannot clean works of art. A database will never replace the intelligence and "eye" of the conservator (which is a good thing!)

The Modular Cleaning System is being freely distributed to professional conservators. The Modular Cleaning Database should be available via the Conservation Online website (<http://palimpsest.stanford.edu>) by the time you read this. You will be able to download versions for Win-

dows or Macintosh as well as the runtime versions that do not require FileMaker Pro (in Windows, Mac Systems 8 and 9, and Mac OS X versions). The database is restricted to professional conservators, so it requires a serial number to use it. Professional conservators can register with Chris to obtain a serial number. This way updates can also be made available to the user community. If you already have FileMaker Pro software, all you need are the 16 interconnected databases that make up the system. If you don't have FileMaker Pro, the developer of the software has a FileMaker developer's license and is making a royalty-free version of the system that is bundled with a run-time version FileMaker.

Please note: No technical support will be provided. The software is copyright and may not be sold or distributed. Modifications made by other parties must be shared with the user community.

—Chris Stavroudis, *Paintings Conservator*, 1272 N. Flores St., Los Angeles, Calif. 90069-2904; (323) 654-8748; cstavrou@ix.netcom.com

—Tiarna Doherty, *Paintings Conservation*, J. Paul Getty Museum, 1200 Getty Center Dr., Los Angeles, Calif. 90049; (310) 440-6118; tdoherty@getty.edu

Health and Safety News

Is Your Old Dust Mask the Respirator You Thought It Was?

I have had the privilege of being involved with a respiratory protection and fit-testing workshop at the AIC Annual Meeting for the last few years and I have been asked many times about the use of dust masks for personal protection. The first question I ask is, Do you understand the difference between a filtering facepiece (FFP) respirator and a dust mask? The answer is usually a verbal or non-verbal version of "I'm not sure."

The Occupational Safety and Health Administration (OSHA) Respiratory Protection standard defines a filtering facepiece as a "negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium." This definition doesn't clearly distinguish an FFP from what we used to refer to as a "dust mask." The main difference is that an FFP has been made in a way that the manufacturer can

Are you good at preservation? Do you have proper gloves? A fit-tested respirator? Proper goggles?

A reminder from the AIC Health and Safety Committee

claim a certain level of efficiency and effectiveness. The dust masks may look the same or similar to FFPs, but the level and quality of filtration has not been certified. The FFPs are respirators and will essentially be treated just like other negative-pressure, half-face respirators.

Another important part of the OSHA definition is the term “particulate respirator.” It is important to remember that the FFPs are designed to reduce the inhalation of particulate hazards (dusts, spores, and other particles). An FFP will not protect a wearer from gases, vapors, or oxygen deficiency.

The National Institute for Occupational Safety and Health (NIOSH) is the federal government agency that approves the quality of respirators, to include FFPs. According to NIOSH, the “NIOSH-approved disposable respirators are marked with the manufacturer’s name, the part number (P/N), the protection provided by the filter (e.g., N-95), and ‘NIOSH.’” The protection provided by the filter is designated by one of nine alpha-numeric categories. The nine categories of particulate filters fall into three “series” of filters: those that are **Not** resistant to oil (N), those that are **Resistant** to oil (R), and those that are **Oil Proof** (P). Each of the series (N, R, and P) has three levels of filter efficiency for particulates. The three levels are 95 (95% efficient), 99 (99% efficient), and 100 (99.97% efficient). The 100 series respirators are the equivalent of what used to be referred to as HEPA (high efficiency particulate air) respirators.

The FFPs that are most commonly advertised and used are the N95 and P100 models. For each FFP there are a variety of features available on certain models, such as pleats, cushions, nose seals, and exhalation valves. FFPs are often available at local retail establishments such as hardware stores and home improvement stores, as well as many lab supply companies.

The decision about whether an FFP is an appropriate protective device and which category of FFP to wear should be determined as part of a site-specific health and safety program to evaluate workplace hazards and determine if personal protective equipment is necessary. OSHA standards require that any employer, including museums and conservators, needs to evaluate the potential hazards in the workplace and implement the appropriate programs. These pro-

grams may include respiratory protection programs, Hazard Communications (HAZCOM) programs, chemical hygiene plans (per the OSHA laboratory standard), or other programs required by OSHA for specific chemical hazards such as asbestos, arsenic, cadmium, and lead.

If the decision is made that workplace conditions require the use of an FFP to protect worker health, then a site-specific respiratory protection program will need to be implemented. A respiratory protection program consists of written procedures that outline many areas, including the following: medical clearance for individuals who will wear the respirator, training, fit testing, proper maintenance and use (including duration of use), and respirator selection. Thus, if an exposure to a hazard, such as mold or dust, is significant enough that the employer determines that respirator protection is necessary, a dust mask is inappropriate. An FFP with formal fit-testing and the other components of respiratory protection program are required.

If employees wish to use FFPs on a voluntary basis, that is if the employer has determined that no hazard requiring the use of FFPs is present, the requirements are simpler. In this case a site-specific respiratory protection program is not required. However, the employer has an obligation to provide some very specific information to the employees choosing to voluntarily wear FFPs. The information is outlined in Appendix D of the OSHA standard. The information in Appendix D includes guidance that wearers of an FFP should read and understand all safety instructions provided by the respirator manufacturer, as well as limitations of the respirators. Appendix D also reminds the reader that “a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.”

For additional information on respiratory protection please refer to the article and references presented in the September 2002 Health and Safety Guide (published in *AIC News*), titled, “A Conservator’s Guide to Respiratory Protection.” Additionally, FFPs will be discussed at the Respirator Fit Test Workshop, part of the 2004 AIC Annual Meeting in Portland, Oregon.

—Dennis C. Ertel, Jr., CIH, REM, Member of AIC Health and Safety Committee and Manager of Industrial Hygiene, Sandler Occupational Medicine Associates, Inc., (SOMA), 839E Quince Orchard Rd., Gaithersburg, Md.; (301) 519-6880, denny@somaonline.com



A typical facepiece, courtesy 3m

JAIC News

The Writing Process

As the AIC Annual Meeting approaches, I am reminded of all of the high-quality presentations that are given at each meeting. At JAIC, we look forward to having these presentations transformed into articles for publication. This brings up the question, though, Why does a good talk need