

industrial hygiene resources available to ensure proper response to health and safety concerns. AIHA's new CEO, Larry Sloane, was present to affirm AIHA's commitment to this program. OSHEM is already a part of a long-standing Smithsonian collaboration with AIC via participation in AIC Annual Conferences, national symposia, and publications related to the museum environment.

The goals of cross-education and networking for the event were clearly achieved, with approximately 100 professionals from conservator/collection care and health, safety, and fire protection occupations. The attendees represented 15 museums and cultural institutions, 4 universities, 6 federal agencies, and 12 private industries. Feedback was overwhelmingly positive with many comments encouraging another future event, and suggestions for topics that would be of interest to the joint community of professionals. Attendees were especially appreciative of the collaborative environment, the ability to network and discuss topics with experts and colleagues, the venue, and the food!

If you are interested in collaborating with local health and safety organization sections to present an educational seminar on conservation/collection care safety concerns, please contact Kathryn Makos, CIH, former AIC H&S Committee Chair, kamakos@verizon.net.

Health & Safety Committee

Portable Fume Extractors: Survey Summary

In October, the Health & Safety Committee released a survey asking AIC members about their portable fume extractors. The goals of the survey were to aid other conservators in their research and future purchases of the machines, and to address the health and safety concerns regarding these units. Unfortunately, the response to the survey was extremely small, making our results anecdotal rather than statistically valid. Below are the results from the survey thus far. Though the response rate is small, the committee wants to share the information we have collected up to now, because there has been expressed interest in the results. In addition, those who have filled out the survey gave useful details about specific models that will aid their colleagues in making decisions when purchasing these machines.

The Health & Safety Committee is planning to write a comprehensive guide on portable fume extractors. It will address the technical aspects of the units as well as some of the issues (such as changing the filters). The guide will also include survey results, which we hope will be more extensive by then. If you already own one of these, it would be extremely helpful to the committee and your colleagues if you fill out the survey (www.survey-monkey.com/r/5GWBS6P)—especially if you don't own one of the three brands discussed specifically in this article. Thank you to those who already took the time to fill out the survey!

The majority of the respondents to the survey purchased units from three major manufacturers that are popular among conservators: Extract All, Nederman and Sentry Air. The following is a summary of the results of the survey focusing on these companies, conservator reviews of the specific models, and commentary from manufacturer representatives. Overall, while many people had critiques about different features, 100% stated

Association of Registrars and Collections Specialists Update

ARCS (Association of Registrars and Collections Specialists) is very pleased to announce its upcoming 3rd Biennial Conference. Get your passports ready to meet us this year, November 3-5, 2017, in beautiful Vancouver, British Columbia, Canada. Session proposals of various lengths and formats (creative formats encouraged!) are accepted by February 27, 2017, but if you have a burning and timely issue the conference committee won't refuse to review it! Proposal guidelines and proposal form are found at: www.arcsinfo.org/programs/2017-vancouver-conference/call-for-papers.

Also, mark your calendar as online registration begins March 20, 2017. You may look at the topics from past conferences to get an idea of the scope of topics presented—they are posted on the site as well. The 2015 program in New Orleans is available at www.arcsinfo.org/content/documents/2015preliminary_conf8-3-15.pdf, and the 2013 program in Chicago can be found at: www.arcsinfo.org/content/documents/2013arcs_program_final.pdf.

—Robin Bauer Kilgo, ARCS,
Social Media/Membership Manager

they would purchase their model again.

Eighteen people responded to the survey. Of those 18, twelve conservators had what we might consider traditional portable fume extractors—with filters that allow the contaminated air to be filtered and released back into the workspace, and one or two trunks or wings. Three respondents had ductless fume hoods—similar but larger than the traditional fume extractors with one or two trunks. One respondent had a unit that vented contaminated air directly to the outside. Two units were not purchased for organic solvent fume extraction. One extractor was for mold/particulate only, and another extractor was specifically for welding.

All the respondents ranked the things most important to them when researching their purchase. The average top four were: 1. Price, 2. Portability, 3. Ability to capture specific contaminants, and 4. Airflow. Other popular choices in this category were noise, other costs (maintenance/filters), and recommendations/reviews. Of less importance to the respondents were good technical support, specific features, and past experience.

TRADITIONAL PORTABLE FUME EXTRACTORS

Eight out of the 18 respondents owned Extract All/Air Impurities Removal Systems. Four different models were reviewed. Four respondents owned the 987 series, two respondents owned the 981 series (figure 1), one respondent owned the S-DTL-1, while another respondent described their unit as a “WH 350W Air Cleaning System with Arms”—it is not clear which model this is. According to Air Impurities Removal Systems Technical



Image courtesy of A.I.R. Systems Inc.

Fig. 1. Extract All Series 981

Representative, Joe Baldus, all three of these models have the same motor. The DTL-1 and the 987 draw the contaminated air through the filters, and then through the motor. The 981 draws the air through the motor and then through the filters, which could make it a slight fire hazard. However, because of the speed of the air, this is extremely unlikely, and no incidents have been reported.

The DTL-1 and the 987 have more options for filter combinations, but the filters are slightly more expensive. All models allow the filters to be refilled with fresh charcoal (rather than buying a pricey new filter). The activated charcoal supplier they purchase their carbon from says it has an 8-month shelf life; however, Baldus has many clients who have reportedly used their charcoal for longer periods of time. According to Baldus, activated charcoal can hold up to a third of its own weight in contaminants, so some people weigh their filter upon receipt and periodically to monitor the condition of the carbon. Nevertheless, Baldus says the majority of his clients simply use the smell test. The AIC Health & Safety committee does not recommend this method, as it means you are already exposed to the hazard before you realize it.

One respondent who owns a 981 said, "I haven't changed a filter yet, since I've had it less than a year, but putting the filter in was pretty easy, so I expect changing it to be pretty straight forward. I was looking into fume hoods and other portable extraction units—based on the usage form that I had filled out—I was told to exchange the filter once a year. That replacement plan seemed easier than trying to track hours of usage, especially because the filter can pick up pollutants even when the unit is not on. The tech felt that this plan was safer to not re-emit pollutants into the air once the filters became saturated."

When purchasing their fume extractors, the most important factors for were: portability, ability to capture specific contaminants, and prices. Note that price evaluations were tied to reviews/recommendations. Regarding "Other costs," one respondent said, "The accessories were expensive. I feel like every add-on was another couple hundred dollars. Based on the info I got about the filters (which were somewhat pricey initially), I could probably replace just the loose charcoal instead of buying their proprietary filter."

Once they purchased and started using their extractors, we asked respondents to rate aspects or features of their Extract-All units. Table 1 summarizes the results.

The most varied responses were regarding the noise of the

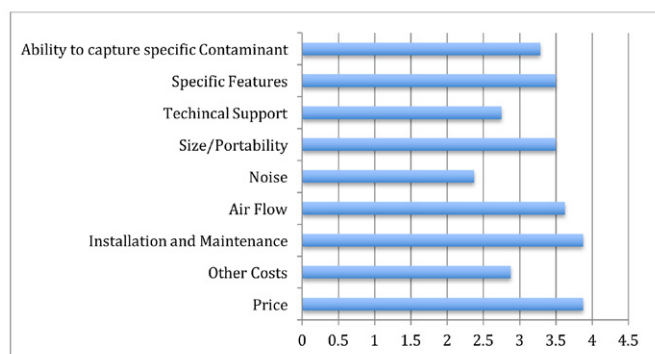


Table 1. Extract-All ranking: 4=excellent, 3=good, 2=fair, 1=poor

units. The S-987 series has a noise muffler that can be purchased in addition to the unit itself. A couple of respondents noted that the extractor was quite loud but the muffler made a difference. One respondent said of the filter, "The muffler was part of the package from Extract-All, so it's part of the unit, bolted on by them when they put together my order. It's a triangular shaped 'flange' section attached at the lower edge that only sticks out about 3" from the bottom edge on that side. So, while it was an additional charge, I don't think it was that much, maybe around \$100. Since the sales representative said it lowered the volume I just went with it, and I think it's totally worth it since I've used it where other people are working such as in government offices. Also, the noise level is very low when the rheostat is turned to lower suction and increases when the suction is increased." The respondents rated the noise as good. Those with the S-981 series rated the noise as fair (2) or poor (1), and it does not have an option of a muffler. The noise level of the DTL-1 unit was rated good (3).

Two respondents had Nederman models: the Fume Cart and the RFE200 PKR. It appears the latter model is no longer available from the manufacturer. When purchasing their extractors, their top three priorities were portability, other costs, and ability to capture specific contaminants.



Fig. 2. Nederman Fume Cart

Because one of the units is no longer available, this discussion will focus on the Nederman Fume Cart (fig. 2). The respondent generally gave the unit good (3 on the other charts) ratings. It received excellent ratings (4) for Specific features and Ability to capture specific contaminants. It received a poor (1) rating for noise. A note by the respondent said, "this extractor is noisy, so its use during museum open hours is restricted." In addition, the filters are expensive to change as they range from \$600-\$700 per unit. The respondent used a half-face respirator in addition to using the extractor.

Two respondents had extractors made by Sentry Air. One was a Winged Sentry with Lid SS-200-WSL (Fig. 3). The other was the SS-300-FS with a single portable arm (Fig. 4). Luke Turner, Sentry Air Technical Representative, indicated that both models have the same motors, but the main difference is their application.



Fig. 3. Sentry Air Winged Sentry with Lid

One works more like a fume hood, while the other has trunks. The unit with the trunks can be purchased with one, two, or four trunks. The greater number of trunks, the lower the capture velocity at each outlet. For a two-trunk system, the capture velocity is half that with only one

trunk (see Table 2).

Like the Extract All units, the filters can either be refilled with fresh charcoal or purchased new. When questioned about the filter change-out schedule, Turner mentioned the existence of break-through indicators for ductless fume hoods, which are likely more sensitive than using the smell test. They are manufactured by Chemteq (www.chemteq.net) and are solvent specific.

Half of the respondents use their unit with nothing added to building ventilation; 50% monitor the need to change the filter, while the rest follow manufacturer specifications regarding filter change-out schedules.



Fig. 4. Sentry Air SS-300-FS

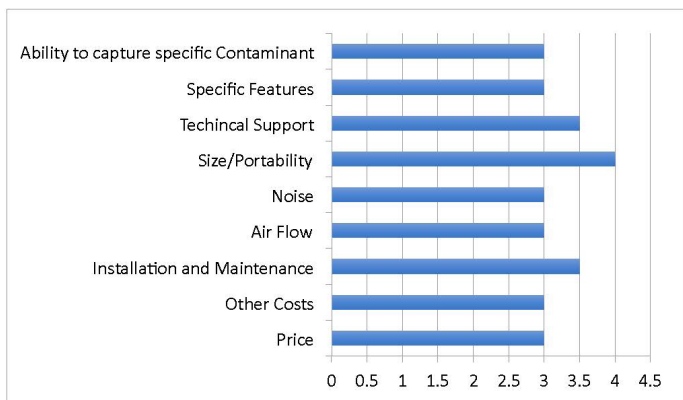


Table 2. Sentry Air ranking scale: 4=excellent, 3=good, 2=fair, 1=poor.

OTHER EXTRACTORS

Three respondents had ductless fume hoods. One was made by West Lab; the author could not find this unit or manufacturer available on the internet. The second was the Labcono Fume Absorber, and the third was the Purair 24” Ductless Fumehood by Air Science. All three respondents rated their extractors with good or excellent marks for the most part, but these are outside the scope of this article. One respondent changed the filter on a regular schedule regardless of use. While this is certainly the most expensive method, it is also the safest.

One respondent had an extractor fan made by Global Industrial (WG246340) that is installed in the window and extracted directly to the outside.

Another respondent was using a portable fume extractor for welding. Welding requires several different features than cleaning with solvents, mold, or particulates. The unit they use is the DiversiTech FRED-ICS, a somewhat large unit.

Overall, the results of the survey were encouraging. Respondents indicated what types of activities they are using fume extractors for and what other types of respiratory protection they are using. The more information the committee can gather from users, the more information we can provide on safe use. If you would like to provide more information about a fume

extractor you have purchased, or have questions you would like addressed in our forthcoming guide, please complete the survey (<https://www.surveymonkey.com/r/5GWBS6P>) or contact HealthandSafety@conservation-us.org.

Have a question about health and safety in your conservation work?
Email healthandsafety@conservation-us.org.

People

Lesley Day is currently the Kress Foundation Conservation Fellow at the Shelburne Museum, focusing on the research and conservation of the museum’s comprehensive collection of water-fowl decoys. Lesley graduated from the UCLA/Getty Master’s Program in the Conservation of Archaeological and Ethnographic Materials in 2016, after third year internships at the American Museum of Natural History, New York, and the Hibulb Cultural Center in Tulalip, Washington. She can be reached at lmirling@shelburnemuseum.org.

Julio M. del Hoyo-Meléndez is now Head of Laboratory and Head of the National Research Center for Cultural Heritage, both based at the National Museum in Krakow. In 2011, he joined the Laboratory of Analysis and Non-Destructive Investigation of Heritage Objects at the National Museum in Krakow, Poland, as a Research Scientist. He holds a PhD in science and conservation of cultural heritage from the Department of Conservation and Restoration of Cultural Heritage of the Polytechnic University of Valencia, Spain. Julio is also the Editor-in-Chief of the *Journal of the American Institute for Conservation*, a position he has held since November 2014.

Susanne Grieve has recently relocated to New Zealand. Previously she served as Director of Conservation at East Carolina University in North Carolina. She is the Principal for Global Artifact Preservation Services, LLC (US) and HPFS Solutions (NZ) and is a PhD Candidate at Victoria University, Wellington, in the Museum and Heritage Studies Programme.

Kelli Piotrowski has joined the staff of the Weissman Preservation Center, the special collections unit of Preservation Services, at Harvard Library as Special Collections Conservator. She first came to the Weissman Preservation Center as a Kress Fellow in 2013, which was followed by a two-year term position as Projects Conservator for Special Collections. She holds a Master of Art Conservation from Queen’s University, and a Master of Library and Information Science from Queens College, City University of New York.