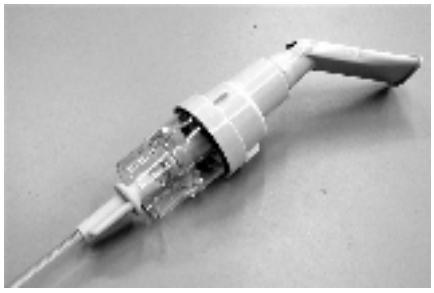
Technical Exchange

Albrecht Gumlich
column editor

Another nebulizing option

The arrival of two pieces with powdery, flaking pigment to the objects lab of the Nelson-Atkins Museum of Art caused us to look into the various tools for nebulizing liquids. While there is a fair amount of literature on various methods of delivering a fine mist of moisture or adhesive to a desired area, many of these modified tools can be frustrating and unreliable. Based on a suggestion from Nancy Odegaard of the Arizona State Museum, we decided to try working with an asthmatic nebulizer.

Asthmatic nebulizers are made to disperse a viscous medicine into a fine mist- and do work well with many dilute adhesives. There are many different styles of asthmatic nebulizers out there; all require a source of compressed air--some styles are sold with a small air compressor while others are not. Based on Sandra Grantham's experiences described in "Painted Japanese Paper Screens: the consolidation of paint layers on a paper substrate" published in *Broad Spectrum: studies in the materials, techniques, and conservation of color on paper* we chose to work with the Sidestream nebulizer manufactured by Respironics.



The Sidestream nebulizer is an inexpensive unit ($13.00 on ebay!) that consists of a hose attachment, small container, an oscillating unit, cap, and removable dispensing component (or mouth piece). This means, of course, that a separate air compressor is required. Depending on the attachment mechanism of the compressor the hose may require an additional connector. However, in our testing and treatment we used an Air-Medea Silent Compressor model AM-1000 made by Medea Airbrush Products, which allowed for a direct connection of the hose to the compressor.

The 'mouth piece' can be a little limiting- although nice and wide to disperse the nebulized liquid, it can only be used upright. Tilting the container and oscillating unit can cause drips of liquid. Replacing the mouthpiece with Tygon tubing or other hose creates a flexible delivery mechanism. Testing of this modified delivery system consisted of bending the hose to form a U-shape. The intention was to collect droplets of liquid in the curve of the U to prevent drips. This did not seem to be a problem in testing or during use. We found this method of creating and delivering a nebulized liquid simple, inexpensive, and fairly reliable.

Dana Senge

Efflorescence Test Kit

Sigma-Aldrich's Subsidiary, Fluka, offers the "AQUANAL® Analytical case for building restoration," part of their Aquanal line of mobile water analysis kits. The kit tests for chloride, total hardness, magnesium, nitrate, sulfate, and sulfide.

The test results are quantitative and require a small spectrophotometer which is purchased separately. The kit costs $612.00. The spectrometer is $708.00 (Spectro 1) or $978.00 (Spectro 2). (See www.sigma-aldrich.com/aquanal.)

Chris Stavroudis

Microfiber cloths

A microfiber cloth, dry or lightly dampened, does a very good job of removing "ghosting" around fills, and is so soft it won't abrade the tenderest varnish or paint film.

Carolyn Tallent

Mixing two component epoxy (liquid adhesive)

Here is a hassle-free way to mix two (liquid) components, like Hxtal (NYL-1) epoxy resin and hardener:

You can save some clean-up work by mixing the liquid components in a small plastic bag instead of a jar. I use a 4" x 6" "Reclosable Bag"which we get from University Products. This 2-mil zip lock bag is resistant enough to mix the components thoroughly. Any sturdy sandwich bag will probably do the same job.

Simply line your chemical beaker with the small plastic bag. Add the accurate amount of each component according to instructions. Remove bag from beaker. Close zip lock after removing most of the excess air in the bag. Mix thoroughly by massaging (or kneading) the bottom of the bag, always squeezing the escaping mixture back into one corner.

Use an applicator with the desired shape of tip to remove small quantities through the zip lock opening at top. Alternatively you can cut a tiny tip of the corner at the bottom with a scalpel if it seems appropriate to use the bag itself as adhesive applicator.

Advantages: No dirty beaker or jar. Less air bubbles in the mixture. Easy transport during wet life (open time). Easy disposal of hardened leftover. Don't forget to clean the scalpel or applicator tool immediately after use.

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