VLT - Very Low Tech Technical Exchange

Because simple ideas work,

because nobody ever thinks of passing on small solutions, even though they can sometimes be hughly helpful,

because conservators are ingenious, and we all have a few of these.

Take a minute, take a picture, write a paragraph about your own clever solutions, and send them to the editor. This could become a regular feature.

Silicone dough

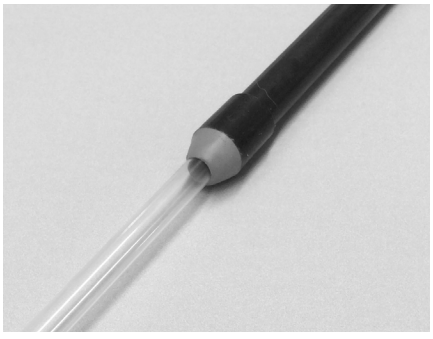
Sugru is a type of silicone dough that bonds to most materials, air cures overnight, and becomes a durable rubbery material suitable in heat or cold, indoors or outdoors, and is easily removed. Here I have used it to attach a glass pipette to a vacuum cleaner micro-tool attachment.

Other things I have used it for include: attaching a rare earth magnet to my sewing machine to keep small tools handy, embedding rare earth magnets inside to create a set of convex/concave clamps, making a hand tool ergonomic, and replacing a knob on a piece of equipment.

I found it recently at a Beverly's, and it appears to be available in stores like Orchard Hardware and Target. Previously you could only buy it online. The first time I ordered, I had to wait for the order to ship as the entire company was at Burning Man.

You won't want to waste it as once the package is opened, it won't keep. So have some ideas in mind for any that might be left over. Their website sugru.com has a large photo gallery for inspiration.

Angie McGrew



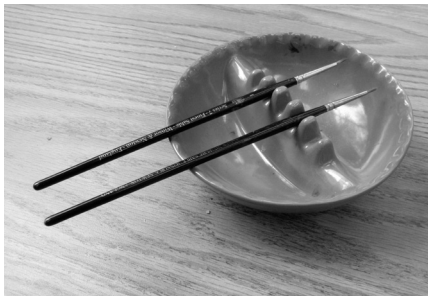
Easel ledge liner cut from open-cell black shelf liner from The Container Store. (This stuff can be used all sorts of ways in the studio, for instance for opening sticky jar lids. It's especially good to ensure things don't slip on a slick surface. Also marketed as rug gripper, good to keep in the on-site tool kit, *CT*.)

Sharps container and travel kit cotton and swab jars made from small salt cellars.

Hot air gun stand made from a paper towel holder and a screw-hook.

Swab jar made from a canning jar and a star-patterned lid insert that is sold to convert a Mason jar to a potpourri receptacle.

Brush holder and swab rest from mid-century modern ashtrays.



Serena Urry

Swab stick trick

To prevent the cotton from spinning on the stick, cut the tip of the skewer into a chisel shape. The cotton will stay on while rolling but slips off easily into the disposal can.

And yet another use for duct tape

A large roll of tape, like duct or masking tape, makes a good stabilizer for bottles or jars of liquid, especially good for plastic ones that tip easily. This can be really useful on-site.

Fill additive

I recently needed to build out missing corners for a painting on 70 year old, very dense gypsum board. I made my basic fill material with spackling paste with some white glue added to made it a bit harder, but was still concerned about strength.

I was thinking of the phrase “bricks without straw” when I realized that I had the perfect additive in the laundry room. Having washed and dried a bunch of white cotton and linen fabric for dyeing and white cotton kitchen towels, there was a pile of lovely white fibers from the dryer lint trap that I had kept.

The addition of the lint gave the fill material good handling qualities, strengthened it, and gave the fill a texture that matched the paper face of the original board very well.

MCP Storage Box

The Modular Cleaning Program organizes the process of thinking about cleaning, but keeping the component bottles organized can be a nuisance, and even a slight deterrent to use.

So, as a last step in simplifying the process, you might consider this: a plastic box from The Container Store with dividers to keep the bottles and jars in proper position for easy use.

The "boot box" is just the right size for the basic set. The plastic dividers make it simple to create whatever configuration you want. It costs about $30, but is worth it when you can immediately pull the component you need. (Of course, the final convenience would be a guide sheet glued to the top, which I have never gotten around to making.) And it can all be ordered online, if you don’t trust yourself to visit the store.

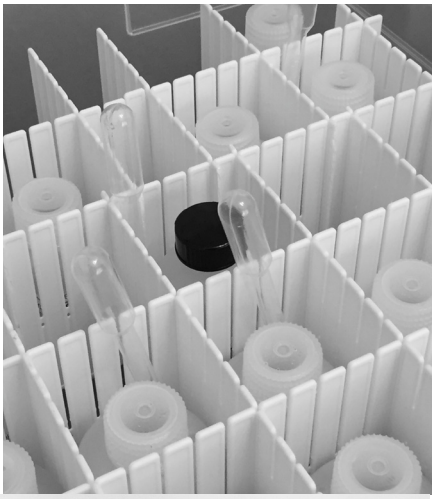
Another handy feature is that you can keep the pipet for a solution in it's cubby to avoid confusion and contamination while you are working. This idea comes from Chris, whose kit you see at right. He used the wider divders, mine has the narrow ones, which are cheaper.

The Container Store

Boot Box
22-1/2" x 14-3/4" x 5-3/8" h
10023020
$9.99

Small Interlocking Drawer Organizers
White Pkg/5
17" x 2-1/2" h
10051251
$5.99 takes about 3 packages

Carolyn Tallent



Building a magnetic stir plate

I previously worked at a museum which had funding to buy adhesive crystals and solvent, but not a magnetic stir plate to speed up the process of making solutions. This was a problem since one of my projects had a rapidly approaching deadline and required a large quantity of adhesive.

Luckily, I realized that I could meet my deadline within budget by building a stir plate myself for only $20 worth of parts. The principle of how a stir plate works is simple, and most conservators should be able to find the right parts easily. This enables anyone working with limited resources or in a remote field location to improve their efficiency without having to make sacrifices elsewhere. The device itself can be built in less than half an hour.

There are many useful tutorials posted online, including video tutorials, by homebrewers who built their own stir plates to solve similar problems. The details vary between tutorials, and it is certainly possible to build a more complex stir plate than described here, but the basics are consistent.

The fundamentals include a powerful magnet, a small fan, a power source, and housing. When the fan is in motion inside the housing, the attached magnet spins. A magnetic stir bar in any container on top of the housing should then spin along with it. Refer to the diagram for an overview of how the components fit together.

You will need these parts:

- A rare earth magnet. These can be found from online retailers for about $1-$5 apiece, but you can also scavenge one from inside an old hard drive. I used a neodymium magnet from a laptop's hard drive. It does not matter exactly what shape the magnet is, just as long as it is flat. Note: keep rare earth magnets far away from your other electronic devices.
- A small fan. The simplest option is a small 12-volt computer case cooling fan. I used the 80mm Antec three-speed 12-volt fan, which comes with a rheostat attached, but a single-speed fan would suffice. There is a wide variety of these fans available online for PC builders, but the very basic ones in the $7-$10 range are adequate. You could also scavenge a fan from an old PC tower.
- An AC/DC adapter for the fan's power supply, with identical voltage. These cost around $7 online. I used a 12-volt Motorola adapter, but these are virtually identical across major brands.
- Adhesive to hold the magnet to the fan.
- A small box to house the components. I used a cigar box because these are inexpensive and sturdy, yet easy to drill through. You can find empty cigar boxes either for free or at a low cost, typically $1-$5, at cigar stores. The only practical restrictions are that it must be big enough to house your computer fan and strong enough to support a container of whatever you are trying to mix on top.
- Four sets of screws, spacers, and wing nuts to hold the fan in place inside the box. You are going to be attaching the computer fan to the underside of the box lid.
- Either a soldering kit or a set of wire connectors, whichever is more convenient in your laboratory.
- Optional: A scrap piece of Plexiglas or similar sheeting the same size as the box lid.

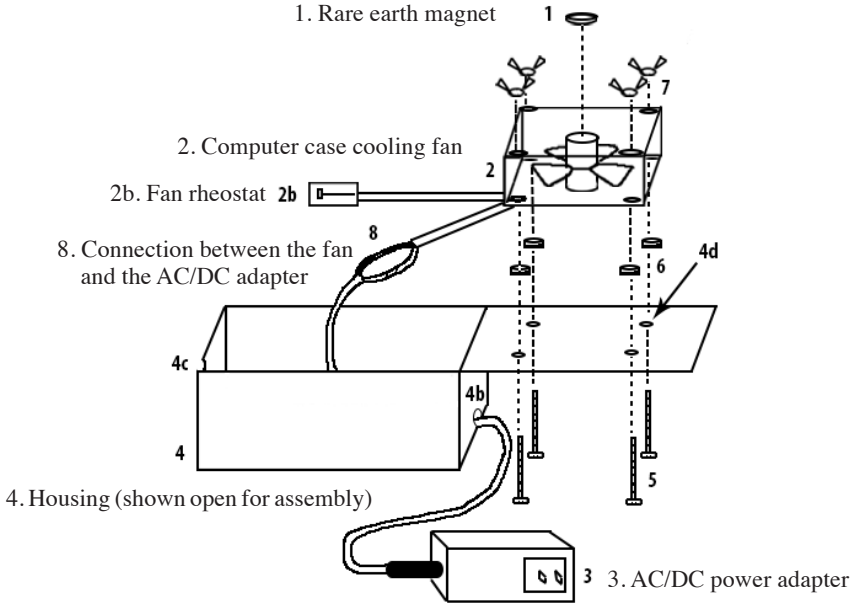
Computer case fans come with four holes for screw mounting inside a PC tower. Center the fan on the cigar box lid, then drill four holes corresponding to where you will slot in the screws to mount the fan onto the underside of the lid.

Cut a hole in the back of the box wide enough to admit the cable from the power supply.

Your computer case fan will have a three- or four- pin power connector at the end of a short cable. Cut this pin connector off the end of its cable and shave off some of the cable's insulation to expose the wires. You only need to expose 1cm or less of these wires. If your fan has a rheostat, be careful not to remove this rather than the power connector. If your fan has both a three- and a four-pin power connector, it does not matter which one you remove. However, you should only remove one of the two connectors; ignore the spare.

Cut off the adapter plug from the power adapter cord, then expose about 1cm of the adapter cord's wires as well. The adapter plug is the part that plugs into a device for DC output, not the part that plugs into the wall to draw AC power.

Twist together the two devices' corresponding wires (live wire to live wire; neutral wire to neutral wire) and test the connection by plugging the power adapter into the wall. The fan blades should spin. If they do not, you may have either connected the wrong



wires or selected a power adapter that does not match the fan's voltage. Do not touch the live wires while the power adapter is plugged in.

The fan's central post will spin along with the blades, but oftentimes only one side of this post will be accessible from outside the fan casing. Note which side this is, then unplug the fan and un-splice its wires from the power adapter's.

Glue the rare earth magnet to the side of the center post that spun, so that the magnet will also spin when the fan is in motion.

When the magnet dries in place, you can feed the four screws into the holes in the box lid from the outside. Fit a spacer onto each screw from the other side before attaching the fan casing to the screws on the underside of the lid. The spacers will absorb some of the vibrations from the fan motor.

Once the fan is fitted, add and tighten the wing nuts to keep it in place when the box lid is closed.

Feed the exposed power adapter cable through the hole you drilled in the back of the box and reattach it to the corresponding set of wires on the fan. This is a good time to close the box and plug in the device in order to test whether you can get a magnetic stir bar to agitate a solution on top of the box.

If the distance between the spinning magnet and the top of the box is too great to affect the magnetic stir bar in your solution, try mounting the fan the other way up inside the box. Which direction the fan works best is a function of your magnet's strength as well as the size of your fan and its internal motor.

Unplug the device after this test and decide how to insulate the exposed power wires. Depending on your preference and how well you can maneuver inside the box, you can either solder your wire connections together or simply clip them into wire connectors. Do not do this until you have tested that the device works, or you may have to cut the wires apart to remove the fan from the box.

If your fan came with a small rheostat attached, you may also cut a small hole in the front of the box and pull it through the hole. The fan will automatically start when you plug the power adapter into the wall; the rheostat will allow you to adjust the fan speed.

Depending on how strong your magnet is compared to the strength of the fan's motor, the magnet may also occasionally interfere with its starting. If the motor stalls when you plug in your device, open the box and gently tap one fan blade with a pencil to get it started. The potential for occasional interference is why it is not a good idea to glue the box shut. If tapping the blades does not solve the problem, use either a weaker magnet or a more powerful fan.

When the internal components of your stir plate are all in place and the box is shut, you may choose to cover the lid with a piece of Plexiglas or something similar. The heads of the screws are otherwise exposed on top of the box, which could be a problem if you want to mix your solution in a large container. While this step is optional, it also improves the appearance of the device. (Labeling the front of the device will also prevent it from being mistakenly thrown in the recycling bin.)

When this is complete, you are ready to use your new magnetic stir plate and enjoy your increased efficiency!

Marina Gibbons

WAAC Publications

Handling Guide for Anthropology Collections

Straightforward text is paired with humorous illustrations in 41 pages of "do's and don'ts" of collection handling. A Guide to Handling Anthropological Museum Collections was written by Arizona State Museum conservator Nancy Odegaard and illustrated by conservation technician Grace Katterman. This manual was designed to be used by researchers, docents, volunteers, visitors, students, staff or others who have not received formal training in the handling of museum artifacts. Paperbound and printed on acid-free stock.

Price: $10.00

($8.00 copy for orders >10 copies)

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