

# Health & Safety

## Safe Handling and Disposal of Sharps in Conservation Labs

This article will focus on the handling and disposal of non-medical sharps waste. Typically encountered in conservation labs, these include known “clean” sharps such as scalpel blades or syringe tips, and accidentally produced clean sharps like broken glassware. For this article, “clean” indicates that the sharp items are not contaminated with either biological materials or hazardous chemical materials. OSHA (Occupational Safety and Health Administration) has strict standards that apply to sharps contaminated with blood or other potentially infectious materials (OPIM); see the [OSHA Standard 1910.1030](#) for information about these scenarios. These standards are important for historic sites and museums but are more likely relevant to planning for first aid or the provision of sharps containers for staff and public medical needs.

### DISPOSAL OF CLEAN SCALPELS, RAZOR BLADES, NEEDLES, GLASS PIPETTES, AND SIMILAR ITEMS

Scalpels, needles, razor blades, and similar items can puncture cardboard boxes. For this reason, they must be disposed of in puncture-proof plastic containers. Any rigid puncture- and leak-proof plastic container can work for this. The container must also be stable when upright and have a puncture-resistant lid. If reusing containers, ensure all old labels are removed or defaced and that a “Non-Contaminated Sharps” label is clearly visible. A common household container such as a plastic laundry detergent bottle is a great example of a compliant container that could be rinsed and reused as a clean-sharps container.

Purpose-made sharps containers can be purchased through a variety of suppliers. However, red biohazard sharps containers should not be used for clean sharps as these containers represent regulated waste and fall under state environmental and health department disposal requirements. Sharps containers are also commonly available in clear or white. If the non-red, purpose-built container still has a biohazard label, it should be removed or defaced if the container will only be used for clean sharps.

Containers should be sealed and disposed of when approximately three-quarters full or when the contents meet the fill line in purpose-made sharps disposal containers. Non-contaminated sharps are not regulated waste; therefore, these clean sharps containers can be disposed of as regular trash if this is consistent with the institution's waste disposal policies. In medical environments, there is a shift towards reusable sharps containers. However, these systems are not currently available at a scale that makes sense for cultural heritage institutions.

### DISPOSAL OF CLEAN, BROKEN GLASSWARE

Broken glass can be disposed of inside a plastic bag-lined cardboard box. The plastic bag should be sealed around the broken glass and the cardboard box well sealed with tape. The exterior of the box needs to be labeled as containing broken glass.

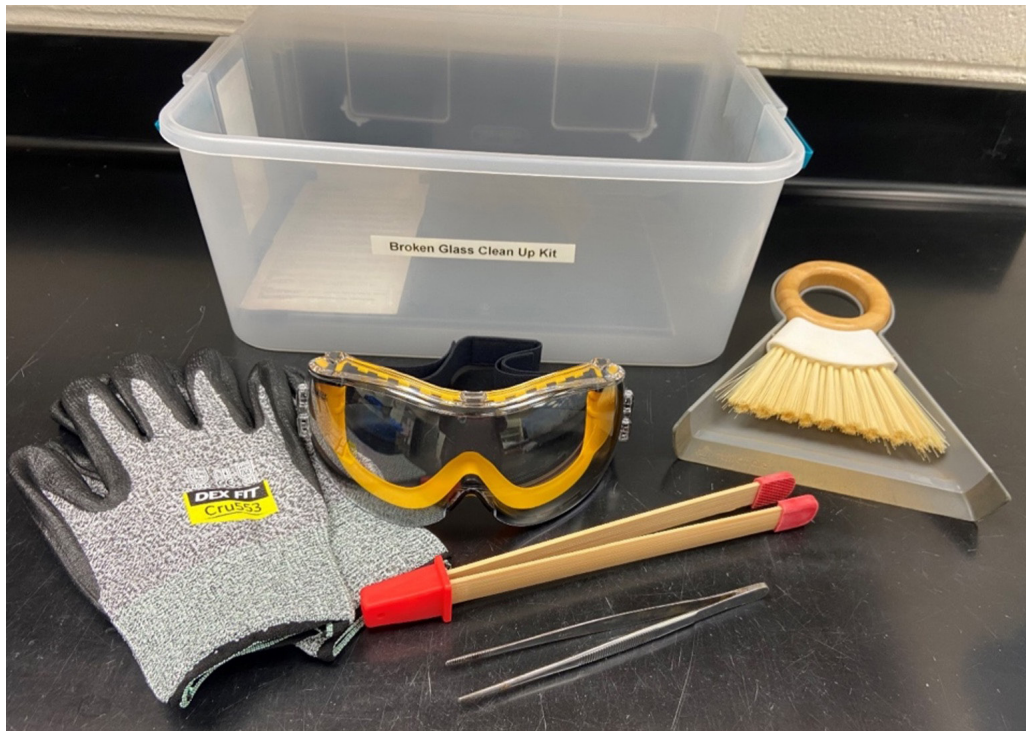
Any appropriately sized cardboard box could be used for this purpose. Major chemical suppliers like Fisher Scientific and Millipore Sigma also sell purpose-made broken glassware boxes. These boxes may be useful if a lab generates a lot of glass waste but does not have a required sharps container. Alternatively, small amounts of non-contaminated broken glass (such as a broken glass slide or glass pipette) could be added to an existing non-contaminated sharps container.

Containers should be sealed and disposed of when approximately three-quarters full. Ensure the weight of the container remains manageable, typically less than 20-30 pounds. The box can then be thrown out in regular trash. It is worth noting that broken glass is typically not accepted at recycling centers largely due to the handling hazard it presents.



## Health & Safety Questions?

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**Figure 1. An example of a broken glass clean-up kit containing impact-resistant goggles, cut-resistant and nitrile coated gloves, tweezers, and a washable brush and dustpan. Photo by author.**

#### CHEMICALLY CONTAMINATED GLASSWARE AND SHARPS

Dispose of glassware or sharps contaminated with hazardous chemicals or materials as you would the hazardous material itself; sharps exposed to volatile or non-hazardous chemicals can be disposed of as non-contaminated sharps. These practices are in compliance with institutional, local, state, and federal disposal regulations. For institutions that contract with an outside hazardous waste company, these materials could be labeled and disposed of as solid waste in compliance with that company's standards. If consistent with institutional hazardous disposal policies, place contaminated sharps in a labeled, puncture proof container with the hazardous disposal materials to protect individuals during pickup and disposal. Some disposal firms also supply and collect sharps containers.

#### HANDLING AND CLEAN UP OF CLEAN SHARPS

In addition to disposal policies, all staff should be aware of safe handling and lab clean up procedures. For known sharps like scalpel blades, razor blades, and needles, engineered controls that help prevent accidental sticks or cuts should be used where possible. Though this is more relevant to the medical community; devices such as scalpel blade sleeves and removal tools are readily available. In conservation, practices such as good ergonomics, training in proper cutting techniques, and workspace hygiene can mitigate most risk.

A safe cutting policy should be established that could include the following and more:

- › Never use blades without handles.
- › Always remove scalpel blades with forceps.
- › Retract retractable blades and place unretractable blades in protective sleeves in isolated bins.
- › Do not use excessive force on a blade that could cause it to snap.

Body positioning is especially important during cutting; this includes keeping the non-dominant or non-tool-wielding hand out of the path of the blade to prevent accidental injury. PPE including goggles for removing scalpel blades or puncture-resistant gloves when working with needles and syringes may be appropriate to specific work tasks and should be employed when needed.

For safe handling of clean, broken glass, establish a safety policy and ensure staff are trained. An example of safe clean up protocol includes the following:

- › Create the appropriate disposal container or safely move the existing glass disposal container to within arm's reach of the broken glass.
- › Wear appropriate PPE, including cut-resistant gloves and safety goggles.
- › Use tongs, forceps, tweezers, or another implement to pick up the large pieces of glass and place in the disposal bin.
- › Use a broom or brush and dustpan to clean the remaining shards and the surrounding area and place in the disposal bin.
- › Vacuum the area to ensure all fragments were captured.

If glassware breaks while it contained solvent or solutions, first follow spill mitigation measures as established on the SDS(s) and within institutional policy. If the glassware is established as clean afterwards, proceed as above. If the glassware contained hazardous chemicals and is now contaminated, additional PPE and safety protocols may be necessary.

## FIRST AID CONSIDERATIONS

Any cut, puncture, or other injury from a sharp, even a "clean" sharp, should be treated according to established first aid measures and reported to a designated individual(s) at each institution. Many conservators reuse sharps such as syringe tips, needles, and scalpel blades, so it is important to consider what may have been on the implement and share this information with medical personal as situationally appropriate.

From an OSHA compliance perspective, blood that can be contained within a paper towel and is a small enough amount that no blood is released when the paper towel is compressed is not regulated waste and can be disposed of in normal trash (see OSHA Standard 1910.1030). For this and similar situations, such as bandages with small amounts of dried blood, the material could also be placed in a sealed plastic bag prior to disposal to further protect custodial and down-stream staff.

## CONCLUSION

This article outlines best practices for interacting with expected and unexpected sharps and their safe disposal. Please note that flexibility in the disposal options for non-contaminated sharps helps accommodate large sharps, such as a large, broken glass dish, and provides options for those who work in smaller institutions or in private practice. The most common hazard to be encountered in these situations is puncturing or cutting of the skin. However, in lab situations it is always possible for multiple hazards to be present, like dropping glassware containing chemicals which can result in a chemical spill and can compound the sharps hazard. As with most conservation-focused health and safety measures, all variables need to be considered on a case-by-case basis.

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