

# How to Handle & Dispose of Preserved Biological Specimens

**VENDOR BACKGROUND INFORMATION.** Delta Biologicals has provided the highest quality preserved specimens for over 35 years. Delta Biologicals believe that dissection under teacher supervision is a powerful learning experience that instills knowledge, respect and provides positive benefits to our society. Experts agree that with classroom dissection, students learn basic anatomy in a “hands-on” manner that cannot be duplicated. None of Delta Biologicals’ specimens are threatened or endangered species. All specimens are obtained following USDA and Fish and Wildlife regulations. Delta Biologicals utilizes sound conservation and ecological practices. Many specimens are domestic or introduced species. All specimens are euthanized utilizing published guidelines established and advocated by the American Veterinary Association.

**SPECIMEN FIXATION.** Fixation of specimens alters proteins to prevent decomposition. All Delta Biologicals’ specimens are treated with a chemical fixative. Delta Biologicals’ formaldehyde specimens are chemically fixed using dilute (3.5%) formaldehyde. Over time, formaldehyde has proven to be an efficient and stable fixative. Delta Biologicals is also pleased to offer an alternative to formaldehyde fixed specimens. Delta Biologicals’ “Safe-Way” specimens contain no formaldehyde at all. They are 100% formaldehyde free. Delta Biologicals’ Safe-Way process involves a fixative consumed during fixation so no free chemical remains in the specimen. This process is very exacting and performed by highly trained technicians. Safe-Way specimens offer high quality specimens that allow students and instructors with concerns about formaldehyde exposure the opportunity to perform worry-free dissections. Some specimens, such as insects, require other chemical fixatives and these are noted in the specimen description.

**SPECIMEN PRESERVATION.** Delta Biologicals never ships specimens in formaldehyde. After fixation almost all Delta Biologicals’ specimens are placed in a non-formaldehyde holding and preservative fluid, Delta-Sol. Delta-Sol is a non-toxic preservative fluid that inhibits decay, fungal and bacterial growth and prevents desiccation of the specimen. Most formaldehyde specimens are stored and shipped in Delta-Sol. This reduces free formaldehyde levels greatly. Safe-Way fixed specimens are also stored and shipped in Delta-Sol keeping these products “formaldehyde free”. Holding solution labels are on all pails and detail the contents of Delta-Sol.

**SPECIMEN INJECTION.** Many specimens are offered in a variety of color injections. Delta Biologicals’ technicians have spent years perfecting injection techniques to produce a superior quality product. Liquid colored latex is injected into different sections of a specimen’s circulatory system for easy identification.

After injection the latex hardens into a non-toxic form with a rubbery like consistency. The following chart details Delta Biologicals' color injections.

**SPECIMEN PACKAGING.** Delta Biologicals offers two types of packaging. Wet-pac means the specimen is packaged in liquid in a plastic pail or jar. Vac-pac means the specimen is moist packed in a vacuum-sealed bag that has been specially designed for this purpose. These alternative packaging methods allow Delta Biologicals to meet customer preferences while ensuring that specimens arrive in good condition. Wet-pac allows for convenient storage and re-using specimens but has more expensive shipping costs. Vac-pac has lower shipping costs but is less convenient for long-term storage and reusability of specimens. In some cases, no packaging choice is available, as Delta Biologicals has determined that a single packaging method is optimal.

- **VIALS AND JARS.** Smaller specimens are packaged in 2-dram glass vials or plastic jars varying in sizes from 1 oz to ½ gallon. All jars have self-sealing lids to eliminate spills. Holding liquid is Delta –Sol or 70% isopropyl alcohol.
- **VACUUM PACKAGED (VAC-PAC).** Specimens are vacuumed packed and sealed in one or more specially designed bag(s). No liquid is introduced during vacuum packaging; however, a small amount of liquid may be present due to drainage from the specimen.
- **LABELING.** Product labels are provided on each container or bag. These labels contain important information – part number, product description and package quantity - to assist you in verifying your order. In addition, the product labels contain Delta Biologicals' date code. In the event that the product is unsuitable and cannot be returned to Delta Biologicals in its original packaging, please send the date code to Delta Biologicals. The date code allows Delta Biologicals to track the history of a specimen, which assists the company in maintaining and ensuring the quality of our specimens.

**SPECIMEN SAFETY.** Delta is committed to providing you with specimens safe for dissection in the classroom. Formaldehyde fixed specimens may contain a small amount residual fixative within the body cavity or as drainage within the bag. We recommend that this residual fixative be removed by rinsing the specimen or bag with water. Material Safety Data Sheets accompany each order and should be referred to for specimen specific information. To obtain additional Material Safety Data call 1-800-821-2502 or download from this site (Printable MSDS Sheets will appear on each Products "Item detail" page on this site if they are available).

**SPECIMEN HANDLING.** Read these instructions completely before you open or handle the preserved specimens that you will be working with. LabPaqs may contain specimens that were originally preserved in formalin (a dilute solution of formaldehyde), isopropyl or ethyl alcohol, or various substances containing

ethylene glycol and propylene glycol. These are then rinsed and packaged in non-toxic solutions such as a 2% propylene glycol and 98% water solution with less than 0.6% formalin. *Formaldehyde is an identified carcinogen.* It is also an excellent preservative that prevents mold and bacterial growth on and in specimens, while maintaining tissue consistency similar to that of the living organism.

The presence of formaldehyde in these specimens has been minimized by the supplier to reportedly be < 0.1 ppm.<sup>1</sup> However, to further protect yourself and your household, prudence demands that you avoid direct contact with any residual formaldehyde by following the below safety precautions.

Before and After each time you work on the specimen: Use shampoo or mild dish detergent to thoroughly wash the specimen inside and out, then thoroughly rinse the specimen with water. This is best done outdoors with a hose, but can be performed in a sink or shower with a spray nozzle. If the specimen will be worked upon again within two weeks, cover it tightly in its dissection tray with plastic wrap and store in a cool, dry, ventilated area. If it will be longer than a few weeks before the specimen is worked on again, seal it along with the reserved glycol preservative in a plastic bag and store in a cool, dry, ventilated area.

Place an absorbent layer of newspaper or paper towels on your work surface before opening specimen packages. Place the dissection tray and related equipment in the center of that covered area and perform your work there to protect against fluid spills.

The specimens are packaged in plastic bags and jars, and all packages are then sealed within an outer plastic bag for shipping. With gloved hands, open and discard the outer bag and then open only the package containing the specimen(s) immediately needed for experimentation. If the required specimen is in a jar with other specimens, extract it with tweezers to avoid spilling preservative fluids, place it in a sink containing clean tap water or on the dissection tray, and then tightly recap the jar.

Use tweezers to handle small specimens. To remove as much preservative as possible from the specimen before beginning work: swish small, delicate specimens in sinks of tap water, changing the water at least twice; larger, durable specimens should be rinsed under a sink tap with several gallons of running water. Flush the dissection tray with tap water to remove any collected specimen dripping. Use paper towels or disposable absorbent material to gently dry the specimen and tray before beginning the dissection.

1. Wear safety glasses and do not wear contact lenses. Wearing of safety glasses will prevent any possibility of chemicals splashing into your eyes. These

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<sup>1</sup> ppm represent parts per million. In this case, the report is that there is less than 1/10<sup>th</sup> part of formalin per million parts of preservative solution.

precautions also lessen any eye irritation from formalin vapors. If any preservative does get in the eye, rinse the eye thoroughly with water. See #3, below.

2. Wear appropriate gloves and lab coat or apron. Wearing of gloves while dissecting or otherwise working with specimens, especially those preserved in formalin, is probably the most common and important of these precautions. It is strongly recommended that you use gloves when handling preserved specimens. If your skin contacts formalin, you should wash your hands (or other contact areas) well with soap and water.

3. Work in an area with normal ventilation – not in a small confined area with a closed door. Specimens used are small, and most of the formalin has been removed and therefore do not produce much formalin vapor. Special safety glasses used to prevent eye irritation from formalin vapors are not necessary.

4. There should be no eating or drinking or food or beverages in dissection area.

5. Always remove used gloves before touching/using water faucet handles, door knobs, cabinet or drawer handles or any other general surfaces. This is good practice not only in lab work, but any time. Feel free to explain your objection to others if you see them practicing bad laboratory habits in this respect, also.

6. In general, gloves and lab coats and aprons should remain in the dissection area, i.e., remove them before going to the bathroom, another room, etc.

7. Pregnant women should check with their physicians before opening the specimens' bag or exposing themselves to any potential formaldehyde residues.

**STORAGE.** You may store your partially dissected specimen covered in its dissection tray if you need to return to it later. Store the covered specimen temporarily in a cool area and avoid storage in direct sunlight or areas with high temperature. **DO NOT** store the specimen in a refrigerator that contains foodstuffs. Again, make certain it is out of the reach of children and pets. If the specimen is to be stored for more than one week you may want to wrap the specimen in damp paper towels and place it in a zip lock bag and place the zip lock bag inside the dissection tray with the cover securely attached. For specimens shipped in safe storage solutions in jars, return the specimens to the jars between uses and attach the cover of the jar securely.

**DISPOSAL.** Biological preserved specimens are not considered hazardous waste and normally may be disposed of in the usual solid waste manner, however, as restrictions and regulations vary you may contacting your local waste management department to determine appropriate disposal methods.

After completing the dissection, wrap the specimen and its parts in newspaper and deposit in an outdoor trash container. Make sure these items are placed in a securely covered trash container that will not allow children and animals to access the contents. Wash and rinse all dissection tools and the tray in tap water before storage. Rinse your gloves and apron for reuse and hang to dry. Absorbent waste materials should also be safely discarded in outdoor trash containers. Some suppliers of biological specimens will dispose of the waste for you, if you would like to use this service please contact HOL for more information.

**DISPOSAL** - Delta Biologicals will assist you in the disposal of specimens. You can purchase a “Salvage Pail with Lid and Box” and you pay the postage; we’ll take care of the disposal. Simply, contact us via email at [customerservice@deltabio.com](mailto:customerservice@deltabio.com) or by phone 800-821-2502 for shipping directions. **FREE SPECIMEN DISPOSAL** is available if requested.

### DISSECTION SPECIMENS

The various dissection specimens used by hands-On Labs, Inc. are shown below, along with a cross reference to the Material Safety Data Sheet (MSDS) for each specimen. The MSDS documents are enclosed as separate attachments.

ITEM NAME	PART#	DESCRIPTION	MSDS
DS-Cow-eye	140.1703.1	Beef Eye VAC #140.1703.1	F1
DS-Fetal-pig-large	140.1235.1D	Fetal pig SFWY VAC 11-13 Double injected **	SW2
DS-Fetal-pig-small	140.1238.1D	Pig, Fetal 7-9 SFWY Vac 7-11 Double injected **	SW2
DS-Sheep-brain	140.1511.1	Sheep brain w/hypophysis vac #140.1511.1	F1
DS-Sheep-heart	140.1623.1	DS - Sheep Heart VAC #140.1623.1	F1
DS-Sheep-kidney	140.1539.1	DS - Sheep Kidney VAC #140.1539.1	F1
DS-Specimens-7	150.1507.1	Dissection items, 7 Assorted 150.1507.1 Hydra, Clam, Earthworm, Grasshopper, Sea star, Perch & Frog.	F1
DS-Arthropod-Specimens-3	150.1506.1	Specimen arthropod set of 3 #150.1506.1 - spider, crayfish, and grasshopper	DS
DS-Cat-small	140.1014.1	Safeway Preserved Cats, Rats and Rabbits - Double injected **	SW3
		** Arterial system injected with red latex and venous system injected with blue latex	