

# Safety Precautions For Handling Carolina Preserved Specimens

To achieve the necessary level of safety in the laboratory, the instructor should be familiar with all chemicals present and the necessary precautions to be taken in using them.

Information is provided in the catalog regarding which particular preservative is used in a certain type of specimen. Note that specimens are never provided in a formalin preservative unless this is specifically requested.

*Carosafe*<sup>™</sup>, are provided with a specific Material Safety Data Sheet (MSDS) prepared for that particular chemical. Always refer to the MSDS for safety information when using any of these chemicals whenever working with preserved specimens:

2. Wear appropriate protective equipment such as gloves and lab coats.

3. Work only in a well ventilated area.

5. In the event of contact with skin, wash with soap and water. Flush eyes with water.

6. If necessary, seek medical attention immediately.

7. Be careful with sharp objects such as pins, scalpels, and the spines and teeth of specimens.

Do not touch eyes, skin, or respiratory tract. The use of goggles reduces eye irritation from formalin vapors. If direct contact to eyes or skin occurs, wash thoroughly with water.

Formalin is very flammable. Avoid all sparks, open flames, and excessive heat.

Formalin vapors can cause dizziness, eye and nasal irritation. In addition, the vapor of some components can

When working with preserved materials, be careful with sharp objects such as pins, scalpels, and the spines and teeth of specimens. When using a scalpel, we recommend cutting away from oneself and ensuring that fingers are kept out of the cutting path at all times.

Carolina preserved specimens are available in *Carosafe*<sup>™</sup>, a propylene glycol-based shipping and holding fluid.

and acts to hold the unexposed ends of formaldehyde to an absolute minimum. Additionally, Carolina preserved

specimens are available in *Carosafe*<sup>™</sup>. The *Carosafe*<sup>™</sup> is a propylene glycol-based shipping and holding fluid.

Preserved animals shipped in *Carosafe* have been processed with *Carosafe*<sup>™</sup>, and are as "odorless" as effective fixation and preservation techniques allow.

The reverse side of this sheet contains further safety and health information regarding the three most common chemicals used by Carolina in the preservation process. This information is given in the form of a columnar table which contains all of the information required by OSHA to be present on a Material Safety Data Sheet (MSDS) under the Hazard Communication Standard (29 CFR 1910.1200). Additional information can be obtained by calling Carolina during regular business hours at 336-584-0381.

# Comparative Safety of Preservatives

	Formaldehyde	Isopropanol	Carosafe™ (Propylene Glycol)
<b>Physical Data</b>			
<b>Hazardous Components</b>	Methanol (1.1 W/A) 200 ppm (TWA) 300 ppm (Ceiling)	Isopropanol (1.1 W/A) 400 ppm (TWA) 600 ppm (Ceiling)	Propylene Glycol, Propylene Glycol
<b>Upper Explosion Limits</b>	73%	12.7%	12.5%
<b>Unusual Fire or Explosion</b>	Vapor heavier than air, may travel along ground to distant ignition source and flash back.	No unusual fire hazards noted. Closed containers exposed to fire may explode.	None
<b>Inhale Limit Value (LV)</b>	200 ppm (1 W/A) Methanol	400 ppm (1 W/A)	None known
<b>ACGIH</b>	11.4 ppm 1-hour Formaldehyde		
<b>Effects of Overexposure</b>			
<b>Eyes</b>	Vapor causes severe irritation, tearing, blurred vision. Liquid may cause severe or permanent damage.	Direct contact may cause irritation.	Direct contact may cause irritation.
<b>Skin (Contact)</b>	Irritation, dermatitis, strong sensitizer	Mild irritation possible. Skin reaction possible.	Direct contact may cause irritation.
<b>Ingestion</b>	May be fatal or cause blindness if ingested.	May cause nausea, vomiting, headaches, dizziness, gastrointestinal irritation.	Expected to be relatively non-toxic. Individuals with kidney problems may see more severe effects.
<b>LD50 (oral-rat) = 5045 mg/kg</b>	LD50 (oral-rat) = 20,000 mg/kg		
<b>Chronic Effects</b>	Listed by the National Toxicology Program (NTP) as reasonably anticipated to cause cancer in humans.	Not listed as causing cancer by NTP, IARC, or OSHA. No other chronic effects noted.	Not listed as causing cancer by NTP, IARC, or OSHA. Gastrointestinal discomfort, nausea, vomiting, lethargy, and diarrhea have been cited for chronic exposure.
<b>Target Organs</b>	If inhaled, eyes, nasal passages, throat	None	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If ingested, if conscious, immediately
<b>First Aid Measures</b>	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If ingested, if conscious, immediately or water for at least 15 minutes. Seek medical attention for all instances of overexposure to this chemical.	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If ingested, if conscious, immediately or water for at least 15 minutes. Seek medical attention for all instances of overexposure to this chemical.	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If ingested, if conscious, immediately or water for at least 15 minutes. Seek medical attention for all instances of overexposure to this chemical.
<b>Personal Protective Equipment</b>	should wear full protective clothing and NIOSH approved respirator. Eliminate sources of exposure. Absorb spilled material on vermiculite or other suitable absorbent. Containerize for disposal.	personnel should wear proper protective clothing and equipment to avoid contact with liquid. Respiratory protection may be carbon or other suitable absorbent. Containerize for disposal. Flush area of spill with water.	protective clothing and equipment to avoid contact with liquid. Absorb material on vermiculite or other suitable disposal. Flush area of spill with water.
<b>Spill/Leakage Procedures</b>	applicator, local, state, and federal regulations. Contact local or state waste regulatory agency if disposal questions arise.	applicator, local, state, and federal regulations. Contact local or state waste regulatory agency if disposal questions arise.	applicator, local, state, and federal regulations. Contact local or state waste regulatory agency if disposal questions arise.
<b>Storage</b>	flammable liquid storage	flammable liquid storage	flammable liquid storage. Store below 120° Fahrenheit.

# MATERIAL SAFETY DATA SHEET

Specimens in Carolina's Perfect Solution - C

Revised: 06/21/05

Replaces: None

## 1. PRODUCT DESCRIPTION

Product Name: Specimens in Carolina's Perfect Solution®  
Product Code(s): Various  
Size: Various  
Chemical Name: Product is a mixture  
CAS Number: See section 2  
Formula: See section 2  
Synonyms: Specimens in Carolina's Perfect Solution®  
Distributor: Carolina Biological Supply Company  
2700 York Road  
Burlington, NC 27215

Chemical Information: 800-227-1150 (8am-5pm (ET) M-F)

Chemical Information: Spill Response: 800-424-3226

The components of this mixture are proprietary

TLV and PEL units: 1000 ppm TLV/PEL for one component

## 3. HAZARD IDENTIFICATION

Emergency Overview: Do not take internally. May cause irritation to skin and eyes.

## 4. FIRST AID MEASURES

Emergency and First Aid Procedures:

Eyes - Flush with water for at least 15 minutes, raising and lowering eyelids occasionally. Get medical attention if irritation persists.

Skin - Thoroughly wash exposed area for at least 15 minutes. Remove contaminated clothing. Launder contaminated clothing before reuse. Get medical attention if irritation persists.

Ingestion - Do not induce vomiting. If swallowed, if conscious, give plenty of water immediately and call a physician or poison control center for more information.

Inhalation - Remove to fresh air. Give oxygen if breathing is difficult; give artificial respiration if breathing has stopped. Keep

## 5. FIREFIGHTING PROCEDURES

Flash Point (Method Used): 200°F closed cup

NFPA Rating:	Health	1
	Flammability	1
	Reactivity	0

Extinguisher Media:

Use dry chemical, CO<sub>2</sub> or appropriate foam.

Flammable Limits in Air & by Volume: N/A

Autoignition Temperature: N/A

Special Firefighting Procedures:

Firefighting should use self-contained breathing apparatus.

Unusual Fire and Explosion Hazards: Under intense heat, components of this mixture may produce hazardous decomposition products, give off irritating vapors and give off heavy smoke and flammable vapors.

## 6. SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled:

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Carolina Biological Supply Company

Revised: 06/21/05  
Replaces: None  
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### 7. SPECIAL PRECAUTIONS

Precautions to be Taken in Handling or Storing: Avoid contact with skin, eyes and clothing. Store in a cool, dry, well-ventilated area below 120 F. Control access to this and all other chemicals. Wear

Other Precautions: None known

### 8. SPECIAL PROTECTION INFORMATION

Respiratory Protection (Specify Type): None needed under normal conditions of use.

Ventilation:

Local Exhaust: Not necessary  
Mechanical (General): Recommended  
Special: No  
Other: No

Protective Gloves:

Rubber, neoprene, PVC, or equivalent.

### 9. PHYSICAL DATA

Molecular Weight: Does not apply. Product is a mixture

Melting Point: No data available

Boiling Point: 185°F for Carolina's Perfect Solution<sup>®</sup>

Vapor Pressure (mmHg): 22.756 for Carolina's Perfect Solution<sup>®</sup>

Specific Gravity (H<sub>2</sub>O=1): 0.99 for Carolina's Perfect Solution<sup>®</sup>

Percent Volatile by Volume: No data available

Evaporation Rate (Butyl Acetate=1): 0.99 for Carolina's Perfect Solution<sup>®</sup>

pH: 6.62 for Carolina's Perfect Solution<sup>®</sup>

Solubility in Water: Carolina's Perfect Solution<sup>®</sup> is an aqueous

mixture.

Appearance and Odor: Carolina's Perfect Solution<sup>®</sup> is a colorless

liquid.

Specimens exhibit a biological smell and

characteristic odor.

### 10. REACTIVITY DATA

Stability: Stable

Conditions to Avoid: Temperatures above 425 F. flame

Incompatibility (Materials to Avoid): Alkalies, amines, sulfides, strong

oxidizers, metals, strong bases

Hazardous Decomposition Products: If heated to decomposition, carbon

dioxide, carbon dioxide, nitrogen oxides and other products

hydrocarbons will be evolved.

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Hazardous Polymerization: Will not occur

## 11. TOXICITY DATA

Toxicity Data: oral-rat LD50: >5000 mg/kg

Effects of Overexposure:

Acute: See section 3

for this mixture as a whole have not been reported.

Conditions Aggravated by Overexposure: Pre-existing conditions of the respiratory system

Target Organs: N/A

Primary Route(s) of Entry: Inhalation, skin, eye contact

## 12. ECOLOGICAL DATA

EPA Waste Numbers: N/A

## 13. DISPOSAL INFORMATION

Waste Disposal Methods: Dispose in accordance with all applicable Federal, State and Local regulations.

Always contact a permitted waste disposer (PDS) to ensure compliance

## 14. TRANSPORT INFORMATION

Non-regulated

## 15. REGULATORY INFORMATION

EPA TSCA Status: On TSCA Inventory

Hazard Category for SARA Section 311/312: Reporting Acute/Chronic

Product or Components	SARA EHS	SARA Sec. 313	CERCLA	RCRA
	Sec. 302 TPQ	Chemical Name List Category	Sec. 103 RQ lbs.	Sec. 261.33
N/A				

N/A

## 16. ADDITIONAL INFORMATION

The information provided in this Material Safety Data Sheet represents a compilation of data drawn directly from various sources available to Carolina Biological Supply makes no representation or guarantee as to the suitability of this information to a particular application of the substance covered in the Material Safety Data Sheet. In addition, in regards to the particular use to which the employer puts the

Glossary

ACGIH American Conference of Governmental Industrial Hygienists

CAS Number Chemical Abstracts Service Number

CERCLA Comprehensive Environmental Response, Compensation, and

Liability Act

DOT U.S. Department of Transportation

IARC International Agency of Research on Cancer

N/A Not Available

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Carolina Biological Supply Company

Revised: 06/21/05  
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- NTP.....National Toxicology Program
  - OSHA.....Occupational Safety and Health Administration
  - PEL.....Permissible Exposure Limit
  - ppm.....parts per million
  - RCRA.....Resource Conservation and Recovery Act
  - SARA.....Superfund Amendments and Reauthorization Act
  - TLV.....Threshold Limit Value
  - TSCA.....Toxic Substances Control Act

~~THE LEADERS FROM THE CLASS OF 1999 Satisfaction Guaranteed~~

All of our products are unconditionally guaranteed. If for any reason you are not satisfied with any item, you may return it for a replacement, a refund, or credit. It's that simple.

### MERCHANDISE RETURN FORM

~~Important: Please check your order as soon as it arrives. If you find missing or damaged merchandise, call Customer Service at 1-800-334-5551 within 14 days and we will give you instructions concerning replacement.~~

#### INSTRUCTIONS

1. Pack the merchandise in the original packing material and place in the original shipping carton (if in good condition).
2. If unable to retain original shipping carton, merchandise must be packaged appropriately for shipment.
3. Include this form inside the box with the information below completed. This information is vital in helping to identify your return.
4. Return the package to us by the shipper of your choice. (We suggest UPS Ground or US Postal Service.)

#### Important—

- Merchandise should be packaged and shipped to us in a manner that will guarantee safe delivery.
- If you have any questions or believe that an ARS (Authorized Return Service) label should

~~SERVICE REPRESENTATIVE at 1-800-334-5551.~~

~~Living/Decidable Materials are not generally returnable. Please call for instructions.~~

#### REASON FOR RETURN

(Check One)

\_\_\_\_\_ Damaged or Defective

\_\_\_\_\_ Wrong Item Sent

\_\_\_\_\_ Other (comments)

Our Order Number \_\_\_\_\_

Your Purchase Order Number \_\_\_\_\_

Your School Name and Contact Person \_\_\_\_\_

Your Telephone Number \_\_\_\_\_

 **Carolina Biological Supply Company** 2700 York Road  
Burlington, NC 27215

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