


ARKANSAS STATE UNIVERSITY EHS  
LABORATORY CHEMICAL STANDARD OPERATING PROCEDURE

**Chemical Name:** 1,4-Dioxane      **CAS #:** 123-91-1

**Hazard Classification:** Health and Physical Hazard

Location Used:	Principal Investigator:
Processes for Which Chemical Is Used:	

**HAZARDS AND PROTECTION**

<p><b>Hazard Information</b></p> <ul style="list-style-type: none"> <li>• Highly flammable</li> <li>• Causes serious eye irritation</li> <li>• May cause respiratory irritation</li> <li>• Suspected of causing cancer</li> <li>• Peroxide-forming solvent</li> </ul>	
<p><b>Routes of Exposure</b></p> <ul style="list-style-type: none"> <li>• Ingestion</li> <li>• Inhalation</li> <li>• Eye absorption</li> <li>• Skin Absorption</li> </ul>	<p>If exposed by:</p> <ul style="list-style-type: none"> <li>• Inhalation: Remove to fresh air</li> <li>• Ingestion: Do not induce vomiting, rinse mouth with water</li> <li>• Eye or skin: Rinse affected area for 15 minutes</li> </ul> <p>If exposed by any route, seek medical attention.</p>
<p><b>Exposure Limits</b></p> <p>All exposure limits are Time Weighted Averages (average exposure over an eight-hour day).</p>	<p>OSHA PEL: 25 ppm (90 mg/m<sup>3</sup>) ACGIH TLV: 20 ppm (72 mg/m<sup>3</sup>)</p>
<p><b>Engineering Controls</b></p> <ul style="list-style-type: none"> <li>• Chemical Fume Hood</li> </ul>	<p>Never open 1,4-dioxane outside of a chemical fume hood.</p>
<p><b>Administrative Controls</b></p> <ul style="list-style-type: none"> <li>• Designated area sign</li> <li>• Particularly hazardous substance label</li> </ul>	<ul style="list-style-type: none"> <li>• Post designated area sign before each use.</li> <li>• Label containers of 1,4-dioxane as a health and physical hazard.</li> <li>• Use as small a quantity as possible.</li> </ul>

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<p><b>Personal Protective Equipment</b></p> <ul style="list-style-type: none"> <li>• Gloves</li> <li>• Safety glasses or splash goggles</li> <li>• Lab coat</li> </ul>	<p>Two pairs of nitrile gloves for short-term use. If longer term use, butyl rubber gloves are required. Change gloves immediately if a spill on gloves is observed. Wash hands after use.</p>
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**OTHER SAFETY INFORMATION**

<p><b>Transportation</b></p>	<p>Follow guidance given in the laboratory safety manual for transport of chemicals.</p>
<p><b>Storage</b></p> <ul style="list-style-type: none"> <li>• Store in a flammables materials storage cabinet.</li> <li>• Keep away from heat or sources of ignition</li> <li>• Keep tightly sealed</li> <li>• Monitor for formation of explosive peroxides</li> </ul>	<p>Incompatible materials include:</p> <p>Oxygen, oxidizing agents, halogens, reducing agents, perchlorates, trimethylaluminum</p>
<p><b>Spill/Accident Procedures</b></p> <p>For all spills:</p> <ul style="list-style-type: none"> <li>• Wear two pairs of nitrile gloves</li> <li>• Turn off sources of ignition (if safe)</li> <li>• Evacuate the immediate area</li> </ul> <p>Exposure:</p> <ul style="list-style-type: none"> <li>• If anyone exposed requires emergency medical attention, dial 911 (or 9-911 from landline).</li> <li>• Follow procedures outlined in laboratory safety manual.</li> </ul>	<p><b>Small spills (less than 500 mL):</b> Cover the spill with absorbent materials. Place absorbent materials in bag or bucket for collection by EHS. Clean area with soap and water once spill is removed.</p> <p><b>Large spills (greater than 500 mL):</b> If the spill is in a chemical fume hood, contact the EHS director (864-710-2933). If he cannot be reached (does not answer phone, do not leave voicemail), then call 911, pull the fire alarm and exit the building. If the spill is outside of a hood, then call 911, pull the fire alarm and exit the building.</p>
<p><b>Waste Disposal</b></p>	<p>Waste 1,4-dioxane must be collected for disposal.</p> <p>Empty bottles of 1,4-dioxane may be rinsed and thrown in the dumpster.</p>

**By signing below, you indicate that you have reviewed this SOP and understand the contents thereof:**

Printed Name	Signature	Date