


## SOP for the safe use of Chloroform

University of Washington

Standard Operating Procedures for Chemicals or Processes	
#1 Process (if applicable)	Chloroform is a carcinogen. It is harmful if swallowed and causes skin irritation, serious eye irritation, and may cause drowsiness or dizziness. Chloroform is suspected of causing cancer and causing genetic defects of unborn children. It may cause damage to organs (liver, kidney) through prolonged or repeated exposure.
#2 Chemicals	Chloroform (CAS # = 67-66-3) is a clear, colorless liquid with a pleasant, nonirritating odor that can be detected as low as 11.7 ppm (odor threshold) but more likely detected at levels of 85 to 307 ppm (well above safe exposure limits). It will burn only when it reaches very high temperatures.  NOTE: Stabilizers are often added to prevent oxidation by air and light, and to prevent chloroform from becoming acidic and corrosive.  Synonyms include: Trichloromethane, Methane trichloride, Formyl trichloride, Trichloroform, Methenyl trichloride and Freon 20.
#3 Personal Protective Equipment (PPE)	<ul style="list-style-type: none"> <li>The minimum PPE for work with chloroform is Viton or PVA (Polyvinyl Acetate) laboratory gloves, lab coat, and safety glasses (ANSI/ISEA Z87.1 approved). Keep in mind that chloroform will penetrate nitrile gloves in less than 2.5 minutes.</li> <li>If a splash may occur, wear chemical splash goggles and/or a face shield.</li> <li>EH&amp;S Glove Compatibility webpage can also be used to determine the recommended gloves.</li> </ul>
#4 Environmental / Ventilation Controls	<ul style="list-style-type: none"> <li>All procedures involving the transferal of phenol, chloroform or Trizol<sup>®</sup> should be performed in a chemical fume hood.</li> </ul>
#5 Special Handling Procedures & Storage Requirements	<ul style="list-style-type: none"> <li>A designated storage area must be established for Chloroform and the area should be posted with a "Caution, Carcinogen, Reproductive Toxins, or Extremely Toxic Chemicals"</li> <li>Avoid contact with skin and eyes and inhalation.</li> <li>Keep containers tightly closed.</li> <li>Store in a cool, dry and well-ventilated area away from incompatible substances such as oxidizers.</li> <li>Containers which are opened must be carefully resealed and kept upright to prevent leakage.</li> <li>A suitable storage location is a flammable storage cabinet or lab cabinet that does not contain incompatibles.</li> </ul>
#6 Spill and Accident Procedures	<p><b>For Accidents:</b></p> <p>If the employee is in need of emergency medical attention, call 911 immediately.</p> <ul style="list-style-type: none"> <li>Eyes: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.</li> <li>Skin: In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid. Wash clothing before reuse.</li> <li>Ingestion: Get medical aid immediately. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, have victim lean forward.</li> <li>Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial</li> </ul>

	<p>respiration. If breathing is difficult, give oxygen. Get medical aid.</p> <p>Contact EHS for advice on symptoms of chemical exposure, or assistance in performing an exposure assessment.</p> <p>Report all work related accidents, injuries, illnesses or exposures using Online Accident Reporting System</p> <p><b>• For Spills:</b></p> <ul style="list-style-type: none"> <li>• When a spill occurs, personal safety should always come first.</li> <li>• Alert and clear everyone in the immediate area where the spill occurred.</li> <li>• Use proper personal protective equipment (PPE) as noted above.</li> </ul> <p>A minor (small) chemical spill is one that the laboratory staff is capable of handling safely without the assistance of safety and emergency personnel, i.e., (less than 1 Gallon or 3.5 Liters). A major/large chemical spill requires active assistance from emergency personnel.</p> <p><b>MINOR CHEMICAL SPILL</b></p> <ul style="list-style-type: none"> <li>• Alert people in immediate area of spill.</li> <li>• Open outside windows, if possible.</li> <li>• Use proper personal protective equipment as indicated above.</li> <li>• Avoid breathing vapors from spill.</li> <li>• Confine spill to as small an area as possible.</li> <li>• Do not wash spill down the drain.</li> <li>• Use appropriate spill kits/sorbents to absorb spill. Collect contaminated materials and residues and place in container. Contact EH&amp;S at 206.543.0467 during normal business hours (Monday – Friday, 8 AM – 5 PM) for spill cleanup assistance (dial 911 if spill occurs after hours and assistance is needed).</li> </ul> <p><b>MAJOR CHEMICAL SPILL</b></p> <p>Report large chemical spills greater than 1 Gallon or 3.5 Liters in corridors or common areas, e.g., hallways, elevators, eating areas, rest rooms, offices, etc., ) by calling 911.</p> <ul style="list-style-type: none"> <li>• Attend to injured or contaminated persons and remove them from exposure.</li> <li>• Alert people in the laboratory to evacuate.</li> <li>• Call 911 immediately for assistance.</li> <li>• Close doors to affected area.</li> <li>• Post warnings to keep people from entering the area.</li> <li>• Have person available that has knowledge of incident and laboratory to assist emergency personnel.</li> </ul> <p>o If the spill is minor and does not pose a threat to personnel, contact EH&amp;S at 206.543.0467 during normal business hours (Monday – Friday, 8 AM – 5 PM) for spill cleanup assistance (dial 911 if spill occurs after hours and assistance is needed).</p>
#7 Waste Disposal	<ul style="list-style-type: none"> <li>• Label chemical wastes “HAZARDOUS WASTE” with the chemical constituents, and the date the waste was generated.</li> <li>• Empty containers that once contained chloroform must be disposed of as hazardous waste. Please properly label the empty container with a hazardous waste label.</li> <li>• Contact EHS for waste pick-up.</li> </ul>
#8 Special Precautions for Animal Use	*

(if applicable)	
Particularly hazardous substance involved?	<input checked="" type="checkbox"/> YES: Blocks #9 to #11 are Mandatory
	<input type="checkbox"/> NO: Blocks #9 to #11 are Optional.
#9 Approval Required	Approval from PI prior to first use.
#10 Decontamination	• Dispose of contaminated materials (gloves, wipes, etc.) as hazardous waste.
#11 Designated Area	Fume hood at _____. Check that the fume hood is operating properly before starting the procedure.
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Signature:  Date: 02/17/2022	

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*\*to be filled in by PI or Supervisor*