

**SOP for  $\beta$ -mercaptoethanol  
University of Washington**

Standard Operating Procedures for Chemicals or Processes		
#1 Process (if applicable)	$\beta$ -mercaptoethanol is a clear, colorless liquid with an unpleasant odor (similar to rotten eggs). It is commonly used in the lab to reduce disulfide bonds and can act as a scavenger for hydroxyl radicals.	
#2 Chemicals	<ul style="list-style-type: none"> <li><math>\beta</math>-mercaptoethanol (BME) has a very low odor threshold (0.12-0.64 ppm) and smells similar to the odorant used in natural gas. If the odor becomes widespread, people in nearby areas may suspect a natural gas leak, which may lead to calls to the fire department and/or evacuation of the building, which can be inconvenient and disruptive.</li> <li>BME can be toxic if ingested, and fatal if inhaled or absorbed through the skin.</li> <li>Vapors can irritate the eyes, mucous membranes, and respiratory tract. Symptoms of inhalation exposure may include coughing, sore throat, and/or shortness of breath.</li> <li>When BME is heated to decomposition, toxic fumes including sulfur oxides and carbon oxides will be emitted.</li> <li>BME is combustible as a liquid or vapor!</li> <li>Reactions of BME with strong acids or alkali metals will release flammable hydrogen gas.</li> </ul>	
#3 Personal Protective Equipment (PPE)	<ul style="list-style-type: none"> <li>At a minimum, double-glove using nitrile laboratory gloves and wear a lab coat and safety glasses when pipetting small amounts.</li> <li>If gloves come into contact with the chemical, change them immediately.</li> <li>If there is a possibility of splashing, wear chemical splash goggles and/or a face shield.</li> </ul>	
#4 Environmental / Ventilation Controls	ALWAYS work with BME inside a chemical fume hood or 100% exhausted biological safety cabinet (Class II, Type B2).	
#5 Special Handling Procedures & Storage Requirements	<ul style="list-style-type: none"> <li>BME is incompatible with metals, oxidizing agents, acids, alkalis, calcium hypochlorite, aliphatic amines, and isocyanates.</li> <li>Purchase and use in the smallest practical quantities for the experiment being performed.</li> <li>Know the location of the nearest fire extinguisher before beginning work.</li> <li>Eliminate ignition sources such as open flames and hot surfaces.</li> <li>Keep containers closed as much as possible when not in use.</li> <li>Be aware of skin absorption as a possible route of exposure. Plan work so that minimal glove contact is expected, and purchase appropriate gloves (e.g. <a href="#">butyl rubber</a>, <a href="#">Silver Shield</a>) for cleaning up small spills. For spill procedures, see Section 9.</li> <li>If glove contact occurs, change gloves immediately.</li> </ul>	
#6 Spill and Accident Procedures	Use butyl rubber or Silver Shield for cleaning up small spills	
#7 Waste Disposal	Surplus chemicals will be disposed of as hazardous chemical waste according to UW policies.	
#8 Special Precautions for Animal Use (if applicable)	N/A	
Particularly hazardous substance involved?	<input type="checkbox"/> YES:	Blocks #9 to #11 are Mandatory
	<input type="checkbox"/> NO:	Blocks #9 to #11 are Optional.
#9 Approval Required	N/A	
#10 Decontamination	N/A	
#11 Designated Area	N/A	
Name: Dr. Edwin W Rubel		Title: Professor
Signature:		Date: 10/08/19