#1 Process (if applicable) | β-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 | **•** β-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.  
**•** BME can be toxic if ingested, and fatal if inhaled or absorbed through the skin.  
**•** Vapors can irritate the eyes, mucous membranes, and respiratory tract. Symptoms of inhalation exposure may include coughing, sore throat, and/or shortness of breath.  
**•** When BME is heated to decomposition, toxic fumes including sulfur oxides and carbon oxides will be emitted.  
**•** BME is combustible as a liquid or vapor!  
**•** Reactions of BME with strong acids or alkali metals will release flammable hydrogen gas.

#3 Personal Protective Equipment (PPE) | • At a minimum, double-glove using nitrile laboratory gloves and wear a lab coat and safety glasses when pipetting small amounts.  
• If gloves come into contact with the chemical, change them immediately.  
• If there is a possibility of splashing, wear chemical splash goggles and/or a face shield.

#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 | • BME is incompatible with metals, oxidizing agents, acids, alkalis, calcium hypochlorite, aliphatic amines, and isocyanates.  
• Purchase and use in the smallest practical quantities for the experiment being performed.  
• Know the location of the nearest fire extinguisher before beginning work.  
• Eliminate ignition sources such as open flames and hot surfaces.  
• Keep containers closed as much as possible when not in use.  
• 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. butyl rubber, Silver Shield) for cleaning up small spills. For spill procedures, see Section 9.  
• If glove contact occurs, change gloves immediately.

#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? | YES: Blocks #9 to #11 are Mandatory  
| | 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

Environmental Health and Safety, Box 354400  
*to be filled in by PI or Supervisor*