

Tel-Aviv University –Safety Unit

Standard Operating Procedure for Lipopolysaccharide (LPS)

1. Health hazards	<p>Lipopolysaccharide (LPS), also known as endotoxin, is a structural component of the cell wall of gram negative bacteria. It is a chemical that is considered a pyrogen and induces a strong immune response, including inhalation airway inflammation, the progression of asthma, and other forms of airway disease. Humans are the most susceptible species for immune response. The Registry of Toxic Effects of Chemical Substances (RTECS) indicates that some types of LPS are considered reproductive effectors, teratogens, and mutagens.</p>
2. Training/Approval	<p>Hazardous chemical training and training on this SOP is required before working with LPS. This should include but is not limited to reviewing the MSDS, training on the physical hazards of the chemicals, symptoms of exposure, appropriate work practices, and proper use of PPE.</p>
3. Personal Protective Equipment (PPE)	<p>Double nitrile gloves, Chemical safety goggles, Lab coat. Appropriate PPE should also be used for lower arms such as sleeve covers or securing gloves over the sleeves of laboratory coat. Personnel should not work with LPS if skin is cut or scratched.</p>
4. Environmental / Ventilation Controls	<p>The preparation of LPS including reconstitution, weighing, and diluting should be performed in a fume hood or biological safety cabinet. Work should be done over absorbent pads.</p>
5. Special Handling Procedures & Storage Requirements	<p><u>Handling:</u> LPS should be handled in containment and done over absorbent pads. Utilize safe sharps procedures (i.e. sharps container in the immediate vicinity, Leurlock syringes are recommended). The fume hood or other approved containment must be cleaned upon completion of tasks with 1% bleach. If a rash or skin irritation develops, discontinue work and wash hands with soap. When transporting LPS, the vials should be placed in secondary, sealed, plastic, labeled, non-breakable containers. <u>Storage:</u> Keep container tightly closed. Store in 4°C Desiccators.</p>
6. Spill and Accident Procedures	<ol style="list-style-type: none"> 1. Spills must be cleaned immediately by properly protected and trained staff. 2. Liquid Spills: should be cleaned immediately by personnel wearing a disposable gown, goggles, and two pairs of nitrile gloves. Use absorbent pads to wipe-up liquid. The spill area should then be cleaned with a 10% bleach solution for 30 minutes followed by clean water. Place spill waste in plastic bag, label as hazardous chemical waste. 3. Powder Spills: should be cleaned immediately by personnel wearing a gown, goggles, and two pairs of gloves (nitrile). For powder spills outside of a fume hood or approved containment, personnel should be instructed to leave the laboratory and entrance should be restricted. In addition to the above specified PPE, a respirator should also be worn. The spill area should then be cleaned thoroughly with a 10% bleach solution for 30 minutes followed by clean water. Place spill waste in a plastic bag, label as hazardous chemical waste. <p><u>Exposure:</u></p> <ol style="list-style-type: none"> 1. In case of skin contact or injection with LPS, wash the affected area with soap and water for at least 15 minutes. Consult with Employee Health Center. 2. For eye exposure, flush with water for at least 15 minutes. Consult with Employee Health Center,. Report incident to supervisor. Supervisor reports the accident/injury to the Biosafety Unit.

7. Waste Disposal	Full strength unused LPS, mixtures containing LPS, and grossly contaminated spill clean-up debris must be collected and vacate as hazardous chemical waste. For other waste containing LPS, consult with Biosafety manager.
8. Precautions for Animal Use	No recapping needles. Have a sharps container in close vicinity. Animals should be restrained or anesthetized during injection. Once LPS is injected, animals and animal waste are neither hazardous nor infectious.
9. Decontamination	Decontaminate work areas with 10% bleach for 30 minutes. Follow with water. Used glassware should be decontaminated with dry heat at 250°C for 30 minutes. <i>Steam autoclaves will not inactivate the LPS and should not be considered a proper decontamination method.</i>
10. Designated Area	
I hereby confirm that I have read the SOP (Standard Operating Procedure) for Working with LPS, and agree to follow these procedures.	
Name:	Title:
Signature:	Date:

Biological Safety Office, : 640-9966