

# Toxins

Safe working practices to minimize exposure via ingestion, inhalation, mucous membrane contact, and absorption or penetration through the skin.

## BL2 Work Practices

- ◆ Label toxin work areas within lab
- ◆ Cover work surface with plastic backed absorbent paper
- ◆ Avoid generating aerosols; handle the powder form carefully
- ◆ Use a chemical fume hood or biosafety cabinet when feasible
- ◆ Avoid the use of needles or Pasteur pipettes
- ◆ Substitute plastic for glass wherever possible
- ◆ Decontaminate work surfaces with 25% household bleach or 0.25N NaOH
- ◆ Treat liquid waste with 50% household bleach and 0.25N NaOH (soak overnight.) For T-2 mycotoxin use a combination of 50% household bleach and 0.25N NaOH. Please contact OEHS before use. Dispose of as hazardous waste
- ◆ Avoid the use of bleach with Aflatoxin B1, as a mutagen may be formed. Use 0.25N NaOH for decontamination
- ◆ Collect and autoclave solid waste at the end of the day
- ◆ Use disposable personal protective clothing

## Protective Clothing Requirements

- ◆ Disposable lab coat buttoned to the top with knit or grip cuffs, or use gloves that are long enough to cover the sleeves; a back-fastening gown is suitable; sleeve covers offer additional protection
- ◆ Face protection such as a face shield or safety glasses and a mask to cover the eyes, nose and mouth
- ◆ Disposable protective clothing for work with toxins. Do not wear outside lab
- ◆ Gloves (consider double gloving). Avoid skin contact when removing gloves

## Personal Hygiene

- ◆ Keep your hands away from your face
- ◆ Do not eat, drink, or smoke in the lab
- ◆ Do not mouth pipette
- ◆ Always wash hand after removing protective clothing and before leaving lab

## Labels and Transport

- ◆ Post BL2 biohazard sign at lab entry
- ◆ Restrict access to the lab
- ◆ Label equipment used with or storing toxins
- ◆ For transport, use sealed, unbreakable, leakproof containers with a biohazard label and full toxin name

## Work with Powdered Form of Toxin

- ◆ Carefully weigh and convert to aqueous form as soon as possible
- ◆ Store powdered form in an unbreakable secondary container labeled with the complete toxin name to identify the hazard
- ◆ Change gloves after handling powdered toxin being sure to avoid skin contact with the toxin while removing gloves; wash hands prior to donning new gloves
- ◆ Purchase toxin in aqueous form whenever feasible

## Emergency Response

- ◆ Flush skin or eyes with running water for 15 minutes, notify PI immediately, seek medical assistance
- ◆ Follow BL2 spill procedures: leave lab for 30 minutes, upon return, decontaminate spill with 25% household bleach and 0.25N NaOH solution for 30 minutes, collect and autoclave waste

## Select Agent Toxins

Select Agent Toxin	Max allowed Quantity (1)	Yale Watch List Quantity (2)
Abrin	1000 mg	500 mg
Botulinum neurotoxins	1 mg	0.5 mg
Short, paralytic alpha Conotoxins	100 mg	50 mg
Diacetoxyscirpenol (DAS)	10,000 mg	5,000 mg
Ricin	1000 mg	500 mg
Saxitoxin	500 mg	250 mg
Staphylococcal Enterotoxins (Subtypes A, B, C, D, and E)	100 mg	50 mg
T-2 toxin	10,000 mg	5,000 mg
Tetrodotoxin	500 mg	250 mg

- (1) Possession of quantities greater than the maximum quantity allowed under the Select Agent exemption requires registration and authorization from the federal government (DHHS/CDC).
- (2) Principal Investigators who reach the watch list quantity will be sent a periodic inventory log to help ensure that the quantity of the toxin they possess never exceeds the federal exempt quantity.