



## **Destruction of Select Agents The Office of Environmental Health and Safety**

This form is to be completed when a Select Agent and Toxin is destroyed. Before any destruction contact the Office of Environmental Health and Safety (2-1284) in order to obtain permission and to verify the procedure. Destruction of Select Agents and Toxins requires 5-day notice of either APHIS or CDC after 7 February 2003. Ignoring this notification procedure can result in fines and/or imprisonment.

<b>Name:</b>	
<b>Department:</b>	<b>Laboratory:</b>
<b>Select agent or toxins destroyed:</b>	
<b>Destruction Procedure:</b>	
<b>Destroyed by (print name):</b>	<b>Destroyed date:</b>
<b>Signature of destroyer:</b>	<b>Phone:</b>
<b>Witnessed by (print name):</b>	<b>Destroyed date:</b>
<b>Signature of witness:</b>	<b>Phone:</b>
<b>After destruction, residue must be disposed of by Environmental Health and Safety (2-1284). The original of this form must be sent to Environmental Health and Safety, 1314 Kinnear Road, CAMPUS. Keep a copy for your files.</b>	

## DESTRUCTION OF SELECT AGENTS PROCEDURES

### I. GENERAL SAFETY PRECAUTIONS:

Destruction procedures should be performed in a laboratory hood or a biological safety cabinet. At a minimum, personal protective equipment for all procedures should include:

- ?? Disposable long sleeved protective clothing (lab coat, gown)
- ?? Gloves and eye protection

### II. BACTERIA AND VIRUSES:

For destruction of bacteria and viruses, use autoclave for heat destruction. See **Penn's Biosafety Manual**. Update Inventory.

### III. TOXINS:

The toxins listed below can be destroyed in varying concentrations of sodium hypochlorite and sodium hydroxide. Refer to Table 1 below. Use a fume hood, lower sash to lowest reasonable sash height for safe and effective work. Place a warning/do not use sign on hood during this procedure.

1. In fume hood, place plastic backed absorbent paper on bottom of hood.
2. The Select Agent should be in solution in primary container.
3. Place primary container in secondary container, such as a beaker.
4. Slowly dispense an equal volume of sodium hypochlorite or sodium hypochlorite/sodium hydroxide solution depending on toxin to destroy.
5. Do not place cap on primary container.
6. Allow 30 minutes exposure time.
7. After destruction, seal the top to the primary container and place into a zip-lock plastic bag. Label as inactivated/denatured "toxin name". Contact **EHRS** for disposal as hazardous waste.
8. Complete and sign the form: **Destruction of Select Agents** and fax to EHRS 215-898-0140.
9. Update inventory.

### Complete Inactivation of Different Toxins with a 30 Minute Exposure Time to Varying Concentrations of NaOCl (with and without NaOH)

TOXIN	2.5% NaOCl + 0.25 N NaOH	2.5% NaOCl	1.0% NaOCl	0.1% NaOCl
<b>T-2 Mycotoxin</b>	Yes	No	No	No
<b>Brevetoxin</b>	Yes	Yes	No	No
<b>Microcystin</b>	Yes	Yes	Yes	No
<b>Tetrodotoxin</b>	Yes	Yes	Yes	No
<b>Saxitoxin</b>	Yes	Yes	Yes	Yes
<b>Palytoxin</b>	Yes	Yes	Yes	Yes
<b>Ricin</b>	Yes	Yes	Yes	Yes
<b>Botulism</b>	Yes	Yes	Yes	Yes
<b>SEB</b>	Yes(?)	Yes(?)	Yes(?)	Yes(?)

### IV. TOXINS: Additional Recommendations

1. For T-2 mycotoxin and brevetoxin, it is recommended that, for complete inactivation, all liquid samples, accidental spills, and nonburnable waste be soaked in 2.5% sodium hypochlorite with 0.25 N sodium hydroxide for 4 hr.

2. It is further recommended that cages and bedding from animals exposed to T-2 mycotoxin or brevetoxin be exposed to 0.25% sodium hypochlorite and 0.025 N sodium hydroxide for 4 hr.
3. Exposure for 30 minutes to 1.0% sodium hypochlorite is an effective procedure for laboratory (working solutions; equipment; animal cages; working area; and spills) for inactivation of saxitoxin, tetrodotoxin, microcystin, palytoxin, ricin, botulinum toxin, or staphylococcal enterotoxins (SEB).
4. All burnable waste from toxins should be incinerated at temperatures in excess of 1500° F.
5. Autoclaving can be used with protein toxins (ricin, botulinum toxin, and SEB), but should not be used with any of the low molecular toxins.

## V. STAPHYLOCOCCUS ENTEROTOXIN B (SEB), RICIN, BOTULINUM (AUTOCLAVE OPTION)

Use autoclave for heat destruction. Autoclaving can be used with protein toxins (ricin, botulinum toxin, and SEB), but should not be used with any of the low molecular toxins. Use autoclave for heat destruction.

1. In a fume hood or biological safety cabinet, loosen cap of primary container.
2. Place primary container into secondary container.
3. Place container into a biohazard autoclave bag.
4. Place bag in autoclavable tray.
5. Autoclave at 121° C for 45 minutes on liquid cycle (slow exhaust).
6. After autoclaving, allow time for materials to cool before handling.
7. Discard as infectious waste.
8. Complete and sign the form: **Destruction of Select Agents** and fax to EHRS 215-898-0140.
9. Update inventory.

## VI. FORM: DESTRUCTION OF SELECT AGENTS

Complete this **form** when destroying a Select Agent. Before you do so, contact EHRS (215-898-4453) to verify the procedure. Destruction of non-exempt registered Select Agents must be reported to the U.S. Centers for Disease Control (CDC). Call EHRS if you have any questions. Fax completed form to EHRS 215-898-0140.

## VII. REFERENCES

Morin, R.S., and Kozlovac, J.P. 2000. Biological Select Agents, p. 261-272. In D.O. Fleming, and D.L. Hunt (ed.), Biological Safety, Principles and Practices. ASM Press, Washington, D.C.

Slein, M.W., and Sansone, E.B. 1980. Degradation of Chemical Carcinogens, An Annotated Bibliography. Van Nostrand Reinhold Company, New York, N.Y.

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