

Faculty/ Department or Institute/Centre	Cumming School of Medicine, Department of Pediatrics, Neurocritical Care Program, ACH BioCORE	Date Created:	September 19 2018
Location	<i>ACH B0-103</i>	Created By:	Matthew Rosin
Supervisor	Dr. Michael Esser & Dr. David Sinasac	Revision #:	1.2
		Revision Date:	October 2 2018
		Revised By:	Matthew Rosin

Purpose

This document provides instructions for the safe disposal of biohazard liquid waste.

Applicability

This document applies to all personnel of the Alberta Children's Hospital (ACH) BioCORE.

Authorization

Personnel must have completed WHMIS 2015 training, Spill Response Training, Biosafety (Bloodborne Pathogens) training, Biosafety (Biohazard Handling) training, Biosafety (Program) training, Hazard Assessment training, Laboratory Safety training, and Occupational Health and Safety training in the PeopleSoft Enterprise Learning program in the University of Calgary.

Hazards associated with process

- Full PPE as indicated below is required for handling bleach.
- Do not use bleach in work areas containing hydrogen peroxide, acids, formaldehyde, formalin, or alcohols as toxic and carcinogenic compounds are formed when mixing.
- Bleach is corrosive. Ensure surfaces and equipment are compatible. Bleach will react with and damage stainless steel surfaces.
- Wash hands thoroughly after handling bleach and after removing PPE (gloves, goggles, then lab coat).

Environment where task is to be undertaken

ACH lab in room B0-103 must be used for all steps in this procedure. The fume hood in room B0-110 (within lab B0-103) is to be used for the relevant steps below when using bleach.

Materials & PPE

Reagents	Supplies	Personal Protective Equipment (PPE)
<ul style="list-style-type: none"> • Bleach (5%, 6%, or 12%) • Didecyl dimethyl ammonium chloride (DDAC; 15%) 	<ul style="list-style-type: none"> • Biohazard label • Graduated cylinder • Marker • Plastic wrap or aluminum foil 	<ul style="list-style-type: none"> • Lab coat • Safety goggles • Nitrile gloves

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Emergency Procedures

Biohazard Liquid Spill

- Don't rush, don't work alone, and don't clean up a spill until you are familiar with the properties of the chemicals/waste.
- Guidelines for Spill Response Procedures are available at:
<https://www.ucalgary.ca/emergencyplan/emergency-instructions/hazardous-materials-spill>
- Additional Guidelines for biohazardous material are available at:
<https://www.ucalgary.ca/safety/lab-safety/manuals/biosafety-manual-0>
- For spills in the BioCORE lab area (ACH B0-103 and adjoining lab spaces), there is an AHS-regulated Biological Spill Kit available in a nearby shared clinical lab space B0-039. Make sure the tamper-proof spill kit seal has not been broken. A list of contents and instructions for cleaning biological spills is located affixed to the lid of the spill kit. Don PPE and follow instructions as indicated on this kit.

Procedure

Dilution Table

Use the indicated dilutions and incubation times for disinfection and neutralization of the appropriate liquid biohazardous waste.

Chemical Neutralizer	Final Concentration	Amount Required in 1L of waste	Description of Hazardous Waste
Bleach	1.5%	300 mL of 5% bleach 250 mL of 6% bleach 125 mL of 12% bleach	Liquid waste >500 mL containing human or animal plasma, serum, urine, or other in a larger volume of water, alcohol, and wash buffer (BioPlex). No solids, glass, needles, or sharps can be present.
DDAC	200 ppm (0.06%)	4 mL of 15% DDAC <ul style="list-style-type: none"> • First dilute 4mL in 100 mL of H₂O and mix before adding to 1L 	

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Biohazard Liquid Waste Neutralization & Disposal Procedure

Step	Action	Detail
1.	Don the PPE listed in <i>Materials</i> .	
2.	Place the liquid biohazard container in the sink	
3.	Choose disinfection/neutralization solution as per the <i>Dilution Table</i> <ul style="list-style-type: none"> Bleach is useful for heavily contaminated waste DDAC is useful for lightly contaminated waste 	<ul style="list-style-type: none"> Disinfection solutions must be made fresh daily
4.	Add disinfection solution to liquid waste as per dilution table. <ul style="list-style-type: none"> If using DDAC, first prepare dilution in H₂O If using bleach, first move container to a fume hood and place on top of an absorbent surface covering, then add bleach to waste and leave lid loosely on container to allow gas to vent 	<ul style="list-style-type: none"> Use a graduated cylinder to accurately measure bleach Use a transfer pipette to accurately measure DDAC
5.	Add a biohazard label to the liquid waste container <ul style="list-style-type: none"> If using bleach, add skin corrosion sticker to liquid waste container 	<ul style="list-style-type: none"> Add date, time, and neutralization solution used
6.	Incubate liquid waste with disinfectant for chemical-dependent amount of time <ul style="list-style-type: none"> Bleach: incubate overnight in fume hood DDAC: incubate for 2 hours in the sink 	
7.	After waste is disinfected and neutralized, turn on water flow in sink and carefully, slowly pour out contents of liquid waste container down the sink with continuous water flow	<ul style="list-style-type: none"> Leave water flowing for 5 minutes after liquid contents have been emptied from container

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