



THE OHIO STATE UNIVERSITY
COLLEGE OF BIOLOGICAL SCIENCES
GUIDELINES FOR RESEARCH & BIOMEDICAL WASTE DISPOSAL
 2002 REVISION

TYPE OF WASTE	RECOMMENDED PROCEDURES FOR SAFE DISPOSAL
ANIMAL RESEARCH SOLID WASTE: CONTAMINATED OR UNCONTAMINATED CARCASS, ORGANS, FECES, TISSUE OR BEDDING	<ol style="list-style-type: none"> 1. PLACE WASTE IN ORANGE BIOHAZARD BAG. 2. PLACE SEALED AND SECURED BIOHAZARD BAG INTO RED LINED BIOHAZARD BURN BOX AND CALL EHS (292-1284) FOR PICK UP AND DISPOSAL.
CELL/MICROBE RESEARCH SOLID WASTE: PLASTIC PETRI AND TISSUE CULTURE VESSELS INCLUDING MEDIA, CONTAMINATED GLOVES, MATS, TOWELS ETC.	<ol style="list-style-type: none"> 1. STERILIZATION IS OPTIONAL. AFTER STERILIZATION, CULTURES CAN BE POURED INTO SANITARY DRAINS. 2. VESSELS CONTAINING LIQUID WHETHER CONTAMINATED OR NOT ARE PLACED IN ORANGE BIOHAZARD BAGS WHICH ARE TAPED AND TIED SECURELY TO PREVENT ANY LEAKAGE. 3. FULL BIOHAZARD BAGS AND ANY EMPTY VESSELS ARE PLACED IN RED LINE BIOHAZARD BURN BOXES WHICH ARE SECURED WITH WATERPROOF TAPE
AQUEOUS LIQUID WASTE BLOOD, URINE, CELL OR MICROBIAL CULTURES	<ol style="list-style-type: none"> 1. AUTOCLAVE OR CHEMICALLY STERILIZE. 2. DISCARD IN SANITARY DRAIN.
SHARPS CONTAMINATED OR UNCONTAMINATED (SEE PAGE 2 FOR DEFINITION OF "SHARPS".)	<ol style="list-style-type: none"> 1. PLACE CONTAMINATED SHARPS IN RIGID PLASTIC SHARPS CONTAINERS WHICH MUST BE SEALED WHEN FILLED. 2. <u>UNCONTAMINATED SHARPS ONLY</u> MAY BE PLACED IN STURDY CARDBOARD CONTAINERS WHICH THEN ARE SECURELY TAPED. IT IS SUGGESTED THAT ALL PIPETS (GLASS OR PLASTIC) BE REPACKED INTO THEIR ORIGINAL BOXES AFTER USE. 3. FILLED SHARPS BOXES AND CARDBOARD BOXES MUST BE PUT INTO RED LINED BIOHAZARD "BURN BOXES". <p style="text-align: center; color: red;"> NOTE: DO NOT PLACE LOOSE SHARPS INTO BURN BOXES. EVEN PLASTIC PIPET TIPS CAN CAUSE LINER TO PUNCTURE WHEN HEAVIER ITEMS ARE LOADED ON TOP OF THEM. </p>
CARCINOGENIC OR CHEMOTHERAPEUTIC AGENTS	<ol style="list-style-type: none"> 1. PLACE WASTE INTO 4 MIL POLYETHYLENE BAGS DESIGNED FOR CYTOTOXIC WASTE DISPOSAL AS SOLD IN CYTOXIC SPILL KIT. 2. SEAL SPILL BAGS AND DISPOSE IN RED LINED BURN BOX.
EMPTY GLASS OR METAL REAGENT CONTAINERS	<ol style="list-style-type: none"> 1. EMPTY AND RINSE THOROUGHLY (AT LEAST 3X). DO NOT BREAK GLASS. BROKEN GLASS IS TREATED AS SHARPS. 2. PLACE IN HALLWAY FOR WEDNESDAY PICK-UP BY CUSTODIAN.
LIQUID ORGANIC WASTE	<ol style="list-style-type: none"> 1. SOLVENTS ARE PUT INTO METAL OR PLASTIC SOLVENT SAFETY CAN. THE AMOUNT AND IDENTITY ARE RECORDED ON TAG PROVIDED BY EOHS. 2. AQUEOUS CHEM WASTE THAT CANNOT BE POURED DOWN A SINK CAN BE MIXED WITH ORGANICS. 3. CALL EOHS WHEN CAN ARE FULL FOR AN EXCHANGE.
GENERAL CHEMICALS HARMLESS AS WELL AS TOXIC, CORROSIVE, REACTIVE, OR IGNITABLE AGENTS	<ol style="list-style-type: none"> 1. DISPOSE IN ACCORDANCE WITH EOHS CHEMICAL GUIDELINE. 2. YOU WILL BE ASKED TO IDENTIFY ALL CHEM AND SEGREGATE BY HAZARD CLASSIFICATION.
RADIOACTIVE WASTE	<ol style="list-style-type: none"> 1. FOLLOW RADIATION SAFETY INSTRUCTION DISPOSAL OF RAD.
ORDINARY RUBBISH	<ol style="list-style-type: none"> 1. NON HAZARDOUS WASTE ONLY; NEVER PIPETS, PIPET TIPS, PETRI OR TISSUE CULTURE CONTAINERS.

**THE OHIO STATE UNIVERSITY
COLLEGE OF BIOLOGICAL SCIENCES
GUIDELINES FOR RESEARCH & BIOMEDICAL WASTE DISPOSAL**

II. IMPORTANT TELEPHONE NUMBERS:

OFFICE OF ENVIRONMENTAL & OCCUPATIONAL
HEALTH & SAFETY (EOHS)292-1284
NIGHTTIME 911
OFFICE OF RADIATION SAFETY292-1284
BIOSCIENCES ANIMAL FACILITY292-3370
BIOSCIENCES SAFETY COORDINATOR292-3419 (JEREMY SMITH)
BUILDING COORDINATOR292-3419 / 292-8772

III. DEFINITIONS:

INFECTIOUS AGENTS: CLASS 2 ETIOLOGIC AGENTS. IT IS RECOMMENDED THAT CLASS 1 BE TREATED AS CLASS 2. CLASS 3 ETIOLOGIC AGENTS REQUIRE ADDITIONAL PRECAUTIONS. SEE CDC GUIDELINES.

CONTAMINATED WASTE HAS BEEN IN CONTACT WITH INFECTIOUS AGENTS OR CONTAINS HAZARDOUS CHEMICAL AGENTS.

DECONTAMINATED WASTE HAS BEEN TREATED TO KILL INFECTIOUS AGENTS OR CLEANED TO REMOVE HAZARDOUS CHEMICALS.

HAZARDOUS WASTE: CONTAMINATED WASTE PLUS UNCONTAMINATED SHARPS.

SHARPS: ANY ITEM CAPABLE OF CAUSING PUNCTURE WOUNDS OR CUTS. THIS INCLUDES DISCARDED HYPODERMIC SYRINGES, CANNULAS, NEEDLES, SCALPEL BLADES, COVERSLEPS, MICROSCOPE SLIDES, ALL GLASS OR PLASTIC PIPETTES (INCLUDING PASTEUR PIPETTES), PLASTIC PIPETTE TIPS, BROKEN GLASS, AND METAL SHARDS. SYRINGES ARE NOT RESHEATHED, CLIPPED, OR BROKEN BEFORE DISCARD.

IV. WASTE CONTAINERS AND THEIR DISPOSAL

TYPE OF APPROVED WASTE CONTAINER	1 BIOHAZARD AUTOGLAVE BAG	2 PLASTIC SHARPS CONTAINER	3 BIOHAZARD BURN BOX (RED LINED)	4 STURDY CARDBOARD BOX	5 SOLVENT SAFETY CANS
WHERE TO OBTAIN THE CONTAINERS	OFF CAMPUS SUPPLIER (CHARGE)	HOSPITAL STORES OR OFF CAMPUS	EHS OR BIOSCI LOADING DOCK	SAVE SHIPPING BOXES RECYCLE	LAB STORES OR OFF CAMPUS
HOW TO DISPOSE OF FILLED CONTAINER	PLACE IN BURN BOX	PLACE IN BURN BOX	SECURE PROPERLY PLACE IN HALLWAY CALL EHS	TAPE SECURELY PLACE IN BIOHARD BURN BOX	CALL EHS FOR EXCHANGE

THE OHIO STATE UNIVERSITY
COLLEGE OF BIOLOGICAL SCIENCES
GUIDELINES FOR RESEARCH & BIOMEDICAL WASTE DISPOSAL

V. ADDITIONAL NOTES ON HAZARDOUS WASTE POLICIES:

A. FLAMMABLE SOLVENT WASTE STORAGE. A SUITABLE SOLVENT STORAGE CABINET MUST BE USED FOR ALL CONTAINERS OF FLAMMABLE SOLVENT GREATER THAN ½ GALLON IN SIZE, OR IF THE TOTAL VOLUME OF ALL FLAMMABLE SOLVENTS AMOUNTS TO MORE THAN TWO GALLONS KEPT IN ONE ROOM.

B. SPILLS. OSHA HAZARD COMMUNICATION REGULATIONS REQUIRE MANUFACTURERS TO PROVIDE PURCHASERS AND USERS OF HAZARDOUS CHEMICALS WITH MATERIAL SAFETY DATA SHEETS. THESE MSDS'S INCLUDE PHYSICAL AND CHEMICAL PROPERTIES AND KNOWN ACUTE OR CHRONIC HEALTH EFFECTS INCLUDING CARCINOGENICITY, EXPOSURE LIMITS AND EMERGENCY AND FIRST AID PROCEDURES. IT IS THE RESPONSIBILITY OF THE RESEARCHER NOT ONLY TO BE AWARE OF SUCH HAZARDS BUT ALSO TO INFORM AND EDUCATE ALL THOSE WHO MIGHT COME IN CONTACT WITH THAT HAZARD. EACH HAZARD HAS ITS PECULIARITIES AND EACH SPILL HAS ITS OWN RESOLUTION. LEARNING EACH HAZARD AND ITS EMERGENCY RESOLUTION MUST BE STANDARD ORIENTATION FOR EVERYONE WHO COULD BE EXPOSED TO THAT HAZARD. ALSO IT IS NECESSARY TO AVOID THINKING A SPILL IS RESOLVED AFTER IT IS OFF THE LAB BENCH OR FLOOR. IF A HAZARD IS DISPOSED UNTHINKINGLY INTO A NORMAL TRASH RECEPTACLE, ANY UNKNOWING HOUSEKEEPER IS AT RISK. MSDS'S SHOULD BE CONSULTED FOR SPECIFIC INSTRUCTIONS. ONLY BRIEF GUIDELINES ARE GIVEN HERE.

HAZARDOUS CHEMICAL SPILLS SHOULD BE REPORTED IMMEDIATELY TO THE OFFICE OF ENVIRONMENTAL & OCCUPATIONAL HEALTH AND SAFETY. THEY WILL ISSUE INSTRUCTIONS AND SEND SPECIAL ASSISTANCE IF NECESSARY.

CYTOTOXIC DRUG SPILLS REQUIRE SPECIAL PRECAUTIONS TO ISOLATE. INEXPENSIVE CD SPILL KITS WITH DOUBLE-LATEX GLOVES, GOGGLES, RESPIRATORS AND SPILL MATS ARE AVAILABLE.

MERCURY SPILLS REQUIRE SPECIFIC PRECAUTIONS TO AVOID INHALATION, INGESTION OR ABSORPTION. THE OFFICE OF ENVIRONMENTAL & OCCUPATIONAL HEALTH AND SAFETY (292-1284) SHOULD BE NOTIFIED IMMEDIATELY AND A MERCURY SPILL TEAM WILL BE DISPATCHED.

C. PROHIBITION OF CHROMIC ACID AS GLASS CLEANER. DUE TO EXTREME TOXICITY OF CHROMATE AND THE EXPENSE OF THEIR DISPOSAL, NO-CHROMIX OR SIMILAR SUBSTITUTE SHOULD REPLACE THIS OUTDATED PRACTICE. PRESS HERE FOR [MSDS FOR CHROMIUM TRIOXIDE AND OTHER CH SALTS](#).



D. COLLEGE OF BIOLOGICAL SCIENCES LABORATORY GLOVE POLICY. LABORATORY GLOVES ARE NOT TO BE WORN IN LOBBIES, REST ROOMS, ADMINISTRATIVE OFFICES, LIBRARIES, VENDING AREAS, ELEVATORS, COLLEGE GLASSWARE FACILITY, OR STORES. IT IS ASSUMED THAT ONE IS WEARING GLOVES FOR PROTECTION FROM A LAB HAZARD. THAT HAZARD IS MOST PROBABLY ON THE OUTSIDE OF THE GLOVE. FOR THIS REASON, LAB GLOVES SHOULD NOT LEAVE THE IMMEDIATE LAB AREA TO PREVENT CONTAMINATION OF DOOR KNOBS, ELEVATOR SWITCHES, AND OTHER PUBLIC AREAS. IF GLOVES ARE WORN TO PROTECT CLEAN GLASSWARE FROM GREASE OR FINGERPRINTS, THEY BECOME IMMEDIATELY CONTAMINATED WITH GREASE FROM HUNDREDS OF BUILDING OCCUPANTS AS SOON AS AN ELEVATOR BUTTON OR DOOR PULL IS TOUCHED THUS DEFEATING THE PURPOSE OF THE GLOVES. CONTAMINATED GLOVES SHOULD BE DISCARDED IN RED LINED BIOHAZARD BURN BOXES.

THE OHIO STATE UNIVERSITY
COLLEGE OF BIOLOGICAL SCIENCES
GUIDELINES FOR RESEARCH & BIOMEDICAL WASTE DISPOSAL

V. ADDITIONAL NOTES ON HAZARDOUS WASTE POLICIES: CONTINUED



E. BURN BOXES (INCINERATOR BOXES). 18" X 18" X 28" CARDBOARD INCINERATOR BOXES MARKED INFECTIOUS WASTE-BIOHAZARD IN RED PLUS 6.5 MIL RED PLASTIC LINERS ARE AVAILABLE FROM THE WASTE CAGE ON THE LOADING DOCK OF THE BUILDING OR FROM THE OFFICE OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH AND SAFETY. BOXES AND LINERS ARE FREE.

THE BOXES MUST BE BUILT USING PLASTIC STRAPPING TAPE OR CARTON TAPE. MASKING TAPE IS NOT ACCEPTABLE AS IT QUICKLY LOSES ITS STRENGTH WHEN DAMP. PLACE THE BOX UPSIDE DOWN WITH THE BIOHAZARD SYMBOL INVERTED THEN FOLD BOTTOM FLAPS INWARD SO THAT THE FLAP WITH THE BOX MANUFACTURER'S LABEL IS VISIBLE. TAPE SECURELY. FLIP THE BOX OVER AND INSERT LINER.

WHEN REASONABLY FULL WITH THE WEIGHT NOT EXCEEDING 35 POUNDS, THE RED LINER IS SECURELY TIED OFF USING STRONG TAPE. SHOULD THE SEALED BOX BE INVERTED ACCIDENTALLY IN TRANSIT, THIS TAPED RED LINER CAN PREVENT LEAKAGE ONLY IF IT IS TIGHTLY CLOSED! THE BOX LID IS THEN FOLDED DOWN SO THAT THE RED IDENTIFICATION SQUARE IS VISIBLE, AND SECURED WITH PLASTIC STRAPPING OR BOX BUILDING TAPE. MARK THE BOX WITH YOUR LABORATORY ROOM NUMBER.

FILLED BOXES SHOULD BE PLACED IN THE HALL OUTSIDE YOUR LABORATORY DOOR. IF YOU DESIRE A REGULAR COLLECTION, [YOU MUST CALL EHS AT 292-1284](tel:292-1284). WASTE CURRENTLY IS COLLECTED ON TUESDAYS AND THURSDAYS.

AS IT IS VERY EXPENSIVE FOR THE UNIVERSITY TO INCINERATE THESE BOXES, DO NOT USE BURN BOXES FOR NONHAZARDOUS WASTE JUST BECAUSE THEY ARE FREE TO YOU!!!



F. PLASTIC SHARPS CONTAINERS ARE DISPOSABLE RIGID PLASTIC CONTAINERS WITH "LOCKING" TOPS IN SIZES UP TO 8 GALLONS. THEY ARE MARKED "BIOHAZARD-CONTAMINATED" AND ARE AVAILABLE FROM LAB STORES OR FROM SCIENTIFIC SUPPLY HOUSES. **SHARPS:** ANY ITEM CAPABLE OF CAUSING PUNCTURE WOUNDS OR CUTS. THIS INCLUDES DISCARDED HYPODERMIC SYRINGES, CANNULAS, NEEDLES, SCALPEL BLADES, COVERSIPS, MICROSCOPE SLIDES, ALL GLASS OR PLASTIC PIPETTES (INCLUDING PASTEUR PIPETTES), PLASTIC PIPETTE TIPS, BROKEN GLASS, AND METAL SHARDS. SYRINGES SHOULD NOT BE RESHEATHED, CLIPPED, OR BROKEN.

THERE IS NO NEED TO AUTOCLAVE THE CONTENTS OF SHARPS CONTAINERS. WHEN FILLED, A SHARPS CONTAINER IS CLOSED WITH ITS LOCKING LID AND THEN PLACED IN A BURN BOX CONTAINING A RED PLASTIC LINER. THE PLASTIC LINERS MUST BE PROTECTED FROM SHARPS SINCE LEAKS FROM A BURN BOX CREATE OBVIOUS ALARM.



G. WASTE SOLVENT CANS. PLASTIC OR METAL SOLVENT WASTE DISPOSAL CANS ARE AVAILABLE FROM LAB STORES OR OUTSIDE SUPPLIERS. CANS SHOULD BE USED FOR ALL DISCARDED SOLVENTS INCLUDING CHLOROFORM, ACETONE, ETHYL ETHER, METHANOL, FORMALDEHYDE, PHENOL, TOLUENE, METHYL CHLOROFORM, OR XYLENE. KEEP TRACK OF THE KIND AND AMOUNTS OF ORGANIC COMPOUNDS ADDED TO A CAN AND RECORD ON THE TAGS PROVIDED BY EOHS. FULL CANS WILL BE EMPTIED AND RETURNED BY EOHS. NOTE: HEAVY METALS, {Hg, Pb, Ag, As, Ba, Sl, Cr, Cd}, SULFIDES, CYANIDES, OR CONC. MINERAL ACIDS OR BASES $5 < \text{pH} > 9$ ARE NOT TO BE DISCARDED IN SOLVENT WASTE CANS BUT AS HAZARDOUS WASTE ON SEPARATE MANIFEST.

H. ANIMAL CARCASS OR TISSUE DISPOSAL. NO ANIMAL CARCASS OR TISSUE IS TO BE DISCARDED THROUGH NORMAL REFUSE DISPOSAL CHANNELS. ALL ANIMAL TISSUE OR CARCASSES USED IN EXPERIMENTAL STUDIES INCLUDING CLASSROOM LABS ARE TO BE PROCESSED BY THE ANIMAL LABORATORY FACILITY (ULAR) USING RED LINED BURN BOXES.

V. ADDITIONAL NOTES ON HAZARDOUS WASTE POLICIES: CONTINUED

I. PROPER DISPOSAL OF REFRIGERATOR UNITS, FREON AND COMPRESSOR OIL.

1. IF THE UNIT IS IN A ROOM THAT CARRIES A RADIATION SIGN, CALL RADIATION SAFETY AT 292-1284 TO HAVE THE EQUIPMENT CHECKED FOR CONTAMINATION. IF THE UNIT IS COLD, THEY WILL PLACE A TAG ON IT CERTIFYING IT FOR DISPOSAL.
2. DECONTAMINATE ANY BIOLOGICAL RESIDUE AND FILL OUT DECONTAMINATION FORM. THE REFRIGERATOR NEEDS TO LOOK CHEMICALLY AND BIOLOGICALLY CLEAN.
3. OBTAIN REFRIGERATION DISPOSAL PROTOCOL SHEET FROM PHYSICAL FACILITIES AT 292-1512. FILL IN PERTINANT INFORMATION AND SEND IT ALONG WITH A 100W TO PHYSICAL FACILITIES. THEY WILL CHARGE ~ \$50 TO ARRANGE PICK-UP AND HAVE A CERTIFIED TECHNICIAN REMOVE AND RECYCLE ALL FREON AND OIL. THEY WILL PLACE THEIR TAG ON THE COMPRESSOR STATING THAT THE UNIT IS CLEARED OF ENVIRONMENTAL CONTAMINANTS.
4. IF THE UNIT IS PART OF DEPARTMENTAL INVENTORY, SEND SURPLUS PROPERTY RELEASE FORM TO SURPLUS MATERIALS DISPOSAL & RECYCLING TO GET EQUIPMENT LEGALLY REMOVED FROM DEPARTMENTAL INVENTORY.

J. HARD TRASH DISPOSAL



HARD TRASH IS ANYTHING TOO LARGE, TOO BULKY, TOO HEAVY OR TOO SOLID TO BE COMPACTED IN REFUSE TRUCKS WITHOUT DAMAGING THE REFUSE EQUIPMENT.

IF HARD TRASH MATERIAL IS PART OF DEPARTMENTAL INVENTORY, SEND SURPLUS PROPERTY RELEASE FORM TO SURPLUS MATERIALS DISPOSAL AND RECYCLING TO GET EQUIPMENT LEGALLY REMOVED FROM INVENTORY.

CALL HARD TRASH REMOVAL AT 292-0892 TO ARRANGE FOR DISPOSAL PICK-UP. THE COLLEGE BUILDING'S LOADING DOCKS ARE NOT DUMP SITES. PLEASE DO NOT DUMP UNWANTED TRASH ON ANY LOADING DOCK EXPECTING IT TO MAGICALLY DISAPPEAR WITHOUT CALLING FOR PROPER DISPOSAL.

K. FLUORESENT LIGHT TUBES AND BALLASTS

CAREFULLY TRANSPORT TO BIOSCIENCE BUILDING LOADING DOCK CAGE PLACING THEM INTO DESIGNATED CARDBOARD BOXES. CALL EHS AT 292-1284 FOR PICK-UP.

L. BATTERIES

SILVER, LITHIUM, MERCURY, NiCAD OR LEAD ACID BATTERIES SHOULD NOT BE DUMPED INTO NORMAL TRASH STREAM AS THEY CAUSE DUMPSITE TOXICITY. CALL EHS AT 292-1284 FOR PICK-UP TO HAVE THESE HEAVY METALS PROPERLY RECYCLED.

THE OHIO STATE UNIVERSITY
COLLEGE OF BIOLOGICAL SCIENCES
GUIDELINES FOR RESEARCH & BIOMEDICAL WASTE DISPOSAL

V. ADDITIONAL NOTES ON HAZARDOUS WASTE POLICIES: CONTINUED



M. ASBESTOS AWARENESS

ASBESTOS IS PRESENT IN MOST BUILDINGS CONSTRUCTED PRIOR TO THE EARLY 1980'S USUALLY IN THE FORM OF PLUMBING INSULATION, FLOOR TILES, CHEMICAL FUME HOODS, THE CEMENT DUCT WORK CONNECTING CHEMICAL FUME HOODS, CHEMICAL RESISTANT COUNTER TOPS, OR SPRAYED FIRE RETARDANT ON BUILDING SUPPORTS. IN THIS ENCAPSULATED FORM, IT PRESENTS LITTLE OR NO HAZARD.

HOWEVER, PLUMBING OR RENOVATION WORK CAN DISTURB ASBESTOS CREATING AIRBORNE HAZARDS. THEREFORE, IN OLDER BUILDINGS ALL REPAIR AND RENOVATION WORK AREAS MUST BE INSPECTED FOR THE PRESENCE OF ASBESTOS BEFORE WORK BEGINS. IF ASBESTOS IS FOUND, ABATEMENT BY CERTIFIED ASBESTOS REMOVER MUST PRECEDE ANY WORK. HELP IN DETERMINING THE NEED FOR ABATEMENT CAN BE OBTAINED FROM EHS AT 292-1284.

ANY VIOLATION OF ASBESTOS DISPOSAL RULES IS SERIOUS. OSU EHS IS VIGILANT OF ANY EXPOSURE. IF LARGE SCALE VIOLATIONS OCCUR, BOTH THE OHIO EPA AND OHIO DEPARTMENT OF HEALTH CAN BECOME INVOLVED. THESE AGENCIES DEAL WITH VIOLATIONS WITH DUE SERIOUSNESS INCLUDING LARGE FINES.

QUESTIONS MAY BE DIRECTED TO :

JEREMY SMITH, COLLEGE SAFETY OFFICER, 292-3419 OR THE COLLEGE OFFICE, 292-8772.