Disposal Bans for Mercury-containing Lamps & Other Mercury Products

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Disposal Ban Mechanisms

Disposal bans on mercury-containing lamps and other mercury products have been enacted in state and local jurisdictions across the country using the following mechanisms:

- **State legislation.** Passage of state law is the most common mechanism for creating a disposal ban on mercury products. Maine, Minnesota, and New Hampshire are examples.

- **Public rule.** King County, WA enacted a disposal ban via public rule.

- **Expired exemption on household fluorescent lamp disposal.** In California, the household exemption on fluorescent lamps as a hazardous waste expired and was not renewed.

- **Solid waste acceptance policy.** The Snohomish County Public Works Solid Waste Division Waste Acceptance Policy requires that mercury-containing lamps be recycled.

Model Disposal Ban Provision

I. Effective 20XX, no person shall knowingly dispose of mercury-added products in a manner other than by recycling or disposal as hazardous waste.

II. Effective 20XX no person shall knowingly discharge mercury to water, wastewater treatment, or wastewater disposal systems. This section applies to, but is not limited to, reagents, medications, amalgam and other mixtures that contain mercury.

III. Effective 20XX no person shall knowingly dispose of mercury products in a solid waste landfill, incinerator, or transfer station.

IV. Source separation. Except as otherwise provided by this section, every person who discards solid waste shall separate mercury-added products from that solid waste for management as hazardous waste or universal hazardous waste, according to all applicable state and federal regulations. Any contractor who replaces or removes mercury-added products shall assure that any discarded mercury-added product is subject to proper separation and management as a hazardous waste or universal hazardous waste. [optional]

V. Owners and operators of solid waste landfills, transfer stations, and incinerators shall not be found to have knowingly accepted or disposed of mercury-added products if, at a minimum, the facility has implemented all of the following mechanisms:

   (a) Posting of signs at the facility providing notice of the prohibition against the disposal of mercury-added products.

   (b) Written notification to, or agreements with, the facility’s customers, providing notice of the prohibition against the disposal of mercury-added products.

   (c) Implementation of a procedure, approved by the department, for periodically monitoring incoming wastes to detect the presence of mercury-added products at the facility and for
separating out observed mercury-added products for return to the generator, recycling, or disposal as a hazardous waste.

(d) Provide customers with information about collection programs or facilities that are permitted to accept mercury-added products for recycling or disposal as a hazardous waste.

VI. If a formulated mercury-added product is a cosmetic or pharmaceutical product subject to the regulatory requirements relating to mercury of the Federal Food and Drug Administration, then the product is exempt from the requirements of this section.

**OPTIONS**

**Phasing in the residential sector:**

Households are exempted from Section I until 20XX. Nothing in this Chapter prevents households or home owner associations from following the requirements of this section.

**Requiring recycling instead of just banning disposal to solid waste (the latter would permit disposal as hazardous waste):**

Effective 20XX, all fluorescent lamps from state-funded public agency faculties, including, but not limited to learning institutions, shall be recycled. Effective 20YY, all commercial, industrial, retail facilities and office buildings shall recycle their lamps so that the mercury is recovered.\(^1\)

**Registering or otherwise regulating the use of drum-top crushers:**

Several participants in the dialogue strongly encouraged that drum-top crushers be regulated, or at least registered with a state agency. The Association for Lighting and Mercury Recyclers (ALMR) has developed a guidance document that could be incorporated in to legislation. It is included here as Appendix A.

See Appendix B for Virginia's law regulating the operation of drum-top crushers.

**Disposal Ban Language Considerations**

The following recommendations were considered in pulling together the proposed model language shown above.

1) Disposal bans should apply to all mercury-containing products, not just fluorescent lamps.
2) Prescription drugs should be exempted.
   a. Mercury is present in some PPCPs.
   b. Including this exemption avoids pharmaceutical lobby opposition.

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\(^1\) Some stakeholders would like to see mercury retired when possible, while others prefer that it be available for re-use in domestically manufactured products as long as it is needed.
3) Disposal bans should be comprehensive, with the following in place:
   a. Convenient collection system for consumers
   b. Public education on both the ban and the benefits of energy efficient lighting
   c. Sustainable financing for collection, recycling, and education

   The ban may be phased in across generator categories, most likely starting with the commercial sector where there is no need for additional recycling infrastructure or financing system.

4) Use “knowingly” as a caveat for disposal to protect transfer stations handling large quantities of bagged garbage, as well as individuals who are unaware that products contain mercury.

5) Include the requirement that mercury products should be recycled or treated as hazardous waste (not just the ban on disposal).

6) Include New Hampshire’s language on separating mercury products as optional.

7) Include a provision on preventing discharge to wastewater.

8) Include requirements for solid waste generators:
   - Posting of signs at the facility providing notice of the prohibition of the disposal and incineration of mercury-added products;
   - Written notification to or contractual agreements with the facility’s customers on a frequency, determined by the Department, providing notice of the prohibition on the disposal and incineration of mercury-added products; and
   - Implementation of a procedure approved by the Department for periodically monitoring incoming wastes to detect the presence of mercury-added products at the facility.
   - Provide customers with information about collection programs or facilities that are permitted to accept mercury-added products for recycling or disposal as a hazardous waste. (optional)

**Examples of Existing Disposal Bans (State and Local)**

**California**

The household exemption on fluorescent lamps as a hazardous waste expired, creating an effective disposal ban for fluorescent lamps from all users. Therefore, there is no legislative language on a disposal ban for mercury-containing lamps.

**Maine**

http://janus.state.me.us/legis/statutes/38/title38ch16-Bsec0.html

Title 38: WATERS AND NAVIGATION
Chapter 16-B: MERCURY-ADDED PRODUCTS AND SERVICES HEADING: PL 1999, c. 779, §2 (new)

§1663. Disposal ban: After July 15, 2002, a person may not knowingly place a mercury-added product in solid waste for disposal in a solid waste disposal facility. This section may not be construed to affect existing laws, rules or regulations governing disposal of mercury-added products prior to July 15, 2002. [1999, c. 779, §2 (NEW).]

**Massachusetts**

http://www.mass.gov/legis/laws/seslaw06/sl060190.htm
Chapter 190 of the Acts of 2006. AN ACT RELATIVE TO MERCURY MANAGEMENT. SECTION 6.

Section 6.

(a) No person, household, business, school, healthcare facility or state or municipal government shall knowingly dispose of a mercury-added product in any manner other than by recycling, disposing as hazardous waste or using a method approved by the department.
(b) The department shall implement an education program. This program shall include, but not be limited to, working with municipalities and waste haulers to educate the citizens of the commonwealth about mercury-added products and their proper disposal, including creating signs to post at transfer stations, landfills, recycling centers and municipal buildings.
(c) Mercury from mercury-added products shall not knowingly be discharged into water, wastewater treatment or wastewater disposal systems unless it is done in compliance with applicable local, state and federal requirements.
(d) No person shall knowingly send a multi-component product that contains mercury to a scrap recycling facility for recycling without first removing the mercury-added product or products. Notwithstanding the forgoing, a scrap recycling facility may agree to accept a multi-component product that has not been intentionally flattened, crushed or baled knowing it contains mercury-added product or products. If accepted, the scrap recycling facility shall be responsible for removing such product or products and recycling them or disposing of them as hazardous waste.
(e) Mercury-added formulated products that are cosmetic or pharmaceutical products subject to the regulatory requirements of the Federal Food and Drug Administration relating to mercury are exempt from this section.

Minnesota
https://webrh12.revisor.leg.state.mn.us/laws/?id=109&year=2007&type=0

Chapter 109, SF 1085 (May 21, 2007)Section 1, subdivision 1, prohibits the disposal of fluorescent or high-intensity discharge lamps from which mercury has not been removed for reuse or recycling. Requires that a fluorescent or high-intensity discharge lamp must be recycled at a lamp recycling facility or a facility that collects and stores lamps for the purpose of delivering them to a lamp recycling facility.

Section 15, subdivision 2, provides that a person may not operate a lamp recycling facility without first obtaining a permit or license, which requires the completion of an annual report on the number and type of lamps received from businesses and households in the state and the total number of lamps received from all generators outside of the state.

115A.932 MERCURY PROHIBITION (2001)
Subdivision 1. Prohibitions and recycling requirements.
(a) A person may not place mercury or a thermostat, thermometer, electric switch, appliance, gauge, medical or scientific instrument, fluorescent or high-intensity discharge lamp, electric relay, or other electrical device from which the mercury has not been removed for reuse or recycling: (1) in solid waste; or (2) in a wastewater disposal system.
(b) A person may not knowingly place mercury or a thermostat, thermometer, electric switch, appliance, gauge, medical or scientific instrument, fluorescent or high-intensity discharge
lamp, electric relay, or other electrical device from which the mercury has not been removed for reuse or recycling:(1) in a solid waste processing facility; or (2) in a solid waste disposal facility, as defined in section 115.01, subdivision 4.

(c) A fluorescent or high-intensity discharge lamp must be recycled by delivery of the lamp to a lamp recycling facility, as defined in section 116.93, subdivision 1, or to a facility that collects and stores lamps for the purpose of delivering them to a lamp recycling facility, including, but not limited to, a household hazardous waste collection or recycling facility, retailer take-back and utility provider program sites, or other sites designated by an electric utility under section 216B.241, subdivisions 2 and 4.

Subd. 2. Enforcement. (a) Except as provided in paragraph (b), a violation of subdivision 1 is subject to enforcement under sections 115.071 and 116.072.

(b) A violation of subdivision 1 by a generator of household hazardous waste, as defined in section 115A.96, is not subject to enforcement under section 115.071, subdivision 3.

(c) An administrative penalty imposed under section 116.072 for a violation of subdivision 1 by a generator of household hazardous waste, as defined in section 115A.96, may not exceed $...

New Hampshire


2007, Chapter 279, HB 416
279:1 New Section; Mercury Disposal Ban. Amend RSA 149-M by inserting after section 57 the following new section:
I. No person shall knowingly dispose of mercury-added products in solid waste landfills, transfer stations, or incinerators.

II. Owners and operators of solid waste landfills, transfer stations, and incinerators may develop programs to sort, collect, and recycle or dispose of mercury-added products in accordance with applicable laws and regulations.

III. Except as otherwise provided by this section, every person who discards solid waste within the state shall separate mercury-added products from that solid waste for recycling or disposal as a hazardous waste. Any contractor who replaces or removes mercury-added products shall assure the proper separation and recycling or the disposal as a hazardous waste of any discarded mercury-added product.

IV. After proper separation of mercury-added products, each person who discards that waste shall either:

(a) Set that waste in a designated area for collection by a hauler who shall deliver that waste to a facility that is legally authorized and permitted to accept that waste; or

(b) Deliver that waste to a facility that is legally authorized and permitted to accept that waste.

V. Owners and operators of solid waste landfills, transfer stations, and incinerators shall not be found to have knowingly accepted or disposed of mercury-added products if, at a minimum, the facility has implemented all of the following mechanisms:
(a) Posting of signs at the facility providing notice of the prohibition against the disposal of mercury-added products.

(b) Written notification to, or agreements with, the facility’s customers, providing notice of the prohibition against the disposal of mercury-added products.

(c) Implementation of a procedure, approved by the department, for periodically monitoring incoming wastes to detect the presence of mercury-added products at the facility and for separating out observed mercury-added products for return to the generator, recycling, or disposal as a hazardous waste.

(d) Provide customers with information about collection programs or facilities that are permitted to accept mercury-added products for recycling or disposal as a hazardous waste.

VI. This section shall not apply to prescription drugs or any substance regulated by the Federal Food, Drug, and Cosmetic Act, 21 U.S.C. section 301 et seq. or to biological products regulated by the Food and Drug Administration under the Public Health Service Act, 42 U.S.C. section 262 et seq.

279:2 Committee Established. There is established a committee to study methods of improving the recycling rate in New Hampshire for mercury-added thermostats...etc...

**Rhode Island**


Rules and Regulations Governing the Administration and Enforcement of the Rhode Island Mercury Education and Reduction Act (Amended July 2007)

10. Disposal Ban
10.1 Except as otherwise provided in these regulations, after July 1, 2006, no person shall dispose of mercury-added products in a manner other than by recycling or disposal as hazardous waste, Universal Waste, or household hazardous waste (if applicable). Mercury from mercury-added products may not be discharged to water, wastewater treatment, and wastewater disposal systems except when it is done in compliance with local, state, and federal applicable requirements.
10.2 If a formulated mercury-added product is a cosmetic or pharmaceutical product subject to the regulatory requirements relating to mercury of the federal Food and Drug Administration (FDA), then the product is exempt from the requirements of Section 10.
10.3 Section 10 shall not apply to:
10.3.1 The disposal of a mercury-added button cell battery by any person;
10.3.2 The disposal of components in motor vehicles except as provided for in Section 12 of these regulations.
10.3.3 The disposal of lamps and products containing lamps generated from a household.

10.4 In accordance with [R.I. General Laws § 23-24.9-9](http://www.dem.ri.gov/pubs/regs/regs/waste/hgreg07.pdf), the restrictions on amalgam waste recycling shall be implemented as provided for in [R.I. General Law § 23-24.9-9.3](http://www.dem.ri.gov/pubs/regs/regs/waste/hgreg07.pdf) and Section 15 of these regulations.
Vermont

http://www.leg.state.vt.us/statutes/fullsection.cfm?Title=10&Chapter=164&Section=07107

Chapter 164: Comprehensive Mercury Management

§ 7107. Discarded mercury-added products

(a) Management of discarded mercury-added products. After July 1, 2007, discarded mercury-added products, except for mercury-added button cell batteries, products containing mercury-added button cell batteries as their only mercury-added components, and photographic film shall be managed as provided in this section.

1) Disposal ban. No person shall knowingly dispose of mercury-added products in a solid waste landfill or combustor.

2) Source separation. Except as otherwise provided by this section, every person who discards solid waste shall separate mercury-added products from that solid waste for management as hazardous waste or universal hazardous waste, according to all applicable state and federal regulations. Any contractor who replaces or removes mercury-added products shall assure that any discarded mercury-added product is subject to proper separation and management as a hazardous waste or universal hazardous waste.

(b) Solid waste transfer, combustion facility, and landfill facility requirements:

1) Disposal ban. Effective July 1, 2007, the owner and operator of a solid waste landfill, transfer station, or combustion facility shall not knowingly accept for disposal mercury-added products.

2) Notification of disposal ban. Effective July 1, 2007, solid waste transfer facilities, solid waste combustion facilities, and landfill facilities shall implement the following minimum mechanisms to notify the public and haulers of the disposal ban:

(a) Posting of clearly visible and easily read signs at the facility, providing notice of the prohibition of the disposal and combustion of mercury-added products; and

(b) Providing customers information about collection programs and facilities that are permitted to accept mercury-added products.

(c) Collection program.

1) By December 1, 1998, every solid waste implementation plan of every solid waste management district or municipality having such a plan shall be amended to provide for:

(a) an informational effort to advise the public about labeled mercury-added products; and

(b) a collection program for the collection of mercury-added products identified in subsection (a) of this section.
(2) These amended plans shall be implemented by each solid waste management district or municipality by June 1, 1999. Components of these amended plans that are related to subdivisions (1)(a) and (b) of this subsection shall not be required to receive approval from the agency of natural resources.

**Washington (draft)**

*This language is from proposed legislation that did not pass in 2008.*

70.95M.125 – Recycling and Proper Management of Mercury

1. Effective January 1, 2012, no person shall dispose of mercury-added products in a manner other than by recycling or disposal as hazardous waste.

2. Effective January 2012 no person shall discharge Mercury to water, wastewater treatment, or wastewater disposal systems. This section applies to, but is not limited to, reagents, medications, amalgam and other mixtures that contain mercury.

3. Effective January, 2012 mercury-added products may only be disposed of in a properly-approved (by the Department) hazardous waste disposal or recycling facility.

4. At a minimum, owners and operators of solid waste management facilities are required to implement the following mechanisms:
   a. posting of signs at the facility providing notice of the prohibition of the disposal and incineration of mercury-added products;
   b. written notification to or contractual agreements with the facility’s customers on a frequency, determined by the Department, providing notice of the prohibition on the disposal and incineration of mercury-added products; and
   c. implementation of a procedure approved by the Department for periodically monitoring incoming wastes to detect the presence of mercury-added products at the facility.

5. If a formulated mercury-added product is a cosmetic or pharmaceutical product subject to the regulatory requirements relating to mercury of the Federal Food and Drug Administration, then the product is exempt from the requirements of this section.

A previous draft also had a phased in ban for households:

6. Households are exempted from Section 4 until January 1, 2010. Nothing in this Chapter prevents households or home owner associations from following the requirements of this section.

70.95M.020

Fluorescent lamps — Labeling and recycling requirements

(4) Recycling. Effective January 2010XX all fluorescent lamps from state-funded public agency faculties, including, but not limited to learning institutions, shall recycle their lamps. Also effective January 2011XX all commercial, industrial, retail facilities and office buildings shall recycle their lamps.

Another section of the bill dealt with required recycling:

70.95M.020
Fluorescent lamps — Labeling and recycling requirements

(4) Recycling. Effective January 2010XX all fluorescent lamps from state-funded public agency faculties, including, but not limited to learning institutions, shall recycle their lamps. Also effective January 2011XX all commercial, industrial, retail facilities and office buildings shall recycle their lamps.

**King County, Washington**


Waste Acceptance Rule for King County Solid Waste Division Solid Waste Handling Facilities

Document Code No.: PUT 7-1-5 (Public Rule), June 20, 2005.

6.0 POLICIES: King County solid waste facilities are designed, constructed, and operated primarily for the management of mixed municipal solid waste. Waste other than mixed municipal solid waste may be accepted with conditions, including formal waste clearance, or prohibited. King County’s rules for acceptance of various waste types are described below.

6.19 Fluorescent lights and other Universal Waste Lamps are not accepted from commercial customers. Fluorescent and compact fluorescent lights are not accepted from residential customers effective October 1, 2005. Call the Solid Waste Division at 206-296-4466, the Business Waste Line at 206-296-3976, the Household Hazards Line at 206-296-4692 or click here for information on lamp recycling. Recycling is recommended for all commercial and residential lamps containing mercury, including low-mercury lamps.

**Snohomish County, Washington**


Snohomish County Public Works Solid Waste Division Waste Acceptance Policy:

Our transfer stations are designed to accept a wide range of materials. However, there are legal, physical and safety reasons why some materials are not accepted. This brochure lists items which are not accepted at Snohomish County’s solid waste facilities. Also listed are items which are accepted at the facilities, but require special preparation or recycling.

Accepted for Recycling Only:

-- Fluorescent Tubes, High Intensity Discharge Lamps (HIDs) and Compact Fluorescent Bulbs.

**Businesses:** No business fluorescents or HIDs are accepted at transfer stations or drop boxes. Call the Haz Waste Station to make an appointment to recycle them. Non-hazardous lamps may be taken to facilities but require prior testing, special preparation, and clearance by the Snohomish Health District.

**Households:** No more than a combined total of 12 household fluorescents or HIDs per load are accepted for recycling. Fluorescents and HIDs should be separated from other garbage and delivered in original containers, or be wrapped or bagged to reduce the risk of breakage while in transit. Do not tape bulbs together.
Pre-1980 light ballasts, capacitors and mercury switches should be taken to the Haz Waste Station.

Dane County, Wisconsin

41.24 RECYCLING REQUIREMENT FOR CERTAIN PRODUCTS. (1) On and after January 1, 1990, no retailer shall sell or offer for sale any tire or lead acid battery unless the retailer shall, at the point of sale, inform the buyer that tires and lead acid batteries cannot be accepted for disposal at Dane County-owned landfills. (2) On or after May 17, 2002, no retailer shall sell or offer for sale any thermostat containing mercury or fluorescent lamps or bulbs unless the retailer shall, at the point of sale, inform the buyer that thermostats containing mercury and fluorescent lamps or bulbs cannot be accepted at Dane County-owned landfills. (3) A retailer of tires, lead acid batteries, thermostats containing mercury or fluorescent lamps or bulbs, shall offer to accept for reuse, recycling or recovery any such used product which the buyer is proposing to replace with a newly-purchased product. (4) A retailer who receives any used product under this section must attempt to recycle them, whether directly or by transferring any such used product to a recycling business.

Public Education Materials

Links
- New Hampshire: Mercury Disposal Ban and Recycling Program
- New Hampshire: ACE Hardware Lamp Recycling Program
- Vermont: Don’t Trash Fluorescent Light Bulbs!
- Vermont: Dumpster Advisory Sticker
- Vermont: Advisory Mailing Flyer
- Massachusetts Board of Health: Help Stop Mercury from Rising
- Amherst Board of Health: Letter to Tanning Salon Owners
- Center for Ecological Technology: Tanning Salon Lamps Recycling
- King County Disposal Ban
Appendix A: ALMR Guidance on Drum-Top Crushers

ALMR Minimum Standards and Criteria for the Safe and Compliant Use of Drum Top Crushing Devices as Part of a Mercury Lamp Recycling Program

Originally provided to EPA as Guidance for Equivalency Demonstration and for States to incorporate into regulations to allow the practice under Universal Waste Rules.

The ALMR has adopted the following Criteria for the safe and compliant use of Drum Top Crushing Devices as part of a mercury lamp recycling program. If used in their entirety these criteria can be incorporated into State’s policies to allow generators to conduct intentional crushing of lamps for the purpose of getting them recycled, and for states to meet the federal Equivalency Demonstration required by the Universal Waste Rules. They also become the parameters for DTC use and set forth reasonable controls and accountability for the recycling of the materials processed.

Drum Top Crushing Criteria

1. Drum-top crushing devices may not be used by generators unless all of the following conditions are met.
   a. The original and any subsequent sales of DTCs must be recorded with the state agency responsible for hazardous and/or Universal Wastes by the seller.
   b. The DTC owner must register the device with the responsible agency, including Name, contact information, brand of device used, anticipated usage, and a statement that the plan referred to in 1. c. below is in place.

   c. The employer must develop and implement a written procedure specifying how to safely crush mercury lamps and have the procedure available for all operators of the equipment. This procedure must include:

      • operation and maintenance of the unit in accordance with written procedures developed by the manufacturer of the equipment
      • any testing and monitoring procedures
      • an assessment of whether surrounding areas will be impacted, either by physical proximity or air exchange with an HVAC system
      • proper waste management practices
      • the employer must document maintenance activities and shall retain maintenance logs, test data from the manufacturer reflecting the maximum rated operating conditions, and also any additional test data acquired.
      • a copy of these records must be retained at the owner’s facility for public review.

2. The unit owner must meet all OSHA requirements and all operators must receive training appropriate to mercury hazards, crushing procedures, waste handling and emergency procedures (training must be documented).
3. The owner shall be accountable for the disposition of all materials crushed in the device. Accountability includes, at a minimum:
   a. An annual report submitted to a regulatory agency indicating the total volume of lamps crushed
   b. the volume and disposition of any carbon or other filter media from the device
   c. the name of the TSDFs or destination facilities to which all crushed material was shipped (proof of Certificates of Recycling).

4. Anyone who uses a DTC may not dispose of the crushed waste or filter medium into the municipal waste stream. Any used filter media (carbon, HEPA, etc.) must undergo the hazardous waste determination and, if necessary, must be managed in accordance with the applicable requirements of 40 CFR 260-270.

5. Drum-top crushing devices are considered hazardous waste treatment units because they are intended to release but not recover mercury from the materials processed. These treatment units may not be used by Handlers or contractors who are not the original generator, or at any location that is not a Destination Facility operated under the authority of the responsible state agency.

6. Mobil or unmanned treatment systems using crushing or another form of treatment for mercury lamps are not authorized.

Association of Lighting and Mercury Recyclers
2436 Foothill Blvd., Suite B, Calistoga, CA 94515
ph- 707-942-2197, fax- 707-942-2198, e-mail- mail@almr.org; www.almr.org

ALMR, The Association of Lighting and Mercury Recyclers, is a non-profit organization representing members of the mercury recycling industry, serving as an educational and informational resource to government, business and the public. ALMR members currently recycle over 80% of the mercury lamps that are diverted from the municipal waste stream.

Appendix B: Virginia Lamp Crushing Regulation

http://leg1.state.va.us/cgi-bin/legp504.exe?000+reg+9VAC20-60-273


3. In addition to the requirements for lamps contained in 40 CFR 273, the following requirements shall apply:

   a. A used lamp shall be considered discarded and a waste on the date the generator permanently removes it from its fixture. An unused lamp becomes a waste on the date the generator discards it since that is the date on which he is deemed to have decided to discard it in accordance with 40 CFR 273.5(c)(2).
b. Universal waste lamps may be crushed or intentionally broken on the site of generation to reduce their volume; however, breaking, crushing, handling, and storage must occur in a safe and controlled manner that minimizes the release of mercury to the workplace and the environment and must comply with 29 CFR 1910.1000. The procedure for breaking, crushing, handling and storing of the lamps must be documented and use a mechanical unit specifically designed for the process that incorporates the containment and filtration of process air flows to remove mercury-containing vapors and dusts.

c. All handlers of universal waste (large or small quantity) who crush mercury-containing lamps under these universal waste regulations shall comply with the following provisions:

(1) The handler must use a mercury-containing lamp crusher indoors with air pollution controls that capture both particulate and vapor phase mercury. At a minimum, these controls must include, or must be equivalent to the protection provided by a HEPA filter, activated charcoal, and a negative air flow (vacuum) through the crusher unit. The crusher must have documentation from the manufacturer that demonstrates that the unit:

(a) Is capable of achieving the Occupational Safety and Health Administration Permissible Exposure Limit (PEL) for mercury of 0.10 milligram per cubic meter in indoor ambient air (under individual site-specific use conditions); and

(b) Achieves a particle retention rate of 99.97% in the HEPA filter (at a particle diameter of 0.3 microns).

(2) The handler must develop and implement a written procedure specifying how to safely crush universal waste lamps. This procedure must include: type of equipment to be used to crush the lamps safely, operation and maintenance of the unit in accordance with written procedures developed by the manufacturer of the equipment, and proper waste management practices. The handler must document maintenance activities and keep records of maintenance. In addition, the unit operator must receive training in crushing procedures, waste handling and emergency procedures (training must be documented).

(3) Residues, filter media, or other solid waste generated as part of the crushing operation, which are not being reclaimed and which exhibit any characteristics of a hazardous waste, must be managed in accordance with all applicable hazardous waste management requirements.

(4) The handler must ensure that spills of the contents of the universal waste lamps that may occur during crushing operations are cleaned up in accordance with 40 CFR 273.13 (d)(2) or 40 CFR 273.33 (d) (2).

(5) The handler must store the crushed lamps in closed, nonleaking drums or containers that are in good condition. Transfer of the crushed lamps to other drums or containers is not permitted.

(6) Drums or containers used for storage of crushed lamps must be properly sealed and labeled. The label shall bear the words "Universal Waste-Lamp(s)," "Waste Lamp(s)," or "Used Lamp(s)."

4. A small quantity handler having a waste subject to the requirements of 40 CFR 273.13(a)(3)(i) is also subject to 9VAC20-60-270 and Parts IV (9VAC20-60-305 et seq.), VII (9VAC20-60-420 et seq.), and XII (9VAC20-60-1260 et seq.) of this chapter.