



Standard Guide for Accepting, Segregating and Packaging Materials Collected Through Household Hazardous Waste Programs¹

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1. Scope

1.1 This guide covers Household Hazardous Waste (HHW) programs for accepting, segregating and packaging materials collected through HHW programs to minimize the risk associated with managing these materials and to identify applicable regulations. This guide does not address storing, vehicle loading or transporting collected and packaged materials. This guide does not attempt to define the hazardous nature of materials.

1.2 Certain existing local, state and federal regulations apply to HHW program operations. This guide does not replace these existing regulations, and is not intended to be used as the basis for regulations for HHW Programs. This guide does not reference all applicable applications, since applicable regulations will vary. HHW Programs should research all applicable regulations before establishing a materials collection program.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this guide to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

- 2.1 *Code of Federal Regulations (CFR):*
Title 49, Transportation, Parts 171–178²
CFR Title 40, Protection of Environment, Part 261.5²

3. Terminology

3.1 Definitions:

3.1.1 *bulking*—the act of emptying multiple containers of compatible materials and mixing those materials together in a single package unit destined for shipment. This would also include material placed in storage tanks to be packaged for shipment at a later date, or pumped into a bulk tank truck for shipment.

3.1.2 *consolidation*—the act of combining two or more materials to make a single package unit. Common types of

consolidation packaging used by HHW programs include: bulking, lab packaging, and composite packaging.

3.1.3 *package or outside package*—a package plus its contents.

3.1.4 *packaging*—a receptacle and any other components or materials (drums, boxes, liners, absorbents, etc.) necessary for the receptacle to perform its containment function in conformance with the minimum packing requirements of 40 CFR 171, 172, 173.

4. Significance and Use

4.1 This guide is intended to provide general guidance to HHW programs for accepting and segregating materials, selecting a management method, and packaging materials collected by HHW programs.

5. Procedure

5.1 *Accepting Materials*—HHW Programs should establish a list of materials that will be accepted at its facilities or event collections. The list should be distributed to the public prior to the facility opening or event collection. Types of materials commonly collected by HHW Programs include:

5.1.1 Materials that exhibit a hazardous characteristic, as defined in 40 CFR 261.5, such as ignitability, toxicity, corrosivity, oxidizer, reactivity, or are a listed hazardous waste;

5.1.2 Materials prohibited from local municipal waste management systems; and

5.1.3 Materials collected to provide a convenience or public service to a community.

5.1.4 HHW Programs will need to establish traffic flow, vehicle unloading and safety procedures. All personnel involved with material acceptance should receive training in material identification, proper lifting procedures, safety and personnel protective equipment.

5.1.5 Leaking containers should be repackaged immediately into a container that is compatible with the material in the container.

5.1.6 Unlabeled containers should be segregated from other wastes. The individual who brought the container should be interviewed to assist in identification. Any further categorization and identification of the material should be completed as soon as possible. A hazardous materials contractor or trained staff could perform tests to identify the materials.

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² Available from U.S. Government Printing Office, Washington, DC.

5.2 *Segregating Materials*—As the materials are collected they should be segregated into general categories based on DOT incompatibility and packaging regulations.

5.2.1 *Commonly Collected Materials*—DOT classifies materials generated from households as a consumer commodity, which exempts them from DOT regulations. The materials listed below are sub-categories of DOT classes and are not intended to be all inclusive, but a guide to the most common materials collected by HHW programs.

Oil Based Paint	Water Based (latex) Paint/Sealer
Fuels	Antifreeze
Corrosive Acids	Corrosive Bases
Cyanides	Dioxins
Pesticide Liquids (including herbicides)	Pesticide Solids (including herbicides)
Flammables and Chlorinated Products	Organic Peroxides
Oxidizers	Reactive Solids
Arsenic/Heavy Metals	Mercury Compounds
PCB Containing Devices	Motor Oil
Compressed gas cylinders	Aerosols
Batteries	Fluorescent and HID lamps

5.2.1.1 Once a material is collected by a HHW program, it should be handled in an appropriate manner based on whether it exhibits a hazardous characteristic. A material that exhibits a hazardous characteristic or meets the definition of a listed hazardous waste or material should be transported in accordance with DOT regulations for its specific hazard class.

5.2.2 *Materials Requiring Special Handling*—The materials listed below require special handling. HHW Programs do not typically promote accepting these materials through their programs. However, these materials are brought to collection facilities and it is wise to be prepared to refer people to the appropriate local management option or to handle the materials at the facility. Management options are suggested below for these materials. The handling of these materials should be addressed in the site safety and emergency response plan for the facility.

5.2.2.1 *Explosives, Ammunition or Fireworks*—Contact local law enforcement or bomb squad.

5.2.2.2 *Radioactive Materials*—Refer to appropriate management option or contact Nuclear Regulatory Commission.

5.2.2.3 *Friable Asbestos*— Refer to local management facility or accept in accordance with local, state and federal regulations.

5.2.2.4 *Medical/Infectious Materials*—Refer to local management option or accept in accordance with local, state and federal regulations.

5.2.2.5 *Consumer Electronics and Appliances*—These items may have hazardous components and should be handled by a local handler, or may be managed through the HHW program.

5.2.3 *Incompatibility and Segregation of Materials*—Incompatible materials, when mixed, generate chemical reactions which may result in serious safety and health concerns. These include toxic gas generation, heat generation, flammable gas generation, fire, explosion, or polymerization of materials. Containers of incompatible materials should be adequately separated using bins, drums, dikes, walls or other devices, such that mixing of incompatible materials is prevented in the event of a spill, or a break or leak in a container.

5.2.3.1 Material and container segregation procedures should be established before waste is accepted. Procedures should be based on the type of materials accepted, facility design and facility operation. Personnel responsible for segregating wastes should be properly trained in chemical management and safety. The following list gives only general guidance on incompatible categories of materials.

Always Segregate:	From:
Acids	Bases, cyanides
Oxidizers	Flammables
Cyanides	Acids, oxidizers

5.3 *Selecting a Management Method for Collected Materials*—Prior to consolidating materials, the ultimate management method for the material should be considered. The management method selected may affect how the materials will be packaged. Common management practices include: reuse, recycling, energy recovery, on-site treatment, incineration, land disposal, and waste water treatment.

5.3.1 When selecting the most appropriate material management method, HHW Programs should consider several factors, including:

5.3.1.1 Compliance with permitting requirements and local, state and federal regulations (especially when performing on-site treatment of materials);

5.3.1.2 Operational or structural limitations at facilities or event collections (that is, no product reuse available on-site, no connection to sewer treatment facility, limited space);

5.3.1.3 Personnel training and expertise;

5.3.1.4 Consideration of a materials management hierarchy that favors reuse, recycling, and energy or material recovery over incineration or land disposal;

5.3.1.5 Cost;

5.3.1.6 Potential liability related to each management method; and

5.3.1.7 Contractual or contractor restrictions or preferences.

5.4 *Packaging Collected Materials*—Collected materials need to be packaged or handled according to facility standards, local, state and federal regulations. Materials management contractors may also have specific packaging protocol that must be followed so that they can properly and efficiently process materials at their facilities. Unlabeled containers or questionable materials should not be packaged until they are properly identified.

5.4.1 *On-site Management Options and Packaging:*

5.4.1.1 *Reuse*—Usable materials in original containers that are offered to local residents or organizations during an event collection or at a permanent site should be left in their original containers. This allows users to reference original label information for proper use, and preserves the manufacturers' product liability.

5.4.1.2 *Paints or other materials* may be bulked into larger containers. However, the HHW Program may be considered to be engaging in a manufacturing operation when this is done.

5.4.1.3 *Recycle*—If materials are to be recycled on-site, they do not need to be packaged according to DOT protocol. Some items may be bulked or packaged into larger containers according to facility protocol and local regulations.

5.4.1.4 *Treatment or Disposal on-Site*—Many water-based cleaners and non-hazardous liquid materials may be sewered if the site is connected to the local wastewater treatment plant and has permission from the plant to do so. Some acids and bases may also be neutralized and sewered on-site in accordance with local or state regulations. Materials do not need to be packaged according to DOT protocol if treated or sewered on-site. A site safety or operational plan should be developed to describe in detail the process used to treat or dispose of wastes on-site.

5.4.1.5 Non-hazardous solids may be disposed of using the facility's solid waste management service and container.

5.4.1.6 *Energy Recovery*— If an energy recovery option is available on-site (that is, used oil furnace, municipal solid waste incinerator), the material should be handled and packaged according to the facility's standard protocol and all applicable regulations.

5.4.2 *Off-Site Management and Packaging*—Materials that will be shipped off-site for further management at recycling,

energy recovery, incineration or land disposal facilities should conform to DOT regulations. Therefore, it makes sense to initially package all materials which will leave the site in accordance with DOT regulations. These packaging methods are fully detailed in DOT regulations, 49CFR Parts 171–178. These regulations describe the specific container types, packaging procedures, and container labeling required for each sub-category of material identified in 5.2.1. HHW Programs that intend to package their own materials need to become familiar with DOT regulations in order to properly package materials. Programs may also hire trained contractors to perform packaging on-site.

6. Keywords

6.1 compatibility; household hazardous waste; incompatibility; packaging; segregation

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