

MEDICAL UNIVERSITY OF SOUTH CAROLINA/MUSC
HAZARDOUS WASTE MANAGEMENT PROGRAM

Revised: 9/2007

Waste according to the law, is any solid, liquid or contained gaseous material that is no longer viable with regard to its originally intended use. These waste materials are considered hazardous wastes if they pose a substantial hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

There are two accepted methods of determining if a waste meets the above criteria for hazardous waste. The first method involves comparing the constituents comprising the waste against the hazardous waste materials listed in the Code of Federal Regulations (CFR) § 261.30 Subpart D - Lists of Hazardous Wastes. A general description of the four- (4) categories of listed hazardous waste are included below.

- A. F-Waste: Waste from non-specific sources includes generic waste such as solvents.
- B. K-Waste: Waste from specific sources includes waste from specific manufacturing processes, such as inks, pesticides and wood preservatives.
- C. U-Waste: Discarded commercial chemical products, off-specification species, container residues and contaminated dirt/water, debris resulting from the clean up of a spill.
- D. P-Waste: Waste is considered so dangerous in small amounts that it has been placed in a special category designated as acutely hazardous waste. Some examples of this type of waste may be pesticides, arsenic and cyanide.

The second method involves determining if the waste material exhibits any of the four - (4) characteristics of a hazardous waste as described in the CFR § 261.20 Subpart C - Characteristics of Hazardous Waste. The definition of these four characteristics are included below.

- A. Ignitability: Ignitable wastes are those that are flammable (1) will produce flammable vapors at less than 140 °F, (2) are flammable gases at any temperature, and (3) are strong oxidizers or substances that burn vigorously under spontaneous circumstances. Besides creating possible hazards from fire, heat and toxic smoke, they can spread harmful particles over a large area. Examples are Acetone, Xylene and Ethyl Alcohol.

- B. Corrosivity: Corrosive wastes are substances that can dissolve metals and burn/destroy living tissue. They are usually water-based with a pH less than or equal to 2 (acidic) or greater than 12.5 (basic). Examples include: ammonia cleaners, acid liquids and battery waste.
- C. Reactivity: Wastes that are normally unstable may spontaneously and vigorously react with air or water and explode, produce toxic fumes, etc. Examples are: Sodium, Ethyl Ether and Picric Acid.
- D. Toxicity: Toxicity is measured by the potential for waste to release substances in sufficient amounts to pose a threat to human health, domestic livestock and/or wildlife through consumption, breathing or by being absorbed through the skin. Examples of toxic waste include heavy metals, herbicides and pesticides.

If a waste is determined to be a hazardous waste by either of the above described methods, it must be managed according to EPA hazardous waste management regulations as described in the CFR 260 through 266. [Note: Under no circumstances will hazardous waste be poured down any sanitary sewer drain or storm drain.] To assist in controlling hazardous waste at MUSC, Occupational Safety and Health Programs (OSHP) is tasked with the responsibility for collection, storage and disposal of hazardous waste generated on campus. Persons generating hazardous waste or in possession of any outdated or defective chemicals shall follow the steps below:

1. Click on Web Browser
2. Click on Administration in black tool bar
3. Click on Risk Management/OSHA
4. Click on Occupational Safety in the blue toolbar
5. Click Chemical Waste Pick-up Request
6. Complete form and click send

Attention is directed to the provisions of NFPA 30, which limits the quantities of flammables, and combustible liquids permitted in laboratories. All hazardous and chemical waste must be labeled in accordance with the following guidelines regardless of storage location, i.e., labs, shops, and/or satellite areas.

- A. All waste must be stored in an appropriate container with a closeable lid.

- B. The container must remain closed at all times, except when adding wastes.
- C. The waste must be described with noun names and not formulas.
- D. The container must be marked with the words “HAZARDOUS WASTE - STATE AND FEDERAL LAW PROHIBITS IMPROPER STORAGE OR DISPOSAL. IF FOUND, CONTACT NEAREST POLICE OR PUBLIC SAFETY AUTHORITY OR THE SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (SCDHEC).
- E. An MUSC hazardous waste labels must be completed and placed on every container of waste at the time of generation.

No “unknown” chemicals or hazardous waste will be accepted for disposal. Any waste that is of an unknown origin must be sampled and identified before disposal can take place. The department requesting a hazardous waste pickup is responsible for proper identification of all waste. Laboratories generating more than 10 gallons of hazardous waste a week should confer with the Occupational Safety and Health Office to arrange to have their waste picked up on a weekly basis.

With the Pollution Prevention Act of 1980, the US Congress established pollution prevention/waste minimization as a “national objective” and the most important component of the environmental management hierarchy. Pollution prevention is the use of materials, processes or practices that reduce or eliminate the creation of pollutants or waste at the source. It includes practices that reduce the use of hazardous and nonhazardous material, energy, water or other resources as well as those that protect natural resources through conservation or more effective use. A pollution prevention/waste minimization program is an ongoing, comprehensive examination of the operations at a facility with the goals of minimizing all types of waste products. Thus, the Medical University of South Carolina has created several waste minimization programs designed to prevent or reduce the volume of potential pollutants generated at the University during the production cycle whenever feasible. Some of MUSC’s waste minimization programs include the sustainable universities initiative, enhancing curriculum, environmental Biosciences Program,

personnel training, solvent distillation, chemical re-use program, vermicomposting and solid waste recycling.

The statutory provisions governing enforcement of hazardous waste regulations are found in Section 3008 of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6928. The procedure for correcting violations involves three steps: (1) the Administrator of EPA must give notice to the violator of his failure to comply with a Subtitle C requirement; (2) if the violation is not corrected within thirty days of the notice, the Administrator may issue an order requiring compliance within a specified time period or commence a civil action in federal district court seeking appropriate relief, including a temporary or permanent injunction; and (3) if the violator does not comply with the order within the specified time period, the Administrator may seek a civil penalty of not more than \$25,000 for each day of continued non-compliance and suspend or revoke any permit held by the violator. If the violation occurs in a state authorized to administer its hazardous waste program in lieu of the federal program, the Administrator must also give the State notice of the violation thirty days prior to issuing the compliance order or commencing a civil action in federal court.

In addition to specifying the above procedure for enforcement, Section 3008 also authorized criminal penalties against any person who knowingly (1) transports any hazardous waste to a facility that does not have a permit under Subtitle C of RCRA or under Title I of the Marine Protection, Research and Sanctuaries Act; (2) treats, stores, or disposes of any hazardous waste within one of the above facilities; or (3) makes a false statement or representation in any application, label, manifest, record, report, permit or other document required under Subtitle C. The criminal penalties for a first conviction are a \$25,000 fine for each day of violation and/or one year in prison. The criminal penalties are doubled for subsequent violations.

In addition to Section 3008, RCRA contains two other enforcement provisions of note. One, Section 7002, 42 U.S.C. 6972, allows anyone to commence civil suit to enforce RCRA regulations in certain circumstances. The second, Section 7003, 42 U.S.C. 6973, allows the Administrator to ignore the notice requirements in Section 3008 and bring an immediate lawsuit to

take other action to restrain any activity involving hazardous waste that poses an imminent hazard to health or the environment.