

Protocol for Hazardous Waste Determination and Characterization (HWDC)

General Information:

This protocol must be followed for each waste stream or group of waste streams generated on campus.

1. For Teaching Laboratories: In general, it is best to complete an HWDC for each experiment in a teaching laboratory. (i.e.: In organic synthesis, the Friedel-Crafts Alkylation of Dimethoxybenzene experiment produces *tert*-Butyl alcohol and Methanol wastes)
2. For research laboratories, where general and specific characteristics are typically researched, a general process can be assessed (i.e.: Preparation of Samples for Scanning Electron Microscope: Wastes include Osmium Tetroxide (a carcinogenic staining agent), and Ethanol (in Water > 40%), used to rinse the samples).
3. For art studios, it is best to complete a HWDC for each process waste stream (i.e.: Spent photography fixer has a pH less than 5.5 and has silver above the TCLP levels noted on the D-list)
4. For maintenance areas, it is best to group like processes together (i.e.: left over oil-based paint or used oil).

How to Use the Form:

Fill out the data boxes located on the top of the form. This information is used to identify your waste stream for later reference. Once this form has been completed for a specific waste stream it does not need to be revised unless the composition of the waste changes in the future. (Example: (1) a more toxic chemical has been replaced by a less toxic chemical within the laboratory experiment (2) a cleaning product has been replaced with a different product). Also, if you have multiple experiments or processes that generate the same waste, you may describe all these processes on the top of this form and complete a single form for them all.

The bottom section of the Hazardous Waste Determination and Characterization Form is comprised of 11 “yes” or “no” questions.

Questions 1 and 2: The first 2 questions of the bottom section ask if your waste is listed by the EPA as a hazardous waste. To answer these questions you will need to select sign on to myBucknell and navigate to Administrative Offices, Environmental Health and Safety, Hazardous Waste, and locate the file called Hazardous Waste List. The spreadsheet includes all the EPA listed hazardous wastes. You can easily search this list using the CAS numbers of the chemicals that comprise your waste. The CAS number is located on the Safety Data Sheet (SDS). The SDS can be located by searching the CEMs software or by contacting the manufacturer. If you cannot find the correct SDS, contact EH&S and one will be provided. On the SDS locate the “Composition/ Information on Ingredients” (Section 3); this is where CAS

number can be found. Search for all the CAS numbers found on your SDS. If you do not find any matches, answer the first 2 questions as “no”. If a match is found, answer the question as “yes”, record the CAS number, and identify whether the waste is listed as a P, U, F, or D waste.

Question 3: Refer to section 11 of the SDS for toxicological information. The carcinogen effect will be shown in this section. If there is no information or data available then one must consider the substance as non-carcinogenic

Question 4, 5 8, and 9: Refer to section 5 and section 10 of the SDS for reactivity, oxidizer and corrosivity information. The public sewer authority will not accept substances that have a pH below 5.5 or greater than 9.5. An oxidizer can readily stimulate combustion of organic matter. Matter that will undergo explosive decomposition, polymerization or self-reaction at standard temperature and pressure is considered and oxidizer.

Question 6: Refer to section 5 of the SDS for flammable information. Flammable wastes are those which can be ignited. If the Flash point is greater than 140 Degrees F or the waste contains greater than 24% Alcohol it is ignitable.

Question 7: Refer to section 3 of the SDS. Oils that contain more than 1000 ppm of halogens are considered hazardous.

Question 11: refer to section 12 of the SDS for ecological information.

Once you have completed the questionnaire:

1. If you answered “NO” to all of the questions, your waste is not a hazardous waste and can be disposed of in the trash or flushed to the sanitary sewer, as appropriate.
2. If you answered “YES” to ANY of the questions on the questionnaire, your waste IS a probably hazardous waste and must be managed as such. Please follow the guidance below:

Written By: Carol Pavlick
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