

### **3.14.1 Research/Educational Institutions: Laboratories and Science Departments**

*Tip Sheet #1*

**WASTE ORIGIN:** Laboratories/Science Departments

**WASTE TYPES:** Various Used and Unfed Chemicals, Acids, Bases, and Metals, and Reaction Products from Experiments

**WASTE REDUCTION AND RECYCLING METHODS:**

- ! Establish **centralized purchasing** program.
- ! Share **surplus chemicals**.
- ! **Computerize inventory**; keep a running inventory of unused chemicals for use by other departments.
- ! Buy smaller quantities of **reagent chemicals**.
- ! Properly **label containers**.
- ! Use first-in, first-out **inventory management** practices.
- ! Return **excess material** to supplier.
- ! Scale down **experiments**.
- ! Pre-weigh **chemicals**.
- ! Increase **instrumental analyses** over wet chemistry.
- ! Eliminate **toxic chemical** use.
- ! Substitute **less toxic chemicals** (e.g, sodium hypochlorite for sodium dichromate, alcohols instead of benzenes, cyclohexane for carbon tetrachloride, stearic acid for acetamide).
- ! Use **specialty detergents** (instead of chromic or sulfuric acid) to clean glassware.
- ! Standardize **solvents** and recycle whenever possible.
- ! Keep individual **waste streams** separate.
- ! Recover metal from catalyst.

**Sources:**

*Guides to Pollution Prevention: Research and Educational Institutions*, U.S. EPA, June 1990, EPA/625/7-90/010.  
*Hazardous Waste Minimization Self-Assessment Guide for Vocational Institutions, Colleges and Universities*, Wisconsin Department of Natural Resources, Hazardous Waste Minimization Program.