



PERSONAL PROTECTIVE EQUIPMENT PROCEDURES

Department of Paper and Bioprocess Engineering

Introduction:

Personal Protective Equipment or PPE are those devices that help prevent injury during procedures that pose an accident or injury risk. PPE are designed to help protect specific parts of the body for one or more potential hazards. **It is the responsibility of the supervisor and the Laboratory Director (Principle Investigator (PI), major professor or instructor) to ensure appropriate PPE are available and worn by all students and employees for EACH procedure to be performed.** Realize that all personnel working in a laboratory or the pilot plant are employees except undergraduate students registered for course instruction. The immediate supervisor is often a graduate student in the role of Teaching Assistant (TA) or Graduate Assistant (GA) who then becomes the first level of employer relationship and as such is most responsible for enforcing that appropriate PPE are worn. The succession of responsibility/liability is as follows:

graduate student → Primary Contact/Laboratory Director → department chair → provost

An employee supervising (administering) a laboratory or pilot plant procedure/session will model the appropriate PPE and must escort anyone not wearing appropriate PPE out of the area. Any infraction must be documented by sending an email to pbsafety@esf.edu and copy the Primary Contact (listed just outside laboratory doors) and/or the Laboratory Director (if known). Any person in the department is empowered to escort out non-compliant students/employees and document the infraction following this procedure. The PBE Safety Committee Chair will notify the Laboratory Director(s) and the PBE Department Chair of repeat offenders (those students or employees that have been documented as not wearing appropriate PPE more than once in any given semester).

The PBE Stockroom will supply necessary PPE for instructional courses to each enrolled student plus TA/GA. Additional employees may requisition PPE through the Stockroom with a valid account number. The guidelines for *appropriate* PPE worn during *laboratory/pilot plant* procedures listed below are intended to supplement information found in the College's *Laboratory Safety Guide and Chemical Hygiene Plan*.

No PPE required;

No PPE is required within any area of the PBE Department where there are no procedures/operations in progress that pose an accident or injury risk. This would include any office space, but may also include any laboratory or pilot plant area during times when there are NO activities being carried out. 'Walk-throughs' without PPE are permitted during periods of no activity. Similarly, for those combination spaces within the PBE Department of exclusive use (private) laboratory and office; no PPE is required when there are NO activities in progress that pose an accident or injury risk.

Safety glasses eye protection required:

Safety glasses must have the ANSI code 'Z87' stamped into the frame and/or lens. A minimum PPE of safety glasses must be worn by ALL students and employees:

- when laboratory or area activities pose an accident or injury risk unless that activity requires the use of safety goggles, see below.



- in a multiple use laboratory (common lab) when there are ANY laboratory activities being performed. The computer laboratory in 209A Walters Hall is exempt.
- in all laboratories/areas that have any equipment 'soft' connected to either house compressed air or compressed gas cylinders. ('Soft' connections include those that are through reinforced rubber hose, flexible metal hose or plastic tubing.) Any compressed gas cylinder with an attached regulator (whether connected to equipment or not) is considered a potential eye hazard unless the cylinder's regulator is 'hard' connected to equipment via metal plumbing (piping/tubing) with a pressure rating exceeding the operating pressure. A gas cylinder not in use should be properly capped and thus rendered safe for students/employees in the vicinity without safety glasses.

Safety goggles eye protection required:

Safety goggles must have the ANSI code 'Z87' stamped into the frame and lens. All undergraduate students engaged in hazardous chemical laboratory procedures are required by law (NYS Department of Education) to wear safety goggles. Refer to each chemical's Material Safety Data Sheet (MSDS). If the MSDS indicates eye protection is required, all undergraduates must wear eye safety goggles.

Safety goggles must be worn by all employees when working with caustic liquid chemicals (pH < 5 or > 9) to provide adequate splash protection. Additional chemicals may require safety goggles as per the MSDS.

Body protection required:

Full skin coverage clothing is required while working with hazardous chemicals in any laboratory/pilot plant area. This includes long pants (no shorts or dresses/skirts), full long-sleeve shirts/blouses and shoes (no sandals). In addition, a laboratory coat should be worn. At a minimum, an apron must be worn.

Hand protection required:

Gloves must be worn when working with hazardous chemicals. Refer to the MSDS for which kind of glove is best suited for the chemical in use.

Additional protection:

Hearing protection is available through the stockroom and should be worn any time noise exceeds 60 decibels. Hardhats are available through the pilot plant, should a particular procedure warrant such PPE. Full face shields are available through the stockroom for those operations posing a significant risk for splashing hot/hazardous materials.

Extensive PPE required:

Some procedures/operations require extensive PPE for which a Standard Operating Procedure (SOP) must be written and available in the laboratory/pilot plant area. Generally such procedures requiring an SOP and extensive PPE would involve a very reactive chemical such as one that explodes if exposed to air or water. However, an SOP should be available for an operation such as heating caustic liquid materials especially if under pressure for which additional PPE including laboratory coat, insulated rubber gloves and full face shield (besides safety glasses) must be worn if no other shielding devices are available.