High Voltage Equipment

High voltage equipment is defined as any equipment that uses voltages greater than 600V or high amperage (>100 milliamps (mA)) of electrical power. These pieces of equipment require additional safety considerations and procedures to ensure the protection of personnel and equipment.

Common High Voltage Equipment

- Electrophoresis equipment - electrophoresis power supplies can produce direct current (DC) up to 3,000 volts and 500 mA.
- Amplifiers – used to increase the magnitude of an electrical signal for driving high frequency instruments or other devices.
- Laser systems - The exact voltage of these systems varies by laser.
- Gas Chromatograph-Mass Spectrometers (GC-MS) - Varies by machine.

Safety Procedures

- Always use modern high-quality equipment with up to date safety features.
- Never attempt to service or perform maintenance on a live electrical device.
- Never work with high voltage equipment alone.
- When disconnecting power always ensure that circuits are de-energized using appropriate voltage testers. Also ensure that any stored or residual energy is blocked, discharged, or relieved prior to starting work.
- Regularly inspect high voltage equipment for exposed wiring, damaged insulation, and loose connections prior to beginning work.
- All wires, connectors, and connected apparatus must be appropriately rated for voltage being used.
- Use test instruments, and insulated tools rated for the voltage and current of your equipment.
- Post clear and visible warning signs in areas where high voltage equipment is used.
- Keep equipment clear of unintentional grounding points or conductors (i.e. sinks or water sources, jewelry, metal objects, and other electrical equipment).

Environmental Health & Safety

High Voltage Equipment

Training

- Ensure all personnel are properly trained on the specific equipment that they will be working with. This should include an understanding of the function of the equipment, its hazards, and emergency procedures.
- On the job training, peer to peer. Experienced user helping other researchers.

Documentation

- Documentation including the manuals, safety data sheets, diagrams, and emergency procedures for all high voltage equipment should be made easily accessible.

Less Common High Voltage Equipment

These pieces of equipment are used in specialized facilities at Columbia. Training and guidance can also be applied in these facilities although they often have their own safety procedures and standards.

- Nuclear Magnetic Resonance
- Scanning Electron Microscopes (SEM) and Transmission Electron Microscopes (TEM) often operate in the range of 5 kV to 100 kV or more. - specific user populations
- Van de Graff Generators
- EH&S is available to evaluate potential risks and exposures upon request. Requests should be placed by completing the High Voltage Qualtrics Survey.

Contact Us

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