

Hazard Guidelines for Minors

June 1, 2026



MIT Guidelines for EHS Coordinators and their teams to use for programs involving Minors when hazardous materials and equipment are involved. Last revision June 2026

Precautions that apply to all types of Hazardous Materials and Equipment

The primary supervisor, EHS Coordinator and Lead Contact will do a risk assessment of the protocol(s) and the lab area to verify that the minor's safety will be protected. This is also to comply with the intent of the Child Labor laws (federal and Mass.). Include the following precautions unless these are not applicable:

- Confirm that the complexity of the task(s) is consistent with the skill level of the student. Have the student demonstrate what they know how to do. Also ask the direct supervisor if they have the expertise to train, demonstrate, and supervise the minor.
- Determine which hazardous steps of the protocol the minor should observe the supervisor do from a safe distance. In general, the primary supervisor should work with hazardous materials in large volumes, in high concentrations, and other procedures that involve more risk and require more experience.
- Identify what the student can safely work with if they are trained and closely supervised. In general, this would include hazardous materials in smaller volumes or dilute concentrations, a material bound to a substrate, and procedures that involve less risk of splash, spill, fire, injury or exposure.
- The supervisor should train the student how to safely transport break-resistant containers of liquids, which are minimally hazardous materials. This applies to new bottles, waste containers, and those that are in use. Students can be trained to safely transport bottles and labware that are plastic, metal and plastic-coated glass and small glass bottles/ labware in secondary containers. Due to many accidents, the supervisor should transport large glass containers of liquid hazardous materials.
- All the precautions should be documented as part of the protocol, reinforced during training and as the experiment progresses.
- It is highly advisable that students first practice transferring hazardous materials using water as a substitute. If the procedure involves pipetting, the student should practice pipetting water until they have demonstrated proficient technique.
- The students should not be allowed to take home (even minimally) hazardous materials or equipment.
- The Chemical Safety Board's new guidelines for demonstrations in high school labs encourage the student participants to question their teacher if they are concerned that a demonstration, an experiment, etc. is unsafe.

General Hazard Policies for Minors

The following hazard-specific guidance provides additional information about materials often used at MIT.

Acids and Bases

- Minors cannot work with hydrofluoric acid (HF). Substitution or alternative procedures should be considered for other acids and acid mixtures that are highly reactive.
- It is recommended that the supervisor pour chemicals from stock bottles, dilute concentrated acids and bases before the minor's use when possible, and only allow work with concentrated acids and bases in small quantities. Container size should be limited to less than 100 ml.
- Students should first practice handling acids and bases using water as a substitute. For example, if the procedure involves pipetting, the student should practice pipetting water until they have demonstrated proficient technique.
- For work with concentrated acids and bases the required PPE should be evaluated to ensure safety, e.g., use of tight-fitting goggles rather than safety glasses.

Flammable solvents

- Minors may work with flammable solvents under constant supervision.
- Container size should be limited to 1 liter or smaller.
- Instruct minors on proper procedures/best practices to minimize the risk of spilling and/or igniting the solvent.
- If a process involves the risk of catching clothing, hair, or anything else on fire, then the supervisor will perform this process while the minor observes from a safe distance.
- If the chemical is toxic (refer to guidance below) and flammable, then the Industrial Hygiene team member may recommend additional precautions.
- Minors are not allowed to work with Group A peroxide formers. Use of other peroxide formers should be consistent with [EHS guidance](#).

Toxic Chemicals

- Minors may work with toxic chemicals in a fume hood under constant supervision.
- Minors should not work with chemicals that have a high degree of acute toxicity through inhalation and/or skin contact

Phenol

- Minors may work with small quantities of phenol in a fume hood under close supervision.
- Special precautions must be taken when working with phenol, including appropriate PPE and engineering controls, such as a fume hood.
- The supervisor will review the appropriate lab-specific SOP* for phenol use with the minor prior to work with this chemical and will ensure adherence to guidelines are followed whenever there is a risk of phenol exposure.

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** The lab must develop a phenol SOP if one does not already exist. Please contact the EHS Coordinator for assistance.*

Engineered Nanomaterials

- Engineered nanomaterials may have long-term health effects and may be more toxic than chemically identical substances with larger particle sizes. Many nanomaterials have not had extensive testing of their toxicity, so the best approach is precautionary.
- Minors may work with engineered nanomaterials with the potential to become airborne in a fume hood under constant supervision.
- For work with nanomaterials, special precautions should be specified. These specific precautions should be implemented and documented during training.

Carcinogenic Substances

- Minors may work with potentially carcinogenic substances in a fume hood under constant supervision.
- Specific precautions should be implemented and documented during training for individual chemicals that are classified as “select” carcinogens.
- *Exception* - minors may not work with photo resists which have potential teratogenic and mutagenic effects. Check the SDS for information on health effects.

Reproductive Toxins

- Minors are not allowed to work with these toxins.

Pyrophoric, Water Reactive, Highly Reactive and Explosive Materials

- Minors may not work with pyrophoric, water reactive, highly reactive, or explosive materials.
- Under controlled circumstances, a minor may be permitted to observe how these materials are handled by trained and experienced MIT staff and learn the principles. The Safety Program must be consulted as part of the minor hazard assessment.

Hazardous Waste

- Once the minor has completed course 501, they may collect waste chemicals in a small container and the supervisor or the EHS Representative will transfer this to a waste bottle in the appropriate satellite accumulation area.
- If the lab documents that there is no risk of mixing incompatibles, then the minor can transfer the waste.

Biological Materials

- Minors cannot work with infectious organisms and/or its materials.

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- Minors may engage in research that has been designated as BL1 containment or low risk, including research involving murine cell culture.
- Minors may be given permission to work with certain well-established human cell lines. The Biosafety Program (BSP) staff must review any proposed cell lines and determine if minors will be allowed to use them.

Laboratory Animals

- Minors may not work with non-human primates.
- Minors may work with rodents. This should be discussed with the Committee on Animal Care (CAC) before initiation of the project.
- The Division of Comparative Medicine (DCM) has a written policy of not allowing minors in their animal facilities.
- The minor's name must be added to the PI's CAC protocol.
- The EHS Office will review the use of species not covered under CAC including live invertebrates use and dissections of invertebrates.
- Minors should only observe any protocol where there is a risk of a bite because most cut resistant gloves don't provide puncture protection.

DEA Controlled Substances

- Minors are not allowed to work with Controlled Substances however they are allowed to work in a space where Controlled Substances are securely stored.

Radioactive Materials

- Minors working with ionizing radiation at MIT may not exceed an annual dose of 500 mrem.
- The Dependent Minor Lab Work Acknowledgement Form must be customized to define the general scope of the work and signed by the minor's parents. A copy of the signed letter will be kept on file by the RPP (Radiation Protection Program).

Lasers

- Minors may work with class 3b and class 4 lasers under close supervision.
- The RPP must be contacted to perform a Lab Hazard Analysis for any work by a minor involving class 3b and 4 lasers. Regular supervision of minors is allowed for class 3r and lower lasers.
- Minors must be provided lab specific training specifically for the lasers system(s) to be used and must acknowledge in writing that they have read the laser safety SOP for the laser(s) to be used. The lab must maintain a record of this training and acknowledgement.
- RPP has created a standard letter, the Dependent Minor Lab Work Acknowledgement Form, which should be customized to define the general scope of

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the work and signed by the minor's parents. A copy of the signed letter will be kept on file by RPP.

Ultraviolet (UV) light

- Minors may use a UV light imager if it is operated with the enclosure lid fully closed to ensure no UV exposure to the user.
- Any work involving UV light that is not fully contained must be reviewed and appropriate safeguards implemented.

Accelerators

- Email rpp-ehs@mit.edu

Magnets

- Email rpp-ehs@mit.edu

X-Rays

- Email rpp-ehs@mit.edu

Sharps

- Minors should not use puncture hazards such as needles including blunt end needles.
- Sharps (razor blades, needles, vibratome blades, scalpels, etc.) may be used if designed with approved safety feature, and in combination with cut resistant gloves. The student must be trained on its use, supervise until the supervisor considers the student competent to handle the tool safely. It is upon the supervisor to deem student competent.

Soldering

- High School students, who are learning about soldering, should be closely supervised to reduce the risk of injury. Follow these [best practices](#)
- It is recommended that minors only use lead free solder.

Welding/Hot Works

- Students 16 years and older, who are learning about welding practices, should be trained and closely supervised by either the shop supervisor or a competent designee who has completed the MIT Hot Work training.
- Welding is only to be done in areas evaluated for hot works safety that have an MIT hot work permit.
- 15 years old and younger can only observe welding and other hot works practices.

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Power tools, Machine shops, Wood-working shops, Dangerous Equipment or Dangerous Activities

- 16-17-year-old minors may work with the low power hand and bench tools (Device Class 1) that are listed in the [Shop and Makerspace Safety SOP](#) (MIT Certificate Login Required), Appendix A Tool Classification Guidelines

For hazards that are not listed above, the appropriate [DLCI EHS Team Member](#) should review the program's plan and make a recommendation.