

2024 CHP Template Updates

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<https://ehs.mit.edu/chemical-safety-program/chemical-hygiene/>

P. 9 Part I

3. Training

New Wording

MIT has established systems to ensure you are provided with OSHA-required training to inform you of the hazards and precautions for work with chemicals, including chemicals present in your work area. The process begins when you complete a **EHS Profile via the MIT Atlas Learning Center under the My Profile tab**. You **will select activities** specific to your research situation and job duties, and the system will provide you **with a list of training requirements based on your needs**. You should then proceed to take the required web courses or sign up for classroom training **as applicable**. As a researcher or employee working in a laboratory at MIT, **you must complete the EHS Profile via the MIT Atlas Learning Center**. Visit <https://ehs.mit.edu/training/> for additional **guidance on setting up your EHS profile and determining your training needs**. If you have problems or questions regarding completing the **EHS Profile**, **contact** your EHS Coordinator or your EHS Representative.

3.1. Training Requirements

Chemical hygiene training requirements are detailed in the EHS-MS training system, which can be accessed at <https://ehs.mit.edu/training/>. The following four components are required if you **select the activity in the EHS Profile: “Use potentially hazardous chemicals in a laboratory”, or “You are a Principal Investigator or Supervisor for those who use potentially hazardous chemicals in a laboratory”**.

- A. General Chemical Hygiene Training** – can be taken as a web-based course or taken by attending a class offered by the Environment, Health and Safety (EHS) Office. This course is required only once before beginning work with potentially hazardous chemicals in a laboratory.
- B. Read the Chemical Hygiene Plan** – **signing** a confirmation of having read and understood the Plan is required one time before beginning work with potentially hazardous chemicals in a laboratory.
- C. Lab-Specific Chemical Hygiene Training** – provided by the Principal Investigator **their** designee on lab-specific chemical hazards. This training is required before beginning work with potentially hazardous chemicals in a laboratory including chemicals developed in the lab for use exclusively in the lab. These chemicals require a hazard determination and training if the chemical is **determined to be** hazardous. Training is also done annually thereafter (usually within a lab group meeting) or whenever a new hazard is introduced. The topics covered will depend, in part, on the nature of the lab and research being done. Discuss Lab-Specific Chemical Hygiene Training questions and requirements with your PI/Supervisor, EHS Representative, Chemical Hygiene Officer or your EHS Coordinator.

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D. Managing Hazardous Waste – can be taken as a web-based course or by attending a class offered by the EHS Office. This training is required before beginning work with potentially hazardous chemicals and annually thereafter.

3.2. Training Records

The PI/Supervisor or designee will keep a copy of the outline of topics covered in Lab-Specific Chemical Hygiene Training. A roster of trainees will be completed for each training session. The roster of those who have completed the lab-specific training and read the Chemical Hygiene Plan, will be submitted to the EHS Coordinator for recordkeeping purposes. A sample roster is provided on the EHS website: EHS Lab Specific Chemical Hygiene Roster Template.

Any roster needs to include the following information in order to provide credit for training:

- ❑ Trainees(s) PI or Lab Group
- ❑ Instructor Name
- ❑ Date of Training
- ❑ Location where training took place (i.e. building # - N52-, Zoom)
- ❑ Time of Training
- ❑ Printed Name of Trainee
- ❑ Trainee Kerberos ID

These training records are then uploaded to the Institute training system. Training records are kept for at least 3 years after an employee or student leaves the Institute.

Old Wording

MIT has established systems to ensure you are provided with OSHA-required training to inform you of the hazards and precautions for work with chemicals, including chemicals present in your work area. The process begins when you complete a web-based *Training Needs Assessment*. You answer questions specific to your research situation and job duties, and the system will provide you information on your training needs and requirements. You should then proceed to take the required web courses or sign up for classroom training. As a researcher or employee working in a laboratory at MIT, you must complete the *Training Needs Assessment*, and can do so by going to <https://ehs.mit.edu/training/>. This will take you to a page that will direct you further. If you have problems or questions regarding completing the *Training Needs Assessment*, you should contact your EHS Coordinator or your EHS Representative.

3.1. Training Requirements

Chemical hygiene training requirements are detailed in the EHS-MS training system, which can be accessed at <https://ehs.mit.edu/training/>. The following four components are required if you indicate in the *Training Needs Assessment* within the training system that you use potentially hazardous chemicals in a laboratory, or you are a Principal

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Investigator or Supervisor for those who use potentially hazardous chemicals in a laboratory.

- A. General Chemical Hygiene Training** – can be taken as a web-based course or taken by attending a class offered by the Environment, Health and Safety (EHS) Office. This course is required only once before beginning work with potentially hazardous chemicals in a laboratory.
- B. Read the Chemical Hygiene Plan** – **Signing** a confirmation of having read and understood the Plan is required one time before beginning work with potentially hazardous chemicals in a laboratory.
- C. Lab-Specific Chemical Hygiene Training** – provided by the Principal Investigator **or his or her** designee on lab-specific chemical hazards. This training is required before beginning work with potentially hazardous chemicals in a laboratory including chemicals developed in the lab for use exclusively in the lab. These chemicals require a hazard determination and training if the chemical is **considered** hazardous. Training is also done annually thereafter (usually within a lab group meeting) or whenever a new hazard is introduced. The topics covered will depend, in part, on the nature of the lab and research being done. Discuss Lab-Specific Chemical Hygiene Training questions and requirements with your PI/Supervisor, EHS Representative, Chemical Hygiene Officer or your EHS Coordinator.
- D. Managing Hazardous Waste** – can be taken as a web-based course or **taken** by attending a class offered by the EHS Office. **Required** before beginning work with potentially hazardous chemicals and annually thereafter.

3.2. Training Records

The PI/Supervisor or designee will keep a copy of the outline of **the** topics covered in Lab-Specific Chemical Hygiene Training. **The roster or lists of researchers**, who have completed the lab-specific training and read the Chemical Hygiene Plan, will be submitted to the EHS Coordinator. **These training records are then entered into the EHS-MS Central Training Records Database.** Training records are kept for at least 3 years after an employee or student leaves the Institute.

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P. 37 Part II

3.11 Special Precautions for Work with Methylene Chloride/Dichloromethane **New**

New Wording

In April 2024, the EPA introduced new rules under the Toxic Substances Control Act (TSCA) prohibiting most uses of methylene chloride (MC) / dichloromethane (DCM). Due to the severe health risks of methylene chloride, this significant regulatory change prohibits manufacturing, processing, and distribution of most consumer, industrial, and commercial uses. The adverse health effects include liver and lung cancer, acute/short-term exposure, liver effects, immune system effects, nervous system effects, productive effects, and irritation for both the respiratory tract and eyes.

A stringent workplace chemical protection program (WCPP) allows a few essential industrial and commercial uses, including research laboratories, to continue. The EHS office will prepare this program and mandate strict exposure limits, monitoring, and worker training to minimize health risks.

MIT's EHS Office has taken a proactive and leading stance in implementing and enforcing the new EPA TSCA regulations (2024) that control exposure to methylene chloride. This volatile organic compound, commonly used as a solvent in various lab processes, poses significant health risks. EHS is now developing a comprehensive exposure control plan and monitoring protocols to mitigate these risks and will share these details soon.

The first step in controlling exposure involves eliminating methylene chloride (if possible) or substituting it with less hazardous chemicals whenever possible. If substitution is not feasible, engineering controls, such as fume hoods and other local exhaust ventilation systems, should be used to minimize airborne concentrations. The EHS Office also emphasizes the importance of using the smallest amount of methylene chloride necessary for experiments. Minimizing the quantity of MC in use reduces the potential for harmful exposure.

Personal protective equipment (PPE) is not just recommended but a mandatory requirement for all individuals working with methylene chloride. This includes proper chemical-resistant gloves, which are resistant to chemical permeation (regular nitrile gloves are prone to permeation) such as gloves made from polyvinyl alcohol (PVA), safety goggles, and lab coats. Respirators may be required for tasks that generate high levels of methylene chloride vapor or when engineering controls are insufficient. If you suspect you may need a respirator, contact the EHS Office for an assessment. All PPE must be inspected regularly to ensure its integrity and effectiveness.

Monitoring methylene chloride levels in labs is crucial to the exposure control plan. The EHS Office utilizes direct-reading instruments and passive sampling devices (badge sampling) to measure airborne concentrations for 8-hour TWA (Time-Weighted

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Average) and STEL (Short-Term Exposure Limit of 15 minutes). The initial air monitoring and the exposure control plan help to identify areas where methylene chloride levels exceed acceptable limits (EPA ECEL= 2 ppm as an 8-hr TWA and EPA STEL=16 ppm), prompting immediate corrective actions.

Lab personnel should report any signs of exposure or symptoms (such as drowsiness, confusion, headache, dizziness, etc.) related to methylene chloride exposure. If you work with methylene chloride and believe you may be exposed, please contact the EHS office immediately at 617-452-3477 for an evaluation. You should also notify EHS for an assessment if you work with large quantities of methylene chloride that have not been evaluated.

In addition to air monitoring, the EHS Office will work with labs to review practices and safety procedures. This includes assessing the adequacy of engineering controls, the proper use of PPE, and compliance with established protocols. The EHS Office's commitment to continuous improvement initiatives is a testament to our ongoing dedication to enhancing safety measures and reducing exposure risks further, providing reassurance to all personnel.

By adhering to these stringent exposure control measures and maintaining vigilant monitoring practices, all laboratories within MIT ensure a safe working environment for all lab personnel handling methylene chloride. This proactive approach aligns with the EPA TSCA's new rule, safeguarding health and well-being while supporting the university's commitment to cutting-edge research and innovation.

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P. 60 Part IV

3. MEDICAL EVALUATION, EXAMINATION, SURVEILLANCE and FIRST AID KITS

New Wording

3.1 Medical Evaluation

Employees or students who work with hazardous materials are entitled to a medical evaluation by an occupational medicine physician or occupational health nurse under the following circumstances:

- A spill, leak, explosion or other incident created a likelihood of exposure.
- The individual(s) develops signs/symptoms associated with hazardous chemicals to which they were exposed. (Note that acute (same-day) onset of symptoms should seek immediate medical attention by calling 100 from a MIT phone or 617-253-1212 from a cell phone. If non-life-threatening symptoms developed slowly over more than a couple days, an appointment may be made with Occupational Health as described below).
- The individual works with reproductive toxins.

Appointments are made with Occupational Health by calling 617-253-8552 or by sending a message to an Occupational Health provider through HealthELife, the secure messaging system used by MIT Medical.

Information to Provide to the Clinician

At the time of the medical evaluation, the following information shall be provided to the clinician:

- Identity of the hazardous chemicals to which the individual may have been exposed;
- A description of the conditions under which the exposure occurred;
- A description of the signs and symptoms of exposure, if any; and
- A copy of the chemical information sheet (SDS, or Safety Data Sheet) shall be provided.

Clinician's Written Opinion

MIT Health and the Industrial Hygiene Program within the Environment, Health and Safety Office have a collaborative relationship in dealing with chemical and other work-related exposures that may result in the need for medical care. This collaborative relationship includes protecting patient information while ensuring that supervisors receive the information necessary to ensure that an individual's return to work following medical treatment for a work-related exposure does not compromise the patient's health.

3.2 Medical Surveillance

A medical surveillance program uses validated methodologies, if such exist, to monitor the health of individuals whose work causes them to have unacceptably high levels of

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exposure to a potentially hazardous agent. The goal is to detect early signs of exposure or disease in individual workers, as well as to find trends in the worker population that can be addressed with improved preventative measures.

Enrollment into Medical Surveillance

Employees, fellows and students working with chronic health hazards, or with chemicals or materials with known toxicity, may request and receive, consistent with OSHA, other applicable standards, or following a workplace safety evaluation from EHS, appropriate regular medical surveillance provided by MIT at no extra cost to the individual. This includes but is not limited to:

- ❑ Situations where administrative controls, engineering controls, or PPE cannot prevent exposure to a surveillable hazard from exceeding its occupational exposure limit or action level;
- ❑ Situations where there has been a known incident with a surveillable hazard potentially resulting in an exposure above an occupational exposure limit or action level, as determined by an evaluation by EHS in collaboration with MIT Medical's Occupational Health Service and the employee(s) exposed; such an evaluation occurs whenever a supervisor or employee report of such an incident is filed; and
- ❑ Situations where a surveillable hazard is intrinsic to an ongoing (more than a year) research program (e.g., cadmium in quantum dot research or research requiring registered class 3b or 4 lasers); the medical surveillance program will be determined at the onset of the research program after discussion between the principal investigator, EHS, and MIT Medical's Occupational Health Service, and will be described in the appropriate lab's safety documentation.

It is the responsibility of the supervisor or P.I. to inform students and employees that they meet one of the above criteria and to provide their names, work addresses, and MIT Identification Numbers to the EHS Office. EHS may also identify students and employees who meet one of these criteria and inform them of enrollment. Students and employees not otherwise identified who believe they meet one of the above criteria for surveillance should contact their DLC EHS Coordinator to discuss.

Medical Surveillance Administration

EHS will track everyone who is enrolled in a medical surveillance program. Medical evaluations for those enrolled in medical surveillance will be provided by Occupational Health at MIT Health.

Additional information may be obtained from the DLC EHS Coordinator, the EHS Office or Occupational Health.

3.3. Researchers with Medical Conditions

Individuals with medical conditions that could lead to sudden incapacity and who work with hazardous materials or processes during the course of their research may be at

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increased risk for injury to themselves or others. Anyone with such a medical condition who believes that they may be at increased risk is recommended to contact MIT Occupational **Health** services (253-8552) for consultation and advice on how they may more safely perform their work. Supervisors who have concerns about an individual's health condition and its effect on that person's ability to safely work in a laboratory should also consult with MIT Occupational **Health** Services.

Old Wording

3.1 Medical Evaluation

Employees or students who work with hazardous materials are entitled to a medical evaluation by an occupational medicine physician or occupational health nurse under the following circumstances:

- ❑ A spill, leak, explosion or other incident created a likelihood of exposure.
- ❑ The individual(s) develops signs/symptoms associated with hazardous chemicals to which they were exposed. (Note that acute (same-day) onset of symptoms should seek immediate medical attention by calling 100 from a MIT phone or 617-253-1212 from a cell phone. If non-life-threatening symptoms developed slowly over more than a couple days, an appointment may be made with Occupational Health as described below).
- ❑ The individual works with reproductive toxins.

~~In addition, an employee or student will be offered medical evaluation if it is determined after consulting EHS that:~~

- ~~❑ environmental monitoring results are routinely above action level or PEL (permissible exposure limit) for a hazardous substance for which there are monitoring/medical surveillance requirements; or~~
- ~~❑ a hazardous substance, for which there is a standard surveillance program, is intrinsic to a research program lasting for at least a year.~~

Appointments are made with Occupational Health by calling 617-253-8552 or by sending a message to an Occupational Health provider through HealthELife, the secure messaging system used by MIT Medical.

Information to Provide to the Clinician

At the time of the medical evaluation, the following information shall be provided to the clinician:

- ❑ Identity of the hazardous chemicals to which the individual may have been exposed;
- ❑ A description of the conditions under which the exposure occurred;
- ❑ A description of the signs and symptoms of exposure, if any; and

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- A copy of the chemical information sheet (SDS, or Safety Data Sheet) shall be provided.

Clinician's Written Opinion

The MIT Medical Department and the Industrial Hygiene Program within the Environment, Health and Safety Office have a collaborative relationship in dealing with chemical and other work-related exposures that may result in the need for medical care. This collaborative relationship includes protecting patient information while ensuring that supervisors receive the information necessary to ensure that an individual's return to work following medical treatment for a work-related exposure does not compromise the patient's health.

All patient medical information is protected by law and is considered strictly confidential. A patient, however, is entitled to view his/her medical record. When a work-related exposure has occurred that results in medical examination and/or treatment, the Medical Department will notify the supervisor of the incident, along with any recommended restrictions on work activity.

Additional Steps to be Taken

MIT requires the *Supervisor's Report of Occupational Injury and Illness* to be completed within 24 hours, when a spill or other accident triggers a medical evaluation or examination. The reporting form can be accessed at <https://ehs.mit.edu/workplace-safety-program/occupational-injury-or-illness-reporting/>. An MIT personal certificate is required to access this document.

The MIT EHS Office has developed a standard operating procedure (SOP), "Reporting Work-Related Injuries and Illnesses of OSHA-Covered Personnel" to assist Departments, Laboratories, or Centers (DLCs) in this type of reporting, which OSHA requires. The SOP may be found at <https://ehs.mit.edu/sops/> (certificate login is required).

3.2 Medical Surveillance

Medical surveillance is the process of using medical exams and/or biological monitoring to determine potential changes in health as a result of a hazardous chemical or other exposure. Certain OSHA standards require a clinician evaluation as part of medical surveillance. Medical surveillance is required when initial monitoring reveals exposure levels that exceed levels (called "action levels") allowed under OSHA standards. MIT Medical Department provides medical surveillance services. If you expect that your work will involve a hazardous exposure that may not be sufficiently addressed through engineering or administrative controls, a baseline exam may be advised before beginning work. The baseline exam is compared against follow up exams to determine any changes in health that may have resulted from exposure to the hazard. In addition, medical surveillance is offered to employees or students who are routinely exposed to

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certain hazards. Examples of hazards that are monitored through the medical surveillance program include:

- ❑ Asbestos
- ❑ Beryllium
- ❑ Noise (Hearing Loss)
- ❑ Respirator Use (See Respirator Policy)

This is not a full list of hazards for which medical surveillance is available. Individuals with questions pertaining to occupational hazards and the possible need for medical surveillance are encouraged to contact the Occupational Medicine Service within the MIT Medical Department. The Occupational Medicine Service in turn works collaboratively with the EHS Office to determine the need for and extent of medical surveillance.

Enrollment in Medical Surveillance

For those individuals whose work involves exposures with potential medical surveillance requirements, it is the responsibility of supervisors to identify new employees/students who are exposed to hazards, and to provide names, work addresses, and MIT Identification Numbers (MIT ID) to the EHS Office. Individuals not otherwise identified but who believe that they incur hazardous exposures, or believe they may have been inadvertently omitted, may self-enroll by dialing 617-452-3477. Supervisors who believe that individuals have been inadvertently omitted from medical surveillance may also contact this number. Finally, the EHS Office may identify individuals or populations of individuals at risk and invite their participation.

More information on Medical Consultation, Evaluation, and Surveillance may be obtained from the Medical Department's Occupational Medicine webpage at http://medweb.mit.edu/directory/services/occupational_medicine.html

3.3. Researchers with Medical Conditions

Individuals with medical conditions that could lead to sudden incapacity and who work with hazardous materials or processes during the course of their research may be at increased risk for injury to themselves or others. Anyone with such a medical condition who believes that they may be at increased risk is recommended to contact MIT Occupational **Medicine** services (~~E23-174~~, 253-8552) for consultation and advice on how they may more safely perform their work. Supervisors who have concerns about an individual's health condition and its effect on that person's ability to safely work in a laboratory should also consult with MIT Occupational **Medical** Services.