

Occupations and Workplaces

Laboratory Technician and Technologist

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What does a laboratory technician or technologist (lab tech) do?

A lab tech is a person who performs the practical hands-on work in laboratories. Lab techs work in diverse settings which include health care, industry, research, and educational institutions. Lab techs may work in a wide variety of fields such as medicine, biology, chemistry, electronics, geology and the environment. In this document, it is assumed that a lab tech works predominately indoors in a traditional laboratory setting.

The main duties of a lab tech normally include:

- Receiving, processing and analyzing samples. Depending on the work setting, the samples may consist of blood and tissue (health care); air, water, soil, and rock (environment, public health and mining); chemical products (chemical and pharmaceutical industry), etc.
- Conducting tests on new products or experimental processes.
- Designing and conducting lab tests according to standard procedures.
- Using, cleaning and maintaining various types of equipment.
- Handling and storing chemicals and other materials.
- Handling of compressed gas cylinders.
- Administrative tasks such as maintaining notebooks, documenting procedures, and preparing orders and invoices.

What are the main health and safety issues for laboratory technicians and technologists?

Laboratory technicians work in a variety of settings. Some settings, such as hospitals, chemical production, mining, and pharmaceuticals may contain many specific hazards which lab techs must be aware of.

The main health and safety issues for laboratory technicians included:

- [Toxic](#), [corrosive](#), and [flammable](#) chemicals - chemical hazards.
 - Absorption/contact hazard – chemical burns, dermatitis
 - Inhalation hazard – gasses, heavy metals
 - Ingestion hazard – eating in the workplace, or not practicing proper hand hygiene before breaks.
- [Compressed gases](#).
- Handling blood, body fluids, and tissues which may contain infectious agents - [biological hazards](#). [Needlestick injuries](#) are a special concern.
- Fires from flammable materials and electronic equipment.
- Physical hazards such as radioactive materials, ultraviolet light sterilizers and lasers.
- [Cryogenic](#) (ultra-cold) materials such as liquid nitrogen and dry ice (solid carbon dioxide).
- Working in [awkward positions](#) and [standing](#) for long periods of time - back and arm injuries.
- [Repetitive motions](#).
- Working with electrical equipment and instruments - [electrical hazards](#).
- Vacuum lines and pumps and vacuum systems.
- [Slips, trips and falls](#) from spilled liquids and congested work areas.
- Cuts and lacerations from broken glass.
- Burns and scalds from hot equipment or furnaces.
- [Working alone](#). Note that in some situations, working alone may not be recommended.

What are some preventative measures for a lab tech?

- Store and handle laboratory chemicals properly. Use chemicals in the smallest quantities practical. Store chemicals in the laboratory in only the amount needed for day-to-day work. Workplace-specific training is mandatory.

- Use fume hoods and laminar flow hoods to remove aerosols, vapours, dusts and infectious agents. Flow rates should be checked at regular intervals to make sure they are working properly.
 - Ensure that all chemicals and products are used and stored according to the manufacturer's instructions. Store compressed gas cylinders in the upright position and secure them using chains.
 - Learn proper lifting techniques and [manual material handling](#).
 - Learn proper techniques to avoid needle-stick injuries. Use sharps containers.
 - Where there may be exposure to contaminated or infectious blood, body fluids or tissues have a [routine practices](#) program in place, including procedures for proper disposal of waste materials.
 - Dispose of chemicals or other hazardous products as described in the Safety Data Sheet.
 - Avoid open flames.
 - Stringent housekeeping to prevent leaks, spills and contamination.
 - Follow precautions when working or near with [sharps](#) (e.g., blades, needles, broken glass).
 - Keep all protective clothing and equipment cleaned, stored, and properly maintained.
 - Proper labelling of all chemicals, products, and samples.
 - Make sure that tools and equipment are in good working order.
 - Use and maintain correct [personal protective equipment](#) such as eye protection, lab coats, and gloves.
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What are some good general work practices?

- Inspect workplace for potential hazards before each shift or work.
- Know the safety rules and procedures for the laboratory and institution.
- Know the [emergency procedures](#) for spills, fires injuries and other incidents. In particular, know the location of first aid kits, [emergency showers](#), [eyewash stations](#), fire extinguishers, and spill clean up materials and how to use them. Ensure that emergency exits and emergency equipment are completely accessible.
- Wear appropriate [personal protective equipment](#), including clothing, footwear, head protection, eye protection, gloves, and respiratory protection, if required.

- Read the [safety data sheets](#) for any hazardous products that you use and follow any recommended safety precautions.
 - Ensure that the laboratory has adequate general ventilation.
 - Wear [comfortable shoes](#) which provide protection appropriate for the tasks.
 - Correct layout of work areas to avoid [ergonomic](#) problems.
 - Plan and organize work to avoid [stress](#) and fatigue associated with [long work days](#), [shift work](#) and tight deadlines.
 - Follow [good housekeeping](#) procedures. In particular, avoid loose electrical cords. Store boxes and unused equipment in designated storage areas away from work areas.
 - Long hair, loose clothing and jewellery should be contained to reduce the risk of entanglement in moving equipment.
 - Learn risks of blood borne pathogens and how to control.
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