

FACT SHEET: Cold Room

Safe Work Practices



Cold rooms are engineered to control temperature and humidity levels for the preservation and storage of cells, microorganisms, and media solutions. These rooms are typically designed with no or limited mechanical ventilation, with circulation only occurring during opening and closing the door. The limited air exchanges in a cold room poses a unique challenge in terms of handling hazardous chemicals; an accidental release of hazardous materials can pose serious health and safety hazards to occupants. Thus, certain experiments and materials are not permitted inside a cold room. The lack of ventilation can also lead to mold growth if good housekeeping practices are not in place.

NEED TO KNOW:

1. Do not store cardboard, wood, or Styrofoam boxes in cold rooms as they act as substrates for mold.
2. Do not store hazardous chemicals in cold rooms.
3. Never store dry ice, compressed gases, or cryogenic liquids in cold rooms.
4. Never use open flames (e.g., bunsen burners) in cold rooms.
5. Never store consumable food/beverages in cold rooms.
6. For assessments of proper use of cold rooms, contact OEHS at oehs@tulane.edu.

MINIMIZING MOLD GROWTH:

- Do not store cardboard, wood, or Styrofoam boxes in cold rooms as these serve as substrates for mold growth that can contaminate research materials or be carried and spread to other areas. It is best practice to use plastic containers for storage, organization, and cleanliness.
- Remove old culture plates and tubes, as these can act as growth media for mold and mildew.
- Ensure immediate cleanup of spilled buffers and media, as these spills can lead not only to mold growth, but corrosion of work surfaces. Remediate the discovery of mold promptly to avoid further spread.

HANDLING HAZARDOUS CHEMICALS:

DO NOT WORK WITH THE FOLLOWING CHEMICALS IN A COLD ROOM:

- **Flammable solvents:** (e.g., ethanol, methanol, acetone, isopropanol – chemicals with a flammability GHS pictogram on the container) Their vapors can accumulate, creating an explosive atmosphere, which can be ignited by electrical switches or other ignition sources.
- **Acutely hazardous or volatile chemicals:** (e.g., chloroform, carcinogens, reproductive toxins, acutely toxic chemicals) Personnel exposure can happen due to limited air exchanges in a cold room. Also, any spill will take longer to remediate due to limited air exchanges, effectively shutting down the cold room for the duration of the remediation.
- **Volatile acids:** (e.g., hydrochloric, nitric, acetic, propionic, butyric) These can corrode refrigeration equipment and work surfaces.
- **Non-volatile corrosives:** Limit use to diluted solutions. These should be used with care, and stored in plastic secondary bins, as any spills could damage work surfaces.
- **Asphyxiants:** (e.g., compressed gases such as nitrogen or carbon dioxide, dry ice, liquid nitrogen) These can displace oxygen due to limited ventilation, resulting in potentially fatal oxygen deficient environment.

ALWAYS label chemical containers including water wash bottles being used in a cold room.

MORE INFO:



DISINFECTION AND CLEANING:

- Disinfectants like TX650 TexQ are good options for cleaning surfaces in a cold room as they inhibit growth of mold and mildew.
- 10% bleach or disinfectants such as Cavicide or Opticide should be used sparingly, due to limited air exchanges in the room. If using 10% bleach, follow by wiping surfaces with water to prevent pitting and corrosion of metal surfaces.

ADDITIONAL RESOURCES:

- AIHA: [Mold Resource Center](#)
- OSHA 1910: [Toxic and Hazardous Substances](#)