

Engineering Physics / C.E.D.T. Research Hazards Safety Report

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A. Potential Project Hazards

Laser Radiation:

Exposure to high power lasers may cause damage to eyes. A class 3b laser at 405nm is used as an excitation light source in a fluorescence based microfluidic device.

High Temperature:

High temperature is dangerous considering the potential damage to skin. A Heater will be required for PDMS channel formation and device assembling.

Mechanical:

The use of machine tools may be required. Such as knife.

Oxidizing Materials:

Oxygen cylinder may be required for the development of microfluidic devices.

Chemicals:

Toluene could be used to dissolve fluorescent dye.



Flammable

Flammable liquids, category 2



Irritant

Skin irritation, category 2

Specific target organ toxicity following single exposure, category 3



Health hazard

Reproductive toxicity, category 2

Specific target organ toxicity following repeated exposure, category 2

Aspiration hazard, category 2

B. Operating Procedures

Laser radiation:

Before turn on the laser, the following procedures must be done: (1) the appropriate eye protection and any other required PPE will be worn. (2) All others in the lab will be required to wear the appropriate PPE including protective goggles as well. (3) Black safety board must be placed on the optical table to block the laser beam. (4) Black safety curtain must be pulled closed around the work area. (5) A hazard sign must be placed outside the working area. During the experiment, anyone who want to get into the working area must be informed of laser hazard and wear protective goggles.

High Temperature:

Appropriate training will be attended before using heater and any other relevant devices.

Mechanical:

Appropriate training will be attended for the use of any machine tools that may be required. Gloves or any other required PPE will be worn

Oxidizing Materials:

Appropriate training will be attended. Manuals will be consulted before the use of any gas cylinders. Care will be taken to avoid oxygen leak after the experiment.

Chemicals:

Gloves and eyewear will be worn. Toluene must be operated in the fume hood when it is used to dissolved dye. Toluene must be stored in a suitable cabinet.

C. Emergency Procedures

For immediate assistance in the case of an accident or a fire, dial 88 on campus. For accidents involving lasers, block the laser beam or turn off laser first to reduce eliminate the possibility of causing further damage or harm to others. After calling, the supervisor and EOHSS LSO designate should be contacted. An incident report should be filed with the department as soon as possible following any accident.