

4 CF<sub>3</sub>I Handling Procedure*Written Procedure*4. CF<sub>3</sub>I Handling Procedure

- 4.1. [Bubble Chamber Glycol Fill Procedure](#)
- 4.2. [Bubble Chamber Glycol Drain Procedure](#)

This procedure covers filling or removing CF<sub>3</sub>I from the COUPP 4-kg inner vessel at SNOlab. Risks associated with CF<sub>3</sub>I gas overexposure include skin rashes, eye irritation, irregular cardiac rhythm if inhaled, and possibly depression of the nervous system. Vapour concentrations over 0.2% in air may cause acute effects. While CF<sub>3</sub>I handling is intended to be a closed system operation, the risk of spillage is increased during handling operations.

The operational goal of CF<sub>3</sub>I handling is to fill the inner vessel with a radioclean active medium, or to remove CF<sub>3</sub>I during system decommissioning.

For all CF<sub>3</sub>I handling, prior to handling,

- 1) Consult the appropriate CF<sub>3</sub>I handling procedure and review the [CF<sub>3</sub>I Spill Procedure](#).
- 2) Inform the Lab Coordinator that CF<sub>3</sub>I handling is taking place, and the estimated times over which CF<sub>3</sub>I handling will be performed. Inform nearby workers of the potential hazard of a CF<sub>3</sub>I spill and prepare them for a possible evacuation.
- 3) Erect a permissive barrier at least 4 meters from any CF<sub>3</sub>I line. Attach caution tags indicating that CF<sub>3</sub>I handling is being performed and that respirators are required.
- 4) Don full face respirators with organic vapour (OV) filters.
- 5) Ensure that any non-isolatable plumbing, or other volume to be vented, has a volume less than 600mL.
- 6) Ensure that any external ports to the CF<sub>3</sub>I system are closed. Check for leaks in the plumbing by pumping it down then charging it with 80 psi of compressed high purity nitrogen. Use snoop to check for gas leaks at all joints.

During CF<sub>3</sub>I handling,

- 7) If CF<sub>3</sub>I is spilled, do not touch it. Stop any leaks and allow the CF<sub>3</sub>I to evaporate. If more than 11 mL of liquid or 2.8L of gaseous CF<sub>3</sub>I are leaked, follow the CF<sub>3</sub>I Spill Procedure.

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- 8) When CF<sub>3</sub>I plumbing is left in a static condition, PPE and barriers may be temporarily withdrawn. All protections must be reinstated before work on the CF<sub>3</sub>I may resume.

After handling CF<sub>3</sub>I and before removing PPE,

- 9) Isolate the warm containers of CF<sub>3</sub>I first. Wait 5 minutes, or until the line pressure has minimized, then isolate the cold container.
- 10) Vent the plumbing to air.
- 11) Wait 5 minutes for the CF<sub>3</sub>I to dissipate, then remove PPE and barriers.
- 12) Continue cleaning up the work area.