

C₃F₈ Handling Procedure

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This procedure applies to filling or removing C₃F₈ from the COUPP-0.1kg inner vessel. C₃F₈ handling is intended to be a closed system operation. A C₃F₈ spill can be prevented by careful handling and thorough leak checking. Because in normal operation the C₃F₈ remains in contact with only the inner vessel walls, a spill or leak is highly unlikely after filling is complete.

The operational goal of C₃F₈ handling is to fill the inner vessel with a radioclean active medium, or to remove C₃F₈ during system decommissioning.

For all C₃F₈ handling, prior to handling,

- 1) Consult the appropriate C₃F₈ handling procedure. If working at SNOLAB, review the [Emergency Procedure](#).
- 2) Ensure that any external ports to the C₃F₈ system are closed. Check for leaks in the plumbing by pumping it down then checking for a rate of rise. Once you are assured that any significant leak would have been spotted, C₃F₈ filling may proceed.

During C₃F₈ handling,

- 3) If liquid C₃F₈ is spilled, or more than 300mL of C₃F₈ at atmospheric pressure escapes, close valves if safe and evacuate upwind while the C₃F₈ evaporates and disperses. C₃F₈ is a fast-evaporating liquid that poses no known health hazards, so make an estimate as to when the spill will evaporate completely and quickly check the area after that time has passed, rechecking afterwards if necessary. Once complete evaporation is verified, wait five minutes before re-entering area to resume work.

After handling C₃F₈,

- 4) Isolate the warm containers of C₃F₈ first. Wait 5 minutes, or until the line pressure has minimized, then isolate the cold container.
- 5) Vent the plumbing to air. Stand away from the stream of ejected gas.
- 6) Continue cleaning up the work area.