

## How to change a sample with the gas-flow furnace:

1. Prepare the system for a sample change.
  - a. Stop gas flow by setting flow rates to 0 sccm and pressing the ON/OFF button for the appropriate gases on the AGES software (Figure 3).
  - b. If a hazardous gas has been flowing, ask instrument staff or IHC to complete the clean out routine.
  - c. Set temperature setpoint to 0°C (Figure 1).
  - d. Disable furnace alarm by pressing the button on the dashboard.
  - e. Turn off power to the heating elements by pressing the e-stop on the controller (Figure 2).

**Sample temperature must be  $\leq 100^{\circ}\text{C}$  before removing sample stick.**

2. Remove the previous sample (Figure 4).
  - a. Carefully disconnect both thermocouple leads on the stick.
  - b. Disconnect the gas inlet and outlet hoses from the stick.
  - c. Unscrew the compression fitting completely.
  - d. Carefully remove stick and hang from stick holder.
  - e. Scan sample with RadEye G radiation monitor. If it alarms, call the RCT (865-274-8658).
  - f. **Caution: Sample may be hot. Wear thermal gloves.** Free sample from stick by removing bottom pin.
3. Load new sample.
  - a. Hang new sample on stick using pin.
  - b. Carefully place stick into furnace.
  - c. Screw on compression fitting, keeping the gas fittings oriented correctly with the gas lines.
  - d. Reconnect the gas inlet and outlet hoses.
  - e. Reconnect both thermocouple leads, being careful to match the orientation marks.
4. Prepare the system for gas flow.
  - a. If a hazardous gas will be flowed, ask instrument staff or IHC to complete the clean out routine.
  - b. Re-enable furnace alarm by pressing the button on the dashboard.
  - c. After verifying that the setpoint is 0°C, twist the e-stop to release it.
  - d. Check that the furnace output power is on.
  - e. Open sample valve "111B" by clicking on the valve picture in the AGES software so that it is green.
  - f. Start gas flow by pressing the appropriate ON/OFF button and setting a flow rate on the AGES software.
  - g. Verify that the desired flow rates are being measured on the AGES software and that the expected results are seen in the RGA and pO<sub>2</sub> sensor.

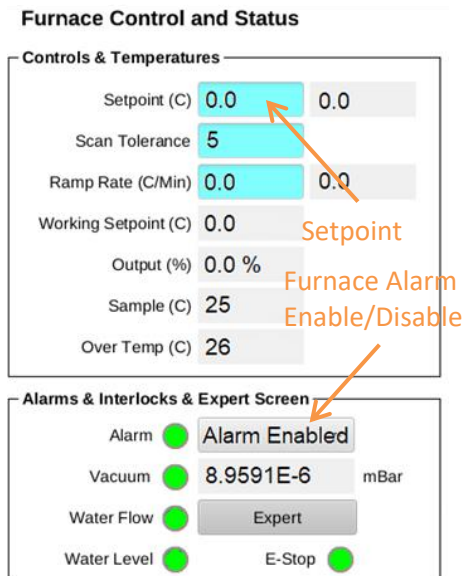


Figure 1. Furnace dashboard.

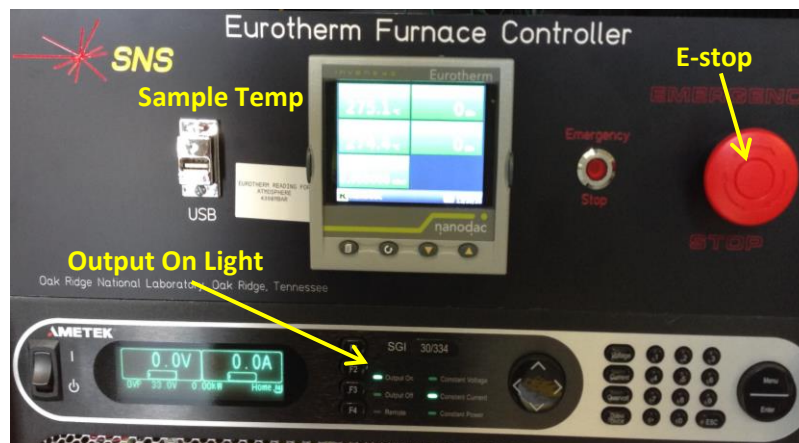


Figure 2. Furnace controller

# BL-11a Gas Flow Furnace Sample Change

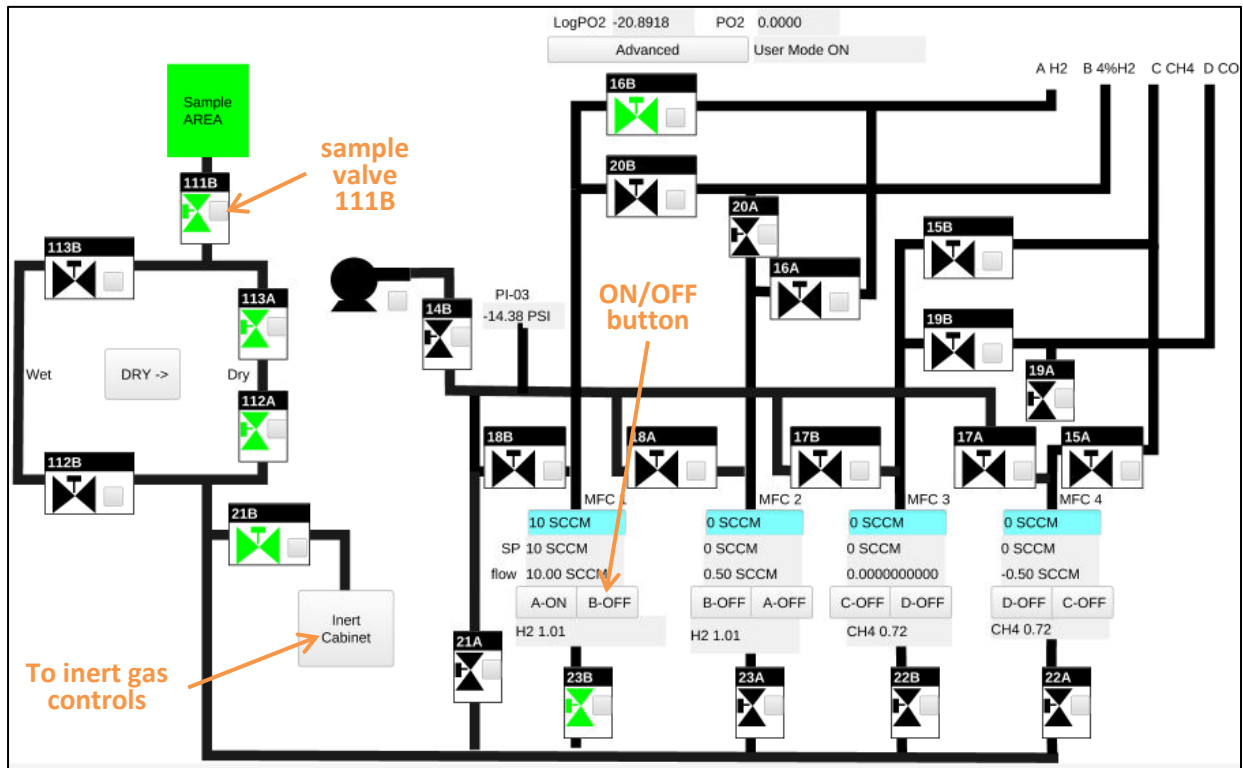


Figure 3. AGES control screen for hazardous gases.

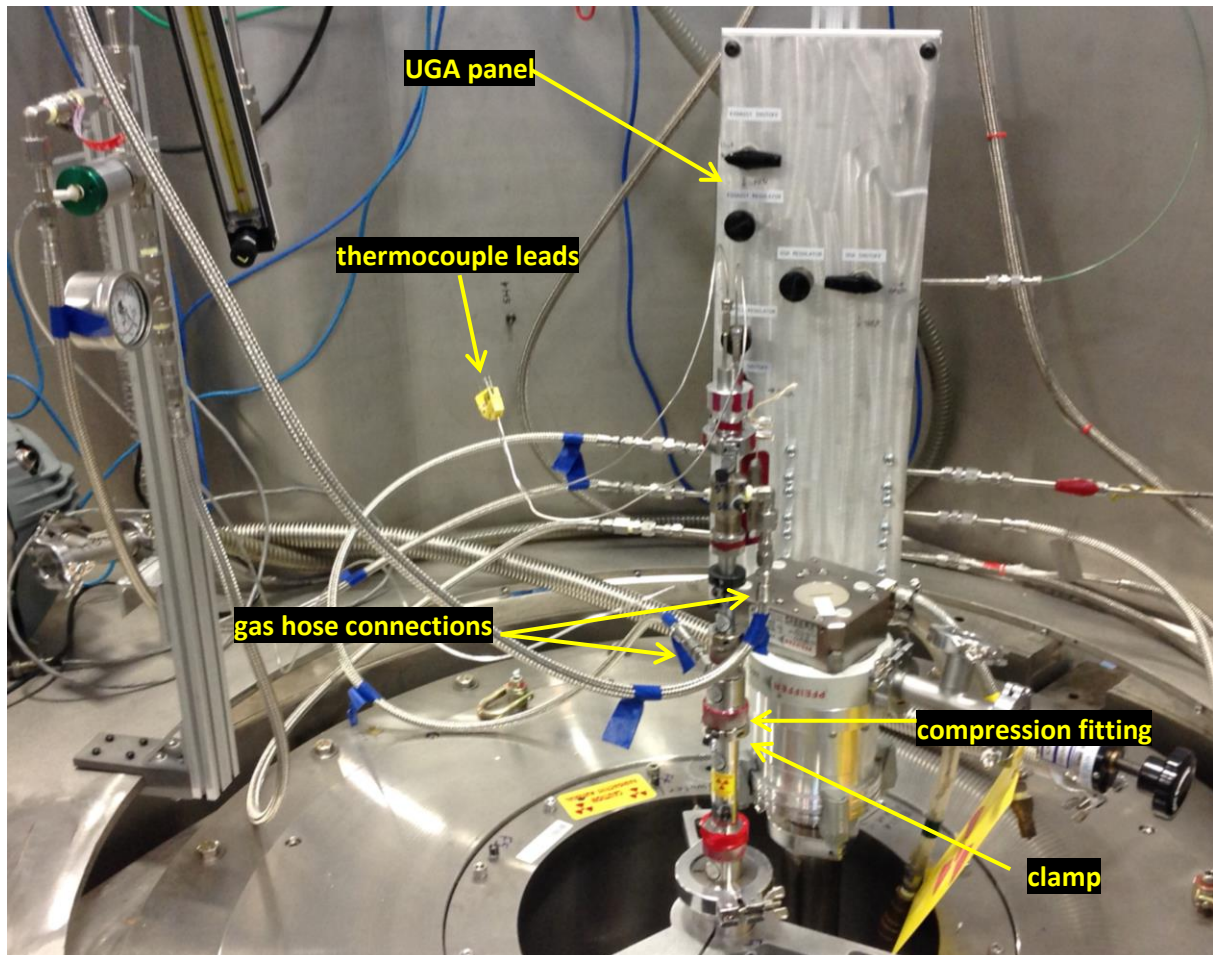


Figure 4. AGES stick connections.