# Vacuum Ovens

| Fisherbrand Vacuum Ovens and Cold Trap |
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| **Tool Type:** Material Processing, Drying, Annealing |
| **Manufacturer:** Fisherbrand Oven and Welch Vacuum Pump |
| **Location:** Elings Hall 2440 |

| Principal Scientist | Training and Operations Lead |
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| Morgan Bates | Zachary Nett |
| morganbates@ucsb.edu | zjnett@ucsb.edu |

## About

Vacuum ovens are essential for various processes in synthetic polymer chemistry, particularly for drying non-volatile solids and polymer samples, as well as for material processing such as thermal annealing. They are especially useful for materials that undergo self-assembly (e.g., block copolymers) and for freeze-drying polymers from solvents like benzene.

To ensure proper functioning and longevity, vacuum ovens should be handled with care and reserved for appropriate use. Any spills or volatilized material inside the oven should be cleaned immediately to prevent contamination or damage. Additionally, liquid nitrogen should be used to condense volatiles, protecting the vacuum pump from potential damage.

## Vacuum Oven Standard Operating Procedure

# Identifying and Handling Liquid Oxygen

Liquid oxygen has a distinctive light blue color, resembling blue Gatorade. If you observe a light blue liquid when raising the cold trap out of the liquid nitrogen (step 16), follow these steps immediately:

1. Place the cold trap back into the dewar and position a blast shield around the dewar.
2. Vent the system:

- Close the Teflon knob that connects the vacuum pump to the cold trap.
- Quickly open the knob that connects the vacuum trap to the pre-purged vacuum oven.

3. Allow the system to thaw for 24 hours and notify other lab users to avoid the vacuum ovens during this time.

If liquid oxygen is detected after venting, immediately place the cold trap back into the dewar, set up a blast shield, allow it to thaw for 24 hours, and warn other lab users to stay clear of the vacuum ovens.

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