

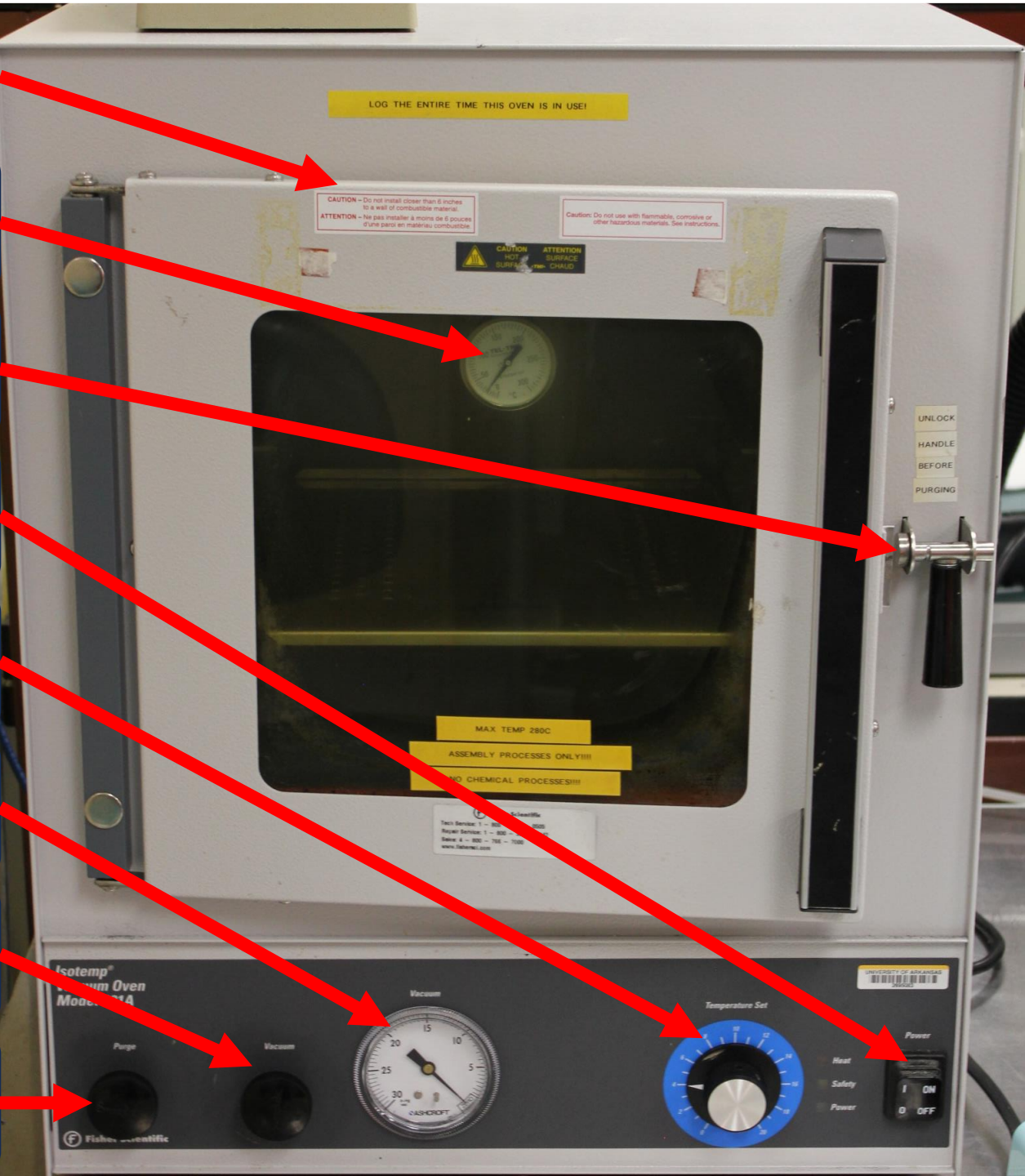
HIDEC Isotemp 281A Vacuum Oven SOP

By Michael Lynn

Approaching the oven from the front, you should identify the items called out on this slide.

If you cannot identify them, you should speak with HiDEC staff for assistance.

- Silicone Sealed Door
- Thermometer
- Locking Handle
- Heater On-off
- Temperature Set
- Pressure Gauge
- Vacuum Regulator
- N2 Purge Regulator

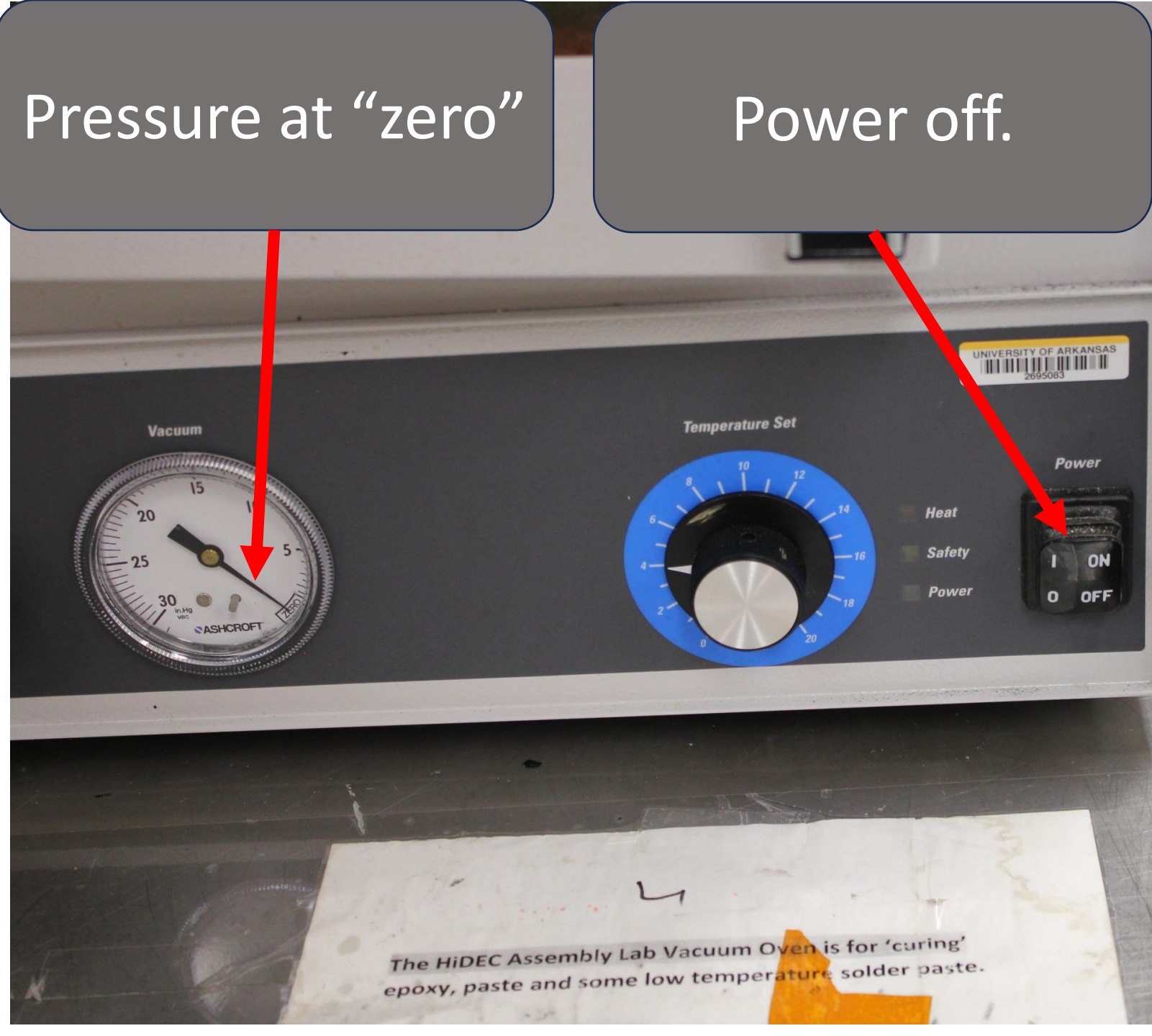


Ensure the oven is at zero vacuum pressure, cool and turned off.

you will not be able to open the oven without it being fully depressurized. And opening the oven and working inside it while it is hot is dangerous. Do not do this.

Pressure at "zero"

Power off.



Ensure the oven is cool and turned off.

Open the oven door by gently lifting the cam locking handle shown here.



Cam locking handle "closed"

Ensure the oven is cool and turned off.

Open the oven door by gently lifting the handle as shown and sliding it gently to the right.



Vacuum regulator



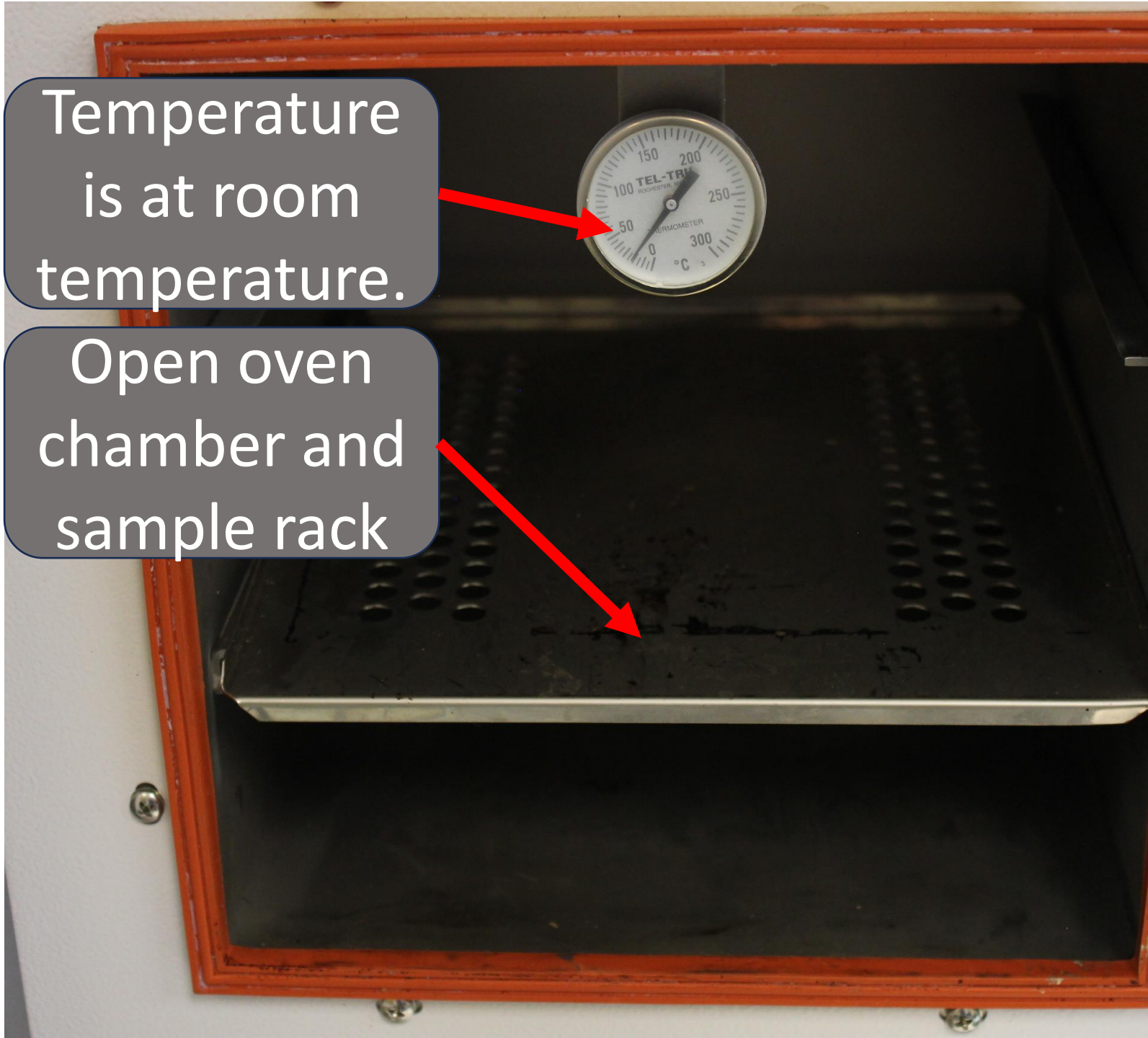
If the oven is under vacuum when you begin, you must turn the vacuum regulator knob clockwise to stop the vacuum.

Then turn the purge regulator counter-clockwise to introduce gas to the chamber until it reaches zero.

This should render the door openable.

Ensure the oven is cool and turned off.

If the chamber is at zero vacuum, the door should open easily allowing you to insert your samples onto the sample rack.

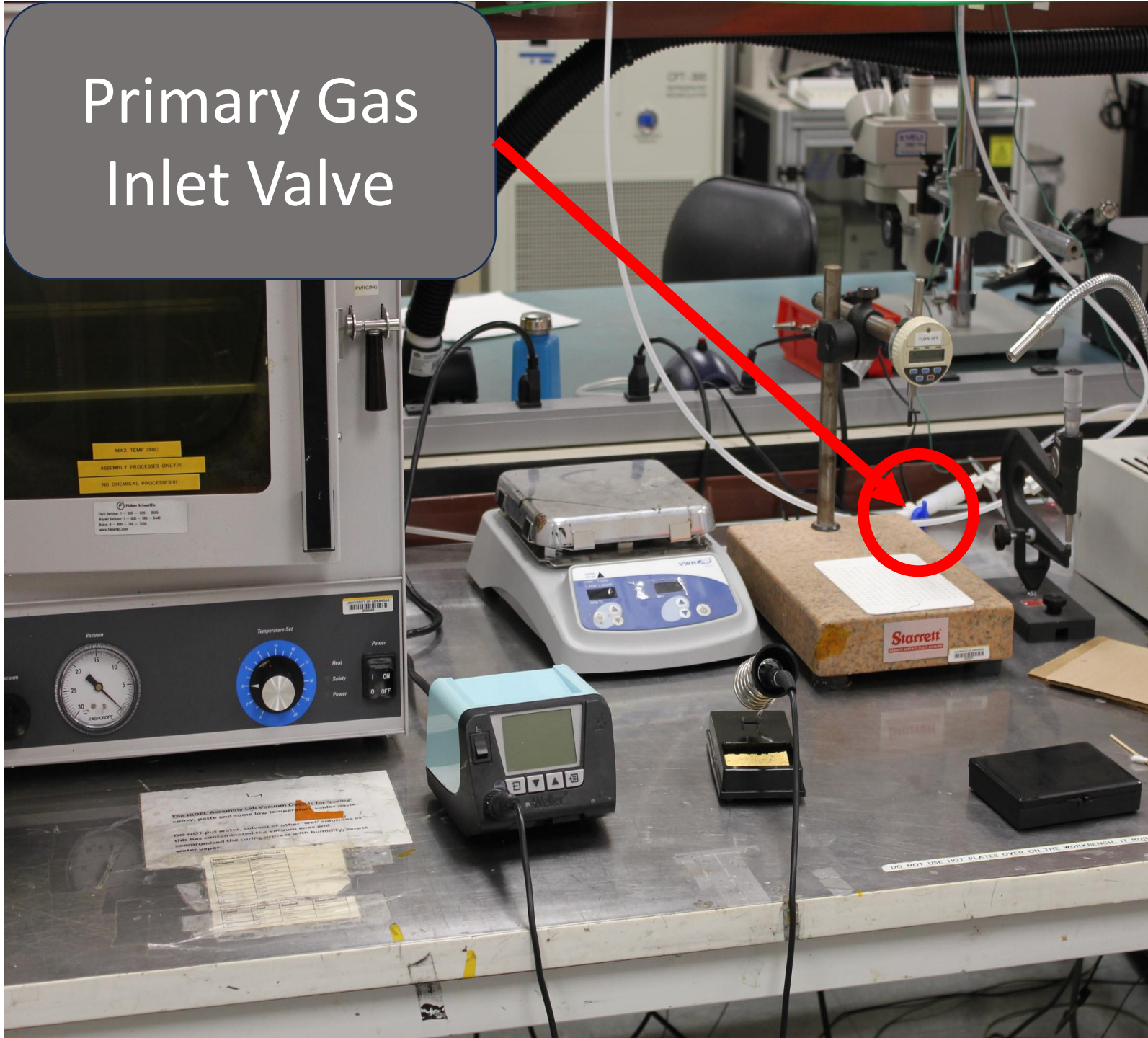


Temperature is at room temperature.

Open oven chamber and sample rack

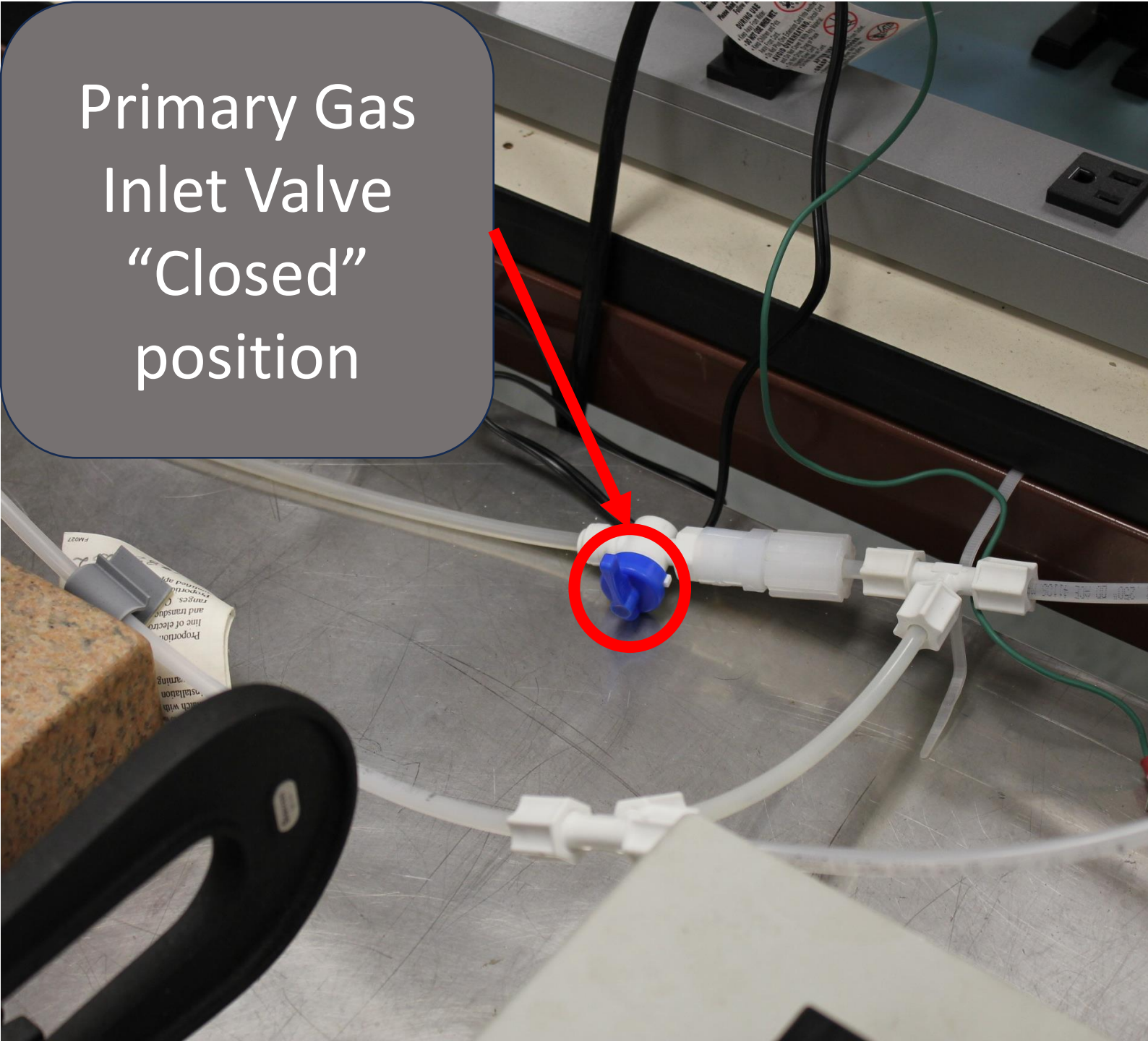
Approaching the oven from the front, you must identify the primary gas valve to the right side of the oven in the image shown.

It is a small blue plastic valve. It controls the flow of nitrogen into the oven.



Primary Gas Inlet Valve

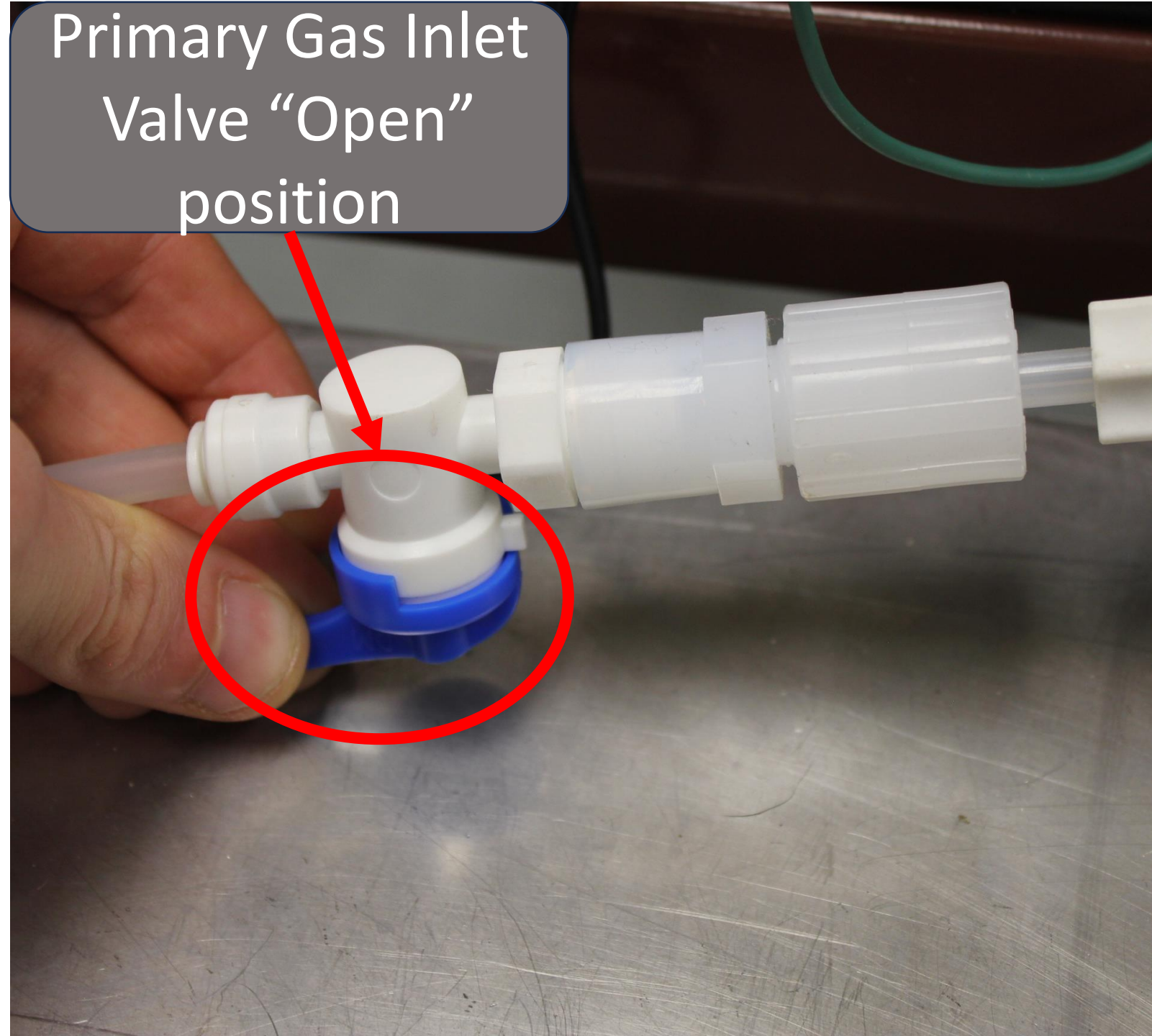
If the valve is in the position shown, it is turned off.



Primary Gas Inlet Valve "Closed" position

Turn the valve gently to the position shown here. If gas is flowing, there should be an audible hiss.

Primary Gas Inlet
Valve "Open"
position



Turn the oven "Purge" gas regulator clockwise gently until it stops turning. This should close the gas line into the oven until you have inserted your parts and are ready to purge the atmosphere in the oven with nitrogen.



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Close the oven door and move the cam locking handle into the closed position to seal it.



Cam locking handle "closed"

LOCK
HANDLE
FORE
PURGING

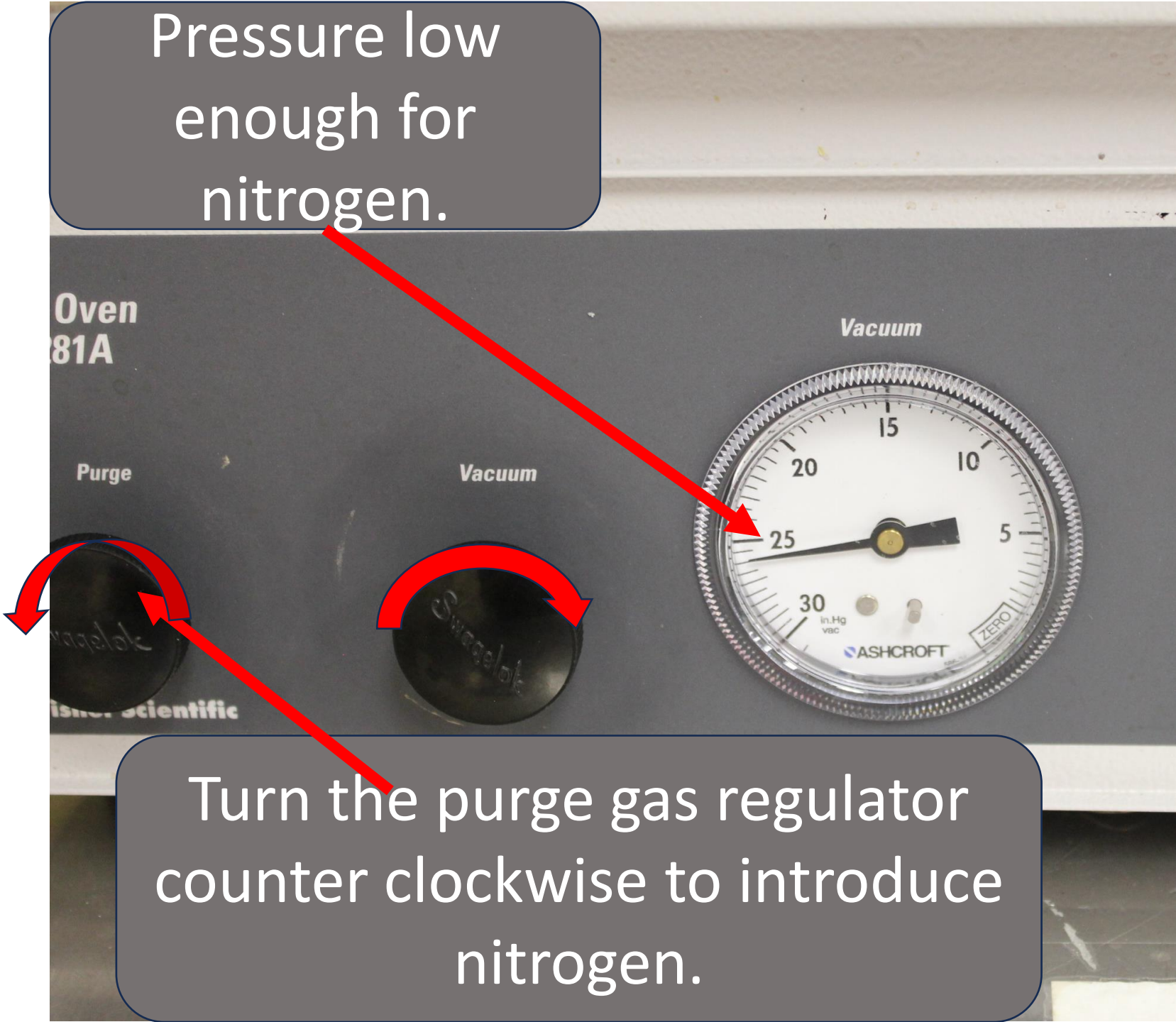
Once your sample is in the oven and the door is closed and locked open the vacuum regulator by turning it counter clockwise.

This will begin vacuuming the air out of the oven and the vacuum gauge should start to move counterclockwise toward 25 in. Hg.



It will take about ~1 hour to fully pump the chamber down. Perhaps longer depending on your sample composition and the cleanliness of the oven.

Once the vacuum pressure has reached 30 in.Hg. You may proceed to turn on the purge gas to flush the remaining air from the chamber and replace it with nitrogen. This will push the vacuum gauge back toward zero.



Pressure low enough for nitrogen.

Turn the purge gas regulator counter clockwise to introduce nitrogen.

Once you have performed at least one nitrogen purge cycle, and allowed the oven pressure to return to 25-30 In.Hg. You may proceed to turn the heaters on with the switch, and adjust the temperature using the and knob shown.



A listing of approximate dial settings and their related temperatures in static air is shown.

The time to obtain the provided temperature will vary depending on nitrogen gas pressure in the oven, and overall pressure in the oven. In general, low pressures mean longer heating times.

Approximate Dial Settings in Static Air

Dial Setting	Temperature
2	25°C
4	55°C
6	85°C
8	115°C
10	145°C
12	180°C
14	210°C
16	240°C
18	275°C

Approximate Heat Up Times to Various Temperatures

T Initial	T Final	Standard	Accelerated
25°C	100°C	75 min.	35 min.
25°C	200°C	95 min.	75 min.
25°C	275°C	120 min.	-----

When finished, turn off the heaters on the oven, and allow it to cool back to room temperature before proceeding.



When finished, turn the purge regulator counter clockwise and watch the pressure gauge. Once it returns to zero, you should be able to unlock the door, open it and retrieve your parts.



When finished retrieving your parts, turn the purge and vacuum regulators clockwise until they stop to shut off gas and vacuum suction to the oven.



When finished retrieving your parts, and shutting off gas and vacuum to the oven, return to the primary gas control valve, and return it to the off state.

Close the oven door.
This completes proper shutdown of the oven.

