

Oven Standard Operating Procedure (SOP)

Purpose

To outline the procedures for the safe use of ovens within the Lab.

Personal Protective Equipment (PPE) Requirements

1. Oven mitts or insulated gloves
2. Closed-toe shoes and long-sleeve pants
3. Hair ties/restraints for long hair

Pre-Operation Safety Checks

Read the manual for the specific oven to be used in its entirety. Ensure that the desired temperature is within the safe operating range of the oven. Ensure that no chemicals, temperature-sensitive items, or energetic materials are in the immediate area surrounding the oven. Examine the inside and outside of the oven to determine if any possibly-dangerous residues or fire hazards may be affected by oven operation. Ensure that the clasp that keeps the oven door shut (if available on the particular oven model) is operational.

General Hazards

Items under pressure (e.g. compressed air cans) must not be placed in the oven. Items that have potentially dangerous vapors or can change phase into hazardous gases must not be placed in the oven. Mixtures of chemicals that react energetically in the presence of heat must not be placed in the oven. If the oven contains components that can form a vacuum in the oven chamber, caution must be taken to ensure that the components that create the vacuum are compatible with vapors that may be produced in the oven (i.e. vacuum pump seals must be tolerant of any fumes from the oven).

General Operating Procedure

1. Input the desired temperature setpoint using the oven's interface
2. Give the oven adequate time to achieve this setpoint, and if desired, use a temperature measurement device to verify that it has done so.
3. Using the abovementioned PPE, insert the object/sample to be heated and close the door, ensuring that it is completely shut.
4. Maintain awareness of the oven as the sample is heated. If you must leave the sample as it is heated, make a colleague familiar with oven-use aware that your sample is in the oven, and familiarize them any unique hazards the sample may have.
5. Once the sample been heated for your prescribed duration and time, immediately turn off the oven.
6. By monitoring the oven's temperature gauge, wait until the sample has cooled to a temperature wherein it can be removed and placed on a counter without causing damage to the counter,

your PPE, or any nearby equipment or personnel. If you suspect that the oven's temperature gauge is working improperly, use another method of temperature measurement to ensure the object is at a safe temperature. If the oven is under a vacuum, slowly equalize the pressure within oven before attempting to open the door.

7. Double check to ensure that the oven is no longer warmer than room temperature after shutting it off. Leave the door oven door closed and ensure the clasp holds the door shut.

Reference Documents

The **pertinent** information from the following references is **required-reading** for the acceptance of responsibility regarding oven-use within the Lab:

<http://www.engineering.iastate.edu/brl/files/2011/10/Isotemp-Oven-OV700G-SOP.pdf>

https://www.worksafe.tas.gov.au/_data/assets/word_doc/0004/163372/SWP_Oven_AS530.doc

https://www.um.edu.mt/ms/pharmacy/coursework/labsops/sops_for_laboratory_practice/SOP.PD.306_01_Jouan_Laboratory_Oven.pdf

<http://www.emprevo.com/wp-content/uploads/2017/04/SOP-Conventional-Oven-Operation.pdf>

<http://www.kstreetstudio.com/science/experiments/files/SOP-ThermolyneOvens.pdf>

http://www.cen.iitb.ac.in/slotbooking/SOP/156_SOP.pdf

<http://www.pharmasopcorner.com/2016/12/sop-operation-and-calibration-hot-air-oven.html>

[http://gato-docs.its.txstate.edu/jcr:4c8dc1f4-a9d3-421c-9b71-5345bfa34534/SOP%20Programmable%20Oven%20\(Updated%20June%2025,%202015\).pdf](http://gato-docs.its.txstate.edu/jcr:4c8dc1f4-a9d3-421c-9b71-5345bfa34534/SOP%20Programmable%20Oven%20(Updated%20June%2025,%202015).pdf)

<https://pharmaqualityassurance.blogspot.com/2013/09/sop-for-operation-of-vacuum-oven.html>

<https://engineering.purdue.edu/Powerlab/Standard%20Operating%20Procedures/vFinal%20Vacuum%20Oven%20SOP.pdf>

https://www.see.leeds.ac.uk/fileadmin/Documents/facilities/Cohen/Lab_manual/HnS_Documents/Furnaces/SOP_ovens_furnaces_v1.docx