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| Baking in Nitrogen Oven | | | |
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| **Document Owner:** | Ashley Mitchell |  |  |

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# Purpose and Scope

Purpose: To remove all impurities from surface of items by exposing the part to intense heat for an extended period of time, thereby releasing any particulate from the pores of the material.

Safety: Individual must keep safety as the first priority in the process; before beginning any job, the user must assure they have the correct PPE for the individual job. Maintaining the level of safety and secure nature of the work area is paramount. Assure personal safety by using caution in movement and taking necessary steps to avoid unnecessary personnel in the immediate area.

# References

[C50 HOM Loads Baking Procedure](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-17124/Baking%20HOM%20Loads.rtf)

CP-STP-CAV-CHEM-DEGR

# Terms and Definitions

* **Component**: For the simplicity of this procedure, the terms cavities, items, components, and/or parts are considered interchangeable and will be generally referred to as “component”.
  + If a component is a mix of the following metals or an unusual size or shape, the PI/SOTR and/or a supervisor should be consulted on the appropriate method to use.
* **Solvents used:** Acetone, Methanol, clean room quality isopropyl (aka isopropanol)
* **N2 / Nitrogen:** filtered nitrogen is most commonly used.

# Process Details

1. Prior to baking a component, it must be cleaned.
   1. Follow the appropriate cleaning procedure for the component being baked.
   2. Refer to CP-STP-CAV-CHEM-DEGR for guidance with common components.
2. Before baking, the oven must be cleaned and purged with nitrogen:
   1. Open oven door and remove any foreign objects and wipe down trays with Cleanroom wipes and isopropyl.
   2. Ensure that oven exhaust valve on Cleanroom wall is in open position (handle in line with pipe).
   3. Turn on nitrogen (N2) and set regulator to 50 PSIG and 50 CFM.
3. Place component(s) in oven.
   1. Inspect components for damage (chips/scratches).
      1. If the component has pre-existing impairment, notify owner.
      2. Do not bake until owner verifies through written acknowledgement of previous damage presence
   2. Place component in oven on tray; space items evenly on oven tray and not touching.
4. Close oven door securely.
5. Wait one (1) hour before starting heating cycle on oven.
6. The following controls are pre-set in the oven controller:
   1. Temperature: 100° C
   2. Timer: 10.0 hours
   3. Manual Safety Thermostat: Fully Clockwise
   4. Timer Alarm: Off
   5. Count-up/Countdown: Count-up
   6. Control Heating/Stop Heating: Stop Heating
   7. Auto Start/Manual Start: Auto Start
   8. Time Mode: On
   9. Hours/Minutes: Hours
7. Turn main power switch on.

**NOTE**: Due to the extended period of baking time, the remainder of the procedure will take place the following day:

1. Remove component(s) from oven.
   1. If components are too hot to touch, allow them to cool before handling.
2. Bag the components:
3. Ensure components have cooled and dried completely before bagging.
   1. If necessary, dry component with filtered nitrogen.
4. Bag and seal each component separately.
5. Repeat process until all components are bagged.
6. Transport bagged components to the next work center.

# **Revision History**

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| Rev # | Revision or update: | Effective: |
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# **Approvals**

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