QUICK GUIDE CEE APOGEE™ Bake Plate

Start Up

1. **Enable** the **CEE APOGEE Bake Plate** on the **TNFC Access System.**
2. **Turn ON** the machine using the button on the **right.**
3. **Login** using the following credentials Username: **admin** Password: **admin2**
4. **Confirm** that the system is ready for operation by navigating to **Tools**>**Manual Control**:
   - Plate temperature: **~20 °C**
   - Ambient Temperature: **~22 °C**
   - Lift pin height: 5**.0 mm**
   - Humidity: **~31-32%**
5. **Confirm** that the system is ready for operation by **checking the gas valves:**
   - Main nitrogen gas valve: **Optional (ONLY** open when **proximity bake** is needed**)**
   - Hood nitrogen valve: **Optional (ONLY** open when hood **Nitrogen purge** is needed**)**
   - Vacuum pump: **Optional (ONLY** turn on the pump next to it when **vacuum bake** is needed**)**

   WARNING: *Bake Plate surface might be* ***VERY HOT, BE CAUTIOUS****.*

   REMARKS: *The plate temperature at ~20°C is just a reference temperature for the idling state. The process can still start at any plate temperature just that there might be risk of incurring process variation.*

   REMARKS: *The lift pin height (home) can be changed according to user preference****.*** *For example, users can set the home height to 0mm through* ***Manual Control*** *and the sample will be placed on the bake plate surface directly at the start of the process.*

Bake Methods

6. **Vacuum** method (**Hard contact**)
   - Sample is held securely to the bake plate surface through applying a **vacuum**.
   - **Uniform heating** across the sample surface.
   - Applicable to samples where **back side contact** is **NOT** a problem.
7. **Contact** method (**Soft contact**)
   - Sample is held to the bake plate surface through **gravity ONLY**.
   - **Less uniform** and **less efficient** heating across the sample surface.
8. **Proximity** method (**Proximity contact**)
   - Sample **floats** (1-4mm) on the bake plate surface by a **thin nitrogen gas layer**.
   - **Slower warm-up** than contact bake methods

- Advantages when baking thick films where **blistering** would be a problem.
- A high degree of **uniformity** even for **cambered**, or **warped** samples.

Making A New Recipe

9. Navigate to the **Recipes** Tab.
10. Press **New**.
11. **Name** your recipe accordingly.
12. **Set** the **plate temperature** by typing in the input field.
13. **Change** the **time** and **process method** (lift pin height, bake method) accordingly.
14. Insert more steps using the "**Insert**" button if it is necessary.
15. **Save** the recipe after editing.

REMARKS: *The default recipe editing mode is a relatively "simple" mode that only allows a single temperature target, users need to change to advance editing mode for purposes such as setting up a temperature ramp and holding at a certain temperature for a prolonged period.*

Advance Editing Mode

16. **Click** the "**Advanced**" button, a "!" is going to show up within the button, click again.
17. **Insert** a new step using the "**Insert**" button.
18. **Click** on the newly added step.
19. **Change** the control and the action accordingly.

REMARKS: *The advance editing mode allows a high degree of freedom on controlling the process. Users can add multiple temperature target within a single process with ramping rate up to* ***6°C /min****. Users can also add fixed time delays to make the machine hold at a certain temperature according to their need. Changing pin height during the process is also possible.*

20. **Press** "**Update**" to log the change and a new step will be created.
21. **Organize** the order of the steps using the "**up**" and "**down**" arrows.
22. **Modify** the tolerances and preconditions using their respective button if necessary.
23. **Save** the recipe after editing.

Loading And Running Existing Recipe

24. **Navigate** to **Recipes Tab.**

25. **Press** "**Load**".
26. **Click** on the designated **recipe name**.
27. **Press** "**Run**".
28. Start the process using the "**Start**" button on the main **Process Tab**.

Loading A Sample

29. **Open** the hood using the handle.
30. **Align** and **place** the sample on the lift pin.
31. **Close** the hood **slowly** and **gently**.
32. **Turn on** the hood nitrogen valve if **nitrogen purging** is **necessary.**

Sample Unloading

33. Once the process is **completed**, the machine will make a **beeping noise**.
34. ***Check*** *the* ***bake plate temperature*** *from* **Tools**>**Manual Control.**
35. ***Turn off*** *the hood nitrogen purging valve if it was opened.*
36. ***Open*** *the hood* ***ONLY*** *when it is cooled down to a* ***safe temperature.***

WARNING: *The* ***hood handle*** *might be* ***HOT*** *when the interior temperature is* ***HIGH, BE CAUTIOUS****.*

REMARKS: *It may take some time for it to cool down, please* ***BE PATIENT****.*

37. ***Remove*** *the sample from the bake plate.*

Shut Down

38. **Confirm** that the gas valves & vacuum are off**:**
    - Main nitrogen gas valve: **OFF**
    - Hood nitrogen valve: **OFF**
    - Vacuum pump: **OFF**
39. **Logout** from the bake plate by **admin>Log Out**.
40. **Turn OFF** the machine using the **right** button.
41. **Disable** the **CEE Apogee Bake Plate** on the **TNFC Access System**.