SparK Plasma Sintering System

Asset No: 510100000067/68/69
510100002569

Categorized: Research

Permission from: A/P Khor Khiam Aik

Remarks: Check with Dr Yu Ligen

**Standard Operating Procedures**

**Before Power on:**

1. Check the chamber if the window glass is broken;
2. Check the oil level in vacuum pump;
3. Check the cooling water system if there is any leaking.

**Power On**

1. Cooling Water → “ON”
2. Transformer → “ON”
3. Circuit Breaker → “ON”
4. Key → turn “ON”
5. Main → “ON”;  
6. Open Leak Valve and wait for the chamber to vent;

**Operating Procedure**

10. Adjust die to face pyrometer  
11. Increase load to 2 KN  
12. Leak Valve → “CLOSE’  
13. Vacuum pump -1 → “ON”  
14. Vacuum value → “OPEN”  
15. Wait for chamber pressure gauge < 50  
16. PIRANI gauge → “ON”  
17. Wait for pirani gauge < 1×104 Pa  
18. Vacuum PUMP -2 → “ON”  
19. Set the temperature profile  
20. Increase load to 2.5 KN  
21. Adjust pyrometer aim  
22. Wait for chamber pressure < 5 Pa  
23. Punch displacement → RESET

**Post-sintering Procedure:**  

1. Wait for sintering cycle to complete  
2. Sinter → “OFF”  
3. Wait for 30 minutes for the chamber to cool down;  
4. LOAD → 0;  
5. Z-axis control → “STOP”  
6. Vacuum valve → “CLOSE”  
7. Vacuum pump -2 → “OFF”  
8. Vacuum pump -1 → “OFF”  
9. PIRANI gauge → “OFF”  
10. Leak Valve → “OPEN”  
11. Open Chamber door and take out sample  
12. Close the Chamber door and leak valve  
13. Vacuumize the chamber before power turn “OFF”