

**TRION ORION PECVD CERTIFICATION CHECKLIST**

*How can a user hurt themselves? How can a user hurt the tool?*

A qualified user should be able to:

- Identify personal safety hazards associated with the tool and what precautions are taken to prevent an accident from occurring.
- Identify hazards to the tool and what precautions are taken to prevent an accident from occurring.
- Operate the tool safely and proficiently.
- Recover from simple errors.
- Demonstrate knowledge of the processes performed with the tool.

**Trion PECVD**

- **Personal Safety Hazards**
  - **Gases** – The system uses hazardous gases including silane (SiH<sub>4</sub>) and ammonia (NH<sub>3</sub>) as well as N<sub>2</sub>O, CF<sub>4</sub>, N<sub>2</sub> and O<sub>2</sub>. Read material safety sheets (SDS) and be familiar with hazards and safety controls to prevent an accident.
  - **Electrical** - This system uses high voltages and RF energy to process wafers. Only operate with all covers in place.
  - **Mechanical** – There are pinch points on the tool. Lid opens and closes automatically.
  - **Thermal** – The system runs at temperatures up to 400C. Use caution when unloading wafers.
- **Hazards to the Tool**
  - **Wafer size** - This tool is only intended for 6" wafers and 6" carriers. See the SMFL process engineer if you are using carriers.
  - **Recipes** – Do not edit any recipes without the approval of Process Engineering. Users may edit time only.
  - **Contamination** – Do not process wafers with gold, copper or photoresist on them. For other metals, check with staff.
  - **The Gas Reactor Column (GRC) Warm up** – The GRC must be at temperature to safely dispose of pyrophoric Silane. The GRC must remain on for 20 minutes after the completion of a run to allow the purge of the pumps and lines. Never operate the tool if there is any problem with the GRC. All processing must be completed by 4:30PM week days.
  - **Chamber Cleans** – A clean recipe is used to prevent buildup and flaking of material from the chamber lid and is critical to obtaining good process results. It is recommended that the clean be run after every 0.5um of deposition, whenever switching deposition materials and at the end of your process. Additionally a clean may be required before starting if it has been longer than 24 hours.
- **Operating Tool**
  - A qualified user should be able to:
    - Warm up the GRC
    - Enable the gas flows
    - Log on to the computer
    - Run a clean recipe
    - Load a wafer
    - Process a wafer

## ***R·I·T SEMICONDUCTOR AND MICROSYSTEMS FABRICATION LABORATORY***

- Reservations – If not present at stated start time, tool is reserved for 15 minutes and is then considered open for general use.
  
- **Simple Errors.**
  - n/a
  
- **Processes**
  - Certified users should be knowledgeable about the basics of PECVD
  
- **Appropriate Uses of the Tool**
  - This tool is only intended for 6” wafers and carriers.
  - Do not process wafers with gold or copper on them.