

Wet/Dry Oxidation Furnace Tube

Operating Procedures [LINK](#)



Process Description:

Silicon dioxide is used as an insulator in active devices and the region or field between the devices. There are various oxidation methods but thermal oxidation produces fewer defects in the bulk and at the silicon interface. At room temperature, silicon will oxidize at the wafer surface. When oxygen is introduced to silicon wafers at higher temperatures, the oxygen will diffuse through the oxide to allow the reaction at the silicon interface. One method is dry oxidation where pure oxygen is the oxidant. Another method is a mixture of O₂ and H₂O as the oxidant, which oxidizes the wafer at a much higher rate than dry oxidations.

Equipment Description:

The oxidation system is located in Tube 1 on the top of the Tystar furnace and can process 3, 4 and 6-inch wafers. The system uses a microprocessor sequencer to automatically control the in and out movement of the cantilever and the tube temperature and gas flow. Wafers are loaded on boats and transferred into the tube by a cantilever system. Various recipes have been developed to offer dry oxidations, wet oxidations or anneals.

Gases:

Hydrogen
Nitrogen
Oxygen