

UV Application for Microelectronics

Ultrapure water (UPW) is a vital product and resource to the microelectronics industry, whether for wafers, semiconductors, flat panels or mass storage devices. UV technology created able to perform three functions in producing pure water - microbial disinfection, TOC reduction, ozone destruction



i) TOC reduction

TOC is a primary objective of the microelectronics industry. TOC reduction is achieved by using a special 185 nm synthetic UV lamp and quartz sleeve to break down low molecular weight organics by dissociation of molecular bonds and the generation of aggressive hydroxyl radicals from water molecules that break-down organic compounds.

ii) Ozone destruction

Ozone often used for TOC reduction in combination with UV to enhance the advanced oxidation process. Ozone has also been used in UPW loops to protect storage tanks from microbial contamination. In either application, ozone must be removed from the UPW stream or it will cause equipment degradation and cannot come in contact with the wafers.

iii) **Microbial disinfection**

UV disinfection equipment provides microbial control to the UPW system by utilizing our 254 nm lamp technology. Some typical locations of installation would be post-carbon filter and pre-RO. When installed downstream of the carbon bed and/or directly upstream of the RO unit, a UV system can significantly reduce the microbial counts by destroying at least 99.9% of the bacteria present in the influent stream. Disinfection is also recommended for the process distribution loop and pre storage tank.

UV Advantage for Microelectronics

- Instantaneous mechanism (takes only a few seconds)
- No Byproducts
- No Chemicals or Associated Hazards
- Does not alter the colour, odour, taste or pH products
- Environmentally-responsible Technology
- Proven – Trusted
- Lowest cost strategy
- Broad spectrum protection
- Reliable, Trouble-free Bio-security