

Panel #1: The LTEM & Substrates

Infrastructure

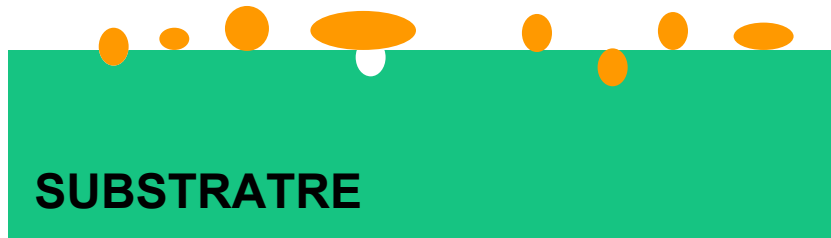
Substrates - Infrastructure

Understanding True Defect Origin along with Proper Defect Classification & Tracking

Before Cleaning:

7 soft defects detected

0 pits



After Cleaning:

0 soft defects (8 defects removed)

3 pits



Did Cleaning Actually Create the Pits?

based on work done by SEMATECH MBDC Cleaning Core Team (Rastegar, Eichenlaub, Ikuta, Popp, Gonscher, and Marmillion) Published at the SEMATECH Mask Cleaning Workshop, 2005.

Substrates - Infrastructure

Cleaning Effects*

- **Cleaning has negligible effect on surface roughness
0.004 Å per cleaning cycle**
- **Cleaning of substrates with sub 100 nm pits has no effect on pit size**

* = work done by SEMATECH MBDC Cleaning Core Team (Rastegar, Eichenlaub, Ikuta, Popp, Gonscher, and Marmillion) Published at the SEMATECH Mask Cleaning Workshop, 2005.

Substrates - Infrastructure

RSP/MRP Concerns

- **Vibration**
- **Dyes**
- **Gaskets**
- **Cleaning procedures**