Particle Depositions

TSW offers a particle deposition service on wafers, reticules, glass, pellicles, disks and other surfaces where it is important to establish the sensitivity of surface defect scanning instruments. The particles are polystyrene latex spheres (often called “PSL’s”) and come in NIST Traceable diameters. Particle diameters vary from a minimum of about 30 nm to a maximum of about 100 ?m.

Our “small particle depositions” are made at a California facility on an AcuDep300 and consist of sizes up to about 3 ?m. The system uses a differential mobility analyzer (or “DMA”) to produce a diameter distribution that can be considerably narrower than the particle source and gives an accurately known peak size.

The AcuDep300 is the only particle deposition system proved to be fully compatible with SEMI Standards, M50, M52, M53 and M58. Small particle depositions can be made as either “full depositions” covering the entire substrate surface or as “spot depositions” where particles are deposited in a small circular area about 25 mm across.

Full depositions are useful for testing scanner sensitivity across the substrate. Several spot depositions can be made on the same surface which allows a scanner calibration curve to be generated from scanner measurements of just one substrate.

Although the particle diameter is well controlled, typically to just a few percent, particle count is good to only about 20%. Small particle depositions are always made on the substrate surface.

Our “large particle depositions” are manufactured in Arizona. Diameters start at about 1 ?m in diameter and range up to 100 ?m. Large particle depositions are made using different equipment and the depositions take on diameter distribution and peak diameter of the particle source. Although the spots are less precise spot (or at least area) depositions can be made. Of more recent interest is the ability to make large particle depositions on the wafer edges (top and bottom bevels as well as the apex).

Use the Contact link to place an order or discuss requirements.