International Test Solutions

Probe Scrub™ HT

Product Bulletin

Probe Scrub™ HT on Silicon Wafer

Probe Scrub™ HT is designed to remove embedded and bonded debris from probe tips and collect any loose debris from flat tip probes generated during probing. The material provides excellent results during room temperature probing operations and at elevated temperature conditions ("hot chuck") up to 125°C.

GENERAL

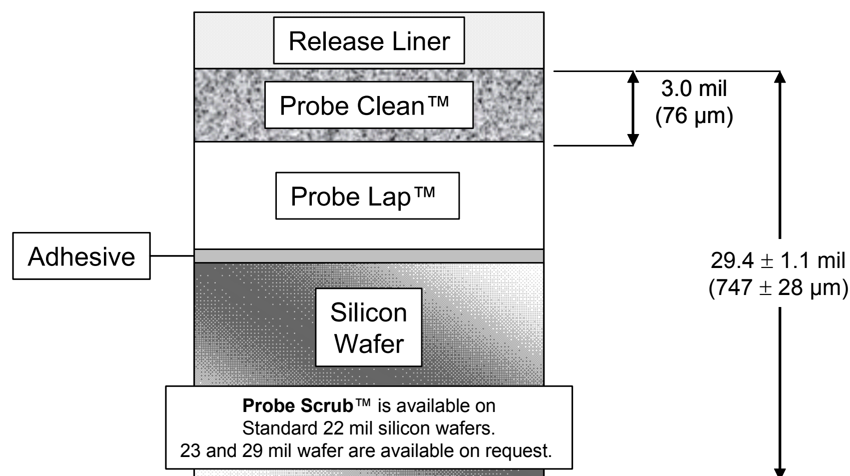
Probe Scrub™ HT should be used once the flat tip probes fail contact resistance due to the build-up of embedded or bonded debris. Probe card cleaning frequency and number of cleaning insertions varies according to the specific testing environment. The number of touchdowns per cleaning cycle is generally 10 touchdowns while indexing to a new location between each cleaning insertion.

The cleaning motion with **Probe Scrub™ HT** is only in the Z direction. No lateral forces are applied to the probes. The forces exerted on the probe when cleaning with **Probe Scrub™ HT** are less than the forces as during normal testing operations. The **Probe Scrub™ HT** polymer layer also collects and traps the debris generated during cleaning. This is very beneficial when removing embedded debris, such as lead and tin-lead solder, which is classified as an environmental hazard, or when cleaning beryllium-copper probes.

The abrasive polyester layer, or **Probe Lap™**, can have 1 or 3-micron grit particle sizes. The precision **Probe Lap™** films have tightly controlled height and surface morphology characteristics that are specifically designed for probe contact surface cleaning applications.

Reuse of the cleaning pad will cause the trapped debris to be pushed deeper into the polymer. This allows reuse of the same location several times. Visually check the pad from time to time to ensure that it does not become overloaded with debris, which might cause probe damage or alignment change. To achieve maximum cleaning efficiency offset each touchdown location approximately 2 times the probe diameter in the X and Y directions, giving consideration to the probe array size and orientation.

CROSS SECTION



***Probe Scrub™** is a registered trademark of International Test Solutions.*

International Test Solutions
1475 Terminal Way
Reno, NV 89523 USA
http://www.inttest.net
sales@inttest.net
Tel: 775-284-9220
Fax: 775-284-9227

RECOMMENDED USAGE ON A PROBER

1. Remove cleaning wafer from wafer case.
2. If the cleaning wafer has a protective cover, remove the protective cover by touching the edge of the protective cover with a piece of tape and gently peel the cover back across the cleaning wafer.

   CAUTION: IF THERE IS NO LABEL ON THE WAFER THEN THERE IS NO PROTECTIVE COVER THAT NEEDS TO BE REMOVED.

   USE EXTRA CARE NOT TO TOUCH THE WORKING SURFACE WITH THE SCOTCH TAPE AS IT MAY REMOVE THE PROBE SCRUB™ FROM THE WAFER SURFACE.
3. Install cleaning wafer in prober cleaning tray.
4. Modify the cleaning utility program to overdrive into the abrasive polymer 100 to 150 µm (~ 4 to 6 mil). This allows for penetration through the polymer and a scrub action on the abrasive surface.
   a. Set the surface height of the polymer as the "new cleaning height" for the abrasion plate (polymer is non-conductive). The calibration procedure is defined for each prober equipment manufacturer. Please reference the proper calibration procedure to set the new height of the abrasion plate or cleaning unit "with the polymer added". This procedure may be referenced in "maintenance" documents for your specific system and may require additional tooling such as a micrometer to complete the procedure. Failure to perform this calibration procedure will result in excessive overdrive into the polymer causing damage to the cleaning material or possible damage to the probes. Do not proceed beyond this point without first performing the cleaning unit calibration.
   b. Set the overdrive equal to 100 to 150 µm (~ 4 to 6 mil), depending on probe style.
5. The cleaning recipe must move over the entire surface area, ensuring that the probe array remains within the **Probe Scrub™ HT** surface area.
   a. **International Test Solutions** recommends starting with 10 cleaning touchdowns at a new location for each cleaning. Probe card cleaning frequency and number of cleaning insertions varies according to the specific testing environment. Offset the touchdown point by 2X the probe diameter in the "+Y" direction and 2X the probe diameter in the "+X" direction each touchdown. For example, 25 µm (1 mil) probe diameter is offset 50 µm (2 mil) in the "X" direction and 50 (2 mil) µm in the "Y" direction.
   b. By continuing the offset each time the prober cleans the probe card, a pattern can be developed to fully utilize the entire cleaning surface.
   c. The cleaning pattern may be repeated several times over the area that has been previously used. The polymer material does not breakdown easily if it is reused in a given area but consideration needs to be given to the amount and type of debris deposited on the abrasive polymer.

Contact **International Test Solutions** at 775-284-9220, or via email at tech_support@inttest.net, to discuss your specific probe card cleaning application and requirements.

***Probe Scrub™** is a registered trademark of International Test Solutions.*