

## Probe Clean™ on a Prober Abrasion Plate

**Probe Clean™** is designed to remove loose debris, which is generated during probing. It is not designed to remove embedded or bonded debris. The removal of embedded or bonded debris requires products such as **Probe Scrub™** or **Probe Polish™**.

### GENERAL

Regular use of **Probe Clean™** in the prober during wafer level test extends the time between when abrasive cleaning may be required. The amount of debris generated during testing will determine the number of touchdowns between the uses of **Probe Clean™** for your specific application. **International Test Solutions** recommends that you start with 250 testing touchdowns followed by 10 insertions into the **Probe Clean™**. Probe card cleaning frequency and number of cleaning insertions varies according to the specific testing environment. The temperature range for the product is -35° C to 135° C. Other configurations are available for temperature ranges of -50° C to 200° C.

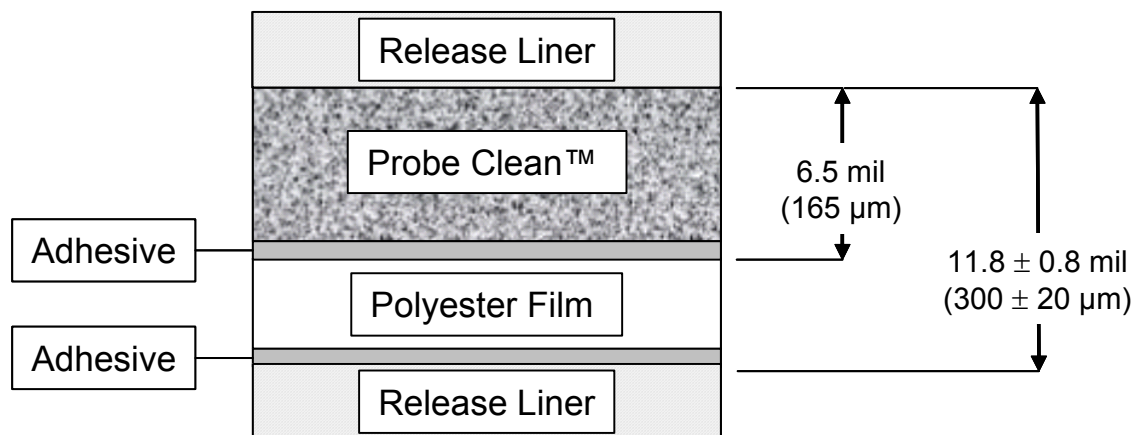
**Probe Clean™** is designed for application to the abrasion plate of a wafer prober. The **Probe Clean™** polymer is installed on a polyester substrate with an adhesive backing. The maximum depth of penetration into the cleaning polymer is 5 mils (~125 µm). No lateral forces are applied to the probes. The forces exerted on the probe when cleaning with **Probe Clean™** are less than the forces as during normal testing operations.

The **Probe Clean™** polymer layer collects and traps the debris generated during cleaning. 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. 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 Clean™

Nominal Stack Height = 11.8 ± 0.8 mil (300 ± 20 µm)



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

### International Test Solutions

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## RECOMMENDED SETUP

1. Install the **Probe Clean™** on the abrasion plate.
  - a. Remove back protective cover to expose adhesive.
  - b. Place the **Probe Clean™** on abrasion plate starting at one edge and press it into place to exclude all air pockets that may get trapped between the two surfaces. Ensure the top surface is flat and smooth.
  - c. Use a piece of transparent tape to touch the edge of the protective cover. Peel the front protective cover from the sample. Take care not to lift the **Probe Clean™** material from the contact surface of the abrasion plate.

**USE EXTRA CARE NOT TO TOUCH THE WORKING SURFACE WITH THE SCOTCH TAPE AS IT MAY REMOVE THE PROBE CLEAN™ FROM THE POLYESTER SUBSTRATE.**
  - d. Store the protective cover for later installation on the sample, if required.
2. Calibrate the prober cleaning unit height and modify the cleaning utility program to overdrive into the non-abrasive polymer 100 to 125 µm (~4 to 5 mil).
  - 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 125 µm (~4 to 5 mils), depending on probe style.
3. The cleaning recipe must move over the entire surface area, ensuring that the probe array remains within the **Probe Clean™** 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 [techsupport@inttest.net](mailto:techsupport@inttest.net), to discuss your specific probe card cleaning application and requirements.

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