

Recommended Procedures for using Probe Scrub™ (PN 134-210) Cleaning Materials

Probe Scrub™ (PN 134-210) is a multilayered cleaning material designed for use with Cascade Microtech Probers. The material cross-section consists of a polymer film designed to collect loose debris installed over a lapping film designed to remove embedded and bonded debris, or “weld nuggets”, from contact surface of a flat probe tip. The material can be used to clean probe tips on-line at cold (-35°C), room, and at elevated temperatures up to 125°C.

GENERAL

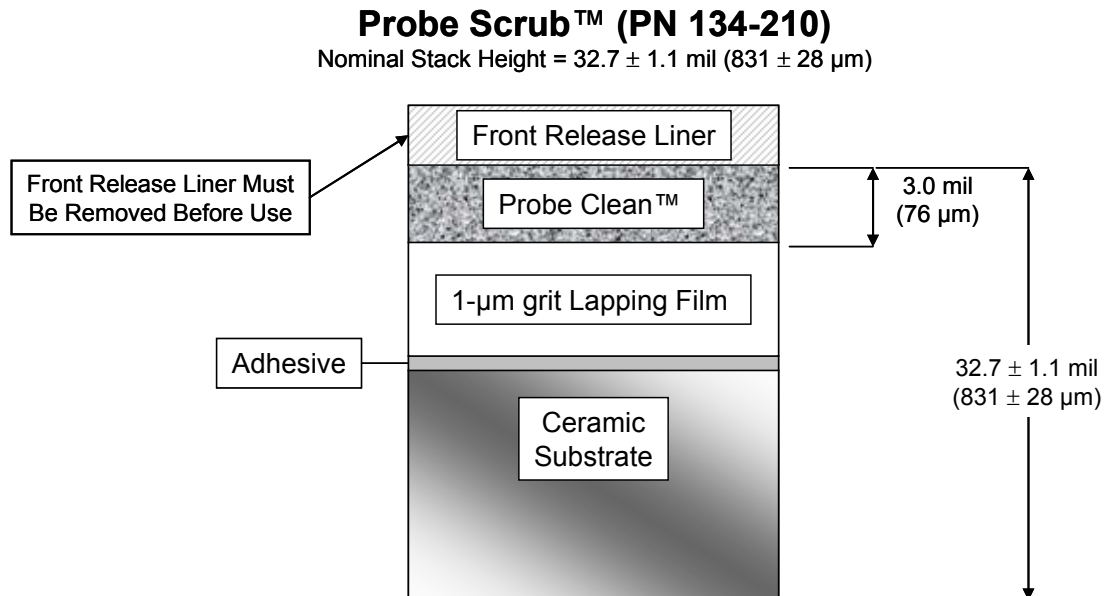
Probe Scrub™ should be used once the build-up of contaminants and bonded debris results in increased contact resistance and poor measurement repeatability. Probe card cleaning frequency and number of cleaning insertions varies according to the specific testing environment. The number of touchdowns per cleaning cycle is generally 10 touchdowns while indexing to a new location between each cleaning insertion.

The forces exerted on the probe when cleaning with **Probe Scrub™** typically do not exceed

those experienced during normal test operations. The polymer layer (**Probe Clean™**) collects and traps the debris generated during probing, such as lead and tin-lead solder, which are classified as an environmental hazards, or when cleaning beryllium-copper probes. The precision lapping film layer (violet colored) has a 1-um grit particle size with tightly controlled height as well as surface morphology characteristics designed specifically for probe contact surface cleaning applications.

Reuse of the cleaning polymer may cause the trapped debris to be pushed deeper into the film. It is important to inspect the polymer surface from time to time to ensure that it does not become overloaded with debris. Multiple insertions into of the same location are possible; however, the cleaning efficiency of the material may be reduced. To achieve maximum cleaning efficiency, each cleaning insertion should be offset approximately 2 times the probe diameter in the X and Y directions, giving consideration to the probe layout, tip size, and overall orientation.

CROSS SECTION



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Application Note



RECOMMENDED USAGE

CAUTION: Latex gloves are recommended for handling the cleaning materials to prevent working surface contamination from fingerprints and exposure to unapproved materials.

1. Place the cleaning substrate ceramic side down onto one of the auxiliary chucks.
2. Turn on the appropriate auxiliary chuck vacuum.
3. Carefully remove the protective front release liner to expose the cleaning polymer surface without damaging the edges. The cover can be re-installed back onto the cleaning surface.
 - a. Tweezer method – lift a corner of the front release liner, gently peel it from the polymer working surface to expose the polymer surface.
 - b. Transparent tape (3M Brand Scotch Tape) method – touch the edge of the front release liner and gently peel the cover off to expose the polymer surface.
4. Overdrive the probe needle into the cleaning material at least 75 μm (~ 3 mils) to penetrate the polymer layer. Additional overtravel may be needed to scrub the tip on the abrasive surface.
 - a. Cleaning overtravel, probe cleaning frequency and number of cleaning insertions varies according to the specific testing environment.
5. As a start, perform 10 insertions at a new location for each cleaning cycle. Offset the touchdown point by 2X the probe diameter in the “+Y” direction and 2X the probe diameter in the “+X” direction each touchdown.
 - a. Increase the number of insertions and/or the overtravel until the probe tip has been cleaned and is debris free. DO NOT excessively overtravel onto the lapping film.

POLYMER MAINTENANCE PRACTICES

1. On regular basis perform a careful visual inspection (while wearing latex gloves) of the polymer working surface for any debris, defects, and damage such as tears, lifted edges, bubbles, shredded material, or significant surface discontinuities. If excessive damage is observed, the cleaning material should be discarded and replaced.
2. Loose debris (such as dust or other air-borne particulates) can be cleaned from the polymer surface by gently flooding the polymer surface with IPA. With a folded lint free clean-room cloth carefully and gently wipe the IPA across the surface in one direction to avoid redistributing debris. Air-dry the polymer for at least 1 to 2 hours (24-hours, if possible) to volatilize any residual IPA.
3. More tenacious and slightly embedded contaminants (such as aluminum “tails” and solder residuals) can be removed using a very light natural fiber (i.e., sable, yak, etc.) brush.

CONTACT INFORMATION

For questions regarding the prober operation, contact your local **Cascade Microtech** customer support representative. For questions regarding the cleaning material, contact **International Test Solutions** applications engineering.

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