

Pyramid Probes: Off-line Core Cleaning With a Brush


Quick Reference Guide

To protect your investment, prevent probing errors and avoid device damage, follow the procedures described in this guide for the off-line cleaning of your Pyramid Probe core. This guide provides a comprehensive overview of the required materials, as well as a detailed description of the four-step cleaning process. To ensure the best results, follow all the directions thoroughly.

Required Materials

Brush	<ul style="list-style-type: none">• Supplied brush from Cascade Microtech.
Solvent	<ul style="list-style-type: none">• Isopropyl alcohol (2-propanol) CMOS grade, 99.5%• Methanol CMOS grade
Equipment	<ul style="list-style-type: none">• CDA (clean, dry air) or N2 (nitrogen) nozzle regulated to 40 psi maximum (2.75 bars or 275 kPa)• Low-power, stereo-zoom microscope• Ring lighting works best• 10x to 50x zoom range• Clean-room gloves

Pyramid Probe Cleaning Brush

Approved brush	<ul style="list-style-type: none">• When cleaning a Pyramid Probe card, only use the brush labeled “Cascade Microtech, Inc.”• Any brush without Cascade Microtech, Inc. label on handle is NOT approved. 
Brush care	<ul style="list-style-type: none">• The brush should only be used on Pyramid Probe cards.• Contaminates from a brush used on another type of probe card can damage the Pyramid Probe.• When not in use, store the brush in the provided vinyl package.
Replace the brush if:	<ul style="list-style-type: none">• It is accidentally used on any other type of card.• It shows signs of wear (bristles change color or fall out).• It is dropped on floor.• It deposits particles rather than removes them.

Membrane-Cleaning Solvent

- Use only isopropyl alcohol (2-propanol) CMOS grade, 99.5% (IPA) or methanol CMOS grade when cleaning Pyramid Probes.
- Use only methanol when cleaning low leakage Pyramid Probes.
- Use IPA and methanol out of a squeeze bottle, NOT out of a reservoir.



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Safety Guidelines

- Wearing gloves is recommended when handling Pyramid Probe cards.
- Avoid touching the probe face or probe tips with the metal ferrule or handle of the brush.
- Never clean the sides (wings) of the core. Only clean the probe face.
- Use a maximum of 40 psi (275 kPa) air-nozzle pressure on Pyramid Probe cores.
- Before any type of cleaning, always inspect the Pyramid Probe core placed on a flat surface, wafer-side up, under the microscope.

Four-Step Cleaning Process

1. Inspect the core using a microscope.
2. Ensure that the brush is clean to avoid causing damage or adding particles to the membrane.
3. Moisten or loosen any particles or residue on the probe face, then remove the particles or residue with strokes of the cleaning brush.
4. Blow the remaining IPA or methanol (containing particles/residue) away from the probe face.

Step 1: Inspecting the Core

Inspect the core under the microscope for any damage and/or loose particles.

- If loose particles are found, hold an acceptable air nozzle vertical to the probe face, three inches (75 mm) from the core (see [Figure 4](#)). Activate the air stream before approaching the core with the air nozzle, as the nozzle will tend to move forward even at low pressure. Continue to [Step 2: Preparing the Cleaning Brush](#).
- If no loose particles are found, go directly to [Step 2: Preparing the Cleaning Brush](#).

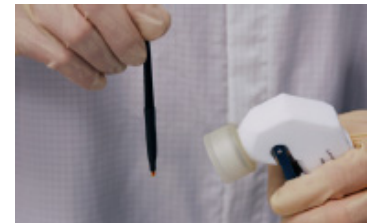


Figure 1

Step 2: Preparing the Cleaning Brush

Complete the following steps to ensure that the brush is clean and you are not adding particles to the membrane or causing damage:

1. Aiming the air nozzle away from the microscope and work area, blow out any debris in the brush head (see [Figure 1](#)).
2. Use a squeeze bottle of IPA or methanol to wet the brush (see [Figure 2](#)), and then blow out the brush head again (see [Figure 1](#)).



Figure 2

Step 3: Cleaning With Brush

Complete the following steps to moisten or loosen any particles or residue on the probe face. Then remove the particles or residue with strokes of the cleaning brush.

1. Use a squeeze bottle of IPA or methanol to re-wet the brush.
2. Hold the brush vertical to the probe face (see [Figure 3](#)).
3. Starting from either the left or right side of the probe face (see [Figure 3](#)), use a circular motion to clean across the probe face and back again. Use enough force to feel the probe tips. If the brush tip begins to dry, apply more IPA or methanol. Do not allow the brush to dry out.
4. Clean the brush again, according to the steps described in [Step 2: Preparing the Cleaning Brush](#).
5. Re-wet the brush and use smooth brushstrokes to wipe the probe face from edge to edge. DO NOT use a back and forth motion.
6. Repeat from top to bottom to remove particles from entire probe face.

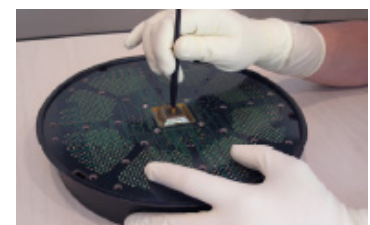


Figure 3

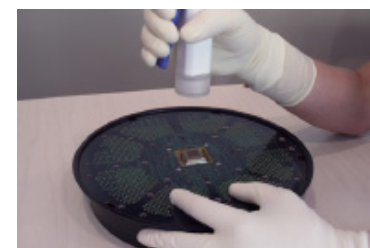


Figure 4



CAUTION

Do not allow the alcohol to dry between steps 3 and 4.

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Step 4: Blow Away Particles and Solvent

Complete the following steps to blow the remaining IPA or methanol containing particles/residue away from the probe face.

1. Hold an acceptable air nozzle vertical to the probe face, three inches (75 mm) from the core (see [Figure 4](#)). Activate the air stream before approaching the core with the air nozzle, as the nozzle will tend to move forward even at low pressure.
2. Continue blowing air on the probe face until it is visibly dry, approximately 30-60 seconds.
3. Return to [Step 1: Inspecting the Core](#), and repeat steps 2, 3 and 4 until all particles have been removed.

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