Gel-PROBE™
REFINE
Probe Polishing Sheet

TECHNICAL DATASHEET

MATERIAL AND USAGE OVERVIEW

Gel-Pak® Gel-Probe REFINE™ polishing sheets consist of a proprietary Gel elastomer material that is uniformly blended with abrasive particles and backed with a polyimide carrier film for easy installation. Gel-Probe REFINE™ polishing materials are designed for flat, rounded, and radius cantilevered probe tips; vertical probe cards with flat, pointed, and wedge style probes; and advanced probe card technologies. The Gel-Probe REFINE polishing sheets are intended for use in both offline and on-line probe polishing applications.

Gel-Probe REFINE™ polishing material efficiently removes embedded and bonded debris from probe tips, captures adherent loose particles that are created during the probing process, and lightly polishes the entire probe surface, tip length, and shaft in a non-destructive manner.
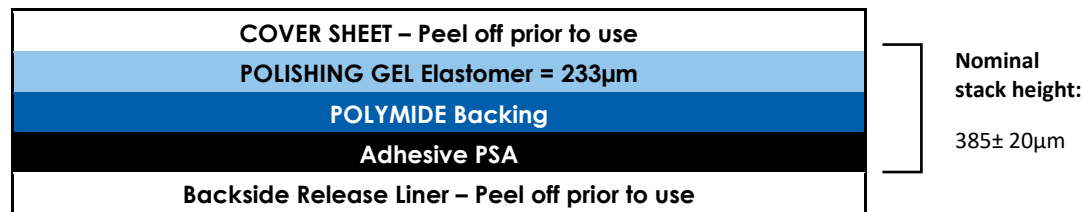
The polishing Gel elastomer only exerts forces on the probes in the Z (vertical) direction and the force is less than that imparted during normal test conditions. No lateral force is applied to the probe tips.

PRODUCT FEATURES

PRODUCT	ABRASIVE LOADING	NOMINAL STACK HEIGHT	OPERATING TEMP
Gel-Probe REFINE L3	Low Load (~70%) 3µm SiC	385 ± 20µm	-60˚C to +200˚C
Gel-Probe REFINE M3	Medium Load (~99%) 3µm SiC	385 ± 20µm	-60˚C to +200˚C
Gel-Probe REFINE H3	High Load (~150%) 3µm SiC	385 ± 20µm	-60˚C to +200˚C
Gel-Probe REFINE U3	Ultra-High Load (~300%) 3µm SiC	385 ± 20µm	-60˚C to +200˚C

- Polishing Sheet
- Non-conductive, non-corrosive
- Does not transfer residue to probes or bond pad

POLISHING SHEET CROSS SECTION

COVER SHEET – Peel off prior to use
POLISHING GEL Elastomer = 233µm
POLYMIDE Backing
Adhesive PSA
Backside Release Liner – Peel off prior to use

Nominal stack height:

385± 20µm

*Graphic not to scale

INSTALLATION

1. Remove the adhesive release liner, align, and carefully apply the polishing sheet onto the cleaning unit, auxiliary plate, or cleaning plate, as appropriate.
   Important - Do not remove the protective coversheet from the polishing surface until the sheet has been fully installed.

2. Once the sheet has been installed, use the small corner tab on the coversheet to carefully peel back and remove the coversheet to expose the polishing surface.

3. The installed working thickness of a Gel-Probe REFINE™ polishing sheet is provided on the product label. *Failure to properly define the cleaning contact height for the prober may result in excessive penetration of the elastomer causing damage to the polishing material and/or probes.*

4. Adjust the cleaning parameters to set the cleaning overtravel for probing overtravel +25μm into the elastomer. The polishing elastomer is a highly compliant material and the cleaning overtravel can exceed the probing overtravel; however, confirm with the probe card supplier regarding the allowable overtravel limits.

CLEANING RECIPE GUIDANCE

Cleaning recipe optimization is typically performed based on the individual customer test requirements. Gel-Pak can provide a starting point for the cleaning recipe development.

CLEANING RECIPE PARAMETER	STARTING RECOMMENDATION FOR ALUMINUM PADS
Cleaning Frequency	• T < 25°C: 150 to 250 die touchdowns • T = 25°C: 250 to 500 die touchdowns • T > 25°C: 150 to 250 die touchdowns *Number of cleaning touchdowns is adjusted based on the debris accumulation and electrical requirements.*
Cleaning Insertions per Cycle	• T < 25°C: 25 to 50 clean insertions • T = 25°C: 10 to 25 clean insertions • T > 25°C: 25 to 50 clean insertions *Number of cleaning insertions per cycle is typically increased until the probe tip is clean and free of adherent debris.*
Cleaning Index	Index between insertions by approximately 1.25 to 2.25X the probe diameter in both the X and Y directions. *Cleaning surface should be frequently inspected during regular usage.*
Utilization	*The Gel elastomer does not break down easily when repeatedly used in the same location; however, the probe type, and amount of debris generated will affect the total number of cleaning rotations before the cleaning performance is affected.*