

Maximizing 3M Optical Tape Performance

- 3M™ Surface Saver™ Plus Tape
- 3M™ LEAP™ III Finish Blocking Pads



3M™ Surface Saver™ Plus Tape

PROBLEM	POSSIBLE CAUSE														
Edge Lift	<ul style="list-style-type: none"> • Tape is overstretched — Surface Saver Plus tape is designed to conform to the lens surface: overstretching or incomplete contact with lens surface may result in edge lift. • Applicator piston not fully extended, not applying enough pressure on lens against tape. • Applicator vacuum not adequate. • Lenses come from the manufacturer with excess plastic ridge on front surface edge. 														
Tape Doesn't Stick To Lens	<ul style="list-style-type: none"> • Some anti-reflective coatings have “non-stick” top coatings designed to resist adhesion. These coatings can impair adhesion of tape to lens. 														
Lens Falls Off During Processing	<ul style="list-style-type: none"> • Tape selection doesn't match lab processing conditions — Surface Saver Plus tape is sold in 2 deblock levels: High and medium bond to alloy. <p>TAPE SELECTION GUIDE</p> <table border="1" data-bbox="630 745 1539 1024"> <thead> <tr> <th data-bbox="630 745 876 823" rowspan="2">PROCESSING VARIABLES</th> <th colspan="2" data-bbox="876 745 1539 783">ALLOY ADHESION</th> </tr> <tr> <th data-bbox="876 783 1214 823">HIGH</th> <th data-bbox="1214 783 1539 823">MEDIUM</th> </tr> </thead> <tbody> <tr> <td data-bbox="630 823 876 873">3M TAPE</td> <td data-bbox="876 823 1214 873">1640</td> <td data-bbox="1214 823 1539 873">1641</td> </tr> <tr> <td data-bbox="630 873 876 924">GENERATOR TYPE</td> <td data-bbox="876 873 1214 924">high speed</td> <td data-bbox="1214 873 1539 924">Conventional</td> </tr> <tr> <td data-bbox="630 924 876 1024">LENS TYPE</td> <td data-bbox="876 924 1214 1024">All; particularly polycarbonate, high index</td> <td data-bbox="1214 924 1539 1024">All; particularly glass</td> </tr> </tbody> </table> <p>*For Non-Alloy Wax Blocking, use the 3M Clear Protective Tape #1663 to protect lenses against wax contamination, dirt, scratches and damage.</p>	PROCESSING VARIABLES	ALLOY ADHESION		HIGH	MEDIUM	3M TAPE	1640	1641	GENERATOR TYPE	high speed	Conventional	LENS TYPE	All; particularly polycarbonate, high index	All; particularly glass
PROCESSING VARIABLES	ALLOY ADHESION														
	HIGH	MEDIUM													
3M TAPE	1640	1641													
GENERATOR TYPE	high speed	Conventional													
LENS TYPE	All; particularly polycarbonate, high index	All; particularly glass													
Too Hard To Deblock	<ul style="list-style-type: none"> • Tape selection doesn't match lab processing conditions — Surface Saver Plus tape is sold in 2 deblock levels: High and medium bond. • See Tape Selection Guide above. 														
Adhesive Residue Spotty	<ul style="list-style-type: none"> • Tape removal technique: Start-and-stop removal technique can initiate residue. 														
Adhesive Residue 100%	<ul style="list-style-type: none"> • Water bath temperature too high. • Adhesive not fully bonded to backing. 														

& Troubleshooting

SOLUTION

- Release tension on back reel of tape applicator.
- Remove tape from roll slowly with both hands.
- Allow tape to relax before applying vacuum.
- Allow tape to make complete contact with lens surface.
- Check applicator vacuum filter for build-up — clean or replace.
- Apply finger pressure around inside of the ridge.

- **Adhesion to lens will vary depending on chemistry of lens coatings.** Adjust processing and handling conditions accordingly.
- Re-press edges prior to blocking, if needed, especially on high base lenses.

- **Change to a stronger bonding tape** — if already using 1640, consider the following:
 - After blocking, allow alloy to completely cool before processing.
 - A faster alloy fill rate increases adhesion between tape and alloy.
 - Increasing alloy temperature will increase the adhesion between tape and alloy.
 - Use larger blocks to increase bonding surface area.
 - Decrease stock removal and rate to reduce generating forces.
 - Change worn out or dull cutting tools.
 - Decrease polish time and pressure.
 - Chill polishing slurry to reduce heat transfer.
- **Contamination can prevent alloy from bonding securely to tape.**
 - The front surface of Surface Saver Plus tape is coated with a special formulation designed to securely bond the alloy to the tape. Contamination of this surface can interfere with the bonding process.
 - Avoid touching the front surface of tape or lens.
 - Keep contaminants such as oils, grease and other materials commonly used during the blocking or tape application process away from the surface of the lens and tape.

- **Change to a lower bonding tape** — if already using 1641, consider the following FOR IMPACT DEBLOCKING:
 - Deblock on a hard striking surface.
 - Use a deblock ring made of stiff material — nylon or metal.
 - Use a shorter ring height.
 - Use hot water deblocking — you may only need to warm the block, not actually melt it.
 - Use stub blade to insert between block and tape at one edge. Follow with a slight twist action. Especially useful on knife-edge lenses.
 - Reduce alloy blocking temperature.

- **Peel tape from lens using a smooth and steady force, fast enough so the tape does not over stretch.**

- **If using hot water deblock method, make sure water temperature is not too hot**
 - Too hot a water bath could cause adhesive to separate from backing.
 - Allow lens to cool a few minutes after removing from water bath before removing tape.
- Remove residue from lens with an organic solvent that is compatible with acrylate adhesives, such as acetone. Before using the solvent, check with lens manufacturer to ensure solvent will not harm lens material or coatings. Note: Acetone is a hazardous material and should be used with caution in a well ventilated area.

3M Health Care Helpline
1-800-228-3957



Tips, Techniques & Troubleshooting

3M™ LEAP™ III Finish Blocking Pads

PROBLEM	POSSIBLE CAUSE	SOLUTION
Pad Doesn't Stick To Block	• Contamination	• Make sure blocks are clean, dry and free of contamination before applying edging pad to block. • Keep blocks free of adhesive, polish and coolant buildup. Check with block manufacturer for recommended cleaning method.
	• Poor adhesion	• Initiate adhesion of pad to block by pressing pad onto blocking surface. • Replace blocks that have been contaminated, damaged or severely worn on the concave work surface.
Pad Doesn't Stick To Lens	• Incomplete application of pad to lens	• Make sure pad <u>wets out</u> completely as it contacts lens surface. • Lens and block radius curve should be matched closely.
	• Some anti-reflective coatings have "Non-Stick" top coatings designed to resist adhesion	• Adhesion to lens will vary depending on chemistry of lens coatings; adjust processing and handling conditions accordingly. • Use 3M™ Blue Chip between lens and LEAP Pad.
Liner Is Hard To Remove Or Tearing	• Liner not being pulled off at tab	• LEAP Pads are designed to be pulled off with the tab. Make sure liner or pad is pulled off at the tab as other removal techniques could result in tearing.
Lens Twists And Slips During Edging	• Incomplete application of pad to lens	• Make sure entire surface of edging pad is in complete contact with lens and block prior to edging. • Make sure pad <u>wets out</u> completely as it contacts lens surface. • Lens and block radius curve should be matched closely.
	• Edging equipment settings and maintenance	• Excess head pressure can cause lens slippage. • Right ram pressure should be greater than 80 psi; slippage can occur when the ram pressure is less than 80 psi. • Alignment of the left spindle should be routinely performed. This can easily be accomplished by using a new chuck and a new felt pad. Proceed according to your specific edger. • Blocks must fit snugly in the blocker. Use a new block to determine whether undesirable movement exists. • The chuck and block union must also be free of excess vertical or horizontal movement. If the fit is not tight, install a new chuck or replace blocks.
	• Some anti-reflective coatings have "Non-Stick" top coatings designed to resist adhesion	• Adhesion to lens will vary depending on chemistry of lens coatings; adjust processing and handling conditions accordingly. NOTE: Always follow lens/coating manufacturers' recommended processing conditions.
Adhesive Residue On Lens	• Poor bond between foam and adhesive	• Remove residue gently with a solvent that will not harm lens materials or coating. • Contact edging pad supplier to report problem.
Crazing Of Anti-Reflective Lenses During Edging (crazing visible under high intensity lighting)	• Flexing or stressing during the edging or deblock process	• Make sure lenses are not exposed to over flexing or stressing during the edging and deblocking process.
	• Lens is too thin	• Thin lenses are more susceptible to crazing and stressing; adjust processing and handling conditions accordingly.
Vertical Lens Crazing	• Flexing during edging or deblocking	• Reduce cutting speed and deblock using twist off method.
Circular Lens Crazing	• Stressing during edging or deblocking	• Reduce ram pressures on edging equipment.



Medical Specialties

3M Center, Building 275-5W-05
St. Paul, MN 55144-1000
USA
1 800 228-3957
www.3M.com/medicalspecialties

3M Canada

Post Office Box 5757
London, Ontario N6A 4T1
Canada
1 800 265-1840



Minimum 10%
Post-consumer Fiber

3M, LEAP and Surface Saver are trademarks of 3M.

Printed in U.S.A.
© 3M 2004, 2006 All Rights Reserved
70-2009-6317-4