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Technical Services Department

Technical Tip

Polycarbonate Bicentric Grinding (Slab-Off)

LENS COMPUTATION

Lens calculation should include configuration of the Slab- Off option. Typically, no specific data is required for computing beyond normal prescription processing. Printout data should include two sets of generating prism instructions: one set directing typical processing, and one set for slab prism. Finished lens may result in added thickness, due to base up prism in the slab- off. Blank geometric center (on-center) blocking is preferred.

LAYOUT

After typical layout procedures, include a horizontal line at the segment top/ desired slab location for control of slab line placement and axis. Remember to mark both the typical prism axis and slab axis in a method for operator differentiation.

FIRST SURFACING

It is recommended to first grind slab-off prism, coupled with prism for decentration and Rx prism. Any distortion due to poured slab material will be confined to lower portion of lens which most will be edged away. Typical technique should be followed. Assure correct prism parameters. Retain the surfacing lap for the second surfacing- you MUST use the same lap for accurate results.
DO NOT De-block: clean polish from blocked lens, dry, and prepare epoxy.

EPOXY VARIETIES

Epoxy varieties will provide different results. A five- minute epoxy cures extremely fast but creates damaging heat and typically a softer surface, where a 24- hour cure provides little to no heat and a hard surface. Control of the slab line is simplified with the harder cured epoxy. Most manufactured varieties tested provide excellent results when following manufacturer recommendations. Application of a “buffer” to lens surface, such as water- soluble hair spray, prior to pouring epoxy will simplify removal, cleanup, and shield thermal and chemical damage to lens surface.

EPOXY MIXING PROCEDURES

Prepare the lens surface by applying a protective “buffer” over the clean lens surface. It is important that the protective coating is water based, assuring no damage to lens substrate. After several applied coats have dried, a tape border may be wrapped along blank edge. When mixing epoxy, assure proper quantities of both solutions as directed by manufacturer. Typical amount required will be near 25 milliliters - less epoxy reduces ease of removal. Mix thoroughly in a chemical resistant container and pour onto back surface of lens to be slabbed. Allow epoxy to fully cure.

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Technical Tip

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SECOND GENERATING STEP

Assuring correct prism parameters for distant portion, generate to the computed data, allowing the line formed by the second surface to approximately 5 millimeters above segment/ reference marking. Correct procedures should produce a line that is near parallel with the segment.

SECOND SURFACING

Typical technique should be followed, although lens surface should be inspected after every 15 seconds of first fine. If line is not parallel, offset the machine pins or apply light pressure to the edge of block nearest the highest portion of line. Continue until slab line is at approximately 1 millimeter above segment. Second fining should also be inspected every 15 seconds until line meets segment top. Follow standard polishing technique.

DE-BLOCKING and CLEAN-UP

After preferred shock de-block and rinsing, allow lens to warm inside an alloy reclaim unit or warm water (approximately 120 to 180F) for three to five minutes. Gently begin peeling softened epoxy from back surface. Isopropyl alcohol will aid removal of small traces of epoxy. Final clean should utilize warm soapy water with a clean water rinse.

BACK SIDE COATING

Standard procedures will suffice, although it is important that the slab line be placed towards the center of lens chuck/ cup to avoid coating voids.

INSPECTION

Beyond typical inspection, Slab-Off prism can be verified by measuring the prism five millimeters below the segment line of each lens; identical amounts of prism should be present.

For any additional technical questions, call the toll-free Technical Services Hotline: (800) 367-2544 ext. 5301
You can also send messages to us via e-mail: techservices@vision-ease.com
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