

Processing

Trivex

Avoiding the Pile



By Keith Cross

Most Rx lab managers have one. They don't like it, but they do. It is the "pile." It is the last resort for jobs that don't go through their specific process without special attention. This "pile" is usually the hang out for multiple breakages, "must go" jobs as well as the ones that just need that extra bit of special attention. Many times a lab manager will say to me that they didn't even know this "xyz" type of lens existed until it showed up in the breakage or re-work pile.

When Trilogy was released, a Trivex lens material,

this is where it usually ended up. From a processing point of view it confused some lab managers...it isn't poly and it isn't CR-39? Well, how do we process it? As many have figured out, it isn't that it is more or less difficult to process than the before mentioned materials, just a bit different.

Initially, processing any Trivex lens material was considered a difficult process. Lab managers often had to guess as to which process setting they used based on the specific type of equipment they had. They were often forced to compromise between

different settings and some even created their own processing methods.

During my former life as an Rx lab vice president and general manager, I can tell you that processing Trivex is as easy as any other material available. Like many other materials, there are nuances that make it unique and a bit different but not more difficult. Let us examine some processing steps and the recommended guidelines for Trivex that will help decrease that “pile.”

The information related here has been based on the Trilogy lens material from Younger Optics which uses Trivex. The information provided should work with any other Trivex manufacturer as well however, as most lab managers will tell you, test first then process. Each manufacturer does things a bit differently and each lab processes lenses a bit differently so it is important to test specific processes and do what works best for you and your situation.

Blocking

Whether using wax or alloy, allowing the lens to cool properly is important. A minimum of 20 to 30 minutes is recommended. This allows the blocking material to cure properly and bond with the surface saver tape, which is also recommended, as well as allow for the heat generated during blocking to dissipate. As lab managers know, heat can ruin lenses. Especially the low minus or thin CT lenses where heat will build up in the center and can cause surface aberrations. Allowing lenses made from Trivex to cool properly before generating is an important step and should not be overlooked.

Generating

Most current machinery has a Trilogy or Trivex macro available for generating. If this is the case, then there is no real secret here. However it is important to check with your equipment provider to make sure you have the most recent update or macro available as well as checking with your lab management software (LMS) provider to ensure you are able to use this macro automatically. What this means is that when the material is called up at the generator it will automatically select the correct processing macro. This can sometimes involve making sure that the LMS provider has enabled the macro and it is set up in the equipment. Otherwise someone will have to manually select the macro or setting each time a Trivex Rx is processed. If you

don't have a Trivex setting, it is recommended to generate at a reduced speed, much like you would polycarbonate. Reducing the speed of the generating process allows for a more accurate surface as the material is taken off in smaller amounts. By reducing the removal amounts, you can also eliminate material being “torn” off by aggressive cutting and thereby reducing any back surface defects after generating.

Fining & Polishing

If you are currently using a one step fining method, you can easily use one step Trivex. As there are many different views on pads and pad vendors, I will not attempt to differentiate in this brief article. I will say that most Rx labs use the same pad for Trivex that they use for polycarbonate. With that being said, I will say that it is important to accurately measure, and adjust if necessary, the stock removal you get with Trivex based upon your pads and pressure combination. What I mean is that if you are allowing for 0.4mm of removal during fining, you should check your thickness post-generating and then again post-fining. This will help you gauge your stock removal rate with your specific process as well as achieve accurate thickness.

Like most other materials as well, it is important to use clean, chilled and filtered water during the fining process. You do not want to ruin lenses with fining defects due to lens material and pad knap interfering with or causing scratches during the fining process. Whether you use the one step or two step fining method is truly up to each particular lab. It should be based on the resultant surface quality of each method. From experience, I have seen both methods used successfully and without major incidents.

As for polishing, again it is important to use chilled and filtered polish. Using chilled water during fining and chilled polish during polishing allows for lenses to be cooled during these heat generating processes. Most labs again use the same polish pad for Trivex that they use for polycarbonate. If you want to experiment with different combinations of pads, let surface quality be your deciding factor. This will tell you if your specific combination is working for you or not. Judging the overall surface quality won't be a difficult task as most lab managers can attest to, so this should be a relatively easy process.



To Coat or Not to Coat...

Although a backside hard coating is not necessary, it is acceptable. Most Rx labs will backside coat anything other than standard plastic. Trivex accepts a back-side coating, whether thermal cured or UV cured, with no issues. Backside coating will increase the overall scratch resistance of the product as well. As Trivex is not affected by chemicals and solvents the way other materials are, and there is no necessary added care that needs to be taken. Just clean the lenses as normal and coat. Trivex also works well with today's dip coating systems used with advanced AR coating technologies. Please consult the manufacturer of the dip coating system for the specific process guidelines.

Edging

Whether or not you are using a wet or dry method, most edger manufacturers now also offer a Trivex macro setting as well. Please check with your equipment vendor and lab software provider to see if you have the most current updates/macro settings. This is an important first step to Trivex processing. Utilizing the most up to date methods and recommendations from your equipment provider will substantially reduce processing errors and general "guess-work." The two general methods of edging are wet and dry.

First let us review dry edging. This is generally done on an edger with a "blade" cutting system rather than a wheel. Although most "wheel" based wet edgers have a dry cycle, I am only referring to the blade method. If you are using this method, then there is nothing out of the ordinary you need to do in order to process Trivex. As with any

material, you want to make sure the blade is sharp and clean.

If you are using a wet system or wheel based edgers, there are a few things you can do. First would be to use new wheels designed to specifically cut Trivex material as well as being an all purpose wheel, excluding glass. These newer wheels are available from a few different vendors as well as some equipment providers. You should first check with the equipment provider and see what the recommended wheel method is based on your specific situation and equipment. These newer wheels help to reduce swarf build up as well as reducing the heat transfer back to the lens from the wheels, which will result in a better finish and less maintenance on the wheels themselves. If you do not have access to these wheels or just want to process with your edger as is, you can cut it on the polycarbonate cycle. This will generally be a dry roughing cycle and a slight amount of water on the finishing cycle. If you do this, and many techs do, just be sure to clean the wheels with a cleaning stick when done. This ensures that there is no residual material left on the wheels.

These are just some general tips and pointers for processing Trivex or Younger Optics' Trilogy or HOYA's Phoenix lenses. Be sure to always check with your equipment vendor and Rx lab software provider to ensure you have the most up-to-date settings and macros.

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