Photopolymer Processing Guidelines

When fabricating Novacryl photopolymer interior signage OR Novacryl photopolymer exterior signage, use only factory approved equipment manufactured by Nova Polymers in the US. Observe ALL Processing Guidelines for Peak Performance and to ensure ADA Compliance. Contact us at technicalsupport@novapolymers.com with any processing questions.

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INTERIOR

Recommended Processing Times for INTERIOR

Main Exposure	With proper vacuum and UV lamps@360nm	2:00-4:00 Minutes
Washout	Tap water at room temperature (65-75F)	5:00 Minutes
Dry	Preheat dryer to 43C (110F)	20:00 Minutes
Post Exposure		5:00 Minutes

Processing Note: *Please use caution when handling all photopolymer material immediately after processing. Strength will increase over 24-48 hours. You may wish to filter wastewater before discharging into sewer. Refer to SDS for the recommended concentration of photopolymer effluent for disposal. Consult local authorities for regulations in your area. Please consult Nova Technical Support if any of the above processing times fail to produce satisfactory results.*

1. **PREHEAT DRYER TO 43 DEGREES CELSIUS (110F)**
   Dryer temperatures in timer activated units can fluctuate when heating elements flare to raise dryer temperatures. The elements often cause the internal temperature to rise well above desired settings before regulating. Dryers are more efficient if they remain on throughout the process phase. Continuous dryer activation eliminates hot spots and potential damage to the PETG thermoplastic base of Novacryl and PVC foam base of NovaColour.
2. **CUT AS NEEDED PRIOR TO PROCESSING FOR OPTIMUM YIELD.**
   Shear cut with a 30-degree blade (Accu Cutter model available from Nova Polymers) or table saw with a blade rated for flexible plastics (PETG, Polycarbonate). Shearing is preferred for thickness up to 1/8". If you are cutting custom shapes in advance with a router table, flip the unexposed photopolymer upside down and rout shapes with a two-flute upward spiral carbide bit.
3. **PREPARATION FOR FINISHING (AFTER PROCESSING).**
   When routing custom shapes with a template, separate signs using shear or band saw leaving no more than 1/2" over. Use "Finishing Shears" and "Corner Mate" to cut photopolymer to finished size. Any straight edge or radius corner can be applied with proper shears. All Novacryl products with a base thickness up to 1/8 can be sheared to a finished edge suitable for paint.
4. **ROUTING RECOMMENDATIONS:**
   Use a 1/2", 3 flute McMaster-Carr bit #35505A65 or a 3/4" two flute straight bit or DML #01401 (1/2" shank, 3/4" Diameter) 2 flute helix trim bit. For table routers, use a two-flute upward spiral carbide bit. -OR-Use the 13000 Series Spiral "O" Belin Yvon S.C. Router Bit. For 1/8" Novacryl use Tool# 13317 – CED 1/8", CEL 1/2", SHK DIA 1/4", OAL 1-1/2" at RPM 18,000 with a Feed Rate of 140. To place a bevel, we suggest using Belin Bevel 00182 CC05 QL. The link to this website is www.belintools.com. The bits referenced can be located on page 5.

21 STEP STOUFFER SCALE VIDEO CAN BE WATCHED HERE.

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SILVER MASK TAPE

NovAcryl PT Series Photopolymer incorporates a clear PETG base substrate. The PETG is extruded with a UV inhibitor which eliminates light passing through the substrate and exposing the photopolymer in undesired areas.

However, there has been a recent change with the NovAcryl PT-020, Solid NovAcryl PT-375 and the entire line of NovAcryl – ECR. These products mentioned DO NOT have a UV inhibitor in the base material.

The purpose of the Silver Mask Tape is to cover the outside edges of the photopolymer sheets before performing the main exposure. This will eliminate light from entering through the sides of the sheet and exposing a perimeter around the material.

The goal we are trying to achieve is to eliminate the amount of areas that light can come into contact with the photopolymer. It is also a good idea to keep this concept in mind while laying out the negatives on the photopolymer sheet before processing.

Please contact our technical support staff at techsupport@novapolymers.com with any further questions.

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EXTERIOR

Recommended Processing Time

Main Exposure	With proper vacuum and UV lamps@360nm * (Stouffer Scale reading of 12-13)	2:00 – 3:00 Minutes
Washout	Tap Water at room temperature (90-95F) **	4:00 Minutes
Dry	Preheat dryer to 52C (125F)	20:00 Minutes
Post Exposure	With no vacuum and UV lamps at 360mns	5:00 Minutes

Processing Note: *Exposure time may vary depending on the ages and strength of UV lamps. **Washout – Use FOUR to SIX ounces of XP Cleaner in the washout tank to aid washout. If copy areas remain Un-washed after processing time expires, you may use a fine bristle brush to clean in and around the copy. This should take no longer than a minute or two; otherwise, you may have an exposure problem unrelated to washout. Refer to SDS for the recommended concentration of photopolymer effluent for disposal. Consult local authorities for regulations in your area. Please consult Nova Technical Support if any of the above processing times fail to produce satisfactory results.*

****To improve the finish, clean with a fine wire brush with denatured alcohol, acetone or XP Cleaner prior to painting****

Processing Requirements: Be certain to rinse the washout tank with fresh water and fill to just below brush tips. Apply XP Cleaner in a circular motion atop the brushes. Change washout water after FIVE to EIGHT full sheets. When finished, drain the tank, rinse and fill with fresh water. Processing can be affected by the use of different photopolymer processing units, quality of film and age of UV lamps. The photopolymer layer of NovEx is VERY soft prior to initial exposure. Handle and cut with care. Advanced processing techniques can eliminate handling difficulties.

ADVANCED PROCESSING TECHNIQUES:

CLEANING EXCESS RESIDUE AFTER WASHOUT: If excess residue is present on the adhesive layer, place the NovEx sheet in the water basin or screen wash rack and brush with a 50/50 solution of XP Cleaner and water. This will remove excess residue from the adhesive layer. The material is thoroughly cleaned of residue when you see water "bead" off the material as if it were waxed.

IF EXCESS POLYMER APPEARS BETWEEN OR WITHIN CHARACTERS: Due to its high content of synthetic rubber and the fine thickness of many photopolymer washout unit brush systems, it is possible that all photopolymer may not be washed away from between enclosed characters such as "A" and "B". In general, this unexposed polymer has absorbed sufficient water and is ready to be washed away. Use a nylon brush dipped in a 50/50 solution of XP Cleaner and water, use a screen wash basin and pressure wash the characters if needed. The excess polymer will be immediately removed.

IF MATERIAL APPEARS "OVEREXPOSED": There are reflective characteristics within the photopolymer resin of NovEx. This may cause minor "fill" of certain bold fonts. The fill-in will show up in characters such as "M", "A", "N", and "W" where the angles are sharp and light penetration is excessive. To eliminate this, simply cut back the main exposure time to 1:30. If you run a smaller Braille diameter, a double exposure may be necessary to achieve proper shoulder draft. To do this, expose the plate as normal, then pull out the exposure frame without turning off the vacuum, and place Rubylith strips over the characters, leaving the Braille exposed. Push the exposure drawer back in and expose for another 1:30–2:00 minutes.

OTHER TIPS TO OPTIMIZE YOUR PRODUCTION TIME AND OUTPUT: If aluminum does not stick to your green mat for washout, wipe both the green mat and the back of the aluminum plate (after exposure only) with isopropyl alcohol. If you do not wish to use your washout tank for washout, or do not find it efficient, you may place exposed plates in a developing tray, or water basin, filled with warm water and a few ounces of XP Cleaner. Allow soaking for 15 minutes. Remove from tray and power wash the plates using warm water in your screen wash basin. Blow off excess water, dry and post expose as usual.

ADVANCED PROCESSING DATA TO MINIMIZE HANDLINE ERRORS, WE RECOMMEND THE FOLLOWING PROCESSING SEQUENCE FOR NovEx: Apply a high bond, exterior grade adhesive (MacBond or similar) to pre-cut cast acrylic in the desired thickness. The acrylic should be in a sufficient quantity for all exterior photopolymer sheets in the job. Oversize cuts should be no larger than 19" x 25" and quantity should be determined in advance. Once the adhesive is applied, stack the acrylic near the photopolymer unit and begin processing. Immediately after the EXPOSURE phase, remove the NovEx sheet from the processor and LAMINATE to the cast acrylic. You may use the adhesive liner to cover the polymer layer while laminating. Use a rubber brayer or laminator and press aggressively. The exposed material will not be harmed no matter how hard you press. Return the laminated NovEx to the processor and resume processing as normal (washout, dry, post). (Note: The material now handles like solid based Novacryl. Water does not migrate into laminating adhesive).

21 STEP STOUFFER SCALE VIDEO CAN BE WATCHED HERE.