

# TIPS FOR POLISHING WATER CLEAR POLYURETHANE PARTS

To achieve the best finish possible on water clear urethanes, a post-cure is required regardless of the part size. Follow the instructions provided on the data sheets for post-curing operations.

The surface condition of your part will dictate where you are to begin finishing and will determine the grit of sandpaper required.

To finish/polish a machined part (milled, saw cut or lathe turned finish), begin with the finest grit sandpaper possible to produce a flat surface free of tool lines or steps. 800 grit wet/dry sandpaper will provide a good place to start. Utilise a hard, flat acrylic or hardwood block. Rubber blocks or your hand may cause unevenness and will provide a wavy surface on the final polish. Take extra care to maintain an even surface if you are working with a curved or rounded part, and are hand sanding.

Soak sandpaper in water for 1 to 2 hours prior to sanding to soften. Add a small amount of detergent to a spray bottle or bucket with water to lubricate while sanding (keep the surface wet). This mixture will avoid loading the sandpaper.

Begin sanding in one direction only until surface is flat and uniform in appearance without noticeable tooling step lines or defects. If you find the defects are too deep and are difficult to remove, you should switch to a heavier grit sandpaper and proceed until they are completely removed.

Continue sanding with finer grits, i.e. 600, 800, 1000, 1500, 2000. If you have obtained a flaw-free surface early on, these steps will go quickly. Rotate 90 degrees each time you change grits. Continue to sand across the last completed grit area. This step will assist you in perceiving the previous lines, and when they are gone you may move to the next grit. When you reach the 2000 grit paper, you should be able to note a slight shine to the surface. This will help you determine whether you have removed all flaws. If so, proceed with the polishing steps.

High-speed buffers tend to work well on metals but will burn plastics quickly. Lower speeds perform better, and the heat build-up can be controlled. Finishing with a foam buff pad tends to provide better results than with the use of traditional wool or cotton.

3M products have proven excellent for polishing urethane. Start with 'Finesse It' compound in a cup. Apply a light film onto the part with a brush. Do not allow the surface to dry out for long while buffing. Continue to re-apply the compound. Monitor the surface temperature – warm is good, hot is not. This step will provide a high shine on the part. In some instances, this may be enough of a finish for your part.

For a higher sheen, utilise a new buff using 3M's 'Imperial Hand Glaze' in the same manner as the 'Finesse It'. Though not intended as a machine compound, on the clear urethane product, it works beautifully. Then spray the part with 'Brillianize' (an anti-static polish/spray available where acrylic products are sold). Hand buff with a polishing cloth or a very soft flannel towel. Avoid terry cloth because it may scratch.



Photos Courtesy of  
**TERRANCE PLOWRIGHT  
FINE ARTS**

**Urethane WC780 (3hr potlife) cast from an  
M4642 Addition Cured Silicone Mould. A  
single solid pour of approximately 68kgs.**