

TECHNICAL GUIDE

Scratch Removal

In the event that Berman Resin products become scratched, HAVE NO FEAR. Scratches can be removed from both acrylic and PETG. The following are the steps for removing scratches.

1. **Acrylic Scratch Removal**

Remove scratches on acrylic with a mild abrasive polish such as Novus #2, or Novus #3. Heavier scratches, such that can be felt with a fingernail, will require one of two methods depending on which side of the product is scratched.

Scratches located on texture side of acrylic panels can be easily removed by applying heat from a simple heat gun (found in most hardware stores). Apply heat gradually with a gentle sweeping motion, applying the heat evenly with several passes lengthwise over the scratch(es). Avoid overheating; this may cause warping or thermal stress in the part. To avoid overheating or damaging the sheet, care should be taken to not focus the heat in a constant position. A suitable distance between the heat source and the sheet along with rapid movement of the heat source over the scratched area are important factors in this technique.

Scratches located on the smooth side of acrylic panels or on smooth high points of the textured side otherwise called ridges can easily be removed by sanding and buffing. A series of grits (150,400,600) followed by a buffing wheel and available buffing compound, will restore the luster! For more information on removing these types of scratches, or refinishing, please refer to the Refinishing Acrylic guide (section 7.9).

2. **PETG Scratch Removal**

Light surface scratches can be easily removed from PETG by applying heat from a simple heat gun (found in most hardware stores). Apply heat gradually with a gentle sweeping motion, applying the heat evenly with several passes lengthwise over the scratch(es). Avoid overheating; this may cause warping or thermal stress in the part. To avoid overheating or damaging the sheet, care should be taken to not focus the heat in a constant position. A suitable distance between the heat source and the sheet along with rapid movement of the heat source over the scratched area are important factors in this technique.

Though this technique works for light surface scratches, deep scratches or gouges in the material's surface are not suitable for repair by this method. It is advised to always test a small section of the piece prior to proceeding

3. **Re-finishing Acrylic**

If Berman Resin Acrylic products are scratched on the smooth side and/or on smooth high ridges of the textured side they can be fixed and the surface can be renewed as either a matte, semi gloss or high gloss finish

Below are directions on how JBGS recommends these products be renewed.

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When finishing Berman Resin Acrylic Products use 3M™ Trizact™ Hookit™ II Film abrasives pads by following these simple instructions for matte, semi gloss, high gloss finishes:

Tools required:

- Random orbital disc sander (10,000- 12,000 rpm)
- Spray Bottle

Accessories:

Description	5" diameter Part number
3M™ Hookit™ II Disc Pad	PN 05245-1
Hookit™ to Hookit™ II Conversion Pad*	PN 02327

*Converts to a standard Hookit or other hook type disc pad to a Hookit II disc pad

Tips and Techniques

- Do not use Trizact™ abrasives dry
- Start and stop the sander while resting flat on the surface to eliminate swirls
- While sanding, follow a "north, South, East, West" pattern. (See diagram below) To ensure scratches are removed and a uniform finish is achieved, two "patterns" per step are recommended.

NOTE: If a sanding pattern is visible on the surface of the material after sanding in this pattern, move the sander in a small circular motion, while following the "North, South, East, West" pattern.

Keep it clean! Rinse debris from the Trizact disc after each use, and wipe surface clean following each step to minimize contamination scratches.

3.1 MATTE FINISH - Berman Resin Acrylic Finishing Steps:

1. Apply 3M™ Microfinishing film-366L, 100 micron (brown) to your Hookit™ II backup pad. Begin sanding the solid surface material in the pattern above. (This step is done dry. Do not spray the surface with water) This step is intended to remove any defects in the surface of the material and to level the surface. Defects will be highlighted while sanding. Sand until all defects are removed and the surface is level.
2. After sanding the entire surface, wipe the surface clean. If all previous scratches and irregularities have been removed, and the surface appears flat and uniform, proceed to Step 2. If the defects remain, repeat step 1 (Be sure to rinse all debris from the work surface and abrasive disc. Replace the 100 micron (brown) disc with 3M™ Trizact™ Hookit™ II disc- 268XA, A35 (green). Spray the work surface until it is damp, not flooded. Begin sanding in the same pattern and at the same speed as the previous step. Spray with water as necessary to keep the surface damp. Repeat the pattern twice or sand at a rate of 1 minute per square foot of material.
3. Rinse the debris from the Trizact disc and work surface.

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4. Wipe the surface clean and inspect work. For many materials and colors, there will now be a satisfactory, matte finish. If not proceed to Step 5.
5. Repeat the procedure using 3M™ Trizact™ Hookit™ II – 268XA, A 10 (blue). Rinse the debris from the Trizact disc and work surface. Wipe the surface clean and inspect work. There should now be a uniform Matte finish. (Gloss level 12 – 15)

Option: When generating a matte finish, Scotch-Brite™ hand pad 7447 (maroon) can be used instead of the Trizact A10 disc. On some solid surfaces, Scotch-Brite pads can “draw the color out” of the material better than Trizact film. The Scotch-Brite pad can be used by hand or trimmed to fit sanders. Can be used wet or dry.

3.2 SEMI GLOSS FINISH - Berman Resin Acrylic Finishing Steps:

1. Follow the matte instructions above. (using 366L 100 micron, and Trizact 268CA, A35, and A10)
2. With 3M™ Trizact™ Hookit™ II-268XAm A5 (orange) on a sander, spray the surface and sand in the usual “North, South, East, West” pattern. Repeat the pattern twice. Wipe the surface clean and inspect work. There should now be a uniform semi-gloss finish. (Gloss level approx. 45)

Option: When generating a semi-gloss finish, Scotch_Brite™ hand pad 7448(gray) can be used instead of the Trizact™ A5 disc. On some solid surfaces, Scotch-Brite pads can “draw the color out” of the material better than Trizact film, The Scotch-Brite pad can be used by hand or trimmed to fit sanders. Can be used wet or dry.

3.3 HIGH GLOSS FINISH - Berman Resin Acrylic Finishing Steps:

1. Follow the procedure listed for Semi-Gloss finishes through the Trizact film A5(orange) step. (Abrasives used so far are 366L 100 micron, and Trizact 268XA – A35, A10, and A5)
2. Using Trizact™ Hookit™ II – 568XA (white), spray the surface and polish in the usual sanding pattern. Two to four passes may be necessary. Rinse the debris from the Trizact disc and work surface. Wipe the surface clean and inspect work. There should now be a rich looking, high gloss finish. (Gloss level approx. 80)
3. Alternate step 5. If desired, for a very high gloss (level higher than 80) or encounter swirl marks using the standard sequence, use 3M™ Wet-or-Dry™ Polishing paper – 286Q, 9 micron(blue) instead of Trizact 568XA(white) Buff with Finesse-it™ Finishing Material – Easy Clean Up (PN 83483-9). 3m™ Imperial™ Polishing Film discs-968m can be used as a carrier for this compound using a random orbital sander. (These are sold separately-NOT included in the standard kit) For faster buffing time, use a rotary buffing tool and a wool buff pad.

7.10 Handling

Berman Resin products ship with a protective film that should not be removed until fabrication is complete. Most Berman Resin products can be fabricated using standard woodworking tools with tungsten-carbide blades and bits.

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Always:

- Store sheets fully supported across entire surface in a controlled environment free of direct sunlight, moisture, temperature extremes and solvent vapors. It is best if stored in original packaging in panel racks that fully support the panel surface at 10° from vertical. Horizontal storage is acceptable for short periods if panels are clean and larger sized sheets are on the bottom to prevent overhang of any portion of the sheet.
- Inspect sheet to make sure it is free of flaws or damage prior to fabricating.
- Keep protective masking attached during fabrication to minimize scratches.
- Firmly support the sheet and cutting tool to avoid chattering and chipping.
- Use a continuous flow of air at the cutting tool to dissipate heat during cutting.
- Use rubber or nylon grommets and washers with through-bolt fasteners.
- Keep the shop clean and well ventilated with adequate dust and fume extraction.
- Exercise shop safety procedures and wear protective equipment including safety gloves, goggles, ear and respiratory protection when fabricating with acrylic.
- Follow manufacturer instructions for all products, chemicals and equipment used
- Keep shop equipment clean and in good working order.
- Maintain sharp cutting tools for optimum performance.

Never:

- Fabricate products in poorly lit, poorly ventilated areas.
- Expose material to solvents
- Clean Berman Resin products with glass cleaners, bleach, abrasive cleaners, heavy solvents, or with synthetic towels, squeegees or scrapers. These items may damage Berman Resin surfaces.
- Over tighten through-bolt fasteners. This may cause product to crack.
- Cut or machine materials with dull cutting tools.