

# alkemi classic + honed

FABRICATION METHODS

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**ALKEMI RECYCLED SURFACING SHOULD ONLY BE FABRICATED AND INSTALLED BY QUALIFIED SOLID SURFACE PROFESSIONALS.**

## GENERAL PRODUCT DESCRIPTION

ALKEMI recycled surfacing material is a clear polyester-based composite incorporating soft alloy aluminum flake fillers. The ALKEMI line is available in Textured, Classic and Honed surface treatment options

General fabrication and installation methods are similar to conventional solid surface materials. However, ALKEMI requires slightly unique fabrication techniques based on each surface finish characteristics.

The following fabrication manual addresses specific methods pertaining to the fabrication and installation of ALKEMI—classic and ALKEMI—honed.

## FABRICATION METHODS Description

ALKEMI-classic and ALKEMI-Honed offer a factory smooth surface treatment. Surface seams of these products can be sanded and polished similar to conventional Solid Surface materials. Final surface finish results, from satin to high-gloss, can be achieved by further polishing steps to be performed by the fabricator. ALKEMI composites are finished on one side only.

### 1 CUTTING

ALKEMI can be cut and shaped using conventional woodworking machinery and tools such as saws and routers, including CNC machines. As with all

polyester composites, the use of sharp carbide-tipped saw blades, router bits and compression CNC bits at SLOW cutting speeds are highly recommended to ensure high-quality end results. Application of masking tape on and along the actual cutting surface can also further avoid chipping.

**TIP** Any chipping that might occur can be filled and repaired using Methacrylate or P-18 resin.

## STEP 2: PREPARATION OF THE PARTS FOR ADHESIVE APPLICATION

Lay the sheets on a flat horizontal work surface, bringing the two machined edges together.

Leave the parallel edges to be seamed apart to allow the adhesive nozzle to fit between them (approximately 1/4" to 3/8").

**TIP** To avoid contaminating the work area, place a disposable surface protector under the seam area, such as scrap plastic laminate or other similar material. Applying a spray lubricant onto this material will ensure its easy removal from the seam after the adhesive has cured.

## 2 HORIZONTAL FLAT SURFACE SEAMING

The seaming for horizontal joints is performed using Clear Methacrylate Adhesive (or matching colors for ALKEMI opaque colors). Please follow these step-by-step instructions to achieve quality seam results:

### CAUTION

ALKEMI-honed is a crystalloid product with an inherent light reflecting quality and a definite linear direction. Under certain light conditions, the aluminum particulate may appear brighter or more animated. As such, caution is advised during seaming or joining of various panels to keep them consistent in their natural direction to avoid a mismatched appearance. Placing the panels side by side under a direct light source turn the pieces perpendicular to each other, highlighting and identifying their inherent direction. This quality is not an issue with Classic and Textured finishes.

### STEP 1: EDGE PREPARATION

One of the following edge preparation steps is recommended to achieve inconspicuous seams.

**Option 1.** Machine cut edges to be seamed flat and smooth. Using biscuit inserts, align the tops of the surfaces to be seamed level and flush.

**Option 2.** Machine-cut edges to be seamed using a wavy carbide router bit to achieve proper and flush alignment of the parts.

Thoroughly clean edges to be seamed with Acetone, using a clean rag. Do not allow Acetone to remain on the surface because it may cause etching.

### CAUTION

The joining edges must make full edge-to-edge contact of the glue surfaces to prevent noticeable seam line. Do not machine a glue trough or gutter to hold access adhesive, as you can with conventional solid surface techniques, because this technique will eliminate the aluminum filler, resulting in a noticeable clear adhesive-filled seam line.

### STEP 3: ADHESIVE APPLICATION TECHNIQUES

One of the following two adhesive application methods are suggested:

**Option 1.** Apply two beads of adhesive from the dispensing nozzle, one on top of the other, into the 1/4" to 3/8" gap, entire length of the seam. Push the two panels together to squeeze out seaming compound onto the surface. To achieve a tight joint, bar clamps or straps may be used to apply slight pressure on the seam. Do not wipe to remove the surplus adhesive compound from the surface. Allow the seam with access adhesive to harden, approximately 60 minutes at 77 degrees F (22 degrees C).

**Option 2.** Dispense adhesive and catalyst mixture from cartridge onto a disposable plastic laminate scrap and mix the two parts together thoroughly using a putty knife or similar spatula tool. Using the spatula, apply a layer of the mixed adhesive directly onto the two edge surfaces. Next, push the two panels together to squeeze out seaming compound onto the surface. Bar clamps or straps may be used to apply slight pressure on the seam. Allow the seam to harden, approximately 60 minutes at 77 degrees F (22 degrees C).

## 3 EDGE OPTIONS

Various edge fabrication options can be achieved, including mitering (V Folding) and multiple layering and build-up.

### MITERING OPTION

Mitering is a labor-saving alternative edge treatment option. Mitering avoids the steps necessary for resin coating, sanding and polishing associated with layering. Mitering also ensures that the edge surface matches the panel surface. Please follow these step-by-step instructions to achieve quality miter edge seam results:

**Step 1:** Bevel cut or “V” groove parts to be glued together at a 45° angle. Take proper protective measures to avoid the chipping or damaging of the resulting sharp edges of the parts.

**Step 2:** Apply adhesive to the contact surfaces using Adhesive Application Technique — Option #2 (see above) and join firmly together, forming a 90° angle. The two sections may be pulled together and held in place temporarily using masking tape. Wipe off excess glue compound from the finish surfaces using Acetone and soft rag. Allow adhesive to cure and harden.

**TIP** Masking tape can be used to act as hinges to assist in the folding and holding of the two parts together during the gluing process. Laying the sheets flat and prior to adhesive application, apply strips of tape as necessary, perpendicular to the seam, from the bottom or to the finished surface of the parts. Apply adhesive as instructed, fold the two parts perpendicular at 90°.

**Step 3:** Using fine tooth steel file or fine grit sandpaper, dull the resulting sharp outside corner of the miter joint.

**Step 4:** Using seaming adhesive, apply a strip piece along the length of the miter joint from the back side to strengthen and reinforce the joint.

#### LAYERING AND BUILD-UP OPTION:

Please follow these step-by-step instructions to achieve quality layering or build-up edge seam results:

**Step 1:** Preparation—course sand the contact surfaces of the parts to be glued together to expose the aluminum filler. This will ensure inconspicuous seam results.

**Step 2:** Apply thoroughly mixed seaming compound (Methacrylate) to contact surfaces of the parts to be layered.

**Step 3:** Stacking the layers together, apply frequent pressure on the entire length of the seam, using hand or “C” clamps approximately 2 to 3 inches on the center. Allow the excess adhesive compound to over-flow and cure.

**Step 4:** Proceed with course sanding of the edge surface, or machine the desired edge profile.

**Step 5:** Apply P-18 resin coating on the edge surface only, coating the exposed aluminum and filling any pinhead air holes which might be evident.

#### NOTE

Please see P-18 Mixing and Application instructions are thoroughly explained below.

P-18 is only used to coat and seal edges and is not required for sheet surfaces. P-18 may also be used for future repairs (see Repair notes listed below under General Methods).

## 4 EDGE SANDING + FINISHING PROCEDURES

To achieve high-quality surface finish results on P-18 coated edges, please follow one of the two options outlined below:

#### OPTION 1 — DRY AND WET PROCESS:

Follow these dry, then wet, sanding steps, using 3M abrasives (or equal), in sequence as noted, using water to liberally wet abrasives on a random orbital sander. Wash and remove all residue from material surfaces between each of the following steps:

**Step 1:** #150 grit — film back abrasive — dry

**Step 2:** #240 grit — film back abrasive — dry

**Step 3:** #320 grit — film back abrasive — dry

**Step 4:** “3M-TRIZAC-Green” — wet

**Step 5:** “3M-TRIZAC-Blue” — wet

**Step 6:** “3M-TRIZAC-Orange” — wet (Optional for high-gloss)

#### OPTION 2 — DRY PROCESS:

Follow these dry sanding steps, using 3M abrasives (or equal), in sequence as noted on a random orbital sander:

**Step 1:** #150 grit — film back abrasive

**Step 2:** #240 grit — film back abrasive

**Step 3:** #400 grit — film back abrasive

**Step 4:** #600 grit — film back abrasive

**Step 5:** #1200 grit — film back abrasive

## 5 P-18 CLEAR COAT RESIN MIXING + APPLICATION PROCEDURES

P-18 catalyzed clear polyester resin is recommended for use on buildup and/or panel edges to coat exposed aluminum resulting from machining. P-18 may also be used for future repairs. Please follow the mixing and applications as described below to achieve quality results.

### MIXING

Using an eyedropper, add MEKP catalyst to P-18 (following are recommended quantity ratios), and stir thoroughly for approximately 30 seconds. Please note that the mixture will begin to set within 6 to 8 minutes. As such, only mix enough material for immediate application. Excessive drops of catalyst will shorten, and reduction of catalyst will increase the set time of mixture.

### Mixture Ratios

- 2 ounces (59.15 milliliters) add 27 drops (2 cc) of MEKP (catalyst).
- 4 ounces (118.29 milliliters) add 36 drops (2.5 cc) of MEKP.

### APPLYING

Using a 1" disposable brush, apply mixture to treatable surface, as needed. Allow to gel, approximately 15 to 20 minutes, and re-apply a second coat of the mixture. Do not allow the application to fully cure between coats, as curing will allow wax to be released to top of surface, and will require sanding, prior to additional coats. Allow final coat to cure, approximately 4 hours, prior to sanding.

### SANDING

Follow instructions above "Edge Sanding and Finishing Procedures".

## 6 GENERAL METHODS

### REPAIRS

Most damage can be repaired easily, following the basic coating and sanding instructions above. Minor scratches can be eliminated by sanding and polishing, as above. Heavy scratches or deep surface chipping may require repairs using catalyzed coating P-18. To repair such damage, begin by cleaning damaged area with Acetone. Mix and pour filler to fill slightly above the finished surface and allow to cure. Proceed with sanding and polishing using a random orbital sander, as per Sanding and Finishing instructions.

### CUT OUTS

For general cut outs, use a router with a 1/2" double flute, carbide straight bit to follow the clamped cut out template. Inside corner radius must be as large as possible (1/4" minimum). Exposed cut out edges may be coated and finished as described, using P-18.

### INSTALLATION

**Horizontal application:** ALKEMI should always be installed over a full area of sub-straight surface such as plywood or particle board for proper support. Such sub-straight should be vertically supported at every 30 to 36 inches on center to avoid bowing of the horizontal plain. ALKEMI should never be installed without the use of a sub-straight from below.

**Adhering to sub-straight:** Use of flexible neoprene or silicone adhesive recommended to allow for movement and expansion

**Expansion and Contraction:** ALKEMI may expand and contract, depending on changes in environmental temperatures. Follow these guidelines to ensure proper space allowances for expansion:

Cut outs: Allow 1/4" expansion space on all sides.

Installation: Allow 1/8" expansion space for every 10 feet, linear.

**Vertical application:** ALKEMI should be applied to vertical surfaces using "Z clips" or similar vertical attachment hardware. Hardware connections to ALKEMI should be made using circular plug inserts into ALKEMI and Methacrylate adhesive.

**Tabletop application:** For furniture and table surfaces, ALKEMI may be adhered to sub-straight using 100% Silicone Adhesives. Suggested products are as follows:

- PL200 or 400 Liquid Nail
- MT-13 Strongest (White)
- EA-40 (Clear)

Above adhesives may be obtained online at [www.smooth-on.com/epoxy.htm](http://www.smooth-on.com/epoxy.htm).

## 7 CAUTION + CARE

### IMPORTANT GUIDELINES

To avoid stress cracking, the following guidelines are essential:

- Provide adequate, full coverage, level and straight sub-support from below for all installations.
- Allow for proper expansion and contraction space on all sides of the installation as recommended.
- Avoid inside cut outs with sharp corners. Always cut inside corners with a minimum of 1/4" radius.
- Always use sharp carbide tipped blades for machining to avoid chipping, cut at slow speeds.
- Always glue full length support backing strips from below, using the same material, at all seams.
- Always glue support backing blocks, using the same material at corners of cut outs where weight will be placed from above, such as drop in cook tops and sinks.

## 8 NOTED SAFETY PRECAUTIONS TO FABRICATOR

### SAFETY:

ALKEMI should only be fabricated and installed by qualified solid surface professionals, properly trained in the safety and fabrication methods that are accepted by industry standards of the ISSFA and ICPA.

During fabrication, always use proper safety glasses for eye protection, dust mask and ear protection during cutting, sanding and handling of ALKEMI.

Only use proper tools and machinery for fabrication, supported by dust collection equipment, as required by OSHA guidelines.

Gloves and safety shoes should be worn at all times when handling or transporting material, to prevent cuts and abrasion.

### HEALTH HAZARDS (ACUTE AND CHRONIC):

This product produces nuisance particulate as identified by ACGIH and OSHA. During fabrication operations such as sawing, machining, sanding or routing, cured resin dust and aluminum particulate are generated.

This product does not contain regulated levels of NTP, LARC, or ASHA listed carcinogens.

This product is not hazardous in normal use.

### EXPOSURE CONTROL METHODS:

Provide sufficient ventilation and dust pick-up at saw, sander, drill or router to keep dust levels below 10mg/cubic meter TWA or provide and make mandatory the wearing of NIOSH approved dust respirators.

### WASTE DISPOSAL METHODS:

Scrap material and dust may be disposed of according to applicable Federal, State, and Local regulations. This is a non-hazardous product.