



HELMITIN
QUALITY ADHESIVE SOLUTIONS

HELMIBOND 854

LOW TEMPERATURE WATERBASED POLYURETHANE VACCUUM FORMING & 3D LAMINATING ADHESIVE

Product Description

HELMIBOND 854 is a low activation temperature, 2-part waterborne polyurethane adhesive used for vacuum forming various foam, fabric, and plastic substrates in the manufacture of automotive components, furniture, and other 3D applications. It is used in conjunction with 5% HARDENER 561.

Benefits

- ✓ Waterborne
- ✓ Excellent water and heat resistance when used with HARDENER 561
- ✓ Low activation temperature
- ✓ High initial Green Strength
- ✓ White color for easy visibility during application and after drying

Suggested Uses

- Lamination of foams, foam backed vinyls, fabrics and other upholstery overlay materials to molded compressed fiberglass, ABS and similar rigid core materials in the manufacture of automotive, agricultural and transportation sector interior passenger compartment and cab components including:
 - Headliners
 - Dashboards
 - Fender covers
 - Noise dampening panels
- Furniture components
- Vacuum/Thermoforming PVC foils and similar materials

Meets or Exceeds

- **SCAQMD Rule 1168**
- **LEED Indoor Environmental Quality Credit 4.1; Low Emitting Materials: Adhesives and Sealants**
 - VOC content less than limits imposed by the State of California's South Coast Air Quality Management District (SCAQMD) Rule #1168. (80g/L, less water and exempt solvents).
- **LEED Indoor Environmental Quality Credit 4.4; Low Emitting Materials: Composite Wood and Laminate Adhesives**
 - No added urea-formaldehyde

Physical Properties

Activation Temperature:	54 - 71°C (130 - 160°F)
Solids Content:	47 - 51%
Viscosity:	3,700 - 4,300 cP
Specific Gravity:	1.04
Weight/Gal:	8.66 lb
Coverage/Gal:	535 ft² @ 3 wet mils
Pot Life	8 Hours after HARDENER 561 has been mixed with HELMIBOND 854
pH:	6 - 8
Color:	White, dries white
VHAP:	0 lb/lb of solids
VOC:	<0.083 lb/gal (<10 g/L VOC); less water and exempt solvents

Handling & Storage

- 6 month shelf-life from date of manufacture.
- Rotate stock to use the oldest material first.
- **Not Freeze/Thaw Stable. Protect from Freezing.** Product cannot be used after being frozen.
- Store between 10°C/50°F and 32°C/90°F.
- Do Not store or ship at temperatures below 7°C/45°F.
- For best results use at room temperature, 18°C/65°F, or warmer.
- Keep container tightly closed and store off the floor when not in use.
- Avoid exposure of containers to direct sunlight.
- If the container has been sitting for an extended period of time and has settled, stir thoroughly before using.

Packaging

- 275 gallon totes, 55 gallon drums, 5 gallon pails

Clean-Up

- Use warm soapy water when the adhesive is in the wet state
- Cured adhesive will require scraping/sanding

APPLICATION GUIDELINES

Conditioning of Materials

For best results substrates should be acclimatized at 18°C/65°F, or above, in the same environment, for at least 48 hours prior to bonding to allow for any possible temperature or humidity induced dimensional changes to occur and for equilibrium to be reached.

Adhesive Mixing and Application

1. HELMIBOND 854 **must** be used with 5% HARDENER 561 added to achieve long term bonds.
2. Substrates to be bonded must be clean and free from burn or score marks, moisture, dirt, oil, and other contaminants.
3. For best results adhesive and substrates should be 18°C/65°F or warmer. Cooler temperatures will extend dry times and may affect the sprayability of the adhesive. The minimum application temperature is 7°C/45°F.
4. At least one substrate must be porous.
5. Use a clean plastic pail/bucket to mix enough adhesive to be used within 8 hours.
6. Begin mixing HELMIBOND 854 utilizing a squirrel mixer on a variable speed drill or air mixer. Adjust the speed to obtain a small vortex which does not mix air into the adhesive.
7. Slowly add 5% by weight HARDENER 561 to the HELMIBOND 854 and mix thoroughly for 5 minutes.
8. Filter the mixed adhesive through a fine mesh filter into the pressure pot.
9. When HELMIBOND 854 is mixed with 5% HARDENER 561, the pot life is 8 hours at 21°C/75°F. At higher temperatures the pot life is shorter.
10. Parts should be sprayed and pressed within 8 hours of mixing HARDENER 561 into the adhesive.
11. The adhesive should be applied utilizing an HVLP spray gun with a minimum fluid tip and needle of 0.055 inches (1.4 mm). Coating weight applied should be approximately 3 wet mils or 7.7 wet grams per ft² completed bond. When applying to porous substrates, it may be necessary to increase coating amounts or apply two coats of adhesive. The atomization pressure at the gun should be 45 - 65 psi triggered and the fluid pressure/pot pressure should be 10 - 20 psi.
12. Allow the adhesive to dry thoroughly. When force drying the adhesive, do not exceed 45°C/113°F.
13. Press times should be 30 seconds to 4 minutes with a glue line temperature of 54°C - 71°C (130°F - 160°F). The minimum adhesive reactivation temperature is 54°C/130°F at the glue line. Particular attention **must** be given to achieving the minimum activation temperature under cold plant conditions. The use of thermal labels to ascertain glue line temperatures is highly recommended.
14. Forming pressures depend on the press system and are approximately 3 bar (44 psi).
15. Final bond strength is achieved after curing for a minimum of 72 hours at 21°C/70°F, or higher. Cooler temperatures will extend cure times.

Warranty

Because Seller has no control over methods of product application or conditions of use, its product is warranted only to be made of standard commercial grade materials and in conformance with Seller's published specifications, if any. Any recommendations for the use of the product are based on tests or experience believed to be reliable and are furnished without compensation, and Seller does not guarantee the applicability or the accuracy of this information or the suitability of its product in any given situation. Buyer must make its own tests to determine the suitability of Seller's product for Buyer's particular use and Buyer assumes all risk and liability of use of Seller's product.