

BETASEAL Express Advanced Cure Auto Glass Urethane Adhesive

BETASEAL Express delivers one-hour, safe drive away in temperatures as low as 0°F (-17.8°C).*

BETASEAL Express provides Advanced Cure, Gun-n-Go* Technology. It is easy to use and does not require heating. BETASEAL Express is available in cartridges and foil packs. Product benefits include:

- ▶ Fast, one-hour drive away in temperatures as low as 0°F (-17.8°C)
- ▶ FMVSS crash proven
- ▶ Excellent decking
- ▶ Meets all long-term durability requirements
- ▶ Ready to use — no heating required
- ▶ No special equipment

Applications

- ▶ Structurally bonded or direct glazed automotive glass, such as windshields, backlites, quarter glass and other stationary glass
- ▶ Other uses such as attaching hardware to glass and backfilling to install reveal moldings or other trim

Application details

- ▶ See vehicle manufacturer's recommendations for additional details. Do not use any other manufacturers' primers, cleaners or other chemicals in conjunction with any BETASEAL adhesive system
- ▶ Apply at temperatures of 40°F (4.4°C) and warmer



BETASEAL Express

Adhesive system requirements

BETASEAL Express is an adhesive system. It requires specialized chemicals and installation procedures. When applied according to the installation instructions, BETASEAL Express helps restore windshield structures to their original strength. The complete system includes the following products:

- ▶ BETACLEAN* GC-800 Glass & Surface Cleaner effectively removes contamination from the windshield. It evaporates quickly to ensure a residue-free bonding surface.
- ▶ BETAPRIME* 5500 1-Step Glass/Frit Primer is an easy-to-use, single-application primer. It primes windshields in one pass and chemically prepares glass and frit to assure optimal chemical link with the adhesive.
- ▶ BETAPRIME 5404 Pinchweld and Encapsulation Primer promotes adhesion to the vehicle body. It inhibits rust in small nicks and scratches. It also activates PAAS (Pre-Applied Adhesive System), promotes adhesion to PVC and RIM substrates and prepares OEM PVC trim for bonding.
- ▶ BETAPRIME 5201TF Bare Metal Etch Primer (if required) primes bare metal areas larger than 1/2" (1.3 cm) square
- ▶ BETACLEAN U-424 Urethane Adhesive Cleaner safely removes excess uncured urethane adhesive. It does not harm most auto paint finishes, vinyl roof fabrics or unpainted dashboards.

Technical description

BETASEAL Express is an advanced cure, one-component adhesive with enhanced chemical crosslinking to speed bonding for safe drive away. Advanced cure

RINA technology reduces dependence on moisture. RINA creates uniform and reinforced properties throughout the bead for high initial green strength, resulting in faster, safe drive away times.

How do Advanced-Cure adhesives work?

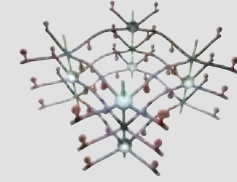
They use Dow Automotive's Reinforced Isotropic Network Adhesive (RINA) technology to provide significantly higher amounts of chemical crosslinking. They enable a faster drive away than conventional, one-component adhesives.

Strong bond

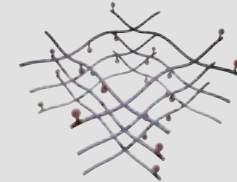
RINA creates uniform chemical, physical and performance properties throughout the adhesive bead. Its reinforced structure absorbs and dissipates crash stresses more effectively than conventional, one-component adhesives.

Superior crosslinking

RINA gives more strength and support than conventional, one-component adhesives because the internal structure of the bead is bolstered by significantly higher amounts of crosslinking. It speeds bonding to primed glass and prepared substrates.



RINA's strength and superior crosslinking bolster strength and speed bonding



Conventional adhesives have significantly fewer crosslinks

Safe Drive Away Time:

FMVSS 212 with Passenger Side Air Bag

Temperature	Time
0°F (-17.8°C) and above	1 hour

Note: If vehicle manufacturers have not published specific make and model drive away times, use this chart as a guideline.



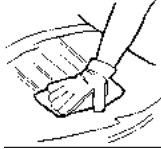
Crash test: April 2002

Installation instructions



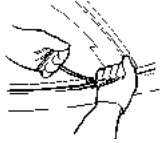
1. Wear appropriate safety equipment

- ▶ **Protect yourself**
- ▶ **Wear safety equipment, such as work gloves, Nitrile chemical-resistant gloves, safety glasses, work apron or other protection required by your company or safety regulations**



2. Clean and inspect replacement glass

- ▶ **Use BETACLEAN GC-800 Glass & Surface Cleaner and a clean, lint-free paper towel to clean the bonding surface of the glass**
- ▶ Inspect replacement glass for defects
- ▶ Verify all primers and adhesives are within **use-by dates**



3. Cut out the glass

- ▶ Protect the customer's vehicle
- ▶ Remove all hardware and reveal moldings
- ▶ **Cut out the windshield or body glass using your preferred method**
- ▶ **Clean any dirt and debris from around the existing urethane**



4. Dry fit the glass

- ▶ **Fit new glass into the opening**
- ▶ Determine how to best position the glass
- ▶ Mark this position with "paint safe" tape as guides

5. Prepare the glass

- ▶ **Use BETACLEAN GC-800 and a clean, lint-free paper towel to clean the bonding surface of the glass**
Note: If bonding to glass close to encapsulation, "wet scrub" the glass bonding surface.
- ▶ **If contamination is present, "wet scrub" the bonding surface with an abrasive pad and BETACLEAN GC-800. Apply a second application of BETACLEAN GC-800 and remove with a lint-free paper towel.**

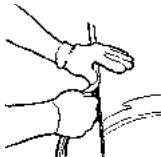


Apply BETAPRIME 5500 or BETAPRIME 5500SA



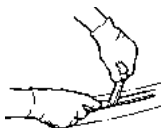
5a. Prime the glass

- ▶ Shake BETAPRIME 5500 1-Step Glass/Frit Primer for **at least one (1) minute** before application
- ▶ Open BETAPRIME 5500 bottle carefully. Insert a **clean, unused dauber**. To avoid spilling, never pour liquid on dauber.
- ▶ If using single application BETAPRIME 5500SA, activate according to the directions
- ▶ **Apply BETAPRIME 5500 along the bond line**
- ▶ Replace inner seal and cap on bottle immediately
- ▶ **Allow a minimum of six (6) minutes** for the primer to dry
- ▶ Apply the FlexiTrim™ reveal molding or original molding to the glass, if necessary



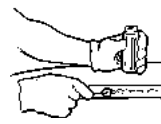
5b. Encapsulation and PAAS preparation

- ▶ **Clean encapsulation or PAAS bead with BETACLEAN GC-800 and a clean, lint-free paper towel**
- ▶ Gently "wet scrub" the encapsulation with an abrasive pad, then clean again with BETACLEAN GC-800. **Allow to dry completely.**
- ▶ **Note: Skip this step if bonding to PAAS.**
- ▶ Shake BETAPRIME 5404 Pinchweld and Encapsulation Primer for **at least one (1) minute** to ensure contents are thoroughly mixed
- ▶ Apply BETAPRIME 5404 to the encapsulation or PAAS surface with dauber
- ▶ Replace inner seal and cap on bottle immediately
- ▶ **Allow a minimum of six (6) minutes** for the primer to dry



6. Trim back the urethane

- ▶ **Trim the urethane with an appropriate tool leaving a 1 mm to 2 mm base of Original Equipment urethane on the pinchweld**
- ▶ Take care not to damage the vehicle paint or pinchweld



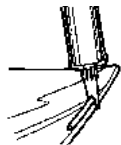
7. Prepare the pinchweld

Note: Exposed bare metal areas over 1/2" x 1/2" (1.3cm x 1.3cm) require an etching primer to restore bond strength and durability. (See bare metal priming below.)

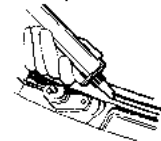
- ▶ Shake BETAPRIME 5404 for **at least one (1) minute** before application
- ▶ Inspect the pinchweld for any bare metal or scratches
- ▶ If found, prime these with BETAPRIME 5404
- ▶ Open the bottle carefully. Insert a **clean, unused dauber**. To avoid spilling, never pour liquid on dauber.
- ▶ **Apply BETAPRIME 5404 to scratches along the bond line. Avoid priming existing urethane bead.**
- ▶ Replace inner seal and cap on bottle immediately
- ▶ **Allow a minimum of six (6) minutes** for the primer to dry

Bare metal priming:

- ▶ Clean metal surface with an abrasive pad making sure to rough up edges of painted areas
- ▶ Wipe area to be primed with a **clean, lint-free paper towel** dampened with 100% acetone
- ▶ **Allow two (2) minutes** to flash
- ▶ Shake BETAPRIME 5201TF Bare Metal Etch Primer for **at least one (1) minute** before application
- ▶ Using a **clean, unused dauber**, apply an even coat of BETAPRIME 5201TF
- ▶ Replace cap on bottle immediately
- ▶ **Allow at least 30 minutes** for material to dry. Metal and air must be at least 40°F (4.4°C) for material to flash.
- ▶ Apply a coat of BETAPRIME 5404 on top of the primed area making sure to completely cover BETAPRIME 5201TF etching primer
- ▶ Replace inner seal and cap on bottle immediately
- ▶ **Allow a minimum of six (6) minutes** for the primer to dry



Apply to glass or pinchweld



8. Apply BETASEAL urethane adhesive

(Choose either glass or pinchweld application.)

Glass Application:

- ▶ Hold the applicator in a vertical position (90°) and dispense the adhesive with a continuous motion in a uniform "V" shaped bead
- ▶ Apply adhesive to the glass on top of the bond line

Pinchweld Application:

- ▶ Hold the applicator in a vertical position (90°) and dispense the adhesive with a continuous motion in a uniform "V" shaped bead
- ▶ Apply adhesive to the pinchweld perimeter directly on top of the freshly cut Original Equipment urethane film

Either Application:

- ▶ Make sure bead is uniform and has no gaps. Add material or tool joints, if necessary.



9. Install the glass

- ▶ Apply BETAPRIME 5404 to any molding or encapsulation bonding surface that contacts new urethane to promote adhesion
- ▶ **Place the glass in the body opening**
- ▶ Use the tape guides to correctly position the glass. Adjust glass to precise alignment.
- ▶ **Lightly press it into position**
- ▶ **Backpaddle urethane around edge of glass into gaps**
- ▶ Replace the press-in style molding, if required
- ▶ Replace any additional hardware



10. Clean up

- ▶ **Clean any excess uncured urethane with BETACLEAN U-424 Urethane Adhesive Cleaner**
- ▶ **Clean the newly installed glass with BETACLEAN GC-800**
- ▶ Complete the job paperwork and record lot numbers
- ▶ Release the car to the customer after the appropriate drive away time elapses

Physical properties

Appearance: Black, smooth paste
Solids Content: 99%
Flash Point: >230°F (110°C)
Weight per Volume: 9.9 lbs/gal
Specific Gravity: 1.2
Sag: None
Odor: Minimal
Tack-free Time: Skins in 10 minutes
after application at 72°F (22°C)
and 50% RH
Working Time: 8-10 minutes
Full Cure: Less than 24 hours
at 72°F (22°C) and 50% RH

Cured physical properties

Shore A Hardness: 55-65
(7 days at room temperature)
Elongation: >400%
Tensile Strength: >1000 psi

Vehicle clean up

- ▶ If required, use BETACLEAN U-424 Urethane Adhesive Cleaner following all directions and precautions
- ▶ Test BETACLEAN U-424 on an inconspicuous area prior to using
- ▶ BETACLEAN U-424 is not recommended for newly painted, hard plastic or bonding surfaces
- ▶ Dispose of empty containers properly

Safety precautions

- ▶ Keep away from heat, sparks or open flame
- ▶ Use only with adequate ventilation
- ▶ Avoid breathing vapors
- ▶ If swallowed, call physician immediately
- ▶ For eye contact, flush with water for 15 minutes and get medical attention
- ▶ Wear appropriate safety equipment, such as gloves and eye protection, or as specified by your company
- ▶ Avoid skin contact; flush with water, if necessary
- ▶ Refer to Material Safety Data Sheet (MSDS) for additional information

Shelf life

- ▶ Store at temperatures between 60°F (15°C) and 80°F (27°C)
- ▶ All materials manufactured by or for Dow Automotive have a shelf life. Urethane adhesives and primers are marked with expiration dates. Unopened product is considered within shelf life up to and including the date marked on the product. Product is considered expired past the date marked and should not be used.

System compatibility

- ▶ Use no other manufacturers' primers, cleaners or other chemicals in conjunction with any BETASEAL adhesive system

Dow's commitments

- ▶ The products when shipped meet the then current sales specifications
- ▶ Dow will notify customer if the sales specifications are changed
- ▶ Dow will supply customer with current Material Safety Data Sheets (MSDS)
- ▶ Dow conveys the product with good title, free from any lawful lien or encumbrance

Packaging

Product Number	Package Size	Type	Units/ Carton	Cartons/ Case	Approx Weight/Case
Express	10.5 oz (310 ml)	Cartridge	10	5	51 lb (23 kg)
ExpressEP	1.4 L (47 fl oz)	EssexPak	6	2	24 lb (10.8 kg)
ExpressBP	20.3 oz (600 ml)	Foil Pack	12	N/A	?? lb (?? kg)
5500	1.4 oz (40 ml)	Bottle	5	5	?? lb (?? kg)
5500SA	.3 oz (10 ml)	Applicator	12	39	? lb (? kg)
5201TF	.5 oz (15 ml)	Bottle	5	6	3 lb (1.4 kg)
5404	3.4 oz (100 ml)	Bottle	5	5	? lb (? kg)
GC-800	18 oz (510 g)	Aerosol	12	N/A	18 lb (8.1 kg)
U-424	32 oz (946 ml)	Bottle	10	N/A	21 lb (9.5 kg)

Exclusion of all other warranties

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