<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
<th>Column C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4.0 Vehicle Assessment before Replacement</strong></td>
<td><strong>4.1</strong> Those engaged in automotive glass replacement shall not undertake or complete such installation when any related condition would compromise the retention system and the owner/operator shall be so notified.</td>
<td>If conditions that would prevent a safe installation are observed prior to glass installation, the job shall not be completed until the condition is corrected. The customer/owner/operator must also be notified.</td>
</tr>
<tr>
<td><strong>5.0 Selection of Glass and Retention Systems</strong></td>
<td><strong>5.1</strong> Those engaged in automotive glass replacement shall use retention systems that are produced under the ISO 9001 standard or any standard that contains the entire text of ISO 9001.</td>
<td><strong>Refer to:</strong> Page 3, Sidebar in the Dow Automotive Fixed Glass Installation Guide Ver. 5.3 (2016)</td>
</tr>
<tr>
<td></td>
<td><strong>5.3</strong> Those engaged in automotive glass replacement shall use either an OEM approved retention system or equivalent retention system as certified in writing by the equivalent retention system manufacturer directly or through a private labeler.</td>
<td><strong>Refer to:</strong> Page 3, Sidebar &amp; Page 8, Section 2 in the Dow Automotive Fixed Glass Installation Guide Ver. 5.3 (2016)</td>
</tr>
</tbody>
</table>
5.4 Those engaged in automotive glass replacement shall obtain and follow written comprehensive and current application instructions from the retention systems manufacturer or private labeler. These instructions shall include at least the proper use of the retention system storage specifications, minimum drive-away time charts containing temperature and humidity variables if applicable, and any special procedures required for adverse weather conditions.

1. **GLASS CLEANING:**

   - Product requirements
   - Application requirements
   - Storage requirements
   - Shelf-life (opened & unopened)
   - Adverse weather conditions
   - Additional requirements

   - References to the use of safety glasses and the use of chemical resistant gloves is for the protection of the installer and has no effect on the safety of the installation.

   - Dow Instructions reference GC-800 as an example, other commercial grade glass cleaners are acceptable as long the ingredient list does not include anti-streak compounds

   - Dow Automotive GC-800 & BETABRADE should be stored according the same as adhesives or primers.

   - Dow Automotive GC-800 & BETABRADE is NOT subject to the same expiration date limits or lot number recordkeeping requirements as adhesives or primers.

   - Dow Automotive or any other glass cleaner containing water should not be used at below freezing temperatures or below without following special cold weather steps

   - Dow Automotive Instructions recommend the use of "lint-free" paper towels. This is a goal, not a specific requirement. Many paper towels that might be considered "lint-free" are not labeled as such and some labeled as "lint-free" are not.

   - BETABRADE F1 MAY be used instead of "wet-scrubbing" glass & fritted bonding surfaces when contamination is visibly detected

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Dow Automotive provides eight different adhesive systems to the AGR Industry. Two may use BETAPRIME CLEAR Glass/Frit Primer. Four do not require any primer on fritted glass and all eight can be used with BETAPRIME 5504G(sa) Primers.

To avoid confusion, refer to the instruction sheet attached to the product information sheet/brochure for the specific adhesive system being audited. Exceptions and explanations to statements in the instruction sheets are minimal and will be listed in column B.

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2. **GLASS PREP/PRIMING:**

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Refer to: Pages 11 & 12 for glass cleaning in the Dow Automotive Fixed Glass Installation Guide Ver. 5.3 (2016) or installation instructions on Page 3 of appropriate brochure

All EZ Kit Packaged adhesives include current instructions for use in box

- BETABRADE (Optional Use) Video

- Dow Primers & Cleaners Brochure W/instructions

- Dow Advanced Cure Brochure W/instructions

- Dow Primerless to Glass Brochure W/instructions

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<table>
<thead>
<tr>
<th>3. PINCHWELD PREP/PRIMING:</th>
<th>3. PINCHWELD PREP/PRIMING:</th>
<th>3. PINCHWELD PREP/PRIMING:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product requirements</strong></td>
<td><strong>Product requirements</strong></td>
<td><strong>Refer to:</strong> Pages 13 &amp; 14 for glass priming in the Dow Automotive Fixed Glass Installation Guide Ver. 5.3 (2016) or installation instructions on Page 3 of each appropriate brochure</td>
</tr>
<tr>
<td>• BETASEAL 0°ne and Express can be used with BETAPRIME CLEAR or 5504G(sa) glass primers</td>
<td>• BETAPRIME 5504G(sa) glass primer</td>
<td><strong>All EZ Kit Packaged adhesives include current instructions for use in box</strong></td>
</tr>
<tr>
<td>• BETASEAL U-400HV, BP or HMNC must be used with BETAPRIME 5504G(sa) glass primer</td>
<td>• BETASEAL U-418, U-418HV, 428plus &amp; 838 do not require glass primer, but can be used with BETAPRIME 5504G(sa) for additional cosmetic appearance and/or extra UV protection.*</td>
<td><strong>Dow Advanced Cure Brochure w/instructions</strong></td>
</tr>
<tr>
<td>• Shelf life of primers is up to the expiration date marked on the package when stored according to the requirements on the specific product brochure. All Dow packaging is being updated to match current literature. Storage temperatures on current literature supersede all previous requirements.</td>
<td>• Open life on BETAPRIME 5504G in cans is 14 days when properly sealed after use and stored according to the requirements on the specific product brochure.</td>
<td><strong>Dow Primerless to Glass Brochure w/instructions</strong></td>
</tr>
<tr>
<td>• When bonding to previously installed glass, as long as the new adhesive is being applied to freshly cut, well bonded, uncontaminated cure urethane on both the body and glass, Dow will allow the use of “used” glass.</td>
<td>• Glass pre-primed by an OEM manufacturer should be re-primed with BETAPRIME 5504G(sa)</td>
<td><strong>Dow Primers &amp; Cleaners Brochure w/instructions</strong></td>
</tr>
<tr>
<td>• “Double-dipping” of daubers in BETAPRIME 5504G All-in-One Primer is not encouraged as it could slightly reduce open life of the primer. It is NOT a compliance problem if the technician does “double-dip” when priming glass or encapsulation and will not compromise the bond.</td>
<td></td>
<td><strong>Refer to:</strong> Pages 15 thru 20 for body preparation and priming in the Dow</td>
</tr>
<tr>
<td>Application requirements</td>
<td>Application requirements</td>
<td>References to “protect customer vehicle” is not a requirement for a safe installation, it is an industry “best practice”.</td>
</tr>
<tr>
<td>--------------------------</td>
<td>--------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Storage requirements</td>
<td>Shelf-life (opened &amp; unopened)</td>
<td>Shelf life of primers is up to the expiration date marked on the package when stored according to the requirements on the specific product brochure.</td>
</tr>
<tr>
<td>Adverse weather conditions</td>
<td></td>
<td>Open life on BETAPRIME 5504G in cans is 14 days when properly sealed after use and stored according to the requirements on the specific product brochure.</td>
</tr>
<tr>
<td>Additional requirements</td>
<td></td>
<td>Follow instructions in product brochure for each specific adhesive for proper cleaning and priming of bare metal and/or preparation of glass or painted surfaces when using adhesive with gasket set glass.</td>
</tr>
<tr>
<td>- Corrosion treatment</td>
<td></td>
<td>All references in adhesive instructions to “dry fitting” and the use of “tape guides” in the installation of glass is for convenience and is NOT necessary for a safe installation.</td>
</tr>
<tr>
<td>- Gasket Sets</td>
<td></td>
<td>Reference to trimming existing adhesive to a height of 1-2 mm is a recommendation but a layer of uncontaminated, well bonded, freshly cut urethane as thin as 1/64” is acceptable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recommendation to “avoid” priming existing urethane is not mandatory as BP 5504G is acceptable as a PAAS Primer.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Priming moldings with BP 5504G is a recommendation only and has no effect on a safe installation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Double-dipping” of daubers after it touches the body of the vehicle is not encouraged or recommended with BETAPRIME 5504G All-in-One Primer as it could introduce contamination that could be transferred when priming glass or frit.</td>
</tr>
</tbody>
</table>

4. URETHANE APPLICATION:

**Product requirements**

- References to use BETACLEAN 424 is a recommendation and as long as it is not used on a

### Automotive Fixed Glass Installation Guide Ver. 5.3 (2016) or installation instructions on Page 3 of each appropriate brochure

All EZ Kit Packaged adhesives include current instructions for use in box

- Dow Advanced Cure Brochure w/instructions
- Dow Primerless to Glass Brochure w/instructions
- Dow Primers & Cleaners Brochure w/instructions

4. URETHANE APPLICATION:

Refer to: Pages 21 thru 25 for adhesive application the Dow Automotive Fixed Glass Installation Guide Ver. 5.3 (2016) or installation instructions on Page 3 of each
| **Storage requirements**  
| **Shelf-life**  
| **Adverse weather conditions**  
| **Additional requirements**  
| - SDAT identification  
| - Non-conductive considerations  
| - High modulus considerations  
| - Other | bonding surface, the solvent used to clean the exterior of the vehicle is up to the specific user.  
| • References to application of adhesive at a 90° angle is a recommendation and a means of giving perspective to the term “vertical” with regards to the applicator. Application of adhesive at lower angles is not considered a safety issue.  
| • Recommendation to “back paddle” urethane after setting the glass is to minimize leaks and is not required for a safe installation.  
| • All Dow packaging is being updated to match current literature. | **appropriate brochure**  
| All EZ Kit Packaged adhesives include current instructions for use in box | Dow Advanced Cure Brochure  
| w/instructions  
| Dow Primerless to Glass Brochure  
| W/instructions  
| Dow Primers & Cleaners Brochure  
| W/instructions |

| **5.5 Those engaged in automotive glass replacement shall only use retention systems that have lot numbers and expiration dates printed on appropriate products.** | Refer to Dow Automotive product brochure for instructions for specific product used. ALL Dow Automotive Product sticks, bottles, cartridges and sausages have lot numbers and expiration dates printed on the individual package as well as the box it is packed in. | Refer to Dow Automotive product brochure for instructions for specific product used. ALL Dow Automotive Product sticks, bottles, cartridges and sausages have lot numbers and expiration dates printed on the individual package as well as the box it is packed in. G-EZ Kit packaging includes Master Lot Code Stickers that record all primer lot codes and adhesive lot code from the EZ Kit and have a place to record DOT number from glass.  
| Dow Advanced Cure Brochure  
| w/instructions  
| Dow Primerless to Glass Brochure  
| W/instructions  
| Dow Primers & Cleaners Brochure  
| W/instructions |

| **6.0 Installation Standards-Adhesive Bonded** | Refer to Dow Automotive product brochure for instructions for specific product used OR use instructions included in EZ Kit box, individual adhesive box or access on www.DowARG.com Website. | Refer to Dow Automotive product brochure for instructions for specific product used OR use instructions included in EZ Kit box, individual adhesive box or access on www.DowARG.com Website. |

| **6.1 Those engaged in automotive glass replacement shall follow the adhesive manufacturer's application instructions as provided by the manufacturer directly, or through the private labeler. All in-shop or | Dow Advanced Cure Brochure w/instructions  
| www.DowARG.com Website. | Dow Advanced Cure Brochure w/instructions  
<p>| <a href="http://www.DowARG.com">www.DowARG.com</a> Website. |</p>
<table>
<thead>
<tr>
<th>Paragraph</th>
<th>Dow Primerless to Glass Brochure w/instructions</th>
<th>Dow Advanced Cure Brochure w/instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.2 Products must be stored and controlled according to manufacturers' requirements as provided directly or through a private labeler.</td>
<td>Refer to product storage temperature referenced on each brochure for specific adhesive or primer being used</td>
<td>Referenced in product brochure for specific adhesive in use on last page under &quot;shelf life&quot;.</td>
</tr>
<tr>
<td>6.3 No automotive glass replacement shall be undertaken using an adhesive glass retention bonding system that would not achieve minimum drive-away strength by the time the vehicle may be reasonably expected to be operated.</td>
<td>Refer to drive-away time chart on brochure for specific product being used</td>
<td>Drive-away chart in product brochure for specific adhesive in use Refer to: Appendix Pages in the Dow Automotive Fixed Glass Installation Guide Ver. 5.3 (2016)</td>
</tr>
<tr>
<td>6.4 The vehicle owner/operator shall be notified prior to and after the installation process of the minimum drive-away time under the circumstances of the replacement.</td>
<td>Notify the customer/owner/operator of the appropriate safe minimum drive away time referenced in the last section of the adhesive specific instructions in each adhesive brochure</td>
<td>Refer to: Dow Fixed Glass Replacement Record Form in the Appendix Pages in the Dow Automotive Fixed Glass Installation Guide Ver. 5.3 (2016) MAY be used.</td>
</tr>
<tr>
<td>6.5 Adhesive shall be applied so that the finished bead cross section profile and dimensions meet or exceed original equipment configuration or recommendation of adhesive system manufacturer.</td>
<td>Product use instructions are included in each adhesive brochure for the specific adhesive being applied</td>
<td>Refer to: Pages 21 thru 25 for adhesive application the Dow Automotive Fixed Glass Installation Guide Ver. 5.3 (2016) or installation instructions on Page 3 of each appropriate brochure</td>
</tr>
<tr>
<td>6.6 If the OEM installation was polyurethane, then the glass shall be replaced with polyurethane or an equivalent adhesive bonding system. If the OEM installation was butyl, polysulfide, or other non-polyurethane, and the vehicle is licensed for highway use, adhesive bonded stationary glass installations shall be performed using polyurethane or an equivalent retention system unless in conflict with current OEM specifications.</td>
<td>Always use urethane to match existing bonding adhesive and use urethane to upgrade installations of other adhesives to urethane bond Refer to Dow Automotive product brochure for instructions for specific product used.</td>
<td>Product use instructions are included in each adhesive brochure for the specific adhesive being applied Refer to: Pages 15 &amp; 17 for body preparation in the Dow Automotive Fixed Glass Installation Guide Ver. 5.3 (2016)</td>
</tr>
<tr>
<td>Section</td>
<td>Description</td>
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<tr>
<td>6.7</td>
<td>All adhesive system component lot numbers shall be traceable to each job. Record the lot number from the glass primer if required, pinchweld primer and adhesives used in the installation. Optional: Use Master Lot Code Stickers in GEZ Kit packaging that records all primer lot codes and adhesive lot code from the GEZ Kit and have a place to record DOT number from glass. Referenced in product brochure for specific adhesive in use on page 3 under “record keeping.”</td>
<td></td>
</tr>
<tr>
<td>Refer to: Dow Fixed Glass Replacement Record Form in the Appendix Pages in the Dow Automotive Fixed Glass Installation Guide Ver. 5.3 (2016) MAY be used. Dow Advanced Cure Brochure with instructions Dow Primerless to Glass Brochure with instructions Dow Primers &amp; Cleaners Brochure with instructions</td>
<td></td>
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</tr>
<tr>
<td>6.9</td>
<td>No product that has exceeded the manufacturer or private labeler’s stated expiration date, open shelf life, or active shelf life shall be used. All products can be used up to and including the date printed on the product if unopened. Bottled BP 5504G may be for up to 14 days after opening if within shelf life printed on product container. Refer to Dow Automotive product brochure for instructions for specific product used. ALL Dow Automotive Product sticks, bottles, cartridges and sausages have lot numbers and expiration dates printed on the individual package as well as the box it is packed in.</td>
<td></td>
</tr>
<tr>
<td>Refer to: Dow Advanced Cure Brochure with instructions Dow Primerless to Glass Brochure with instructions Dow Primers &amp; Cleaners Brochure with instructions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.11</td>
<td>When inappropriate replacement materials or methods are detected, those engaged in automotive glass replacement shall report their findings to the vehicle owner/operator. If inappropriate replacement materials or methods are detected prior to glass installation, the job shall not be completed until the condition is corrected. The customer/owner/operator must also be notified. Refer to: Dow Fixed Glass Installation Guide page 3 or Dow Fixed Glass Replacement Record Form in the Appendix Pages in the Dow Automotive Fixed Glass Installation Guide Ver. 5.3 (2016) MAY be used.</td>
<td></td>
</tr>
<tr>
<td>Refer to: Dow Fixed Glass Installation Guide page 3 or Dow Fixed Glass Replacement Record Form in the Appendix Pages in the Dow Automotive Fixed Glass Installation Guide Ver. 5.3 (2016) MAY be used.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.12 When those engaged in automotive glass replacement correct inappropriate glass installations, they shall remove any inappropriate materials that would compromise the retention system. They shall fully correct any adverse glass installation related condition(s) caused by the use of inappropriate materials or methods, and they shall use appropriate methods described elsewhere within Section 5 of this document.</td>
<td>If inappropriate replacement materials or methods are detected prior to glass installation, the job shall not be completed until the condition is corrected. Adverse glass installation related condition(s) caused by the use of inappropriate materials or methods shall be fully corrected and appropriate methods described elsewhere within Section 6 of this document shall be adhered to. The customer/owner/operator must also be notified.</td>
<td>Refer to: Dow Fixed Glass Installation Guide page 3 or Dow Fixed Glass Replacement Record Form in the Appendix Pages in the Dow Automotive Fixed Glass Installation Guide Ver. 5.3 (2016) MAY be used.</td>
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</tr>
<tr>
<td>6.13 When sealing air or water leaks within a polyurethane retention system, only compatible polyurethane adhesive shall be used. (No silicone or butyl may be used).</td>
<td>To avoid future contamination problems encountered with non-urethane adhesives and sealants, use urethane according to preparation and application instructions specific to that adhesive</td>
<td>NOTE- may be in conflict with existing OEM service bulletins Use instructions specific to adhesive in adhesive brochure</td>
</tr>
<tr>
<td>6.14 Only the full cut method should be used for polyurethane retention systems.</td>
<td>Follow adhesive system installation instructions in product brochure specific to adhesive being used. &quot;Full-cut&quot; method is trimming existing adhesive to within 1-2 mm in height Note: 1-2 mm is a recommendation. Trimmed original adhesive height as thin as 1/64” is acceptable</td>
<td>Refer to: Dow Fixed Glass Installation Guide Pages 15 thru 20 for body preparation and priming in the Dow Automotive Fixed Glass Installation Guide Ver. 5.3 (2016) or installation instructions on Page 3 of each appropriate brochure</td>
</tr>
<tr>
<td>7.0 Installation Standards- Rubber Gasket</td>
<td>When sealing and bonding gaskets with urethane, follow glass preparation procedures in appropriate adhesive instructions in adhesive brochure</td>
<td>Use ANSI/AGSC/AGRSS Standard directive on Pg. 6, Section 7 Use glass preparation instructions specific to adhesive in adhesive brochure</td>
</tr>
<tr>
<td>7.1 If the OEM utilizes the combination of a rubber gasket and polyurethane as a retention system, an equivalent adhesive bonding system must be used in the installation. In cases when the OEM didn't include polyurethane or an equivalent adhesive system, such systems shall be used if later production models included the addition of adhesive systems without body style modification.</td>
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</tbody>
</table>

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| 7.2 If the OEM gasket installation did not include adhesive and the vehicle is licensed for highway use and is less than 10,000 lbs. Gross Vehicle Weight (GVW), the installation shall include polyurethane or an equivalent adhesive bonding system. The following are permissible exceptions: egress applications, antique or classic vehicle restorations, or in cases in which this practice conflicts with current vehicle manufacturer specifications. | When sealing and bonding gaskets with urethane, follow glass preparation procedures in appropriate adhesive instructions in adhesive brochure | Use ANSI/AGSC/AGRSS Standard directive on Pg. 6, Section 7  
Use glass preparation instructions specific to adhesive in adhesive brochure |
|---|---|---|
| 7.3 When sealing air or water leaks within a rubber gasket/polyurethane ADHESIVE SYSTEM only compatible polyurethane shall be used. (No silicone or butyl may be used). | When sealing and bonding gaskets with urethane, follow glass preparation procedures in appropriate adhesive instructions in adhesive brochure | Use ANSI/AGSC/AGRSS Standard directive on Pg. 6, Section 7  
Use glass preparation instructions specific to adhesive in adhesive brochure  
**Dow Advanced Cure Brochure w/instructions**  
**Dow Primerless to Glass Brochure W/instructions**  
**Dow Primers & Cleaners Brochure W/instructions** |
### 8.0 Additional Requirements

<table>
<thead>
<tr>
<th>Section</th>
<th>Requirement</th>
<th>Instructions/Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.4</td>
<td>Whenever OEM retention systems are modified on later production models without body style modification, the most current retention system shall be used in the replacement unless otherwise specified by the OEM.</td>
<td>When sealing and bonding with urethane, follow glass preparation procedures in appropriate adhesive instructions in adhesive brochure. Use ANSI/AGSC/AGRSS Standard directive on Pg. 6, Section 8.4. Refer to Dow Automotive product brochure for instructions for specific product used OR use instructions included in EZ Kit box, individual adhesive box or access on <a href="http://www.DowARG.com">www.DowARG.com</a> Website. Dow Advanced Cure Brochure w/instructions Dow Primerless to Glass Brochure w/instructions Dow Primers &amp; Cleaners Brochure w/instructions.</td>
</tr>
<tr>
<td>8.5</td>
<td>Notification of defective product: - A failure or defect in any product used or intended for use in the automotive glass replacement process that could jeopardize customer safety shall be reported promptly to the manufacturer or supplier of the product. - Any product installed by those engaged in automotive glass replacements that is discovered to be defective or which is determined could jeopardize customer safety shall be immediately reported to the customer with an offer to remedy the situation.</td>
<td>Report any product that does not appear to perform properly to the manufacturer of the product and company supervisor or management. Using required records like: glass part number, DOT number, primer lot number and adhesive lot number, work with vehicle owner/operator to remedy the problem or recall. Follow ANSI/AGSC/AGRSS Standard directive in section 6.12 and 8.5.</td>
</tr>
<tr>
<td>8.6</td>
<td>Those engaged in automotive glass replacement shall not introduce any chemical agents, such as cleaners, solvents, lubricants, release agents, or utilize any installation practice, which will adversely affect the glass retention system.</td>
<td>When sealing and bonding with urethane, follow glass preparation procedures in appropriate adhesive instructions in adhesive brochure. Refer to: Dow Fixed Glass Installation Guide page 3 side bar.</td>
</tr>
<tr>
<td>8.7</td>
<td>Those engaged in automotive glass</td>
<td></td>
</tr>
<tr>
<td>replacement shall create and retain records of each auto glass replacement for a period of at least three years from the date the work was completed sufficient to demonstrate compliance with this standard. Records, either electronic or hard-copy, shall be legible, easily identifiable and readily available. Such three year period may be temporarily shortened for specific, clear and substantial reasons but shall be adhered to when such reasons no longer exist.</td>
<td>Those engaged in automotive glass replacement shall maintain documentation to demonstrate compliance with this standard.</td>
<td>Refer to: Dow Fixed Glass Installation Guide page 3 or Dow Fixed Glass Replacement Record Form in the Appendix Pages in the Dow Automotive Fixed Glass Installation Guide Ver. 5.3 (2016) MAY be used.</td>
</tr>
</tbody>
</table>

**Retention System Provider Deliverables:**
<table>
<thead>
<tr>
<th>Deliverable</th>
<th>Retention System Provider Response</th>
<th>Is Documentation Included: (Yes, No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 Those engaged in automotive glass replacement shall use retention systems that are produced under the ISO 9001 standard or any standard that contains the entire text of ISO 9001. Identify your organizations current quality assurance standard and how this should be identified by your glass shop customers.</td>
<td><strong>Dow Automotive response:</strong> All Dow Automotive materials are manufactured according to internal American Standard Testing Method (ASTM) and International Standardization Organization (ISO) procedures. Furthermore, our adhesives meet or exceed all OEM and Federal Motor Vehicle Safety Standards (FMVSS) and are crash proven, having passed the FMVSS 212 windshield retention test.</td>
<td>Refer to: Page 3, Sidebar in the Dow Automotive Fixed Glass Installation Guide Ver. 5.3 (2016)</td>
</tr>
<tr>
<td>5.3 Those engaged in automotive glass replacement shall use either an OEM approved retention system or equivalent retention system as certified in writing by the equivalent retention system manufacturer directly or through a private labeler. Provide validation to this requirement and how your glass shop customers' would demonstrate your compliance to this section of the Standard.</td>
<td><strong>Dow Automotive response:</strong> Dow Automotive supplies the urethane adhesives used to originally install windshields in nearly all domestic autos and two thirds of all vehicles manufactured worldwide. Adhesive systems from Dow Automotive have passed all Ford, GM, DaimlerChrysler and transnational manufacturer durability, vibration, cold impact and fogging resistance performance tests, including the two-year outdoor exposure tests required by many OEMs. When used as directed, Dow Automotive adhesives meet or exceed all of the OEM strength requirements outlined in glass bonding specifications.</td>
<td>Refer to: Pages 3, 7 &amp; 8 in the Dow Automotive Fixed Glass Installation Guide Ver. 5.3 (2016)</td>
</tr>
<tr>
<td>5.4 Those engaged in automotive glass replacement shall obtain and follow written comprehensive and current application instructions from the retention systems manufacturer or private</td>
<td><strong>Dow Automotive response:</strong> We update and distribute product</td>
<td>Refer to: The Dow Automotive Fixed Glass Installation Guide Ver. 5.3 (2016) or installation</td>
</tr>
</tbody>
</table>
| labeler. These instructions shall include at least the proper use of the retention system storage specifications, minimum dive-away time charts containing temperature and humidity variables if applicable, and any special procedures required for adverse weather conditions. | brochures like the following regularly. These contain:  
- Application details and requirements  
- Drive-away time charts with temperature and humidity variables  
- Step-by-step installation instructions  
- Safety precautions  
- Storage and shelf life information | instructions on Page 3 of each appropriate brochure  
All EZ Kit Packaged adhesives include current instructions for use in box |
|---|---|---|
| Identify the name and publish date of the document(s) fitting the description of “current, comprehensive, written application instructions” that are to be on hand and utilized by your company’s glass shop customers. | Dow Automotive response: Drive-away time data like the following charts are included in all Dow Automotive product literature and technical data.  
Other Drive-away charts are available on the Dow Automotive Website at: www.DowARG.com | Refer to: The Dow Automotive Fixed Glass Installation Guide Ver. 5.3 (2016) or installation instructions on Page 3 of each appropriate brochure  
All EZ Kit Packaged adhesives include current instructions for use in box |
| 6.3 No automotive glass replacement shall be undertaken using an adhesive glass retention bonding system that would not achieve minimum drive-away strength by the time the vehicle may be reasonably expected to be operated. |  | |
| Identify the drive-away-time chart to be utilized by your company’s glass shop customers in order to be compliant with this requirement. | Dow Automotive response:  
Drive-away time data like the following charts are included in all Dow Automotive product literature and technical data.  
Other Drive-away charts are available on the Dow Automotive Website at: www.DowARG.com | |
| 9.1 Technicians installing replacement automotive glass shall be fully qualified for the tasks they are required to perform. Such qualifications shall include, at a minimum, completion of a | Dow Automotive response: Dow Automotive has offered its industry-leading Fixed Glass Installation Training Program, and customized training programs for | Refer to: Page 3, Dow Automotive Fixed Glass Installation Guide Ver. 5.3 (2016) |

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comprehensive training program with a final exam and an ongoing education component. The program shall include, among other things: AGR safety issues, an understanding of OEM installation standards and procedures, relevant technical specifications, Adhesive System Manufacturer specific comprehensive retention system training and the opportunity to apply and demonstrate the skills technicians learn.

**IF YOUR COMPANY DOES PROVIDE TRAINING**, identify the name of your training course, the testing provided, the certificates provided and the frequency of such training and/or continuing education.

almost 30 years. More than 30,000 technicians have received certificates of program completion like the sample on page 5 of our Fixed Glass Installation Guide, which we update and distribute regularly.

The Dow Fixed glass Training Program was registered with AGSC in 2008 thru current

- Code of Practice
- Product safety
- Use the proper amount of adhesive
- Vehicle preparation
- Corrosion prevention and treatment

9.2 Training with respect to the content and requirements of the current version of this standard shall be required for all personnel directly involved in the automotive glass replacement process (examples: scheduling, purchasing, installing, customer service, quality control, management). Records of this training detailing content, date, participants and acknowledgement of the participant’s successful completion of the training and receipt of a printed copy of the current standard shall be maintained.

**IF YOUR COMPANY DOES PROVIDE TRAINING**, identify the document provided to record the required items mentioned above relating to this training.

Dow Fixed Glass Training Program, started in 1999 is in its fifth generation. It was the first AGSC/AGRSS Registered Training Program and is still currently in all forms. It is recommended but not required that customers be retrained approximately every two years or when products and procedures change. A certificate is provided upon completion of the course.

**Refer to:** Page 3, Dow Automotive Fixed Glass Installation Guide Ver. 5.3 (2016)
<table>
<thead>
<tr>
<th>Contact Information:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your Company’s Name:</td>
</tr>
<tr>
<td>Your Company’s Address:</td>
</tr>
<tr>
<td>Your Name:</td>
</tr>
<tr>
<td>Your Title:</td>
</tr>
<tr>
<td>Your Phone Number:</td>
</tr>
<tr>
<td>Your Email Address:</td>
</tr>
<tr>
<td>Your Mailing Address:</td>
</tr>
</tbody>
</table>
BETASEAL™ U-428 Plus and BETASEAL™ U-838 Adhesives
Speed Installations by Eliminating Glass Priming Step

• BETASEAL™ U-428 Plus and BETASEAL™ U-838 adhesives are one-component, conventional-cure adhesives. Each eliminates steps and speeds installations by incorporating glass primer functionality into the urethane.

• Requires only BETAPRIME™ 5504G All-in-One Primer if the metal is scratched during glass removal or when bonding to encapsulations or pre-applied adhesive systems (PAAS)

• Superior deck, even in hot weather
Speed Installations by Eliminating Glass Priming Step
BETASEAL™ U-428 Plus and BETASEAL™ U-838 adhesives are one-component, conventional-cure adhesives. They eliminate steps and speed installations by incorporating glass primer into the urethane. They can also be used for backlites, quarter glass, or other stationary glass as well as backfilling to install reveal moldings or other trim.

BETASEAL™ U-428 Plus
• Saves time by eliminating glass priming
• Convenient cartridge size
• Easy to gun – no heating required
• Superior decking

BETASEAL™ U-838
• Saves time by eliminating glass priming
• Economical sausage pack
• Improved decking even in hot weather
• Easy to gun – no heating required

Minimum Drive-Away Times

<table>
<thead>
<tr>
<th>Relative humidity</th>
<th>40°F-50°F</th>
<th>50°F-60°F</th>
<th>60°F-70°F</th>
<th>70°F-80°F</th>
<th>80°F-90°F</th>
<th>&gt;90°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 70%</td>
<td>12</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>50-70%</td>
<td>12</td>
<td>8</td>
<td>7</td>
<td>7</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>30-50%</td>
<td>12</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>10-30%</td>
<td>12</td>
<td>9</td>
<td>8</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

FMVSS 212 with Passenger-Side Airbag
Below 40°F (4.4°C), use BETASEAL™ Express or BETASEAL™ 0°ne™ adhesive and BETAPRIME™ 5504G All-in-One Primer to prime glass.

Shelf Life
Maximum shelf life, as stated on product packaging, is achieved when the product is stored at an ambient temperature that does not continuously exceed 110°F (43.3°C).

System Compatibility
Use no other manufacturers’ primers, cleaners or other chemicals in conjunction with any auto glass adhesive system from Dow Automotive Systems.
Windshield Installation Instructions

1. Wear appropriate safety equipment
   a) Protect yourself
   b) Wear safety equipment, such as work gloves, nitrile chemical-resistant gloves, safety glasses, work apron or other protection required by your company

2. Inspect replacement glass
   a) Spray glass bonding surface and vision area with BETACLEAN™ GC-800 Glass and Surface Cleaner and wipe glass clean with a lint-free paper towel
   b) Inspect replacement glass for defects, damage or signs of contamination
   c) Verify primer and adhesives are within use-by dates

3. Cut out the glass
   a) Protect the customer’s vehicle
   b) Remove all hardware and reveal moldings
   c) Cut out the windshield using your preferred method

4. Prepare the glass
   a) Many contaminants are difficult to detect and remove
   b) Use of BETABRADE™ F1 to remove difficult contamination is recommended
   c) Shake BETABRADE™ F1 bottle for 10 seconds and apply 2 mm thin line of BETABRADE™ F1 Primerless to auto glass urethane technology
   d) Scrub the bonding area with a lint-free paper towel until BETABRADE™ F1 is dry
   e) Spray entire windshield with BETACLEAN™ GC-800 Glass and Surface Cleaner and wipe clean with a lint-free paper towel to ensure it is clean and free of any traces of BETABRADE™ F1 in the bondline

4.1 Primerless to auto glass urethane technology
   Primers are auto glass urethane systems such as BETASEAL™ U-428 Plus and BETASEAL™ U-638 do not require the glass to be primed before installation. The auto glass primer is blended into the adhesive at the factory.
   Note: On clear glass without any frit, apply two coats of BETAPRIME™ 5504G All-in-One Primer, allowing each coat to dry.

4.2 Prepare encapsulation or PAAS
   a) Clean RIM or PVC encapsulation or PAAS bead with BETACLEAN™ GC-800 Glass and Surface Cleaner and a clean, lint-free paper towel
   b) “Wet scrub” the RIM or PVC encapsulation with an abrasive pad and BETACLEAN™ GC-800 Glass and Surface Cleaner, then clean again with BETACLEAN™ GC-800 Glass and Surface Cleaner and allow to dry completely
   Note: Skip this step if bonding to PAAS
   c) Check the expiration date on the container
   d) The primer bottle no longer requires shaking*
   e) Apply BETAPRIME™ 5504G All-in-One Primer to the RIM or PVC encapsulation or PAAS surface with dauber
   f) Apply BETAPRIME™ 5504G to any molding surface that contacts new urethane to promote adhesion
   g) Allow primer to dry for 2 minutes at 20°F (-7°C) and above and from 20°F (-7°C) down to 0°F (-18°C) allow primer to dry for 10 minutes.
   h) Replace inner seal and cap on bottle immediately

5. Trim back the urethane
   a) Clean any dirt and debris from around the existing urethane with BETACLEAN™ GC-800 Glass and Surface Cleaner or water and a clean towel
   b) Trim the urethane, leaving a 1 mm to 2 mm base of original equipment urethane on the pinchweld
   c) Take care not to damage the vehicle paint or pinchweld
   d) Any areas of trimmed urethane that require additional cleaning should be carefully wiped with BETACLEAN™ GC-800 Glass and Surface Cleaner or water and a clean towel

6. Prepare the pinchweld
   a) Apply BETASEAL™ adhesive (Choose either glass or pinchweld application)
   b) Hold the applicator in a vertical position (90°) to the glass and dispense the adhesive with a continuous motion in a uniform “V” shaped bead
   c) Apply adhesive to the glass on top of the bond line, matching the location of the original adhesive bead on the glass or apply adhesive to the pinchweld perimeter directly on top of the freshly cut original equipment urethane film
   d) Either application: Hold the applicator in a vertical position (90°) and dispense the adhesive with a continuous motion in a uniform “V” shaped bead
   e) Make sure bead is uniform and has no gaps; add material or gently tool joints, if necessary

7. Install the glass
   a) Carefully place the glass in the body opening
   b) Adjust glass to precise alignment
   c) Lightly press it into position

8. Clean up
   a) Check any excess uncured urethane with BETACLEAN™ U-424 Urethane Adhesive Cleaner
   b) Clean the newly installed glass with BETACLEAN™ GC-800 Glass Cleaner
   c) Clean up any remaining debris or broken glass on seats, floor, door handles and/or dash console

9. Recordkeeping
   a) Attach master lot code sticker to paperwork or manually record primer and adhesive lot numbers
   b) Record D.O.T. number from glass part on sticker
   c) Release vehicle to customer after the appropriate drive-away time elapses

*Advanced formulation BETAPRIME™ 5504G All-in-One Primer no longer requires shaking. However, shaking won’t have a negative effect on the performance.
## Primers, Cleaners and Accessories

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BETAPRIME™ 5504G All-in-One Primer</td>
<td>Simplifies the installation process and ensures the correct primer is used every time. One primer for both auto glass and body. Use on all common aftermarket substrates: glass, paint, nicks and scratches in the paint, large areas of bare metal and RIM, PVC and PAAS encapsulations.</td>
</tr>
<tr>
<td>125 ml (4.2 oz)</td>
<td></td>
</tr>
<tr>
<td>U-422 Daubers for Body Primers</td>
<td>Lint-free wool dauber with small head diameter for easy application of body primers.</td>
</tr>
<tr>
<td>U-420 Daubers for Glass and Body Primers</td>
<td>Lint-free wool dauber with standard diameter for easy application of glass and body primers.</td>
</tr>
<tr>
<td>BETACLEAN™ GC-800 Glass and Surface Cleaner</td>
<td>Effectively removes contamination from the windshield. It evaporates quickly to ensure a residue-free bonding surface.</td>
</tr>
<tr>
<td>18 oz (510 g)</td>
<td></td>
</tr>
<tr>
<td>BETABRADE™ F1 Surface Contamination Remover</td>
<td>Removes silicone residue and other heavy contamination from auto glass quickly and easily.</td>
</tr>
<tr>
<td>500 ml (16.9 oz)</td>
<td></td>
</tr>
<tr>
<td>G41004 Professional Gun 18:1</td>
<td>Easily pumps high-viscosity adhesives in 10.5 oz cartridges at 18:1 ratio.</td>
</tr>
</tbody>
</table>
Advanced-Cure Adhesives

• Choose from BETASEAL™ 0’ne™, BETASEAL™ Express or U-400HMNC in cartridges or sausage packs
• BETASEAL™ 0’ne™ and BETASEAL™ Express are available in G-EZKits with primers, cleaners and accessories included
• BETASEAL™ 0’ne™ and BETASEAL™ Express have one hour minimum drive-away time in temperatures as low as 0°F (-18°C). BETASEAL™ U-400HMNC has a two hour minimum drive-away time in temperatures 20°F (-7°C) or higher.
• Gun-n-Go – easy application, no heating required
• Crash proven
• Improved formula is easy to use with superior decking and short cut-off string

www.DowARG.com

®™ Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow.
Advanced-Cure Adhesives

Advanced-cure urethane adhesives are a one-component material that contains enhanced chemical crosslinking to speed bonding. They utilize Dow Automotive Systems’ patented Reinforced Isotropic Network Adhesive (RINA) technology to offer industry best one hour minimum drive-away times.

BETASEAL™ 0°ne™ – Simply the Best

- One urethane adhesive for standard and high modulus, non-conductive (HMNC) applications
- High-modulus formula enhances vehicle’s structural integrity and improves passenger comfort by reducing road noise and stiffening the vehicle’s ride.
- Non-conductive for reduced interference with GPS and phone reception.
- One-hour minimum drive away in temperatures as low as 0°F (-18°C)
- Crash proven
- Gun-n-Go – easy application, no heating required

BETASEAL™ Express – Fast, Easy, Trusted

- Formulated for all standard glass replacements
- Superior decking and short cut-off string
- Gun-n-Go – easy application, no heating required
- Excellent for cold-weather applications – one-hour minimum drive away in temperatures as low as 0°F (-18°C)

BETASEAL™ U-400HMNC – The Tried and True Evolves into the New Modern Standard

- High modulus for torsional stiffness to quiet and stabilize the vehicle’s ride
- Non-conductive preserves radio, cellular phone and global positioning system reception in OEM antenna-encapsulated windshields and backlites
- Shorter minimum drive-away time – two hours in temperatures as low as 20°F (-7°C)
- Gun-n-Go – easy application, no heating required
- Use with BETAPRIME™ 5504G All-in-One Primer
- Crash proven and value priced OEM adhesive

BETASEAL™ G-EZKit – Everything you need for a good day’s work

Every BETASEAL™ G-EZKit contains:
- Choice of adhesives – BETASEAL™ 0°ne™ or BETASEAL™ Express in cartridges or foil packs
- 12 oz can BETACLEAN™ GC-800
- 14 BETAPRIME™ Clear SA sticks
- 40 ml (1.4 oz) BETAPRIME™ 5504G All-in-One Primer
- Instructional mirror tags
- Proof-of-use stickers
- Precut nozzles

www.DowARG.com
Windshield Installation Instructions

1. Wear appropriate safety equipment
   a) Protect yourself
   b) Wear safety equipment, such as work gloves, nitrite chemical-resistant gloves, safety glasses, work apron or other protection required by your company

2. Inspect replacement glass
   a) Spray glass bonding surface and vision area with BETACLEAN™ GC-800 Glass and Surface Cleaner and wipe glass clean with a lint-free paper towel
   b) Inspect replacement glass for defects, damage or signs of contamination
   c) Verify primer and adhesives are within use-by dates

3. Cut out the glass
   a) Protect the customer’s vehicle
   b) Remove all hardware and reveal moldings
   c) Cut out the windshield using your preferred method

4. Prepare the glass
   a) Many contaminants are difficult to detect and remove
   b) Use of BETABRADE™ F1 to remove difficult contamination is recommended
   c) Shake BETABRADE™ F1 bottle for 10 seconds and apply 2 mm thin line of BETABRADE™ F1 around entire glass bonding area
   d) Scrub the bonding area with a lint-free paper towel until BETABRADE™ F1 is dry
   e) Spray entire windshield with BETACLEAN™ GC-800 Glass and Surface Cleaner and wipe clean with a lint-free paper towel to ensure it is clean and free of any traces of BETABRADE™ F1 in the bondline

   4.1 Glass priming instructions using BETAPRIME™ 5504G All-in-One Primer
      a) Check the expiration date on the container
      b) The primer bottle no longer requires shaking*
      c) Open the bottle of BETAPRIME™ 5504G All-in-One Primer carefully and insert a clean, unused dauber; to avoid spilling, never pour liquid on dauber
      d) Apply one coat of BETAPRIME™ 5504G with a clean wool dauber in one, even coat
      e) If glass is not installed within 24 hours of original priming, re-prime the glass with BETAPRIME™ 5504G; do not re-prime more than once

   4.1b Glass priming instructions using BETAPRIME™ CLEAR 5A
      a) Point pad of BETAPRIME™ CLEAR 5A stick 1-Step Glass/Frit Primer toward the surface to be primed and pinch between thumb and forefinger to break internal vial, releasing the primer
      b) Allow the pad to saturate; it is not necessary to squeeze the tube
      c) Slowly draw the applicator twice around the surface to be primed to get an even glossy primer film (do not wipe off)
      d) Wait six (6) minutes for the primer to dry before installing glass
      e) If glass is not installed within 24 hours of original priming, re-prime the glass with BETAPRIME™ CLEAR 5A; do not re-prime more than once
      f) When priming glass with BETAPRIME™ CLEAR primer in temperatures from 0°F (-18°C) to 40°F (4.4°C), the glass should be cleaned at a temperature at or above 40°F (4.4°C) and stored in a manner that will keep it clean and contaminant free

   Note: On clear glass without any frit, apply two coats of BETAPRIME™ 5504G, allowing each coat to dry

   4.2 Prepare encapsulation or PAAS
      a) Clean RIM or PVC encapsulation or PAAS bead with BETACLEAN™ GC-800 Glass and Surface Cleaner and a clean, lint-free paper towel
      b) “Wet scrub” the RIM or PVC encapsulation with an abrasive pad and BETACLEAN™ GC-800 Glass and Surface Cleaner, then clean again with BETACLEAN™ GC-800 Glass and Surface Cleaner and allow to dry completely
      c) Check the expiration date on the container
      d) The primer bottle no longer requires shaking*
      e) Apply BETAPRIME™ 5504G All-in-One Primer with dauber to the RIM or PVC encapsulation, PAAS surface or any molding surface that contacts new urethane to promote adhesion
      f) Allow primer to dry for 2 minutes at 20°F (-7°C) and above and from 20°F (-7°C) down to 0°F (-18°C) allow primer to dry for 10 minutes
      g) Replace inner seal and cap on bottle immediately

   5. Trim back the urethane
      a) Clean any dirt and debris from around the existing urethane with BETACLEAN™ GC-800 Glass and Surface Cleaner or water and a clean towel
      b) Trim the urethane, leaving a 1 mm to 2 mm base of original equipment urethane
      c) Take care not to damage the vehicle paint or pinchweld
      d) Any areas of trimmed urethane that require additional cleaning should be carefully wiped with BETACLEAN™ GC-800 Glass and Surface Cleaner or water and a clean towel

   6. Prepare the pinchweld
      Once body surface is clean and dry, follow these priming steps:
      a) Check the expiration date on the container
      b) The primer bottle no longer requires shaking*

   For priming any areas of bare metal (large or small, including scratches):
      c) Open the bottle of BETAPRIME™ 5504G All-in-One Primer carefully and insert a clean, unused dauber; to avoid spilling, never pour liquid on dauber
      d) Apply one coat of BETAPRIME™ 5504G with a clean wool dauber to any scratches in the paint or large areas of bare metal
      e) Allow primer to dry for 2 minutes at 20°F (-7°C) and above. From 20°F (-7°C) down to 0°F (-18°C), allow primer to dry for 10 minutes.
      f) Apply second coat of BETAPRIME™ 5504G and allow primer to dry for 2 minutes at 20°F (-7°C) and above. From 20°F (-7°C) down to 0°F (-18°C), allow primer to dry for 10 minutes.

   For priming painted bonding surfaces (no bare metal):
      c) Open the bottle of BETAPRIME™ 5504G All-in-One Primer carefully and insert a clean, unused dauber; to avoid spilling, never pour liquid on dauber
      d) Apply one coat of BETAPRIME™ 5504G All-in-One Primer with a clean wool dauber to the painted area where original adhesive may have peeled off or to extend the bonding area when applying adhesive to the glass part
      e) Allow primer to dry for 2 minutes at 20°F (-7°C) and above and from 20°F (-7°C) down to 0°F (-18°C) allow primer to dry for 10 minutes.

   Warning: Do not reinsert (double dip) the dauber into the primer bottle if it has touched the body of the vehicle. This could contaminate the remaining primer in the bottle.

   7. Apply BETASEAL™ adhesive (Choose either glass or pinchweld application)
      a) Hold the applicator in a vertical position 90° to the glass and dispense the adhesive with a continuous motion in a uniform “Y” shaped bead
      b) Apply adhesive to the glass on top of the bond line, matching the location of the original adhesive bead on the glass or apply adhesive to the pinchweld perimeter directly on top of the freshly cut original equipment urethane film
      c) Either application: Hold the applicator in a vertical position (90°) and dispense the adhesive with a continuous motion in a uniform “Y” shaped bead
      d) Make sure bead is uniform and has no gaps; add material or gently tool joints, if necessary

   8. Install the glass
      a) Carefully place the glass in the body opening
      b) Adjust glass to precise alignment
      c) Lightly press it into position

   9. Clean up
      a) Clean any excess uncured urethane with BETACLEAN™ U-424 Urethane Adhesive Cleaner
      b) Clean the newly installed glass with BETACLEAN™ GC-800 Glass Cleaner
      c) Clean up any remaining debris or broken glass on seats, floor, door handles and/or dash console

   10. Recordkeeping
       a) Attach master lot code sticker to paperwork or manually record primer and adhesive lot numbers
       b) Record D.O.T. number from glass part on sticker
       c) Release vehicle to customer after the appropriate drive-away time elapses

   *Advanced formualtion BETAPRIME™ 5504G All-in-One Primer no longer requires shaking. However, shaking won’t have a negative effect on the performance.
Exclusively Reinforced Isotropic Network Adhesive (RINA) Technology

BETASEAL™ 0°ne™, BETASEAL™ Express and BETASEAL™ U-400HMNC are advanced-cure, one-component adhesives with enhanced chemical crosslinking to speed bonding for faster minimum drive-away times than conventional-cure adhesives.

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

It provides strength faster than conventional adhesives because the structure of the bead is bolstered by more crosslinking. This reinforced structure absorbs and dissipates crash stresses effectively in a shorter time frame than conventional adhesives, allowing for a faster minimum drive-away time.

Clean
Bonding surfaces must be clean of dirt, dust, water, oil, silicone and grease prior to priming and adhesive application. Not all contamination is visible - use BETABRADE™ F1 Surface Contamination Remover every time to help ensure glass is free of surface contamination. Use BETACLEAN™ GC-800 to remove any dust, dirt and other residue.

Prime
Use BETAPRIME™ 5504G All-in-One Primer to prime glass, ceramic frit, paint, any nicks and scratches in the paint, large areas of bare metal and encapsulations (RIM, PVC, and PAAS).

If using G-EZKit, prime the glass with BETASEAL™ Clear SA sticks.
Primerless-to-Glass Adhesives
Gun-n-Go – No Heating Required

• One-component, primerless-to-glass adhesives
• OEM approved and used
• FMVSS crash proven
• Primerless-to-glass options for convenience
• High viscosity options for easy application in all conditions

Dow® Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow.
Primerless-to-Glass Adhesives – Proven and Easy to Use

BETASEAL™ U-418HV and BETASEAL™ U-418 are primerless-to-glass adhesives. They rely on the moisture in the air to cure. If the temperature and relative humidity are low, the curing time will be longer. They are recommended for use at temperatures of 40°F (4.4°C) and above. See back page for minimum drive-away times based on temperature and relative humidity.

BETASEAL™ U-418HV – Primerless and Easy to Use
• Saves time by eliminating glass priming
• High viscosity formulation delivers higher initial (green) strength
• Easy to gun, excellent decking and sag resistance

BETASEAL™ U-418 – Primerless Convenience
• Excellent utility sealant for backlites, quarter glass and other stationary glass
• Saves time and improves productivity by eliminating glass priming

Shelf Life
Maximum shelf life, as stated on product packaging, is achieved when the product is stored at an ambient temperature that does not continuously exceed 110°F (43.3°C).

System Compatibility
Use no other manufacturers’ primers, cleaners or other chemicals in conjunction with any BETASEAL™ adhesive system.
Windshield Installation Instructions

**Prepare the windshield**

Once the body surface is clean and dry, follow these priming steps:

1. Check the expiration date on the container.
2. The primer bottle no longer requires shaking.

**For priming any areas of bare metal (large or small, including scratches):**

- Open the bottle of BETAPRIME™ 5504G All-in-One Primer carefully and insert a clean, unused dauber; to avoid spilling, never pour liquid on dauber.
- Apply one coat of BETAPRIME™ 5504G with a clean wool dauber to any scratches in the paint or large areas of bare metal.
- Allow primer to dry for 2 minutes at 20°F (-7°C) and above. From 20°F (-7°C) down to 0°F (-18°C), allow primer to dry for 10 minutes.
- Apply second coat of BETAPRIME™ 5504G and allow primer to dry for 2 minutes at 20°F (-7°C) and above. From 20°F (-7°C) down to 0°F (-18°C), allow primer to dry for 10 minutes.

**Warning:** Do not reinsert (double dip) the dauber into the primer bottle if it has touched the body of the vehicle. This could contaminate the remaining primer in the bottle.

Apply BETASEAL™ adhesive (Choose either glass or pinchweld application)

- Hold the applicator in a vertical position 90° to the glass and dispense the adhesive with a continuous motion in a uniform “V” shaped bead.
- Apply adhesive to the glass or pinchweld perimeter directly on top of the freshly cut original equipment urethane film.
- Either application: Hold the applicator in a vertical position (90°) and dispense the adhesive with a continuous motion in a uniform “V” shaped bead.
- Make sure bead is uniform and has no gaps; add material or gently tool joints, if necessary.

Install the glass

- Carefully place the glass in the body opening.
- Adjust glass to precise alignment.
- Lightly press it into position.

Clean up

- Clean any excess uncured urethane with BETACLEAN™ U-424 Urethane Adhesive Cleaner.
- Clean the newly installed glass with BETACLEAN™ GC-800 Glass Cleaner.
- Clean up any remaining debris or broken glass on seats, floor, door handles and/or dash console.

**Recordkeeping**

- Attach master lot code sticker to paperwork or manually record primer and adhesive lot numbers.
- Record D.O.T. number from glass part on sticker.
- Release vehicle to customer after the appropriate drive-away time elapses.

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**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*

**Inspect replacement glass**

- *Spray glass bonding surface and vision area with BETACLEAN™ GC-800 Glass and Surface Cleaner and wipe glass clean with a lint-free paper towel*
- *Inspect replacement glass for defects, damage or signs of contamination*
- *Verify primer and adhesives are within use-by dates*

**Cut out the glass**

- *Protect the customer’s vehicle*
- *Remove all hardware and reveal moldings*
- *Cut out the windshield using your preferred method*

**Prepare the glass**

- Many contaminants are difficult to detect and remove.
- Use of BETABRADE™ F1 to remove difficult contamination is recommended.
- Shake BETABRADE™ F1 bottle for 10 seconds and apply 2 mm thin line of BETABRADE™ F1 around entire glass bonding area.
- Use of BETABRADE™ F1 is dry.
- Scrub the bonding area with a lint-free paper towel until BETABRADE™ F1 is dry.
- The primer bottle no longer requires shaking.*
- Allow primer to dry for 2 minutes at 20°F (-7°C) and above. From 20°F (-7°C) down to 0°F (-18°C), allow primer to dry for 10 minutes.

**2. Prepare encapsulation or PAAS**

- Clean RIM or PVC encapsulation or PAAS bead with BETACLEAN™ GC-800 Glass and Surface Cleaner or water and a clean towel.
- “Wet scrub” the RIM or PVC encapsulation with an abrasive pad and BETACLEAN™ GC-800 Glass and Surface Cleaner, then clean again with BETACLEAN™ GC-800 Glass and Surface Cleaner and allow to dry completely.
- Allow primer to dry for 2 minutes at 20°F (-7°C) and above and from 20°F (-7°C) down to 0°F (-18°C) allow primer to dry for 10 minutes.
- If glass is not installed within 24 hours of original priming, reprime the glass with BETAPRIME™ 5504G; do not reprime more than once.
- Warning: Do not reinsert (double dip) the dauber into the primer bottle if it has touched the body of the vehicle. This could contaminate the remaining primer in the bottle.

**3. Trim back the urethane**

- Clean any dirt and debris from around the existing urethane with BETACLEAN™ GC-800 Glass and Surface Cleaner or water and a clean towel.
- Trim the urethane, 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.
- *Any areas of trimmed urethane that require additional cleaning should be carefully wiped with BETACLEAN™ GC-800 Glass and Surface Cleaner or water and a clean towel.*

*Advanced formulation BETAPRIME™ 5504G All-in-One Primer no longer requires shaking.
However, shaking won't have a negative effect on the performance.*
## Minimum Drive-Away Times

**BETASEAL™ U-418HV**

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Relative humidity</th>
<th>40°F-50°F (4.4-10°C)</th>
<th>50°F-60°F (10.0-15.5°C)</th>
<th>60°F-70°F (15.5-21.1°C)</th>
<th>70°F-80°F (21.1-26.6°C)</th>
<th>80°F-90°F (26.6-32.2°C)</th>
<th>&gt; 90°F (&gt; 32.2°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 70%</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>&lt; 60%</td>
<td></td>
</tr>
<tr>
<td>50-70%</td>
<td>7</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>30-50%</td>
<td>8</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>10-30%</td>
<td>8</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

FMVSS 212 with Passenger-Side Airbag
Below 40°F (4.4°C), use BETASEAL™ Express or BETASEAL™ 0°ne™ adhesive and BETAPRIME™ 5504G All-in-One Primer to prime glass.

**BETASEAL™ U-418**

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Relative humidity</th>
<th>40°F-50°F (4.4-10°C)</th>
<th>50°F-60°F (10.0-15.5°C)</th>
<th>60°F-70°F (15.5-21.1°C)</th>
<th>70°F-80°F (21.1-26.6°C)</th>
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<th>&gt; 90°F (&gt; 32.2°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 70%</td>
<td>15</td>
<td>13</td>
<td>10</td>
<td>7</td>
<td>5</td>
<td>3</td>
<td>&lt; 60%</td>
</tr>
<tr>
<td>50-70%</td>
<td>24</td>
<td>17</td>
<td>13</td>
<td>8</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>30-50%</td>
<td>24</td>
<td>24</td>
<td>19</td>
<td>13</td>
<td>8</td>
<td>6</td>
<td>4</td>
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<td>10-30%</td>
<td>24</td>
<td>24</td>
<td>23</td>
<td>23</td>
<td>20</td>
<td>17</td>
<td>4</td>
</tr>
</tbody>
</table>

FMVSS 212 with Passenger-Side Airbag
Below 40°F (4.4°C), use BETASEAL™ Express or BETASEAL™ 0°ne™ adhesive and BETAPRIME™ 5504G All-in-One Primer to prime glass.
Primers, Cleaners and Accessories

BETAPRIME™ 5504G All-in-One Primer
• One primer for all your priming needs, including glass, frit, bare metal, paint, any nicks and scratches in the paint, large areas of bare metal and encapsulations (RIM, PVC and PAAS)
• Simplifies and speeds the installation process by eliminating the need to shake the bottle and ensuring the correct primer is used every time
• Use in temperatures as low at 0°F (-18°C)

BETABRADE™ F1
• Not all contamination is visible, helps eliminate the guesswork
• Removes heavy surface contamination on glass, such as silicone, oils and wax

BETACLEAN™ GC-800
• Leaves a clean, streak-free finish and prepares the windshield for priming
• May be used as a cutout lubricant

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Primers

**BETAPRIME™ 5504G All-in-One Primer**
- Advanced formulation BETAPRIME™ 5504G no longer requires shaking
- Compatible with all BETASEAL™ urethane adhesive systems
- Use on all common aftermarket substrates: glass, frit, bare metal, paint, any nicks and scratches in the paint, large areas of bare metal and encapsulations (RIM, PVC, and PAAS)
- Reduces cost and optimizes inventory
- Simplifies the installation process by eliminating the need to shake the bottle and ensuring the correct primer is used every time
- Effective in treating larger bare metal areas – allows for corrosion treatment in the field
- Dries in just two minutes in temperatures 20°F (-7°C) and above and in just 10 minutes between 0°F (-18°C) and 20°F (-7°C)

Cleaners

**BETABRADE™ F1 Surface Contamination Remover**
- Simple, easy, time-saving application
- Visible – so you can make sure you’ve applied it thoroughly
- Safe for the installer – no spraying or atomization
- Will not damage or blemish the glass

**BETACLEAN™ GC-800 Glass and Surface Cleaner**
- Aggressive formula cuts through most contaminants
- Evaporates quickly to save time and ensure a dry, residue-free bonding surface
- Sprays on and wipes off
- Foams for best dirt, road film and grease cleanup
- Does not run
- May be used as a cutout lubricant

**BETACLEAN™ U-424 Urethane Adhesive Cleaner**
- Safely removes any uncured urethane
- Contains no petroleum solvents
- Safe for use around most auto paint finishes, vinyl roof fabrics or unpainted dashboards
- Allows for quick and easy cleanup
Glass Preparation

Cleaning preparation for most replacement glass:
1. Spray glass bonding surface and vision area with BETACLEAN™ GC-800.
2. Wipe glass clean with a lint-free paper towel taking care not to drag dirt from the center onto the bonding surface.
3. Inspect replacement glass for defects, damage or signs of contamination.
4. Many contaminants are difficult to detect and remove. Use of BETABRADE™ F1 Surface Contamination Remover to remove contamination is recommended.
5. Shake BETABRADE™ F1 bottle for 10 seconds.
6. Apply 2 mm thin line of BETABRADE™ F1 around entire glass bonding area.
7. Scrub the bonding area with a lint-free paper towel until BETABRADE™ F1 is dry.
8. Spray entire windshield with BETACLEAN™ GC-800 and wipe clean with a lint-free paper towel to ensure it is clean and free of any traces of BETABRADE™ F1 in the bondline.

NOTE: Traces of BETABRADE™ F1 outside of bonding areas will not affect the adhesive bond.

Cleaning RIM or PVC encapsulated bonding surfaces:
1. Spray encapsulation with BETACLEAN™ GC-800.
2. Scrub area vigorously with an abrasive pad, then clean again with BETACLEAN™ GC-800 and lint-free paper towel and allow to dry completely.
3. Do not use BETABRADE™ F1 on encapsulated surfaces.

Once glass is clean, follow these priming steps:
1. Check the expiration date on the container. BETAPRIME™ 5504G All-in-One Primer has an open life of 14 days.
2. The primer bottle no longer requires shaking*.

For fritted glass and encapsulated (RIM, PVC and PAAS) bonding surfaces:
2. Apply BETAPRIME™ 5504G All-in-One Primer with a clean wool dauber in one, even, wet coat, moving the dauber in the same direction.
3. Allow primer to dry for 2 minutes at 20°F (-7°C) and above. From 20°F (-7°C) down to 0°F (-18°C), allow primer to dry for 10 minutes.

For non-fritted glass (internal or external):
2. Apply BETAPRIME™ 5504G All-in-One Primer with a clean wool dauber in one, even, wet coat, moving the dauber in the same direction.
3. Allow primer to dry for 2 minutes at 20°F (-7°C) and above. From 20°F (-7°C) down to 0°F (-18°C), allow primer to dry for 10 minutes.
4. Apply a second coat of BETAPRIME™ 5504G and allow to dry for 2 minutes at 20°F (-7°C) and above. From 20°F (-7°C) down to 0°F (-18°C), allow primer to dry for 10 minutes.

NOTE: In cold temperatures, BETAPRIME™ 5504G may have a wet appearance – this is normal as long as proper dry times are followed.

* Advanced formulation BETAPRIME™ 5504G All-in-One Primer no longer requires shaking. However, shaking won’t have a negative effect on the performance.

Vehicle Body Preparation

Cleaning the vehicle body:
1. Remove all trim and moldings.
2. Remove glass using the preferred method.
3. Clean any dirty areas on the bonding surface with a clean towel sprayed with BETACLEAN™ GC-800 or water to remove as much dirt and debris as possible.
4. Trim existing urethane bead down to 1-2 mm.

Once body surface is clean and dry, follow these priming steps:
1. Check the expiration date on the container. BETAPRIME™ 5504G All-in-One Primer has an open life of 14 days.
2. The primer bottle no longer requires shaking*.

CAUTION: Do not reinsert (double dip) the dauber into the primer bottle if it has touched the body of the vehicle. This could contaminate the remaining primer in the bottle.

For priming any areas of bare metal (large or small, including scratches):
3. Apply one coat of BETAPRIME™ 5504G All-in-One Primer with a clean wool dauber to any scratches in the paint or large areas of bare metal.
4. Allow primer to dry for 2 minutes at 20°F (-7°C) and above. From 20°F (-7°C) down to 0°F (-18°C), allow primer to dry for 10 minutes.
5. Apply a second coat of BETAPRIME™ 5504G and allow primer to dry for 2 minutes at 20°F (-7°C) and above. From 20°F (-7°C) down to 0°F (-18°C), allow primer to dry for 10 minutes.

NOTE: Scratches well outside of the bonding area do not have to be completely dry at the time of installation.

For priming painted bonding surfaces (no bare metal):
3. Apply one coat of BETAPRIME™ 5504G All-in-One Primer with a clean wool dauber to the painted area where original adhesive may have peeled off or to extend the bonding area when applying adhesive to the glass part.
4. Allow primer to dry for 2 minutes at 20°F (-7°C) and above. From 20°F (-7°C) down to 0°F (-18°C), allow primer to dry for 10 minutes.

NOTE: In cold temperatures, BETAPRIME™ 5504G may have a wet appearance – this is normal as long as proper dry times are followed.

* Advanced formulation BETAPRIME™ 5504G All-in-One Primer no longer requires shaking. However, shaking won’t have a negative effect on the performance.
Additional Tools

U-420 Daubers Standard – for Glass and Body Primers
U-422 Daubers Small – for Body Primers
- Small and standard head sizes available – small size for body application and standard size for glass application
- Lint-free wool dauber will not contaminate surfaces
- Use a new dauber for each primer application
- Available in 144-count bags
- Tangle-free design

TP-1 Tooling Paddles
- Improves the bead profile
- Provides a smooth, professional finish

NFD Norton Foam Dam Tape
- Specified on OEM service bulletins
- Open-cell foam permits moisture to pass and promotes adhesive cure
- Adhesive on one side for better after-set positioning of the glass

Applicator – G41004 Professional Gun 18:1
- Easily pumps high viscosity adhesive (18:1 ratio)
- Comfortable hand grip
- Quick and efficient loading and unloading 10.5 oz cartridge size

Shelf Life
Maximum shelf life, as stated on product packaging, is achieved when the product is stored at an ambient temperature that does not continuously exceed 110°F (43.3°C).

System Compatibility
Use no other manufacturers’ primers, cleaners or other chemicals in conjunction with any BETASEAL™ adhesive system.

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