<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>Before doing any work on the vehicle, perform a pre-inspection of the vehicle and the glass opening for any signs or areas that may need attention i.e. rust, corrosion, etc and notify the customer. A pre-inspection sheet may be used as a tool to document such findings.</td>
<td>DINITROL AGR Training Manual Page 8 Section “Vehicle Pre-Inspection”</td>
</tr>
<tr>
<td>4.1 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></td>
<td></td>
</tr>
<tr>
<td><strong>5.0 Selection of Glass and Retention Systems</strong></td>
<td>Quality assurance has been certified by a third party to meet ISO 9001, ISO/TS 1649 and ISO 14001.</td>
<td>DINITROL AGR Training Manual Page 3 Section “Quality Assurance Standards”</td>
</tr>
<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.</td>
<td>DINITROL glass bonding products are OEM Approved and used materials to meet or exceed all OEM Specifications as documented by the Automotive Manufacturers.</td>
<td>DINITROL AGR Training Manual Page 2 Section “About Us” and “DINITROL”</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.</td>
<td>Always follow the most current application instructions. Products are stored in accordance with the recommendations. Safe Drive Away Time Charts are on every TDS (Technical Data Sheet) as well as in the DINITROL AGR Training Manual. We follow all adverse weather condition procedures as documented by the manufacturer.</td>
<td>DINITROL AGR Training Manual Proper use of system The following items listed for section 5.4 (subcategory for items 1–4) can be found:</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 labeler. These instructions shall include at least the proper use of the retention system storage specifications, minimum drive-away time charts containing</td>
<td>References to use the proper safety equipment such</td>
<td></td>
</tr>
</tbody>
</table>
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

2. GLASS PREP/PRIMING:
   - Product requirements
   - Application requirements
   - Storage requirements
   - Shelf-life (opened & unopened)
   - Adverse weather conditions
   - Additional requirements
     - Used Glass
     - Pre-primed glass
     - PAAS
     - Non-traditional contamination
     - Other

3. PINCHWELD PREP/PRIMING:
   - Product requirements
   - Application requirements
   - Storage requirements
   - Shelf-life (opened & unopened)
   - Adverse weather conditions
   - Additional requirements
     - Corrosion treatment
     - Gasket Sets

4. URETHANE APPLICATION:
   - Product requirements
   - Application requirements
   - Storage requirements
   - Shelf-life

   as nitrile gloves, and safety glasses are for the protection of the technician and will not affect the safety of the installation.

1. Glass Cleaning
   - Any Glass Cleaners that do not contain anti-static ingredients.
     - Foam type glass cleaners (for example) work well as they will provide the technician with a visual of most contaminations like oils, release agents, finger prints, etc. producing a “Fish-Eye” or “Separation” affect. (use of non-foam glass cleaners will not affect the installation procedure) Surface must be clean and free from any and all potential contaminates.

   - Non traditional contaminates such as oils, release agents, silicanes, tape residues, etc. may be found on bonding surface. These can be removed using DINITROL 582 or an approved cleaner such as (MEK, Acetone, Heptane, IPA)

   - DINITROL AGR training manual recommends the use of a Lint Free Paper Towels. This however is a recommendation not a specific requirement and the towels being used in the market today, will not affect the safety of the installation.

2. GLASS PREP/PRIMING:
   - There are (2) Glass Priming/Pretreatment products which can be used. It is the technicians choice which one to use. (Compatible with ALL DINITROL Glass Bonding Adhesives such as DINITROL 500, DINITROL 501HV, DINITROL 501 HV HMNC, DINITROL 9000, DINITROL 9100, DINITROL DIRECTFW & PUR-505* and DINITROL 410UV)

     Either pretreatment system can be used for the glass preparation.

     - DINITROL 538Plus (Black multi-function primer) (bottles or single app sticks)
     - DINITROL Activator Plus (Clear glass activator)
- **Adverse weather conditions**
- **Additional requirements**
  - SDAT identification
  - Non-conductive considerations
  - High modulus considerations
  - Other

*DINITROL DIRECTFW and PUR-505* are Primerless to glass or ceramic frit adhesive. It does not require the use of Activator Plus or 538Plus on the glass area only. It is also acceptable if the technician uses these pre-treatments with DINITROL DIRECTFW & PUR-505 as well.

**DINITROL 538Plus:**
- Shake time = 1 minute
- Dry time = 5 minutes minimum > 40° F
- Dry time = 10 minutes minimum < 40° F
- Dry time special surfaces PAAS, & GRP = 10 minutes minimum >40° F, 20 minutes minimum <40° F
- Encapsulations, PVC, and EPDM Rubber = 20 minutes minimum
- Shelf life: Once Open = 1 week / Closed 12 months from DOM.
- Check Exp date (use by) date on product. Discard if out of date and do not use.
- Application Temp = Below 0° F not recommended
- Storage Requirements = 32°F - 95°F (Short term storage out of these ranges at the customers location or on their trucks will not affect the product usage or safety performance.) If pretreatment product is left open and exposed to long to the moisture in the air and it gels, and/or becomes hard, discard use.)
- Special surfaces such as PAAS, Encapsulations, Sliders, Gaskets, Fiberglass will require a special attention to the bond area and making sure it is clean. (follow cleaning and pre-treatment procedure on page 16-18). These surfaces must be cleaned first and then pre-treated with **538plus** in accordance with instructions.
- Factory pre-primed glass = Clean surface as stated in glass cleaning procedure above, then apply DINITROL 538plus.

**DINITROL Activator Plus:**
- No shake time needed
- Dry time = 0 minutes
- Shelf life: Open 7 days / Closed 12 months from DOM.
- Check Exp date (use by) date on product. Discard if out of date or product becomes thick or cloudy and...
- Application Temp = Below 0° F not recommended
- Wipe on / Wipe off
- Factory pre-primed glass = Clean surface as stated in glass cleaning procedure above, then apply.
  DINITROL Activator Plus.
- DINITROL Activator Plus can also be used as the pre-treatment primer for PAAS. If DINITROL Activator Plus is used on trimmed bead on vehicle, it will not affect the installation as it is also PAAS pretreatment. (allow 10 minutes minimum >40° F, 20 minutes minimum <40° F to activate the PAAS prior to applying the urethane.

### Factory pre-primed glass
- Clean surface as stated in glass cleaning procedure above, then apply either DINITROL 538plus or DINITROL Activator Plus per instructions.
- DINITROL Direct does not require the use of 538plus or Activator Plus for Factory pre-primed glass.

### Used Glass
- Urethane on glass must be secure and firmly in tact.
  If it is not, Discard glass and get a new one.
- Urethane on the glass must be trimmed to 1-2 mm so to apply a fresh bead to fresh trimmed adhesive similar to the vehicle body preparation.

### 3. PINCHWELD PREP/PRIMING:
- Shake time = 1 minute
- Dry time = 5 minutes minimum > 40° F
- Dry time = 10 minutes minimum < 40° F
- DINITROL 538plus (bottle or stick) is the primer for all scratches or bare metal areas which will come in contact with the adhesive.
- If applied to the metal in the bonding area where the new adhesive will come in contact, allow minimum of 5 minutes to dry > 40° F, or minimum of 10 minutes < 40° F.
- Storage Requirements = 32°F - 95°F (Short term storage out of these ranges at the customers location
or on their trucks will not affect the product usage or safety performance.) If product is left open and exposed to long to the moisture in the air and it gels and/or becomes hard, discard use.)

- Shelf life: Open 1 week / Closed 12 months from DOM.
- Check Exp date (use by) date on product. Discard if out of date and do not use.
- Application Temp = Below 0°F not recommended
- Storage Requirements = 32°F - 95°F (Short term storage out of these ranges at the customers location or on their trucks will not affect the product usage or safety performance.) If product is left open and exposed to long to the moisture in the air and it gels and/or becomes hard, discard use.)

- Corrosion (level 1-3) must be removed and surfaced treated. Once removed. Surface should be cleaned to remove all debris. If Metal Etch primer is used, follow the manufacturer’s instructions on application and dry time. Then DINITROL 538plus, must be applied to this area and all bare metal areas prior to applying adhesive.

- DINITROL 538plus can also be used as a bare metal primer greater than 1/2”x1/2”. 2 coats are recommended with a minimum 5 minute dry time between each coat >40°F. 10 minute dry time < 40°F.

- References to “avoid” priming existing bead are not mandatory with 538plus or Activator Plus as they are also a PAAS primer. It is not necessary to prime a fresh trimmed bead but this will not affect the installation if done.

- Shaking the DINITROL 538plus for 1 minute prior to using on glass does not need to be re-shaken to prime the pinchweld or special surfaces for the completion of the installation and vise versa.

**PVC and EPDM, Gasket surfaces:**
- Clean bonding areas thoroughly. Solvent cleaners such as DINITROL 582, MEK, Acetone, IPO may be needed to assist.
| Scuff the surface bonding area with a Scotch Brite type pad or sand paper |
| Wipe away debris |
| Apply DINITROL 538plus to surface |
| Allow minimum 20 minutes to dry |

**4. URETHANE APPLICATION:**

- DINITROL D-500, D-501HV, D-9000, 9100, DIRECTFW, PUR-505 and 410UV (Polyurethane Sealant)
- Safe Drive Away Times should be followed in accordance with the SDAT charts found on the TDS sheets and in the DINITROL AGR Training Manual.
- Storage Requirements = 32°F - 95°F (Short term storage out of these ranges at the customers location or on their trucks will not affect the product usage or safety performance.)
- Shelf life is 12 months from date of manufacture on all adhesives except DIRECTFW and PUR-505 which are 10 months from DOM. All products are marked with a Use By Date. Products should not be used and discarded after dates shown on packaging.
- High Modulus and Non Conductive applications use **DINITROL D-9000, DINITROL 9100, & D-501HV HMNC**
- DINITROL DIRECTFW & PUR-505 is also a Non-Conductive adhesive but is not High Modulus.
- Full cut method (down to 1-2 mm) is recommended if the urethane on the vehicle is firmly intact. If there is an area where the urethane has come loose or a non urethane product was used, these areas must be taken down to the metal, metal cleaned and primed according to pinchweld priming instructions.

410UV is an approved OE Polyurethane Sealant and can be used for sealing water leaks, gaskets, trims, molding retention, backfill, etc.

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| 5.5 Those engaged in automotive glass replacement shall only use retention systems that have lot numbers and expiration dates printed on |
| All packages contain the expiration date “use by” date. Do not use and discard the product if past shelf life date stated. |

**DINITROL AGR Training Manual Page 4, section “Batch # and Expiration Dates”**
### 6.0 Installation Standards- Adhesive Bonded

<table>
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<tr>
<th>Section</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>6.1</td>
<td>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 mobile installations shall be performed under environmental and other conditions that are compatible with the application instructions required in Section 5. Documented procedures for use of all DINITROL products and procedures can be found in the DINITROL AGR Training Manual.</td>
</tr>
<tr>
<td>6.2</td>
<td>Products must be stored and controlled according to manufacturers' requirements as provided directly or through a private labeler. Storage temperature recommendations are between 32°F-95°F. Short term storage at the glass replacement facility or on the vehicle which may fall out of these ranges will not affect the product or installation. DINITROL AGR Training Manual Page 5 Section “Storage Requirements” Or page 32-40</td>
</tr>
<tr>
<td>6.3</td>
<td>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. Safe Drive Away Times are noted on the TDS sheets of each adhesive product as well as in the DINITROL AGR Training Manual. DINITROL AGR Training Manual Page 32-36 Section “Safe Drive Away Chart”</td>
</tr>
<tr>
<td>6.4</td>
<td>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. Always notify the vehicle owner/operator prior to and after the installation at which time the vehicle can be released and driven safely and that the vehicle should remain out of service until such times are met. DINITROL AGR Training Manual Page 32-36 Section “Safe Drive away Chart”</td>
</tr>
<tr>
<td>6.5</td>
<td>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. Apply the urethane in a “V” Bead format as recommended by the vehicle and adhesive manufacturer. V-bead height should be equal to the height of the Pinchweld to the roof line. DINITROL AGR Training Manual Page 19 Section “V” Bead</td>
</tr>
</tbody>
</table>
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.

Only use Approved Polyurethane glass bonding products. If a vehicle comes in with butyl or other non polyurethane product, remove this material completely and install using Polyurethane unless specified differently by the Vehicle manufacturer. Such as for Egress applications. This pertains to vehicle windshields, not mechanically fastened glass parts such as Bolt in quarter windows and bolt in back windows.

DINITROL AGR Training Manual Page 9 Section “Full Cut Method”

| 6.7 All adhesive system component lot numbers shall be traceable to each job. | Document all batch #’s on the customers work orders or on a pre-inspection sheet either by writing or using the stickers provided. | DINITROL AGR Training Manual Page 4 Section “Batch #’s and Expiration Dates” |

| 6.9 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 used must first be confirmed that they are within the noted shelf life on each product. No product is to be used if past or out of date. | DINITROL AGR Training Manual Page 4 Batch #’s and Expiration Dates as well as on all products and or packaging. |

| 6.11 When inappropriate replacement materials or methods are detected, those engaged in automotive glass replacement shall report their findings to the vehicle owner/operator. | All findings of inappropriate replacement products or methods must be reported to the vehicle owner/operator. These inappropriate materials must be removed and conditions corrected prior to proceeding with installation. | DINITROL AGR Training Manual Page 9 Section “Full Cut Method…”If inappropriate Materials… |

| 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. | When inappropriate materials are found to be used, these must be removed and substrate prepared correctly as described within section 5 with the proper methods and products. | DINITROL AGR Training Manual Page 10 Section “Complete Urethane/Adhesive Removal” |

| 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). | Sealing water or air leaks, only use a compatible polyurethane adhesive. No silicone or butyl is to be used. | Page 19 Section “Sealing Water and Air Leaks” |

| 6.14 Only the full cut method should be used for polyurethane retention systems. | If the existing urethane on the body is secure and in tact, a Full Cut (down to 1-2mm) method is recommended. Short cut or skim coat method is not acceptable. | DINITROL AGR Training Manual Page 9 Section “Full Cut Method” |

If the existing urethane is not secure or intact and/or the area needs to be treated due to corrosion, this urethane section or area must be removed and cleaned following the installation instructions found in the DINITROL AGR Training Manual.
### 7.0 Installation Standards- Rubber Gasket

<table>
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<tr>
<th>Section</th>
<th>Description</th>
</tr>
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<tr>
<td>7.1</td>
<td>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. Rubber gasket installations on vehicles licensed for highway use are always put back using approved polyurethane products that meet all safety requirements whether or not the vehicle body style has changed.</td>
</tr>
<tr>
<td>7.2</td>
<td>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. If the vehicle was an old style gasket set glass and did not include Polyurethane, we install the replacement part using an approved glass bonding product following the procedure as stated by the manufacturer. Permissible exceptions: Egress, Antique restorations, or in cases where current vehicle manufacturer specifications state otherwise.</td>
</tr>
<tr>
<td>7.3</td>
<td>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). Sealing water or air leaks, only compatible polyurethane adhesive is used. (No silicone or butyl may be used).</td>
</tr>
</tbody>
</table>

### 8.0 Additional Requirements

<table>
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<tr>
<th>Section</th>
<th>Description</th>
</tr>
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<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. Only use the most current retention system which meets all FMVSS standards and safety requirements for all Installations.</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. All failures or defects of the products used, concerns or questions regarding the adhesive system shall be promptly reported to the manufacturer in a timely manner. 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>
</tr>
</tbody>
</table>

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| 8.6 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. | Only use DINITROL Approved cleaners and materials as noted in their Literature, TDS, or Training Manual. | DINITROL AGR Training Manual  Page 4  Section “Use of Non-approved Materials” |
8.7 Those engaged in automotive glass 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.

Maintain traceability of products used by recording batch #’s/lot numbers. Maintain and have access to copies of adhesive training certificate, DINITROL TDS sheets and DINITROL AGR Training Manual.

DINITROL AGR Training Manual, Most Current AGRSS/ANSI standard, DINITROL Certification

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**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. <strong>Identify your organization’s current quality assurance standard and how this should be identified by your glass shop customers.</strong></td>
<td>All ANSI/AGSC/AGRSS™ 004-2018 deliverables can be found on Pages 22-31 “Declaration of Standard Conformance” in the DINITROL AGR Training Manual or an ANSI/AGSC/AGRSS™ 004-2018 deliverable package can be sent as a separate packet at the customer’s request.</td>
<td>Yes AGRSS/ANSI Deliverables Pages 22-31 (DINITROL AGR Training Manual)</td>
</tr>
</tbody>
</table>

| 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.** | All ANSI/AGSC/AGRSS™ 004-2018 deliverables can be found on Pages 22-31 “Declaration of Standard Conformance” in the DINITROL AGR Training Manual or an ANSI/AGSC/AGRSS™ 004-2018 deliverable package can be sent as a separate packet at the customer’s request. | Yes AGRSS/ANSI Deliverables Pages 22-31 (DINITROL AGR Training Manual) |
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 dive-away time charts containing temperature and humidity variables if applicable, and any special procedures required for adverse weather conditions.

<table>
<thead>
<tr>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>All ANSI/AGSC/AGRSS™ 004-2018 deliverables can be found on Pages 22-31 “Declaration of Standard Conformance” in the DINITROL AGR Training Manual or an ANSI/AGSC/AGRSS™ 004-2018 deliverable package can be sent as a separate packet at the customers request.</td>
</tr>
<tr>
<td>Yes</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Identify the drive-away-time chart to be utilized by your company’s glass shop customers in order to be compliant with this requirement.</th>
</tr>
</thead>
<tbody>
<tr>
<td>All ANSI/AGSC/AGRSS™ 004-2018 deliverables can be found on Pages 22-31 “Declaration of Standard Conformance” in the DINITROL AGR Training Manual or an ANSI/AGSC/AGRSS™ 004-2018 deliverable package can be sent as a separate packet at the customers request.</td>
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<tr>
<td>Yes</td>
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</tbody>
</table>

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 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.

<table>
<thead>
<tr>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>All ANSI/AGSC/AGRSS™ 004-2018 deliverables can be found on Pages 22-31 “Declaration of Standard Conformance” in the DINITROL AGR Training Manual or an ANSI/AGSC/AGRSS™ 004-2018 deliverable package can be sent as a separate packet at the customers request.</td>
</tr>
<tr>
<td>Yes</td>
</tr>
</tbody>
</table>

Our organization provides both a hands on training certification program as well as an online electronic option called DINITROL Vehicle Glass Replacement for the technicians as well as a certified trainer’s course and offers an exam to ensure compliance. Continuing/ongoing training and education of the system is done on request by our customers and/or when processes or procedures have been changed or updated.
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.**

| All ANSI/AGSC/AGRSS™ 004-2018 deliverables can be found on Pages 22-31 “Declaration of Standard Conformance” in the DINITROL AGR Training Manual or an ANSI/AGSC/AGRSS™ 004-2018 deliverable package can be sent as a separate packet at the customers request. | Our organization provides both a hands on training certification program as well as an online electronic option called DINITROL Vehicle Glass Replacement for the technicians as well as a certified trainer’s course and offers an exam to ensure compliance. Continuing/ongoing training and education of the system is done on request by our customers and/or when processes or procedures have been changed or updated. | Yes AGRSS/ANSI Deliverables Pages 22-31 (DINITROL AGR Training Manual) |

---

**Contact Information:**

<table>
<thead>
<tr>
<th>Your Company’s Name:</th>
<th>DINOL</th>
</tr>
</thead>
</table>
| Your Company’s Address: | DINOL U.S. Inc.  
8520 Cotter Street  
Lewis Center, OH 43035 |

<table>
<thead>
<tr>
<th>Your Name:</th>
<th>Joe Renzi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your Title:</td>
<td>CEO – Managing Director</td>
</tr>
<tr>
<td>Your Phone Number:</td>
<td>740-548-1656</td>
</tr>
<tr>
<td>Your Email Address:</td>
<td><a href="mailto:Joseph.renzi@dinolus.com">Joseph.renzi@dinolus.com</a></td>
</tr>
</tbody>
</table>
| Your Mailing Address: | DINOL U.S. Inc.  
8520 Cotter Street  
Lewis Center, OH 43035 |
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About us

In January 2010, Diffutherm, (a world leading producer of anti corrosion, stone chip and sound deadening products, adhesives, and sealants) acquired DINOL GmbH (formerly EFTEC Aftermarket) from the EMS Group. In June of 2012, Würth Group, signed the agreement to acquire both Diffutherm and DINOL, adding to their extensive list of specialty companies.

DINOL GmbH offers a comprehensive product range in the field of bonding, coating and sealing. As specialists in vehicle repair, industrial, BTR, and specialty vehicle markets, we benefit from the OEM experience and products of Diffutherm and EFTEC as international groups, and use this know-how in the automotive OEM and aftermarket segments as well as transportation, Industry and Industrial markets.

EFTEC Group is one of the world’s leading OEM manufacturers of adhesives, corrosion proofing materials, sealing agents andprayable noise protection materials, as well as high-grade application systems for use in the automotive and transportation industries.

Our products names such as DINITROL, PYRMO, DEKALIN and EFBOND are names that are known for their high quality. Our position in the market is strengthened by high competence, reliability and good relationships with our customers.

Focusing on the Future

High performance is something which is not achieved overnight, but rather results from many years of experience. Our development strategy is not aimed at short-term success, but on product solutions for the future. We understand that environmental protection is of ever growing importance, and consider legal regulations to be fundamental in respect to the development of innovative products.

With our consistency and lasting high-quality products, we are able to assist our customers in improving their performance and competitiveness in the market.

DINITROL – a strong and well-established trademark

The DINITROL range of products sold by DINOL GmbH offers a comprehensive system for providing highly efficient solutions in the fields of:

- Bonding and Sealing
- Corrosion Protection
- Body Repair

The DINITROL glass bonding products, are based on more than 20 years of knowledge and experience. EFTEC currently supplies all renowned car manufacturers throughout the world. Whether supplied in 208L drums under the EFBOND brand name or in smaller pack sizes for the aftermarket under the DINITROL brand, our glass bonding products not only meet OEM specifications, they are OEM Approved and used materials and meet all FMVSS standards and safety requirements for glass bonding.
Quality Assurance Standards

All DINITROL adhesives and primers are manufactured and documented according to our quality assurance procedures and verified by a third party ISO registrar.

Our management system is based on the European Model for Comprehensive Quality Management, which includes the elements of EN ISO 9001, ISO/TS 16949 and EN ISO 14001.

The production plants are certified EN ISO 9001, ISO/TS 16949 and EN ISO 14001. But that's not all. Our quality is also proven by various awards received from our customers.

Copies of the certificates can be viewed at www.eftec.com or email info@dinolus.com

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(+49) 5281-98298-0
Before getting started

Glass replacement professionals must understand the importance of their job and how it relates to the vehicle and its passengers. Windshields today are a structural component of the vehicle.

The replacement facility, owners, technicians, and any other personnel directly involved in the automotive glass replacement process has the responsibility to follow all manufacturers’ guidelines, procedures, technical data, and SDAT “Safe Drive Away Times”. This means, the vehicle should not be released and must remain “out of service” until the SDAT time has been meet according to the adhesive system manufacturers stated Safe Drive Away Times.

DINITROL glass bonding products are for professional use only. Certification is required either from a DINOL Specialist or a DINOL Approved Certified Trainer. DINOL currently offers online training materials, exam, and mobile phone apps to help the customer and their technicians with a continuing education and learning environment and quick access to the most current DINITROL AGR training manual and product data sheets.

Read and understand all Technical Data Sheets (TDS) as well as all Material Safety Data Sheets (MSDS). Follow all safety instructions and recommendations as stated. Federal Law requires an MSDS be present, available, or on hand, depending on your local laws. Copies of our MSDS and TDS sheets are available either on our website or by contacting us at 740-548-1656 or info@DINOLUS.com

Batch # and Expiration Dates

All DINITROL glass bonding products contain batch #’s and expiration dates. These codes are printed on each pallet, box, case, and individual product packaging. Also, included in each box of urethane are stickers with this information printed on them, which can be used and applied to the work orders, invoices, etc. for tracking purposes. *It is your responsibility to ensure that all date codes are being followed, not ignored. Discard and do not use out dated material!
It is also recommended that all glass parts be traceable to each installation by documenting the DOT # and glass part # being installed.

Modifications of Retention System

Only the most current retention system must be used in glass replacement unless specified otherwise by the Vehicle OEM even if the body style has not been modified. Vehicle manufacturers OE Specifications and instructions shall take precedent in these instances.

Failure Reporting

If the technician experiences failures using any DINITROL Product or system that might have an effect on the customer’s safety, these MUST BE REPORTED immediately to DINOL at 740-548-1656 or 866-596-7772 or to the supplier/distributor 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 also to the customer with an offer to remedy the situation.

Use of Non-Approved Materials

DINITROL Glass Bonding products and systems must be used as stated in the following instructional pages. The use of Non-DINOL Approved materials or pre-treatment methods and/or products such as release agents, silicone sprays, lubricants, or cleaners are not recommended. Only DINITROL pre-treatment products and procedures as stated in this manual are approved.
If any Non-Approved materials are used, it can have an adverse affect on the retention system and will void all warranties.

**Understanding the Technical Data Sheet (TDS)**

The TDS provides valuable information and should be copied and read thoroughly. To better understand the DINITROL TDS, we have provided below a brief outline of how the TDS is set up and the definitions of each section.

Each Technical Data Sheet (TDS) will always start with the **Product Name and/or Part Number**, followed by a **General Description** of the product.

**General Description**
- Key points, Properties or characteristics of the product such as High Modulus, Non Conductive, Viscosity, Color, etc.

**Shelf Life**
- All direct glazing products (primers and adhesives) have a shelf life. This must be followed not ignored. It may be stated as unopened and/or open shelf life. All DINITROL products have a date code. This is on each unit, package, box, and pallet. They are also included on stickers included in each box which states the product name, batch #, and expiration Date. **It is also recommended that all glass parts be traceable to each installation by documenting the DOT # and glass part # being installed.**

**Storage Requirements**
- Defines the Manufacturers recommended storage temperatures for the product(s). DINITROL urethanes and primers exposed to temperatures below 40°F will not have any adverse affects on the product. However, with that being said, because of viscosity and decking properties of the DINITROL urethanes and the current application equipment in the market being used by the technicians, the urethane will need to be warmed to a room temperature to allow the caulking gun to push the material. On the other hand, high storage temperatures for long term can have an effect on the urethane and primer products.
- Recommended Storage temperature is 0°C - 35°C (32°F - 95°F)

**Packaging**
- If there are different packaging sizes, this is where it would be stated.

**Working Time (Urethane)**
- At 73°F 50% R.H, how much time does the technician have to set the glass, wet-out the adhesive, and be able to move it to the proper position in the opening.
  - Example: **DINITROL D-9000 = 18 minute working time**
  - Remember...All DINITROL One-component Urethanes are moisture curing products. Higher RH levels can shorten the working times.

**Application / Dry Time (Primers and Cleaners)**
- At 73°F 50% R.H, how much time does the primer or cleaner (Pre-treatment) need to dry and or flash prior to applying the urethane?
  - Refer to the following pages in this manual for specific use and dry times.
Understanding the Technical Data Sheet (TDS) (CON’T)

**Tensile Strength**
- Defined as “The resistance of a material to a force tending to pull it apart, measured as the maximum tension the material can withstand without pulling apart.”
  - Example: DINITROL 410UV Urethane Sealant = 220 PSI
  - Example: DINITROL D-9000 Urethane = 1000 PSI

**Lap Shear Strength**
- Determines the shear strength of adhesives for bonding materials. This test is primarily comparative and applicable for determining adhesive strengths, surface preparation parameters and adhesive environmental durability.

**Shear Modulus**
- Modulus is “A quantity that expresses a degree to which the substance possesses a property such as Elasticity.” A test specimen of urethane is brought into a shear position and the movement of force that is required to bring the specimen into a predetermined deformation or movement of 10% in the shearing mode is measured.
  - Example: The minimum acceptable value for Audi and Volkswagen is >2.0 MPa (Mega Pascals)

**Shore Hardness**
- How hard or soft the urethane is at full cure

**Elongation**
- The strain on a sample when it breaks, usually expressed as a %.
  - Example: If the Urethane specification is stated at 400%, then a test specimen 10cm long, must be able to stretch a total of 40cm without breaking to equal the 400%

**Electrical Resistivity**
- Defined as how strongly a material opposition to the flow of electrical current. Measured in ohms cm.

**Required Pre-Treatment**
- This area will show whether or not there is a REQUIRED Pre-Treatment product(s) needed.
  - Example: DINITROL D-9000 requires primer 538 Plus or Activator Plus

Installation or Product usage notes, Special Considerations, or Important Notes to be aware of may also be listed on the TDS sheets as well.
Safe Drive Away Times (SDAT)

The windshield adhesive system by Federal Law must have adequate time to secure the glass in the event of a crash. During this time, the vehicle must remain out of service and inoperable until the appropriate time (based on the products used) has been reached.

- DINITROL TDS (Technical Data Sheet) sheets contain all necessary Safe Drive Away Time charts for vehicles with and without passenger side airbags. These times must be followed in order to meet the applicable FMVSS (Federal Motor Vehicle Safety Standards).

- Always notify the vehicle owner/operator prior to and after the installation at which time the vehicle can be released and driven safely and that the vehicle should remain out of service until such times are met.

Example shown:

DINITROL D-9000 SDAT

<table>
<thead>
<tr>
<th>Drive Away With Passenger Side Airbag</th>
<th>Without Passenger Side Airbag</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEMP/RH</td>
<td>&gt;70%</td>
</tr>
<tr>
<td>&gt;115°F (46°C)</td>
<td>1 h</td>
</tr>
<tr>
<td>&gt;85°F (30°C)</td>
<td>1 h</td>
</tr>
<tr>
<td>&gt;73°F (23°C)</td>
<td>1 h</td>
</tr>
<tr>
<td>&gt;60°F (15°C)</td>
<td>1 h</td>
</tr>
<tr>
<td>&gt;50°F (10°C)</td>
<td>1 h</td>
</tr>
<tr>
<td>&gt;40°F (5°C)</td>
<td>1 h</td>
</tr>
<tr>
<td>&gt;32°F (0°C)</td>
<td>1 h</td>
</tr>
<tr>
<td>&gt;23°F (-5°C)</td>
<td>1 h</td>
</tr>
<tr>
<td>&gt;15°F (-10°C)</td>
<td>1 h</td>
</tr>
<tr>
<td>&gt;0°F (-18°C)</td>
<td>1 h</td>
</tr>
</tbody>
</table>

Copies of DINITROL TDS (Technical Data Sheets) and SDAT times can be found at the end of this manual.
Pre-Inspection

Glass Pre-Inspection

Why is it a good idea to pre-inspect the glass part prior to starting the installation?

• Answer: The glass you may be preparing to install may be the wrong part, may have defects like scratches, distortion, or de-lamination.

Always inspect the glass prior to starting any work on the vehicle. If you find a defect, it will be easier to correct the problem at this time than it will be if you have already removed the old piece or prepared the new glass with primer and adhesive. It also saves your company money having not to go back and remove and replace with a new (non defective) piece later.

DINOL recommends that glass parts, including cut parts, be marked in compliance with the certification requirements specified in FMVSS 205 and the marking requirements of ANSI Z26.1 incorporated by reference therein for those vehicles licensed for highway use. Also, all mechanical fastened automotive glass parts shall be replaced according to original equipment specification.

Vehicle Assessment before Replacement

Item # 4 of the ANSI/AGSC/AGRSS™ 004-2018 Standard states: “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.”

Before starting work on the vehicle, take a moment to walk around make notes on any conditions like vehicle scratches, dents, cracks, broken mirrors, headliner issues, etc. This way, you have it documented and can have the customer acknowledge these conditions prior to work being performed on the vehicle. A pre-inspection form is a good idea. DINOL has a template that you can use or you may wish to develop your own using your company logos, colors, etc. (copy of template provided within this manual on page 23).

You will also perform a pre-inspection on the glass opening once you have removed the old part as this may show areas of concern that need to be address like rust, missing parts, holes in metal, etc. Notifying the customer of these problem areas and proper steps to repair them is required. For corrosion and rust procedures, refer to the appropriate section within this manual or follow the DINITROL Rust and Rust Prevention instruction sheet.

Removal of Glass

There are a variety of methods and tools that can be utilized to cut-out the glass. For example, some technicians prefer to manually remove the part using a cold knife (cable knife) and long knife. Some prefer to use battery, electric, air powered, or wire removal tools.

• Whichever method you choose, follow the manufactures procedures for the tool use and always remember to use the proper safety equipment like Nitrile Gloves, Safety Glasses, etc. References to use the proper safety equipment such as nitrile gloves, and safety glasses are for the protection of the technician and will not affect the safety of the installation.

Once the glass has been removed, the opening needs to be cleaned and prepared.

NOTE...DO NOT TRIM the existing bead on the vehicle before cleaning the opening as this will contaminate the fresh cut/trimmed bead of urethane and can cause adhesion failures.
Pinchweld Preparation

Prior to trimming the existing bead of urethane in the vehicle opening, the technician must ensure the surfaces to which the new urethane and primer will come in contact are clean and contaminate free. **Remember…”A Bond Is Only As Strong As Its Weakest Link.”**

Prior to Trimming:
- Clean out all dirt, debris, loose impediments, glass particles, etc., from the pinchweld bonding area. This can be done using a vacuum, air hose, brush, rag, or a combination of these methods. (always a good idea to turn on the defroster and vacuum any loose glass particles that may have fallen inside these opening as well)
- DINITROL 582 cleaner, glass cleaner, water, acetone can be used as well to clean the area of metal around the existing urethane bead. **THIS SHOULD ONLY BE DONE PRIOR TO TRIMMING DOWN THE URETHANE BEAD SO NOT TO CONTAMINATE THE FRESH TRIMMED URETHANE SURFACE.**
- Once cleaned, inspect the opening for any areas where the existing urethane bead may be loose and releasing from the pinchweld surface. These sections would need to be removed during the trimming phase, and the metal area treated, primed and prepared.
- If Rust/Corrosion is present on the pinchweld area, these areas will need to be treated and repaired PRIOR to trimming the existing bead of adhesive. DO NOT Ignore these areas. You may not have been the shop that caused the corrosion, but it is your legal obligation to advise the customer of these areas and determine the correct repair methods depending on the type of corrosion present.
  - **SEE Rust and Rust Prevention section that follows.**

If No Corrosion is present:

Full Cut Method

Full Cut Method requires the existing urethane bead to be trimmed to a **height of 1-2mm.** Existing urethane must be firmly and structurally intact, no corrosion/rust present, pinchweld flange undamaged, and no Non-Urethane products used or present on the body such as Silicone, Butyl, etc. If these Non-Urethane products are found on the surface, they must be removed and the surface completely cleaned.

**If the OEM installation was installed using polyurethane, then polyurethane must be used in the replacement. If the OEM Installation was butyl, polysulfide or other non-polyurethane product, and the vehicle is licensed for highway use, all stationary glass installations must be performed using polyurethane or an OEM Approved retention system, unless specifically stated otherwise by current OEM specifications.**

**If inappropriate materials, methods, workmanship are found, the technician must report their findings to the owner/operator.**

*Important Notes:
SHORT CUT Method (only trimming high spots and applying a very small amount of urethane) is **NOT APPROVED** and will void all Safe Drive Away Times and can cause adhesion failures and potential occupant injury.
If further cleaning is necessary after the full cut procedure, a clean contaminate free rag or towel and pure water should only be used and allowed to completely dry. This will ensure the fresh trimmed bead does not get contaminated.

*Important Note:*

• Do not spray glass cleaner or any other solvents on the full cut trimmed bead.
• Do not use a brush, wipe, or compressed air to clean pinchweld area after existing urethane has been trimmed to 1-2mm.
This will contaminate the surface and cause the pores of the adhesive to close, which can affect the bond with the new urethane.

**Complete Urethane/Adhesive Removal**

If the technician finds improper adhesive materials (butyl, silicone, etc.) were used or exist on the substrate, or the existing urethane bead shows signs of poor adhesion, it is required that these areas are taken down to the metal and the surface properly prepared.

• Remove all improper materials and/or existing urethane that are not firmly and securely in-tact.
• Clean the bare metal areas with DINITROL 582 or an Approved DINOL cleaner to ensure there is no oil, release agents, silicones, butyl, etc. left on these surfaces.
• Shake DINITROL 538 Plus primer for 1 minute
• Apply DINITROL 538 Plus to the metal areas and let dry minimum 5 minutes > 40° F or minimum 10 minutes < 40° F.
• Replace inner seal and caps immediately after use.

**Painted or Repaired Pinchwelds**

As glass replacement professionals, we are sometimes called upon to replace the vehicle glass before or after the vehicle has gone in for new paint or pinchweld repair. It is important that the instructions below are followed to ensure all safety standards are being met and the glass will be installed correctly.

**Option 1**: Vehicle has not gone in to be painted yet

• Remove glass
• DO NOT trim existing urethane bead on the vehicle if this area is not being repaired. This will act as a barrier for the paint being applied.
• After paint has dried and the technician is called back to install the new glass part, Full Cut to 1-2mm giving the technician a fresh Non-painted urethane bead to bond to.

**If existing urethane has been removed completely, the metal flange can be taped/masked off prior to painting. This tape will then need to be removed and all tape residues will need to be removed from metal bonding area prior to applying DINITROL 538 Plus primer. (Follow primer instructions)**

**Option 2**: Urethane from pinchweld area was removed; metal flange has been repaired or has been painted with epoxy primer, paint, and clear coat.

• Clear coat and paint coat must be removed down to the epoxy primer.
• Scuff/abrade the surface lightly until clear coats and paint is removed. Be careful not to remove the e-Coat. If the e-coat has been removed, it will need to be reapplied.
• Clean metal bonding area with DINITROL 582, MEK, Acetone, etc., making sure to remove all excess solvents.
• Using 538 Plus (following Primer instructions), apply 1 coat of primer to entire metal bonding area and allow proper dry times and follow application instructions.

Rust and Rust Prevention on the Pinchweld

Existing rust on the pinchweld

Always contact the dealership or the original equipment car manufacturer for the vehicle in question and see if specific instructions are available for rust repairs for pinchweld or flange. If the vehicle manufacturer provides specific instructions, they must be followed over any other aftermarket instructions.

Rust can be classified in the following 4 category levels:

1. **Light**: Light rust noticeable on the surface orange in color.
2. **Moderate**: Some dark orange-red spots.
3. **Severe**: Pitting and reddish spots with raised uneven surfaces.
4. **Critical**: Small holes or loss of metal and perforation.

When a technician finds corrosion on the pinchweld it must be corrected and repaired. This is highly critical. Windshield bonding consists of several layers that are linked together like a chain from the metal in the pinchweld to the windshield. A chain is only as strong as its weakest link and a corroded pinchweld might be the link that bursts in a crash situation.

Also note that the corrosion might have spread in the metal under the paint layer and this could be difficult to detect.

DINOL recommends removing all corrosion mechanically in the pinchweld area. DINOL does not recommend treating corroded areas on the pinchweld area with chemicals like "rust converters" or "rust removers."

For severe corrosion (**level 4**) on the bonding area the metal panel must be replaced.

For less serious corrosion (**level 1-3**) DINOL recommends removing all corrosion mechanically and have the surface professionally repainted **without** the clear coat and top coat (color). If the clear coat and color coat remains it can be removed with medium fine sandpaper. Clean metal using DINITROL 582 or other DINITROL approved cleaners.

For moderate corrosion (**levels 1 and 2**) Remove the corrosion mechanically. Clean metal using DINITROL 582 or other DINITROL approved cleaners. If only small areas of bare metal are exposed, i.e. no more than 15% of the bonding surface, it is recommended to use 2 coats of DINITROL 538 Plus to cover the metal area and bonding surface (carefully avoid priming the freshly cut urethane if any remains). DINITROL 538 Plus have shown very good results for rust protection in laboratory salt spray chamber tests, especially when applied in two layers with minimum 5 minutes > 40°F. A dry time of minimum 10 minutes is recommended if the temperature is below 40°F.

If greater than 15% of the bonding area is corroded, DINOL recommends the metal areas be repaired by a professional body repair facility who specializes in metal restoration to ensure the structural pinchweld area is properly prepared with a 2 component epoxy primer by a certified professional body repair technician.
If using an OEM approved Etch primer from companies like DUPONT or PPG, follow the manufacturer’s recommendations for usage, dry times, and application methods. After Etch primer has dried per manufacturer’s recommendations, apply 1 coat of DINITROL 538 Plus and allow to dry minimum 5 minutes > 40°F. A dry time of minimum 10 minutes is recommended if the temperature is below 40°F. Aftermarket aerosol etch or metal treatment primers are not recommended or approved for use with DINITROL primers and adhesives.

DINITROL 538 Plus is a non-conductive primer, which provides the necessary barrier against electric currents, which could cause corrosion or other problems.

*Important Note*
Remember to always clean away any and all debris from sanding, scuffing, or mechanically removed rusted areas prior to applying DINITROL 538 Plus primer. Products like DINITROL 582 Special Cleaner can be used as a cleaning agent and will help ensure the metal is completely clean and oil free.

General Motors does have instructions specific for rust and pinchweld flange repairs.
Contact GM at:
General Motors Corporation
100 Renaissance Center
P.O. Box 431301
Detroit, MI 48243-7301

**Priming:**
See instructions on the following pages

**Used Glass – Removal and Replacement**

The technician must first determine and ensure the previous glass part was installed with a urethane adhesive. If it is determined that a non-urethane adhesive was used or the technician is not sure, then the part must be discarded and a new glass ordered.

If the urethane on the glass part is intact and structurally bonded, the technician should trim to 1-2mm just prior to applying the approved DINITROL glass bonding adhesive being sure to follow the appropriate urethane application instructions and surface preparations as noted in this manual.

**For information on re-activating an existing urethane bead, please see the section on PAAS on pgs. 16-17 in this manual and follow the instructions.**

If the existing bead of urethane is not securely intact on the glass or it has been confirmed that it is not or may not be a structural urethane system, the glass part should be discarded and a new part ordered.

**Automotive Mirror Replacement**

It is recommended that all external and internal mirror replacement installations, meet or exceed original equipment specifications and requirements of Federal Motor Vehicle Standard FMVSS 111.
Glass Preparation

After the glass has been inspected for any defects and you have verified the glass you have is the correct part, it is now time to prepare the glass surface. Before applying DINITROL 538 Plus, Activator Plus or DIRECT to the glass bonding area, you must ensure the surface is clean and free from all visual and sometimes non-visual contaminates. Even the oils from your fingerprints can cause primer to not adhere properly to the surface.

- Always remember to use the proper safety equipment like Nitrile Gloves, Safety Glasses, etc. when working with cleaners, primers, and solvents. (Safety equipment recommendations can be found on the MSDS. References to use the proper safety equipment such as nitrile gloves, and safety glasses are for the protection of the technician and will not affect the safety of the installation.

Step 1: Clean the Glass
- Foaming type glass cleaners (ammonia free) that do not contain Anti-Static Ingredients will not only clean the standard type contaminates from the surface like dirt and dust, but they will also give the technician a visual guide to determine any Non-Traditional contaminates are present like oils, release agents, silicones, etc.
  - Oily residue and hard to remove films are common on much of today’s aftermarket glass. These surface contaminates MUST be removed prior to applying the DINITROL 538 Plus primer or DINITROL Activator Plus or DIRECT. Remember…”A Bond Is Only As Strong As Its Weakest Link.”

*Important Note:
The most of the time, after wiping the inside surface of the glass with glass cleaner and a clean paper towel, you will need to address the bonding area again as the Non-Traditional contaminates may still be present on the surface. If these are found, proceed to step 2. DINOL recommends using DINITROL 582 Special Cleaner or an Approved cleaner to ensure a contaminate free surface.

Step 2: Clean the Glass Bonding area
- Using an approved cleaner like DINITROL 582 special cleaner can help ensure a complete removal of those non traditional contaminates like oils, release agents, silicones, tape residue, and other contaminates that may be present on the bonding area of the glass, etc.
  - Apply DINITROL 582 to a clean paper towel.
  - Wipe and/or scrub if needed, the glass bonding area.
  - Dry/wipe area with a clean dry towel.

*Optional Wet Scrub/abrading Method
This optional method is done by spraying Glass Cleaner on the bonding area of the glass and using a clean/new abrasive pad such as a ScotchBrite® pad, lightly scuffing/abrading the surface. Sometimes this method only pushes the hard to remove contaminates back and forth and will leave them on the surface after drying. It is recommended to make sure these contaminates are completely removed, prior to “Wet Scrubbing/abrading” the Surface.
If the technician wanted to make sure after wet scrubbing the surface, that all contaminants are removed, spray the glass bonding area that was just wet scrubbed and dried with an approved foam type glass cleaner and inspect the surface for “separations” or “fish eye” affects. If contaminations are found, the areas MUST be re-cleaned until removed.

**Priming Procedures**

**DINITROL 538 Plus**

The DINITROL 538 Plus is a multi-function primer designed for use ONLY with DINITROL Glass Bonding products. Never use other manufacturer’s primers or pre-treatments with any DINITROL Adhesive.

DINITROL 538 Plus is a multi-functional 1 step primer used for pre-treatment on glass, pinchweld, metal, PVC, PAAS, and EPDM. (See TDS for further information)

**DINITROL Activator Plus**

The DINITROL Activator Plus is a clear/slightly yellowish glass activator for the glass and ceramic frit surfaces. It can also be used as a PAAS/urethane re-activator.

Be sure to follow the glass preparation instructions on the previous page prior to applying DINITROL Activator Plus to ensure the surface is clean and contaminate free.

**Priming the Glass**

AFTER the glass and glass bonding area has been completely cleaned per the instructions above, we are ready to apply the DINITROL 538 Plus primer or DINITROL Activator Plus. The technician can choose which pre-treatment method they wish to use for the glass surface.

**Step 1:** Check Batch/Lot# and expiration date. DO NOT USE product that has expired.

**Step 2:** Verify the primer has not been open longer than 1 week.

- 538 Plus open time = 1 week (when stored and used per manufacturers instructions)
- Activator Plus = 1 week (when stored and used per manufacturers instructions)

If using DINITROL 538 Plus:

**Step 3:** SHAKE 538 Plus (bottle or single app stick) for 1 Minute prior to each use.

- This is very important to ensure that all solids and solvents are properly mixed.

**Step 4:** Remove cap and carefully remove inner seal.

- You can use the plastic cap to assist with the removal of the seal to eliminate the plastic seal from tearing.

**Step 5:** Apply 538 Plus primer to the glass bonding area making sure to cover any/all areas of the glass bonding surface, which will come in contact with the adhesive.

**Step 6:** Allow minimum 5 minutes for primer to dry > 40 ° F. Minimum 10 minutes < 40 ° F
Step 7: Replace inner seal and cap immediately after use.

If using DINITROL Activator Plus:

Step 3: Remove cap and carefully remove inner seal.
• You can use the plastic cap to assist with the removal of the seal to eliminate the plastic seal from tearing.

Step 4: Apply a thin layer of Activator Plus to the glass bonding area, making sure to cover any/all areas of the glass or ceramic frit bonding surface, which will come in contact with the adhesive.

Step 5: Lightly wipe off any excess liquid only. The transparent film left behind should remain on the glass as this is the glass bonding agent.

Step 6: No dry time required when used as a wipe on/wipe off method on the glass or ceramic frit surfaces only. Dry times are required when applied to PAAS or trimmed urethane bead. (see instructions related to these surfaces)

Step 7: Replace inner seal and cap immediately after use.

*DINITROL DIRECT primerless to glass adhesive does not require the use of Activator Plus or 538 Plus primer on the glass or ceramic frit surface. However, following all cleaning and surface preparations instructions shown on page 13 is recommended. DINITROL DIRECT can also be used with 538 Plus or Activator Plus.

**Bare Metal Areas

Priming the Pinchweld

After the pinchweld has been prepared (as stated in the Pinchweld Preparation Instructions),

Step 1: Check Batch/Lot# and expiration date. DO NOT USE product that has expired.

Step 2: Verify the primer has not been open longer than 1 week.
• 538 Plus open time = 1 week (when stored and used per manufacturers instructions)

Step 3: SHAKE 538 Plus (bottle or single app stick) for 1 Minute prior to each use.
• This is very important to ensure that all solids and solvents are properly mixed.

Step 4: Remove cap and carefully remove inner seal.
• You can use the plastic cap to assist with the removal of the seal to eliminate the plastic seal from tearing.

Step 5: Using an un-used felt tip dauber, Q-tip® or acid brush, apply primer to the scratches within the pinchweld area which may have been caused during the removal process. DO NOT DOUBLE DIP THE APPLICATOR INTO THE BOTTLES AS THIS WILL CONTAMINATE THE BOTTLE OF REMAINING PRIMER.

Step 6: Replace inner seal and cap immediately after use.
• Bare metal areas larger than ½” x ½”; apply a second coat of DINITROL 538 Plus allowing minimum 5 minutes > 40 ° F or minimum 10 minutes < 40 ° F to dry.
• If using an OEM approved Etch primer from companies like DUPONT or PPG, follow the manufacturer’s recommendations for usage, dry times, and application methods. After Etch primer has dried per manufacturer’s recommendations, apply 1 coat of DINITROL 538 Plus and allow to dry minimum 5 minutes > 40°F and a minimum of 10 minutes below 40° F.

*Important Primer Notes:

1. When priming the pinchweld areas, DO NOT re-dip “Double Dip” the dauber or acid brush as this can contaminate the rest of the primer in the bottle. You do not want to add any foreign matter to the primer bottle as this can affect the primer adhesion.
2. Avoid priming the existing Pre-Trimmed urethane bead. If this happens, it will not affect the safety of the installation as the 538 Plus is also a PAAS activator.

Special Surface Preparations

Aluminum Body Vehicles

Galvanic Corrosion
• One type of metal corrodes when in electrical contact of another type of metal with the presence of moisture and or electrical current. The result will be the oxidation of the metal surface.
• If Oxidation is present, it must first be removed and the surface cleaned. Follow the Rust and Rust Prevention instruction on Page 11.

To prevent this from occurring, adhesive manufacturers in the design phase with the vehicle manufacturer developed Non-Conductive/Low Conductive glass bonding materials (primers and adhesives) to create a barrier between the surfaces like the aluminum frame and the glass with integrated wires for example.
• DINITROL 538 Plus primer with DINITROL D-9000, DINITROL 9100 or DINITROL DIRECT urethane is required for these applications.

PAAS (Pre-Applied Adhesive System)

Some OEM vehicle manufacturers like Volkswagen apply at the glass factory a PAAS system. This extruded bead of Urethane set on the inside bonding area of the glass, is primarily used as a height guide for setting the windshield in place at the OEM level.

There are several ways to prepare the glass on these installations.

Option 1:
Prepare/Activate the PAAS to accept the new Urethane using DINITROL 538 Plus

Step 1: Scuff the PAAS surface to remove any contaminates and prepare it for primer
Step 2: Wipe any debris away using a clean cloth
Step 3: Check Batch/Lot# and expiration date. DO NOT USE product(s) that have expired.
Step 4: Verify the primer has not been open longer than 1 week.
• 538 Plus open time = 1 week (when stored and used per manufacturers instructions)

Step 5: **SHAKE** 538 Plus (bottle or single app stick) for 1 Minute prior to each use.
• This is very important to ensure that all solids and solvents are properly mixed.

Step 6: Remove cap and carefully remove inner seal.
• Use the plastic cap to assist with removal of the inner seal to eliminate it from tearing.

Step 7: Using a felt tip dauber, apply 1 coat of DINITROL 538 Plus primer to the PAAS system

Step 8: **Allow minimum 10 minutes to dry >40 deg F and min 20 minutes <40 deg** to activate the PAAS.

Step 9: Apply DINITROL D-9000 or DINITROL 9100 urethane (be sure to follow the Urethane Application Instructions)

**Option 2:**
Prepare/Activate the PAAS to accept the new Urethane using **DINITROL Activator Plus**

Step 1: Scuff the PAAS surface to remove any contamimates and prepare it for primer
Step 2: Wipe any debris away using a clean cloth
Step 3: Check Batch/Lot# and expiration date. **DO NOT USE** product(s) that have expired.
Step 4: Verify the Activator Plus has not been open longer than 1 week.
• Activator Plus open time = 1 week (when stored and used per manufacturers instructions)
Step 5: Remove cap and carefully remove inner seal.
• Use the plastic cap to assist with removal of the inner seal to eliminate it from tearing.
Step 6: Apply a thin coat of Activator Plus using a paper towel, dauber, cotton ball, etc.
• Note…only a thin coat should be applied to the PAAS. If liquid excess is left on PAAS surface, it is recommended that this be lightly wiped off.
Step 7: **Allow minimum 10 minutes >40 deg or minimum 20 min < 40deg** to activate the PAAS.
Step 9: Apply DINITROL D-9000 or DINITROL 9100 urethane (be sure to follow the Urethane Application Instructions)

*Option 3:* Sometimes the PAAS will cause the glass to sit too high in the opening.

Step 1: Trim the PAAS system down to 1-2mm, similar to preparing the pinchweld surface
Step 2: Apply DINITROL D-9000 urethane or DINITROL 9100.

*Note: Using option 3, no need to apply DINITROL 538 Plus or Activator Plus as you have trimmed the existing PAAS urethane on the glass and it is now ready to accept the new D-9000 or 9100 urethane.

**Encapsulations (PVC), Rear Sliders, Gasket Sets**

Some glass parts require the adhesive and primer to bond to substrates other than directly to the glass or ceramic frit. For instance, PVC encapsulated parts. Glass manufacturers use **Mold Release Agents** when manufacturing these parts in order to remove them from the glass molds. It is important that these bonding surfaces be cleaned and pre-treated to ensure proper adhesion of the primer. Other parts like Rear Sliders may have frames made of PVC or metal. Some gasket sets may also be designed in a way that the gasket has to be bonded directly to the pinchweld flange on the car/truck body.

**Step 1:** Clean the bonding area (inside) of the encapsulation. Products such as DINITROL 582, Acetone, MEK, can be used. Be sure to wipe off any excess and allow proper flash times.
**Step 2:** Scuff the bonding surface (using a clean ScotchBrite® style pad or fine grit sand paper) of the glass part, gasket, PVC, etc.
**Step 3:** Wipe any debris away using a clean cloth.
Step 3: Check Batch/Lot# and expiration date. *DO NOT USE* product that has expired.
Step 4: Verify the primer has not been open longer than 1 week.
  • 538 Plus open time = 1 week (when stored and used per manufacturers instructions)
Step 5: **SHAKE** 538 Plus (bottle or single app stick) for 1 Minute prior to each use.
  • This is very important to ensure that all solids and solvents are properly mixed.
Step 6: Remove cap and carefully remove inner seal.
  • Use the plastic cap to assist with removal of the inner seal to eliminate it from tearing.
Step 7: Using a felt tip dauber, apply 1 coat of DINITROL 538 Plus primer to the glass surface bonding area (Encapsulation, Rubber Gasket, Rear Slider frame, etc.).
  • Be sure to cover all areas that will come in contact with the urethane.
Step 8: Allow **Allow minimum 20 minutes dry time**
Step 9: Apply appropriate DINITROL urethane (be sure to follow the Urethane Application Instructions)

*Important notes regarding Rubber Gasket sets*

If the glass to be replaced is set in a gasket, and the vehicle is licensed for highway use, then an approved polyurethane or equivalent system must be used unless noted by the OEM vehicle manufacturer as permissible exceptions such as emergency Egress, antique restorations, classic vehicle or current OEM Vehicle Manufacturers specifications that state exception to this rule.

**Fiberglass**

Also known as glass-reinforced plastic (GRP) or fiber-reinforced plastic (FRP). These materials are being used for a wide range of applications from car body panels and boat hulls to furniture and tennis rackets. Fiberglass is light weight, has good strength and has rust resistance properties. It can be shaped and molded in a variety of ways.

**Pretreatment of FRP pinchweld surfaces:**

Step 1: Check to make sure that the existing urethane bead on the flange is securely ***bonded.***
Step 2: Scratches and discoloration areas of the pinchweld need to be prepared.
Step 3: Using a ScotchBrite® or similar pad, or fine grit sand paper, lightly scuff the scratched, discoloration, or bare bonding areas until clean and abraded.
Step 4: Wipe away debris using a clean cloth with DINITROL 582 cleaner
Step 5: Check Batch/Lot# and expiration date. *DO NOT USE* product that has expired.
Step 6: Verify the primer has not been open longer than 1 week.
  • 538 Plus open time = 1 week (when stored and used per manufacturers instructions)
Step 7: **SHAKE** 538 Plus (bottle or single app stick) for 1 Minute prior to each use.
  • This is very important to ensure that all solids and solvents are properly mixed.
Step 8: Remove cap and carefully remove inner seal.
  • Use the plastic cap to assist with removal of the inner seal to eliminate it from tearing.
Step 9: Using a felt tip dauber, apply 1 coat of DINITROL 538 Plus primer to the FRP flange.
  • Be sure to cover all scratched and areas that will come in contact with the urethane.
Step 10: Allow **minimum 10 minutes to dry >40 deg F and min 20 minutes <40 deg**
Step 11: Apply appropriate DINITROL urethane (be sure to follow the Urethane Application Instructions)

***If existing urethane is loose or shows signs of poor adhesion, you must remove those sections down to the FRP level and follow Steps 3-9.***
Factory Pre-Applied Primer

Sometimes, a glass part is supplied to the aftermarket or purchased from a dealer that contains an OEM Pre-Applied primer to the glass bonding area. Follow the instructions on Glass Preparation and Priming Procedures found on pages 13, 14 & 15 and apply the primer accordingly.

You do not need to remove the OEM primer on the glass surface, just be sure the primed bonding area is clean and free from contaminates.

Make sure the DINITROL 538 Plus or Activator Plus is applied to any area of the glass bonding surface where the adhesive may come in contact. This may require the technician to apply a wider band of primer or activator than that shown on the glass. *DINITROL DIRECT does not require the use of 538 Plus primer or Activator Plus on the factory pre-applied primer...however surface has to be clean and free from contaminates.

Urethane Application Instructions

Item # 5 of the ANSI/AGSC/AGRSS™ 004-2018 Standard states: “No automotive glass replacement shall be undertaken using an adhesive glass retention system that would not achieve minimum drive away strength by the time the vehicle may be expected to be operated.”

DINITROL offers a variety of glass bonding urethanes. It is important to know the characteristics of the product you are using, the technical properties, and the SDAT “Safe Drive Away Times.” Some vehicles require the use of High Modulus and/or Non-Conductive/Low Conductive urethane. Some installations, due to the weather conditions, require a fast drive away time. Whichever product(s) you are using, the pre-treatment procedures stated within this manual must be followed, and SAFETY of the occupants has to be the most important focus.

*Important Notes:
The replacement facility, owners, and technicians, have to make a commitment to follow all manufacturers’ guidelines, procedures, technical data, and SDAT “Safe Drive Away Times.” This means, the vehicle should not be released and must remain “out of service” until the SDAT time has been meet according to the adhesive system manufacturers stated Safe Drive Away Times.

Sealing water or air leaks

- Only an OE compatible polyurethane adhesive or sealant may be used. Butyl, silicone, etc. are not approved materials. (same is true for Sealing within Rubber Gasket applications)

“V” Bead

The nozzles should be cut to the specific vehicle the technician is working on. This is due to the fact that each vehicle make and or model will have a different vertical height of the pinchweld flange to the roof line. Also the width of the bonding flange will also vary depending on the vehicle you are working on.

Diameter of the hole

- The nozzle should be cut so that the hole diameter is the average width of the existing trimmed bead on the vehicle.

The “V” Notch Height

- The depth (height) of the “V” Notch should be cut to the verticle height/depth of the pinchweld flange to the roofline.
• After cutting the appropriate diameter hole, place the cut nozzle on the pinchweld flange to determine the appropriate height of the “V”. Then cut the “V” to that height.

Key tip...there are many “V” notch tools available in the market for sale and can provide you the technician a faster and safer way to cut the “V” notch on the nozzle.

Q. Why extrude the urethane in a “V” bead shape versus a “Round” or “Rope” format?

Provided the nozzle has been cut to the proper width and height, the “V” bead after being decked and “Wet Out” properly will provide the proper setting height of the glass down to the roofline.

A “Round” or “Rope” bead during the decking phase can cause the sides of the bead to roll up and trap air. It is also more difficult to ensure that all points within the “Round” bead are actually touching the surfaces equally thus causing a potential for water and air leaks.

Adverse Weather Conditions Procedure

Unlike the OEM vehicle installations that are done in controlled environments, the aftermarket glass replacement industry has to deal with many challenges that the automotive manufacturers do not have to face. AGR installations are being done in shop and on the road “Mobile.” Conditions in the shop may be 73°F 50% R.H. Conditions on the road during “Mobile Installations” could be 20°F 40% R.H. or they could be 100°F 90% R.H.

It is important to make sure that you are using the proper DINITROL urethane for each installation. DINITROL D-9000 and DINITROL 9100 can be used from 0° - 115° F and still allow the car to be released to the road in as little as 1 hour (D-9000) or 30min (DINITROL 9100).

Cold Weather

DINITROL D-9000 and DINITROL 9100 are the adhesives recommended when installing in temperatures <40° F.
DINITROL 538 Plus primer dry time >40°F is minimum 5 minutes, < 40°F is 10 minutes
DINITROL Activator Plus = No dry time using wipe on/wipe off method (Glass and ceramic frit only). Maximum 8 hours.

Low temperature installations can also cause condensation on the bonding surfaces. Glass coming out of a warm van to the ambient temperature outside can experience this. If this happens:
1. Allow the glass to get to the outside ambient temperature.
2. Clean the bonding area per the “Glass Preparation Procedures”
3. Dry the bonding area thoroughly with a clean lint free towel
4. Apply DINITROL 538 Plus or Activator Plus (glass only) (per Primer Application Instructions) *DINITROL DIRECT does not require 538 Plus or Activator Plus

Along with condensation, the cold temperatures will mean cold urethane causing the urethane to have a much thicker viscosity. Technicians have to be able to extrude the materials as well as have time to position the glass. Following the recommended storage temperatures found on the TDS sheets will alleviate any issues with regards to extruding and positioning the glass.

Pre-Prime Option:
You may opt to have the glass prepared and pre-primed at the shop prior to leaving for the day. This allows sufficient time for the primer to dry and adhere to the glass bonding surface.

- 538 Plus post application working time = 3 months
- Re-Application of 538 Plus Primer = 1 time max
- Activator Plus post application working time = 8 hours
- Re-Application of Activator Plus = 3 times max

**Hot Temperatures and High Humidity climates**

As with cold temperature, the glass coming out of a cold, air-conditioned van to the high heat and humid conditions outside can cause condensation to build up on the surfaces.

1. Allow the glass to get to the outside ambient temperature.
2. Clean the bonding area per the “Glass Preparation Procedures”
3. Dry the bonding area thoroughly with a clean lint free towel
4. Apply DINITROL 538 Plus or Activator Plus (glass only) (per Primer Application Instructions)* DINITROL DIRECT does not require 538 Plus or Activator Plus

**Rain and Wet conditions**

All Bonding areas must be dry when using DINITROL Glass Bonding Systems. Installations in the rain, if not properly enclosed under a sheltered area or shop, are not recommended.

**Additional requirements related to the use of the DINITROL systems and compliance to ANSI/AGSC/AGRSS™ 004-2018 standard:**

**Installation Standards – Adhesive Bonding**
ANSI/AGSC/AGRSS™ 004-2018 Declaration of Standard Conformance

The following information was designed to assist and ensure compliance to the most current AGRSS Standard. These documents will help you complete the self-assessment and deliverable requirements as set forth within the ANSI/AGSC/AGRSS™ 004-2018 standard.

**Adhesive System DELIVERABLES:**

**Deliverable 1:**
Copy of form used to record conditions of vehicle that could compromise the retention system.

**Deliverable 2 (deliverable 4.01):**
Copy of the retention system manufacturer/private labeler document that specifies compliance to a quality assurance standard.

**Deliverable 3 (deliverable 4.03):**
Copy of the retention system manufacturer/private labeler document that specifies retention system being either OEM approved or equivalent.

**Deliverable 4 (deliverable 4.04):**
Copy of cover of retention system manufacturer/private labeler current written instructions.

**Deliverable 5 (deliverable 5.03):**
Copy of drive-away time chart provided by retention system manufacturer/private labeler.

**Deliverable 8:**
Copy of your AGR-related training certificate (Example DINITROL Certification) of personnel performing auto glass replacement indicating form of training maintained.
Deliverables 6 and 7
Provide your records and methods in which you use for each:

Deliverable 6:
Copy of your record utilized to record drive-away times specified to the vehicle owner/operator (make sure names of owner/operator do not appear).

Deliverable 7:
Copy of your record utilized to note retention system lot numbers and glass part DOT/part numbers (make sure names of owner/operator do not appear).

ANSI/AGSC/AGRSS™ 004-2018 Declaration of Standard Conformance

Deliverable 1:

Provide a copy of the form or document you use to record conditions of vehicle that could compromise the retention system.

Item # 3 in the Standard A states:

3. Vehicle Assessment Before Replacement
“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.”

For those who do not have their own Pre-Inspection Worksheet, DINOL GmbH has developed one that can be used to document the products used, environmental conditions, and vehicle condition concerns. (please refer copy on next page).

INSTRUCTIONS: COPY NEXT PAGE Pre-Inspection Worksheet AND ATTACH IT TO YOUR AGRSS DELIVERABLES CHECKLIST SHEET. IF YOU HAVE A PRE DESIGNED FORM ALREADY, ATTACH IT TO THE CHECKLIST.
PRE-INSPECTION WORKSHEET

Inspected by: 
Date: 
Driver's name: 

VIN: 
License Plate #: State: 
Mileage: 

VEHICLE TYPE
- 2 Door
- 4 Door
- Hatchback
- Sport Utility
- Sedan
- Mini Van
- Station Wagon
- Truck

PRE-INSPECTION CHECKS
- A = Stained
- C = Chipped
- D = Dented
- M = Missing Part
- P = Peeled Paint
- R = Rust
- S = Scratched
- T = Tears

COMMENTS:

INSTALLATION ENVIRONMENT
- Temperature at start of installation: 
- Relative Humidity at start of installation: 
- Time glass was set: 
- Estimated vehicle release time: 

PRODUCTS USED

<table>
<thead>
<tr>
<th>Products Used</th>
<th>Part #</th>
<th>Lot #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urethane Adhesive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glass Cleaner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glass/Pinchweld Primer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specialty Primer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moldings or parts</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Place proof of use label here
ANSI/AGSC/AGRSTM 004-2018 Declaration of Standard Conformance

**Deliverable 2 (deliverable 4.01):**
Copy of the retention system manufacturer/private labeler document that specifies compliance to a quality assurance standard.

“There are those engaged in automotive glass replacement shall use retention systems that are produced under documented quality assurance standards.”

**DINOL Response:**

All DINITROL adhesives and primers are manufactured and documented according to our quality assurance procedures and verified by a third party ISO registrar.

Our management system is based on the European Model for Comprehensive Quality Management, which includes the elements of EN ISO 9001, ISO/TS 16949 and EN ISO 14001.

The production plants are certified EN ISO 9001, ISO/TS 16949 and EN ISO 14001. But that's not all. Our quality is also proven by various awards received from our customers.

For copies of our certificates, please contact DINOL U.S. Inc. at info@dinolus.com.

Edmond Robeyn
General Manager
DINOL GmbH

INSTRUCTIONS: COPY THIS PAGE AND ATTACH IT TO YOUR AGRSS DELIVERABLES CHECKLIST SHEET.
ANSI/AGSC/AGRSTM 004-2018 Declaration of Standard Conformance

**Deliverable 3 (deliverable 4.03):**
Copy of the retention system manufacturer/private labeler document that specifies retention system being either OEM approved or equivalent.

“Those engaged in automotive glass replacement must 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.”

**DINOL Response:**

*EFTEC, as a member of the EMS-TOGO Group is closely affiliated to leading car manufacturers around the world. We have supplied different products to car manufacturers for decades, in the fields of bonding, sealing, cavity protection, underbody coating, anti-flutter, acoustic damping, etc.*

*Our chemists and engineers work closely together with the colleagues at the car manufacturer in order to improve today’s products and systems as well as developing new solutions for the future.*

*We are cooperating with the car manufacturers from the early stages in the development process of a new model all the way through that new models production and roll out of the factory.*

*Our products are not only OEM Approved, they are used by many of the major vehicle manufacturers in the world.*

*When used as directed, all DINITROL Glass Bonding adhesive systems meet and exceed the OEM strength and safety requirements as outlined by all automobile manufacturers.*

Joe Renzi
CEO
DINOL US Inc
INSTRUCTIONS: COPY THIS PAGE AND ATTACH IT TO YOUR AGRSS DELIVERABLES CHECKLIST SHEET.

ANSI/AGSC/AGRSS™ 004-2018 Declaration of Standard Conformance

**Deliverable 4 (deliverable 4.04):**
Copy of cover of retention system manufacturer/private labeler current written instructions.

“Those engaged in automotive glass replacement shall obtain and follow written comprehensive and current application instructions from the retention system manufacturer or private labeler.”

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INSTRUCTIONS: COPY THIS PAGE SHOWING THE FRONT COVER OF THE DINITROL AGR TRAINING MANUAL AND ATTACH IT TO YOUR AGRSS DELIVERABLES CHECKLIST SHEET.

**NOTE.**
Customers using DINITROL AGR Training Manual 2014 (version agr2014-1) or DINITROL AGR Training Manual 2016 are acceptable training manuals provided the MINIMUM dry/flash times are being met as stated in the 2016 training manual. Dry and flash times have improved/shorten in length on our 538plus to what was previously stated in the prior manual. Provided the Minimum times are being met as stated in the 2016 manual, the technicians meets all appropriate usage requirements.
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Deliverable 5 (deliverable 5.03):
Copy of drive-away time chart provided by retention system manufacturer/private labeler.

“No automotive glass replacement shall be undertaken using an adhesive glass retention system that would not achieve minimum drive away strength by the time the vehicle may be expected to be operated.”

DINOL provides with all technical information, the Safe Drive Away Times for each product. These times are tested in accordance with our internal methods under varying conditions and are third party validated using FMVSS 212 standard with Dual airbags.

INSTRUCTIONS: COPY THE APPROPRIATE TDS SHEET(s), WHICH SHOWS THE RESPECTED DRIVE AWAY TIME CHARTS AND ATTACH IT TO YOUR AGRSS DELIVERABLES CHECKLIST SHEET.
ANSI/AGSC/AGRSS™ 004-2018 Declaration of Standard Conformance

Deliverables 6 and 7
Provide your records and methods in which you use for each:

Deliverable 6:
Copy of your record utilized to record drive-away times specified to the vehicle owner/operator (make sure names of owner/operator do not appear).

Deliverable 7:
Copy of your record utilized to note retention system lot numbers and glass part DOT/part numbers (make sure names of owner/operator do not appear).
Deliverable 8:
Copy of your AGR-related training certificate (Example DINITROL Certification) of personnel performing auto glass replacement indicating form of training maintained.

DINOL provides a comprehensive hands on training that covers the proper use of all DINITROL products, OEM specifications and methods, occupant safety, technical specifications, storage requirements, drive away times, and detailed instructions for use under all conditions, etc. Upon the completion of the training and exam, each technician is provided a certificate of training completion.

INSTRUCTIONS: COPY YOUR DINITROL CERTIFICATES (EXAMPLE ON THE FOLLOWING PAGE AND ATTACH THEM TO YOUR AGRSS DELIVERABLES CHECKLIST SHEET.
CERTIFICATE

Name of Participant
Company Name

Has successfully completed all applicable training and certification requirements.

DINITROL VEHICLE GLASS REPLACEMENT

Date Certified

Joseph Renzi
Business Manager - Americas
DINOL GmbH
DINITROL 9100
9100 High modulus / Nonconductive Urethane Adhesive

General description
DINITROL 9100 is a black, one component polyurethane with the following properties:
• OEM approved
• 30 min Safe Drive Away Time
• High Modulus
• Non-conductive
• Cold applied
• High Viscosity
• Fast Curing
• Solvent and PVC Free
• Crash Test Proven
• Meets applicable FMVSS

The adhesive’s high modulus property contributes remarkably to the stiffening increase of the car-body. The low electric conductivity makes DINITROL 9100 most suitable for the replacement of windshields and/or rear windows that have an antenna incorporated. In the case of an aluminium car body, the electric insulating property of the product will prevent the danger of contract corrosion.

Shelf Life
12 months in an unopened cartridge.

Storage Requirements
Recommended storage temperature is between 0°C (32°F) and 35°C (95°F) in closed packaging.

Packaging        Part#        
20.3 oz (foil-wrap)  9100FW
10.5 oz (cartridge)  9100

Working Time
12 minutes at 23°C (73°F) and 50% RH

Tensile Strength
Approx. 10 MPa (1450 PSI)

Lap Shear Strength
Approx. 7 MPa (1015 PSI)

Shear Modulus
Approx. 2.5 MPa

Shore A Hardness
Approx. 61

Elongation
Approx. 500%

Electrical Resistivity
>10^7 ohms · cm

Required Pre-Treatment Products
One step primer 538 Plus or Activator Plus (glass or PAAS only)

Encapsulation / PVC / PAAS
Refer to the DINITROL AGR Training Manual for proper pre-treatment and surface preparation recommendations for these substrates.

Installation
Full cut method leaving 1 – 2 mm as a base.

All bonding areas must be clean, dry and free from all contaminants like oil, grease, release agents, etc. The glass must be pretreated with either the one-step primer DINITROL 538 Plus or Activator Plus.

Cut off collar at one end of foilwrap. Insert foilwrap into caulking gun. Nozzle should be cut to the proper urethane dimensions as specified by the car manufacturer. Reference on nozzle preparation can be found in the DINITROL AGR Training Manual.

If there is no existing urethane on the pinchweld to use as a substrate, apply either 538 Plus or DINITROL 530 to the pinchweld bonding area.

Dry/Flash times of primers and pre-treatments can be found on the appropriate TDS or DINITROL AGR Training Manual.

Important Notes
Glass installation is not recommended at temperatures below 5°C (40°F) unless proper procedures are followed as stated in the DINITROL AGR Training Manual under Adverse Weather Conditions Section. Adhesives such as DINITROL 9100, DINITROL 9000 should be used in these extreme temperatures unless glass is replaced in a heated shop and allowed to remain there until the appropriate Safe Drive Away Time as listed on the product TDS sheets have been met.

*For complete instructions on how to use and apply the DINITROL glass bonding systems, please refer to the DINITROL AGR Training Manual.

All Data and recommendations are the result of careful tests by our laboratories. They only can be considered as recommendation which correspond to the level of experience of today. The data are given in good faith. However, in view of the multiplicity of possible application and working methods we are not in a position to assert any responsibility or obligations deriving from the use of our products.

Healthy and safety information can be obtained from the material safety data sheet and the product label.

DINOL Americas
8520 Cotter Street
Lewis Center, OH 43035
Telephone: 740-548-1656
Telefax: 740-548-1657
Web: www.dinitrol.com

Drive Away With Passenger Side Airbag

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>0°F (-18°C) to 115°F (46°C) at Relative Humidity 0 - 100%</td>
<td>30 minutes</td>
</tr>
</tbody>
</table>

Without Passenger Side Airbag

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>0°F (-18°C) to 115°F (46°C) at Relative Humidity 0 - 100%</td>
<td>30 minutes</td>
</tr>
</tbody>
</table>
DINITROL 9000
60 Minutes Safe Drive Away Urethane Adhesive

General description
DINITROL D-9000 is a black, one-component polyurethane with the following properties:
- high modulus
- nonconductive
- cold applied
- high viscosity
- fast curing
- meets applicable FAWSS
- OEM approved

The adhesive’s high modulus property contributes remarkably to the stiffening increase of the car-body. The low electric conductivity makes D-9000m most suitable for the replacement of windshields and/or rear windows.

Working Time
18 minutes at 23°C (73°F) and 50% RH

Tenstile Strength
> 6.9 MPa (1000 psi)

Lap Shear Strength
- 3 hours > 0.7 MPa (100 psi)
- 24 hours > 2.5 MPa (360 psi)
- 168 hours > 5.0 MPa (730 psi)

Shear Modulus
> 2.5 MPa “at 10% deformation”

Shore Hardness
Shore A 72

Elongation
290%

Electrical Resistivity
> 10 8 ohms · cm

Required Pre-Treatment Products
One step primer 538 Plus
- or -
Activator Plus (glass or PAAS only)

Encapsulation / PVC / PAAS
Refer to the DINITROL AGR Training Manual for proper pretreatment and surface preparation recommendations for these substrates.

Installation
Full cut method leaving 1 – 2 mm as a base.

All bonding areas must be clean, dry and free from all contaminants, like oil, grease, release agents, etc. The glass must be pretreated with either the one-step-primer 538 plus or with Activator Plus.

Remove the aluminum tab on the bottom of the cartridge. Cut nozzle to meet urethane dimensions as specified by the respective car manufacturer. Remove pull tab on bottom, puncture top and attach nozzle. Insert into gun.

If there is no existing urethane on the pinchweld to use as a substrate, apply either 538 Plus or D-530 to the pinchweld bonding area.

Dry/Flash times of primers and pre-treatments can be found on the appropriate TDS or DINITROL AGR Training Manual.

Important Notes
Glass installation is not recommended at temperatures below 5°C (40°F) unless procedures are followed as stated in the DINITROL AGR Training Manual under Adverse Weather Conditions Section. Adhesives such as DINITROL 9100 or DINITROL 9000 should be used in these extreme temperatures unless glass is replaced in a heated shop and allowed to remain there until the appropriate Safe Drive Away Time as listed on the products TDS sheets have been met.

For complete instructions on how to use and apply the DINITROL glass bonding systems, please refer to the DINITROL AGR Training Manual.

Required Pre-Treatment Products
One step primer 538 Plus
- or -
Activator Plus (glass or PAAS only)

Encapsulation / PVC / PAAS
Refer to the DINITROL AGR Training Manual for proper pretreatment and surface preparation recommendations for these substrates.

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Full cut method leaving 1 – 2 mm as a base.

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For complete instructions on how to use and apply the DINITROL glass bonding systems, please refer to the DINITROL AGR Training Manual.


dle Away With Passenger Side Airbag

<table>
<thead>
<tr>
<th>RH/TEMP</th>
<th>&gt; 70%</th>
<th>&gt; 50%</th>
<th>&gt; 30%</th>
<th>&gt; 10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 85°F (30°C)</td>
<td>1 h</td>
<td>1 h</td>
<td>1 h</td>
<td>1 h</td>
</tr>
<tr>
<td>&gt; 73°F (23°C)</td>
<td>1 h</td>
<td>1 h</td>
<td>1 h</td>
<td>1 h</td>
</tr>
<tr>
<td>&gt; 60°F (16°C)</td>
<td>1 h</td>
<td>1 h</td>
<td>1 h</td>
<td>1 h</td>
</tr>
<tr>
<td>&gt; 50°F (10°C)</td>
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<tr>
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<td>1 h</td>
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</tr>
<tr>
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<td>1 h</td>
<td>1 h</td>
<td>1 h</td>
<td>1 h</td>
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Without Passenger Side Airbag

<table>
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</thead>
<tbody>
<tr>
<td>&gt; 115°F (46°C)</td>
<td>45 min</td>
<td>45 min</td>
<td>45 min</td>
<td>45 min</td>
</tr>
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<td>&gt; 85°F (30°C)</td>
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<td>45 min</td>
<td>45 min</td>
<td>45 min</td>
<td>45 min</td>
</tr>
<tr>
<td>&gt; 40°F (5°C)</td>
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<td>45 min</td>
<td>45 min</td>
</tr>
<tr>
<td>&gt; 32°F (0°C)</td>
<td>45 min</td>
<td>45 min</td>
<td>45 min</td>
<td>45 min</td>
</tr>
<tr>
<td>&gt; 23°F (-5°C)</td>
<td>45 min</td>
<td>45 min</td>
<td>45 min</td>
<td>45 min</td>
</tr>
<tr>
<td>&gt; 15°F (-10°C)</td>
<td>45 min</td>
<td>45 min</td>
<td>45 min</td>
<td>45 min</td>
</tr>
<tr>
<td>&gt; 0°F (-18°C)</td>
<td>45 min</td>
<td>45 min</td>
<td>45 min</td>
<td>45 min</td>
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DINOL U.S. Inc.
8520 Cotter Street
Lewis Center, OH 43035

Telephone: 740-548-1656
Telefax: 740-548-1657
Web: www.dinitrol.com
D-501 HV
High Modulus and Non-Conductive Urethane

General description
D-501 HV is a one component black urethane adhesive system with the following benefits:
- High Viscosity
- High Modulus
- Non-Conductive
- Super Quick Curing
- Solvent Free
- OEM Approved
- Meets Applicable FMVSS

Shelf Life
12 months in an unopened cartridge

Storage Requirements
Recommended storage temperature is between 0°C (32°F) and 35°C (95°F).

Packaging
<table>
<thead>
<tr>
<th>Part#</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.5 oz Cartridge D-501HV</td>
<td></td>
</tr>
<tr>
<td>20.3 oz Foil-Wrap D-501HVFW</td>
<td></td>
</tr>
</tbody>
</table>

Working Time
15 minutes at 73deg F 50% RH

Tensile Strength
10 MPa (1400 psi)

Lap Shear Strength
>1000 psi

G-Modulus
Approx. 2.5 MPa

Shore Hardness
>60

Elongation
500 %

Electrical Resistivity
Approx. 10¹ Ωcm

Required Pre-Treatment Products
One step primer 538 plus -or- Activator Plus (glass or PAAS only)

Encapsulation / PVC / PAAS
*Refer to the DINITROL AGR Training Manual for proper pretreatment and surface preparation recommendations for these substrates.

Installation*
Full cut method leaving 1 - 2 mm as a base. All bonding areas must be clean, dry and free from all contaminants like oil, grease, release agents, etc. The glass must be pretreated with either the one-step-primer 538 plus, or with the Activator Plus. Remove the aluminium tab on the bottom of the cartridge. Cut nozzle to meet urethane dimensions as specified by the respective car manufacturer. Remove pull tab on bottom, puncture top and attach nozzle. Insert into gun. If there is no existing urethane on the pinchweld to use as a substrate, apply either 538 Plus or D-530 to the pinchweld bonding area. Dry/Flash times of primers and pretreatments can be found on the appropriate TDS or DINITROL AGR Training Manual.

Important Notes
Glass installation is not recommended at temperatures below 5°C (40°F) unless proper procedures are followed as stated in the DINITROL AGR Training Manual under Adverse Weather Conditions Section. Adhesives such as DINITROL 9100 or DINITROL 9000 should be used in these extreme temperatures unless glass is replaced in a heated shop and allowed to remain there until the appropriate Safe Drive Away Time as listed on the products TDS sheets have been met. This includes air, glass, pinchweld and urethane temperatures.

*For complete instructions on how to use and apply the DINITROL glass bonding systems, please refer to the DINITROL AGR Training Manual.

Minimum Safe Drive Away With Passenger Airbag

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>20°F (-7°C) to 115°F (46°C)</td>
<td>2 hours</td>
</tr>
<tr>
<td>at Relative Humidity 0 – 100%</td>
<td></td>
</tr>
</tbody>
</table>

Without Passenger Side Airbag

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>20°F (-7°C) to 115°F (46°C)</td>
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Health and safety information can be obtained from the material safety data sheet and the product label.

DINOL U.S. Inc.
8520 Cotter Street
Lewis Center, OH 43035

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8520 Cotter Street
Lewis Center, OH 43035

Telephone: 740-548-1656
Telefax: 740-548-1657
Web: www.dinitrol.com
**General description**

D-500 is a one component urethane adhesive system with the following benefits:
- Great decking
- Cost effective
- Wilde mouth opening
- Solvent free
- Crash tested
- Meets applicable FMVSS
- OEM approved

**Shelf Life**

12 months in an unopened cartridge

**Storage Requirements**

Recommended storage temperature is between 0°C (32°F) and 35°C (95°F). 

**Packaging**

<table>
<thead>
<tr>
<th>Part#</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.5 oz Cartridge</td>
</tr>
<tr>
<td>20.3 oz Foil-Wrap</td>
</tr>
</tbody>
</table>

**Working Time**

35 – 40 minutes at 23°C (73°F) and 50% RH

**Lap Shear Strength**

- 2 hours 0.25 MPa (36 psi)
- 3 hours 0.70 MPa (100 psi)
- 24 hours 6.0 MPa (870 psi)
- 7 days 6.3 MPa (910 psi)

**Tensile Strength**

9.0 MPa (1300 psi)

**Shear Modulus**

1.1 MPa

**Elongation**

600%

**Electrical Resistivity**

10 Kilo-ohms · cm

**Required Pre-Treatment Products**

One step primer 538 plus -or- Activator Plus (glass or PAAS only)

**Encapulation / PVC / PAAS**

Refer to the DINITROL AGR Training Manual for proper pretreatment and surface preparation recommendations for these substrates.

**Installation**

Full cut method leaving 1 – 2 mm as a base.

All bonding areas must be clean, dry and free from all contaminates like oil, grease, release agents, etc. The glass must be pretreated with either the one-step-primer 538 plus, or with the Activator Plus.

Remove the aluminium tab on the bottom of the cartridge. Cut nozzle to meet urethane dimensions as specified by the respective car manufacturer. Remove pull tab on bottom, puncture top and attach nozzle. Insert into gun.

If there is no existing urethane on the pinch-weld to use as a substrate, apply either 538 Plus or D-530 to the pinchweld bonding area. Dry/flash times of primers and pre-treatments can be found on the appropriate TDS or DINITROL AGR Training Manual.

**Important Notes**

Glass installation is not recommended at temperatures below 5°C (40°F) unless proper procedures are followed as stated in the DINITROL AGR Training Manual under Adverse Weather Conditions Section. Adhesives such as DINITROL 9100 or DINITROL 9000 should be used in these extreme temperatures unless glass is replaced in a heated shop and allowed to remain there until the appropriate Safe Drive Away Time as listed on the products TDS sheets have been met.

*For complete instructions on how to use and apply the DINITROL glass bonding systems, please refer to the DINITROL AGR Training Manual.

**Drive Away With Passenger Side Airbag**

<table>
<thead>
<tr>
<th>RH/TEMP</th>
<th>&gt; 70%</th>
<th>&gt; 50%</th>
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<th>&gt; 10%</th>
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<tbody>
<tr>
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<td>4 hrs</td>
<td>10 hrs</td>
</tr>
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<td>3 hrs</td>
<td>3 hrs</td>
<td>5 hrs</td>
<td>12 hrs</td>
</tr>
<tr>
<td>&gt; 60°F (15°C)</td>
<td>4 hrs</td>
<td>5 hrs</td>
<td>6 hrs</td>
<td>16 hrs</td>
</tr>
<tr>
<td>&gt; 50°F (10°C)</td>
<td>6 hrs</td>
<td>8 hrs</td>
<td>12 hrs</td>
<td>24 hrs</td>
</tr>
<tr>
<td>&gt; 40°F (5°C)</td>
<td>15 hrs</td>
<td>18 hrs</td>
<td>20 hrs</td>
<td>30 hrs</td>
</tr>
</tbody>
</table>

**Without Passenger Side Airbag**

<table>
<thead>
<tr>
<th>RH/TEMP</th>
<th>&gt; 70%</th>
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</tr>
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<tbody>
<tr>
<td>&gt; 85°F (30°C)</td>
<td>1.5 hrs</td>
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<td>3 hrs</td>
<td>6 hrs</td>
</tr>
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<td>&gt; 73°F (23°C)</td>
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<td>3 hrs</td>
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<td>5 hrs</td>
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</tr>
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<td>12 hrs</td>
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<td>18 hrs</td>
<td>28 hrs</td>
</tr>
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</table>

*Application at or below 40°F is Not Recommended

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Health and safety information can be obtained from the material safety data sheet and the product label.
**General description**

DINITROL Direct is a one-component cold-applied, non-conductive urethane adhesive system with the following benefits:

- Primerless to glass*
- High Viscosity
- Fast curing
- Excellent working time
- Good decking
- Short cut-off string
- High elasticity
- High strength
- Crash test proven to FMVSS 212/208

**Shelf Life**

10 months in an unopened foilwrap

**Storage Requirements**

Recommended storage temperature is between 0°C (32°F) and 35°C (95°F).

**Packaging**

20.3 oz Foil-Wrap DirectFW 600 ml foilwrap

**Working Time**

20 minutes at 23°C (73°F) and 50%RH

**Tensile Strength**

Approx. 9 MPa (1305 psi)

**Lap Shear Strength**

> 4 MPa

**G- Modulus**

Approx. 1.8 MPa

**Shore Hardness**

Shore A 50-65

**Elongation**

> 250%

**Required Pre-Treatment Products**

DINITROL 538 Plus for metal, scratches, PAAS, PVC, EPDM and Encapsulations.

**Encapsulation / PVC / PAAS**

*“Refer to the DINITROL AGR Training Manual for proper pre-treatment and surface preparation recommendations for these substrates."

**Glass Contamination**

* “Contamination (traditional and non traditional) found on glass, ceramic frit, and bonding surfaces, (refer to the DINITROL AGR Training Manual for proper cleaning and removal prior to applying DINITROL direct) DINOL offers DINITROL 582 special cleaner as an option to assist with the removal of such contaminates.

**Installation**

Full cut method leaving 1 – 2 mm as a base.

All bonding areas must be clean, dry and free from all contaminants like oil, grease, release agents, etc.

Remove the aluminium tab on the bottom of the cartridge.

Cut nozzle to meet urethane dimensions as specified by the respective car manufacturer. Puncture tag and attach nozzle. Insert into gun.

If there is no existing urethane on the pinchweld to use as a substrate, apply 538 to the pinchweld bonding area.

Dry/Flash times of primers and pre-treatments can be found on the appropriate TDS or DINITROL AGR Training Manual.

**Important Notes**

Glass installation is not recommended at temperatures below 5°C (40°F) unless proper procedures are followed as stated in the DINITROL AGR Training Manual under Adverse Weather Conditions Section. Adhesives such as DINITROL 9100 or DINITROL 9000 should be used in these extreme temperatures unless glass is replaced in a heated shop and allowed to remain there until the appropriate Safety Drive Away Time as listed on the product TDS sheets have been met.

*“For complete instructions on how to use and apply the DINITROL glass bonding systems, please refer to the DINITROL AGR Training Manual.”

**Drive Away With Passenger Side Airbag**

<table>
<thead>
<tr>
<th>RH/TEMP</th>
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<td>16 hrs</td>
</tr>
<tr>
<td>&gt; 50°F (10°C)</td>
<td>5 hrs</td>
<td>5 hrs</td>
<td>12 hrs</td>
<td>24 hrs</td>
</tr>
<tr>
<td>&gt; 40°F (5°C)</td>
<td>9 hrs</td>
<td>9 hrs</td>
<td>18 hrs</td>
<td>30 hrs</td>
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</table>

**Without Passenger Side Airbag**

<table>
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<td>8 hrs</td>
<td>18 hrs</td>
</tr>
<tr>
<td>&gt; 40°F (5°C)</td>
<td>7 hrs</td>
<td>9 hrs</td>
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</tr>
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</table>

* Application at or below 40°F is Not Recommended

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Healthy and safety information can be obtained from the material safety data sheet and the product label.

DINOL U.S. Inc.
8520 Cotter Street
Lewis Center, OH 43035
Telephone: 740-548-1656
Telefax: 740-548-1657
Web: www.dinitrol.com
PUR-505 Primerless to Glass Urethane Adhesive

General description
PUR-505 is a one component cold applied, non-conductive urethane adhesive system with the following benefits:

- Primerless to glass
- High viscosity
- Fast curing
- Excellent working time
- Good decking
- Short cut-off string
- High elasticity
- High strength
- Crash test proven to FMVSS 212/208

Shelf Life
10 months in an unopened cartridge/foilwrap

Storage Requirements
Recommended storage temperature is between 0°C (32°F) and 35°C (95°F).

Packaging Part#
10.5 oz cartridge PUR -505 310 ml cartridge

Working Time
20 minutes at 23°C (73°F) and 50%RH

Tensile Strength
Approx. 9 MPa (1305 psi)

Lap Shear Strength
> 4 MPa

Shear Modulus
Approx. 1.8 MPa

Shore Hardness
Shore A 50 – 65

Elongation
> 250%

Required Pre-Treatment Products
DINITROL 538 Plus for metal, scratches, PAAS, PVC, EPDM and Encapsulations.

Encapsulation / PVC / PAAS
"Refer to the DINITROL AGR Training Manual for pre-per treatment and surface preparation recommendations for these substrates.

Glass Contamination
"Contamination (traditional and non traditional) found on glass, ceramic frit, and bonding surfaces, (refer to the DINITROL AGR Training Manual for proper cleaning and removal prior to applying PUR-505) DINOL offers DINITROL 582 special cleaner as an option to assist with the removal of such contaminants.

Installation
Full cut method leaving 1 – 2 mm as a base.

All bonding areas must be clean, dry and free from all contaminants like oil, grease, release agents, etc.

Remove the aluminium tab on the bottom of the cartridge. Cut nozzle to meet urethane dimensions as specified by the respective car manufacturer. Puncture top and attach nozzle Insert into gun.

If there is no existing urethane on the pinchweld to use as a substrate, apply 538 to the pinchweld bonding area. Dry/flash times of primers and pre-treatments can be found on the appropriate TDS or DINITROL AGR Training Manual.

PUR-505 can also be used with Dinitrol 538 Plus multi-function black primer for superior adhesion and 100 % UV blocking on all OEM and aftermarket vehicle glass.

Important Notes
Glass installation is not recommended at temperatures below 5°C (40°F) unless proper procedures are following as stated in the DINITROL AGR Training Manual under Adverse Weather Conditions Section. Adhesives such as DINITROL 9100 or DINITROL 9000 should be used in these extreme temperatures unless glass is replaced in a heated shop as allowed to remain there until the appropriate Safety Drive Away Time as listed on the product TDS sheets have been met.

*For complete instruction on how to use and apply the DINITROL glass bonding systems, please refer to the DINITROL AGR Training Manual.

Drive Away With Passenger Side Airbag

Without Passenger Side Airbag

<table>
<thead>
<tr>
<th>RH/TEMP</th>
<th>&gt; 70%</th>
<th>&gt; 50%</th>
<th>&gt; 30%</th>
<th>&gt; 10%</th>
<th>&gt; 70%</th>
<th>&gt; 50%</th>
<th>&gt; 30%</th>
<th>&gt; 10%</th>
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</thead>
<tbody>
<tr>
<td>&gt; 85°F (30°C)</td>
<td>3 hrs</td>
<td>3 hrs</td>
<td>3 hrs</td>
<td>8 hrs</td>
<td>1 hr</td>
<td>1 hr</td>
<td>2 hrs</td>
<td>5 hrs</td>
</tr>
<tr>
<td>&gt; 75°F (23°C)</td>
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<td>3 hrs</td>
<td>4 hrs</td>
<td>10 hrs</td>
<td>1 hr</td>
<td>1 hr</td>
<td>2 hrs</td>
<td>6 hrs</td>
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<tr>
<td>&gt; 60°F (15°C)</td>
<td>3 hrs</td>
<td>3 hrs</td>
<td>5 hrs</td>
<td>16 hrs</td>
<td>2 hrs</td>
<td>2 hrs</td>
<td>3 hrs</td>
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<tr>
<td>&gt; 50°F (10°C)</td>
<td>5 hrs</td>
<td>5 hrs</td>
<td>12 hrs</td>
<td>24 hrs</td>
<td>4 hrs</td>
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<td>9 hrs</td>
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<td>30 hrs</td>
<td>7 hrs</td>
<td>9 hrs</td>
<td>15 hrs</td>
<td>30 hrs</td>
</tr>
</tbody>
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* Application at or below 40°F is Not Recommended

All Data and recommendations are the result of careful tests by our laboratories. They only can be considered as recommendation which correspond to the level of experience of today. The data are given in good faith. However, in view of the multiplicity of possible application and working methods we are not in a position to assume any responsibility or obligations deriving from the use of our products.

Healthy and safety information can be obtained from the material safety data sheet and the product label.

DINOL U.S. Inc.
8520 Cotter Street
Lewis Center, OH 43035

Telephone: 740-548-1656
Telefax: 740-548-1657
Web: www.dinitrol.com
DINITROL 538 Plus
One-Step-Primer

General description
DINITROL 538 Plus is a 1-Step, solvent-based, multi-function primer.

Characteristics
DINITROL 538 Plus multi-function 1-Step primer has the following features:
- 1-Step glass/frit primer
- Pinchweld primer
- RIM/Encapsulation primer
- PAAS Re-activator primer
- Blocks 100% of harmful UV rays
- Inhibits rust/corrosion
- Compatible with all DINOL adhesive system
- OEM approved

Shelf Life
12 months in an unopened bottle.

Storage Requirements
Recommended storage temperature is between 0°C (32°F) and 35°C (95°F). Keep product in cool and dry locations for best results.

Packaging
Part#
10 ml single app stick 538 Plus 10 ml
30 ml bottle 538 Plus 30 ml
100 ml bottle 538 Plus 100ml

Application / Dry Time
5 minutes minimum dry time > 40 deg F
10 minutes minimum dry time < 40 deg F
Special surfaces require extra dry time.
*Refer to the DINITROL AGR Training Manual

Post Application Working Time
Approximately 3 months if surface is kept clean and uncontaminated.
Re-application: One time maximum

Open Shelf Life
1 week after bottle has been opened.
(if properly sealed)

The 538 Plus should not be used if the product has remained opened for an extended amount of time. Replace inner seal and cap tightly and immediately after each use to ensure maximum shelf life.

Health and Safety Caution
Wear OSHA and ANSI Z87.1-1989 approved safety goggles and nitrile gloves with any OEM/aftermarket primer.

Working conditions with good ventilation is required. If this is not possible consult the 538 Plus Material Safety Data Sheet for recommended options of use during poorly ventilated conditions.
Refer to the MSDS data sheet for health, safety, and disposal information.

Glass Application
1. Apply a generous film of glass cleaner to the glass bonding surface. If the glass cleaner “fish-eyes/separates” or “beads” up like water on oil on the bonding surface after a few seconds of application, this area needs special cleaning/pretreatment to remove the contaminants prior to applying 538 Plus. (See Contamination Removal Instructions)
2. If bonding area is adjacent to encapsulation, use a clean scour pad to wet-scub the surface of the bonding area being careful not to remove any frit or scratch any part of the glass in the viewing area. (Always use a clean/contaminate free scour pad)
3. Apply a second application of glass cleaner to the bonding area to ensure contaminates have been removed.

“A foaming glass cleaner can provide the technician with a visual of any oils or release agents present on the bonding surface which may cause primer failure if not removed.

Pinchweld Application
Never compromise the pinchweld by damaging the paint system on the vehicle. In the event that the pinchweld becomes scratched and/or bare metal is exposed, use a cotton swab, acid brush or other approved applicator to apply 538 Plus to the scratches and bare metal to prevent corrosion in the pinchweld.

Encapsulation / PVC / PAAS
Special attention must be given to encapsulated glass. These glass types have hard to remove films and may require extra cleaning. Extra dry time is required for these special substrates.

Pinchweld Application
Never compromise the pinchweld by damaging the paint system on the vehicle. In the event that the pinchweld becomes scratched and/or bare metal is exposed, use a cotton swab, acid brush or other approved applicator to apply 538 Plus to the scratches and bare metal to prevent corrosion in the pinchweld.

In the event that the pinchweld has been stripped to the metal and or urethane is left in the pinchweld, 538 Plus should be applied to the metal bonding surface and allow 10 minutes for primer to dry.

Bare metal areas larger than 1/2” x 1/2” will require a second coat of 538 Plus. Allow a 10 minute dry time between coats. Replace inner seal and cap tightly and immediately after each use to ensure maximum shelf life.

*Application at or below 0°F is not recommended

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DINITROL Activator Plus
for glass bonding area on windshields and backlites

General description
DINITROL Activator Plus is a activating pre-treatment for the glass bonding area on windshields and backlites. Also can be used as a PAAS activator.

Characteristics
- Wipe on / Wipe off
- No shake time
- No dry time (except for PAAS)
- Clear / Yellowish color
- Compatible with all DINITROL direct glazing adhesive systems
- OEM approved

Shelf Life
12 months in an unopened bottle.

Storage Requirements
Recommended long term storage temperature is between 0°C (32°F) and 35°C (95°F). Keep product in cool and dry locations for best results.

Packaging
100 ml bottle Activator Plus 100 ml (only while supplies last)
30 ml bottle Activator Plus 30 ml

Application/Dry Time
(0°- 120° F)
0 minutes – Wipe on / Wipe off

Post Application Working Time
8 hours

Options: DINITROL 582 special cleaner will ensure the technician has a clean (non-contaminated) bonding area prior to applying Activator Plus. DINITROL 582 special cleaner removes all traditional and non-traditional contaminates. (see DINITROL AGR Training Manual).

Encapsulation / PVC / PAAS
“Refer to the DINITROL Training Manual for proper pretreatment and surface preparation recommendations.

Pinchweld Application
Never compromise the pinchweld by damaging the paint system on the vehicle. In the event that the pinchweld becomes scratched and/or bare metal is exposed, use a cotton swab, acid brush or other approved applicator to apply 538 Plus to the scratches and bare metal to prevent corrosion in the pinchweld.

**Avoid priming existing fresh cut/ trimmed urethane bead.

In the event that the pinchweld has been stripped to the metal and or no urethane is left in the pinchweld, 538 Plus should be applied to the metal bonding surface and allow 10 minutes for primer to dry.

Bare metal areas larger than 1/2” x 1/2” will require a second coat of 538 Plus. Allow a 10 minute dry time between coats.

Replace inner seal and cap tightly and immediately after each use to ensure maximum shelf life.

*For complete instructions, see DINITROL AGR Training Manual.

Open Shelf Life
Never use expired products. Always check expiration date prior to use. Once bottle has been opened, product has a 1 week open time.
Bottle must be closed immediately after use.
Discontinue use and discard contents if Activator Plus becomes cloudy.

Health and Safety Caution
According to 1907 / 2006 EC, DINITROL Activator Plus has to be labeled as flammable and irritant. Symbol: F, Xi

Glass Application
1. Apply a generous film of glass cleaner to the glass bonding surface. If the glass cleaner “fish-eyes/ seperates” or “beats” up (like water on oil) on the bonding surface after a few second of application, this area needs special cleaning/ preparation to remove the contaminate prior to applying Activator Plus (Refer to DINITROL AGR Training Manual for proper bonding area cleaning instruction).
2. Check expiration date on bottle to ensure product has not expired.
3. Using a dauber, paper towel, applicator foam, or cotton ball, apply Activator Plus to the glass bonding area making sure that the product is applied to any/all areas on the glass where the adhesive may/will come in contact.
4. Wipe off (excess only) using a clean dry paper towel or clean rag. (the transparent film left behind needs to remain on the surface as this is the Activator/bonding agent).
5. Replace cap tightly and immediately after use.

Application at or below 0°F is Not Recommended

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Health and safety information can be obtained from the material safety data sheet and the product label.

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Telex: 740-548-1657
Web: www.dinitrol.com
DINITROL 582
Fast drying cleaning solvent

General description
Fast drying cleaning solvent, used to remove traditional and non-traditional contaminates from glass, metal, PVC, moldings, gaskets, encapsulations, etc.

Characteristics
• Excellent cleaning properties (glass bonding areas, pinch weld metal, bare or painted metal, PVC, moldings, gaskets, encapsulations, etc)
• Fast dry/flash time
• Removes oils, release agents, finger prints, tape residues, silicains, dirt, etc
• Compatible with all DINITROL direct glazing adhesive systems
• OEM approved

Open Shelf Life
Product does not have a shelf life. For best results, replace cap after each use.

Health and Safety Caution
According to 1907 / 2006 EC, DINITROL 582 has to be labeled as flammable. Symbol: F
Refer to the MSDS data sheet for further health, safety, storage, and disposal information. Use of protective gloves like Nitrile gloves is recommended with any cleaners, primers, or adhesives.

Method of Use
1. Apply needed amount to a paper towel or clean rag.
2. Scrub/wipe/clean the bonding area.
3. Wipe dry with a clean paper towel, removing any excess liquid.
4. Replace cap tightly and immediately after use.

Notes: DINITROL 582 special cleaner will ensure the technician has a clean (non-contaminated) bonding area prior to applying any DINITROL pre-treatments.
DINITROL 582 can also be used to clean the pinch weld or metal surfaces that are or may be contaminated prior to applying pre-treatment primers.

Avoid applying DINITROL 582 to the fresh trimmed urethane bead. ONLY water and a clean dry towel/rag should be used to wipe clean an existing trimmed bead of urethane.
Refer to DINITROL AGR Training Manual for instructions and use of DINITROL glass bonding products. Replace inner seal and cap tightly and immediately after each use.

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**General description**

DINITROL 410UV is a one component black urethane sealant adhesive with the following benefits:
- Ideal for sealing rubber gaskets
- Primerless to painted surfaces, glass and some synthetic materials
- Ideal for sealing leaks
- RV/OEM approved
- Lynx approved

**Shelf Life**

12 months in an unopened cartridge

**Storage Requirements**

Recommended storage temperature is between 15°C (60°F) and 30°C (90°F).

**Packaging**

| Part#   | 10.5 oz Cartridge | 410 UV |

For special contract accounts this product can be ordered in foil-wrap, pail or 55-gallon drums. Also available in the following colors: white, red, yellow and brown.

**Working Time**

35 – 40 minutes at 23°C (73°F) and 50% RH

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**Tensile Strength**

1.5 MPa (220 psi)

**Lap Shear Strength**

- 3 hours 0.40 MPa (60 psi)
- 24 hours 0.80 MPa (115 psi)
- 7 days 1.8 MPa (260 psi)

**Shore Hardness**

Shore A 45

**Elongation**

450%

**Supporting Products**

- DINITROL 538 plus

**Application Options**

- Rubber Gaskets
- Backfill
- Molding
- Quarterlites
- Bonding

**Adhesive Preparation**

- Remove the aluminum tab on the bottom of the cartridge
- Puncture top and attach nozzle
- Insert into gun

**Recommended Installation Conditions**

For best results apply product in moderate temperatures, free of moisture and debris.

If bonding or adhesion is desired, pretest bonding surface for adhesion by applying a small amount of 410UV to test area.

Test for adhesion after 24 hours using pliers and scraper blade and attempt to peel 410UV from test surface.

Vinyl, HDPE, rubber and some other synthetic materials may require special surface treatment or primers for best adhesion. Material testing is required for all such substrates.

For special contract accounts, DINOL or EFTEC laboratories may also conduct additional testing as requested to find appropriate application products and procedures. Otherwise it is the user’s responsibility to determine the fitness of any DINITROL product and application for a particular purpose.

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