



SikaTITAN® AGR Technician Training Manual

Volume 1.4 – 2016

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Preface

What's New in Volume 1.4:

Volume 1.4 of the SikaTITAN® AGR Technician Training Manual now includes an updated version of our AGRSS Tool Kit. This Tool Kit is designed to help you provide Auto Glass Safety Council (AGSC) with the information required for Self Assessment (as detailed in "Attachment B - Declaration of Standard Conformance"). The Tool Kit provides 5 of the 8 Deliverables required by the Self Assessment form and has been updated to reflect the current version of the AGRSS Standard: ANSI/AGSC/AGRSS 003-2015. The AGRSS Tool Kit can be found in Section 21.0 of this document. Additionally, *all* references in the TTM to the AGRSS Standard have now been updated to be compliant with the 003-2015 version of the Standard.

1.0 AGR Preparation

Prior to beginning work on the vehicle, make sure you have the correct glass and moldings, as required, and all the tools and supplies you will need for the vehicle being serviced. In the proper selection of glass, make sure that glass parts used meet the requirements of ANSI Z26.1, as required by FMVSS 205. Keep in mind that all glass parts, including custom cut parts, must be marked in compliance with the requirements stated within FMVSS 205 and ANSI Z26.1 (**Section 8.2 of the AGRSS Standard**). Make sure the urethane system being used is within shelf life and is produced under documented quality assurance standards. The SikaTITAN® line of AGR adhesive systems are produced in accordance with ISO 9001/14001 and ISO/TS 16949:2009, thus being a qualified retention system as defined within **Section 5.1** of the ANSI/AGRSS Standard. Sika manufactured products are used by a number of automobile manufacturers, such as Ford, Honda, Audi, BMW, Chrysler, Volkswagen, and others. This fact validates Sika's ability to meet or exceed the stringent OEM specifications for quality and performance for automobiles produced in the United States as well as worldwide (**Section 5.3 of the AGRSS Standard**).

Inspect the area where the service work will be conducted and make sure it is free from obstacles that would create safety concerns, is well lit and that the ambient temperature is within the application limits of the urethane system being used.

2.0 Pre-Inspection

Inspect the car prior to any work being completed. Record any pre-existing damage that exists. If any such damage exists, the vehicle owner/operator must be advised of such conditions. It should be understood that all such damages discovered, caused by natural aging process of the vehicle, improper workmanship, or use of improper products, shall be fully corrected through use of proper products and. Be reminded that the owner/operator of the vehicle must be notified at this point of discovery, if any such conditions exist

Following pre-inspection, protect all vulnerable areas of the vehicle through proper coverings. Make sure to consider all affected painted surfaces, dashboard/defroster vents, seats, and carpets. Do not use any materials for covering such areas that have not been produced and approved by the manufacturer for such functions.

3.0 Post-Inspection

This is a critical step of professionalism and safety and should never be omitted. This is the last step of completing all auto glass replacements and is critical to make sure that the vehicle and all related safety devices are returned to an operable manner. Make sure to check, at minimum....

1. All tools accounted for
2. Interior is cleaned and vacuumed
3. Defroster ducts are cleaned and inspected
4. Glass seals checked for leaks
5. All applicable electrical devices are checked for operation
6. Wipers and fluid dispensers are tested
7. Window decals and stickers removed are replaced
8. Applicable light units tested for operation
9. Airbag/safety device checks
10. Seatbelts checked
11. Glass parts cleaned and inspected
12. Record all products used: **(Sections 6.7 and 6.8 of the AGRSS Standard)**
 - a. Glass part number and DOT number
 - b. Urethane retention system products name, lot numbers.

It is important that such inspection information is recorded and kept on file.

4.0 Safety

- Always wear personal protection equipment
- Wear proper eye protection
- Wear powder free Nitrile, chemical-resistant gloves (or equivalent)
- Additional safety equipment as required by your employer or safety regulations.
- Make sure all electrical equipment is properly grounded and in proper working condition to protect you from electrical shock.

5.0 SikaTITAN® Glass Preparation

Clean the glass using any glass cleaner as long as the product has no anti-static ingredients. Apply the glass cleaner and using an abrasive, woven pad (*Scotch-brite™* or *Norton Bear-Tex® abrasive pads*), “wet-scrub” the frit-band. Dry wipe the bond area and then re-spray the glass and clean from the outside toward the center of the glass with a lint free cloth.

If the glass has an attached molding or if you are attaching a molding to the glass apply Sika® Primer 206 G+P or Sika® Primer 207 to the edges of the molding that will contact the SikaTITAN® urethane.

- Shake the Sika® Primer 206 G+P or Sika® Primer 207 for at least 10 seconds after the agitator ball begins to rattle.
- Tightly seal container immediately after use.
- Use a clean unused dauber or brush each time Sika Primer 206 G+P or Sika® Primer 207 is acquired from the can.
- Allow 10 minutes to dry when above 40 degrees F (below 40 degrees F, apply a small amount in a non-bonding area and touch with a nitrile glove to test for dryness, noting this may take up to 25 minutes to fully dry at lower temperatures).

Do not touch the bonding area of the glass after cleaning, prepping or priming as this could contaminate the bond area and compromise adhesion.

NOTE: SikaTITAN-P2G™ and SikaTITAN-P2G+™ products are “primerless” to both glass & ceramic frit.

Non-Traditional Contamination:

Sika approved glass cleaner's work very well to remove traditional forms of contaminants that may be found on an auto glass part. The following is a list of what Sika considers to be the most common examples of these types of (traditional) contaminants:

- *Dirt*
- *Dust*
- *Skin Oils*

However, with the introduction of many new glass suppliers, installation technicians have witnessed increased occurrences of non-traditional contaminants (NTC) on windscreen frits that can negatively affect adhesion. It has been Sika's experience that the type and severity of nontraditional contamination can vary significantly. Generally, the source of non-traditional contamination is the manufacturing process, specifically from one of two processes, which Sika now uses to categorize NTCs:

1. Mold release agents
 - Associated with encapsulated parts (where trim is bonded to part)
2. Silicone residue from a vacuum tube laminating process
 - Results from the use of silicone based vacuum tubes that remove air from between the inorganic glass and the inner PVB layer during the lamination process
 - Not applicable to tempered (non-laminated) auto glass parts

While many incidents of contamination are clearly visible to the naked eye, some NTCs are not as easy to observe without instituting additional procedures. To verify the existence of NTCs, Sika recommends that the auto glass Technician be trained to inspect the bond areas of each part for inconsistent areas of surface tension after glass cleaner has been applied to the frit and before the glass cleaner has been wiped off the part. The Technician should observe whether the glass cleaner migrates or changes appearance along contaminated areas.

Recommended Treatment for NTC:

Once it has been determined that the bond area of a glass part is contaminated, Sika offers a UNIVERSAL treatment with the use of Sika® PowerClean Aid, a revolutionary new product that eliminates the need for cumbersome gels and pastes.

- Recommended usage is One pad per treated glass part
- Designed to be used with foaming or liquid glass cleaner

Step 1 – Apply glass cleaner around glass perimeter. Examine area for contamination.

Step 2 – If contamination is observed it is recommended to leave the glass cleaner on the part and treat the bonding surface with Sika® PowerClean Aid. Using moderate, even pressure, scrub the pad across the entire bond area in a back-and-forth or circular motion. Rough frits may degrade pad if excessive force is used.



Step 3 – Wipe remaining glass cleaner from the bond area using a clean paper towel. If streaks or treatment water marks remain then it is recommended to clean the part with glass cleaner.

Step 4 – Apply Sika® Aktivator Pro or Sika® Primer 207 and complete the installation

Alternative Method for Removing VACUUM TUBE SILICONE Contamination ONLY:

Sika also offers a procedure specifically designed for treating silicone oil residue derived from a vacuum tube lamination process. NTC's can be categorized as silicone residue if the glass cleaner reveals an area of low surface tension in a relatively straight line that runs parallel to the edge of the glass (see photo below). If the glass cleaner migrates or changes appearance and the installation technician suspects silicone contamination, then the area can be treated using the glass cleaner "wet scrub" methods given below. If the technician observes contamination but is unsure if it is silicone then the recommendation is to follow the Sika® PowerClean Aid method above.

Glass Cleaner Wet-Scrub method

- Apply glass cleaner to the frit and lightly "wet-scrub" the affected area with a fine weave abrasive pad (i.e.; 3M Scotch-brite™ or Norton Bear-Tex®) using small circular motions
- Care should be taken not to scratch the glass or frit
- After the "wet-scrub" has been completed, clean the frit area with glass cleaner and a clean paper towel
- Allow the surface to completely dry before applying Sika® Aktivator PRO or Sika® Primer 207
- **IMPORTANT NOTE:** This method is only recommended for removing silicone residue resulting from the glass manufacturer's laminating process and is NOT to be used to remove silicone contamination that originated from a glass manufacturer's encapsulation process

6.0 Glass Removal and Pinchweld Preparation

Carefully remove all trim and moldings. Remove all interior panels, pillar covers and wipers as necessary and place them in a secure area.

Cut out the windshield or body glass using your preferred method. Once the windshield has been extracted, remove contaminants such as dirt, moisture and debris from the pinchweld and clean the dashboard. Do note that it is advisable to clean the entire pinchweld area prior to trimming the existing bead of urethane in order to prevent any contaminants from coming into contact with the freshly cut bead. The required cleaning method is to use a brush, oil-free compressed air or water. If additional cleaners are required on a previously urethane bonded pinchweld, only Sika® Aktivator PRO can be used, following recommended application instructions listed within this manual.

Dry fit the new windshield into the opening and mark its position with a grease pencil or molding-retention tape.

Evaluate the pinchweld area of the vehicle. The condition of the adhesive system that was used and the condition of the pinchweld must be examined to determine if the ANSI approved Full Cut Method can be used for the installation. Only if the existing bead is urethane, is in excellent shape, is securely bonded to the pinchweld, and the pinchweld is absent of any corrosion, can the full cut method be utilized. The full-cut method requires the existing bead to be trimmed down to a height of 1 to 2 millimeters **(Section 6.14 of the AGRSS Standard)**. Note that “short-cutting” the bead will void all Safe Drive Away Time guidelines and can cause possible loss of glass adhesion and potential serious personal injury. Since too little space has been created to allow enough urethane to be applied between the new windshield and old bead of urethane, the application will not pass all applicable FMVSS regulations, and may fail during vehicle operation.

If the OEM installation was polyurethane, then the glass must be replaced with polyurethane or an equivalent adhesive 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 urethane or an equivalent retention system unless in conflict with current OEM specifications **(Section 6.6 of the AGRSS Standard)**.

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. The owner/operator of the vehicle must be advised of that time frame requirement **(Section 6.3 and 6.4 of the AGRSS Standard)**.

7.0 Corrosion of the Pinchweld

Automotive OEMs have issued guidelines for addressing the proper preparation of the pinchweld in the event that corrosion is observed. First identify the type and amount of corrosion present. Four levels of corrosion have been recognized by automotive OEMs and are as follows:

Type:

- 1) **Light** – *Light, orange discoloration of the metal*
- 2) **Moderate** – *Moderate, orange with red spots, discoloration of the metal*
- 3) **Severe** – *Severe, Deep “pitting”, dark red spots and raised edges*
- 4) **Perforation** – *Perforation includes small holes to large losses of metal*

8.0 Corrosion Removal and Treatment

NOTE: Any time a technician is working with chemicals and power tools always follow the manufacturer's recommendations. Appropriate safety equipment and protective gear should always be utilized.

The SikaTITAN® system requires that this prescribed corrosion treatment take place when any particular corroded area is equal to 1 square inch of surface area up to a total accumulated surface area of 24 square inches. Note that any vehicle exceeding 24 square inches of corroded area or one that has any perforation in the bonding area of the pinchweld requires restoration by an approved body shop prior to the glass being replaced. Levels 1 through 3 can be repaired using the SikaTITAN® AGR system as long as the previously stated measurement guidelines are followed.

The first step in corrosion treatment will always be to remove the corrosion to obtain a bright, corrosion free, metallic surface. Ideally, this should be done prior to trimming the remaining intact and well bonded adhesive bead. However, if this is not possible, then be sure to clean the freshly cut original urethane bead, using Sika® Aktivator PRO to ensure that the fresh urethane will be able to sufficiently bond to the original bead.

The method used to remove corrosion will depend on the type of and amount that is present. The treatment guidelines are consistent with automotive OEM recommendations and should be followed for removing corrosion.

1 = Light - Remove corrosion with 80 grit sand paper or wire wheel.

2 = Moderate - Remove corrosion with wire wheel, media blast or chemical rust remover.

3 = Severe - Remove corrosion with media blast or chemical rust remover.

4 = Perforation - The section must be replaced and treated by a body shop.

In addition to a wire wheel, corrosion of levels 1 and 2 can also be removed with a Dremel® and a grinding stone. The Dremel® Flex-Shaft attachment is recommended because it makes precise corrosion removal easier. Care must be taken when using a Dremel or wire wheel so that the thickness of the metal is not significantly reduced. A spot sand blaster would be considered a media blast. Products that contain phosphoric acid, such as Dupont's Metal Conditioner #5717 or PPG's DX 579, would be considered chemical rust removers. Upon completion of corrosion removal, follow these listed steps:

1. Remove the corrosion as previously outlined.
2. Abrade (using Scotch-brite™ or Norton Bear-Tex® abrasive pads) the intact paint 1/8" from the paint edges surrounding the fresh bright metal area(s).
3. Wipe the bright metal with Sika® Aktivator PRO. Repeat this step as necessary until all contaminants (both chemical and particle) have been removed.

4. If the adhesive bead was trimmed prior to removal of the corrosion, clean the contaminated areas of the trimmed original urethane bead by wiping with Sika® Aktivator PRO and wiping off to remove any debris. Depending upon the amount of contamination, it may be required to wipe the urethane several times with Sika® Aktivator PRO to remove loose particles. **NOTE: Sika® Aktivator PRO must be allowed to flash-off for 10 minutes, regardless of temperature, whenever it is applied over trimmed urethane.**
5. Apply Sika® Primer-206 G+P or Sika® Primer 207, using a brush or a dauber, making sure that the primer overlaps onto the surrounding paint by a minimum of 1/8". Allow a minimum of 10 minutes for the primer to dry before proceeding to the next step. If this procedure is to be performed at temperatures below 40°F, then allow up to 25 minutes for primer to flash.
6. Apply a second coat of Sika® Primer-206 G+P or Sika® Primer 207 over the first coat, using a brush or a dauber. Allow a minimum of 10 minutes for the primer to dry before proceeding to the next step. If this procedure is to be performed at temperatures below 40°F, then allow the primer to flash up to 25 minutes. To determine if the primer is completely dry, it may be touched 10 minutes after application, in areas that will not directly receive adhesive, using a clean nitrile glove. Before and after pictures are shown below.
7. Proceed with the remainder of the full cut method by trimming the original urethane bead and apply Sika AGR urethane adhesive as required.



For treatment of **fresh scratches or bright metal rubs and scrapes** that are **1 inch²** in area or less, Sika recommends that the technician cover these areas with Sika® Primer-206 G+P or Sika® Primer 207, from a can.



Corroded areas of the pinchweld that are **less than 1 inch²** can be treated by using the following procedure:

1. Remove the corrosion as outlined above.
2. Abrade the paint edges around the corroded area. This will ensure that the surrounding paint provides a sound bonding surface and will also improve the adhesion durability of the treatment system, helping to keep moisture from reaching the bare metal areas.
3. Wipe the debris away with a clean dry towel and prepare with Sika® Aktivator PRO; allow 3 minutes to flash off.
4. Apply a single coat of Sika® Primer-206 G+P or Sika® Primer 207.



9.0 Complete Adhesive Removal

Complete adhesive removal is required for repaired, newly painted pinchwelds and when OEM urethane has poor adhesion.

If the technician discovers the previous installation used improper methods or sealants, the pinchweld must be completely cleaned of the adhesive substance. If the old bead of urethane is not adhering to the pinchweld and would compromise the integrity of the new installation, it must be removed.

A complete adhesive removal requires the total removal of existing material down to the pinchweld, leaving the clean weld and original paint, and this procedure must be used when:

- The pinchweld has been repainted for any reason (*i.e. body shop corrosion treatment*)
- The pinchweld is damaged
- The existing urethane adhesive is loose or deteriorated.
- An improper product was previously used (*i.e. – butyl, silicone, etc.*).

Fully correct any adverse glass installation related condition(s) caused by the use of inappropriate materials or methods (**Section 6.12 of the AGRSS Standard**).

After exposing the original paint, using an abrasive pad carefully scuff the paint on the pinchweld, abrading the clear coat and/or topcoat, exposing the OEM primer. Care must be taken so that the e-coat and phosphate coatings, which lie beneath the OEM primer, are not removed. The e-coat and phosphate coatings are an essential part of the OEM corrosion inhibiting system and it is not possible to replace these in the aftermarket.

Apply Sika® Aktivator PRO. Paint a thin coat of Sika® Primer-206 G+P or Sika® Primer 207 and allow it to dry for at least an additional ten minutes. Then set the windshield using the appropriate Sika adhesive for the vehicle type and required drive away time.

In the special case of a newly painted pinchweld, one of the following four options may be selected.

Option 1: Whenever possible, remove the windshield, by cutting the adhesive as close to the glass as possible, and leave the entire remaining urethane adhesive bead in place. Do not trim the adhesive bead until the vehicle has been painted and the new windshield is ready to be installed. In this case, it is not necessary to tape or otherwise protect the existing urethane. After the vehicle is repaired and painted, remove most of the existing urethane leaving 1-2 mm on the pinchweld and install the windshield.

Option 2: If the pinchweld area is to be repaired and painted by a body shop, remove the section of metal to be repaired, repair pinchweld and apply an epoxy or etch primer coat. Allow the primer to cure for at least as long as would be required prior to applying topcoat over the primer, following the paint manufacturer's recommendations. If topcoat is to be applied to remainder of the vehicle, mask off the bond area of the pinchweld with masking tape. The March / April 2000 I-Car Advantage periodical recommends this procedure whenever a pinchweld has been subject to major reconstruction. Continue painting the vehicle as required. Remove the masking tape. If a forced drying process is to be used, remove the tape prior to baking the topcoat. Next, lightly abrade the primer with a Scotchbrite® or similar abrasive pad. Apply Sika® Aktivator PRO according to the instructions in this guide and allow it to cure according to the instructions given in this manual. Paint a thin coat of Sika® Primer-206 G+P or Sika® Primer 207 and then allow at least ten minutes for this product to dry. Then set the windshield using the appropriate SikaTITAN® adhesive for the vehicle type and required drive away time.

Option 3: If a freshly primed pinchweld has already been color coated and Option 1 is not possible, then the topcoat, basecoat, and clear coat if used, must be removed to expose the primer coat. Once completed, follow instructions posted under Option 2. If the primer coat is removed during this procedure, exposing bare metal, then the body shop must re-apply the primer coat and allow this newly applied primer coating to fully cure, according to the paint manufacturer's recommendations, prior to application of any SikaTITAN® product.

Option 4: If the vehicle's OEM urethane bead has poor adhesion and easily peels away from pinchweld to reveal unblemished original paint, begin by removing the clearcoat and or basecoat from the bond area with a Scotchbrite® or similar abrasive pad. If the clearcoat and basecoat pulled away from the vehicle with the original urethane bead then lightly abrade the exposed primer using a Scotchbrite® or similar abrasive pad. Apply Sika® Aktivator PRO according to the instructions in this guide. Paint on a thin coat of Sika® Primer-206 G+P or Sika® Primer 207 and then allow at least ten minutes for this product to dry. Set the windshield using the appropriate Sika adhesive for the vehicle type and required drive away time.

IMPORTANT NOTE: Options 2, 3, and 4 above call for the use of current Sika® Aktivator PRO and Sika® Primer-206 G+P. If any of these procedures are to be performed at temperatures below 40°F, then please refer to the special low temperature precautions for these products, which can be found in the section of the manual on *Seasonal Concerns for Hot and Cold Weather*.

10.0 SikaTITAN[®] Urethane Application and Glass Installation

1. With the pre-cut nozzle measure to the top of the roofline and make a mark on the nozzle with a pen or marker. Cut a "V-notch" in the nozzle to match the roofline. Make sure to apply a triangular bead.
2. Hold the applicator 90° from the pinchweld or glass and dispense a bead of urethane adhesive with a continuous motion around the entire perimeter. In the case of applying onto the pinchweld apply the urethane directly on top of the freshly trimmed existing bead of urethane.
3. The urethane adhesive must be applied so that the finished bead cross section profile and dimensions meet or exceed original equipment configuration (**Section 6.5 of the AGRSS Standard**). Use a paddle stick or other tool to make sure there are no gaps and all seams and corners are even.
4. Using protective gloves take glass from stand or workstation.
5. Lay glass directly down on the bead of urethane; line up the glass with the dry-fit marks made earlier.
6. Apply even pressure around perimeter of glass to assure seal and level of set.
7. Check for leaks; with a leak-detector check the entire perimeter of the windshield. When sealing air or water leaks, only compatible polyurethane shall be used (*silicone or butyl is not to be used*) (**Section 6.13 of the AGRSS Standard**).
8. If you have a push-in molding to set, be sure the urethane is visible around the perimeter of the pinchweld. If the molding will not touch the urethane shoot a small bead of urethane in the area between the glass and the pinchweld and reapply pressure to the molding.
9. Reinstall the removed parts in reverse order.
10. Complete and maintain record of the lot numbers for the SikaTITAN[®] adhesive system used (**Sections 6.7 and 8.2 of the AGRSS Standard**).
11. Allow the urethane to cure according to product specifications before returning the vehicle to the owner/operator (**Section 6.3 of the AGRSS Standard**).

11.0 Aluminum Pinchweld and FRP Flanges

On occasion an auto glass technician will come across vehicles that have aluminum pinchwelds or FRP (*Fiber Reinforced Plastic*) bonding flanges where a glass part is bonded with a urethane adhesive. Fiberglass is an example of an FRP. In these cases, if the technician finds that some of the original urethane bead is not properly adhered to the substrate, the following process should be followed to prepare the substrate for bonding.

1. Lightly abrade the area of the aluminum or FRP with a Scotchbrite® (*or similar*) abrasive pad.
2. Apply Sika® Aktivator PRO according to the instructions provided in this manual.
3. Apply a thin coat of Sika® Primer-206 G+P or Sika® Primer 207, using a brush or dauber, and then allow at least ten minutes for this product to dry. Allow up to 25 minutes for the primer to dry if it is below 40°F.
4. Set the glass part using the appropriate Sika adhesive for the vehicle type and needed drive away time. Generally, on aluminum pinchwelds a non-conductive urethane will be required.

NOTE: At this time, Sika has identified one exception to this recommendation and this is the Freightliner Century Class with an aluminum pinchweld. The recommendation for treating any exposed aluminum on the pinchweld of this vehicle is to prepare it with an appropriate aftermarket epoxy or etch primer. Allow the primer to cure for at least as long as would be required prior to applying topcoat over the primer, following the paint manufacturer's recommendations. Then lightly abrade the bond area surfaces of the primer and follow steps 2 through 4 above.

12.0 Rear Sliders and PVC Encapsulated Parts

Most, if not all, aftermarket **rear sliders** for pickup trucks are manufactured using a painted aluminum extrusion frame. Follow the procedure detailed below in order to properly prepare this painted aluminum frame for installation.

1. Lightly abrade the bond area of the painted aluminum extrusion with a Scotchbrite® (or similar) abrasive pad.
2. Apply Sika® Aktivator PRO according to the instructions in this guide and allow it to flash for at least three (3) minutes. If this operation is to be performed at temperatures below 15°F, but above 0°F, then the flash time must be increased to ten (10) minutes.
3. Apply a thin coat of Sika® Primer-206 G+P or Sika® Primer 207, using a brush or a dauber, and then allow at least ten minutes for this product to dry. Allow up to 25 minutes for the primer to dry if it is below 40°F. Please note that a Sika® Primer-206 Stix applicator may be used for this application, however, due to its limited coverage, a can of Sika® Primer-206 G+P or Sika® Primer 207 will most likely be the more convenient option.
4. Set the glass part using the appropriate Sika adhesive for the vehicle type and required drive away time.

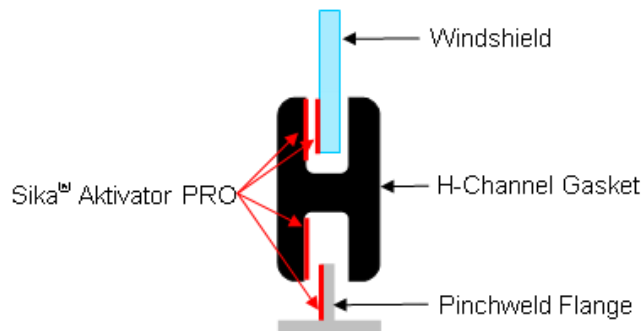
When preparing an **encapsulated** part that requires bonding urethane to PVC or for preparing a rear slider frame that has been confirmed to be made of PVC and NOT of a painted aluminum extrusion, the technician should follow the procedure detailed below

1. Make sure that the bond area of the glass part is clean and contaminant free. Clean the area with an approved glass cleaner if required and allow to completely dry.
2. Apply a thin coat of Sika® Primer-215 or Sika® Primer 207 to the bond area of the glass part, using a brush or a dauber, and then allow at least ten minutes for this product to dry. If it is below 40°F, then allow at least 25 minutes for the primer to dry.
3. Set the glass part using the appropriate Sika adhesive for the vehicle type and required drive away time.

13.0 Gasket Set Windshields

In most cases, passenger rated vehicles licensed for highway use and weighing less than 10,000 lbs. (4500 kg) gross weight, (*FMVSS 212 regulated vehicles*) require the use of polyurethane in conjunction with the gasket retention system. While some vehicles will come from the factory having utilized both a gasket and polyurethane set process, some may have come with only the gasket and some form of sealant compound. Other than for egress rated glass parts, antique or classic vehicles not licensed for highway use or in cases where the introduction of urethane conflicts with current OEM specifications, polyurethane must be used. When using polyurethane on gasket set windshields, Sika recommends the following procedure:

1. Use appropriate personal protective equipment when performing the following tasks.
2. Remove original windshield and gasket.
3. Use a new gasket if the original has been damaged.
4. Clean the glass with an approved glass cleaner as defined within this manual.
5. Remove contaminants from the pinchweld and the inside of the gasket, where the pinchweld and glass will sit, using a clean towel and water. An approved glass cleaner may be used to clean these areas if necessary.
6. Allow water and glass cleaner to thoroughly dry before proceeding.
7. Prepare all areas of the glass that will sit in the gasket with Sika® Aktivator PRO.
8. Apply Sika® Aktivator PRO to the pinchweld, where the gasket will sit, and to the inside of the channels of the gasket, as described in this manual. A total flash time of 15 minutes is required for all gasket set installations as Sika® Aktivator PRO will react slower due to the porosity and geometry of the rubber gasket.
9. Set the windshield, making sure that the gasket is fully seated on the pinchweld, and be sure to apply the desired SikaTITAN® AGR adhesive into the channels of the gasket at the appropriate time.
10. Clean-up of uncured urethane can be performed using mineral spirits and a towel or Scrubs®.



Note: When sealing air or water leaks within a gasket set windshield, make sure to identify whether or not a polyurethane product is required and then use only a compatible sealant system.

14.0 Pre-Applied Adhesive-System (PAAS)

PAAS stands for Pre-Applied Adhesive System. Modern PAAS glass parts are designed to act as a height-guide when installing fresh adhesive. However, a PAAS system can also get easily contaminated from shipping and handling. To prepare a PAAS windshield, wipe the bond area of the pre-applied adhesive with Sika® Aktivator PRO and wipe off to remove any debris. Remember to allow Sika® Aktivator PRO to flash off for 10 minutes, regardless of temperature, whenever it is applied directly to trimmed urethane. In some cases, the pre-applied adhesive may need to be trimmed down to allow room for the new urethane adhesive. In these cases, it is not necessary to apply Sika® Aktivator PRO to the freshly cut bonding area exposed by the trimming of the pre-applied urethane adhesive.

15.0 Installation in Adverse Weather Conditions

High Temperature Instructions:

When performing mobile glass replacements during the summer months, the technician must be concerned with the temperatures of the substrates that are to be bonded. In auto glass replacement (AGR) the substrates are the glass part and the pinchweld. If the temperature of these substrates is too high, the AGR urethane can cure / react too quickly and experience what is called “gassing.” “Gassing” results when the urethane adhesive skins over and carbon dioxide is generated faster than it can be released. The carbon dioxide then builds up inside the adhesive bead and gives the adhesive a “Swiss cheese” appearance. If this phenomenon occurs in very small amounts there is little reason for concern. If it occurs significantly, then adhesion and long-term durability of the bonded system may be compromised. If temperatures are extremely high and or proper shade cannot be provided then Sika recommends the following maximum substrate temperatures, by product.

SikaTITAN AGR Adhesive Maximum substrate temperature

SikaTITAN-P2G™	130 °F
SikaTITAN-P2G+™	130 °F

Low Temperature Conditions:

Sika® Aktivator PRO has no low temperature restrictions, 10 minutes is sufficient when used on the pinchweld, gaskets or fresh trimmed urethane.

Sika® Primer-206 G+P and Sika® Primer 207:

There are no special low temperature requirements for Sika® Primer-206 G+P or Sika® Primer 207 that is being used, outside the bond area of the pinchweld, to cover fresh bright metal scratches or fresh bright metal rubs and scrapes that are less than 1 square inch in area. Extra dry time is required if Sika® Primer-206 G+P or Sika® Primer 207 is used below 40°F in all other situations, such as to prepare the pinchweld as outlined in various sections of the *Pinchweld Preparation* section of this manual. Specific examples would be if Sika® Primer-206 G+P or Sika® Primer 207 is being used below 40°F for a complete adhesive removal or the pinchweld is newly painted. Under these circumstances, the primer must be allowed to completely dry, which may require up to 25 minutes. To determine if the primer is completely dry, it may be touched 10 minutes after application, in areas that will not directly receive adhesive, using a clean nitrile glove. As an alternative, it is suggested that the vehicle be moved to an environment where the temperature exceeds 40°F.

16.0 Recycled Auto Glass

Removal and Replacement (R&R):

Note: This procedure is not recommended for use with glass parts that have been previously installed with a non-urethane adhesive. Under these circumstances, the glass part should be discarded and, in most cases, the new glass part should be installed following the *Complete Adhesive Removal* method described in this manual. If the original urethane on the glass part does not have good adhesion around the entire perimeter of the part or was not originally adhered using urethane, then Sika does NOT recommend installation of the part.

Use the following guidelines in cases where a glass part is removed for later use as a replacement. Remove the glass part using standard removal tools, taking care to avoid damaging the frit. Try to cut through the middle of the existing urethane bead. Set the glass aside until it is time to replace it. Following removal of the part that is to be reinstalled, begin by cleaning the glass part with an appropriate glass cleaner. Next, using your preferred urethane-trimming tool, trim the existing bead of cured urethane and examine to confirm that the remaining urethane is sufficiently bonded to the glass. Generally, Sika recommends that the bead of urethane on these parts be trimmed just prior to reinstallation, but if this is not possible, the trimmed bead should be “cleaned” using Sika® Aktivator PRO according to the instructions given in this manual. **One of the following two options MUST be followed when performing a removal and replacement:**

1. If the remaining layer of urethane adhesive has good adhesion to the entire perimeter of the glass part, it does not matter which adhesive company manufactured the remaining layer of adhesive, and this part can be installed using the standard procedures described in this manual.
2. If the original urethane on the glass part does not have good adhesion around the entire perimeter of the part then Sika does NOT recommend installation of the part.

Use of Used Glass:

Sika endorses and follows the interpretation provided by AGRSS concerning the use of used glass. Specifically related to the use of Sika products, since the glass part comes from an unknown origin, creating the risk of not knowing what conditions the bonding edge of the glass has been exposed, Sika cannot warrant the required adhesion properties of any Sika products, thus disallowing use of our products on such glass parts.

Sealing Leaks:

Caution should be used when approaching the sealing of an air or water leak from a previous installation. A high level of liability is transferred to the company repairing such conditions in that they are not aware of the products or workmanship by the company doing the previous work. It is advisable to conduct an R&R installation, at minimum, in order to assess the entire installation and correct any adverse condition that may exist. It should be noted that the use of compatible sealant systems must be used in all such cases (**Section 6.13 of the AGRSS Standard**).

17.0 The SikaTITAN® Adhesive System

Glass shops can select a Sika AGR urethane to suit the specific SDAT needs of their customer. The speed with which a customer needs to return their vehicle to service will dictate the kind of adhesive to use for windshield replacement. Factors affecting drive away time include application temperature, humidity, and the presence of passenger side airbags on the vehicle. Refer to the SikaTITAN® SDAT chart, or the applicable Product Data Sheet, to identify the appropriate SDAT for the specific climatic conditions where the installation will be conducted. Sika further recommends that all Sika AGR adhesives systems be applied to only those glass parts compliant with ANSI Z26.1 specifications, required by FMVSS 205. Such glass parts can be best identified noting the DOT number insignia on the part (**Section 5.2 and 6.3 of the AGRSS Standard**).

Currently, there are two SikaTITAN® AGR urethanes in which to choose: SikaTITAN-P2G™ and SikaTITAN-P2G+™. Both are primerless to glass, cold applied adhesives, both rated non-conductive and are of standard modulus. While each product has its own unique properties, as defined on the appropriate SikaTITAN® Product Data Sheet, each have excellent application properties.

18.0 SikaTITAN® Primer Procedures

Sika® Primer-206 G+P is a moisture sensitive black liquid to be applied to glass or bare metal. Sika® Primer-206 G+P is packaged in 100 ml cans and is best suited for covering bright metal scratches, rubs, and scrapes. Use Sika® Primer-206 G+P or Sika® Primer 207 to cover bright metal scratches on the pinchweld to reduce corrosion. Fresh, bright, metal rubs and scrapes, up to 1 square inch in area, may be covered with one coat of Sika® Primer-206 G+P or Sika® Primer 207.

- This product IS NOT intended for use as a protector against UV rays.
- Sika adhesives are designed to bond aggressively to the existing freshly trimmed urethane bead. For this reason, do **NOT** apply Sika® Primer-206 G+P or Sika® Primer 207 to the existing trimmed urethane bead when performing a full cut.

IMPORTANT NOTE: Currently, there is no aftermarket coating available that can restore the automotive corrosion protection system to the OEM level. Therefore, care must be taken when removing glass parts so that little or no damage is incurred to the paint.

- Shake the bottle vigorously until you hear the mixing ball rattle and then continue shaking for an additional 10 seconds.
- Apply Sika® Primer-206 G+P or Sika® Primer 207 from a can using a brush, dauber, or a cotton swab to cover any bare metal areas that are within the limits defined above, trying not to get any primer on remaining bead of urethane (after a FULL cut has been performed).

- For complete adhesive removals, at temperatures lower than 40°F, up to 25 minutes may be required for the primer to completely dry. To determine if the primer is completely dry, it may be touched 10 minutes after application, in areas that will not directly receive adhesive, using a clean nitrile glove.
- There are no special low temperature requirements for Sika® Primer-206 G+P or Sika® Primer 207 that is being used, outside the bond area of the pinchweld, to cover fresh bright metal scratches or fresh bright metal rubs and scrapes that are less than 1 square inch in area. Extra dry time is required if Sika® Primer-206 G+P or Sika® Primer 207 is used below 40°F in all other situations. A specific example would be if Sika® Primer-206 G+P or Sika® Primer 207 is being used below 40°F for a complete adhesive removal or the pinchweld is newly painted. Under these circumstances, the primer must be allowed to completely dry, which may require up to 25 minutes. Again, as stated above, to determine if the primer is completely dry, it may be touched 10 minutes after application, in areas that will not directly receive adhesive, using a clean nitrile glove. As an alternative, it is suggested that the vehicle be moved to an environment where the temperature exceeds 40°F.

19.0 Shelf Life / Open Time / Product Storage

All Sika products have a shelf life or period after production within which the product must be used. After the expiration of the product shelf life without use, the product **MUST** be discarded. Expired product performance is not warranted and the product may not properly adhere, causing loss of glass retention and possible personal injury. Humidity, temperature and sunlight can affect the shelf life. It is important to keep the products stored correctly. Make sure you rotate your stock and use it on a “first in-first out” basis. This will ensure that you always use fresh material. If you ever have problems with the materials, the first thing you should check is the date code to determine if the product shelf life has expired. Date codes are located on the shipping box, re-sealable cans and sticker sheets that accompany the urethane products. **IF THE SHELF LIFE HAS LAPSED, DO NOT USE THE PRODUCT (Section 5.5 and 6.9 of the AGRSS Standard).**

- A. SikaTITAN® AGR adhesives have a 9 month shelf life.
- B. Sika® Primer-206 G+P or Sika® Primer 207 in a can have a 9 month shelf life.
- C. Sika® Aktivator PRO in cans and Sika® Primer-215 in cans have a 12-month shelf life.
- D. Once Sika® Aktivator PRO, Sika® Primer 206 G+P and /or Sika® Primer 207 is opened, the shelf life is reduced, but not destroyed. With proper storage conditions, they will remain usable up to six months after opening, or until the expiration date, whichever comes first. Always tightly replace both the inner liner and outer cap after each use. If the product becomes thick or cloudy, discontinue use immediately. Concerning re-sealable containers, note on the can, with permanent ink, the date in which the product was first opened in order to make sure the product is not used beyond the opened shelf life of 6 months, or the expiration date, whichever comes first.

- E. The published shelf life of all Sika cleaners, primers and urethanes will be realized when the product is stored below 75°F. If properly stored in cool, dry conditions, the unopened adhesive cartridges or unipacs have a shelf life of 9 months. Long-term storage of the product at higher temperatures will affect the handling characteristics and shorten the shelf life. Typically, chemical reactions double for every 18°F increase in ambient temperature. Therefore, product stored continuously at 93°F would be expected to have a shelf life of four-and-a-half months, while product stored at 111°F would have approximately 2 months left. Short-term storage, considered by Sika to be a 30 day period from the purchase date by a glass shop or mobile unit, will have relatively very little effect on the shelf life of the adhesive. If the product is exposed to freezing conditions (<32°F) the product will not be damaged, but it will require additional time to acclimate to the optimal application temperature. For optimal application characteristics both SikaTITAN® P2G adhesives should be applied when the ambient temperature is between 40°F and 110°F (**Section 6.2 of the AGRSS Standard**).

20.0 Miscellaneous Procedures & Information

1. Always wear Nitrile gloves or equivalent when applying or handling primer and urethane products.
2. When utilizing the SikaTITAN® AGR adhesive systems, be sure to follow these written comprehensive instructions and utilize the SDAT charts posted on the appropriate Product Data Sheets. Also keep these written instructions easily available, either in written or electronic format, for quick access by technicians (**Section 5.4 of the AGRSS Standard**).
3. Read and adhere to the material safety data sheet (MSDS) information.
4. Traceability of products is an AGRSS mandate. Make sure that all lot numbers are recorded, either through use of Sika stickers or hand written entry (**Section 6.7 of the AGRSS Standard**).
5. The failure of any product used in the glass installation process that the installer believes could jeopardize customer safety shall be reported promptly to the manufacturer or supplier of the product (**Section 8.5 of the AGRSS Standard**).
6. All stationary bonded parts on all vehicles licensed for highway use are to be attached to the vehicle with urethane unless in conflict with current OEM specifications (**Section 6.6 of the AGRSS Standard**).
7. All mechanically attached glass parts are to be attached based on OEM specifications (**Sections 6.10 and 8.1 of the AGRSS Standard**).
8. Technicians 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 (**Section 8.6 of the Standard**).
9. Documentation shall be maintained to demonstrate compliance with this standard **Section 8.7 of the AGRSS Standard**).
10. Subject: Passenger and Commercial Vehicle Side and Rear View Mirror Replacements:
Auto glass replacement technicians, being trained and certified through Sika Corporation are required to follow this addendum instruction as it pertains to the proper replacement of side and rear view mirrors in both passenger and commercial vehicles:
 - Sika training personnel will refer to the FMVSS 111 specification in order to alert auto glass technicians to the importance of properly installing approved mirror products and how they must be installed. Below you will find the website address for the FMVSS 111 specification. It is critical that each technician fully comply with each section, namely S-1

through S-12 in that each defines all types of vehicles requiring special attention.

<http://fmcsa.dot.gov>

Enter “FMVSS 111” in the search bar to locate the specification

- Sika can endorse the use of non-conductive AGR urethanes for the installation of side view mirrors provided the mirrors pass FMVSS 111 and the bonding surface of the mirror has no exposed silvering or paint on the bonding surface. The integrity of such surfaces may be compromised if exposed to urethane systems and related cleaners and primers. The bonding surface of the mirror should be prepared with glass cleaner and Sika® Aktivator PRO. Next, use a brush or dauber to apply Sika® Primer-206 G+P. The bonding surface of the mirror mounting bracket can be prepared with Sika® Aktivator PRO and Sika® Primer-206 G+P, following the guidelines provided in this manual. Care should be taken that urethane does not contact the motor mount, impeding the ability of the motor to adjust the mirror **(Section 8.3 of the AGRSS Standard)**
11. Glass parts, including custom cut parts, must 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 **(Section 8.2 of the AGRSS Standard)**.
 12. Technicians must adhere to all instructions provided within the context of this training manual, providing special attention to all environmental procedures specified for both in-shop and mobile installations **(Section 6.1 of the AGRSS Standard)**.

Common Industry Terminology

Viscosity - Refers to the flow properties or thickness of the adhesive in its uncured or gunning state.

Modulus - Refers to the rigidity or the ratio of stress to strain of the adhesive in its cured state.

Decking - Refers to the ability of the adhesive to support a windshield in the pinchweld opening in its uncured or gunning state.

Low Conductive or Non Conductive - Refers to the electrical conductance, capacitance, & dielectric Constant of the adhesive. Used as an insulator between the pinchweld and glass on vehicles that encapsulate the electronics into the glass.

FMVSS Requirement

Federal Motor Vehicle Safety Standard

FMVSS 212

FMVSS 212 is the performance standard the government has set for windshield retention. It is applied to stationary glass in passenger vehicles produced or sold in the US.

This standard does ***NOT*** make reference to ***ANY*** one urethane adhesive. It refers only to the retention of the glass as part of total glass opening.

FMVSS 212: Measures windshield retention in a frontal barrier crash. Minimum requirements call for 50% windshield retention @ 30 MPH

URETHANE ADHESIVES ARE VITAL TO THE SUCCESS OF THIS TEST

Sika AGRSS Tool Kit



Sika has assembled this AGRSS Tool Kit to assist in your awareness and compliance to the current AGRSS Standard. To begin, Sika recommends that you log onto www.agsc.org and read the AGRSS Standard. You can then follow the link to "Become an AGSC-Registered Member Company". The documents contained in this Tool Kit are designed to assist you with completion of portions of five of the eight self-assessment deliverable requirements for registration with AGSC¹. These documents (along with the other required deliverables) are stapled to the completed "Attachment B – Declaration of Standard Conformance" form available at the membership link. Within the contents of this tool kit you will find:

- A. AGRSS Declaration of Standard Conformance – Deliverable 5.1 - To be copied and stapled to ATTACHMENT B to cover Deliverable 5.1 of your self-assessment.
- B. AGRSS Declaration of Standard Conformance – Deliverable 5.3 - To be copied and stapled to the ATTACHMENT B to cover Deliverable 5.3 of your self-assessment.
- C. AGRSS Declaration of Standard Conformance – Deliverable 5.4 - To be copied and stapled to the ATTACHMENT B to cover Deliverable 5.4 of your self-assessment.
- D. AGRSS Declaration of Standard Conformance – Deliverable 6.3 - To be copied and stapled to the ATTACHMENT B, along with a copy of Sika's current safe-drive-away time chart, to cover Deliverable 6.3 of your self-assessment.
- E. AGRSS Declaration of Standard Conformance – Deliverable 9.1 - To be copied and stapled to the ATTACHMENT B, along with a copy of Sika's current certificate of training for at least one of your technicians, to cover Deliverable 9.1 of your self-assessment.

Once your application has been received, you will have to begin preparing for your validation audit. To help you prepare, Sika recommends you download "Attachment C – Preparing for Validation" available at the AGSC membership link. Your local Sika Territory Manager will be able to assist you with all phases of the membership registration process as well as with validation audit preparation.

1

The language contained in the response section to each of the declaration documents listed above is by way of example only and should not be used if it does not accurately depict the prospective registrant's conduct or practices. This AGRSS Tool Kit is intended as a guide only and is not a guarantee or warranty by Sika to prospective registrant of its successful registration with the Auto Glass Replacement Safety Standards Council, of compliance with AGRSS Standards, or of compliance with Sika handling use and application instructions or applicable local, state or federal law. Sika is not however responsible for nor does Sika guarantee any installation technician's compliance with Sika's guidelines for handling and use of its products or its training instructions. TRAINING BY SIKA AS WELL AS A CERTIFICATION OF TRAINING COMPLETION SHALL NOT CONSTITUTE A WARRANTY OF ANY KIND BY SIKA OF AN INSTALLATION TECHNICIAN'S WORKMANSHIP OR THE HANDLING, USE, STORAGE AND APPLICATION OF SIKA'S PRODUCTS. SIKA GIVES NO WARRANTY OR GUARANTEE OF ANY KIND EXPRESS OR IMPLIED WITH RESPECT TO THE INFORMATION AND/OR ANY GUIDANCE WHICH MAY BE PROVIDED HEREIN OR ITS USE. SIKA SHALL NOT UNDER ANY CIRCUMSTANCES BE RESPONSIBLE FOR CONSEQUENTIAL DAMAGES OF ANY KIND UNDER ANY LEGAL THEORY ARISING FROM THE USE OF OR RELIANCE UPON THE INFORMATION AND/OR GUIDANCE PROVIDED HEREIN.

AGRSS Declaration of Standard Conformance

DELIVERABLE 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.”

Sika Response:

Each of Sika’s AGR adhesives and primers is manufactured according to our documented quality assurance procedures. These internal quality assurance procedures have been certified by a third party approved ISO registrar to meet the requirements of ISO 9001/ 14001 and ISO/TS 16949:2009

ISO (International Organization for Standardization) is the world’s largest developer of standards. For more information on ISO and this standard you can log onto its website using the following address.

www.iso.org

A handwritten signature in black ink, appearing to read 'Marius Mavrodin', with a stylized flourish at the end.

Marius Mavrodin
Vice President – Aftermarket
Sika Corporation

AGRSS Declaration of Standard Conformance

DELIVERABLE 5.3

“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.”

Sika Response:

Sika automotive OEM direct glazing polyurethane adhesive systems are used by a number of automobile manufacturers, such as Audi, BMW, Chrysler, Volkswagen, and others. This fact validates Sika’s ability to produce qualified adhesive systems that meet or exceed the stringent OEM specifications for quality and performance for automobiles produced in the United States as well as worldwide.

When used as directed, each of Sika’s AGR adhesives meets or exceeds the strength requirements outlined in the direct glazing specifications of all automobile manufacturers.

A handwritten signature in black ink, appearing to read 'Marius Mavrodin', with a stylized, cursive script.

Marius Mavrodin
Vice President – Aftermarket
Sika Corporation

AGRSS Declaration of Standard Conformance

DELIVERABLE 5.4

“Those engaged in automotive glass replacement shall obtain and follow written comprehensive and current application instructions from the retention systems manufacturer or private labeler. These instructions shall include at least the proper use of the retention system, storage specifications, minimum drive-away time charts containing temperature and humidity variables if applicable, and any special procedures required for adverse weather conditions.”

Registrant Response:

The diagram on the next page represents the current cover of the SikaTITAN® AGR Technician Training Manual and represents comprehensive application instructions covering all requirements stated within Section 5 of the AGRSS Standard. This manual is currently used by the registrant.



SikaTITAN® AGR Technician Training Manual

Volume 1.4 – 2016

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www.sikausa.com

AGRSS Declaration of Standard Conformance

DELIVERABLE 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.”

Registrant Response:

Sika measures the strength build up rates of each AGR adhesive under varying weather conditions using proprietary Safe Drive Away Time (SDAT) determination test methods. The resulting SDATs are then validated under the supervision of a third party crash test facility using the FMVSS 212 standard. This process provides a reliable means to establish SDAT charts for each of Sika's AGR adhesives. The information published in the SDAT chart for each AGR adhesive allows an auto glass technician to determine how long the vehicle must remain out of service prior to use. Such time allowances depend on which product is being used, temperature, humidity and the presence of a passenger side airbag.

The registrant has provided each of its installation technicians with the Sika SDAT charts for the Sika AGR adhesives that they use. The registrant has also provided training to each of its technicians to ensure that they are able to interpret this information properly and inform the vehicle owners of this information when necessary.

The Safe Drive Away Time chart for each of Sika's AGR polyurethanes can be found on the Product Data Sheet for that specific adhesive. Current Product Data Sheets for your adhesive(s) can be obtained on Sika's website at the following link:

<http://usa.sika.com/en/automotive/automotive-transportation-home/01a001.html>

Click the white arrow in the yellow box next to your product name for additional information including Product Data Sheets and Safety Data Sheets. A snapshot of Sika's AGR homepage can be seen on the following page.

AUTO GLASS REPLACEMENT (AGR)

Sika is the market leader in the Auto Glass Replacement (AGR) direct glazing industry and our success with customers has been based on our unique ability to provide three very valuable services.

First, we provide the lowest cost per installation system in the AGR industry when safety and liability are an issue. Second, we provide the most reliable technical field services in educating technicians. Third, our marketing programs provide the most effective tool to help customers grow their business.

Innovation, coupled with the proven safety, reliability and ease of use of our products, make the Sika System the number one choice of Auto Glass professionals. All Sika Auto Glass adhesive systems have been crash tested and exceed rigorous Federal safety standards (FMVSS 212/208). Installation needs differ from shop to shop and region to region. The unique Sika product range has a product for every installer's need, from the hot and dry climates of the Mojave Desert to the cold and wet climates of the North. Sika's reliability has been proven through the years by millions of successful windshield replacements.

Systems: Auto Glass Replacement (AGR) - Direct Glazing



Sikaflex® / SikaTack®

Additional product information on Sika's traditional Sikaflex® and SikaTack® direct glazing adhesive systems.



SikaTITAN® Replacement Adhesive

Additional product information on Sika's new SikaTITAN® direct glazing adhesive systems.



Primers/Cleaners/Accessories

Additional product information on Sika's primers, cleaners and accessories for use with our AGR products.



AGRSS Declaration of Standard Conformance

DELIVERABLE 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:

- a) AGR safety issues;
- b) An understanding of OEM installation standards and procedures;
- c) Relevant technical specifications;
- d) Adhesive System Manufacturer specific comprehensive retention system training;
- e) The opportunity to apply and demonstrate the skills technicians learn.”

Registrant Response:

Sika offers training covering the proper use of Sika products when used as the retention system of any automobile. Such training includes the provision and study of the current Sika Auto Glass Replacement Technician Training Manual, skill development through Sika personnel’s observance of technician installations during the training session and a comprehensive test at the conclusion of the training to ascertain the technician’s knowledge base of proper product usage. Each technician who successfully completes Sika training receives a certificate of training completion, along with an identification card to carry with them. It should be noted that Sika maintains the “Sika AGR Technician Training Course” as an AGRSS Registered Course and is certified to provide training in all 4 subject areas required by the Standard.

On the following page is a copy of our training completion certificate. We retain copies of the training completion certificates issued by Sika for our technicians who have successfully completed the course.

SIKA AGR CERTIFICATE

OF ACHIEVEMENT

THIS CERTIFICATE OF ACHIEVEMENT IS PRESENTED TO:

CERTIFICATE #:

FOR THE SUCCESSFUL COMPLETION OF THE SIKA AGR TECHNICIAN TRAINING COURSE

THIS TRAINING CERTIFICATE PERTAINS TO AGRSS STANDARD:
ANSI/AGSC/AGRSS Standard 003-2015

THIS IS AN AGRSS REGISTERED TRAINING COURSE APPROVED IN ALL FOUR
REQUIRED CATEGORIES, WHICH INCLUDE:

- COMPREHENSIVE RETENTION SYSTEM TRAINING
- MECHANICS OF AGR REMOVAL, REPLACEMENT AND RELEVANT TECHNICAL SPECIFICATIONS
- OEM INSTALLATION STANDARDS AND PROCEDURES
- AGR SAFETY ISSUES

SIKA TRAINER:

DATE TRAINED:

**Expires 2 years from date listed*



BUILDING TRUST



22.0 SikaTITAN® Technician Training Test

Instructions: Each of the following questions is multiple choice. Circle either “A”, “B”, or “C”, as the correct answer.

1. **Properly preparing a bonded glass part, which does not show any indications of non-traditional contamination, requires...**
 - a. *A thorough wetting of the glass surface with an approved glass cleaner and wiping dry the entire surface, especially the frit band area.*
 - b. *Conducting a wet-scrub, using an approved glass cleaner and abrasive pad, around the frit band then drying with a paper towel and re-spraying glass cleaner, wiping from the outside to the inside of the glass part.*
 - c. *Conducting a wet-scrub, using 206 G+P Primer or Sika® Primer 207 to make sure the glass edge is contaminant free and left with a proper UV barrier.*
2. **If non-traditional contamination is discovered on the glass part, the SikaTITAN system recommends that...**
 - a. *No special treatment is required and the urethane can just be applied to the glass due to the fact that it is primerless.*
 - b. *Treat the contaminated area with glass cleaner and Sika® PowerClean Aid. An application of Sika® Primer 206 G+P or Sika® Primer 207 should be applied to mask the contamination and assure proper urethane adhesion.*
3. **The “full-cut” method of trimming the existing bead of urethane down to 1 to 2 millimeters can be properly conducted as long as...**
 - a. *The vehicle is 7 years old or newer, assuring that the existing urethane has not lost its elasticity or become too oxidized for bonding to new urethane.*
 - b. *The vehicle is not going to require auto-body repair or the repainting of the pinchweld.*
 - c. *The existing urethane bead is in excellent shape, well bonded to the pinchweld and absent of any corrosion, re-paint or defect.*
4. **Urethane must be used on all windshield installations and fixed bonded glass parts unless...**
 - a. *In conflict with current OEM specifications.*
 - b. *The customer demands that the part be installed using the same procedure and products at the time of original factory production.*
 - c. *The vehicle is an antique.*

5. The SikaTITAN system allows for corrosion repair as long as...

- a. The corroded pinchweld area has no holes of perforation.*
- b. The accumulated pinchweld surface area is over 1 square inch and under 20 square inches.*
- c. The accumulated pinchweld surface area is over 1 square inch, fewer than 24 square inches and has no level 4 corrosion.*

6. The proper restoration of corrosion using the SikaTITAN system requires...

- a. Full removal of the corrosion, abrade affected paint edges, one coat of Aktivator PRO and two coats of Sika® Primer 206 G+P or Sika® Primer 207, following application instructions.*
- b. Full removal of the corrosion, abrade affected paint edges, wipe clean bare metal surfaces and evenly apply one coat of Sika® Primer 206 G+P or Sika® Primer 207.*
- c. Clean affected area as well as possible, using mechanical abrading only, then apply phosphoric acid solution to convert remaining rust spores followed by one coat of Sika® Primer 206 G+P or Sika® Primer 207.*

7. A complete adhesive removal is required when...

- a. The vehicle is 7 years or older.*
- b. A primerless urethane is going to be used and the factory painted surface must be scuffed to ensure proper bonding.*
- c. The pinchweld has been damaged, repainted, or the existing urethane bead has poor adhesion.*

8. When bonding to aluminum or FRP pinchwelds, be sure to...

- a. Abrade the surface, then apply one coat of Sika® Aktivator PRO and Sika® Primer 206 G+P Primer or Sika® Primer 207 following pertinent application instructions.*
- b. Wet scrub with abrasive pad and approved glass cleaner, dry surface and apply one coat of Sika® Primer 206 G+P or Sika® Primer 207, following application instructions.*
- c. Apply one coat of Aktivator PRO, making sure to allow 10 minutes to flash off.*

9. When installing a gasket set windshield, it is important to clean both slots of the gasket by...

- a. Wetting a paper towel with acetone or some form of solvent then scour both sides of the gasket to remove dirt and other contaminants.*
- b. Applying water, or an approved glass cleaner, then Sika® Aktivator PRO, allowing 15 minutes to fully dry.*
- c. Applying water to clean the gasket then one coat of Sika® Primer 206 G+P or Sika® Primer 207.*

- 10. A windshield having a pre-applied-adhesive-system (PAAS) requires that the PAAS be prepared prior to installation by...**
- a. Wipe lightly with water in one direction.*
 - b. One coat of Sika Aktivator PRO, allowing 10 minutes to dry. If the bead needs to be trimmed, then no Sika Aktivator PRO is necessary.*
 - c. Applying one even coat of 206 G+P Primer and allowing 10 minutes to dry.*
- 11. While the Sika® Primer 206 G+P or Sika® Primer 207 has a dry time of 10 minutes above 40 degrees F, this product can be applied down to zero degrees with the understanding that...**
- a. The product requires longer to dry but the 10 minute time frame can be used as long as a hot-air gun is used to increase the ambient temperature to above 40 degrees F.*
 - b. The product may require up to 15 minutes to fully dry but the glass part can be installed immediately as long as the primer is not applied in the bonding area.*
 - c. The product may take up to 25 minutes to dry but may be touched after 10 minutes in a non-bonding area, using a nitrile glove to test for dryness.*
- 12. The removal and replacement of a bonded glass part can be conducted using the SikaTITAN system as long as...**
- a. The remaining layer of urethane on the glass has good adhesion around the entire perimeter.*
 - b. The glass edge is free from defect and the old urethane can be removed down to the frit of the bonding surface.*
 - c. The glass edge is free from defect and the glass edge is primed with Sika® Primer 206 G+P or Sika® Primer 207 following the full removal of the existing urethane bead.*
- 13. For repair of bare metal scratches and minor scrapes measuring less than 1 square inch, the proper use of Sika® Primer 206 G+P or Sika® Primer 207 requires...**
- a. Shake the can for 10 seconds following the rattle of the agitator, apply one even coat and allow 10 minutes to dry at temperatures above 40 degrees F.*
 - b. Shake the can for 1-minute, apply one coat with a brush or dauber and allow 3 minutes to dry above 40 degrees F and 10 minutes to dry below 40 degrees down to zero.*
 - c. Shake the can for 1 minute, then apply two coats 10 minutes apart to the bare metal area.*

14. All Sika reseal-able cans of cleaners and primers must have the date opened written on the can to ensure proper management of the available remaining shelf life of the product, which is...

- a. 7 days after the product has been opened or the shelf life of the product, whichever is the shorter of the two.*
- b. 6 months after the product has been opened or the shelf life of the product, whichever is the shorter of the two.*
- c. 1 month after the product has been opened or the shelf life of the product, whichever is the shorter of the two.*

15. It is important that technicians follow all instructions provided within this training manual and not introduce any procedures or products not previously approved by Sika for the reason of...

- a. Not wasting any time or money on procedures and products that are not necessary*
- b. Satisfying all OEM specifications.*
- c. To be compliant with proper SikaTITAN installation guidelines and pertinent AGRSS Standard provisions.*

Technician Printed Name: _____

Technician Signature: _____

Date: _____

Sika Trainer Signature: _____

Date: _____

Glass Shop Mailing Address: _____
