



Sealant Compatibility and Structural Glazing

Product Application Information

Edge deletion is necessary to ensure that chemicals in certain sealants do not attack the silver layer in the coating. Extensive testing has shown that for some of the coating types, edge deletion is not necessary. Note: when a sealant is put behind an existing coating, a color change may be visible.

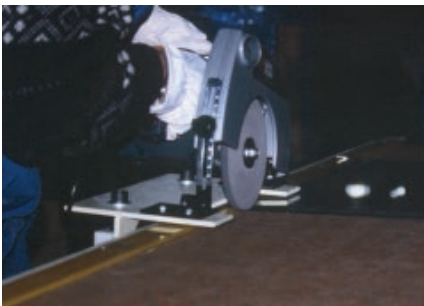
Different sealant types use different mechanisms for sealant cure and some of the chemicals, used in the curing process, may attack the coating. For this reason, only approved sealants should be used.

The use of untested coated glass or unapproved sealants requires edge deletion in any case!

Important note:

- Guardian SunGuard® SuperNeutral (SN), Guardian SunGuard® SuperNeutral HT (SN-HT), Guardian SunGuard® eXtraSelective (SNX) and Guardian SunGuard® eXtraSelective HT (SNX-HT): edge deletion required.
- Guardian SunGuard® Solar and Guardian SunGuard® High Durable (HD): no edge deletion required (for structural glazing see chapter “GUARDIAN SUNGUARD® COATINGS IN STRUCTURAL GLAZING”) → page 3.
- Guardian SunGuard® High Performance (HP): no edge deletion required, if applied sealants and related applications are tested and approved (no structural glazing) → page 3.

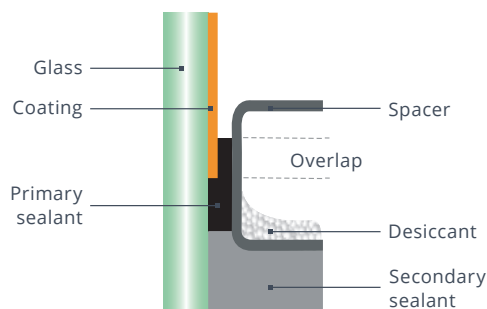
Fig. 1



Where edge deletion is required: remove the coating by using grinding appliances and grinding wheels developed specifically for this purpose.

More information about the appropriate types may be directly requested from Guardian. Under extreme conditions, increased thermal dilatation due to solar energy absorption or certain shapes of the outer pane of the insulating glass can create shear tensions which can be transferred to the coating stack if the Butyle strip (primary seal) is applied completely on the coating.

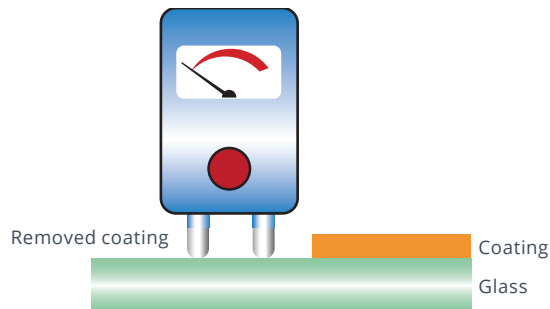
Fig. 2 - Overlap



Guardian recommends to minimize the overlapping area whenever possible.

The ground-off margin should generally not be wider than 10mm, as otherwise it may enter the visible area. If for any reason the sealing depth of the insulated glass has to be increased, then the width of edge deletion of the coating must be increased accordingly.

Fig. 3



A coating detector can be used to check whether all coating has been removed.

Important note:

Where the edge deleted part is visible from the outside of the building, a color difference will be visible with the coated part of the glass. In case of structural glazing, please contact the sealant manufacturer for further information. Guardian recommends a mock-up to secure the static requirements. For special applications like step glazing's with exposed coated surface (e.g. roofs, corners of structural glazing's, etc.), please consult the local Technical Department at Guardian.

Compatible sealants for Guardian SunGuard® coatings in standard IG applications

The coatings of the product families SunGuard® HP, Solar and HD are compatible to 2K polysulfide, 2K polyurethane, 1K hotmelt and 2K silicone sealants for standard insulating glass applications (no structural glazing).

Following sealants were tested successfully with selected coatings according to EN 1279-4: 2018 (Glass in building - Insulating glass units - Part 4: Methods of test for the physical attributes of edgeseal components and inserts):

- 2-component polysulfide: Fenzi Thiover, Kömmerling GD 116
- 2-component polyurethane: Kömmerling GD 677, Tremco JS 442 MF
- 1-component hotmelt: Bostik 5000
- 2-component silicone: Sika IG-25 HM+, DOWSIL 3363

According to equivalence rules of coatings detailed in Annex B of EN 1279-4:2018, the complete range of SunGuard® HP, Solar and HD are covered by the test results.

Important note:

The responsibility for a proper protection of the SunGuard® HP coatings against environmental influences is always at the processor.

Guardian SunGuard® coatings in structural glazing

A structural glazing façade is designed as an aluminium-framework in combination with special glass units.

This aluminium-glass-system is hanged into a conventional curtain wall construction.

The glass is glued directly on the metal sub-construction or fixed by special screw systems between edge seal and frame. High modulus silicones are used for structural gluing and as structural sealant.

Possible structural glazing build ups are shown in Fig. 4a - c.

Fig. 4a - Structural step glazing

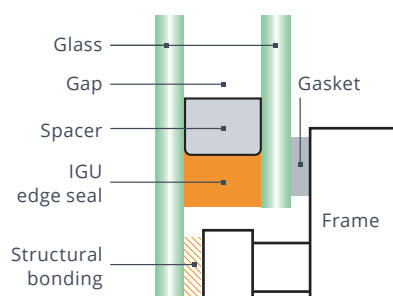


Fig. 4b - Structural insulating glass

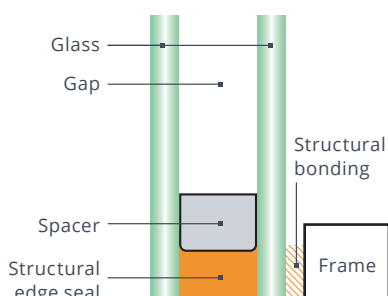
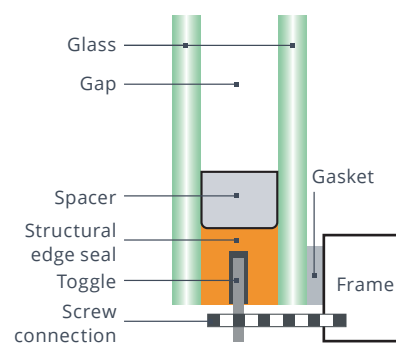


Fig. 4c - Screw connection between edge seal and frame (toggle system)



If coatings are intended to be in contact with any silicone with structural functionality (edge seal or bonding) please contact Guardian for advice. Typically, applications with structural bonding need to be tested and approved. If an European certification for structural glazing according to ETAG 002-1 is required, please contact Guardian for detailed information about suitable glass types and tested coating-sealant combinations complying with the ETAG 002-1 requirements.

SunGuard® HP, SN and SNX are not suitable for structural glazing. This applies also to standard insulating glass units where the outer pane is not mounted by profiles or any other supporting devices. In this case the coating needs to be removed accordingly.

It is the full responsibility of the processor ensuring the quality of the edge deletion as well as the adhesion of structural silicones on edge-deleted surfaces.

Another possibility for using high performing coated architectural glass (SunGuard® SN, SNX, HP) in structural applications is "Guardian System TEA". This is a special enamel system applicable directly on the coated surface. After firing the coating is completely dissolved and only glass and enamel is left. This system is tested and approved for most of Guardians heat treatable SunGuard® coatings. The mechanical and chemical very stable and optical homogeneous surface provides a reliable adhesion for structural applications. Guardian System TEA is tested and certified for various structural sealants according to ETAG 002-1. For detailed information please contact Guardian.

Verification

The signature below verifies that the processor has read and understands the full content of these product application information: Sealant Compatibility and Structural Glazing / Product Application Information / "Guardian_SealantCompatibility_PAI_EN_0722".

Name / Signature: _____ Title: _____

Company / Stamp: _____ Date: _____

Please return this page signed via e-mail to your local Guardian Technical Services representative.

Guardian Glass - United Kingdom
Phone: 0044 (0) 800 032 6322
e-mail: uktechnical@guardian.com

Guardian Glass - Luxembourg
Phone: 00 352 50301
e-mail: taluxembourg@guardian.com

Guardian Glass - Spain
Phone: 00 34 948 817255
e-mail: tactudela@guardian.com

Guardian Glass - Germany
Phone: 0049 (0) 3494 361 800
e-mail: anwendungstechnik@
guardian.com

Guardian Glass - Poland
Phone: 0048 (0) 34 323 9300
e-mail: tac_poland@guardian.com

Guardian Glass - Hungary
Phone: 0036 (0) 68 887 200
e-mail: Technical_Hungary@
guardian.com

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