

TEST REPORT

SWG230412/V1.0



CUSTOMER

Guardian Glass

TASK

Compatibility tests of Guardian Glasses with two-part structural silicone sealants for U insert /U channel fixing system windows, Plus 030 (batch No.: 2303101) produced by Shinwoo chemical co., Ltd.

PRODUCTS

1. Various kinds of glasses produced and provided by Guardian Glass (Each glass model detail is mentioned hereinafter)
2. Two-part structural silicone sealants for U insert/U channel fixing system windows, Plus 030 by Shinwoo chemical co., Ltd.

QUESTION

Incompatibility reactions between Guardian coated and non-coated glasses with Two-part structural silicone sealants for U insert/U channel fixing system windows, Plus 030 by Shinwoo chemical co., Ltd.

TEST METHODS

According to ASTM C794-15a, Standard test method for Adhesion-in-Peel of elastomeric joint sealants

DATE

11.04.2023

TECHNICIAN

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APR 12, 2023

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TEST MATERIAL

1. Various kinds of glasses produced and provided by Guardian Glass (Each glass model detail is mentioned hereinafter)
2. Two-part structural silicone sealants for U insert/U channel fixing system windows, Plus 030 (batch No.: 2303101) produced by Shinwoo chemical co., ltd

SUMMARY OF TEST METHOD

This test method consists of preparing test specimens by embedding a wire mesh screen between thin layers of the sealant being tested, on test substrates, curing these specimens under specified time and conditions, then placing the specimens in a tension-testing machines in such a way that the embedded wire mesh screen is peeled back from the substrate at 180°C while measuring the force exerted as well as the mode of failure of the sealant from the substrate.

TEST SPECIMENS AND CURE PROCEDURES

Test specimens are prepared on each of Guardian glass using the following procedures ;

1. Prepare 1,000g of two-part structural silicone sealants for U insert / U channel fixing system windows, Plus 030 after mixing for more than 5min.
2. Prepare the substrate sample (Guardian glass) after cleaning with tap water
3. Prepare wire mesh screen after thoroughly cleaning with tap water
4. Apply a bead of Plus 030 100mm in length to each of Guardian glass surface
5. Immediately place the wire mesh screen on the sealant bead and lightly tap into the joint sealants
6. Holding the screen with a finger to prevent slippage, gently draw down the sealant imbedding the wire mesh into the wet sealant at an 90° angle to the glass. wire mesh is Imbedded to a uniform depth of 2mm from the glass surface
7. Immediately apply a second bead of the sealant over the first bead of sealant and wire mesh screen
8. Again, holding the screen with a finger to prevent slippage, draw down the sealant the sealant at an 90° angle to the glass. Total depth of the sealant is 4mm and wire mesh screen is embedded uniformly at the approximately midpoint of the sealant depth.
9. Remove excess wet sealant beyond the edge of the wire mesh screen is removed using spatula.
10. Prepare a final adhesion-in-peel test sample after the sealant is cured(21days from applying the sealant) according to ASTM C794-15a



PHOTOS OF TEST PROCEDURE

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TEST PROCEDURE

Tests are performed as described under ;

1. Place each specimen in the tensile testing machine with the substrate secured to the fixed member and the loose end of the wire mesh screen secured to the movable member at an angle of 180°,
2. Pull the screen at a rate of 50mm

PERFORMED TESTS AND RESULTS

1. TEST METHOD : According to ASTM C 794-15a
2. CURE CONDITION : Initial cure (after 21days, 23°C 50%R.H)

| NAME OF GUARDIAN GLASS SEALANT | SEALANT | RESULTS |
|--|----------|---------|
| Guardian glass DS Grey T, non-coated surface | PLUS 030 | C |
| Guardian glass HD Plus Bronze T, coated surface | PLUS 030 | C |
| Guardian glass DS Grey T, coated surface | PLUS 030 | C |
| Guardian glass DS Aquamarine, coated surface | PLUS 030 | C |
| Guardian glass HP Gold 31, coated surface | PLUS 030 | C |
| Guardian glass HD Plus Green T, coated surface | PLUS 030 | C |
| Guardian glass Solar Royal Blue 20, coated surface | PLUS 030 | C |
| Guardian glass HD Grey, coated surface | PLUS 030 | C |
| Guardian glass Solar Silver Blue 40, coated surface | PLUS 030 | C |
| Guardian glass HD Blue, coated surface | PLUS 030 | C |

C= cohesive failure, A = adhesive failure



PHOTOS OF EACH SPECIMEN AND TEST RESULT (GUARDIAN_PLUS030)



BEFORE TEST

AFTER TEST



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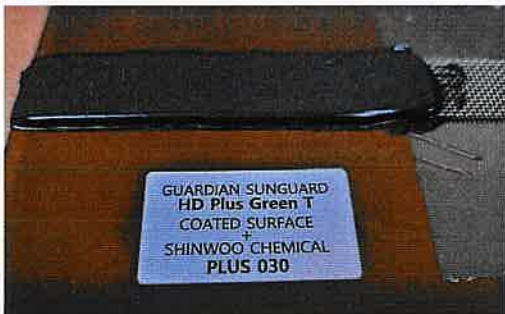
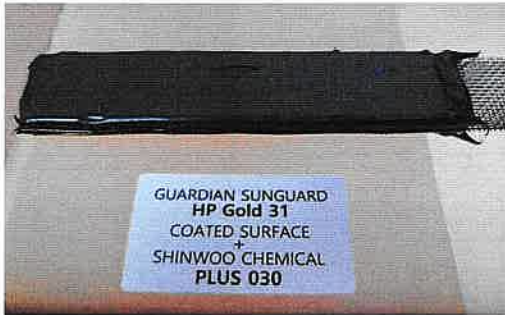
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PHOTOS OF EACH SPECIMEN AND TEST RESULT (GUARDIAN_PLUS030)



BEFORE TEST

AFTER TEST



No.2



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PHOTOS OF EACH SPECIMEN AND TEST RESULT (GUARDIAN_PLUS030)



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