



BRANZ Appraised

Appraisal No. 844 [2019]

GORILLA SILICONE SEALANTS

Appraisal No. 844 [2019]

This Appraisal Replaces BRANZ Appraisal No. 844 [2014]



BRANZ Appraisals

Technical Assessments of products for building and construction.

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Product

- 1.1 Gorilla Silicone Sealants are waterproof, elastic, UV resistant joint sealants for interior and exterior applications.

Scope

- 2.1 Gorilla Silicone Sealants have been appraised for use as exterior sealants in buildings within the following scope:
 - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1.
- 2.2 Gorilla Silicone Sealants have also been appraised for use as internal and external sealants in buildings subject to specific design within the following scope:
 - with a minimum joint depth of 5 mm and joint width between 5 mm and 30 mm; and,
 - with substrates of:
 - timber [unpainted and unstained] - particleboard, fibreboard, untreated pine, boron treated pine, tanalised pine, New Zealand natives or untreated Cedar or Douglas Fir; or,
 - plastics - PVC, melamine sheet, fibreglass [gelcoat side only], polyurethane coatings, epoxy and polyester coatings or epoxy mortars; or,
 - metals - stainless steel, copper, brass, zinc anneal, aluminium-zinc, zinc bronze, lead, tin, galvanised steel, mild steel, cast iron or aluminium [milled, anodised or powder coated]; or,
 - mineral - concrete, mortar, plaster, blockwork, brickwork, fibre cement sheeting, unglazed tiles, earthenware [clay], glazed ceramic tiles, stoneware [e.g. Hinuera stone and Oamaru stone], marble* or granite*; or,
 - standard concrete, glass fibre reinforced concrete, concrete and clay blocks, tiles, natural stone* or bricks; or,
 - glass and ceramics; or,
 - butyl rubber products; or,
 - stoved enamel.

Note: Substrates or materials other than those specified above have not been assessed and are outside the scope of this Appraisal. Soudal Ltd must be consulted when proposing the sealing of material not specifically covered by this Appraisal.

* These materials may stain when in contact with Gorilla Silicone Sealants. Refer to Soudal Ltd for further information.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Gorilla Silicone Sealants if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1 (b), 15 years and B2.3.1 (c), 5 years. Gorilla Silicone Sealants meet these requirements. See Paragraphs 8.1 - 8.4.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. When used as part of the cladding system, Gorilla Silicone Sealants will contribute to meeting this requirement. See Paragraphs 12.1 - 12.3.

Clause E3 INTERNAL MOISTURE: Performance E3.3.3, E3.3.4, E3.3.5 and E3.3.6. When used as part of the substrate lining or finishing system, Gorilla Silicone Sealants will contribute to meeting these requirements. See Paragraph 13.1.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Gorilla Silicone Sealants meet this requirement and will not present a health hazard to people.

Technical Specification

4.1 Products of the Gorilla Silicone Sealants range supplied by Soudal Ltd are as follows:

Gorilla Bathroom and Kitchen Silicone Sealant:

- A fast curing, neutral cure, fully elastic, one-component silicone sealant. It is available in white, titania and clear and supplied in 300 ml cartridges (sausages on request).

Gorilla Plumbers Silicone Sealant:

- A fast curing, neutral cure, fully elastic, one-component silicone sealant. It is available in white and clear and supplied in 300 ml cartridges (sausages on request).

Toptec Clean Room Silicone:

- A fast curing, neutral cure, fully elastic, one-component silicone sealant. It is available in titania and supplied in 300 ml cartridges (sausages on request).

Silirub 2/S Neutral Cure Silicone:

- A fast curing, neutral cure, fully elastic, one-component silicone sealant. It is available in white and clear and supplied in 300 ml cartridges.

Silirub N05 Neutral Cure Silicone:

- A fast curing, neutral cure, fully elastic, one-component silicone sealant. It is available in white and clear and supplied in 300 ml cartridges.

Gorilla 970 Sanitary Silicone Sealant:

- A fast curing, neutral cure, fully elastic, one-component silicone sealant. It is available in white and clear and supplied in 300 ml cartridges

Gorilla Electrical Silicone Sealant

- A fast curing, neutral cure fully elastic, one-component silicone sealant. It is available in clear only and supplied in 310 ml cartridges.

Handling and Storage

5.1 The handling and storage of Gorilla Silicone Sealants on site is the responsibility of the installer. Gorilla Silicone Sealants have shelf life of 12 months from the date of production if stored in unopened packaging under dry, cool conditions at temperatures of between 5°C and 25°C. The product must be stored out of direct sunlight.

Technical Literature

- 6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for Gorilla Silicone Sealants. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.
- 6.2 Some installation instructions are also provided on the packaging. Note that the packaging labels also refer to uses outside the scope of this Appraisal.

Design Information

General

- 7.1 Gorilla Silicone Sealants are designed to be used as gap-filling sealants in building construction joints for the exclusion of moisture. They may be used in both interior and exterior locations, and along with their high elasticity and good adhesion, they are suitable for use with a wide range of substrates. Compatibility tests on some porous stones is required as staining can occur in some instances, refer to Soudal Ltd for further advice.
- 7.2 The design of weathertight joints and detailing for all applications must be in accordance with good design principles. In most situations, joint design should see the sealants used as a first line of defence, in conjunction with flashings [second line of defence] which drain to the building exterior. Other good design principles include the optimum width to depth ratio, correct sealant profile, and use of a bond breaker system. Refer to BRANZ Bulletin No. 584 and 601 for further information.
- 7.3 A bond breaker is required in all joints, and with shallow joints the bond breaker may be a self-adhesive polyethylene tape. In deeper joints, a polyethylene backer rod must be used to act as the bond breaker and at the same time set the joint depth and support the sealant.
- 7.4 The performance of Gorilla Silicone Sealants makes them suitable sealants for weathersealing exterior wall constructions. It is important however that the sealant/ bond breaker rain screens are backed by a waterstop or air seal so that a free-draining enclosed joint cavity is formed. This is particularly important for walls that extend over one storey in height. In weathersealing applications, the bottom of vertical joints must be open to allow water drainage. Horizontal joints between thin sheet materials, e.g. plywood or fibre cement, should be weathersealed with Z flashings and not a sealant. Horizontal joints in other materials must be rebated and the seal formed at or near the top of the rebate. All joints must be designed to drain to the exterior of the building.
- 7.5 For optimum adhesion and in areas of critical, high performance applications such as multi-storey building work, high stress joints or extreme weather exposure, the use of substrate primers and cleaners is required. Soudal Ltd must be consulted where doubt arises. Porous surfaces may be pre-treated with Soudal Primer 150 and non-porous surfaces with Soudal Surface Activator. Surface priming or activation must be undertaken in accordance with the instructions of Soudal NZ Ltd.
- 7.6 Soudal Ltd must be consulted when proposing the sealing of material not specifically covered by this Appraisal.

Durability

- 8.1 Assessment of durability to meet the NZBC is based on difficulty of access and replacement of the sealant, and the ability to detect failure of the sealants both during normal use and maintenance of the building. Therefore durability requirements for the sealants will vary according to the situations in which they are used [e.g. exterior and interior use, exposed or covered].
- 8.2 Gorilla Silicone Sealants meets code compliance with NZBC Clause B2.3.1 [b], 15 years for exterior use, and code compliance with NZBC Clause B2.3.1 [c], 5 years for interior use.

Serviceable Life

- 8.3 When used and applied in accordance with the Technical Literature and this Appraisal, it is expected that weathertightness or gap-filling seals undertaken with Gorilla Silicone Sealants will remain serviceable for 15 years or more in exterior environments.

- 8.4 In dry interior environments where the product is inaccessible and completely sheltered from exposure to chemicals, solvents, temperature extremes and excessive movement, a serviceable life of up to 50 years or more may be expected.

Maintenance

- 9.1 In accessible areas, inspections must be carried out annually to check for cracks or gaps between the sealant and substrate. Where this has occurred, the unsound sealant must be raked out, the substrate prepared and the joint filled with fresh sealant.

Prevention of Fire Occurring

- 10.1 Separation or protection must be provided to Gorilla Silicone Sealants from heat sources such as fire places, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 - C/AS6 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

Control of Internal Fire Spread

- 11.1 When used internally on construction that does not require a fire resistance rating, sealants [caulking] are exempt from surface finish requirements by NZBC Acceptable Solution C/AS1 Part 4, Paragraph 4.2.2 [e] and C/AS2 - C/AS6 Paragraph 4.17.6 [e].

External Moisture

- 12.1 Gorilla Silicone Sealants comply with Type F, Class 25 LM of ISO 11600 and therefore may be used whenever a sealant of this type is specified in NZBC Acceptable Solution E2/AS1.
- 12.2 Gorilla Silicone Sealants can be used with a range of exterior construction methods and materials to meet the requirements of NZBC E2. They can be used, for example, in the control joints of masonry veneer, to weatherproof the joints between fibre cement weatherboards, to seal around pipes and penetrations, to weatherproof joints between flashings and claddings, or act as an air seal around window, door and other penetrations.
- 12.3 It is the responsibility of the designer, builder or contractor to ensure sound joint design principles are followed. Designers, builders or contractors must ensure that second line of defence flashings drain to the building exterior, they are suitable for the particular application under consideration, and that they are installed correctly.

Internal Moisture

- 13.1 Gorilla Silicone Sealants can be used to form impervious joints between sheet lining materials and also a joint between fixtures and lining materials in accordance with NZBC Acceptable Solution E3/AS1, Paragraph 3.2.2 to prevent water splash penetrating behind linings or into concealed spaces.

Installation Information

Installation Skill Level Requirements

- 14.1 Gorilla Silicone Sealants are for use by general tradespersons and handypersons in straight-forward applications. However, for more technically difficult applications, especially on larger commercial and industrial type buildings, application should be undertaken only by those experienced in the application of sealants to expansion and construction joints. All installations must be in accordance with the instructions given within the Technical Literature and this Appraisal.

General

- 15.1 Before the application of primers and sealant, substrate surfaces must be clean, dry and free from any surface contaminants such as dirt, dust, oil or existing coatings and paints.
- 15.2 Primers are not to be used as a substitution for surface cleaning and preparation. Primers must be applied in a uniform manner to ensure an even film thickness of primer is achieved. Primers must be fully cured before the application of Gorilla Silicone Sealants. Cure rates will slow down as temperatures decrease.

- 15.3 Sealant application must be carried out when the sealants and substrate temperature is within the range of 5°C to 30°C.
- 15.4 Installation of the sealants can be undertaken using a manual or pneumatically operated caulking gun at an angle to eliminate the inclusion of air pockets. The sealant should be tooled off to achieve a smooth finish and to compress them, promoting adhesion to the joint walls. Clean-up can be carried out using Bulldog Powdercoat cleaner immediately after application.

Health and Safety

- 16.1 Safe use and handling procedures for Gorilla Silicone Sealants are provided on the packaging. Additional information on the products is available in Material Safety Data Sheets available from Soudal NZ Ltd.

Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests

- 17.1 Gorilla Silicone Sealants has been tested to the requirements of ISO 11600-F-Class 25 LM Building construction - Sealants - Classification and Requirements

Other Investigations

- 18.1 Technical data sheets, and Material Safety Data Sheets for the Gorilla Silicone Sealants have been obtained by BRANZ and found to be satisfactory.
- 18.2 A durability opinion has been given by BRANZ technical experts.

Quality

- 19.1 The manufacture of the product has not been examined by BRANZ, but details of the quality and composition of the materials used were obtained and found to be satisfactory. Note has been taken of overseas manufacturing quality certification.
- 19.2 Quality of supply to the market is the responsibility of Soudal Ltd.
- 19.3 Quality of installation of the products on site is the responsibility of the sealant installer.
- 19.4 The quality of installation of the substrates is the responsibility of the substrate installer in accordance with the substrate manufacturers instructions.
- 19.5 Building designers are responsible for the design of the joints, and for the incorporation of the sealant into their design in accordance with the instructions of Soudal Ltd.
- 19.6 Building owners are responsible for the maintenance of Gorilla Silicone Sealants in accordance with the instructions of Soudal Ltd.

Sources of Information

- BRANZ Bulletin No. 584 - Sealed Joint Design
- BRANZ Bulletin No. 601 - Sealants for Cladding Joints
- Acceptable Solutions and Verification Methods for New Zealand Building Code External Moisture Clause E2, Ministry of Business, Innovation and Employment, Third Edition July 2005 [Amendment 8, 30 November 2018].
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.



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09 May 2019

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In the opinion of BRANZ, **Gorilla Silicone Sealants** is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **Soudal Ltd**, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
 - a) relates only to the product as described herein;
 - b) must be read, considered and used in full together with the Technical Literature;
 - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
 - d) is copyright of BRANZ.
2. **Soudal Ltd** :
 - a) continues to have the product reviewed by BRANZ;
 - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
 - c) abides by the BRANZ Appraisals Services Terms and Conditions;
 - d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
 - a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
 - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
 - c) any guarantee or warranty offered by **Soudal Ltd**
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to **Soudal Ltd** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

09 May 2019