



BRANZ Appraised

Appraisal No. 311 [2013]

SIKAFLEX MS [BUILDING SEALANT]

Appraisal No. 311 [2013]

This Appraisal replaces BRANZ Appraisal No. 311 [2005] dated 1 August 2005.



BRANZ Appraisals

Technical Assessments of products for building and construction.

Product

- 1.1 Sikaflex MS is a weathersealing sealant for exterior use and a general-purpose gap-filling sealant for exterior and interior use.

Scope

- 2.1 Sikaflex MS has been appraised for use as a sealant in buildings within the following scope:
 - the scope limitations of NZBC Acceptable Solution E2/AS1 Paragraph 1.1.
- 2.2 Sikaflex MS has also been appraised for use as a sealant in buildings subject to specific design within the following scope:
 - in joints with a minimum width and depth of 5 mm; and,
 - in joints with a maximum width of 35 mm; and,
 - with substrates of:
 - timber [unpainted and unstained] – treated or untreated softwoods and hardwoods, plywood, hardboard, treated or untreated particleboard; or,
 - fibre cement; or,
 - plastics – polyester, acrylic, unplasticized or plasticized PVC; or,
 - metals – stainless steel, mild steel, galvanised steel, enamel coated steel, powder coated [polyester or epoxy] aluminium, anodised aluminium, mill finished aluminium, copper, brass, zinc; or,
 - concrete and masonry – standard concrete, glass fibre reinforced concrete, concrete and clay blocks, marble, granite, or natural stone tiles; or,
 - glass and ceramics – glazing, tiles; or,
 - butyl rubber products.

Note: Sikaflex MS can be used on other substrates but these have not been assessed and are outside the scope of this Appraisal. Sika [NZ] Ltd must be consulted when proposing the sealing of material not specifically covered by this Appraisal.



BUILDING TRUST

Sika [NZ] Ltd

PO Box 19 192
Avondale
Auckland 1746
Tel: 0800 SIKA NZ
Fax: 0800 SIKA FAX
Web: www.sika.co.nz



BRANZ

BRANZ

1222 Moonshine Rd,
RD1, Porirua 5381
Private Bag 50 908
Porirua 5240,
New Zealand
Tel: 04 237 1170
branz.co.nz



Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Sikaflex MS (Building Sealant), 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. Sikaflex MS [Building Sealant] meets these requirements. See Paragraphs 8.1 - 8.4.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. When used as part of the cladding system, Sikaflex MS [Building Sealant] 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, Sikaflex MS [Building Sealant] will contribute to meeting these requirements. See Paragraph 13.1.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Sikaflex MS [Building Sealant] meets this requirement and will not present a health hazard to people.

3.2 This is an Appraisal of an Alternative Solution in terms of New Zealand Building Code compliance.

Technical Specification

4.1 Products and accessories supplied by Sika [NZ] Ltd are as follows:

Sealant

- **Sikaflex MS** – a single component, high performance elastic sealant based on a silicone-modified organic polymer. It is available in grey, white, black, bronze and ivory and is supplied in 300 ml cartridges, 375 ml cartridges (grey and white only) and 600 ml sachets (grey, white and black only).

Accessories

- **Sika Cleaner 205** – for use on difficult to bond surfaces, plastics and similar non-porous materials.
- **Sika Primer 3N** – for use on all porous surfaces, timber, concrete and concrete products, unglazed brick, mortar and other cement products.
- PEF backing rod.

Handling and Storage

5.1 The handling and storage of Sikaflex MS on site is the responsibility of the installer. Sikaflex MS has a shelf life of 12 months from the date of production if stored in unopened packaging under dry, cool conditions at temperatures of between 10°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 Sikaflex MS. 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 Sikaflex MS is designed to be used as a gap-filling sealant in building construction joints for the exclusion of moisture. It may be used in both interior and exterior locations, and along with its high elasticity and good adhesion, is suitable for use with a wide range of substrates.
- 7.2 Once cured, the sealant can be painted over with a water-based paint system. Sika [NZ] Ltd must be consulted for recommended painting systems.
- 7.3 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 sealant 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 Nos. 440 and 441 for further information.
- 7.4 Sika [NZ] Ltd recommends all moving joints should be designed to an optimum width to depth ratio of 2:1. This ratio is subject to the following overriding minimum sealant depths:
- 5 mm minimum bonding depth against metals, glass and other non-porous surfaces, providing that joint faces are in good condition.
 - 8 mm minimum bonding depth against masonry or other porous surfaces, or any non-porous surfaces where joint faces are in poor condition.
 - Shear joints shall be a minimum joint width to depth ratio of 1:2 up to a maximum of 1:1.
- 7.5 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.
- 7.6 The performance of Sikaflex MS makes it a suitable sealant for weather sealing exterior wall constructions. It is important however that the sealant/bond breaker rain screens are backed by a waterstop or an 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 weather sealing 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 weather sealed 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.
- 7.7 Good adhesion can be gained on most of the specified substrates without the use of primers. However, on some surfaces adhesion may be improved by the use of a primer. 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. Sika [NZ] Ltd must be consulted where doubt arises. Surface priming or activation must be undertaken in accordance with the instructions of Sika [NZ] Ltd.
- 7.8 Sika [NZ] 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 sealant both during normal use and maintenance of the building. Therefore durability requirements for the sealant will vary according to the situations in which it is used [e.g. exterior and interior use, exposed or covered].
- 8.2 Sikaflex MS 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 Sikaflex MS 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 Sikaflex MS is combustible and must not be used to seal around chimneys or flues where they penetrate walls. It must be separated from chimneys and flues in accordance with the requirements of NZBC Acceptable Solutions C/AS 1 – C/AS 6 Paragraph 7.5.9.

Control of Internal Fire and Smoke 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, Paragraph 4.2.2 [e] and NZBC Acceptable Solutions C/AS2 – C/AS6 Paragraph 4.17.6 [e]

External Moisture

- 12.1 Sikaflex MS is an equivalent sealant to those specified in NZBC Acceptable Solution E2/AS1 and may be used as a substitute when a sealant of this type is specified.
- 12.2 Sikaflex MS can be used with a range of exterior construction methods and materials to meet the requirements of NZBC E2. It 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 Sikaflex MS can be used to form an impervious joint 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.

Airborne and Impact Sound

- 14.1 Sikaflex MS may be used as a sealant to seal the perimeter of sound insulation elements in accordance with the requirements of Acceptable Solution G6/AS1, such as Figure 4 [Plan Detail D] and Figure 5 [Section Detail C].

Installation Information

Installation Skill Level Requirements

- 15.1 Sikaflex MS is for use by general tradespersons and handypersons in straightforward 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 in the Technical Literature and this Appraisal.

General

- 16.1 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.
- 16.2 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 Sikaflex MS. Cure rates will slow down as temperatures decrease.
- 16.3 Sealant application must be carried out when the sealant and substrate temperature is within the range of 5°C to 40°C.
- 16.4 Installation of the sealant can be undertaken using a hand 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 it, promoting adhesion to the joint walls.

Health and Safety

- 17.1 Safe use and handling procedures for Sikaflex MS are provided on the packaging. Additional information on the product is available in the Material Safety Data Sheet available from Sika [NZ] Ltd.

Basis of Appraisal

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

Tests

- 18.1 The following tests have been carried out on Sikaflex MS: paintability, adhesion to a number of substrates in line with the requirements of US Federal Specification TT-S-00230C, natural weathering tests for up to 11 years and accelerated weatherometer [UV] aging tests for up to 7000 hours.

Other Investigations

- 19.1 The New Zealand and Japanese use of Sikaflex MS including weathersealing and adhesion performance, durability and non-hazardous nature of the materials used has been reviewed by BRANZ.
- 19.2 Note has been taken of the fact that Sikaflex MS has performed successfully in New Zealand for 25 years.
- 19.3 A product data sheet and a Material Safety Data Sheet for Sikaflex MS have been obtained by BRANZ and found to be satisfactory.

Quality

- 20.1 The manufacture of the product has not been examined by BRANZ but details of quality and composition of the materials used were obtained and found to be satisfactory.
- 20.2 Quality of supply of the product to the market is the responsibility of Sika [NZ] Ltd.
- 20.3 Quality of installation of the product on site is the responsibility of the sealant installer.
- 20.4 The quality of installation of the substrates in accordance with the substrate manufacturers' instructions is the responsibility of the substrate installer.
- 20.5 Building designers are responsible for the design of the building, and for the incorporation of the sealant into their design in accordance with the instructions of Sika [NZ] Ltd.



Sources of Information

- BRANZ Bulletin No. 440 Sealed joints in external claddings – 1. Joint design.
- BRANZ Bulletin No. 441 Sealed joints in external claddings – 2. Sealants.
- Compliance Document for New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005 [Amendment 5, 1 August 2011].
- New Zealand Building Code Handbook Department of Building and Housing, Third Edition [Amendment 12, 10 October 2011].
- The Building Regulations 1992.



BRANZ Appraised
Appraisal No. 311 [2013]

BRANZ Appraisal
Appraisal No. 311 [2013]
25 March 2013

SIKAFLEX MS [BUILDING
SEALANT]



In the opinion of BRANZ, **Sikaflex MS [Building Sealant]** 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 **Sika [NZ] 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. **Sika [NZ] 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 **Sika [NZ] 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 **Sika [NZ] Ltd** or any third party.

For BRANZ

Pieter Burghout

Chief Executive

Date of Issue:

25 March 2013