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Ruj KPKT : KPKT.600-3/88/1(41)
Ruj Kami: AoA/BBPut/mswp01
Tarikh: 14 Disember 2021

Kepada : **BAHAGIAN PEMBANGUNAN**
Ibu Pejabat,
Jabatan Bomba dan Penyelamat Malaysia,
Tingkat 4, Lebuh Wawasan,
Presint 7, 62250, Putrajaya.

U/P : **PgB Asran Bin Sarip**
Penguasa Bomba Bahagian Pembangunan Jabatan Bomba dan Penyelamat Malaysia

Tuan,
Tajuk : **BALAI BOMBA DAN KUARTERS PUTATAN, SABAH**

Perkara: **Material Submission - Water Proofing**

Merujuk kepada perkara di atas, bersama-sama ini kami kemukakan dokumen berikut untuk kelulusan pihak tuan.

Material : Water Proofing
Brand : Sika Kimia Sdn Bhd
Dilampirkan sekali dokumen berikut:

1. Sijil SIRIM
2. Test Report

Sila hubungi kami sekiranya tuan memerlukan penjelasan lebih lanjut.

Sekian dan terima kasih,
Yang benar,
ALASIM OMAR ARCHITECT

LEMBAGA ARKITEK MALAYSIA

Ar. IDr. Datu Alasim bin Datu Omar
LAM Reg. Number : A/D 17
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Mobile : +6 013 - 39 75752

cc : - *Kementerian Perumahan dan Kerajaan Tempatan*
KPPK / KPKT / Wilayah 6
- *MTR Engineering Sdn. Bhd.*

SIRIM QAS International Sdn. Bhd.
(Company No.: 199601037981 (410334-X))
No.1, Persiaran Dato' Menteri, P.O.BOX 7035, Section 2,
40700 Shah Alam, Selangor Darul Ehsan, Malaysia
Tel: 03-55445872
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TEST REPORT

REPORT NO : 2020CB0459	PAGE : 1 OF 2

This Test Report refers only to samples submitted by the applicant to SIRIM QAS International Sdn. Bhd. and tested by SIRIM QAS International Sdn. Bhd. This Test Report shall not be reproduced, except in full and shall not be used for any purpose by any means or forms (including but not limited to advertising purposes) without written approval from the Chief Executive Officer, SIRIM QAS International Sdn. Bhd. Please refer the last page for Conditions Relating to the Use of Test Report.

THIS TEST REPORT IS ISSUED IN SECURED PDF SOFTCOPY

Applicant	: SIKA KIMIA SDN BHD Lot 689, Nilai Industrial Estate, 71800 Nilai Negeri Sembilan.
Manufacturer	: SIKA KIMIA SDN BHD
Product	: SikaTop®Seal-109 MY
Reference Standard / Method of Test	: BS EN 1542: 1999, Products and systems for the protection and repair of concrete structure-Test methods-Measurement of bond strength by pull off
Description of sample	: Two (2) pieces of concrete slab coated with SikaTop®Seal-109 MY (400 mm x 300 mm x 40 mm) were received for testing. Brand: SikaTop® Product Description: A two part cement based polymer modified waterproofing coating.
Date Received of Complete Application	: 07 July 2020
Job No.	: J20201430319
Description of Test Results	: The test results of the submitted test samples are described in Page 2 of this test report.
Issued Date	: 19 August 2020

Approved Signatory;

.....
(HANON NAZIR BIN MOHD BAKIR)
Senior Testing Executive

SIRIM QAS International Sdn. Bhd. CIVIL & CONSTRUCTION SECTION

.....
(RAJA NOR SIHA BINTI RAJA ABDUL HANAN)
Head
Civil & Construction Section
Testing Services Department

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TEST RESULTS:

Product : SikaTop®Seal-109 MY
Method of test : BS EN 1542: 1999,
Products and systems for the protection and repair of concrete structure-
Test methods-Measurement of bond strength by pull off
Date of casting : 22/6/2020
Date of testing : 20/7/2020 (28 days)

NO.	TYPE OF TEST METHODS	TEST RESULT
1.	Measurement of bond strength by Pull-Off using Portable Adhesion Tester between concrete substrate and SikaTop®Seal-109 MY	1) 0.82 N/mm² 2) 0.93 N/mm² 3) 0.76 N/mm² 4) 0.88 N/mm² 5) 0.78 N/mm² Mean : 0.83 ± 0.001 N/mm² <u>Mode of failure (Fracture pattern)</u> Adhesive failure between the SikaTop®Seal-109 MY and the substrate

Note:
1) Testing period – 20th July 2020 to 29th July 2020.
2) *Where the reported uncertainty is calculated using a coverage factor k=2, which gives a level of confidence of approximately 95%.*

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SIRIM QAS International Sdn. Bhd.
CIVIL & CONSTRUCTION SECTION

CONDITIONS RELATING TO THE USE OF SIRIM QAS INTERNATIONAL TEST REPORT

1. A Test Report will be issued in respect of Testing Services conducted and shall relate only to the sample actually tested. SIRIM QAS International makes no warranty whatsoever and the Applicant shall not represent in any manner that any duplication or mass production of the Product is same as the sample actually tested or that SIRIM QAS International has tested any of the duplicated or mass-produced Product. When a statement of conformity to a specification or standard is applied, the Measurement Uncertainty of test has been considered.

2. The Test Report shall not be amended, changed, varied or modified in any manner whatsoever by the Applicant or otherwise.

3. If the Test Report is to be furnished to any third party or to the public, each such Test Report shall be furnished in full, legible and in its entirety.

4. The Test Report shall not be reproduced and shall not in any event be used for any advertising purposes or whatsoever without written approval from the Head of Quality, Occupational Safety and Health & Environment (QOSHE) of SIRIM QAS International of No 1, Persiaran Dato' Menteri, Building 8, Section 2, P.O. Box 7035, 40700 Shah Alam, Selangor Darul Ehsan.

5. Customer (Applicant/Manufacture/Factory, etc.) is not permitted to use any SIRIM QAS International, SIRIM or other SIRIM's subsidiaries logo or words on packaging, sample's manual, technical specification, brochures/flyers or any other means without the prior written approval from the Head of Quality, Occupational Safety and Health & Environment (QOSHE) of SIRIM QAS International.

6. If such approval is obtained from the Head of Quality, Occupational Safety and Health & Environment (QOSHE) of SIRIM QAS International, the Applicant may only include the phrase, "A sample of this product has been tested by SIRIM QAS International (Test Report No) ... (dated) …. (for what test) … (to which standard)" or such similar words which stress that only the Sample was actually tested. This phrase shall only be used for the purpose of product advertisement or product promotion (eg; brochures). For avoidance of doubt, the statement shall not be used on the sample and packaging of the sample.

7. In the event there is an investigation from a Government Regulatory Agency concerning the Applicant's Test Report, SIRIM QAS International may disclose the information pertaining to the Test Report for purposes of such investigation.

8. Further or in the alternative, it is strictly forbidden unless with prior written approval from the Chief Executive Officer of SIRIM QAS International, to represent in any manner whatsoever that SIRIM QAS International, SIRIM and/or other SIRIM's subsidiaries has endorsed, approved or validated the Product of the Applicant in any manner whatsoever.

9. In the event the Applicant is found in breach of this provision, SIRIM QAS International, SIRIM and/or other SIRIM's subsidiaries without prejudice to any other rights and remedies may take whatever action necessary including but not limited to:
   a) Informing and placing a notice in the media;
   b) Obtaining an injunction from Court (cost on a solicitor-client basis to be borne by the Applicant);
   c) Refusing to accept any further Product for Testing Services from the Applicant or whosoever related to the Applicant, whether subsidiary or otherwise;
   d) Instructing the Applicant to withdraw and recall the advertisement, statement or document in question and advertise a clarification and apology to SIRIM QAS International, SIRIM and/or other SIRIM's subsidiaries twice in a national publication of SIRIM QAS International's choice at the Applicant's sole cost; and
   e) Informing or lodging a report pertaining the Applicant's Test Report with the relevant authorities.

10. SIRIM QAS International is committed in supporting an environmentally-friendly business practices by reducing paper consumption, therefore we do not issue any hard copy of Test Report to the Applicant. However, certified true copy(ies) of the Test Report may be issued upon request by the Applicant upon payment of the relevant fee.

11. Issuance of Amendment Report due to the following reasons are chargeable to the Applicant :
    a) Changes in details of the Applicant name and/or address;
    b) Changes in details of the Manufacturer's name and/or address;
    c) Changes in details of the Factory location name and/or address;
    d) Changes in details of the model and/or type designation

12. However, issuance of Supplementary Report due to the following reasons are FOC :
    a) Misprints and typo errors;
    b) Missing technical information as agreed in PP1 form;
    c) Test data not reported;
    d) Mistake in reporting of test data

13. Corrections to report shall only be allowed if the date of issuance of the original report has not exceeded 6 months and shall be limited to maximum 3 times, after either case whichever occurs earlier, an Amendment or a Supplementary Report shall not be issued.

BUILDING TRUST

PRODUCT DATA SHEET

SikaTop® Seal-109 MY

POLYMER-MODIFIED, FLEXIBLE, CEMENTITIOUS WATERPROOFING COATING

DESCRIPTION

SikaTop® Seal-109 MY is a cementitious, two-part, polymer-modified flexible waterproofing coating. It is applied to concrete and mortar to prevent water infiltration.

USES

Waterproofing, sealing of hairline cracks and as a protective coating against aggressive elements such as carbon dioxide (for example, in concrete repair work), frost and de-icing agents.
Areas of application include water tanks, basements, car parks, terraces, balconies, bridges, retaining walls, swimming pools, RC gutters, bathroom floors and walls, planter boxes, wet rooms for example kitchens, waste water treatment plants, shower rooms and laundries.

CHARACTERISTICS / ADVANTAGES

- Good crack bridging capability (up to 1 mm at +20 °C)
- Pre-batched components
- Mixes and applies easily
- Easily applied by roller or brush
- Good adhesion to sound substrates
- Impermeable
- Increased frost and salt resistance
- Decreases carbon dioxide penetration
- Non-toxic, same as cement
- Flexible
- Resistant to freezing and thawing (-10 °C)
- Economical

APPROVALS / STANDARDS

Singapore Green Label: 022-085-2370 "Eco-Friendly Building Material"

PRODUCT INFORMATION

Chemical Base	Polymer modified Portland cement	
Packaging	Part A	10 kg
	Part B	26 kg
	Part A + B	36 kg set
Appearance / Colour	Part A	White liquid
	Part B	Grey powder
	Parts A + B (mixed)	Dark grey slurry
Shelf Life	6 months from the date of production	
Storage Conditions	Store properly in original, unopened and undamaged sealed packaging, in cool, dry conditions. Keep away from direct sunlight. Protect from rain, condensation and high humidity.	
Density	1.7–1.9 kg/l (mixed)	

TECHNICAL INFORMATION

Tensile Strength	~0.7 N/mm²	(ASTM D412-06a, Dumbell A test piece)
Elongation at Break	> 100 %	(ASTM D412-06a, Dumbell A test piece)
Tensile Adhesion Strength	~0.8 N/mm²	(EN 1542, 20 mm Ø dolly)
Permeability to Water Vapour	< 5 m	(BS EN ISO 7783:2011, Wet Cup Method A)
Capillary Absorption	< 0.1 kg/m². $h^{0.5}$	(EN 1062-3)
Permeability to Carbon Dioxide	> 50 m	(BS EN 1062-6: 2002, Method B)

APPLICATION INFORMATION

Consumption	For bathroom floors, shower area floors and wet kitchen floors, minimum 2 coats at approximately 1.0 kg/m² per coat. Splash zone area of wall with tiles, eg. bathroom wall, shower area wall and wet kitchen wall, 1 coat at approximately 1.0–1.5 kg/m² per coat. All other areas, minimum 2 coats at approximately 1.0 kg/m² per coat. For areas subject to high water ingress, apply a third coat at 1.0 kg/m².
Ambient Air Temperature	min. +8 °C
Substrate Temperature	min. +8 °C
Pot Life	~30 minutes (at +20 °C) Pot life is shorter at higher temperatures. Cover material container when not in use.

APPLICATION INSTRUCTIONS

SUBSTRATE QUALITY / PRE-TREATMENT

Concrete, mortar and masonry surfaces must be clean, free from grease, oil and loosely adhering particles. Steel and iron surfaces must be clean, free from scale, rust, grease and oil. All surfaces must be as true and flat as possible.

Substrate Preparation

Absorbent surfaces have to be thoroughly saturated with water prior to application of first coat of SikaTop® Seal-109 MY. However, no loose standing water should be on the surface before application.

MIXING

Under normal circumstances, when the full quantities of both parts are mixed together, a creamy consistency will result. Mix in a clean container by slowly adding the powder part to the liquid part and stirring with a paddle attached to a slow speed mixer (400 - 500 rpm).

APPLICATION

Whilst the substrate is still damp but free from standing water, apply the first coat by brush, broom, roller or squeegee (if the surface is flat enough), working the material well into the substrate to achieve full bond. Allow 4–8 hours (+20 °C) for the first coat to cure before applying the following coats in the same manner. For large areas, SikaTop® Seal-109 MY can be applied by spray using a suitable worm type mixer/pump. An additional stripe coat is recommended over cracks, wall/floor intersections, etc. as these locations are where movement is most likely to be expected in service.

CLEANING OF TOOLS

Clean all tools and application equipment with water immediately after use. Hardened or cured material can only be mechanically removed.

LIMITATIONS

Never apply more than 2 kg/m² of SikaTop® Seal-109 MY in a single layer.
For better keying, a bonding coat is recommended using a mixture of SikaLatex®, cement, water and fine sand. For details, please refer to our SikaLatex® product data sheet.

BASIS OF PRODUCT DATA

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

ECOLOGY, HEALTH AND SAFETY

For information and advice on the safe handling, stor-

age and disposal of chemical products, users shall refer to the most recent Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety-related data.

LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

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