SIRIM QAS International Sdn. Bhd.
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TEST REPORT

REPORT NO : 2020CB0696	PAGE : 1 OF 6

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THIS TEST REPORT IS ISSUED IN SECURED PDF SOFTCOPY

Applicant	: INDUSTRIAL, CONSUMER CERTIFICATION & INSPECTION SECTION PRODUCT CERTIFICATION & INSPECTION DEPARTMENT (Attn : Mr. Irfan bin Abdullah Khalit) Licensee : ALAM-CON SDN. BHD. PT 9125, Taman Perindustrian Tungzen, 31300, Kampung Kepayang, Perak Darul Ridzuan.
Manufacturer	: ALAM-CON SDN. BHD. PT 9121 – PT9126, PT 23075 & PT 23076, Taman Perindustrian Tungzen, 31300, Kampung Kepayang, Perak Darul Ridzuan.
Product	: Autoclaved Aerated Concrete Masonry Units (Block)
Reference Standard / Method of Test	: BS EN 771-4: 2011 Specification for masonry Units – Part 4: Autoclaved Aerated Concrete Masonry Units.
Description of sample	: Forty (40) pieces Autoclaved Aerated Concrete Masonry Units (Block) were received for testing through Industrial, Consumer Certification & Inspection Section. (File No : P5-006338, License No. : PC000414, Dated : 09/09/2020) Nominal Size : 600 mm x 200 mm x 200 mm Trade Mark : ACON, Model : A5
Date Received of Complete Application	: 15 September 2020
Job No.	: J20201430526
Description of Test Results	: The test results of the submitted test samples are described in Page 2 to 6 of this test report.
Issued Date	: 27 November 2020

Approved Signatory;

SIRIM QAS International Sdn. Bhd. CIVIL & CONSTRUCTION SECTION

(MOHD HAFIZ BIN MOHD NASIR)	(HANIA NOR SIHA BINTI RAJA ABDUL HANAN)
Testing Executive	Head Civil & Construction Section Testing Services Department

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TEST RESULT :

Product	:	Autoclaved Aerated Concrete Masonry Units (Block)
Size	:	600 mm x 200 mm x 200 mm
Trade Mark	:	ACON
Reference Standard/ Method of test	:	600 mm x 200 mm x 200 mm 1) BS EN 771-4 : 2011 Specification for Masonry Units – Part 4: Autoclaved Aerated Concrete Masonry Units. 2) BS EN 772-16: 2011, Methods of test for masonry units – Part 16: Determination of Dimension
Testing location / date	:	Block 22, SIRIM Shah Alam - 6/10/2020

CLAUSE	SPECIFICATION	TEST RESULTS			REMARK
		Length (mm)	Width (mm)	Height (mm)	
5.2 5.2.1	Dimensions and tolerances Dimensions The manufactured dimensions shall be declared	**600**	**200**	**200**	
	Maximum dimensions for AAC masonry unit Maximum Length : 1500 mm Maximum Width : 600 mm Maximum Height : 1000 mm				
5.2.2 5.2.2.1	Tolerances Permissible deviations for regular shaped units				Pass
	General purpose and lightweight mortar (GPLM) Length: +3 mm -5 mm Width : +3 mm -3 mm Height : +3 mm -5 mm	1) 600 2) 600 3) 600 4) 601 5) 600 6) 601	200 200 200 199 200 200	200 200 200 200 200 200	
	Average :	**600**	**200**	**200**	

Note : Level of confidence of approximately 95%

SIRIM QAS International Sdn. Bhd. CIVIL & CONSTRUCTION SECTION

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TEST RESULT :

Product	:	Autoclaved Aerated Concrete Masonry Units (Block)
Size	:	600 mm x 200 mm x 200 mm
Trade Mark	:	ACON
Reference Standard/ Method of test	:	600 mm x 200 mm x 200 mm 1) BS EN 771-4 : 2011 Specification for Masonry Units – Part 4: Autoclaved Aerated Concrete Masonry Units. 2) BS EN 772-13: 2011, Methods of test for masonry units – Part 13: Determination of net & gross dry density of masonry units (except for natural stone)
Declared value	:	650 kg/m^3
Testing location / date	:	Block 22, SIRIM Shah Alam - 26/10/2020

CLAUSE	SPECIFICATION	TEST RESULTS	REMARK
5.4 5.4.1	Density Gross dry density The gross dry density shall be declare in kilogram per cubic meters (kg/m^3)	<u>Gross and Net Dry Density</u>	Pass
5.4.2	Net dry density When relevant to the uses for which AAC units are put on the market, the manufacturer shall declare the net dry density of AAC masonry unit kg/m^3.	1) 640 kg/m^3 2) 630 kg/m^3 3) 640 kg/m^3 4) 600 kg/m^3	
5.4.3	Limit deviations The limit deviation of the measured dry density from the declared value shall not exceed ± 50 kg/m^3.	5) 620 kg/m^3 6) 640 kg/m^3 **Mean: 630 kg/m^3** **Nearest to 10 kg/m^3**	

Note : Level of confidence of approximately 95%

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TEST RESULT :

Product	:	Autoclaved Aerated Concrete Masonry Units (Block)
Size	:	600 mm x 200 mm x 200 mm
Trade Mark	:	ACON
Reference Standard/ Method of test	:	600 mm x 200 mm x 200 mm 1) BS EN 771-4 : 2011 Specification for Masonry Units – Part 4: Autoclaved Aerated Concrete Masonry Units. 2) BS EN 772-1: 2011, Methods of test for masonry units – Part 1: Determination of Compressive Strength Clause 7.3.4: Conditioning to 6 % moisture content
Declared value	:	5.0 N/mm^2
Testing location / date	:	Block 22, SIRIM Shah Alam - 19/10/2020

CLAUSE	SPECIFICATION	TEST RESULTS	REMARK
5.5	Compressive Strength The strength of the masonry units in compression shall be declared in N/mm^2 by the manufacturer and shall not be less than 1.5 N/mm^2. The compressive strength shall not be less than the declared value and no individual AAC masonry unit shall have a compressive strength at less than 80% of the mean declared value.	<u>Compressive Strength</u> 1) 4.2 N/mm^2 2) 5.5 N/mm^2 3) 5.1 N/mm^2 4) 5.4 N/mm^2 5) 4.9 N/mm^2 6) 5.4 N/mm^2 **Mean: 5.1 N/mm^2**	Pass

Note : Level of confidence of approximately 95%

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TEST RESULT :

Product	:	Autoclaved Aerated Concrete Masonry Units (Block)
Size	:	600 mm x 200 mm x 200 mm
Trade Mark	:	ACON
Reference Standard/ Method of test	:	1) BS EN 771-4 : 2011 Specification for Masonry Units – Part 4: Autoclaved Aerated Concrete Masonry Units. 2) *BS EN 680 : 2011, Determination of the drying shrinkage autoclaved aerated concrete. 3) *BS EN 678 : 1994, Determination of the dry density of autoclaved aerated concrete
Testing location / date	:	Block 22, SIRIM Shah Alam – 11/11/2020

Clause	***Specification/ Test Methods***	***Test Results***				
		Moisture Content (%)	***Relative length change (mm/m)***	***The Conventional value of Drying Shrinkage (mm/m)***	***The Total value of Drying Shrinkage (mm/m)***	***Dry Density (kg/m^3)***
5.8	Moisture movement*	***30.0*** ***6.0***	***0.94 ± 0.008*** ***1.46 ± 0.008***	***$\varepsilon_{cs,\ ref}$ = 0.52 ± 0.008*** *Refer to Figure 1*	***$\varepsilon_{cs,\ tot}$ = 4.97 ± 0.008***	***680 ± 2***

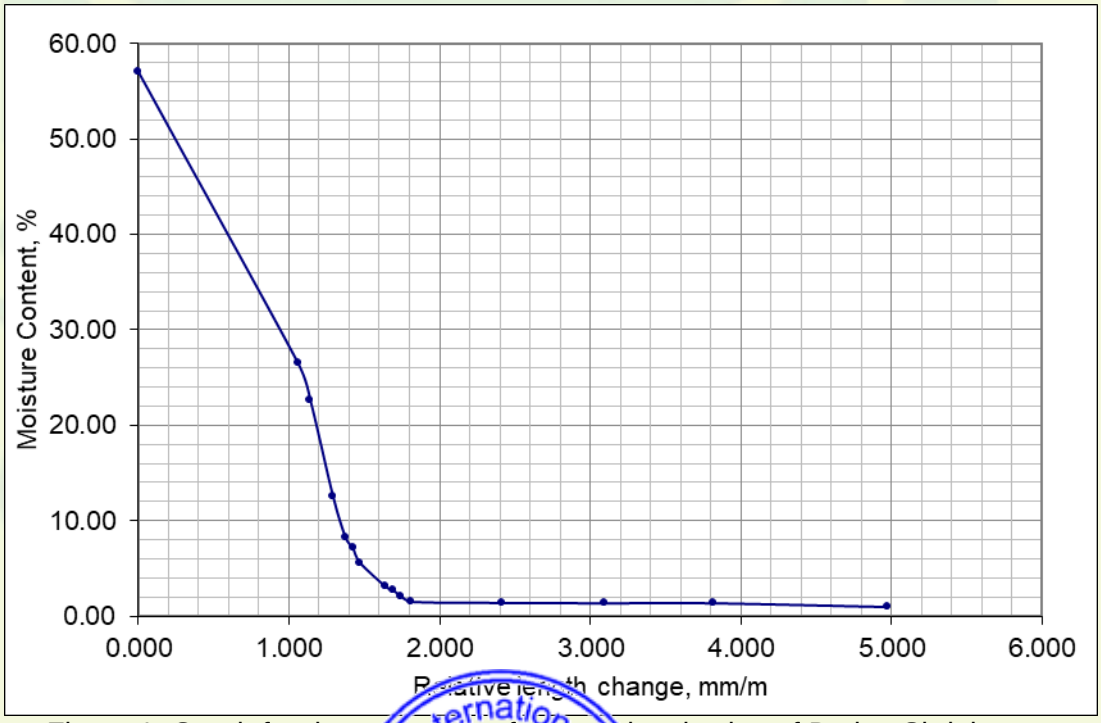

Figure 1: Graph for determination of conventional value of Drying Shrinkage for 600 mm x 200 mm x 200 mm

Note *: Not SAMM Accredited
Note : 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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Product	:	Autoclaved Aerated Concrete Masonry Units (Block)
Size	:	600 mm x 200 mm x 200 mm
Trade Mark	:	ACON
Reference Standard/ Method of test	:	1) BS EN 771-4 : 2011 Specification for Masonry Units – Part 4: Autoclaved Aerated Concrete Masonry Units. 2) BS EN 772-11: 2011, Methods of test for masonry units – Part 11: Determination of water absorption due to capillary action for aggregate concrete natural stone & manufactured stone masonry units.
Testing location / date	:	Block 22, SIRIM Shah Alam – 23/10/2020

CLAUSE	SPECIFICATION	TEST RESULTS	REMARK
5.10	Water Absorption When relevant to the uses for which the unit is put on the market and for all units intended to be used in external elements with exposed face, the maximum water absorption of the masonry units at time of 10 min, 30 min and 90 min shall be declared by manufacturer.	<u>10 minutes</u> 1) 121.6 g/m^2.s$^{0.5}$ 2) 289.3 g/m^2. s$^{0.5}$ **Mean: 205.5 ± 9.2 g/m^2.s$^{0.5}$** <u>30 minutes</u> 1) 113.5 g/m^2. s$^{0.5}$ 2) 103.4 g/m^2. s$^{0.5}$ **Mean: 108.5 ± 9.2 g/m^2.s$^{0.5}$** <u>90 minutes</u> 1) 96.4 g/m^2. s$^{0.5}$ 2) 89.7 g/m^2. s$^{0.5}$ **Mean: 93.1 ± 9.2 g/m^2.s$^{0.5}$**	Declared by manufacturer

Note : Where the reported uncertainty is calculated using a coverage factor k= 2, which gives a level of confidence of approximately 95%.

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.