



**SIRIM QAS International Sdn. Bhd.**  
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## TEST REPORT

REPORT NO : 2021CB0086

PAGE : 1 OF 7

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### THIS TEST REPORT IS ISSUED IN SECURED PDF SOFTCOPY

**Applicant** : ALAM-CON SDN. BHD.  
PT 9125, Taman Perindustrian Tungzen,  
31300, Kampung Kepayang,  
Perak Darul Ridzuan.  
  
File No. : P5-006338 / PC000414, Date : 18 November 2020  
(Requested by Mr. Irfan Bin Abdullah Khalit, ICCS / PCID,  
SIRIM QAS International Sdn. Bhd.)

**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.  
Nominal Size : 600 mm x 200 mm x 200 mm  
Trade Mark : ACON, Model : A3

**Date Received of Complete Application** : 07 December 2020

**Job No.** : J20201430769

**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** : 17 February 2021

Approved Signatory;

(MOHD HAFIZ BIN MOHD NASIR)  
Testing Executive



(NOR SIHA BINTI RAJA ABDUL HANAN)  
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/ : 1) BS EN 771-4 : 2011  
 Method of test : 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 - 15/12/2020

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	Pass
5.2.2 5.2.2.1	Maximum dimensions for AAC masonry unit Maximum Length : 1500 mm Maximum Width : 600 mm Maximum Height : 1000 mm  Tolerances Permissible deviations for regular shaped units  General purpose and lightweight mortar (GPLM) Length: +3 mm -5 mm Width : +3 mm -3 mm Height : +3 mm -5 mm	1) 599 2) 600 3) 601 4) 600 5) 600 6) 600	199 199 199 200 198 199	200 200 199 200	
	<b>Average :</b>	<b>600</b>	<b>199</b>	<b>200</b>	

Note : Simple Acceptance Rule is used for the conformity statement. The level of risk regarding the probability of False Accept is up to 50 %.



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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 772-13: 2011, Methods of test for masonry units – Part 13: Determination of net & gross dry density of masonry units (except for natural stone)  
 Testing location / date : Block 22, SIRIM Shah Alam - 05/01/2021

CLAUSE	SPECIFICATION	TEST RESULTS	REMARK
5.4 5.4.1 5.4.2 5.4.3	Density Gross dry density The gross dry density shall be declare in kilogram per cubic meters ( kg/m <sup>3</sup> ) 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 <sup>3</sup> . Limit deviations The limit deviation of the measured dry density from the declared value shall not exceed $\pm 50$ kg/m <sup>3</sup> .	<u>Gross and Net Dry Density</u>  1) 590 kg/m <sup>3</sup> 2) 560 kg/m <sup>3</sup> 3) 580 kg/m <sup>3</sup> 4) 600 kg/m <sup>3</sup> 5) 550 kg/m <sup>3</sup> 6) 570 kg/m <sup>3</sup>  <b>Mean: 580 <math>\pm</math> 2 kg/m<sup>3</sup></b> <b>Nearest to 10 kg/m<sup>3</sup></b>	Declared by manufacturer

Note : a) where the reported uncertainty is calculated using a coverage factor k=2, which gives a level of confidence of approximately 95%.  
 b)\* Denotes measurement uncertainty



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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/ : 1) BS EN 771-4 : 2011  
 Method of test : 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 : 3.0 N/mm<sup>2</sup>  
 Testing location / date : Block 22, SIRIM Shah Alam - 7/1/2021

CLAUSE	SPECIFICATION	TEST RESULTS	REMARK
5.5	Compressive Strength The strength of the masonry units in compression shall be declared in N/mm <sup>2</sup> by the manufacturer and shall not be less than 1.5 N/mm <sup>2</sup> . 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) 4.6 N/mm <sup>2</sup> 2) 3.9 N/mm <sup>2</sup> 3) 3.9 N/mm <sup>2</sup> 4) 3.7 N/mm <sup>2</sup> 5) 3.8 N/mm <sup>2</sup> 6) 3.6 N/mm <sup>2</sup>  <b>Mean: 3.9 N/mm<sup>2</sup></b>	Pass

Note : Simple Acceptance Rule is used for the conformity statement. The level of risk regarding the probability of False Accept is up to 50 %.



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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 - 08/01/2021

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 <sup>3</sup> )
5.8	Moisture movement	30.0 6.0	0.480 ± 0.008* 1.020 ± 0.008*	$\epsilon_{cs, ref} = 0.540 \pm 0.008^*$ Refer to Figure 1	$\epsilon_{cs, tot} = 1.573 \pm 0.008^*$	560 ± 2*

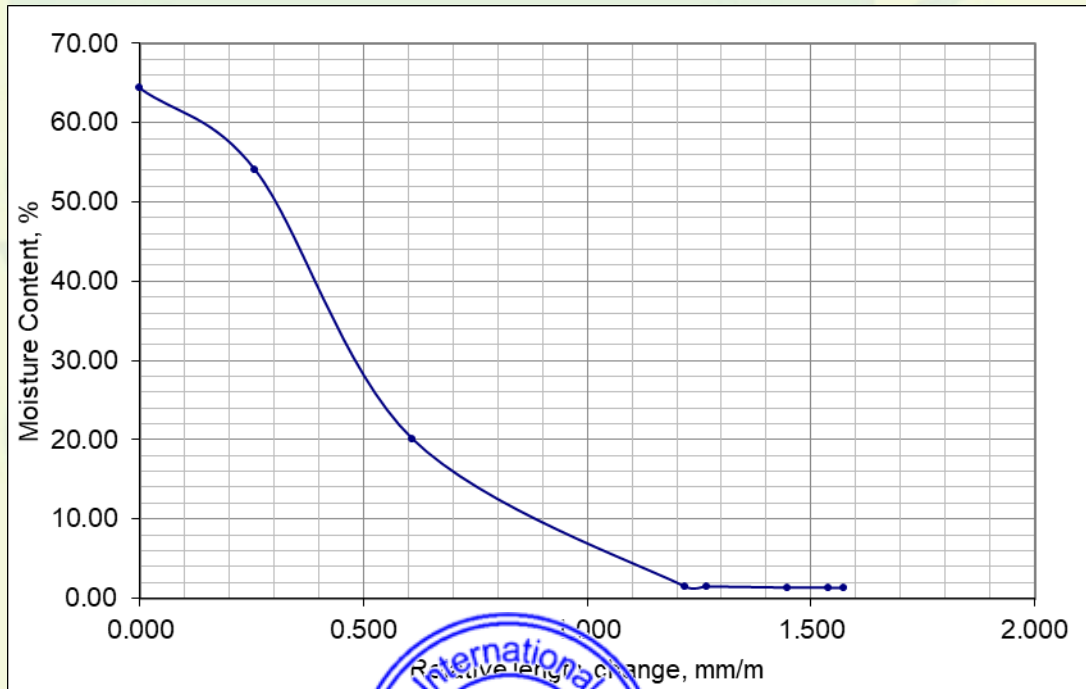


Figure 1: Graph for determination of conventional value of Drying Shrinkage for 600 mm x 200 mm x 200 mm

Note: a)\*\* Not SAMM Accredited

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

b) \* Denotes measurement uncertainty



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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 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 - 08/01/2021

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) 155.7 g/m <sup>2</sup> .s <sup>0.5</sup> 2) 188.4 g/m <sup>2</sup> .s <sup>0.5</sup> <b>Mean: 172.1 ± 9.2 g/m<sup>2</sup>.s<sup>0.5</sup></b>  <u>30 minutes</u> 1) 159.3 g/m <sup>2</sup> .s <sup>0.5</sup> 2) 161.7 g/m <sup>2</sup> .s <sup>0.5</sup> <b>Mean: 160.5 ± 9.2 g/m<sup>2</sup>.s<sup>0.5</sup></b>  <u>90 minutes</u> 1) 131.9 g/m <sup>2</sup> .s <sup>0.5</sup> 2) 132.1 g/m <sup>2</sup> .s <sup>0.5</sup> <b>Mean: 132.0 ± 9.2 g/m<sup>2</sup>.s<sup>0.5</sup></b>	Declared by manufacturer

Note : a) where the reported uncertainty is calculated using a coverage factor k=2, which gives a level of confidence of approximately 95%.  
 b)\* Denotes measurement uncertainty



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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. Measurement uncertainty shall be included in the Test Report when there is no statement of conformity required. When a statement of conformity to a specification or standard is applied, the Simple Acceptance Rule is used. Unless otherwise stated, the Acceptance Rule with Guard Band is used.
2. The Test Report shall not be misused, 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, items and products.
6. Subject to consent and written approval from the Head of Quality, Occupational Safety and Health & Environment (QOSHE) of SIRIM QAS International, the customer (Applicant/Manufacture/Factory,etc.) may use SIRIM QAS International logo or word on the promotional materials and the Applicant shall 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/flyers/official website). For avoidance of doubt, the statement shall not be used on the sample, packaging of the sample, items and products.
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, additional certified true copy(ies) or softcopy of the Test Report may be issued upon request by the Applicant upon payment of the relevant fee. The certified true copy(ies) or softcopy of test report shall only be given for test report issued not more than three (3) years from the date of issuance.
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 a maximum 3 times, after either case whichever occurs earlier, an Amendment or a Supplementary Report shall not be issued.