SOUTH QUALITY

PROFICIENCY TESTING PROVIDER

REPORT No 11420

Date of issue: *November 4, 2025*

Status: FINAL REPORT

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ISO 16536

THERMAL INSULATING PRODUCTS FOR BUILDING APPLICATIONS - DETERMINATION OF LONG-TERM WATER ABSORPTION BY DIFFUSION -

Program: SQ-0503.V2

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Prepared by:	Reviewed by:	Approved by:
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TABLE OF CONTENTS

1. FOREWORD

This report summarizes the results of the **SQ-0503.V2** proficiency testing program on the determination of the long-term water absorption of test specimens by diffusion. This program is conducted in a bilateral format, following the A.3.3 classification of the ISO 17043 standard ("Split-sample testing schemes").

South Quality conducted the testing program in October 2025 with the aim of assessing the laboratory's ability to competently perform the designated tests.

2. ORGANIZATION

Program Coordinator:	Lic. Esther Casas
Assistant Technicians:	Berenice Ferrel
Statistic:	Lic. Manuel Tozaki
Supervision:	Eng. Emiliano Medina

3. OBJECTIVE

The objective of this proficiency testing program is to determination of the long-term water absorption of test specimens by diffusion, using the following standard:

Standard
ISO 16536: 2019

To verify this, foam insulation samples have been selected.

Participants in this program have not been previously informed about the expected values or value ranges of the samples they receive.

4. PARTICIPANT

Company:	**ITECONS**
Laboratory:	**Measurement and Testing Unit - Hygrothermics Division**
Country:	Portugal
Client ID:	E483
Contact person:	Rita Raposo Senior Testing Engineer qualidade@itecons.uc.pt

5. HOMOGENEITY

Several batches were prepared identically by the staff at South Quality.

Subsequently, a homogeneity study was conducted with an ISO 17025 accredited laboratory.

The control process followed ISO Guide 35: 2017, clause 7.4.1.2. Stratified random sampling was employed, and samples were chosen using random number generation software.

The results of this test are presented below:

Size of each batch: **60 units** Tested samples from each batch: **20 units**

DETERMINATION	HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES		
	BATCH: LP1763	BATCH: LP1764	BATCH: LP1765
W_{dv}	YES	YES	NO

Samples for this program are taken from the selected batch identified as LP1763.

For the indicated batch, the values determined in the homogeneity study are utilized as the assigned values.

The analysis of the test data indicated that the selected samples exhibited sufficient homogeneity for the program. Therefore, the results of participants identified as outliers cannot be attributed to sample variability.

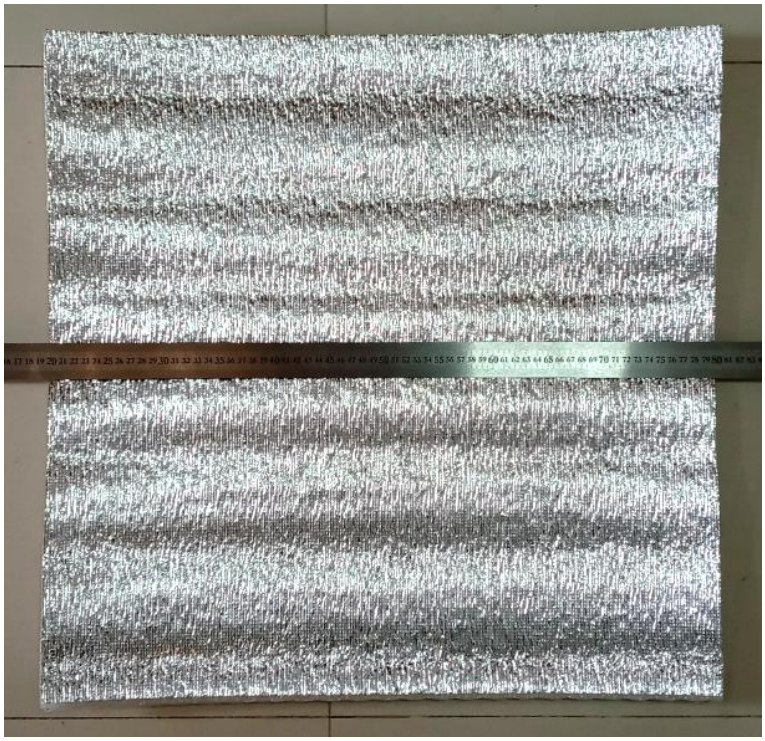
6. SAMPLE INFORMATION

The following samples were t to be tested:

Batch:	LP1763
Sample ID:	04 + 15
Characteristics:	Aluminized polyethylene foam insulation - 60 x 60 x 1 cm

7. IMAGES

SAMPLES



8. ASSIGNED VALUES

BATCH	W_{dv}	
	(%)	SD
LP1763	3.5	0.34

9. PARTICIPANT RESULTS (SEE APPENDIX)

BATCH	W_{dv} (%)
LP1763	3.8

10. STATISTICS

The results must be treated as quantitative.

The comparison is made according B.3.1.3 of ISO 17043 and the appropriate technique is to compare participant results with the assigned values. The results can be compare using percent difference ***z score.***

$$z = \frac{x - X}{\hat{\sigma}}$$

x is the participant's result

X is the assigned value

$\hat{\sigma}$ is the standard deviation

The performance evaluation of each sample is carried out with the following criteria:

$|z| \leq 2.0$ indicates "satisfactory" performance and generates no signal;

$2.0 < |z| < 3.0$ indicates "questionable" performance and generates a warning signal;

$|z| \geq 3.0$ indicates "unsatisfactory" performance and generates an action signal;

11. EVALUATION OF PERFORMANCE

BATCH	W_{dv} (%)		| z score |	PERFORMANCE RESULT
	PARTICIPANT RESULT	ASSIGNED VALUE		
LP1763	3.8	3.5	**0.88**	**SATISFACTORY**

12. CONCLUSIONS

The overall performance on this **SQ-0503.V2** program from the participant laboratory **ITECONS - Measurement and Testing Unit - Hygrothermics Division**, is **SUFFICIENT** based on expected results.

The criteria used for the evaluation of the overall performance is the following:

- **SUFFICIENT** performance: No unsatisfactory/questionable result was obtained.
- **ALMOST SUFFICIENT** performance: A questionable result was obtained
- **INSUFFICIENT** performance: An unsatisfactory result was obtained.

APPENDIX A

INSTRUCTIVE

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INSTRUCTIVE

PROGRAM:	Thermal insulating products for building applications - Determination of long-term water absorption by diffusion -
CODE:	SQ-0503
VERSION:	2
STANDARD:	ISO 16536
COORDINATOR:	Lic. Esther Casas (ecasas@ptsouthquality.com)

DSQ-012 - REV 03 - SQ-0503.V2 1 de 3

1 - General

This document is a guide for managing the results of the SQ-0503.V2 program.

2 - Standard

ISO 16536: 2019

3 - Tests involved

TEST
Determination of the long-term water absorption of test specimens by diffusion

4 - Samples

CODE	SAMPLE	QUANTITY
LP1763-004 LP1763-015	Aluminized polyethylene foam insulation - 60 x 60 x 1 cm	2

5 - Notes

a) Being a bilateral program there is no deadline to accomplish sending results.
b) Participants must submit the results in the usual report used by their laboratory.
c) The samples must be kept until the end of the program, which closes with the submission of the final report.
d) To review the results, sending images of the tests will be appreciated. Images can be attached to the end of this document or inserted into your regular report.

PHOTOGRAPHS

APPENDIX B

PARTICIPANT RESULTS (TEST REPORT #ISO 047/25)

itecons
MEASUREMENT AND TESTING UNIT

IPAC acreditação L0446 ISO/IEC 17025 Ensaios — ilac-MRA

Test Report

Report nº. ISO 047/25 **Date of issue:** 24-03-2025

Determination of long-term water absorption by diffusion of thermal insulating products for building applications (Test method: EN ISO 16536:2019)

Data of the customer:

Customer: PT SOUTH QUALITY SAS (SQ-0503.V2 program)
Address: ---
Tel. --- **e-mail:** ecasas@ptsouthquality.com

Data relating to the sample tested:

Product designation*: aluminized polyethylene foam insulation
Material description*: --- **Standard:** ---
Origin of test specimens*: South Quality
Sampling responsibility*: Customer. Sampling is outside the scope of Accreditation.
Test site: Itecons

Results:

	Specimen 1	Specimen 2
Specimen reference:	ISO001A/24.1	ISO001A/24.2
Production code number*:	---	---
Packaging:	Polyethylene Film	Polyethylene Film
Form in which the product arrived:	In good condition	In good condition
Date of receipt of the specimen:	04-01-2024	04-01-2024
Length (mm):	501,0	500,0
Width (mm):	501,0	500,0
Area of the test specimen, A_p (m^2):	0,251	0,250
Thickness of the specimen, d (mm):	9,40	9,50
Nominal thickness (mm)*:	10	10
Start date:	16-01-2024	15-02-2024
Duration of the test (days):	28	28
End date:	13-02-2024	14-03-2024
Conditioning:	> 6h at (23±2)ºC, (50±5)%HR	> 6h at (23±2)ºC, (50±5)%HR
Initial mass of the test specimen, m_o (kg):	0,0519	0,0520
Final mass of the test specimen, m_D (kg):	0,1326	0,1512
W_{dpi} (kg/m^2):	0,32	0,40
W_{dvi} (%):	3,4	4,2
Test performed by:	António Nascimento	António Nascimento

Final test result:

W_{dp} (1): 0,36 ± 0,53 kg/m^2
W_{dv} (2): 3,8 ± 1,7 %

(1) The expanded measurement uncertainty, shown according to document ILAC-G17, is expressed by the combined standard uncertainty multiplied by the expansion factor k = 14,0, which, for a normal distribution corresponds to a level of confidence of approximately 95 %. The expanded measurement uncertainty does not include the sampling step.
(2) The expanded measurement uncertainty, shown according to document ILAC-G17, is expressed by the combined standard uncertainty multiplied by the expansion factor k = 4,5, which, for a normal distribution corresponds to a level of confidence of approximately 95 %. The expanded measurement uncertainty does not include the sampling step.

Observations:

General: The sample was collected by the customer.
Remarks concerning test specimens and test procedure: All requirements of the standard were met.

Report author	Technical responsibility	Administration
António Nascimento, Senior Official	Nuno Simões, Technical and Scientific Supervisor	Validated document

Notes: The presented results refer exclusively to the tested specimens and apply to the sample as received.
Data reported with * was supplied by the customer, who has the sole responsibility for the accuracy of the information.
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Mod. ISO.06.RE.01.V13.03.2025_EN Page 1/1

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