SOUTH QUALITY

PROFICIENCY TESTING PROVIDER

REPORT No 11423

Date of issue: *November 20, 2025*

Status: FINAL REPORT

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IEC 61034-2

MEASUREMENT OF SMOKE DENSITY OF CABLES BURNING UNDER DEFINED CONDITIONS

Program: SQ-2543

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1. FOREWORD

This report summarizes the results of the **SQ-2543** proficiency testing program on the measurement of the density of smoke emitted by burning cables. 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:	Eng. Erika Brest
Assistant Technician:	Mateo Giovanni
Statistic:	Lic. Manuel Tozaki
Supervision:	Eng. Emiliano Medina

3. OBJECTIVE

The objective of this proficiency testing program is to determine the light transmittance (%), using the following standard:

Standard
IEC 61034-2: 2019 (Ed. 3.2)

To verify this, batches of cables have been selected.

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

4. PARTICIPANT

Company:	**Techmultlab Ensaios Ltda**
Laboratory:	**Techmultlab**
Country:	Brazil
Client ID:	C111
Contact person:	Marco Patriarca Qualidade qualidade@techmultlab.com.br

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: **40 samples** Tested samples from each batch: **8 samples**

DETERMINATION	PVC CABLES - HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES		
	BATCH: LEM3305	BATCH: LEM3306	BATCH: LEM3307
Light transmittance	YES	YES	NO

Size of each batch: **40 samples** Tested samples from each batch: **8 samples**

DETERMINATION	LSOH CABLES - HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES		
	BATCH: LEM3406	BATCH: LEM3407	BATCH: LEM3408
Light transmittance	YES	YES	YES

Samples for this program are taken from the selected batches identified as LEM3306 and LEM3408.

For the indicated batches, 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 sent for testing:

Batch:	LEM3306
Sample ID:	07
Characteristics:	Black flexible cable 1 x 1 mm^2 - Cu/PVC - 50 m

Batch:	LEM3408
Sample ID:	04
Characteristics:	Red flexible cable 1 x 1.5 mm^2 - Cu/LSOH - 50 m

7. IMAGES

SAMPLES

8. ASSIGNED VALUES

BATCH	MINIMUM LIGHT TRANSMITTANCE	
	(%)	SD
LEM3306	0.46	0.04
LEM3408	49.8	3.53

9. PARTICIPANT RESULTS (SEE APPENDIX)

CODE	MINIMUM LIGHT TRANSMITTANCE (%)
LEM3306-07	0.51
LEM3408-04	50.66

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	MINIMUM LIGHT TRANSMITTANCE (%)		| z score |	PERFORMANCE RESULT
	PARTICIPANT RESULT	ASSIGNED VALUE		
LEM3306	0.51	0.46	**1.25**	**SATISFACTORY**
LEM3408	50.66	49.8	**0.45**	**SATISFACTORY**

12. CONCLUSIONS

The overall performance on this **SQ-2543** program from the participant laboratory **Techmultlab Ensaios Ltda**, is **SUFFICIENT** based on expected results.

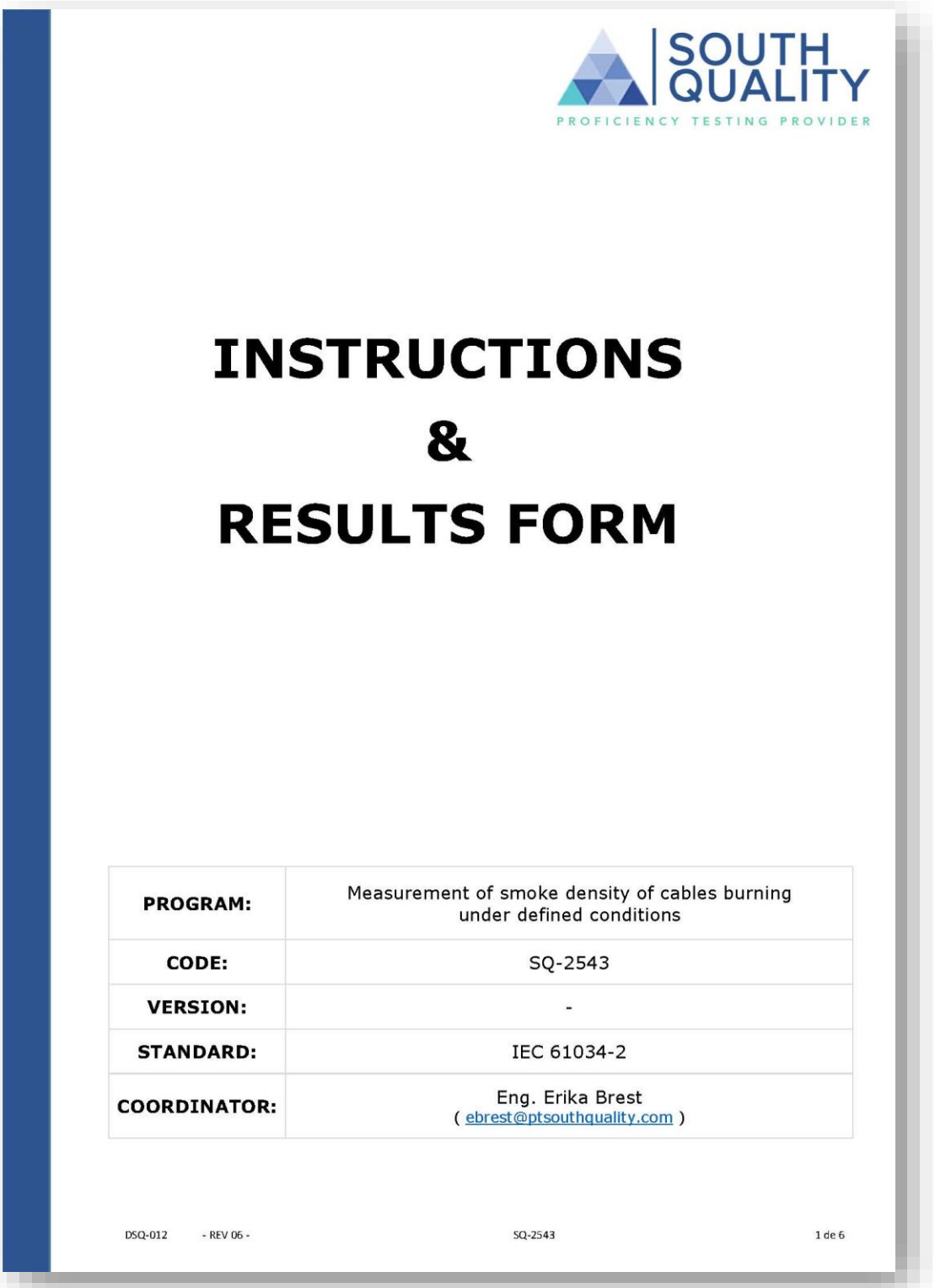
The criteria used for evaluating the overall performance are as follows:

- **SUFFICIENT** performance: No unsatisfactory/questionable results were obtained.
- **ALMOST SUFFICIENT** performance: No unsatisfactory results were obtained, but one questionable result was found.
- **INSUFFICIENT** performance: An unsatisfactory result or two questionable results were obtained.

APPENDIX

PARTICIPANT RESULTS

(Results form)



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INSTRUCTIONS
&
RESULTS FORM

PROGRAM:	Measurement of smoke density of cables burning under defined conditions
CODE:	SQ-2543
VERSION:	-
STANDARD:	IEC 61034-2
COORDINATOR:	Eng. Erika Brest (ebrest@ptsouthquality.com)

DSQ-012 - REV 06 - SQ-2543 1 de 6

1 - **General**

This document serves as a guide for managing the results of the **SQ-2543** program.

Results must be typed, not handwritten.

2 - **Standard**

IEC 61034-2: 2019 (Ed. 3.2)

3 - **Tests involved**

TEST
Measurement of the density of smoke emitted by burning cables

4 - **Samples**

CODE	SAMPLE	QUANTITY
LEM3306-07	Black cable - 1 x 1 mm^2	50 m
LEM3408-04	Red cable - 1 x 1.5 mm^2	50 m

5 - **Notes**

a) Being a bilateral program, there is no deadline for submitting results.
b) The tables in this document may be modified by the participant, if desired, to include data or observations
c) The samples are to be handled as routine lab samples, with all testing, documentation, and reporting adhering to **IEC 61034-2**.
d) Samples must be retained until the end of the program, which concludes with the submission of the final report.
e) To review the results, test images would be appreciated. Images can be attached at the end of this document or sent by email.
f) Once this document is completed, it must be converted into a PDF file and sent to the program coordinator.

6 - **Test results**

Method:	According to standard

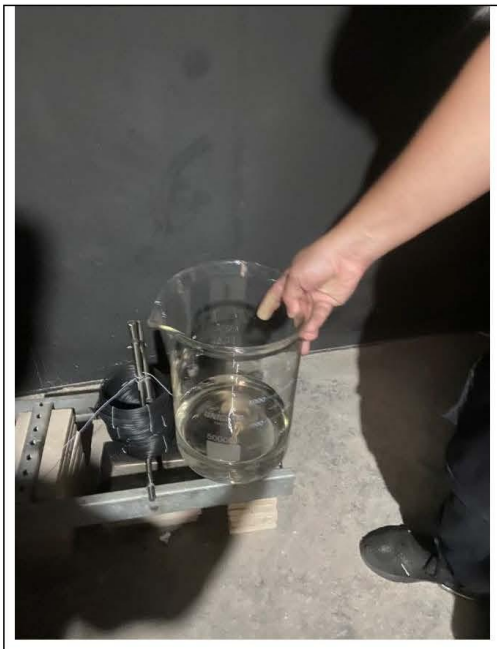
Test date:	16 September 2025

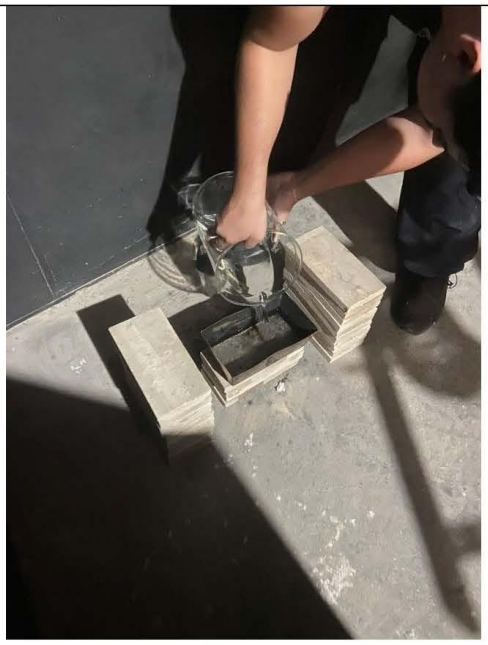
CONDITIONING	
Temperature (°C):	25.2
Relative humidity (%):	54
Duration (h):	16:30

CODE	Cable diameter (mm)	Number of specimens	Minimum light transmittance (%)
LEM3306-07	2.60	7	0.51
LEM3408-04	3.07	5	50.66

OBSERVATIONS

PHOTOGRAPHS





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