

REPORT No 12048

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EN 50399

CABLES UNDER FIRE CONDITIONS - HEAT RELEASE AND SMOKE PRODUCTION MEASUREMENT ON CABLES DURING FLAME SPREAD TEST

Program: SQ-2599.V1

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

1. FOREWORD	3
2. ORGANIZATION	3
3. OBJECTIVE	3
4. PARTICIPANT	4
5. HOMOGENEITY	4
6. SAMPLE INFORMATION	5
7. IMAGES	5
8. ASSIGNED VALUES	6
9. PARTICIPANT RESULTS	6
10. STATISTICS	6
11. EVALUATION OF PERFORMANCE	7
12. CONCLUSIONS	7
APPENDICES	
APPENDIX A - INSTRUCTIONS	8
APPENDIX B - PARTICIPANT RESULTS (TR #TS20260507-195200)	11

1. FOREWORD

This report summarizes the results of the **SQ-2599.V1** proficiency testing program on the verify the heat release and smoke production measurement on cables during flame spread test. This program is conducted in a bilateral format, following the “split-sample” design described in clause A.4.2 of ISO/IEC 17043: 2023 (Alternative interlaboratory comparisons).

South Quality conducted the testing program in May/June 2026 with the aim of assessing the laboratory's ability to competently perform the designated tests.

2. ORGANIZATION

Program Coordinator: Eng. Esteban Di Marco

Assistant Technician: Valentyn Kravchenko

Statistics: Lic. Manuel Tozaki

Supervision: Eng. Emiliano Medina

3. OBJECTIVE

The objective of this proficiency testing program is to determine the following parameters:

- Flame spread (***FS***)
- Total heat release (***THR***)
- Peak heat release rate (*peak **HRR***)
- Fire growth rate index (***FIGRA***)
- Total smoke production (***TSP***)
- Peak smoke production rate (*peak **SPR***)

These parameters were verified in accordance with the following standard:

Standard
EN 50399: 2022

To verify this, batches of cables were 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: **METCAB UYGUNLUK DEGERLENDIRME LIMITED SIRKETI**

Laboratory: **METCAB TEST LABORATORY**

Country: Türkiye

Client ID: S362

Contact person: Ersin Gök
 Technical Manager
egok@metcab.org

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 33405: 2024, clauses 7.4.1.1 / 7.4.1.2. Stratified random sampling was applied, and samples were selected using random number generation software.

The results of this test are presented below:

Size of each batch: **40 units**

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

DETERMINATION	HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES		
	BATCH: LEM3779	BATCH: LEM3780	BATCH: LEM3781
<i>FS</i>	YES	YES	NO
<i>THR</i>	YES	YES	YES
<i>peak HRR</i>	YES	YES	YES
<i>FIGRA</i>	YES	YES	YES
<i>TSP</i>	YES	YES	NO
<i>peak SPR</i>	YES	YES	YES

Samples for this program are taken from the selected batch identified as **LEM3779**.

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

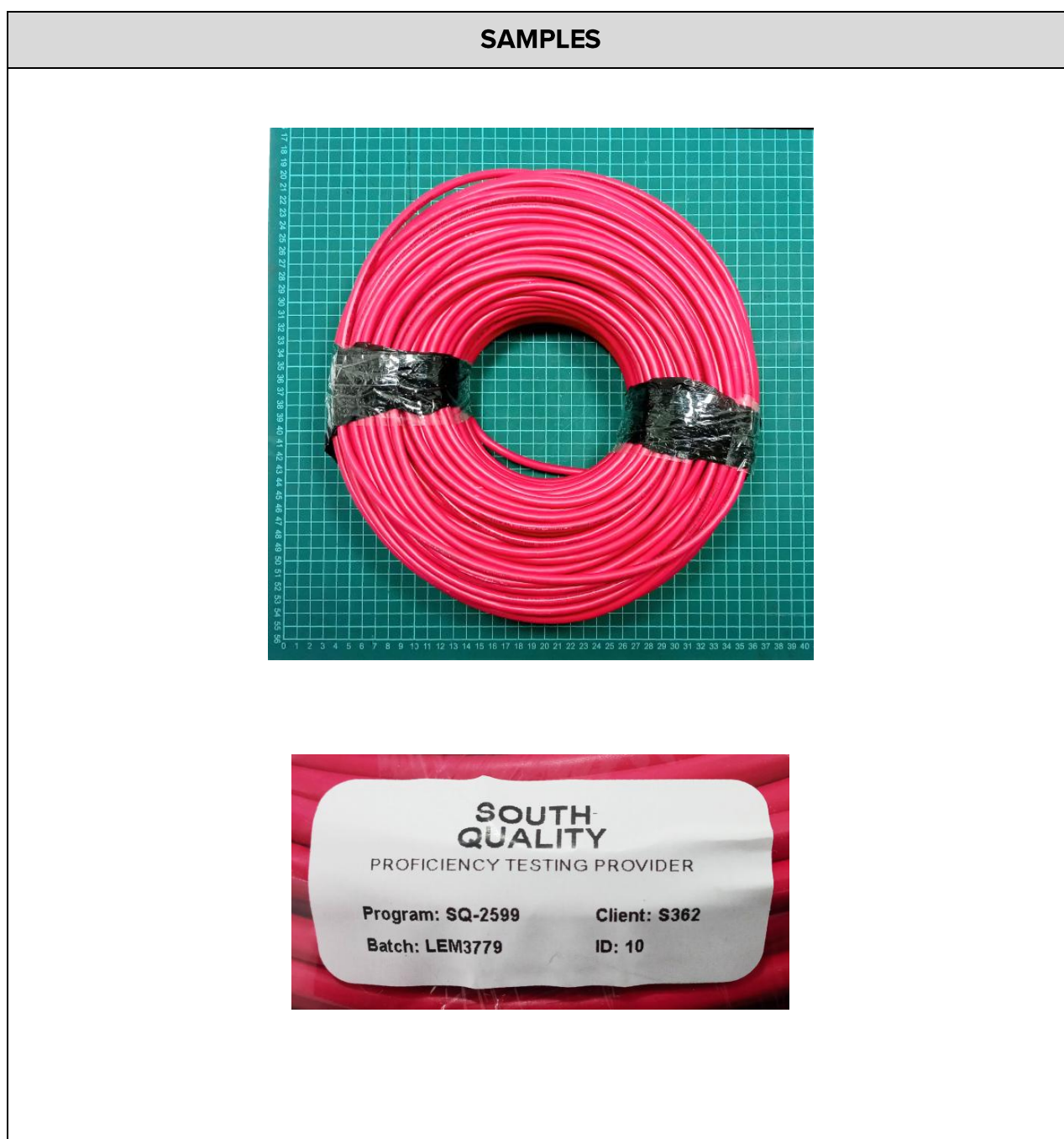
The analysis of the test data indicated that the selected samples exhibited sufficient homogeneity for the program. Therefore, the results of participants identified as outliers cannot be attributed to sample variability.

6. SAMPLE INFORMATION

The following sample was sent for testing:

Batch:	LEM3779
Sample ID:	10
Characteristics:	Red cable - Cu/PVC - 1 x 10 mm ² - 100 m

7. IMAGES



8. ASSIGNED VALUES

BATCH: LEM3779						
	<i>FS</i> (m)	<i>THR</i> (MJ)	<i>peak HRR</i> (kW)	<i>FIGRA</i> (W/s)	<i>TSP 1200</i> (m ²)	<i>peak SPR</i> (m ² /s)
AVG	3.38	20.2	192.1	1002.3	171.5	0.98
SD	0.33	1.91	14.9	98.51	11.86	0.07

9. PARTICIPANT RESULTS (SEE APPENDIX B)

CODE: LEM3779-10						
	<i>FS</i> (m)	<i>THR</i> (MJ)	<i>peak HRR</i> (kW)	<i>FIGRA</i> (W/s)	<i>TSP 1200</i> (m ²)	<i>peak SPR</i> (m ² /s)
AVG	3.3	20.6	184.2	986.6	169.8	0.95

10. STATISTICS

The results must be treated as quantitative.

According to B.4.1.3 of ISO 17043 the appropriate technique is to compare participant results with the assigned values. The results can be compared using ***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	PARAMETER	AVERAGE		z score	PERFORMANCE RESULT
		PARTICIPANT RESULT	ASSIGNED VALUE		
LEM3779	<i>FS</i> (m)	3.3	3.38	0.24	SATISFACTORY
	<i>THR</i> (MJ)	20.6	20.2	0.21	SATISFACTORY
	<i>peak HRR</i> (kW)	184.2	192.1	0.53	SATISFACTORY
	<i>FIGRA</i> (W/s)	986.6	1002.3	0.16	SATISFACTORY
	<i>TSP 1200</i> (m ²)	169.8	171.5	0.14	SATISFACTORY
	<i>peak SPR</i> (m ² /s)	0.95	0.98	0.43	SATISFACTORY

12. CONCLUSIONS

The overall performance on this **SQ-2599.V1** program from the participant laboratory **METCAB UYGUNLUK DEGERLENDIRME LIMITED SIRKETI - METCAB TEST LABORATORY**, 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 A

INSTRUCTIONS



INSTRUCTIONS

PROGRAM:	Cables under fire conditions Heat release and smoke production measurement on cables during flame spread test
CODE:	SQ-2599
VERSION:	1
STANDARD:	EN 50399
COORDINATOR:	Eng. Esteban Di marco (edimarco@ptsouthquality.com)

DSQ-015 - REV 06 -

SQ-2599.V1

1 de 3

1 - General

This document serves as a guide for managing the results of the **SQ-2599.V1** program.

2 - Standard

EN 50399: 2022

3 - Tests involved

TEST	PARAMETERS TO DETERMINE
Verify the accuracy and consistency of the testing method	<i>FS + THR + peak HRR + FIGRA + TSP + peak SPR</i>

4 - Samples

CODE	SAMPLE	QUANTITY
LEM3779-10	Red cable - 1 x 10 mm ²	100 m

5 - Notes

- a) Being a bilateral program there is no deadline to accomplish sending results.
- b) The participant must submit the results using the usual report employed by their laboratory.
- c) Samples must be retained until the end of the program, which concludes with the submission of the final report.
- d) To review the results, test images would be appreciated. Images can be attached at the end of this document or sent by email.

PHOTOGRAPHS

DSQ-012 - REV 06 -

SQ-2599.V1

3 de 3

APPENDIX B

PARTICIPANT RESULTS (TR #TS20260507-195200)

Rapor no:/TS20260507_195200

METCAB DENEY LABORATUVARI

METCAB UYGUNLUK DEĞERLENDİRME LTD. ŞTİ. DENEY LABORATORY (SİLİVRİ)
Selimpaşa, 6093. Sk. No:18, 34590 Silivri/İstanbul

Web: www.metcab.org

DENEY RAPORU TEST REPORT

Deneyi Talep Eden Customer	SOUTH QUALITY
Deney Talep Tarihi/No Order Date/No	18.04.2026 / SQ-2599.V1
Numunenin Tanımı Sample Description	TREFILCON S.R.L. - INDUSTRIA ARGENTINA 450/750V - 10.00 mm ² - 247 NM 02 - C4 - BWF-B <SELLO IRAM - RES. M.P.S.C 169/2018>
Numune Kabul Tarihi Test Item Receipt Date	04.05.2026
Deneyin Yapıldığı Tarih Date of Test	07.05.2026
Uygulanan Standard/Metod Applied Standard/Method	EN 50399:2022
Rapor No/Sayfa Sayısı Number of pages of the report	2
Açıklamalar Remarks	Proficiency Testing

Deney ve /veya ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri (olması halinde) ve deney metotları bu sertifikanın tamamlayıcı kısmı olan takip eden sayfalarda verilmiştir.
The test and/or measurement results, the uncertainties (if applicable) with confidence probability and test methods are given on the following pages which are part of this report



Tarih
Date

30.06.2026

Deneyi Yapan
Conducted By

Şenol Sarı
Lab. Staff

Gözetmen
Supervised By

Onaylayan
Approved by

SEMİH GENÇEL
Lab. Manager

Bu rapor, hazırlayan laboratuvarın yazılı izni olmadan kısmen kopyalanıp çoğaltılamaz. İmzasız ve mühürsüz raporlar geçersizdir. Bu rapor, sadece deneyi yapılan numune için geçerlidir.
This test report shall not be reproduced other than in full except with the written permission of the laboratory.
Test reports without signature and seal are not valid. This test report represents only testes sample(s).

(DOK. NO : F.16.06, REV: 00, REV TRH:- YAYIN TARİHİ: 01.03.2025)

1/2

Rapor no: /TS20260507_195200

TEST RAPORU / TEST REPORT	
EN 50399:2022	
Talep eden Firma/Applicant	SOUTH QUALITY
Testin yapıldığı tarih/Date of test	07.05.2026
Numune tanımı, markası/Sample definition, brand	TREFILCON S.R.L. - INDUSTRIA ARGENTINA 450/750V - 10.00 mm ² - 247 NM 02 - C4 - BWF-B <SELLO IRAM - RES. M.P.S.C 169/2018>
Kablo sayısı/Number of samples	24 piece
Kablonun dış çapı/Overall diameter	6,3 mm
Merdivene montajlama metodu/Method of mounting	6,3 mm spaced
Backboard kullanımı (B1 _{ca} sınıfı için/Backboard usage for B1ca class	--
Alev uygulama süresi/Flame application time	20 min
Alev gücü/Flame power	20 kW
Sonuçlar/Results	
Yanan kısım uzunluğu (Flame Spread)	3,3 m
Isı açığa çıkma hızı (Peak HRR _{av})	184,2 Kw
Toplam ısı yayılımı (THR)	20,6 MJ
Yangın büyüme hız endeksi (FIGRA)	986,6 W/sn
Damlacık oluşumu-süresi (Droplet)	No
Duman üretim hızı (Peak SPR _{av})	0,95 m ² /sn
Toplam duman üretimi (TSP)	169,8 m ²

Yeterlilik testi amacıyla TREFILCON S.R.L. – INDUSTRIA ARGENTINA 450/750 V – 10.00 mm² – 247 NM 02 – C4 – BWF-B <SELLO IRAM – RES. M.P.S.C. 169/2018> numunesi üzerinde yukarıda belirtilen standartlara göre deneyler uygulanmış ve yukarıdaki sonuçlar alınmıştır.

For the purpose of proficiency testing, the tests specified in the above-mentioned standards were performed on the sample identified as TREFILCON S.R.L. – INDUSTRIA ARGENTINA 450/750 V – 10.00 mm² – 247 NM 02 – C4 – BWF-B <SELLO IRAM – RES. M.P.S.C. 169/2018>, and the results presented above were obtained.

(DOK. NO : F.16.06, REV: 00, REV TRH:- YAYIN TARİHİ: 01.03.2025)

2/2

----- END OF REPORT -----