

# REPORT No 11667

*Date of issue: April 28, 2026*

*Status: FINAL REPORT*

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## ISO 13936-2

### DETERMINATION OF THE SLIPPAGE RESISTANCE OF YARNS AT A SEAM IN WOVEN FABRICS - FIXED LOAD METHOD

### Program: SQ-1191.V2

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## 1. FOREWORD

This report summarizes the results of the **SQ-1191.V2** proficiency testing program on the determination of the slippage resistance of yarns at a seam in woven fabrics. 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 March 2026 with the aim of assessing the laboratory's ability to competently perform the designated tests.

## 2. ORGANIZATION

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

## 3. OBJECTIVE

The objective of this proficiency testing program is to determine the warp and weft slippage of yarns at a seam in woven fabrics, using the following standard:

Standard
ISO 13936-2: 2004

To verify this, batches of fabrics samples 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: **INTERFACE ENGENHARIA LTDA**  
 Laboratory: **INTERFACE**  
 Country: Brazil  
 Client ID: C124  
 Contact person: Michelle Pisciotano Lopes  
 Gerente do Laboratório  
[michelle@interface.eng.br](mailto:michelle@interface.eng.br)

## 5. HOMOGENEITY

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

Subsequently, a homogeneity study was conducted with an ISO/IEC 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: **25 units**

Tested samples from each batch: **5 units**

DETERMINATION	HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES		
	BATCH: LP2845	BATCH: LP2846	BATCH: LP2847
Warp slippage	YES	NO	YES
Weft slippage	YES	YES	YES

Size of each batch: **25 units**

Tested samples from each batch: **5 units**

DETERMINATION	HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES		
	BATCH: LP3115	BATCH: LP3116	BATCH: LP3117
Warp slippage	YES	YES	NO
Weft slippage	YES	YES	YES

Samples for this program are taken from the selected batches identified as **LP2845** and **LP3116**.

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:	LP2845
Sample ID:	08
Characteristics:	White fabric (Garment) - 1.4 x 1 m

Batch:	LP3116
Sample ID:	05
Characteristics:	Beige fabric (Upholstery) - 2 x 1 m

## 7. IMAGES





**8. ASSIGNED VALUES**

BATCH	DIRECTION	SLIPPAGE RESISTANCE	
		Seam opening (mm)	SD (mm)
LT2845	WEFT	5.06	0.25
	WARP	19.85	0.86
LT3116	WEFT	5.93	0.12
	WARP	5.02	0.38

## 9. PARTICIPANT RESULTS (SEE APPENDIX B)

CODE	DIRECTION	SLIPPAGE RESISTANCE Seam opening (mm)
LT2845-08	WEFT	5.30
	WARP	20.63
LT3116-05	WEFT	6.10
	WARP	5.70

## 10. STATISTICS

The results must be treated as quantitative.

According to B.4.1.3 of ISO/IEC 17043 the appropriate technique is to compare participant results with the assigned values. The results can be compared 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	DIRECTION	SLIPPAGE RESISTANCE Seam opening (mm)		z score	PERFORMANCE RESULT
		PARTICIPANT RESULT	ASSIGNED VALUE		
LT2845	WEFT	5.30	5.06	0.96	SATISFACTORY
	WARP	20.63	19.85	0.91	SATISFACTORY
LT3116	WEFT	6.10	5.93	1.42	SATISFACTORY
	WARP	5.70	5.02	1.79	SATISFACTORY

## 12. CONCLUSIONS

The overall performance on this **SQ-1191.V2** program from the participant laboratory **INTERFACE ENGENHARIA LTDA - INTERFACE**, 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

<b>PROGRAM:</b>	Determination of the slippage resistance of yarns at a seam in woven fabrics - Fixed load method
<b>CODE:</b>	SQ-1191
<b>VERSION:</b>	2
<b>STANDARD:</b>	ISO 13936-2
<b>COORDINATOR:</b>	Lic. Esther Casas ( <a href="mailto:ecasas@ptsouthquality.com">ecasas@ptsouthquality.com</a> )

### 1 - General

This document serves as a guide for managing the results of the **SQ-1191.V2** program.

### 2 - Standard

**ISO 13936-2: 2004**

### 3 - Tests involved

TEST
Determination of the slippage resistance of yarns at a seam in woven fabrics

### 4 - Samples

CODE	SAMPLE	QUANTITY
LP2845-08	White fabric (Garment) - 1.4 x 1 m	1
LP3116-05	Beige fabric (Upholstery) - 2 x 1 m	1

### 5 - Notes

- a) Being a bilateral program, there is no deadline for submitting results.
- b) The participant must submit the results using the usual report employed by their laboratory.
- c) The samples are to be handled as routine lab samples, with all testing, documentation, and reporting adhering to ISO 13936-2.
- 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.

**PHOTOGRAPHS**

# APPENDIX B

## PARTICIPANT RESULTS (TEST REPORT)

**INTERFACE**  
 ENGENHARIA

TEST REPORT

O.S.: TEST PROGRAM - SQ-1191.V2 / 2026

APPLICANT: INTERFACE ENGENHARIA LTDA

FAVORED: INTERFACE ENGENHARIA LTDA

ADDRESS: R BRAZ CUBAS, 24 - CENTRO - SANTOS / SP

CONTACTS: MICHELLE PISCIOTTANO LOPES  
 JULIANA GOMES DA SILVA

CONTACT EMAILS: michelle@interface.eng.br  
 juliana.gomes@interface.eng.br

IDENTIFICATION OF SAMPLES PROVIDED: LP 2845-08 - WHITE FABRIC  
 LT 3116-05 - BEIGE FABRIC

RECEIPT IN THE LAB.: 19/02/2026

START: 26/02/2026

END: 02/03/2026

### METODOLOGIAS E RESULTADOS

ENVIRONMENTAL CONDITIONS FOR TESTING: ABNT NBR ISO 139:2008

- TEMPERATURE: 20,6 °C
- HUMIDITY: 62,4 %

SAMPLE: LP 2845-08 - WHITE FABRIC

- DETERMINATION OF THE SLIPPAGE RESISTANCE OF YARNS AT A SEAM IN WOVEN FABRICS - PART 2: FIXED LOAD METHOD

METHODOLOGY	RESULTS	
	WEFT	WARP
STANDARD: ISO 13936-2		
EQUIPMENT: DINAMÔMETRO KRATOS - K501		
SPEED: 50 mm/min		
LENGTH: 100 mm		
EQUIPMENT: MÁQUINA DE COSTURA SSR 100D - SINGER		
NEEDLE TYPE: 90		
SEWING THREAD NUMBER: 40 tex	$\bar{X} = 5,30 \pm 0,61$ mm	$\bar{X} = 20,63 \pm 2,36$ mm
SEWING THREAD BRAND AND BATCH NUMBER: LINHAS	Cv = 8,44 %	Cv = 6,68 %
SETTA - LT-PE/015B		
LOAD CELL: 10 Kgf		
APPLIED FORCE: 60 N		
JAW DIMENSIONS: 25 x 25 mm; 25 x 40 mm		
SCALE USED IN THE TEST: LB 030		
MASS PER UNIT AREA: 104,34 g/m <sup>2</sup>		
PURPOSE OF THE FABRIC: GARMENT		
NUMBER OF TEST SPECIMENS: 05		

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FOR-239 - rev.7 - Apr. 11/03/25  
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**INTERFACE**  
 ENGENHARIA

**TEST REPORT**

O.S.: TEST PROGRAM - SQ-1191.V2 / 2026

SAMPLE: LT 3116-05 - BEIGE FABRIC

- DETERMINATION OF THE SLIPPAGE RESISTANCE OF YARNS AT A SEAM IN WOVEN FABRICS - PART 2: FIXED LOAD METHOD

METHODOLOGY	RESULTS	
	WEFT	WARP
<b>STANDARD:</b> ISO 13936-2 <b>EQUIPMENT:</b> DINAMÔMETRO KRATOS - K501 <b>SPEED:</b> 50 mm/min <b>LENGTH:</b> 100 mm  <b>EQUIPMENT:</b> MÁQUINA DE COSTURA SSR 100D - SINGER <b>NEEDLE TYPE:</b> 90 <b>SEWING THREAD NUMBER:</b> 74 tex <b>SEWING THREAD BRAND AND BATCH NUMBER:</b> COSTURATEX - LOTE 6800 <b>LOAD CELL:</b> 500 Kgf <b>APPLIED FORCE:</b> 180 N <b>JAW DIMENSIONS:</b> 25 x 25 mm; 25 x 40 mm <b>SCALE USED IN THE TEST:</b> LB 030 <b>MASS PER UNIT AREA:</b> 150,59 g/m <sup>2</sup> <b>PURPOSE OF THE FABRIC:</b> UPHOLSTERY <b>NUMBER OF TEST SPECIMENS:</b> 05	$\bar{X} = 6,10 \pm 0,43 \text{ mm}$  $Cv = 3,67 \%$	$\bar{X} = 5,70 \pm 0,61 \text{ mm}$  $Cv = 7,85 \%$

OBS 1: The results presented in this report refer only to the sample sent to us and tested. The remainder of the sample will be archived for 90 days, during which time the interested party may request its retrieval. The remainder of the sample will be archived for 90 days, during which time the interested party may request its retrieval. The remainder of the sample will be archived for 90 days, during which time the interested party may request its retrieval.

Santos, March 5, 2026.



Authorized Signatory

/j.g.s.

2/2

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