

REPORT No 11947

Date of issue: July 27, 2026

Status: FINAL REPORT

ASTM D2240

RUBBER PROPERTY

DUROMETER HARDNESS

Program: SQ-0527.V4

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1. FOREWORD

This report summarizes the results of the **SQ-0527.V4** proficiency testing program on the determination of hardness of rubber materials. 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 June 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
Statistics: Lic. Manuel Tozaki
Supervision: Eng. Emiliano Medina

3. OBJECTIVE

The objective of this proficiency testing program is to determine the hardness of rubber materials using the following standard:

Standard
ASTM D2240 - 15 (2021)

To verify this, batches of plastic 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: **INTERTEK TESTING SERVICES DE MEXICO**
Laboratory: SOFTLINES LEÓN
Country: Mexico
Client ID: C100
Contact person: Ing. Octavio Muñoz Jiménez
Coordinador de Laboratorio Pruebas Físicas
octavio.muniz@intertek.com

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: **50 units**

Tested samples from each batch: **10 units**

DETERMINATION	HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES		
	BATCH: LP2865	BATCH: LP2866	BATCH: LP2867
HARDNESS	YES	YES	NO

Size of each batch: **50 units**

Tested samples from each batch: **10 units**

DETERMINATION	HOMOGENEITY OF RESULTS IN THE ANALYZED SAMPLES		
	BATCH: LP2945	BATCH: LP2946	BATCH: LP2947
HARDNESS	YES	NO	YES

Samples for this program are taken from the selected batches identified as **LP2865** and **LP2945**.

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

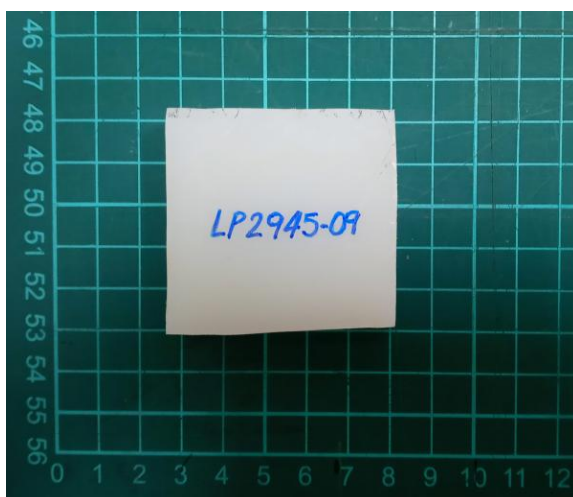
The following samples were sent for testing:

Batch:	LP2865
Sample ID:	14
Characteristics:	Acrylic sheet - 100 x 80 x 3 mm - 3 units

Batch:	LP2945
Sample ID:	09
Characteristics:	Plastic sheet (PA6) - 50 x 50 x 15 mm - 1 unit

7. IMAGES

SAMPLES



8. ASSIGNED VALUES

BATCH	HARDNESS	
	SCALE C	SD
LP2865	96.2	0.56
LP2945	95.9	0.48

9. PARTICIPANT RESULTS (SEE APPENDIX B)

CODE	HARDNESS (SCALE C)
LP2865-14	96.8
LP2945-09	96.5

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	HARDNESS (SCALE C)		z score	PERFORMANCE RESULT
	PARTICIPANT RESULT	ASSIGNED VALUE		
LP2865	96.8	96.2	1.0	SATISFACTORY
LP2945	96.5	95.9	1.2	SATISFACTORY

12. CONCLUSIONS

The overall performance of this **SQ-0527.V4** program from the participant laboratory **INTERTEK TESTING SERVICES DE MEXICO - SOFTLINES LEÓN**, 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:	Rubber property - Durometer hardness
CODE:	SQ-0527
VERSION:	4
STANDARD:	ASTM D2240
COORDINATOR:	Lic. Esther Casas (ecasas@ptsouthquality.com)

1 - General

This document serves as a guide for managing the results of the **SQ-0527.V4** program.

2 - Standard

ASTM D2240 - 15 (2021)

3 - Tests involved

TEST
Determination of rubber properties (Hardness)

4 - Samples

CODE	SAMPLE	QUANTITY
LP2865-14	Plastic sheet - 100 x 80 x 3 mm	3
LP2945-09	Plastic sheet - 50 x 50 x 15 mm	1

5 - Notes

- a) Being a bilateral program, there is no deadline for submitting results.
- b) The participant shall 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 **ASTM D2240**.
- d) Indentations shall be made on the side opposite the ID marking.
- e) Samples shall be retained until the end of the program, which concludes with the submission of the final report.
- f) 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-0527.V4

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APPENDIX B

PARTICIPANT RESULTS (TR #GTOT26000871)


TEST REPORT / INFORME DE RESULTADOS
REPORT NUMBER / NUMERO DE REPORTE : GTOT26000871

Date In / Fecha de Ingreso :	2026/06/09
Date Out / Fecha de Salida :	2026/06/16
Performance Test Date / Periodo de Ejecución de Ensayo(s) :	2026/06/09-2026/06/16

Company Data / Datos de la Compañía	INTERTEK TESTING SERVICES DE MÉXICO S.A DE C.V (León Guanajuato)	OVERALL RATING / CALIFICACIÓN GENERAL	
Address / Dirección	Pirul del Valle 113, Col. Valle de León, León, Guanajuato, 37140, México	PASS / PASA	
Attention / Atención	Octavio Muñiz Jimenez, Jaqueline Jimenez	FAIL / FALLA	
		DATA / DATO	X

Sample Description / Descripción De La Muestra :	Plastic sheet - 100x 80x 3 mm, Plastic sheet - 50 x 50 x 15 mm	Test Type / Tipo de Prueba :	First Test / Primera Prueba
Style / Estilo :	LP2865-14.1, LP2945-09, LP2865-14.2, LP2865-14.3	Age Range / Rango de Edad :	Adult / Adulto
Colour / Color :	Negro, Blanco	Component / Componente :	(A)LP2865-14.1, (B)LP2945-09, (C)LP2865-14.2, (D)LP2865-14.3
Manufacturer / Fabricante :	SOUTH QUALITY	Country Of Distribution / Pais de Distribucion :	Mexico/ México
Country of Origin / País de Origen :	Argentina/ Argentina		

AUTHORIZED BY :



 EFRAIN SANTIAGO GONZALEZ
 AUTHORIZED SIGNATORY

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 Pirul del Valle 113, Col. Valle de León, C.P. 37140, León Guanajuato.
 Tel. 01 (477) 774 6938, 01 (477) 774 1026


TEST REPORT / INFORME DE RESULTADOS
REPORT NUMBER / NUMERO DE REPORTE : GTOT26000871
CONCLUSION / CONCLUSIÓN:

TEST NAME / NOMBRE DE LA PRUEBA	SAMPLE / MUESTRA	RATING / RESULTADO	COMMENT / COMENTARIO
Standar Test Method for Rubber Property/Método de prueba estándar para la propiedad del caucho	A,B,C,D	D	

REMARK / NOTA:

P = Pass/Pasa F = Fail/Falla D = Data/Dato NA = Not Applicable/No Aplica * = See Remark / Ver nota

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TEST REPORT / INFORME DE RESULTADOS
REPORT NUMBER / NUMERO DE REPORTE : GTOT26000871

TEST CONDUCTED (AS REQUESTED BY THE APPLICANT)

1. Standar Test Method for Rubber Property/Método de prueba estándar para la propiedad del caucho

	(A)	
	<u>Result/Resultado</u>	<u>Requirement / Requerimiento</u>
Average Hardness/Promedio Dureza :	96.4	-
	(B)	
	<u>Result/Resultado</u>	<u>Requirement / Requerimiento</u>
Average Hardness/Promedio Dureza :	96.5	-
	(C)	
	<u>Result/Resultado</u>	<u>Requirement / Requerimiento</u>
Average Hardness/Promedio Dureza :	97.0	-
	(D)	
	<u>Result/Resultado</u>	<u>Requirement / Requerimiento</u>
Average Hardness/Promedio Dureza :	96.9	-

Notes/Notas:

Performance Test Date/Fecha de Ejecución del Ensayo: 2026/06/12

Test Laboratory accredited by ema, a.c. with accredited No. MM-2076-274/26 / Laboratorio de Ensayo acreditado por ema, a.c. con acreditación No. MM-2076-274/26

 Measurement uncertainty/Incertidumbre de la medición: $\pm 0.8\%$

A : LP2865-14.1

B : LP2945-09

C : LP2865-14.2

D : LP2865-14.3

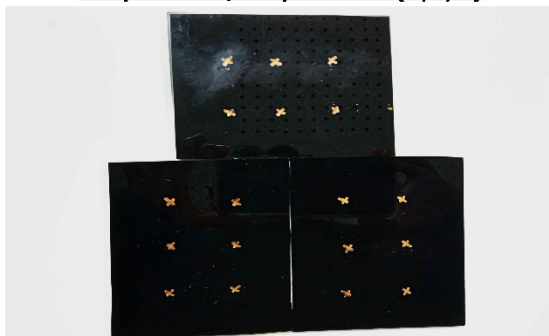
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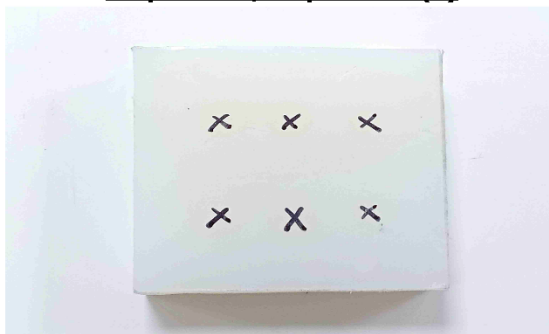
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Preparation/Preparación (A,C,D)



Preparation/Preparación (B)



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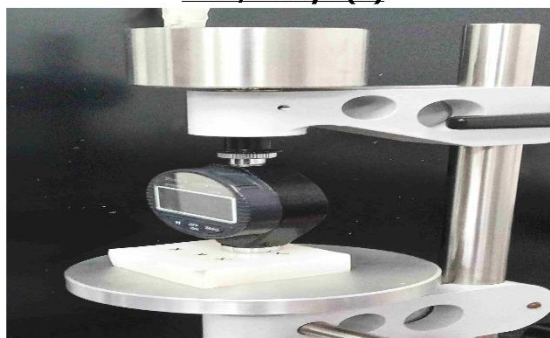
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Trial/Ensayo (A)



Trial/Ensayo (B)

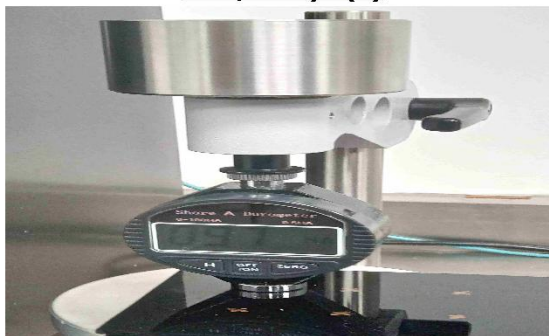


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Trial/Ensayo (C)



Trial/Ensayo (D)



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Guard/Resguardo (A,C,D)



Guard/Resguardo (B)



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Sample Received /Muestra Recibida

END OF THE TEST REPORT

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