Gibitre Instruments S.r.l.
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CER_ABR_001	Rev: 01	IN

Calibration Report n° ABRXXXXXX_55586

Issued 10/02/2026

Customer

Name	C**USTOMER**
Address	A**DDRESS**
	A**DDRESS**
Country	C**OUNTRY**

Order

Number	4500134423

Instrument

Type	ABRASION CHECK
Model	ABRASION CHECK
Producer	GIBITRE INSTRUMENTS SRL
Serial Number	ABRX**XXXXX**

Calibration

Date of the measures	**12/01/2026**	
Technician	**Alan Arsuffi**	Habilitation for Calibration

Reference Standard

The calibration is made in accordance to the requirements of the following standards:

ISO 4649: Rubber, vulcanized or thermoplastic— Determination of abrasion resistance using a rotating cylindrical drum device

The measurement uncertainties stated in this document have been determined according to the ISO/IEC Guide 98 and to EA-4/02. Usually they have been estimated as expanded uncertainty obtained multiplying the standard uncertainty by the coverage factor k corresponding to a confidence level of about 95%. Normally, this factor k is 2.

Calibration made by:

Alan Arsuffi

Calibration Report issued by:

Ivan Locatelli

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The measurement results reported in this Calibration Report were obtained following the procedures given in the following pages, where the reference standards or instruments are indicated which garantee the traceability chain of the laboratory, and the related calibration certificates in the course of validity are indicated as well. They relate only to the calibrated item and they are valid for the time and conditions of calibration, unless otherwise specified.

Reference Instruments	Producer	Serial N.	Gibitre Code	Certificate N.	Calibration Laboratory	Issue Date	Due Date	Uncertainty	Unit
Digital Caliper	Mitutoyo	1019218	CLB02	LAT 051 CT-CC-0227-2022	TRESCAL	23/05/22	23/05/2027	0,01	mm
Chronometer	RS COMPONENTS	GBT.CN.01/13	CRO02 [0-60 s]	LAT 056 23-0199_2023	GAMMA MISURE	09/02/23	09/02/2028	0,10	s
Standard rubber Abrasimeter	Cerisie	14114-14214	GNA01	RP 823-2024	CERISIE	21/10/24	21/10/2026	0,00	g
Set of weights 1g - 5 Kg	Sartorius AG	PES01	PES01 [1-500 g]	LAT 117_23_M_1437	CIBE	20/04/23	20/04/2026	0,00	g
Set of weights 1g - 5 Kg	Sartorius AG	PES01	PES01 [1000-5000 g]	LAT 117_23_M_1437	CIBE	20/04/23	20/04/2026	0,00	g
Chronometer + Calibrator	Gibitre Instruments srl	C5-CH-1	C5-GB3-CAL-1 + C5-CH-1	CAL105_32048	GIBITRE INSTRUMENTS	02/09/25	02/09/2026	0,16	s
Digital Calliper	Mitutoyo	A16222743	C5-CL-200	CAL105_32048	GIBITRE INSTRUMENTS	02/09/25	02/09/2026	0,01	mm
Load Cell for Abrasion Tester + Calibrator	DS Europe	166166	C5-GB3-CAL-1 + C5-AB-1	CAL105_32048	GIBITRE INSTRUMENTS	02/09/25	02/09/2026	0,03	N
Calibrator + 22 N Load Cell	Interface + Gibitre Instruments	C5-HI-1	C5-GB3-CAL-1 + C5-HI-1	CAL105_32048	GIBITRE INSTRUMENTS	02/09/25	02/09/2026	0,00	N

ENVIRONMENTAL CONDITIONS

Room Temperature	(23 ± 2) °C
Relative Humidity	(50 ± 10) %

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Calibration of: **Cylinder Diameter**

Procedure: The diameter of the cylinder is measured usingh the reference calliper

Reference Standard: **ISO 4649 Par. 5.1**

Reference Instruments:
C5-CL-200 Uncertanty: 0,0148 mm Deviation 0,01 mm

Expected Diameter mm	Minimum Allowed mm	Maximum Allowed mm	Measaure 1 mm	Measaure 2 mm	Measaure 3 mm	Mean mm	Accuracy mm	Uncertanty U_ext_95% mm	Outcome
150	149,8	150,2	150,02	150,03	150,03	150,03	0,03	0,016	ok

Calibration of: **Sample Lenght protruding**

Procedure: The protrusion of the rubber sample is set using the Template and measured using the reference calliper

Reference Standard: **ISO 4649 Par. 5.1**

Reference Instruments:
C5-CL-200 Uncertanty: 0,0148 mm Deviation 0,01 mm

Expected Protrusion mm	Minimum Allowed mm	Maximum Allowed mm	Measure 1 mm	Measure 2 mm	Measure 3 mm	Mean mm	Accuracy mm	Uncertanty U_ext_95% mm	Outcome
2	1,8	2,2	2,00	2,00	2,02	2,01	0,01	0,020	ok

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Calibration of: **Vertical force applied to the sample**

Procedure: The vertical forces applied using the weights supplied are measured using the reference force sensor

Reference Standard: **ISO 4649 Par. 5.1**

Reference Instruments:
C5-GB3-CAL-1 + C5-AB-1 Uncertanty: 0,0300 N Deviation 0,01 N

Expected Force N	Minimum Allowed N	Maximum Allowed N	Measure 1 N	Measure 2 N	Measure 3 N	Mean N	Accuracy N	Uncertanty U_ext_95% N	Outcome
5	4,9	5,1	5,1	5,1	5,1	5,1	0,1	0,030	ok
10	9,8	10,2	10,2	10,2	10,2	10,2	0,2	0,030	ok

Calibration of: **Rotation Frequency**

Procedure: The rotation frequency is calibrated by measuring, with the reference Chronometer, the time to make the complete test cycle

Reference Standard: **ISO 4649 Par. 5.1**

Reference Instruments:
C5-GB3-CAL-1 + C5-CH-1 Uncertanty: 0,1618 s Deviation 0,00 s

Rotation Frequency Rev/min	Time for 84 Revolutions Sec	Minimum Allowed Sec	Maximum Allowed Sec	Measure 1 Sec	Measure 2 Sec	Measure 3 Sec	Mean Sec	Accuracy Sec	Uncertanty U_ext_95% Sec	Outcome
40	126	122,9	129,2	127,9	127,1	127,8	127,6	1,6	0,524	ok

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Calibration of: **Number of Rotations**

Procedure: The number of rotations before automatic stop is counted

Reference Standard: **ISO 4649 Par. 5.1**

Number of Rotations	Minimum Allowed	Maximum Allowed	Measure 1	Measure 2	Measure 3	Outcome
num	num	num	num	num	num	
42	41	43	42,0	42,0	42,0	ok
84	83	85	84,0	84,0	84,0	ok

Calibration of: **Lateral Displacement**

Procedure: The lateral displacement of the sample holder is measured using the reference Calliper after a complete cycle of 42 rotations

Reference Standard: **ISO 4649 Par. 5.1**

Reference Instruments:
C5-CL-200 Uncertanty: 0,0148 mm Deviation 0,01 mm

Expected displacem.	Displacem. for 42 Rotations	Minimum Allowed	Maximum Allowed	Measure 1	Measure 2	Measure 3	Mean	Accuracy	Uncertanty U_ext_95%	Outcome
mm/Rev	mm	mm	mm	mm	mm	mm	mm	mm	mm	
4,2	176,4	175,6	177,2	176,70	176,60	176,60	176,63	0,23	0,07	ok

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Calibration of: **Abrasiveness of Abrasive Sheet**

Procedure: Perform 3 complete tests without sample rotation using Reference samples. Weigh the samples before and aftre the tests with the reference scale

Reference Standard: **ISO 4649 Par. 5.2**

Reference Instruments:
GNA01
C5-GB3-CAL-1 + C5-HI-1 Uncertanty: 0,0020 N Deviation 0,01 N

Expected Mass Loss	Minimum Allowed	Maximum Allowed	Measure 1	Measure 2	Measure 3	Mean	Uncertanty U_ext_95%	Outcome
mg	mg	mg	mg	mg	mg	mg	mg	
200	180	220	203,0	204,0	201,0	202,7	1,764	ok

Δm_r: Reference Mass Loss of the refer. compound = **202,7**

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Verification of instrument safety devices

√	Verification that the instrument's safety devices are working properly

√	Final verification that the instrument is functioning properly with safety devices active