



TEST REPORT

No. : GZAT1911019256NM

Date : Dec 02, 2019

Page: 1 of 19

CUSTOMER NAME: DONGGUAN GUANGMAI ELECTRONIC TECHNOLOGY CO., LTD

ADDRESS: 16B, INTERNATIONAL FINANCE IT RESEARCH AND DEVELOPMENT CENTER, NO.5 KEJI
TEN ROAD, SONGSHAN LAKE HIGH-TECH INDUSTRIAL DEVELOPMENT ZONE, DONGGUAN, CHINA

The following sample's information(s) was/ were submitted and identified on behalf of the client as:

Sample Name : cellular silicone foam
Part No. : GK-300
Other Information : 1. Colour: gray
2. Thickness: 4.78mm
SGS Ref No. : GZIN1911063241MR
Date of Receipt : Nov 22, 2019
Testing Start Date : Nov 22, 2019
Testing End Date : Nov 29, 2019
Test Result(s) : For further details, please refer to the following page(s)

Signed for and on behalf of
SGS-CSTC Standards Technical
Services Co., Ltd. GZ Branch Testing
Center

Denise Xin
Technical Manager



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Report Declaration:

The test samples were provided and confirmed by the customer in this report, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products manufactured are in conformity with the product sample in this report.

In the territory of the People's Republic of China, the test report shall only be used for client scientific research, teaching, internal quality control, product research and development, etc... and just for client internal reference.

Manufacture Declaration or Comment:

None

Summary of Result(s):

No.	Test Item	Test Method	Conclusion
1.	Compression Deflection	ASTM D1056-14 Section 17~23	N/A
2.	Compression Set	ASTM D1056-14 Section 50-56	N/A
3.	Compressive Strength	Provided by client	N/A
4.	Density	ASTM D1056-14 Section 62~68	N/A
5.	Low-Temperature Flex Test	ASTM D1056-14 Section 57-61	N/A
6.	Tensile Test	With reference to ASTM D412-16 Method A and client's requirement	N/A
7.	Water Absorption	Provided by client	N/A

Note:

Pass: Meet the requirements

Fail: Does not meet the requirements

N/A: Not apply to the judgment



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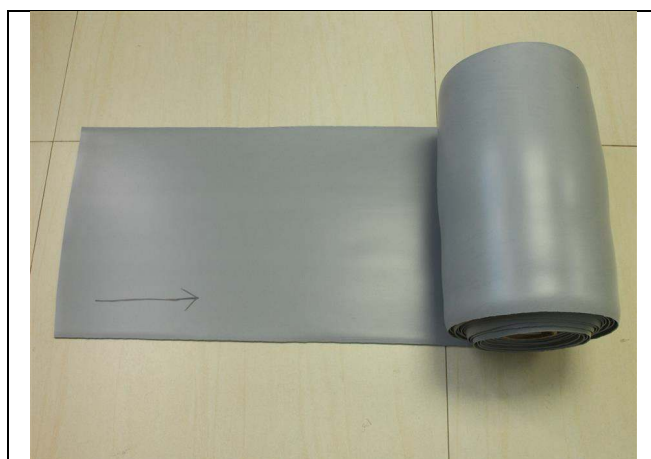
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Original Sample Photo:



Sample A



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1.Test Item: Compression Deflection

Sample Description: Foam

Test Method: ASTM D1056-14 Section 17~23

Test Condition:

Specimen diameter: 28.85 mm

Specimen thickness:9.63 mm(2 layers plied up)

Testing speed: 12.7 mm/min

Compression rate: 25 %

Lab Environment Condition: 23 ± 2 °C, 50 ± 5 % RH

Test Result:

Test Item	Test Result
Compression Deflection	2.91psi

Note: Test specimens were cut from the sample.



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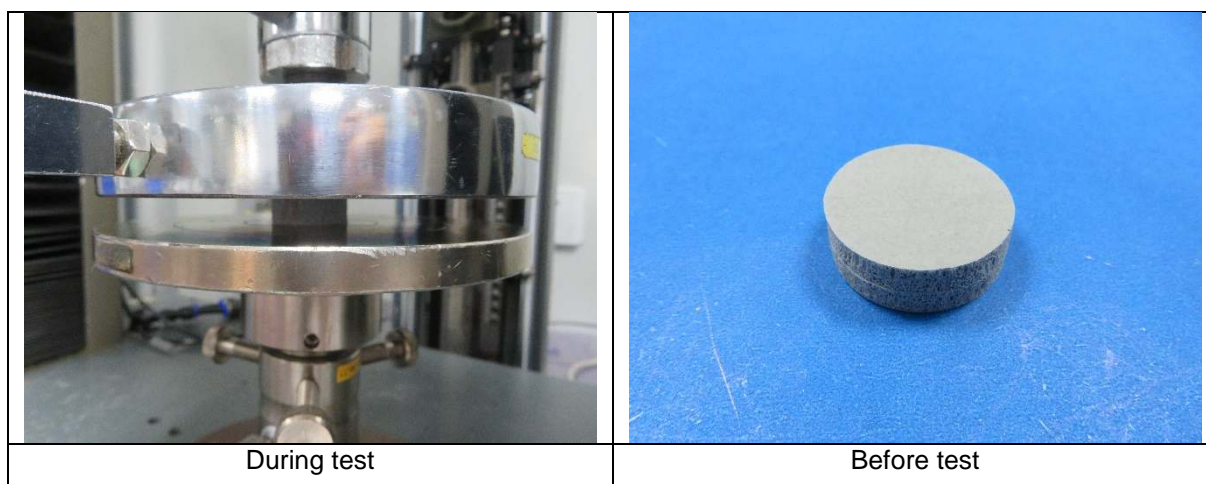
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Test Photo:



Equipment Information:

Equipment	Model	Equipment No.	Calibration date	Next Calibration date
Universal Testing Machine	Z010	GZMR-PL-E038	2019-09-03	2020-09-02



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2. Test Item: Compression Set

Sample Description: Foam

Test Method: ASTM D1056-14 Section 50~56

Test Condition:

Specimen diameter: 29mm

Specimen thickness: 9.57mm (2 layers plied up)

Test condition: 100℃, 22h

Compression rate: 50%

Recovery condition: (23±2)℃,(50±5)%RH,30min

Lab Environment Condition:(23±2)℃,(50±5)%RH

Test Result:

Test Item	Test Result
Compression Set	2%

Note: Test specimens were cut from the sample.



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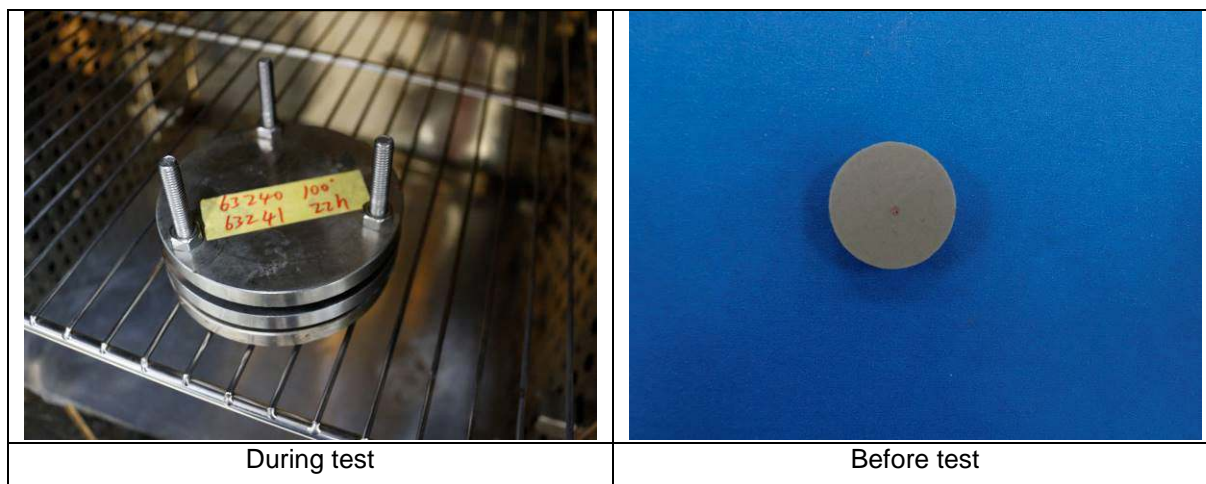
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Test Photo:



Equipment Information:

Equipment	Model	Equipment No.	Calibration date	Next Calibration date
Oven	UF260plus	GZMR-PL-E138	2019-04-17	2020-04-16
Thickness Gauge	TG-3130-H	GZMR-PL-E141	2019-02-18	2020-02-17



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3.Test Item: Compressive Strength

Sample Description: Foam

Test Method: Provided by client, measure the original thickness with 1N, and every 10% compression retain for 1min.

Test Condition:

Specimen: 50mm×50mm×14.0mm (3 layers plied up)

Testing speed: 1mm/min

Lab Environment Condition: (23±2)℃, (50±5)%RH

Test Result:

Test item	Test Result
10% strain Compressive Stress, MPa	0.014
10% strain Compressive Stress, psi	2.03
20% strain Compressive Stress, MPa	0.019
20% strain Compressive Stress, psi	2.76
30% strain Compressive Stress, MPa	0.023
30% strain Compressive Stress, psi	3.34
40% strain Compressive Stress, MPa	0.029
40% strain Compressive Stress, psi	4.20
50% strain Compressive Stress, MPa	0.039
50% strain Compressive Stress, psi	5.66
60% strain Compressive Stress, MPa	0.061
60% strain Compressive Stress, psi	8.84
70% strain Compressive Stress, MPa	0.12
70% strain Compressive Stress, psi	17.4



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Instantaneous Force at interval of 1% Compression rate:

Compression rate, %	#1		#2		#3	
	MPa	psi	MPa	psi	MPa	psi
1	0.0021	0.298	0.0020	0.284	0.0022	0.315
2	0.0045	0.646	0.0044	0.636	0.0048	0.691
3	0.0067	0.971	0.0068	0.981	0.0072	1.045
4	0.0083	1.21	0.0089	1.29	0.0093	1.36
5	0.0094	1.37	0.011	1.54	0.011	1.61
6	0.011	1.53	0.012	1.72	0.012	1.77
7	0.011	1.66	0.013	1.85	0.013	1.88
8	0.012	1.77	0.014	1.96	0.014	1.99
9	0.013	1.87	0.014	2.07	0.014	2.10
10	0.014	1.97	0.015	2.16	0.015	2.21
11	0.014	2.05	0.015	2.24	0.016	2.30
12	0.015	2.16	0.016	2.33	0.017	2.40
13	0.015	2.24	0.017	2.42	0.017	2.48
14	0.016	2.33	0.017	2.50	0.018	2.56
15	0.017	2.40	0.018	2.58	0.018	2.63
16	0.017	2.47	0.018	2.65	0.019	2.69
17	0.017	2.53	0.019	2.73	0.019	2.76
18	0.018	2.59	0.019	2.79	0.019	2.81
19	0.018	2.65	0.020	2.86	0.020	2.87
20	0.019	2.70	0.020	2.92	0.020	2.93
21	0.019	2.74	0.020	2.95	0.020	2.96



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Compression rate, %	#1		#2		#3	
	MPa	psi	MPa	psi	MPa	psi
22	0.019	2.80	0.021	3.02	0.021	3.03
23	0.020	2.86	0.021	3.09	0.021	3.10
24	0.020	2.91	0.022	3.15	0.022	3.16
25	0.020	2.97	0.022	3.21	0.022	3.22
26	0.021	3.03	0.023	3.27	0.023	3.29
27	0.021	3.09	0.023	3.34	0.023	3.36
28	0.022	3.15	0.023	3.41	0.024	3.43
29	0.022	3.21	0.024	3.47	0.024	3.49
30	0.022	3.20	0.024	3.54	0.025	3.56
31	0.023	3.31	0.025	3.58	0.025	3.60
32	0.023	3.40	0.025	3.67	0.025	3.70
33	0.024	3.48	0.026	3.76	0.026	3.78
34	0.025	3.56	0.026	3.84	0.027	3.87
35	0.025	3.64	0.027	3.93	0.027	3.96
36	0.026	3.72	0.028	4.02	0.028	4.05
37	0.026	3.81	0.028	4.11	0.029	4.14
38	0.027	3.90	0.029	4.21	0.029	4.25
39	0.028	4.00	0.030	4.32	0.030	4.36
40	0.028	4.10	0.031	4.43	0.030	4.36
41	0.029	4.17	0.031	4.51	0.031	4.55
42	0.030	4.31	0.032	4.66	0.032	4.70



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Compression rate, %	#1		#2		#3	
	MPa	psi	MPa	psi	MPa	psi
43	0.031	4.44	0.033	4.79	0.033	4.84
44	0.032	4.58	0.034	4.94	0.034	4.98
45	0.033	4.72	0.035	5.09	0.035	5.14
46	0.034	4.86	0.036	5.25	0.037	5.30
47	0.035	5.02	0.037	5.43	0.038	5.48
48	0.036	5.19	0.039	5.60	0.039	5.66
49	0.037	5.38	0.040	5.81	0.040	5.86
50	0.038	5.57	0.040	5.82	0.042	6.07
51	0.039	5.72	0.043	6.18	0.043	6.24
52	0.041	5.98	0.045	6.46	0.045	6.53
53	0.043	6.24	0.047	6.74	0.047	6.81
54	0.045	6.51	0.049	7.04	0.049	7.11
55	0.047	6.80	0.051	7.36	0.051	7.43
56	0.049	7.12	0.053	7.71	0.054	7.78
57	0.052	7.47	0.056	8.09	0.056	8.16
58	0.054	7.85	0.059	8.51	0.059	8.57
59	0.057	8.27	0.062	8.97	0.062	9.03
60	0.060	8.73	0.065	9.47	0.066	9.53
61	0.063	9.14	0.069	9.93	0.069	10.00
62	0.067	9.77	0.073	10.6	0.074	10.7
63	0.072	10.4	0.078	11.4	0.079	11.4



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TEST REPORT

No. : GZAT1911019256NM

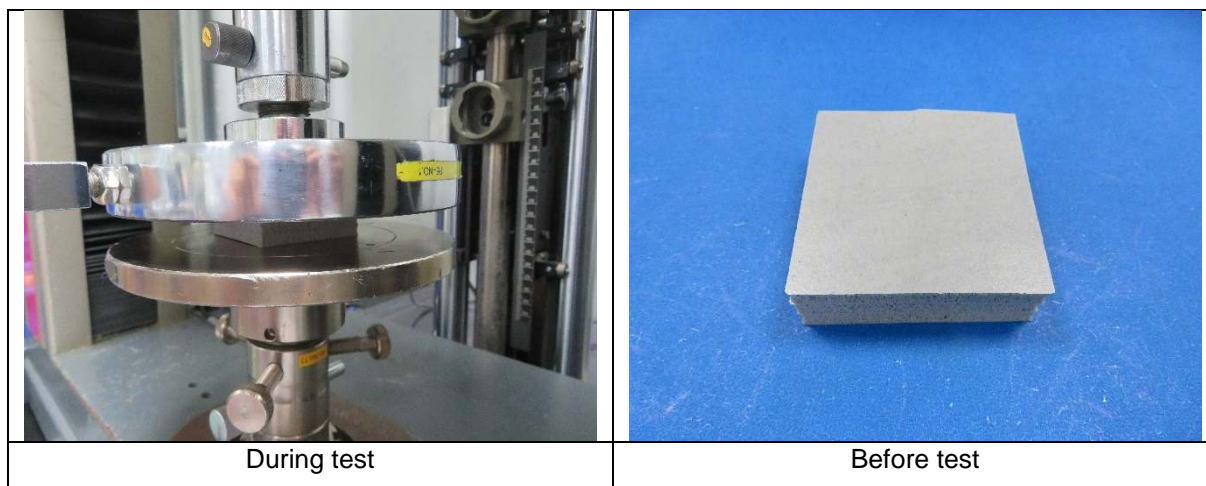
Date : Dec 02, 2019

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Compression rate, %	#1		#2		#3	
	MPa	psi	MPa	psi	MPa	psi
64	0.077	11.1	0.084	12.2	0.084	12.2
65	0.082	12.0	0.090	13.1	0.091	13.1
66	0.089	12.9	0.097	14.1	0.098	14.2
67	0.096	13.9	0.11	15.3	0.11	15.3
68	0.10	15.1	0.12	16.6	0.12	16.7
69	0.11	16.5	0.13	18.2	0.13	18.3
70	0.13	18.2	0.14	20.1	0.14	20.1

Note: The surface without plastic film was faced to the loading.

Test Photo:



Equipment Information:

Equipment	Model	Equipment No.	Calibration date	Next Calibration date
Universal Testing Machine	Z010	GZMR-PL-E038	2019-09-03	2020-09-02



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4. Test Item: Density

Sample Description: Foam

Test Method: ASTM D1056-14 Section 62~68

Test Condition:

Specimen: 100mm × 100mm × 4.8mm

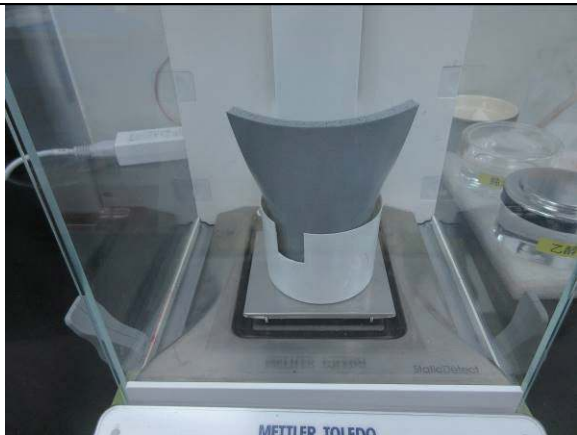
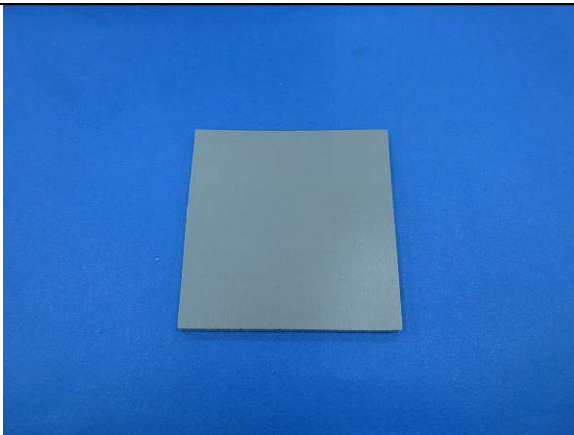
Lab Environmental Condition: 23 ± 2 °C, 50 ± 5 % RH

Test Result:

Test Item	Test Result
Density	16.7lb/ft ³

Note: Test specimens were cut from the sample.

Test Photo:

	
During test	Before test

Equipment Information:

Equipment	Model	Equipment No.	Calibration date	Next Calibration date
Thickness Gauge	TG-3130-H	GZMR-PL-E141	2019-02-18	2020-02-17
Digital Vernier Caliper	0~200mm/0.01 mm	GZMR-PL-E041-17	2019-03-05	2020-03-04
Electron Balance	XPE204	GZMR-PL-E004-06	2019-09-20	2020-09-19



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5. Test Item: Low-temperature Flex Test

Sample Description: Foam

Test Method: ASTM D1056-14 Section 57~61

Test Condition:

Specimen: 152mm×50mm×4.8mm

Condition: -55℃, 5h

Mandrel diameter: 18mm

Bend around angle: 180°

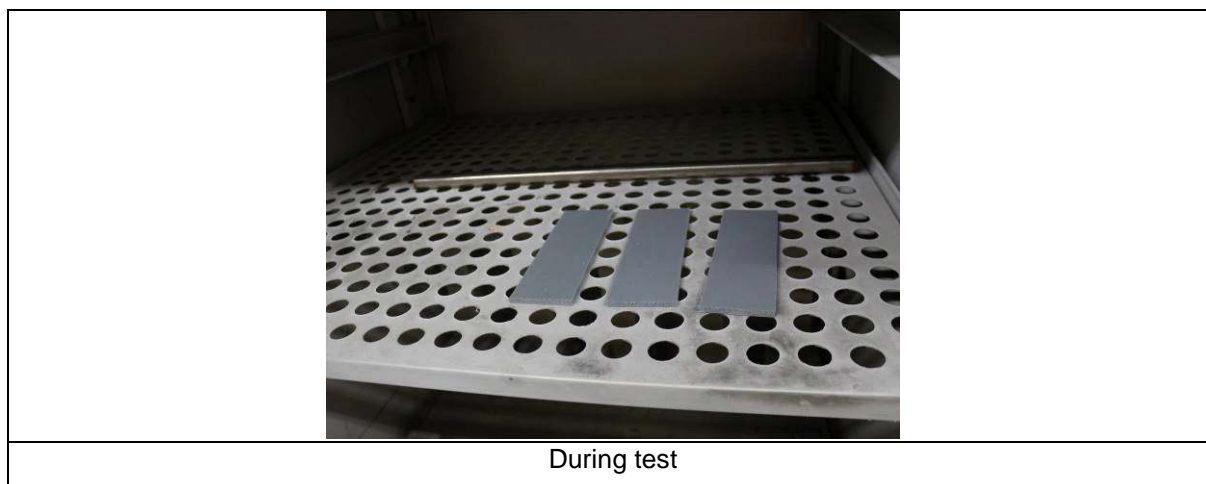
Lab Environmental Condition:(23±2)℃,(50±5)%RH

Test Result:

Test Item	Test Result
Low-temperature Flex Test	No signs of cracking

Note: Test specimens were cut from the sample.

Test Photo:



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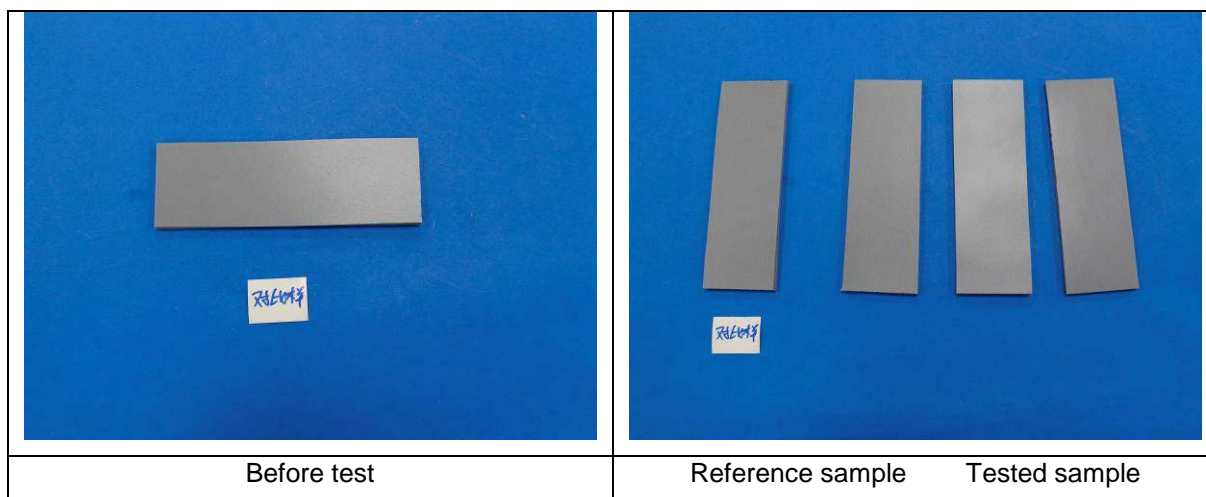
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Equipment Information:

Equipment	Model	Equipment No.	Calibration date	Next Calibration date
High/Low Temperature Impact Chamber	MS-WSJ-360B	GZMR-PL-E137	2019-05-13	2020-05-12



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6.Test Item: Tensile Test

Sample Description: Foam

Test Method: With reference to ASTM D412-16 Method A and client's requirement

Test Condition:

Specimen: Die C

Specimen thickness: 4.90mm

Testing speed: 500mm/min

Gauge length: 25mm

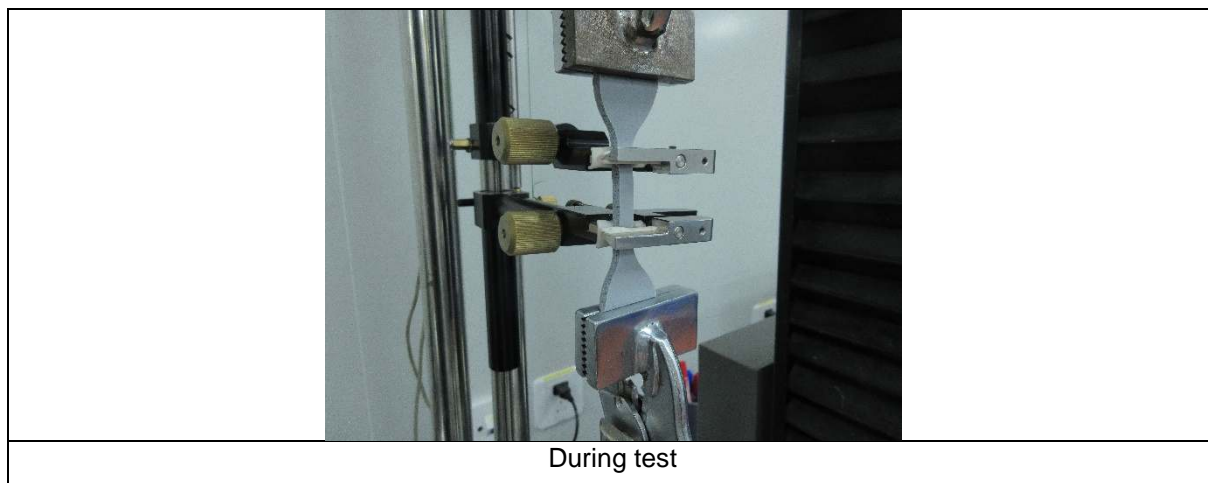
Lab Environmental Condition: (23±2)°C, (50±5)%RH

Test Result:

Test Item	Test Result
Tensile Strength	0.212 MPa
Elongation at Break	87 %

Note: Test specimens were cut from the sample.

Test Photo:



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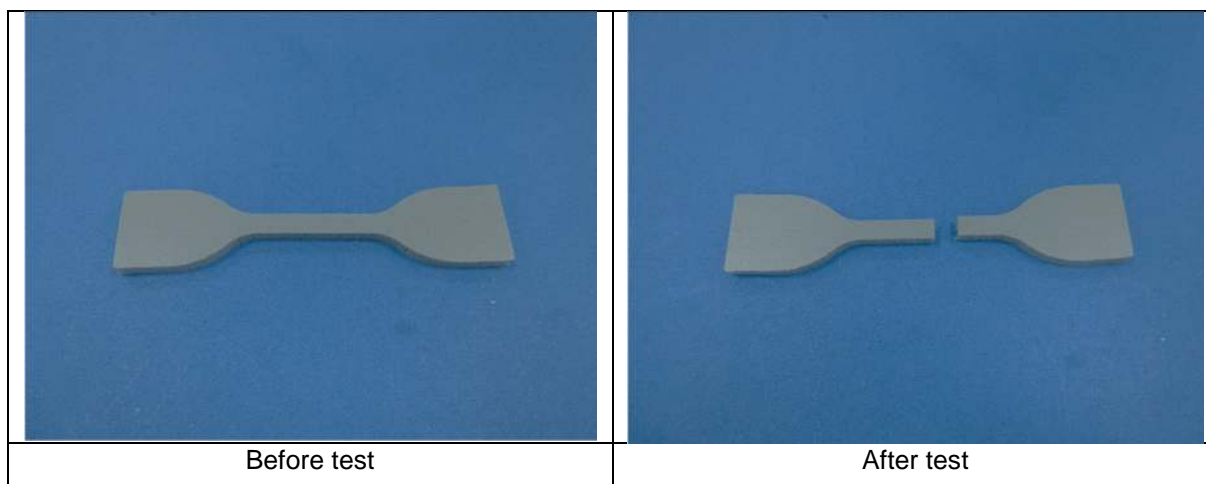
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Equipment Information:

Equipment	Model	Equipment No.	Calibration date	Next Calibration date
Universal Testing Machine	CMT6103	GZMR-PL-E022	2019-09-04	2020-09-03



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7.Test Item: Water Absorption

Sample Description: Foam

Test Method: Provided by client

Test Condition:

Specimen: 50.8mm×50.8mm×4.9mm

Immersion condition: Immerse under a 50.8mm head of water, 23±2℃, 24h

Lab Environmental Condition: 23±2℃, 50±5%RH

Test Result:

Test Item	Test Result
Water Absorption	4.31% (See note 1)

Note:

1. Water absorption, $\% = (\text{Mass after immersion} - \text{Mass before immersion}) / \text{Mass before immersion} \times 100$
2. Test specimens were cut from the sample.



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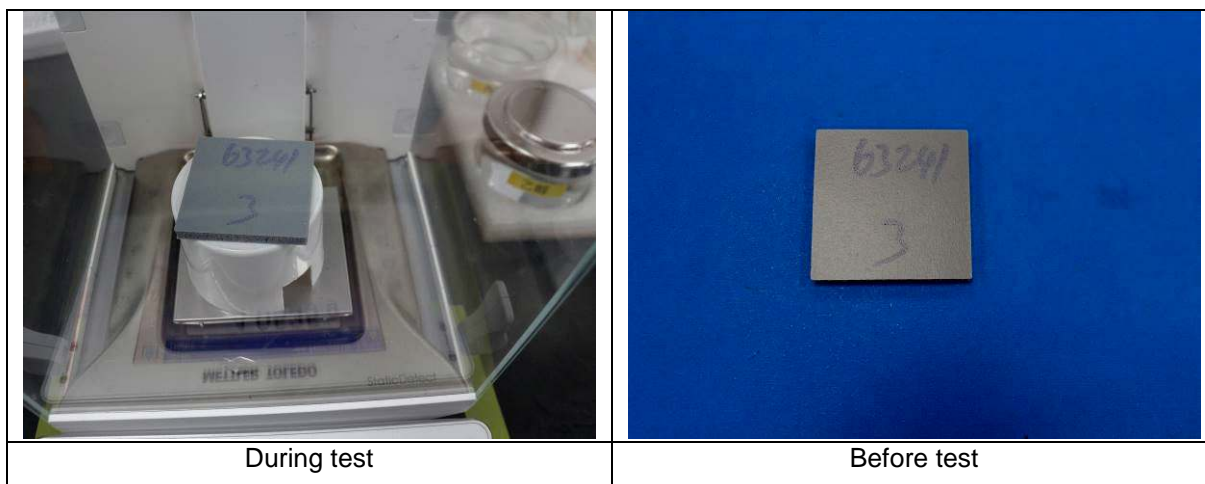
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Test Photo:



Equipment Information:

Equipment	Model	Equipment No.	Calibration date	Next Calibration date
Electron Balance	XPE204	GZMR-PL-E004-06	2019-09-20	2020-09-19

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