

## TEST REPORT

No. : GZMR231103534501  
Date : Dec 20, 2023  
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**CUSTOMER NAME:** Dongguan Dongquan Mould Material Co., Ltd.  
**ADDRESS:** No.10 Yihuan Road,Chiling Industrial,Dongguan City,Guangdong Province,China

**Sample Name** : Polyurethane Tooling Board DQ1250  
**Part No** : DQ1250  
**Material and Mark** : DQ1250  
**Manufacturer** : Dongguan Dongquan Mould Material Co., Ltd.  
**Manufacturer Address** : Room105, No.10 Yihuan Road,Chiling Industrial,Dongguan City,Guangdong Province,China  
**Sample Source** : Sent by client  
**Other Information** : Supplier: Dongguan Dongquan Mould Material Co., Ltd.

Above information and sample(s) was/were submitted and confirmed by the client. SGS, however, assumes no responsibility to verify the accuracy, adequacy and completeness of the sample information provided by client.

\*\*\*\*\*

**SGS Ref No.** : GZAT2311016718NM  
**Date of Receipt** : Nov 29, 2023  
**Testing Start Date** : Nov 29, 2023  
**Testing End Date** : Dec 20, 2023  
**Test Result(s)** : For further details, please refer to the following page(s)

Signed for  
SGS-CSTC Standards Technical  
Services Co., Ltd. Guangzhou Branch

Kelly Lee  
Authorized signatory



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**Report Declaration:**

In the territory of the People's Republic of China, the test report without CMA logo expresses 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	Test Result	Conclusion	
1.	Apparent Density	ISO 845:2006 and client's requirement	1237.3kg/m <sup>3</sup>	N/A	
2.	Shore Hardness	ISO 868:2003	D/15:78	N/A	
3.	Mean Coefficient of Linear Thermal Expansion	ISO 11359-2:2021 Method A	62×10 <sup>-6</sup> K <sup>-1</sup>	N/A	
4.	Deflection Temperature under Load	ISO 75-2:2013 Method B	72°C	N/A	
5.	Flexural Test	ISO 178:2019 Method A	Flexural Strength	85.8MPa	N/A
			Flexural Modulus	3290MPa	
6.	Compressive Strength	ISO 604:2002	164MPa	N/A	
7.	Charpy Unnotched Impact Strength	ISO 179-1:2023	21.2kJ/m <sup>2</sup> C (complete break)	N/A	
8.	Abrasion Resistance	Provided by client	Loss of volume: 0.08cm <sup>3</sup>	N/A	
			Percent of loss of volume: 0.08%		

Note: Pass: Meet the requirements;  
 Fail: Does not meet the requirements;  
 N/A: Not apply to the judgment or Not applicable



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1. Test Item: Apparent Density

Sample Description: Plastic part

Test Method: ISO 845:2006 and client's requirement

Test Condition:

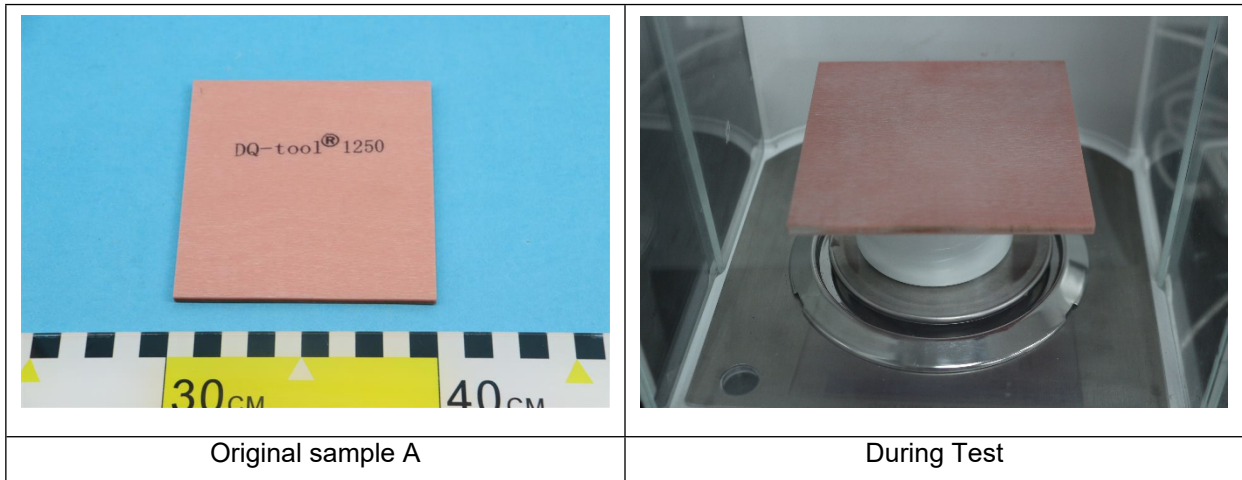
Specimen: 100mm×100mm×4.05mm

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

Test Result:

Test Item	Test Result
Apparent Density	1237.3kg/m <sup>3</sup>

Test Photo:



Equipment Information:

Equipment	Model	Equipment No.	Calibration date	Next Calibration date
Electron Balance	XPE404S	GZMR-PL-E004-07	2023-08-11	2024-08-10
Digital Vernier Caliper	CD-20AX	GZMR-PL-E041-17	2023-01-17	2024-01-16



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2. Test Item: Shore Hardness

Sample Description: Plastic part

Test Method: ISO 868:2003

Test Condition:

Specimen thickness: 4.02mm

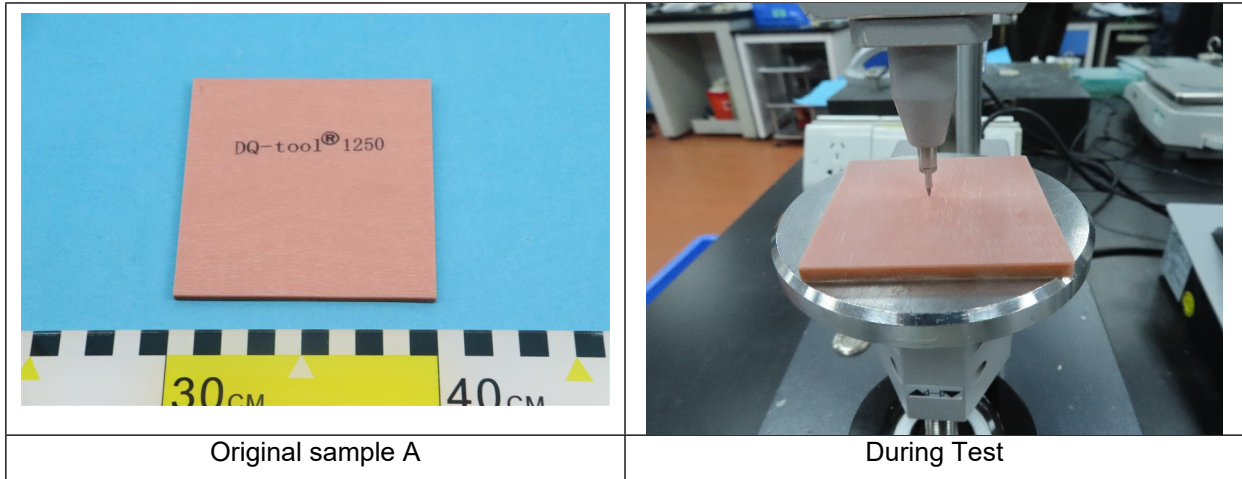
Lab Environmental Condition: (23±2)°C, (50±5)%RH

Test Result:

Test Item	Test Result
Shore Hardness	D/15:78

Note: D/15:X Indicates that D is the type of durometer; 15 s is the reading time; X is the hardness value.

Test Photo:



Equipment Information:

Equipment	Model	Equipment No.	Calibration date	Next Calibration date
Multifunction Hardness Tester	Digitest II	GZMR-PL-E156	2023-05-05	2024-05-04



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### 3. Test Item: Mean Coefficient of Linear Thermal Expansion

Sample Description: Plastic part

Test Method: ISO 11359-2:2021 Method A

Test Condition:

Specimen: 10.77mm×6.82mm×4.17mm

Rate of temperature: 5 °C/min

Load: 50mN

Flow rate(N<sub>2</sub>): 50 ml/min

Test temperature: 0 °C~50 °C

Test mode: Compression

Test direction: Length

Number of specimens tested: 3

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

Test Result:

Test Item	Test Result
Mean Coefficient of Linear Thermal Expansion	62×10 <sup>-6</sup> K <sup>-1</sup>



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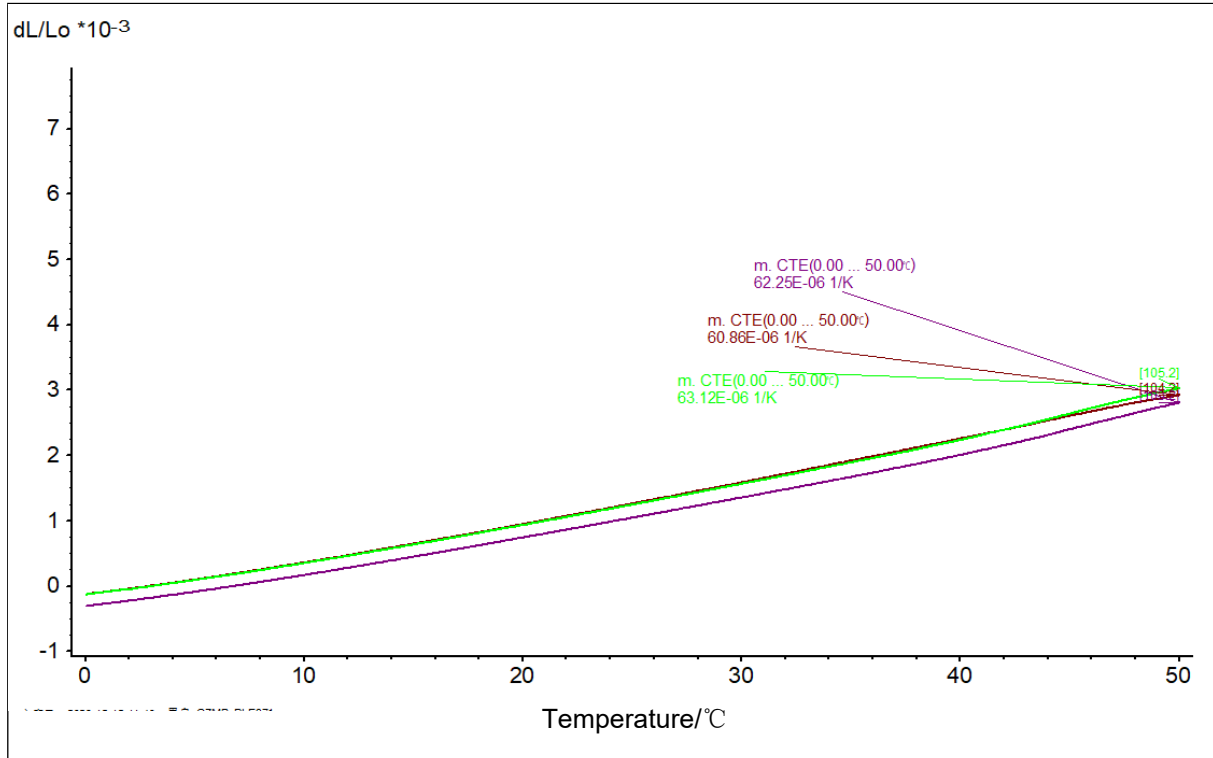
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Curve:



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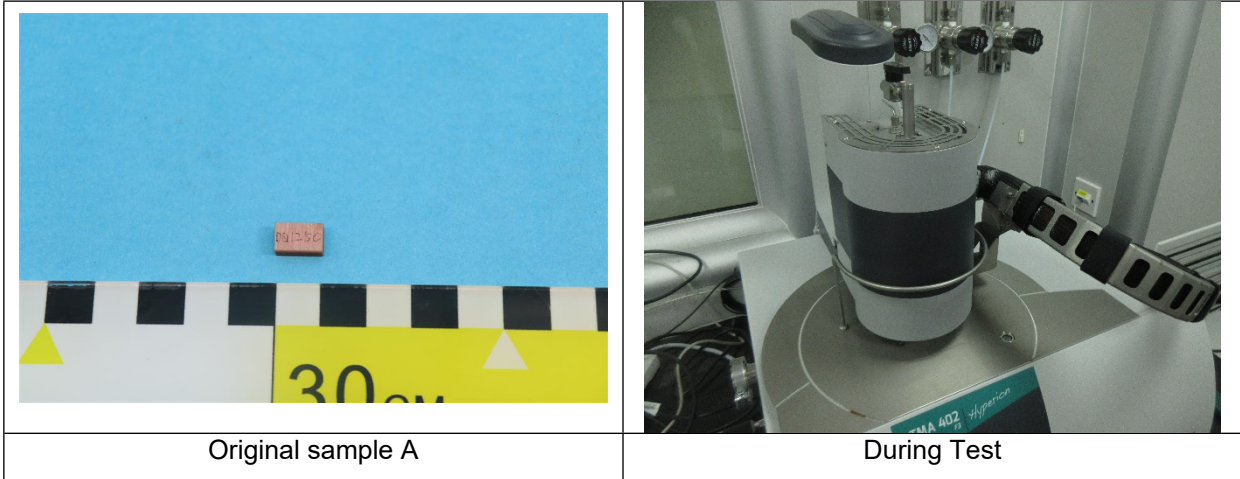
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Test Photo:



Equipment Information:

Equipment	Model	Equipment No.	Calibration date	Next Calibration date
Thermo Mechanical Analyzer	TMA402F3	GZMR-PL-E371	2023-06-06	2024-06-05

#### 4. Test Item: Deflection Temperature under Load

Sample Description: Plastic part

Test Method: ISO 75-2:2013 Method B

Test Condition:

Specimen: 80mm×10.83mm×4.07mm

Heat-transfer media: Silicone oil

T<sub>f</sub>0.45

Rate of temperature: 120°C/h

Span: 64mm

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



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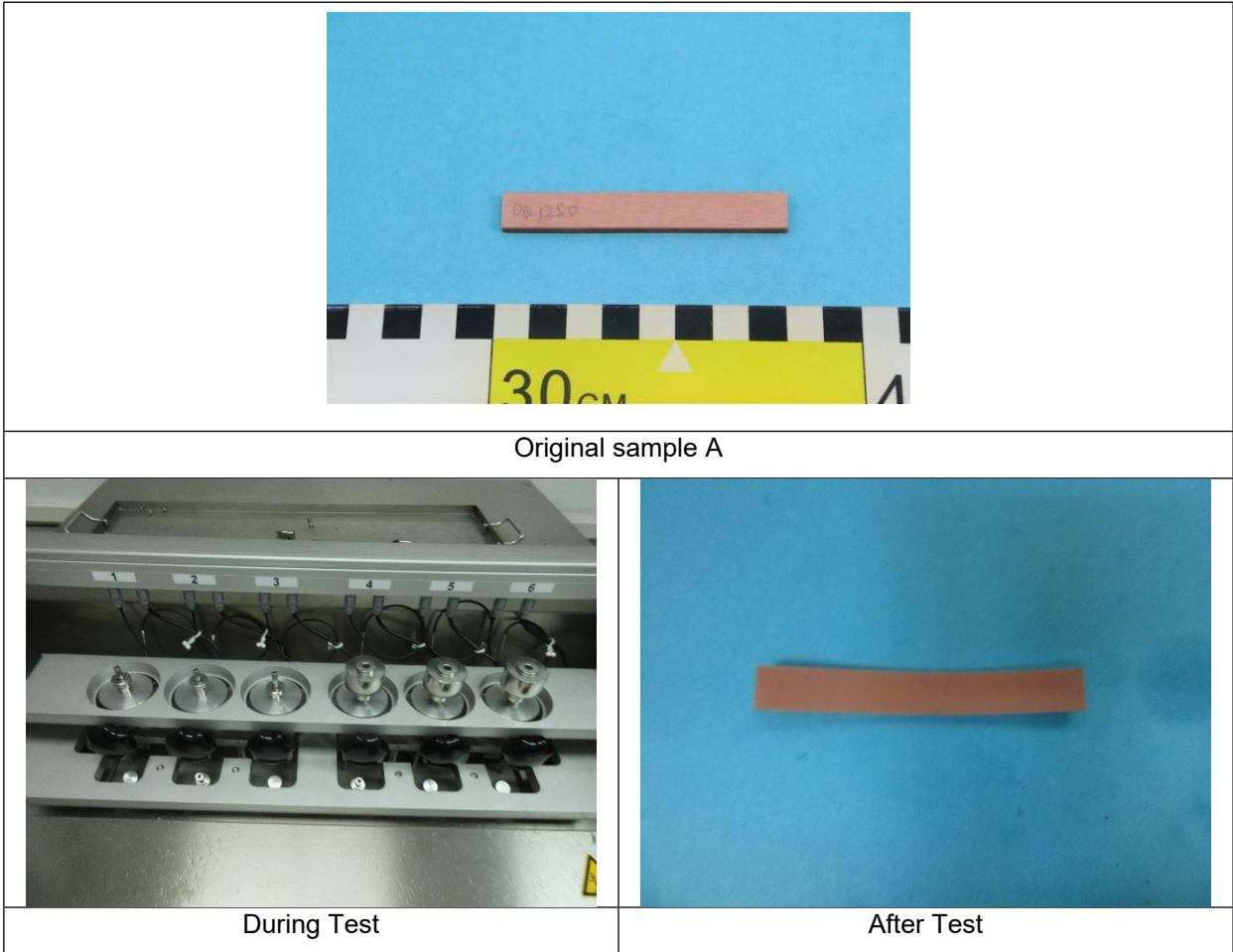
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Test Result:

Test Item	Test Result
Deflection Temperature under Load	72°C

Test Photo:



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## Equipment Information:

Equipment	Model	Equipment No.	Calibration date	Next Calibration date
HDT and VICAT Tester	IC 6	GZMR-PL-E348	2023-06-21	2024-06-20

## 5. Test Item: Flexural Test

Sample Description: Plastic part

Test Method: ISO 178:2019 Method A

Test Condition:

Specimen: 80mm×10.71mm×4.05mm

Testing speed: 2mm/min

Span: 64mm

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

Test Result:

Test Item	Test Result
Flexural Strength	85.8MPa
Flexural Modulus	3290MPa



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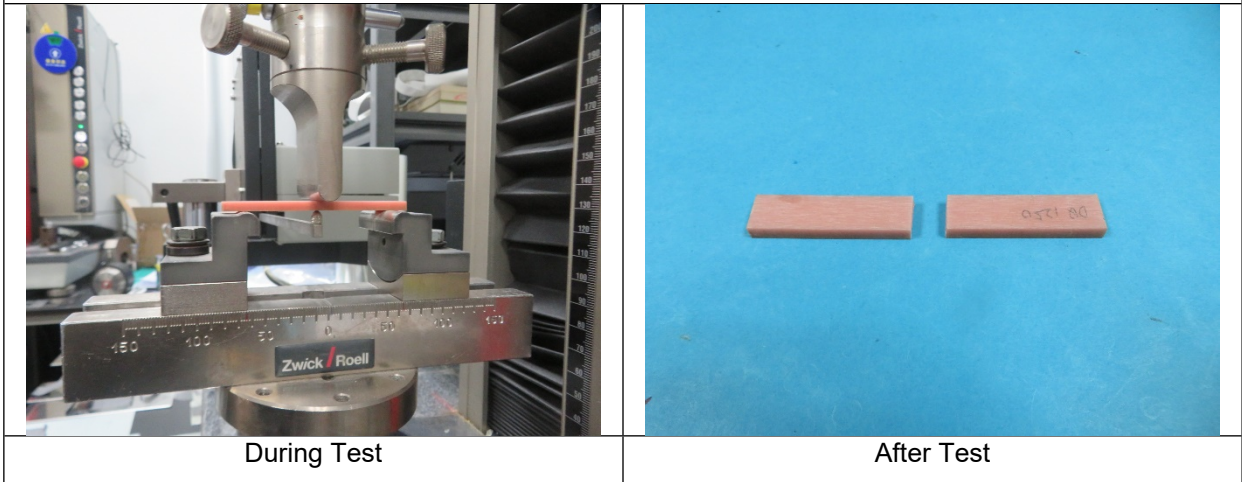
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Test Photo:



Original sample A



During Test

After Test

Equipment Information:

Equipment	Model	Equipment No.	Calibration date	Next Calibration date
Universal Testing Machine	Z1.0	GZMR-PL-E252	2023-11-01	2024-10-31



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6.Test Item: Compressive Strength

Sample Description: Plastic part

Test Method: ISO 604:2002

Test Condition:

Specimen: Type B

Specimen thickness: 4.11mm

Testing speed: 5mm/min

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

Test Result:

Test Item	Test Result
Compressive Strength	164MPa



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Guangzhou Branch Testing Services & Reliability Laboratory

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## TEST REPORT

No. : GZMR231103534501

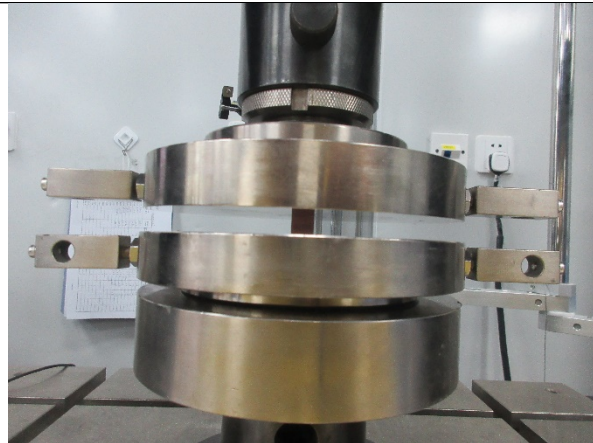
Date : Dec 20, 2023

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Test Photo:



Original sample A



During Test



After Test

Equipment Information:

Equipment	Model	Equipment No.	Calibration date	Next Calibration date
Universal testing machine	E45.105	GZMR-PL-E307	2023-03-01	2024-02-29



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7. Test Item: Charpy Unnotched Impact Strength

Sample Description: Plastic part

Test Method: ISO 179-1:2023

Test Condition:

Specimen: ISO 179-1/1eU

Specimen thickness: 4.12mm

The capacity of the pendulum: 7.5J

Impact speed: 3.8m/s

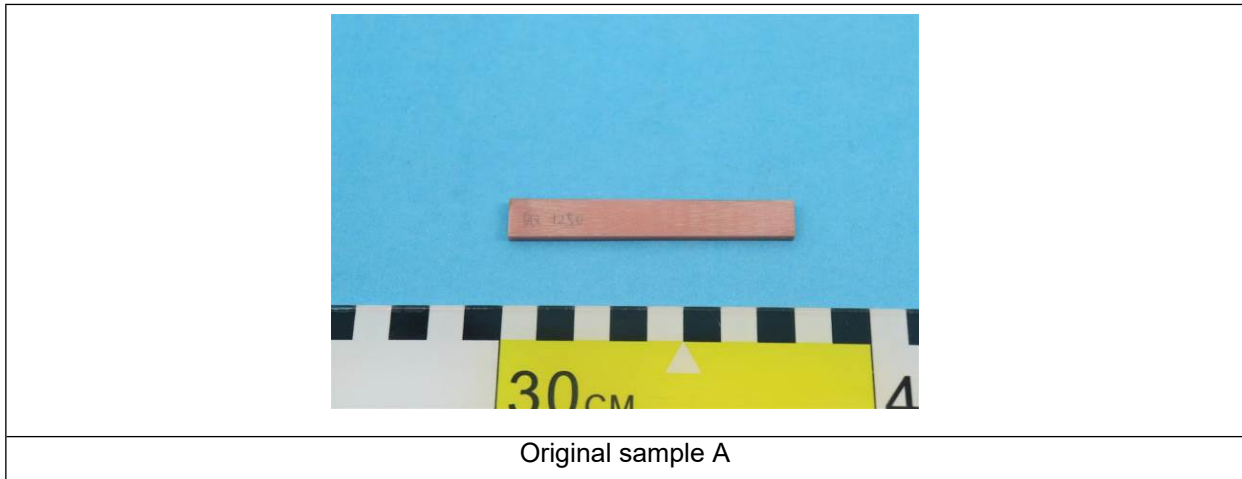
Span: 62mm

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

Test Result:

Test Item	Test Result
Charpy Unnotched Impact Strength	21.2kJ/m <sup>2</sup> C (complete break)

Test Photo:



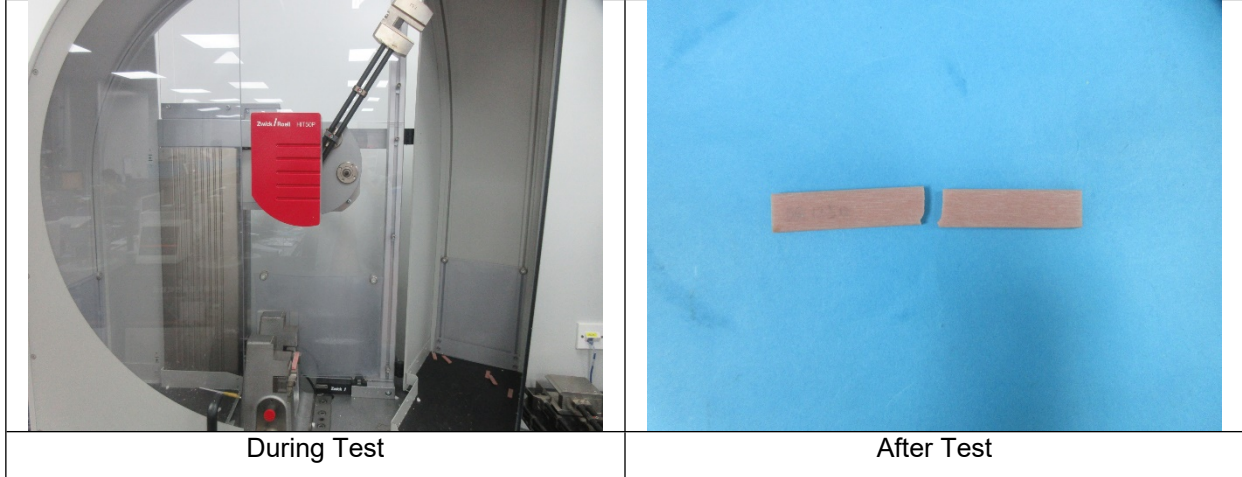
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Equipment Information:

Equipment	Model	Equipment No.	Calibration date	Next Calibration date
Impact Tester	HIT50P	GZMR-PL-E283	2023-06-26	2024-06-25



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8. Test Item: Abrasion Resistance

Sample Description: Plastic part

Test Method: Provided by client

Test Condition:

Load: 500g/wheel (total 1000g)

Wheel: H-18

Speed: 60r/min

Cycles: 600

Test Result:

Test Item	#1	#2	#3	Average
Sample size(L×W×H),mm	100×100×10	100×100×10	100×100×10	/
Weight before test, g (after opening)	124.2857	124.0937	124.7283	/
Volume before test, cm <sup>3</sup> (after opening)	100.45	100.29	100.80	/
Weight after test, g	124.1914	123.9947	124.6310	/
Loss of weight, g	0.0943	0.0990	0.0973	/
Loss of volume, cm <sup>3</sup>	0.08	0.08	0.08	0.08
Percent of loss of volume (after test)	0.08%	0.08%	0.08%	0.08%

Note:

- 1.Loss of volume=Loss of mass/Density of sample.
- 2.Percent of loss of volume=Loss of volume/volume before test× 100%, the results for reference only.
- 3.Density of sample was extracted from test item 1.



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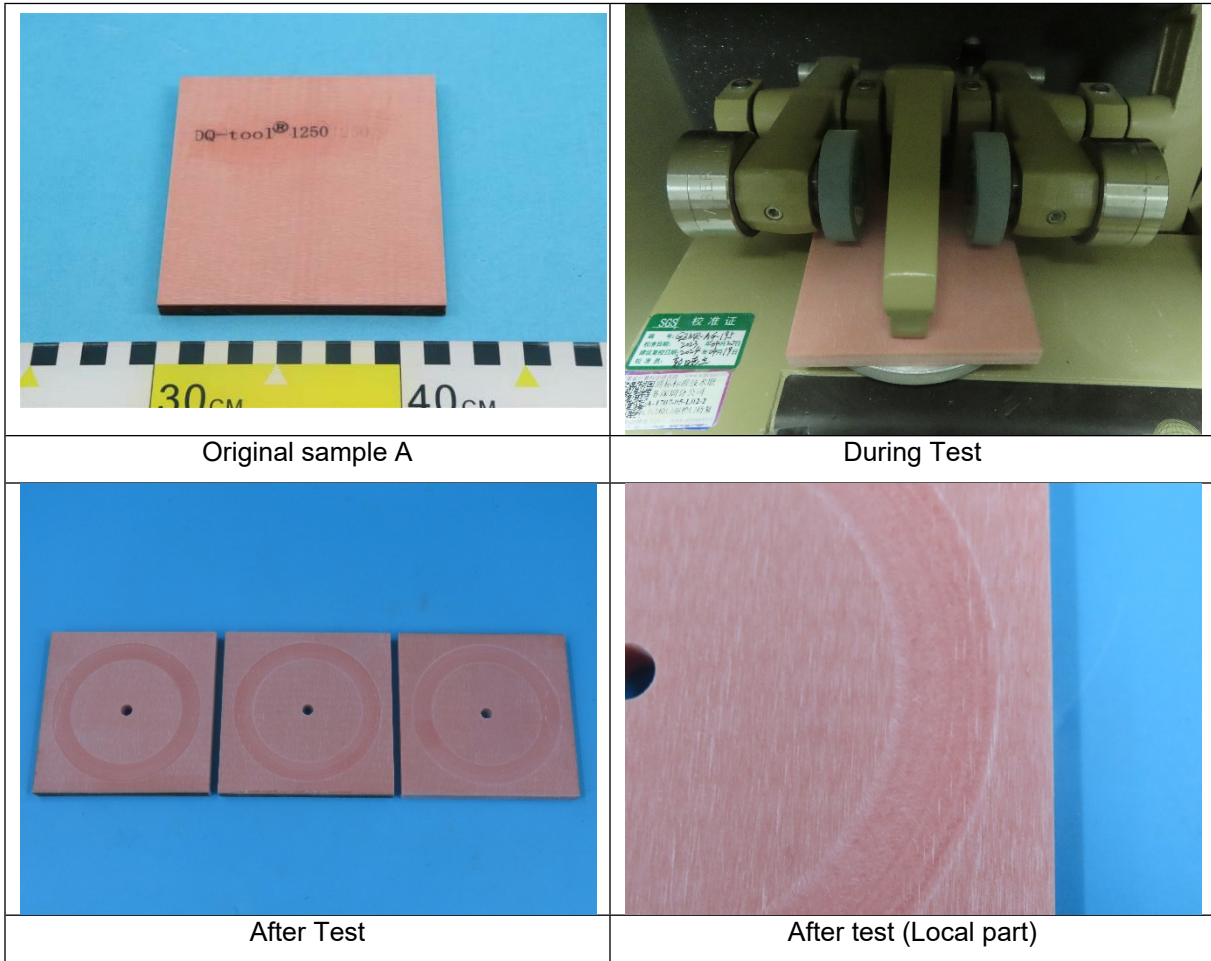
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Test Photo:



Equipment Information:

Equipment	Model	Equipment No.	Calibration date	Next Calibration date
Taber Abrasion Tester	5155	GZMR-AG-E195	2023-04-20	2024-04-19
Electronic balance	XPR504S/A C	GZMR-AG-E295	2023-09-13	2024-09-12

\*\*\*\*\* End of report\*\*\*\*\*



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