

No.: SHIN1805030757PS

Date: May 29, 2018

Page: 1 of 12

CUSTOMER NAME: SHANDONG BOCHUANG SEAL CO., LTD

ADDRESS: XUYUANZI INDUSTRY ZONE QINGYUN COUNTRY, DEZHOU CITY,

SHANDONG PROVINCE, CHINA

Sample Name Meter seal

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.

Date of Receipt : May 10, 2018 **Testing Start Date** : May 10, 2018 **Testing End Date** : May 29, 2018

Test result(s) : For further details, please refer to the following page(s)

(Unless otherwise stated the results shown in this test report refer only to

the sample(s) tested)

Signed for

SGS-CSTC Standards Technical Service (Shanghai)Co., Ltd.

Jane Deng

Authorized signatory





No.: SHIN1805030757PS

Date: May 29, 2018

Page: 2 of 12

Original Sample Photo:





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No.: SHIN1805030757PS

Date: May 29, 2018

Page: 3 of 12

1. Test Item: Major Composition Qualitative Analysis Sample Description: Transparent plastic particle

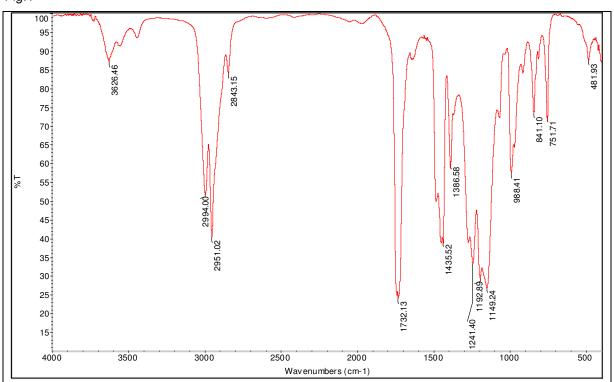
Test Method: ASTM E1252-98(2013)^{€1}, analysis was performed by FTIR.

Sample Technique: Hot-pressed film

Test Result:

Sample	Major composition
Transparent plastic particle	Poly(methyl methacrylate) (PMMA)
	(FTIR spectrum see Fig.1)

Fig.1





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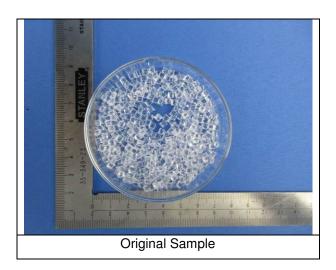


No.: SHIN1805030757PS

Date: May 29, 2018

Page: 4 of 12

Test Photo:







No.: SHIN1805030757PS

Date: May 29, 2018

Page: 5 of 12

2. Test Item: Density

Sample Description: Transparent plastic particle

Test Method: ASTM D792-13 Method B

Test Condition:

Absolute alcohol, 23 ± 0.5 °C

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

Test Result:

Test Item	Test Result
Density	1.19 g/cm ³

Note: Test specimens were cut from the injection molded sample.

3. Test Item: Flexural Test

Sample Description: Transparent plastic particle

Test Method: ASTM D790-17 Procedure A

Test Condition:

Specimen: 127.44 mm×12.659 mm×3.154 mm

Testing speed: 1.3 mm/min

Span: 50 mm

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

Test Result:

Test Item	Test Result
Flexural Strength	99.1 MPa
Flexural Modulus	3490 MPa

Note: Test specimens were injection molded.



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No.: SHIN1805030757PS

Date: May 29, 2018

Page: 6 of 12

4. Test Item: Melt Mass Flow Rate

Sample Description: Transparent plastic particle Test Method: ASTM D1238-13 Procedure A

Test Condition:

Drying condition: 80 °C, 2 h

Test condition: 230 °C, 3.8 kg

Test Result:

Test Item	Test Result
Melt Mass Flow Rate	16.4 g/10min

5. Test Item: Neutral Salt Spray Test

Sample Description: Transparent plastic particle

Test Method: ASTM B117-16 and client's requirement

Test Condition:

Concentration of solution collected: (5±1)% NaCl(m/m)

Chamber temperature: (35±2)°C

Volume of salt solution collected: (1.0~2.0)ml/(80cm²·h)

pH of collected solution at (23±3)°C: 6.5~7.2

Exposure period: 48h

Test Result:

Sample	Appearance
1	No visible change.

Note: Test specimens were cut from the injection molded sample.



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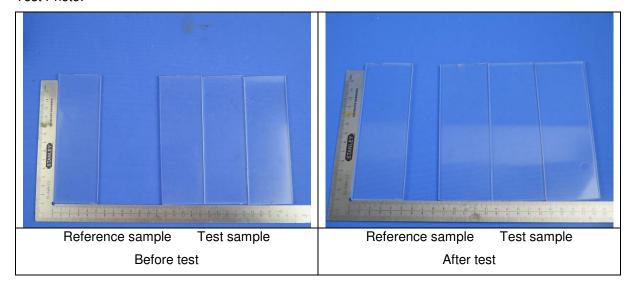


No.: SHIN1805030757PS

Date: May 29, 2018

Page: 7 of 12

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No.: SHIN1805030757PS

Date: May 29, 2018

Page: 8 of 12

6. Test Item: Rockwell Hardness

Sample Description: Transparent plastic particle Test Method: ASTM D785-08(2015) Procedure A

Test Condition:

Specimen thickness: 6.10 mm

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

Test Result:

Test Item	Test Result
Rockwell Hardness	108.0 L

Note: Test specimens were cut from the injection molded sample.

7. Test Item: Tensile Test

Sample Description: Transparent plastic particle

Test Method: ASTM D638-14

Test Condition:

Specimen: Type I

Specimen thickness: 3.210 mm

Specimen width of narrow part: 13.131 mm

Testing speed: 50 mm/min Gauge length: 50 mm

Distance between grips: 115 mm

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

Test Result:

Test Item	Test Result
Tensile Strength	78.9 MPa
Elongation at Break	3.6 %

Note: Test specimens were injection molded.



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No.: SHIN1805030757PS

Date: May 29, 2018

Page: 9 of 12

8. Test Item: Light Ageing Test-UV Exposure

Sample Description: Plastic Test Method: ASTM G53-84

Test Condition:

Exposure cycle:

Lamp type: UVA-340

4h UV at 60°C BPT, 0.76W/(m²•nm)@340nm

4h condensation at 50°C BPT

Exposure duration: 96h

Test Result:

Test Item	Grey scale	Appearance
Light Ageing Test-UV Exposure	4-5	Visible cracking

Note:

- 1. According to ISO 105-A02:1993/Cor.2:2005, the grey scale was determined under the D65 standard light, with scale 5 as the best and scale 1 as the worst.
- 2. The results were carried out within 1 hour after above specified durations for the intermediate inspection as well as at the end of the exposure.



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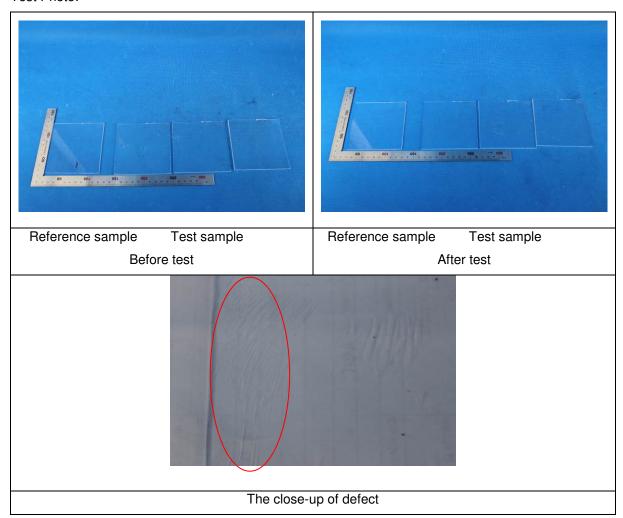


No.: SHIN1805030757PS

Date: May 29, 2018

Page: 10 of 12

Test Photo:





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No.: SHIN1805030757PS

Date: May 29, 2018

Page: 11 of 12

9. Test Item: Thermal conductivity Test Method: ASTN C518-17

Test Condition:

Specimen: 305mm×300mm×3.6mm, 1pc

Density: about 1146kg/m³ Mean temperature: 25°C

Temperature difference: 15°C

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

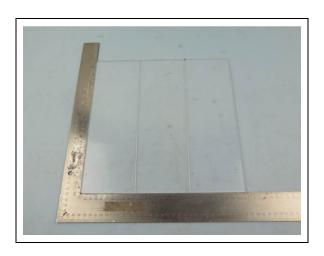
Test Result:

Test Item	Test Result
Thermal conductivity	0.060 W/(m·K)

Note:

- 1. The test result cannot be compared with other results obtained from different test conditions, and should not be cited to the use condition directly.
- 2. The specimen was cut from original sample, and jointed by three pieces.

Specimen photo:





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No.: SHIN1805030757PS

Date: May 29, 2018

Page: 12 of 12

10. Test Item: Refractive Index Np (73°F)

Sample Description: Solid

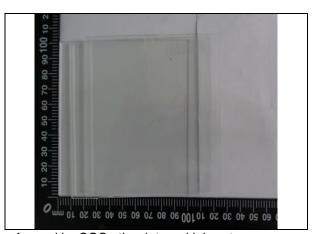
Test Method: ASTM D542-14 《Standard Test Method for Index of Refraction of Transparent

Organic Plastics》

Test Result:

Test Item	Test Result
Refractive Index Np (73°F)	1.493

Test Photo:



- The test item 8 was performed by SGS other internal laboratory.
- The test item 10 was carried out by external laboratory assessed as competent.

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



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