

Test Report No. 7191156943-MEC17/02A-ED_CR1
dated 31 Oct 2017



PSB Singapore

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SUBJECT:

Testing of sealant

TESTED FOR:

Guangzhou Baiyun Chemical Industry Co. Ltd.
No. 1, Yun An Road
Guangzhou Civilian Science & Technology Park
Taihe, Guangzhou
510540 Guangdong
China

SAMPLE DESCRIPTION:

The following items were received on 10 Mar 2017 as shown:

Sample	Size	Quantity
'BAI YUN® SS621 (One Component) High Performance Silicone Structural Sealant' (Photo 1)	590 ml/sausage	10 sausages

TEST METHODS:

Adopted ASTM C1184 : 2014 Standard Specification For Structural Silicone Sealants

Extrudability

- Adopted ASTM C603 : 2014 Standard Test Method For Extrusion Rate And Application Life Of Elastomeric Sealants

Test pressure : 50 psi
No. of determination : 1

Flow Properties

- ASTM C639 : 2015 Standard Test Method For Rheological (Flow) Properties Of Elastomeric Sealants

Method : Test method for 'Type II' sealant
Test conditions : a) 4.4°C in environmental chamber for 4 hours
b) 50°C in oven for 4 hours
No. of determinations : 2 for vertical and horizontal displacements

Amendment (18 DEC 17): Only "BAI YUN® SS621" results indicated.



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Hardness

3. ASTM C661 : 2015 Standard Test Method For Indentation Hardness Of Elastomeric-Type Sealants By Means Of A Durometer

Test Conditions:

- a) 23°C and 50% relative humidity for 7 days
 - b) 38°C and 95% relative humidity for 7 days
 - c) 23°C and 50% relative humidity for 7 days
- No. of determinations : 2, 3 points per test piece

Tack-Free Time

4. ASTM C679 : 2015 Standard Test Method For Tack-Free Time Of Elastomeric Sealants

No. of determinations : 2

Effects Of Heat Ageing

5. ASTM C1246 : 2017 Standard Test Method For Effects Of Heat Ageing On Weight Loss, Cracking, And Chalking Of Elastomeric Sealants After Cure

Test Conditions:

- a) 23°C and 50% relative humidity for 28 days
 - b) 70°C for 21 days
- No. of determinations : 3, 1 as control

Tensile Strength

6. ASTM C1135 : 2015 Standard Test Method for Determining Tensile Adhesion Properties of Structural Sealants

Test Conditions:

23°C and 50% relative humidity for 21 days

- a) Five test pieces were conditioned at standard conditions, 23°C and 50% relative humidity
- b) Five test pieces were conditioned at 88°C for 1 hour
- c) Five test pieces were conditioned at -29°C for 1 hour
- d) Five test pieces were immersed in distilled water at 23°C for 7 days
- e) Five test pieces were exposed to UV light for 5000 hours minimum

Test cycle : 8 hours UV exposure at 55°C and 4 hours condensation at 45°C

Lamp designation : Fluorescent UVA 340 nm

Crosshead speed : 50.8 mm/min

Substrate : Aluminium

No. of determinations : 5 per test condition

CONDITIONING:

Unless otherwise specified, all test specimens were tested at $23 \pm 2^\circ\text{C}$ and $65 \pm 5\%$ relative humidity.

Ed

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TEST RESULTS:

Test	'BAI YUN® SS621 (One Component) High Performance Silicone Structural Sealant'	Adopted ASTM C1184 : 2014 Table 1 Requirements For Physical, Mechanical And Performance Qualities Of The Sealant
1. Extrudability	0.46 g/s	10 s maximum
2. Rheological (Flow) Properties	Vertical : 0 mm sag Horizontal : No deformation	Vertical : 4.8 mm maximum Horizontal : No deformation
3. Indentation Hardness, Shore A	test piece 1, average : 45.6 test piece 2, average : 45.6 average of 2 test pieces : 45.6	20-60
4. Tack-Free Time	1 hour	No transfer in 3 hours
5. Effects Of Heat Ageing On Weight Loss, Cracking And Chalking, average	1.0% No cracking and chalking	Weight Loss : 10% maximum Cracking : None Chalking : None
6. Tensile Strength, average		
a. Standard conditions, 23°C and 50% RH	1330 kPa (192.8 psi)	Minimum 345 kPa (50 psi)
b. 88°C for 1 hour	1110 kPa (160.9 psi)	Minimum 345 kPa (50 psi)
c. -29°C for 1 hour	1070 kPa (155.1 psi)	Minimum 345 kPa (50 psi)
d. Water immersion at 23°C for 1 week	1060 kPa (153.6 psi)	Minimum 345 kPa (50 psi)
e. UV exposure for 5000 hours minimum	870 kPa (126.1 psi)	Minimum 345 kPa (50 psi)

REMARKS:

- The UV test condition was adopted from ASTM G154 : 2016 Standard Practice For Operating Fluorescent Light Apparatus For UV Exposure Of Non-Metallic Materials.
- The test standard was specified by the client.

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Senior Associate Engineer

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Engineer
Real Estate & Infrastructure
Mechanical Centre

Photo 1 : 'BAI YUN® SS621 (One Component) High Performance Silicone Structural Sealant'





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