

Test Report No. 7191237339-MEC20-ES
dated 29 Apr 2022



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SUBJECT:

Testing of multi-component sealant submitted by Guangzhou Baiyun Chemical Industry Co., Ltd

TESTED FOR:

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

SAMPLE DESCRIPTION:

The following sample information was received as follows:

Sample/Material	Size	Quantity
'BAI YUN® SS628 Silicone Structural Sealant' (refer to Photo 1) Part A Base: colour white Part B Catalyst: colour black	189 L 19 L	1 drum 1 pail



Photo 1: 'BAI YUN® SS628 Silicone Structural Sealant'



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TUV®

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SAMPLE DESCRIPTION: (cont'd)

The following items were provided by Guangzhou Baiyun Chemical Industry Co., Ltd.

As specified by the client, the mix ratio (base to catalyst) was prepared as 10 parts to 1 part by volume.

Test/Test specimen	Quantity	Date prepared
1. flow property for ASTM C639	2 pcs	9 Apr 2020
2. extrusion for ASTM C603	1 cartridge	22 Sep 2020
3. hardness for ASTM C661	2 pcs	9 Apr 2020
4. heat ageing/mass loss for ASTM C792	3 pcs	9 Apr 2020
5. tack-free time for ASTM C679	2 pcs	9 Apr 2020

The following items were received as shown:

Material/Test specimen/Substrate	Size	Quantity	Date received
Empty cartridges for extrusion test	300ml/cartridge	6 pcs	18 May 2020
Test specimen/Substrate	Size	Quantity	Date received
tensile test specimens on glass substrates for ASTM C1135	glass substrate : 76 mm x 25 mm x 10 mm (2 pieces bonded, each 5 mm thick) test specimen : 50.8 mm x 12.7 mm x 9.5 mm	26 pcs	20 Sep 2021
'BAI YUN® SS628 Silicone Structural Sealant'			
Part A Base: colour white	500 ml	1 tub	
Part B Catalyst: colour black	50 ml	1 tub	

TEST METHODS:

Adopted ASTM C1184 : 2018 Standard Specification For Structural Silicone Sealants

Extrudability

- Adopted ASTM C603 : 2014 (2019) 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 IV' 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

TEST METHODS: (cont'd)

Hardness

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

Test Conditions:

23°C and 50% relative humidity for 14 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 C792 : 2015 (2020) Standard Test Method For Effects Of Heat Ageing On Weight Loss, Cracking, And Chalking Of Elastomeric Sealants

Test Conditions:

a) 23°C and 50% relative humidity for 7 days

b) 88°C for 21 days

No. of determinations : 3, 1 as control

Tensile Strength

6. Adopted ASTM C1135 : 2019 Standard Test Method For Determining Tensile Adhesion Properties Of Structural Sealants

Test Conditions:

a. 23°C and 50% relative humidity for 21 days

b. 23°C and 50% relative humidity for 21 days and followed by 88°C for 1 hour

c. 23°C and 50% relative humidity for 21 days and followed by -29°C for 1 hour

d. 23°C and 50% relative humidity for 21 days and followed by water immersion at standard conditions for 1 week

e. 23°C and 50% relative humidity for 21 days and followed by UV exposure for 5000 hours:
8 hours UV at 60°C, 4 hours condensation at 50°C, UVA 340 nm and 0.89 W/m².nm

Test specimen : Tensile test specimen assembly using glass substrates

Contact test area : 50.8 mm x 12.7 mm

Test temperature : Room temperature

Grip length : 9.5 mm

Crosshead speed : 12.7 mm/min

No. of determinations : 3 per test condition

CONDITIONING:

Unless otherwise specified, all test specimens were tested at 23 ± 2°C and 50 ± 5% relative humidity.
Standard Conditions parameters: 23 ± 2°C and 50 ± 5% relative humidity.



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TEST RESULTS:

Test	'BAI YUN® SS628 Silicone Structural Sealant'	ASTM C1184 : 2018 Requirements For Physical, Mechanical, And Performance Qualities Of The Sealant
1. *Extrudability	6.5 sec	10 sec maximum
2. *Rheological (Flow) Properties	Vertical displacement: 0 mm sag Horizontal displacement: No deformation	Vertical 4.8 mm (3/16 in.) maximum Horizontal no deformation maximum
3. *Indentation Hardness	test piece 1, average : 42.1 test piece 2, average : 41.8 average of 2 test pieces : 41.9	20 to 60
4. *Tack-Free Time	2 hours and 30 mins No transfer of test specimens to the polyethylene film	no transfer in 3 h
5. **Effects Of Heat Ageing On Weight Loss, Cracking And Chalking, average	2.8% No cracking and chalking	Weight Loss 10% maximum Cracking None Chalking None
6. **Maximum Tensile Strength, average a. Standards conditions b. 88°C for 1 hour c. -29°C for 1 hour d. Water immersion for 1 week e. UV exposure for 5000 hours	1289 kPa (186 psi) 932 kPa (135 psi) 2637 kPa (382 psi) 864 kPa (125 psi) 843 kPa (122 psi)	a. Standards conditions 345 kPa (50 psi) b. 88°C (190°F) 345 kPa (50 psi) c. -29°C (-20°F) 345 kPa (50 psi) d. Water immersion 345 kPa (50 psi) e. A minimum of 5000 hours weathering 345 kPa (50 psi)

REMARKS:

- The test conditions for tensile properties after UV exposure were adopted from ASTM G154 : 2016 Standard Practice For Operating Fluorescent Light Apparatus For UV Exposure Of Non-Metallic Materials.
- The tests, test standard and test conditions were specified, requested and agreed by the client.
- The type of substrate for tensile strength test was specified by the client.
- The substrates did not require primer before application of the sealant as specified by the client.
- Double glass substrates were used for tensile strength tests, bonded with epoxy adhesive provided as requested by the client.
- *The tests were conducted at No. 1 Science Park Drive, Singapore 118221.
- **The tests were conducted at 15 International Business Park, Singapore 609937.


Lem Chee Meng
Testing Officer


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Effective 26 January 2021

