



ENTE CERTIFICAZIONE MACCHINE

Organismo di Certificazione e di Ispezione - Punto GS

Ente di Formazione n. 6737 - Laboratorio di Prova ISO/IEC 17025



Test Report

EN 1279-4:2018

Two-Component Silicone Sealant For Insulating Glass

September 02 2019

Test report n°	LSH19070287D	Issued	02/09/2019	authorized copy from:	Resp. Tim Mahan
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Test Report

Guangzhou Jointas Chemical Co., Ltd.

2&5 Floor, Building 6, No 62 Nanxiangyilu, High-Tech Industry
..Development Zone, Guangzhou 510663, China

Two-Component Silicone Sealant For Insulating Glass

Standard:

EN 1279-4:2018

Glass in Building - Insulating Glass Units - Part 4: Methods
of test for the physical attributes of edge seal components
and inserts

Prepared For:

Guangzhou Jointas Chemical Co., Ltd.

*2&5 Floor, Building 6, No 62 Nanxiangyilu, High-Tech Industry
..Development Zone, Guangzhou 510663, China*

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Applicant : Guangzhou Jointas Chemical Co., Ltd.

Add. of Applicant : 2&5 Floor, Building 6, No 62 Nanxiangyilu, High-Tech Industry
Development Zone, Guangzhou 510663, China

The following sample(s) was/were submitted and identified by the client as:

Sample Name : Two-Component Silicone Sealant For Insulating Glass

Style/Item No. : antas-165

Sample Number : 5 Pcs.

Ratio of sample : A:B = 12:1

Sample Receiving Date : Aug. 01, 2019

Testing Period : Aug. 01, 2019 to Sept. 02, 2019

Test Requested : As requested by applicant, to determine Change in Volume , Infrared
Spectrum Analysis, Thermo-gravimetric Analysis, Density, Cohesive and
Adhesive Strength, Crossover Stress, MVTR and GP in accordance with
EN 1279-4:2018;

Test Conclusion : The tested product meets the applicable requirements as stated in European
Standards stated above. For details, Refer to following pages.

For and on behalf of
ECM Shanghai Co., Ltd.

Authorized Signature

Tim Mahan



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TEST CONDUCT: Glass in Building - Insulating Glass Units - Part 4: Methods of test for the physical attributes of edge seal components and inserts (EN 1279-4:2018)

I.1 Determination of change in volume:

<i>Test Item</i>	: Change in volume		
<i>Clause</i>	: EN 1279-4:2018, clause 5.2 physicochemical characterization		
<i>Test Method</i>	: EN ISO 10563-2017		
<i>Sample description</i>	: sealant		
<i>Number of Specimens</i>	: 3		
<i>Deviations of the standard</i>	: None		
<i>Test Item</i>	<i>Unit</i>	<i>Test Method</i>	<i>Result(s)</i>
Change in volume	%	EN ISO 10563-2017	0.75
Remark: Test results were only responsible for sample(s) submitted by applicant			

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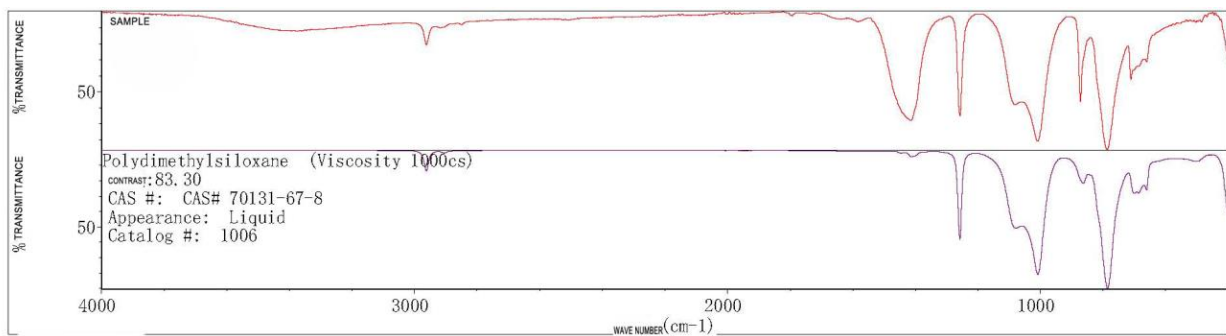
TEST CONDUCT: Glass in Building - Insulating Glass Units - Part 4: Methods of test for the physical attributes of edge seal components and inserts (EN 1279-4:2018)

I. 2 Infrared Spectrum Analysis:

Test Item	: 2- Infrared Spectrum Analysis		
Clause	: EN 1279-4-2018, clause 5.2 physicochemical characterization		
Test Method	: In the range from 400 cm ⁻¹ to 4000 cm ⁻¹ , in ATR mode, On germanium, zinc sulphide or diamond, On the freshly cut surface of the sealant sample		
Sample description	: sealant		
Number of Specimens	: 1pcs, cured to sheet		
Deviations of the standard	: None		
Test Item	Unit	Test Method	Result(s)
Infrared Spectrum Analysis	—	EN 1279-4-2018 clause 5.2	Polydimethylsiloxane

Remark: Test results were only responsible for sample(s) submitted by applicant

Atlas 1.0



MATCHING NUMBER TABLE AFTER RETRIEVAL

NO.	MATCHING DEGREE	COMPOUND NAME	NAME OF ATLAS LIBRARY
1	83.30	Polydimethylsiloxane (Viscosity 1000cs)	HR Spectra Polymers and Plasticizers by ATR
2	83.29	Polydimethylsiloxane, Dihydroxy Terminated (mw 36000)	HR Spectra Polymers and Plasticizers by ATR
3	83.28	Polydimethylsiloxane, (Viscosity 100000cs)	HR Spectra Polymers and Plasticizers by ATR

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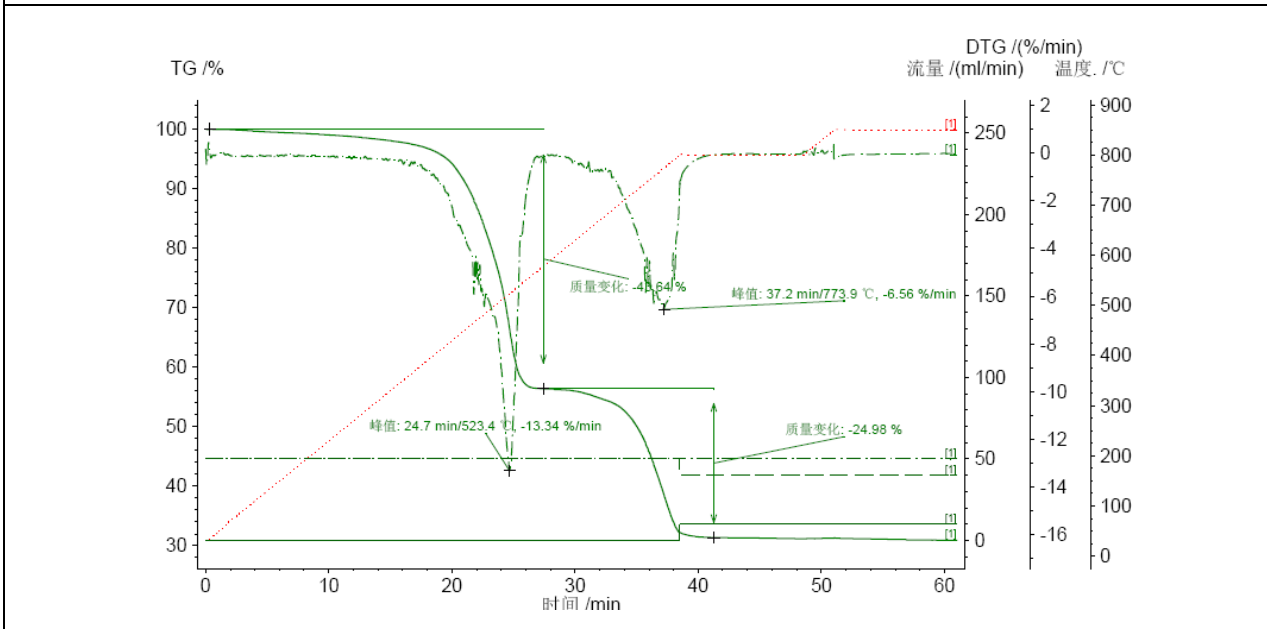
TEST CONDUCT: Glass in Building - Insulating Glass Units - Part 4: Methods of test for the physical attributes of edge seal components and inserts (EN 1279-4:2018)

I. 3 Thermogravimetric analysis:

Test Item	: 3- Thermogravimetric analysis		
Clause	: EN 1279-4-2018, clause 5.2 physicochemical characterization		
Test Method	: EN ISO 11358-1-2014, clause 8.2		
Sample description	: sealant		
Number of Specimens	: 1 pcs, cured to sheet		
Deviations of the standard	: None		
Test Item	Unit	Test Method	Result(s)
Thermogravimetric analysis	—	EN ISO 11358-1-2014 clause 8.2	Refer to Atlas 2.0

Remark: Test results were only responsible for sample(s) submitted by applicant

Atlas 2.0



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TEST CONDUCT: Glass in Building - Insulating Glass Units - Part 4: Methods of test for the physical attributes of edge seal components and inserts (EN 1279-4:2018)

I. 4 Density:

<i>Test Item</i>	: 4- Density		
<i>Clause</i>	: EN 1279-4-2018, clause 5.2 physicochemical characterization		
<i>Test Method</i>	: EN ISO 1183-1-2019, Procedure A		
<i>Sample description</i>	: sealant		
<i>Number of Specimens</i>	: 3		
<i>Deviations of the standard</i>	: None		
<u>Test Item</u>	<u>Unit</u>	<u>Test Method</u>	<u>Result(s)</u>
Density	g/cm ³	EN ISO 1183-1-2019 Procedure A	1.446
Remark: Test results were only responsible for sample(s) submitted by applicant			

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TEST CONDUCT: Glass in Building - Insulating Glass Units - Part 4: Methods of test for the physical attributes of edge seal components and inserts (EN 1279-4:2018)

I. 5 Cohesive and adhesive strength:

Test Item	: 5- Cohesive and adhesive strength								
Clause	: EN 1279-4-2018, clause 5.3 outer sealant strength								
Test Method	: EN 1279-4-2018, Annex A								
Sample description	: sealant								
Specimen size	: glass-sealant-glass joints, sealant size:50*12*12								
Number of Specimens	: 5Pcs. for each testing regime								
Conditioning	: 23 °C/50%RH, 7days after initial curing								
Ageing regimes	: 1- Initial test 2- after 504h UV exposure and 168h charmbearing @ 58°C/95%RH 3- after 96h water immersion								
Deviations of the standard	: None								
<u>Test Items</u>		<u>Test Method</u>	<u>Testing Result</u>						
			<u>crossover stress, σ_c</u> (MPa)	<u>Average stress, σ_{av}</u> (MPa)	<u>Type of failure*</u>				
Adhesion	Initial test (series 1)	EN 1279-4-2018 Annex A	0.55	Pass (≥0.31)	SB	CF	SB	SB	CF
	After 504h UV+168h at 58°C /95%RH (series 2)		0.49	Pass (≥0.26)	CF	CF	CF	CF	CF
	After 168h Water Immersion (series 3)		0.57	Pass (≥0.29)	CF	CF	CF	CF	CF
Note: 1-Type of failure SB = substrate damage(float glass broken); 2-Type of failure CF = cohesion failure; 3- Test results were only responsible for sample(s) submitted by applicant									

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TEST CONDUCT: Glass in Building - Insulating Glass Units - Part 4: Methods of test for the physical attributes of edge seal components and inserts (EN 1279-4:2018)

Tensile stress-strain curves

Figure 1: Initial test

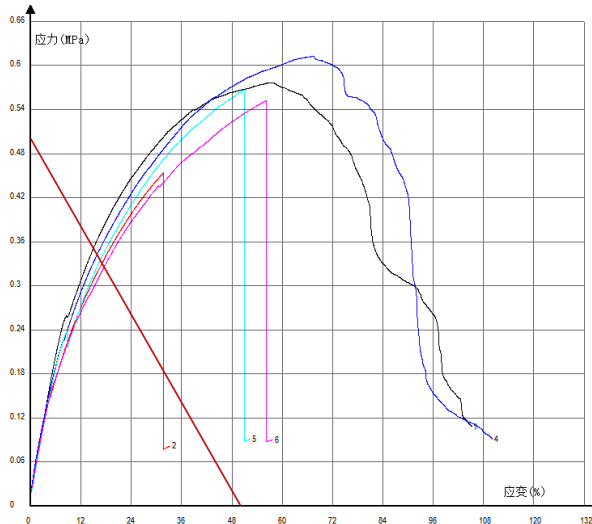
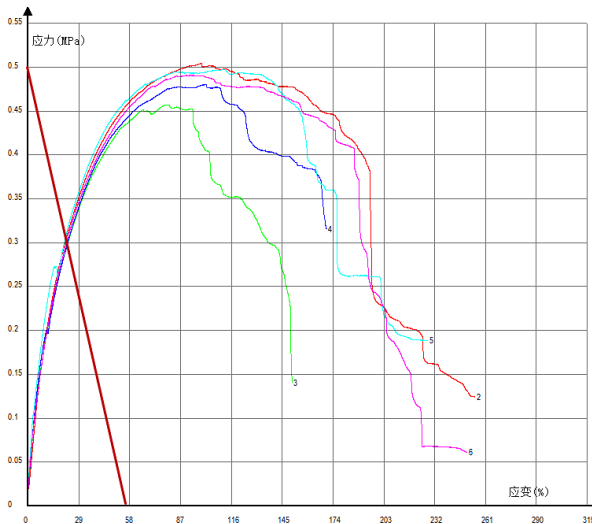


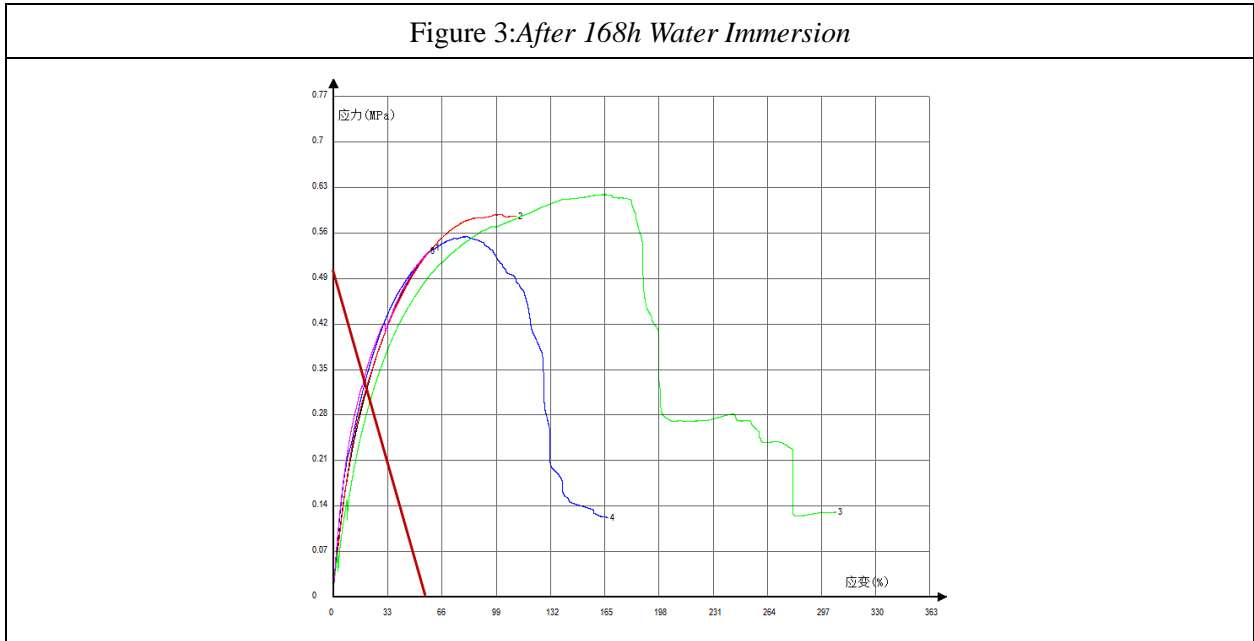
Figure 2: After 504h UV+168h at 58 °C/95%RH



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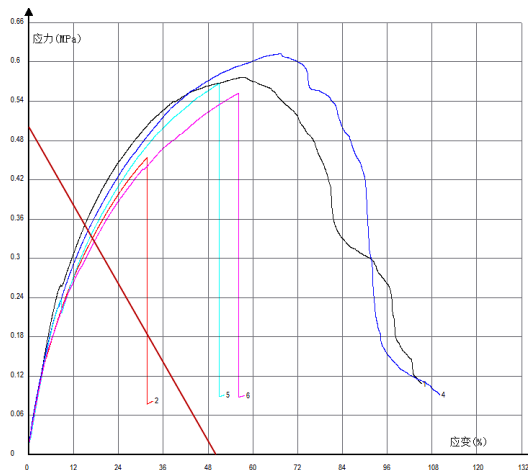
TEST CONDUCT: Glass in Building - Insulating Glass Units - Part 4: Methods of test for the physical attributes of edge seal components and inserts (EN 1279-4:2018)

Test Item	: 6- Crossover stress
Clause	: EN 1279-4-2018, clause 5.5 characteristics for the substitution of sealant
Test Method	: EN 1279-4-2018, Annex A
Sample description	: sealant
Specimen size	: glass-sealant-glass joints, sealant size:50*12*12
Number of Specimens	: 5Pcs. for each testing regime
Conditioning	: 23°C/50%RH, 7days after initial curing
Deviations of the standard	: None

<u>Test Items</u>		<u>Test Method</u>	<u>Testing Result</u>					
			<u>crossover stress, σ_c</u> (MPa)	<u>Type of failure*</u>				
				<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Adhesion	Initial test (series 1)	EN 1279-4-2018 Annex A	0.31	SB	CF	SB	SB	CF

Remark: 1-Type of failure SB = substrate damage(float glass broken);
 2-Test results were only responsible for sample(s) submitted by applicant

Tensile stress-strain curves



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TEST CONDUCT: Glass in Building - Insulating Glass Units - Part 4: Methods of test for the physical attributes of edge seal components and inserts (EN 1279-4:2018)

I. 7 Water vapour transmission rate(WVTR):

<i>Test Item</i>	: 7- Water vapour transmission rate(WVTR)		
<i>Clause</i>	: EN 1279-4-2018, clause 5.5 characteristics for the substitution of sealant		
<i>Test Method</i>	: EN 1279-4-2018,Annex D		
<i>Sample description</i>	: sealant		
<i>Specimen size</i>	: cured to sheet, thickness=2.0mm		
<i>Number of Specimens</i>	: 3pcs		
<i>Test conditions</i>	: 23 °C,90%RH		
<i>Deviations of the standard</i>	: None		
<u>Test Item</u>	<u>Unit</u>	<u>Test Method</u>	<u>Result(s)</u>
Water vapour transmission rate(WVTR)	g/(m ² .d)	EN 1279-4-2018 Annex D	13.658
Remark: Test results were only responsible for sample(s) submitted by applicant			

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I. 8 Gas permeation:

<i>Test Item</i>	: 8- Gas permeation		
<i>Clause</i>	: EN 1279-4-2018, clause 5.5 characteristics for the substitution of sealant		
<i>Test Method</i>	: EN 1279-4-2018, Annex D		
<i>Sample description</i>	: sealant		
<i>Specimen size</i>	: cured to sheet, thickness=2.0mm		
<i>Number of Specimens</i>	: 3pcs		
<i>Test conditions</i>	: 23°C, 0%RH		
<i>Deviations of the standard</i>	: None		
<u>Test Item</u>	<u>Unit</u>	<u>Test Method</u>	<u>Result(s)</u>
Gas permeation	g/(m ² ·d)	EN 1279-4-2018 Annex D	3.295
Remark: Test results were only responsible for sample(s) submitted by applicant			

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II. Annex



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