



**Test Report**

**No. AJHL1702001201FB**

**Date: FEB.21, 2017**

**Page 1 of 5**

**ZHEJIANG ZHONGCAI PROFILES CO., LTD.**

**ZHEJIANG HANGZHOU XIASHA DISTRICT 11<sup>TH</sup> STREET NO.6**

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

**Sample Description:** PVC PROFILES

**SGS Ref No.:** HZIN1702000203ML

**Test Requested:**

ASTM D 2863:2013 Standard Test Method for Measuring the Minimum Oxygen Concentration to Support Candle-Like Combustion of Plastics (Oxygen Index)

**Test Results:** -- See attached sheet --

**Test Period:**

Sample Receiving Date : FEB.14, 2017

Test Performing Date : FEB.14, 2017 TO FEB.20, 2017

Signed for and on behalf of  
SGS-CSTC Co., Ltd. Anji Branch

Allen Zou  
Technical Manager



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/ Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/ Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.  
Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8367 1442, or email: [CN\\_Doccheck@sgs.com](mailto:CN_Doccheck@sgs.com)  
No. 301, Sunlight Road, 2 Block, Sunlight Industry Zone, Anji County, Zhejiang Province, China 313300 t (86-572) 5018825 f (86-572) 5018829 www.sgs.com.cn  
中国·浙江·安吉县阳光工业园二区阳光大道301号 邮编: 313300 t (86-572) 5018825 f (86-572) 5018829 e [sgs.china@sgs.com](mailto:sgs.china@sgs.com)

Member of the SGS Group (SGS SA)



**Test Report**

No. AJHL1702001201FB

Date: FEB.21, 2017

Page 2 of 5

**I. Test Conducted**

This test is conducted accordance with ASTM D 2863:2013 Standard Test Method for Measuring the Minimum Oxygen Concentration to Support Candle-Like Combustion of Plastics (Oxygen Index).

**II. Sample Descriptions**

Name / Color	PVC Profiles / White		
Size of sample	Length: 80mm	Width: 10mm	Thickness: 3.2mm

Conditioning	Temperature	RH	Duration
Precondition	23±2 °C	50±5%	≥88h
Test condition	23±2 °C	50±5%	--

Test specimen type	III
Ignition method	Top surface ignition
Flow rate in column	40mm/s at temperature 23±2 °C, lasting time≥30s
Test procedure	Procedure A

**III. Test results**

- Select initial oxygen concentration (in accordance with 11.1.1): 47.2%.
- Determining the Preliminary Oxygen Concentration (Till pair of oxygen concentrations which gives opposite response differs by ≤1%, in accordance with 11.1.10)

Oxygen concentration, %	40	42	44	45	46	47	48
Burning period, s	<180	<180	<180	<180	<180	<180	>180
Response, "X" or "O"	O	O	O	O	O	O	X

Oxygen concentration of the "O" response for the pair = 47.0% (this is the concentration to be used again for the first measurement in section below)

- Determination of the oxygen index (in accordance with 11.1.11)

Step size to be used for successive changes d in oxygen concentration = 0.2 % [Initially to be 0.2% (V/V), unless otherwise instructed]

To be continued...



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/ Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/ Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.  
 Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8367 1443, or email: [Doccheck@sgs.com](mailto:Doccheck@sgs.com)  
 No. 301, Sunlight Road, 2 Block, Sunlight Industry Zone, Anji County, Zhejiang Province, China 313300 t (86-572) 5018825 f (86-572) 5018829 www.sgs.com.cn  
 中国·浙江·安吉县阳光工业园二区阳光大道301号 邮编: 313300 t (86-572) 5018825 f (86-572) 5018829 e sgs.china@sgs.com

Member of the SGS Group (SGS SA)



**Test Report**

No. AJHL1702001201FB

Date: FEB.21, 2017

Page 3 of 5

N <sub>T</sub> series measurements										
Parameter	N <sub>L</sub> series measurements (11.1.11.1+11.1.11.2)					(11.1.11.3)				C <sub>f</sub>
	Oxygen concentration, % (V/V)	47.0	47.2	47.4		-- →	47.4	47.2	47.0	
Burning period, s	<180	<180	>180			>180	>180	<180	>180	<180
Response, "X" or "O"	O	O	X			X	X	O	X	O
Column (2, 3, 4 or 5): 3	Row (1 to 16): 13									
k value from table below: 0.94										
Hence k = 0.94										

$OI = Cf + kd = 47.0 + (0.94 \times 0.2)$

$= 47.2\%$  (to one decimal place, for reporting OI)

$= 47.19\%$  (to two decimal places, for calculation of and verification of d as required)

4) Determination of K value

1	2	3	4	5	6
Responses for the last five measurements	Values of k for which the first NL determinations are				
	a)O	OO	OOO	OOOO	
XOOOO	-0.55	-0.55	-0.55	-0.55	OXXXX
XOOOX	-1.25	-1.25	-1.25	-1.25	OXXXO
XOOXO	0.37	0.38	0.38	0.38	OXXOX
XOOXX	-0.17	-0.14	-0.14	-0.14	OXXOO
XOXOO	0.02	0.04	0.04	0.04	OXOXX
XOXOX	-0.50	-0.46	-0.45	-0.45	OXOXO
XOXXO	1.17	1.24	1.25	1.25	OXOOX
XOXXX	0.61	0.73	0.76	0.76	OXOOO
XXOOO	-0.30	-0.27	-0.26	-0.26	OXXXX
XXOOX	-0.83	-0.76	-0.75	-0.75	OXXOX
XXOXO	0.83	0.94	0.95	0.95	OXXOX
XXOXX	0.30	0.46	0.50	0.50	OXXOO
XXXOO	0.50	0.65	0.68	0.68	OOXXX

To be continued...



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/terms-and-conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/terms-and-conditions/terms-a-document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained herein reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.  
 Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8367 1882, or email: CN\_Doccheck@sgs.com  
 No. 301, Sunlight Road, 2 Block, Sunlight Industry Zone, Anji County, Zhejiang Province, China 313300 t (86-572) 5018825 f (86-572) 5018829 www.sgs.com.cn  
 中国·浙江·安吉县阳光工业园二区阳光大道301号 邮编: 313300 t (86-572) 5018825 f (86-572) 5018829 e sgs.china@sgs.com

Member of the SGS Group (SGS SA)



Test Report

No. AJHL1702001201FB

Date: FEB.21, 2017

Page 4 of 5

XXXOX	-0.04	0.19	0.24	0.25	OOOXO
XXXXO	1.60	1.92	2.00	2.01	OOOXO
XXXXX	0.89	1.33	1.47	1.50	OOOOO
	Values of k for which the first NL determinations are				Responses for the last five measurements
	X	XX	XXX	XXXX b)	
	Are as given in the above table opposite the appropriate response in column6 a, but with the sign of k reversed i.e. OI=Cf-kd (see 9.1)				

5) Verification of step size d % oxygen concentration(in accordance with 11.1.11.6 and 12.3)

Last six results		Oxygen concentration, % (V/V)			
		C <sub>i</sub> <sup>a</sup>	OI	C <sub>i</sub> - OI	(C <sub>i</sub> - OI) <sup>2</sup>
C <sub>f</sub>	1	47.0	47.19	-0.19	0.0361
	2	47.2	47.19	0.01	0.0001
	3	47.0	47.19	-0.19	0.0361
	4	47.2	47.19	0.01	0.0001
	5	47.4	47.19	0.21	0.0441
n	6	47.2	47.19	0.01	0.0001
Total $\sum(C_i - OI)^2$					0.1166

a Column C<sub>i</sub> contains the oxygen concentrations used for the measurements of C<sub>f</sub> and for each of the 5 preceding measurements, for n = 6

Estimation of standard deviation:

If  $2\sigma^*/3 < d < 3\sigma^*/2$  or  $0.2 = d > 3\sigma^*/2$ , the OI is valid.

$$\sigma^* = [\sum C_i - OI^2 / (n-1)]^{(1/2)} = 0.153$$

$$2\sigma^*/3 = 0.102$$

$$3\sigma^*/2 = 0.229$$

Since d is in the acceptable range, OI is valid

Oxygen Index (OI) = 47.2% (V/V).

To be continued...



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/term-and-conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/term-and-conditions/terms-a-document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only. Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8367 1443, or email: CN\_Doccheck@sgs.com

No. 301, Sunlight Road, 2 Block, Sunlight Industry Zone, Anji County, Zhejiang Province, China 313300 t (86-572) 5018825 f (86-572) 5018829 www.sgs.com.cn  
 中国·浙江·安吉县阳光工业园二区阳光大道301号 邮编: 313300 t (86-572) 5018825 f (86-572) 5018829 e sgs.china@sgs.com

Member of the SGS Group (SGS SA)



**Test Report**

**No. AJHL1702001201FB**

**Date: FEB.21, 2017**

**Page 5 of 5**

**STATEMENTS:**

The test results only to the flammability of the sample or combination of materials under the particular condition of test. They are not intended as a means of assessing the full potential fire hazard of the materials or products in use.

The specimen was supplied by the sponsor and SGS-CSTC ANJI Branch was not involved in any selection or sampling procedure.

**Photo Appendix:**



SGS authenticate the photo on original report only

\*\*\*End of Report\*\*\*



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.  
 Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)  
 No. 301, Sunlight Road, 2 Block, Sunlight Industry Zone, Anji County, Zhejiang Province, China 313300 t (86-572) 5018825 f (86-572) 5018829 www.sgs.com.cn  
 中国·浙江·安吉县阳光工业园二区阳光大道301号 邮编: 313300 t (86-572) 5018825 f (86-572) 5018829 e [sgs.china@sgs.com](mailto:sgs.china@sgs.com)

Member of the SGS Group (SGS SA)