

Test report

Test report relating to the displacement under permanent shear load (creep test) of a structural sealant according to EN 15434 - concerning the product marked as:MF881-25HM Silicone, manufactured by: Zhengzhou Zhongyuan Silande High Technology Co., Ltd

Report number	89206141-01 rev1
Date	17 August 2018
Author(s)	Mr. M.A.A.M. Schets, B. Sc.
Client	Zhengzhou Zhongyuan Silande High Technology Co., Ltd No.28, Dongqing West St. Zhengzhou Hi-tech Development Zone, 450001 China
Project number	89206141
Project name	14.A153 Creep test EN15434
Number of pages	10

All rights reserved.

No part of this report may be reproduced, provided to and/or examined by third parties, and/or published by print, photoprint, microfilm, in electronic form or any other means without the explicit previous written consent of TÜV Rheinland Nederland B.V.

In case this report was drafted within the context of an assignment to TÜV Rheinland Nederland B.V., the rights and obligations of contracting parties are subject to the General Terms & Conditions for Advisory, Research and Certification assignments to TÜV Rheinland Nederland B.V and/or the relevant agreement concluded between the contracting parties.

© 2010 TÜV Rheinland Nederland B.V.

Headoffice:

Boogschutterstraat 11A
P.O. Box 541
7300 AM Apeldoorn
Tel. +31 (0)88 888 7 888
Fax +31 (0)88 888 7 879

Locations:

Vissenstraat 6
P.O. Box 541
7324 AL Apeldoorn
Tel. +31 (0)88 888 7 888
Fax +31 (0)88 888 7 879

Eiberkamp 10
P.O. Box 37
9350 AA Leek
Tel. +31 (0)88 888 7 888
Fax:+31 (0)594 504 804

Josink Esweg 10
P.O. Box 337
7500 AH Enschede
Tel. +31 (0)88 888 7 888
Fax +31 (0)88 888 7 859

TÜV Rheinland Nederland B.V. is a registered company at the Dutch Chamber of Commerce under number 27288788
info@nl.tuv.com
www.tuv.com/nl

Contents

1	Introduction	3
1.1	Purpose	3
1.2	Description of the samples	3
1.3	Sampling procedure	4
1.4	Application	4
1.5	Method of testing	4
1.6	Put out to contract	4
1.7	Privacy statement	4
2	Procedure	5
2.1	Test equipment and measurement uncertainty	5
3	Test results	6
4	References	7
5	Signatures	8
Appendix A	Pictures of the tested object(s)	9

1 Introduction

1.1 Purpose

The tests have been performed in order to determine the displacement under permanent shear load (creep test) of a sealant according to EN 15434 [1].

Revision 1 was made because of a name change of the client.

1.2 Description of the samples

General

Name of the Manufacturer	Zhengzhou Zhongyuan Silande High Technology Co., Ltd
Address of the manufacturer	No.28, Dongqing West St. Zhengzhou Hi-tech Development Zone, 450001 China
Production plant of the samples	information not supplied
Line ID where the samples are made	information not supplied
Production date	5 June 2014
Sampling date	15 June 2014
The product was marked as	MF881-25HM Silicone
Trade mark	Silande

Specific

Sample see annex A	number: 6
	length x wide: 200 x 200 mm
	nominal sealant height h : 6 mm
Sealant material	
Type	silicone, two component structural sealant
Batch No. Component A	no batch number given
Batch No. Component B	no batch number given
Colour	Black
Substrate Specification	
A Type of glass (coating)	Clear float glass, no coating, 8 mm

1.3 Sampling procedure

The samples have been submitted by the assignor. The test house, acting as notified test body, has had no influence on the selection of the samples. The samples were received on 16 June 2014.

1.4 Application

The request for testing was submitted by the assignor on 23 May 2014. Assignment Form number: 14.A153.

1.5 Method of testing

All applicable tests have been performed according to the standard EN 15434 [1].

1.6 Put out to contract

No tests were performed at third parties.

1.7 Privacy statement

Due to privacy reasons, the names of involved personnel that executed the tests are not disclosed in the report. However, this information is available on internal work sheets, test forms etc. in the project file.

2 Procedure

The creep test was performed according to § 5.3.8. of EN 15434 [1]. Before testing the samples were stored for a minimum of 28 days in an air conditioned room at (23±2) °C and (50±5) % relative humidity and tested at this condition.

The creep installation subjects simultaneously the test specimens for 91 days to:

- tensile loading of $F_{t,i} = 2 * L * w * P_{t,i}$

Where

L: length the of the seal (mm)

w: wide of seal (mm)

$P_{t,i} = 0,3 * \delta_{des}$ and $\delta_{des} = R_{u;5} / 6$

$R_{u;5}$ is the characteristic shear stress value at 23°C giving 75% confidence that 95% of the test results will be higher than this value.

This value has been determined as 0.80 MPa, see test report 89205978-01 rev 01 [2].

- Permanent shear loading of : $F_s = 2 * L * w * \tau_{\infty}$

With τ_{∞} stress given by the manufacturer, taking into account a minimum creep factor (γ_c) of 10

No value for τ_{∞} was given by manufacturer.

For the test a value for τ_{∞} of $\delta_{des} / \gamma_c = R_{u;5} / (6*10)$ is used.

For the test the sealant length and average wide of the test specimens was used to calculate the tensile and shear loading. The load was applied with dead weights.

Table 1: Load arrangement per specimen

Specimen	average wide x length left sea [mm]	average wide x length right seal [mm]	δ_{des} MPa	Tensile load $F_{t,i}$ N (kg)	Shear load F_s N (kg)
1	7.10 x 200	6.55 * 200	0.8	109.2 (11.1)	36.4 (3.7)
2	7.10 x 200	6.80 * 200	0.8	111.2 (11.3)	37.1 (3.8)
3	6.9 x 200	6.70 * 200	0.8	108.8 (11.1)	36.3 (3.7)

2.1 Test equipment and measurement uncertainty

The samples were tested in test equipment developed by TUV Rheinland Nederland B.V. to apply the tensile and sheer load on the specimen.

Uncertainty on measured dimensions: ±0.02 mm

Uncertainty on measured displacement: ±0.002 mm

Uncertainty on applied weight: ±0.1 kg

3 Test results

The creep of the specimens during the test duration is shown in figure 1.
 The deformation after 91 days loading and after u 24 unloading is given in table 2.

Table 2: Deformation [mm]

Specimen	After 91 days loading	after 24 h unloading
1	0.027	0.018
2	0.020	0.010
3	0.026	0.017
average	0.024	0.015

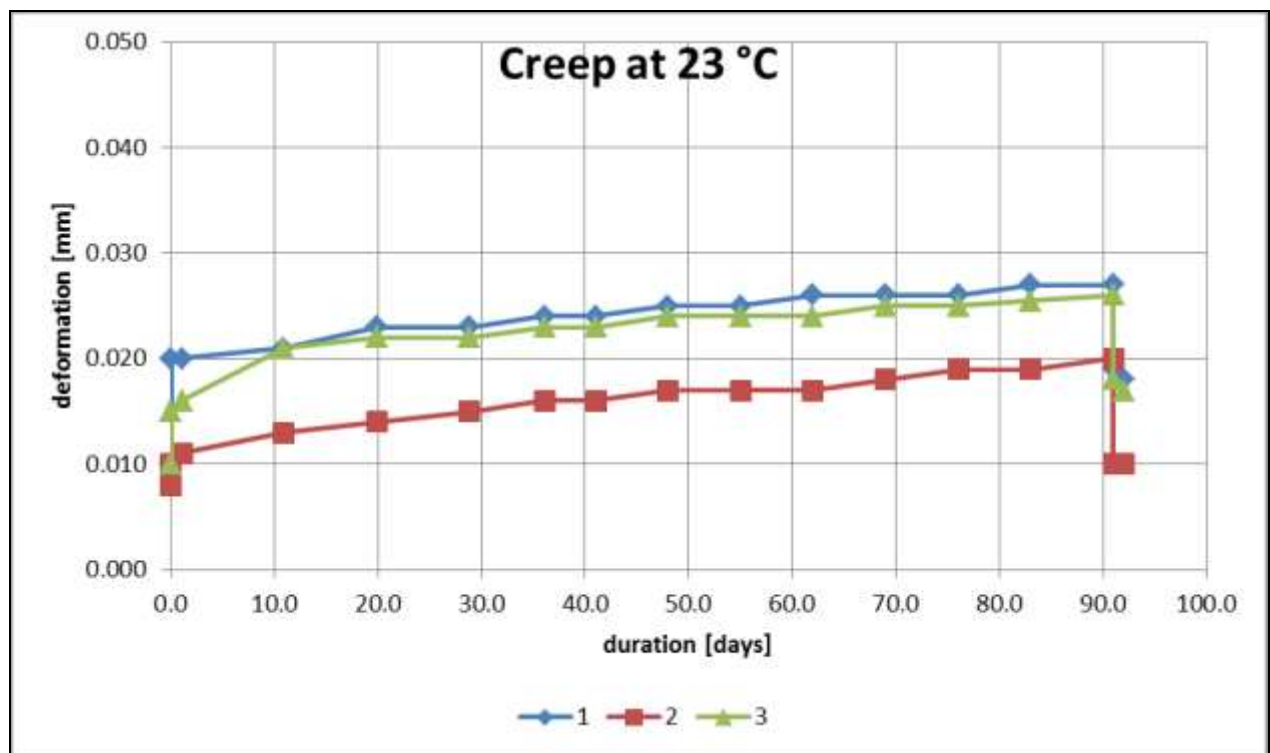


Figure 1: Creep sealant MF881-25HM at 23 °C

On the basis of these results the sealant is graded as C1 according to table 3 of EN 15434 [1] for seals with a height (h) of the seal of 6 mm and less.

4 References

- 1 EN 15434
Glass in building – Product standard for structural and/or ultra violet resistant sealant (for use with structural sealant glazing and/or glass units with exposed seals)
European Committee for Standardization, March 2010.
- 2 Test report relating to a structural sealant according to ETAG 002 - Guideline for European technical approval for structural sealant glazing kits (SSGK) May 2012 - concerning the product marked as: MF881-25HM Silicone, manufactured by: Zhengzhou Zhongyuan Applied Technology Research and Development Co., Ltd
Issued by TÜV Rheinland Nederland B.V., report number 89205978-01 rev01, 16 January 2015

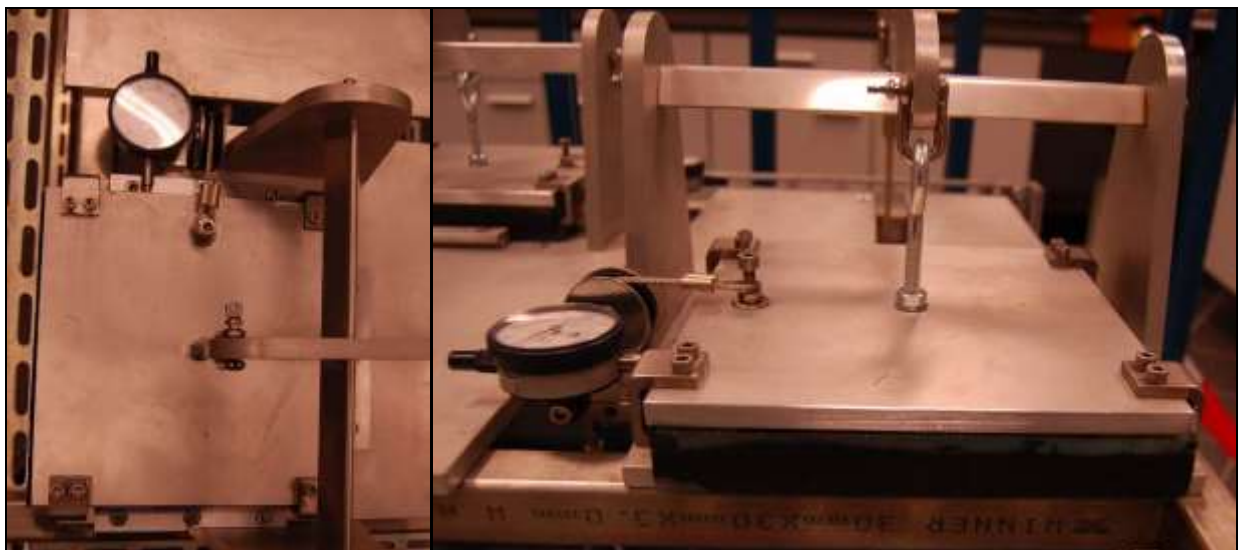
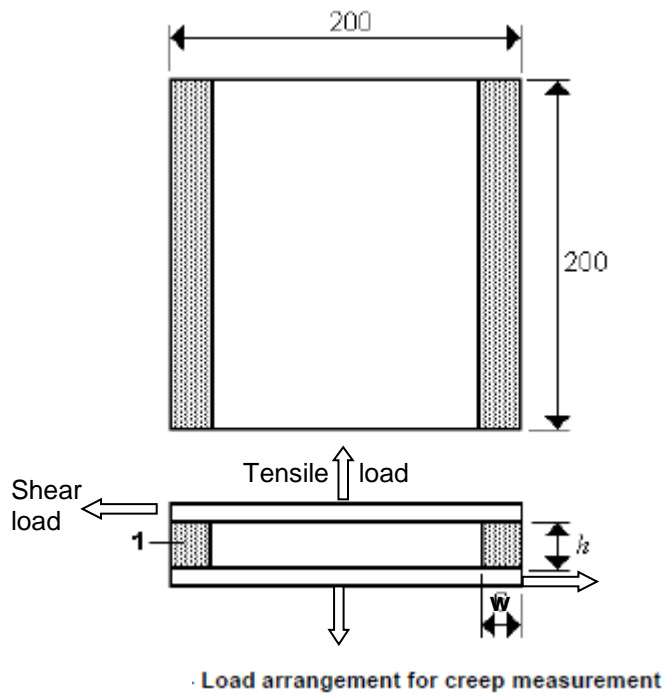
5 Signatures

Author Mr. M.A.A.M. Schets, B.Sc.	Signature 
Specialist	
Peer review Mr. R. Brandhorst	Signature 
Specialist	
Approved by Mr. H. van Ginkel	Signature 
Business field manager	

Appendix A Pictures of the tested object(s)



Test specimen



Creep test arrangement