

Material and Engineering Laboratory-Kaohsiung

Test Report



Report No. : KV-19-05202A
Page No. : 1 OF 2
Date of Report : Dec. 25, 2019

Applicant NAN YA PLASTICS CORPORATION.
Sample Name PVC Waterproofing membranes for Tunnels
Product Color 0Y1/089
Sample Submitted By NAN YA PLASTICS CORPORATION.
Date of Sampling Jun. 18, 2019
Date of Sample Received Jun. 18, 2019~Dec. 25, 2019
Remark

1. The information mentioned in the above section is provided by Client (Exclude Date of Sample Received and Date of Testing)
2. The following report content marks # is provided by Client

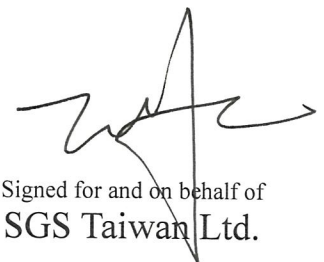
Test Result :

Test Item	Test Method	Test Result	#Requirement
Thickness (mm)	DIN 53370(2006)	2.01	≥ 2.0
Tensile strength (N/mm ²)	DIN 53455(1981) (No. 4 , V = 500 mm/min)	CD 20.6	≥ 15
		MD 23.8	
Elongation at break (%)	Ref.DIN 53454(1971) (Stacked into 10 mm cubes)	CD 316	≥ 250
		MD 262	
Compressive strength (20% strain) (N/mm ²)	Ref.DIN 53454(1971) (Stacked into 10 mm cubes)	7.43	≥ 2.5
Tear strength (N/mm)	DIN 53363(2003) (V = 100 mm/min)	CD 151	≥ 100
		MD 189	
Waterproof performance (10 bar , 10 h)	DIN 16726(2011)	Good	Good
Dimensional stability (%) (80 °C , 6 h)		CD + 0.32	≤ ± 2
		MD - 1.91	
Water absorption (%) (23 °C , 24 h)	DIN 53495(1984) Method 1	0.2	≤ 1

----- 1 -----

The required specification(s) offered in this test report is/are for reference only.
The conformity judgment is at the Applicant's final verdict.

Signed for and on behalf of
SGS Taiwan Ltd.



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-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.

Material and Engineering Laboratory-Kaohsiung

Test Report



Report No. : KV-19-05202A
 Page No. : 2 OF 2
 Date of Report : Dec. 25, 2019

Test Result :

Test Item	Test Method	Test Result	#Requirement	
Acid resistance (6 % H ₂ SO ₃ , 23 °C , 28 day)	DIN 16726(2011) & DIN 53455(2009) (No. 4 , V = 500 mm/min)			
a.Change rate of tensile strength (%)		CD	+ 1	≤ ± 20
		MD	+ 3	
b.Change rate of elongation at break (%)		CD	- 16	≤ ± 20
		MD	- 1	
Alkali resistance (saturation Ca(OH) ₂ , 23 °C , 28 day)				
a.Change rate of tensile strength (%)		CD	- 16	≤ ± 20
		MD	- 9	
b.Change rate of elongation at break (%)		CD	- 20	≤ ± 20
		MD	- 15	
Fire resistance	DIN 4102-1(1998)	B2	B2 (inclusive) and above	

- Remark : 1. Tensile strength, Elongation at break, Tear strength, Dimensional stability, Water absorption, Acid resistance, Alkali resistance are accredited by TAF.
 2. Fire resistance test is subcontracted to Taiwan University of Science and Technology.
 3. This Test Report is an additional original report of KV-19-05202. Issued date : Dec.25,2019.

----- oOo -----

The required specification(s) offered in this test report is/are for reference only.
 The conformity judgment is at the Applicant's final verdict.

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.