

Family Name	: <b>NILOSTICK 1500</b>
Product Name	: <b>NILOSTICK 1500 CS</b>
Product Full Name	: <b>NILOSTICK 1500 CS 300 Sand 3mm S/Z</b>
Type of Product	: <b>Elastomeric SBS &amp; SIS</b>
Type of Reinforcement	: <b>Composite Polyester</b>

Sampling methodology	According to EN 13416:2001
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Batch No.	161 1 03
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Compound	: <b>SBS Self adhesive</b>
Reinforcement	: <b>Composite Polyester as JM.R 059-180</b>
Upper Surface	: <b>SAND</b>
Lower Surface	: <b>Siliconized Polypropylene</b>
Production date	: <b>12/06/2021</b>

System Applied : **Under layer (Bottom layer) or intermediate layer in multilayer system.**

M	TEST	STANDARD	UNIT	TOLLERANCE	SPECIFIED VALUES	ACTUAL MEASURING VALUE	REF. REPORT NO.	Date of Measure	REMARKS
*	Visual Defects	EN 1850-1	-	Pass	Passed	<b>Pass</b>	2871/1850-1	13/06/2021	
*	Thickness	EN 1849-1	mm	-5%	3	<b>3.00</b>	2871/1849-1	13/06/2021	
*	Weight	EN 1849-1	kg/m2	-10%	-	-	-	-	
*	Length	EN 1848-1	m	-1%	10	<b>10.05</b>	2871/1848-1	13/06/2021	
*	Width	EN 1848-1	m	-1%	1	<b>1.000</b>	2871/1848-1	13/06/2021	
*	Straightness	EN 1848-1	-	20mm/10m	± 10	<b>1</b>	2871/1848-1	13/06/2021	
*	Flexibility at low temperature	EN 1109	°c/ø mm *	≤	-20	U.S. : <b>-20</b> L.S. : <b>-20</b>	2871/1109	13/06/2021	
*	Flow resistance at elevated Temp.	EN 1110	°c	≥	60	<b>60</b>	2871/1110	13/06/2021	
*	Water Impermeability (Water tightness)	EN 1928 method A	60 KPa	Passed	Passed	<b>60</b>	2871/1928	14/06/2021	
-	Vapour Permeability	EN 1931	μ	-	20000	<b>20,000</b>	use the min. value as per Norm.		
*	Tensile Strength Longitudinal	EN 12311-1	N/50mm	-20%	400	<b>804</b>	Machine report	14/06/2021	
*	Tensile Strength Transversal	EN 12311-1	N/50mm	-20%	300	<b>495</b>	Machine report	14/06/2021	
*	Elongation @ Break Longitudinal	EN 12311-1	%	-15 absolute (polyester only)	30	<b>37</b>	Machine report	14/06/2021	
*	Elongation @ Break Transversal	EN 12311-1	%	-15 absolute (polyester only)	45	<b>51</b>	Machine report	14/06/2021	
-	Tear resistance (nail shank) :Longitudinal	EN 12310-1	N	-30%	175	<b>214</b>	Machine report	14/06/2021	
-	Tear resistance (nail shank) :Transversal	EN 12310-1	N	-30%	300	<b>406</b>	Machine report	14/06/2021	
-	Dimensional stability	EN 1107-1	%	≤	± 0.3	<b>-0.08</b>	2871/1107-1	17/06/2021	
-	Resistance to Static loading	EN12730 method A	kg	Min.	10	<b>20</b>	2871/12730	15/06/2021	
-	Resistance to Impact	EN12691 method B	mm	Min.	400	<b>800</b>	2871/12691	14/06/2021	
-	Peel resistance of joints	EN 12316-1	N/50mm	-20N	-	<b>116</b>	Machine report	14/06/2021	
-	Shear resistance of joints :Longitudinal	EN 12317-1	N/50mm	-20%	400	<b>862</b>	Machine report	14/06/2021	
-	Shear resistance of joints:Transversal	EN 12317-1	N/50mm	-20%	300	<b>529</b>	Machine report	14/06/2021	
-	Durability (Flexibility after artificial ageing)	EN 1296/ EN1109	°c/ø mm *	≤	-10	U.S. : -    L.S. : -	-	-	
-	Durability (Heat Flow after artificial ageing)	EN 1296/EN1110	°C	≥	50	-	-	-	
-	Durability (Visible defects after U.V ageing)	UNI EN 1297/EN1850-1	-	-	Passed	-	-	-	
-	External Fire Performance	ENV 1187/EN 13501-5	Class	-	F roof	<b>F roof</b>	No Performance Determined		
*	Reaction of Fire	EN 11925-2/EN 13501-1	Class	-	E	<b>E</b>	-	-	
-	Watertightness after stretching at low temperature	EN13897	%	-	-	-	-	-	
-	Adhesion of Granules	EN12039	%	Max.	-	-	-	-	
-	Root Resistance	EN 13948	-	NPD	NPD	<b>NPD</b>	-	-	
-	Dangerous Substances	-	-	-	Free	<b>Free</b>	No Dangerous substances used		

\* is sign for the mandatory (necessary) tests as per specified for system used according to EN 13707:2013

Approval

Product Confirmation of EN 13707 Requirements

Product Verification

Tamer Mohamed

Flexible sheets for Waterproofing  
Determination of Length, Width, and Straightness  
EN 1848-1:2000

Date of testing : 13/06/2021 Sunday  
Report No. : 2871/1848-1/2021

**Product Identification**

Product FULL name : NILOSTICK 1500 CS Sand 3.00 mm S/Z code: 00406  
EOC # [ Client ] : NANOTEK - TURKEY  
Date of production : 12/06/2021 Saturday  
Shift of production : Shift 2 Roll Length : 10 m m  
Compound type : SAC -20/0 Rolls/Pallet : 16 m R/P.  
Reinforcement type : CS JM 059/180

Batch No. : 161 1 03  
Upper surfacing : (S00) Sand - Rashidi (200 micron)  
Lower surfacing : (Z00) FILM P.P GRAY/BLACK SILICONE EMBOSSED

**Sampling**

	Length	Width	Straightness
Sampling	According to EN 13416		
Number of samples	1 Sample for all		
Test Piece	1 complete undamaged roll		
Dimensions of samples	The dimension of the roll		
Measurements	Length of roll	Width of roll	Max. Deviation
Expression of results	Length nearest to 10 mm	Width nearest to 1 mm	Max. deviation nearest to 1 mm ( ğ -100 )
Conditioning before testing	Not Required except in case of dispute		

**Results**

	Length	Width	Straightness
Measured Value	10050.0 mm	1000.00 mm	101.0 mm ( ğ -100 ) Max. deviation
Expressed Value	<b>10,050 mm</b>	<b>1,000.0 mm</b>	<b>1 mm</b>

**Laboratory Quality Control**  
Chemist

Flexible sheets for Waterproofing  
Determination of Thickness and Mass per Unit Area  
EN 1849-1:2000

Date of testing : 13/06/2021 Sunday  
Report No. : 2871/1849-1/2021

**Product Identification**

Product FULL name : NILOSTICK 1500 CS Sand 3.00 mm S/Z  
EOC # [ Client ] : NANOTEK - TURKEY  
Date of production : 12/06/2021 Saturday  
Shift of production : Shift 2  
Compound type : SAC -20/0  
Reinforcement type : CS JM 059/180

Roll Length : 10 m m  
Rolls/Pallet : 16 m R/P.

Batch No. : 161 1 03  
Upper surfacing : (S00) Sand - Rashidi (200 micron)  
Lower surfacing : (Z00) FILM P.P GRAY/BLACK SILICONE EMBOSSED

**Sampling**

	Thickness	Mass per Unit Area
Sampling	According to EN 13416	
Number of samples	1 sample	3 cutting sample from 1
Test Piece	> 800 mm * 100 mm	> 800 mm * > 400mm
Dimensions of samples	use the test piece	100 mm * 100 mm
Measurements	10 places (values)	3 weights (values)
Expression of results	Mean of 10 values to nearest 0.1 mm	Mean of 3 values to nearest 0.1 g multiply by 10 expressed in Kg/m <sup>2</sup>
Conditioning before testing	Not Required except in case of dispute	20 hr. at (23 ± 2) <sup>o</sup> c and humidity (50±5)%

**Results**

	Thickness	Mass per Unit Area
Value 1	3.03 mm	28.50 g
Value 2	2.96 mm	29.80 g
Value 3	3.06 mm	31.70 g
Value 4	3.00 mm	
Value 5	3.00 mm	
Value 6	3.00 mm	
Value 7	3.00 mm	
Value 8	3.04 mm	
Value 9	2.97 mm	
Value 10	2.94 mm	
Average	<b>3.00 mm</b>	<b>30.0 g</b>
		\ 10 =
		<b>3.0 Kg/m<sup>2</sup></b>

Laboratory Quality Control  
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Flexible sheets for Waterproofing  
**Determination of Flexibility at Low Temperature**  
EN 1109:2013

Date of testing : 13/06/2021 Sunday  
Report No. : 2871/1109/2021

**Product Identification**

Product FULL name : NILOSTICK 1500 CS Sand 3.00 mm S/Z code: 00000  
EOC # [ Client ] : NANOTEK - TURKEY  
Date of production : 12/06/2021 Saturday  
Shift of production : Shift 2 Roll Length : 10 m m  
Compound type : SAC -20/0 Rolls/Pallet : 16 m R/P.  
Reinforcement type : CS JM 059/180

Batch No. : **161 1 03**  
Upper surfacing : (500) Sand - Rashidi (200 micron)

Lower surfacing : (Z00) FILM P.P GRAY/BLACK SILICONE EMBOSSED

**Sampling**

Flexibility at Low Temperature	
Sampling	According to EN 13416
Number of samples	10 sample (5 + 5)
Test Piece	Cut Longitudinal Direction away from edges 150 mm
Dimensions of samples	140±1 mm * 50±1 mm
Measurements	10 measurements (5 + 5)
Expression of results	Temp. degree in celliseous applied on upper and lower surfaces
Conditioning Before Testing	4 Hr. at 23±2 °c without PE film and separated samples on siliconized paper
Conditioning of Test specimens	1 Hr. ± 5 min. at desired Temp. immersed in Alcohol/water path

**Results**

	Upper Surface (1-5)	Lower Surface (1*-5*)
Specimen 1/1*	-20 °c	-20 °c
Specimen 2/2*	-20 °c	-20 °c
Specimen 3/3*	-20 °c	-20 °c
Specimen 4/4*	-20 °c	-20 °c
Specimen 5/5*	-20 °c	-20 °c
<b>Result</b>	<b>-20 °c</b>	<b>-20 °c</b>

**Laboratory Quality Control**

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Flexible sheets for Waterproofing  
Determination of Flow Resistance at Elevated temperature  
EN 1110:2010

Date of testing : 13/06/2021 Sunday  
Report No. : 2871/1110/2021

**Product Identification**

Product FULL name : NILOSTICK 1500 CS Sand 3.00 mm S/Z  
EOC # [ Client ] : NANOTEK - TURKEY  
Date of production : 12/06/2021 Saturday  
Shift of production : Shift 2  
Compound type : SAC -20/0  
Reinforcement type : CS JM 059/180  
Batch No. : 161 1 03  
Upper surfacing : (S00) Sand - Rashidi (200 micron)  
Lower surfacing : (Z00) FILM P.P GRAY/BLACK SILICONE EMBOSSED

**Sampling**

Flow Resistance at Elevated temperature	
Sampling	According to EN 13416
Number of samples	3 samples
Test Piece	Cut rectangular samples away from edges 150 mm
Dimensions of samples	100±1 mm * 50±1 mm to 90mm
Measurements	Distance of whole sample before test and after test
Expression of results	Passed at desired temp. if distance ≤ 2.0 mm and no droplets observed
Conditioning Before Testing	2 Hr. at 23±2 °c without PE film and separated samples on siliconized paper
Duration of Testing	120±2 min. at desired temp.
Conditioning after testing before measuring	at least 120 min at 23±2 °c

**Results**

	Upper Surface (1)	Lower Surface (1*)
Specified temp.	60 °c	60 °c
<b>I . Droplets observed</b>	No droplets	No droplets
<b>II . Difference ΔX*</b>		
Specimen 1/1*	0.17 mm	0.17 mm
Specimen 2/2*	0.17 mm	0.17 mm
Specimen 3/3*	0.17 mm	0.17 mm
Mean	0.2 mm	0.2 mm
<b>Result</b>	<b>Passed</b>	<b>Passed</b>

\* Δx is the difference between initial length of the test specimen and the final length after the test period in mm.

**Laboratory Quality Control**

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Flexible sheets for Waterproofing  
**Determination of Visible defects**  
EN 1850-1:2000

Date of testing : 13/06/2021 Sunday  
Report No. : 2871/1850/2021

**Product Identification**

Product FULL name : NILOSTICK 1500 CS Sand 3.00 mm 5/Z code: 1850/06  
EOC # [ Client ] : NANOTEK - TURKEY  
Date of production : 12/06/2021 Saturday  
Shift of production : Shift 2 Roll Length : 10 m m  
Compound type : SAC -20/0 Rolls/Pallet : 16 m R/P.  
Reinforcement type : CS JM 059/180  
Batch No. : 161 1 03  
Upper surfacing : (S00) Sand - Rashidi (200 micron)  
Lower surfacing : (Z00) FILM P.P GRAY/BLACK SILICONE EMBOSSED

**Sampling**

	Visible Defects
Sampling	According to EN 13416
Number of samples	1 Complete roll
Test Piece	The Complete Roll
Dimensions of samples	Full Roll Dimension
Measurements	5 main visual examination
Expression of results	Visual information by naked eye
Conditioning Before Testing	Not required but in case of dispute conditioning at least 20 hr. at 23 ± 2 °C

**Results**

	Examination of Top Surface	Examination of Underside
Blisters	free	free
Cracks	free	free
Holes	free	free
Naked Spots	free	free
Other Noticeable defects	-	-

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Flexible sheets for Waterproofing  
Determination of Watertightness  
EN 1928:2000

Date of testing : 14/06/2021 Monday  
Report No. : 2871/1928/2021

**Product Identification**

Join with Inatial Type Test : 00101  
Product FULL name : NILOSTICK 1500 CS Sand 3.00 mm S/Z  
EOC # [ Client ] : NANOTEK - TURKEY  
Date of production : 12/06/2021 Saturday  
Shift of production : Shift 2  
Compound type : SAC -20/0  
Reinforcement type : CS JM 059/180  
Batch No. : 161 1 03  
Upper surfacing : {500} Sand - Rashidi (200 micron)  
Lower surfacing : {200} FILM P.P GRAY/BLACK SILICONE EMBOSSED

**Sampling**

Method	Determination of Watertightness	
	Method A	Method B (if Applied)
Sampling	According to EN 13416	According to EN 13416
Number of samples	3 from different roll parts	3 from different roll parts
Test Piece	3	3
Dimensions of samples	Circular with Diameter 200 ±2 mm	Equal to sloted plate at least 130 mm
Measurments	at 23±5 °c	at 23±5 °c
Expression of results	Pass:if no color change or Fail:if color change	Pass:if no color change or Fail:if color change
Conditioning before testing	6 Hrs. at 23±5 °c	6 Hrs. at 23±5 °c
Test Duration	24±1 hr.	Assesment after 1 hr. test duration
Presuure applied	60 kPs.	according to specified pressure

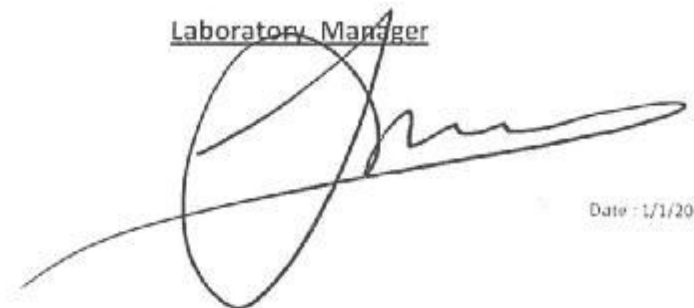
**Results**

	Applied Pressure for A		Applied Pressure for B	
	Color Change	Result	Evidence of leakadge	Result
Sample 1	No	PASS	-	-
Sample 2	No	PASS	-	-
sample 3	No	PASS	-	-

**Tested and Reported by**

**Quality Control Responsible**

**Laboratory Manager**



Flexible sheets for Waterproofing  
**Determination of Resistance to Static loading**  
EN 12730:2015 Method A

Date of testing : 15/06/2021 Tuesday  
Report No. : 2871/12730/2021

**Product Identification**

Join with Initial Type Test : 00101

Product FULL name : NILOSTICK 1500 CS Sand 3.00 mm S/Z  
EOC # [ Client ] : NANOTEK - TURKEY  
Date of production : 12/06/2021 Saturday  
Shift of production : Shift 2  
Compound type : SAC -20/0  
Reinforcement type : CS JM 059/180  
Batch No. : 161 1 03  
Upper surfacing : (S00) Sand - Rashidi (200 micron)  
Lower surfacing : (Z00) FILM P.P GRAY/BLACK SILICONE EMBOSSED

Roll Length : 10 m m  
Rolls/Pallet : 16 m R/P.

**Sampling**

Determination of Resistance to Static loading	
Sampling	According to EN 13416
Number of samples	1 From part of roll with 10cm exclusion from both roll sides
Test Piece	3
Dimensions of samples	550 mm * 550 mm ±2 mm
Measurments	Visual check for cracks or Leakadge
Expression of results	No cracks or Pass at specified load in Kg
Conditioning before testing	24 hrs. at specified test condition (23 ±2 °c)
Support	Soft Support Polystyrene
Duration of Test	24 Hrs. at specified test condition (23 ±2 °c) for each loading interval.

**Results**

**Applied Loads**

	0	5	10	15	20	25	30	35	40	Kg
Sample 1	-	-	-	-	20	-	-	-	-	
Sample 2	-	-	-	-	20	-	-	-	-	
Sample 3	-	-	-	-	20	-	-	-	-	

Max. Load : 20 Kg

**Cracks or Leakage**

	0	5	10	15	20	25	30	35	40	Kg
Sample 1	-	-	-	-	No	-	-	-	-	
Sample 2	-	-	-	-	No	-	-	-	-	
Sample 3	-	-	-	-	No	-	-	-	-	

End Result : PASS

Tested and Reported by

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Flexible sheets for Waterproofing  
**Determination of Resistance to Impact**  
EN 12691:2018 Method B

Date of testing : 14/06/2021 Monday  
Report No. : 2871/12691/2021

**Product Identification**

Join with Initial Type Test : 00101

Product FULL name : NILOSTICK 1500 CS Sand 3.00 mm S/Z  
EOC # [ Client ] : NANOTEK - TURKEY  
Date of production : 12/06/2021 Saturday  
Shift of production : Shift 2  
Compound type : SAC -20/0  
Reinforcement type : CS JM 059/180  
Batch No. : 161 1 03  
Upper surfacing : (S00) Sand - Rashidi (200 micron)  
Lower surfacing : (Z00) FILM P.P GRAY/BLACK SILICONE EMBOSSED

**Sampling**

Determination of Resistance to Impact	
Sampling	According to EN 13416
Number of samples	1 From different positions of roll with 10cm exclusion from both roll sides
Test Piece	5
Dimensions of samples	150 mm * 150 mm
Measurments	Visual check for cracks or Leakadge
Expression of results	No cracks or leakadge at specified drop height in mm
Conditioning before testing	24 hrs. at specified test condition (23 ±2 °c)
Support	Soft Support Polystyrene
Drop mass	500 ± 5 gm including Punchring tool
Punchring tool	Spherical with diameter 12.7 ±1 mm

**Results**

**Applied Loads**

	300	350	400	450	500	600	700	800	900	1000	1250	1500
Sample 1	-	-	-	-	-	-	-	800	-	-	-	-
Sample 2	-	-	-	-	-	-	-	800	-	-	-	-
Sample 3	-	-	-	-	-	-	-	800	-	-	-	-
Sample 4	-	-	-	-	-	-	-	800	-	-	-	-
Sample 5	-	-	-	-	-	-	-	800	-	-	-	-

Max. Load : 800 mm

**Cracks or Leakage**

	300	350	400	450	500	600	700	800	900	1000	1250	1500
Sample 1	-	-	-	-	-	-	-	No	-	-	-	-
Sample 2	-	-	-	-	-	-	-	No	-	-	-	-
Sample 3	-	-	-	-	-	-	-	No	-	-	-	-
Sample 4	-	-	-	-	-	-	-	No	-	-	-	-
Sample 5	-	-	-	-	-	-	-	No	-	-	-	-

End Result : PASS

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Flexible sheets for Waterproofing  
**Determination of Dimensional stability**  
EN 1107-1:2000

Date of testing : 17/06/2021 Thursday  
Report No. : 2871/1107-1/2021

**Product Identification**

Join with Inatial Type Test : 00101

Product FULL name : NILOSTICK 1500 CS Sand 3.00 mm S/Z  
EOC # [ Client ] : NANOTEK - TURKEY  
Date of production : 12/06/2021 Saturday  
Shift of production : Shift 2  
Compound type : SAC -20/0  
Reinforcement type : CS JM 059/180  
Batch No. : 161 1 03  
Upper surfacing : (S00) Sand - Rashidi (200 micron)  
Lower surfacing : (Z00) FILM P.P GRAY/BLACK SILICONE EMBOSSED

code: 010101

Roll Length : 10 m m  
Rolls/Pallet : 16 m R/P.

**Sampling**

Determination of Dimensional stability	
Sampling	According to EN 13416
Number of samples	1 Part of Roll taken test pieces from uniformly over the width in larger dimention with Longitudinal direction
Test Piece	5
Dimensions of samples	250 ± 1 mm * 50 ± 1 mm
Measurments	Measuring using optical device the difference distance between inital mark referance L <sub>0</sub> and second mark for each test specimen to nearest 0.05 mm
Expression of results	The % of the difference distance between inital mark referance L <sub>0</sub> and second mark with referance to referance distance L <sub>0</sub> . it may be positive (+) expansion or negative (-) contraction.
Conditioning before testing	at 23±2 °c for 24 hr.
Conditioning during testing	at 80±2 °c for 24 hr. ± 10 min. duration
Conditioning just before measurments	at 23±2 °c for at least 4 hr.

**Results**

	Referance	Difference	% of change	Sign. Meaning
Sample 1	200	-0.12	-0.06	Contraction
Sample 2	200	-0.18	-0.09	Contraction
Sample 3	200	-0.18	-0.09	Contraction
Sample 4	200	-0.18	-0.09	Contraction
Sample 5	200	-0.16	-0.08	Contraction

Arthmatic Mean :	-0.08	Contraction
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Result close to nearest 0.1 %

**-0.08**

**Tested and Reported by**

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**Laboratory Manager**



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 Alexandria , EGYPT

Tensile test extensometer EN 12311

Test type: Tensile  
 Operator name: EMAD GHONAME  
 Sample Identification: 161103 TEL  
 Interface Type: 4200/4300/4400

Instron Corporation  
 Series IX Automated Materials Testing System 8.2-4.00  
 Test Date: 14 June 2021

Sample Rate (pts/sees): 6.6670  
 Crosshead Speed: 100.0000 mm/min Humidity ( % ): 50  
 Second Speed: 0.0000 mm/min Temperature: 23 C  
 Third Speed: 0.0000 mm/min  
 Full Scale Load Range: 5.0000 kN

Membrane/Thickness NILOSTICK-1500 CS 3M S/Z \*\*NANOTEK\*\*

Reinforcement Type \*\*\* P.S JM 059-180 \*\*\*

Compound / Batch no. SAC -20/0 Batch No\*\*161103\*\*

Production date 12/06/2021 II

Direction LONGITUDINAL

Sample comments:  
 Conditioning at least 20 hrs

	Load at Max.Load ( N/5cm )	Load at Cursor Point 1 ( N/5cm )	% Strain at Max.Load (%)	% Strain at Cursor Point 1 (%)
1	774.200	744.160	32.190	33.396
2	772.100	757.310	36.580	37.503
3	791.100	765.630	38.550	39.087
4	742.000	713.550	34.420	35.355
5	857.200	844.290	41.210	42.241
6	888.600	871.140	30.990	31.463
Mean	804.200	782.680	35.657	36.507
S.D.	56.397	61.348	3.883	3.924



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Tensile test extensometer EN 12311

Test type: Tensile Instron Corporation  
 Operator name: EMAD GHONAME Series IX Automated Materials Testing System 8.2-1.00  
 Sample Identification: 161103 TET Test Date: 14 June 2021  
 Interface Type: 4200/4300/4400

Sample Rate (pts/secs): 6.6670  
 Crosshead Speed: 100.0000 mm/min Humidity ( % ): 50  
 Second Speed: 0.0000 mm/min Temperature: 23 C  
 Third Speed: 0.0000 mm/min  
 Full Scale Load Range: 5.0000 kN

Membrane/Thickness NILOSTICK-1500 CS 3M S/Z \*\*NANOTEK\*\*

Reinforcement Type \*\*\* P.S JM 059-180 \*\*\*

Compound / Batch no. SAC -20/0 Batch No\*\*161103\*\*

Production date 12/06/2021 II

Direction TRANSVERSAL

Sample comments:  
 Conditioning at least 20 hrs

	Load at Max.Load ( N/5cm )	Load at Cursor Point 1 ( N/5cm )	% Strain at Max.Load (%)	% Strain at Cursor Point 1 (%)
1	502.300	500.930	53.100	53.691
2	528.100	527.780	52.210	52.295
3	486.400	485.900	51.010	51.516
4	496.600	496.640	49.480	49.261
5	446.400	443.480	46.500	47.731
6	515.200	514.090	49.070	49.449
Mean	495.833	494.803	50.228	50.657
S.D.	28.253	29.030	2.391	2.218

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Tensile test ASTM D-5147

Test type: Tensile Instron Corporation  
 Operator name: EMAD GHONAME Series IX Automated Materials Testing System 8.2<1.00  
 Sample Identification: 161103 TAL Test Date: 14 June 2021  
 Interface Type: 4200/4300/4400

Sample Rate (pts/secs): 10.0000 Humidity ( % ): 50  
 Crosshead Speed: 50.0000 mm/min Temperature: 23 C  
 Second Speed: 0.0000 mm/min  
 Third Speed: 0.0000 mm/min  
 Full Scale Load Range: 5.0000 kN

Membrane/Thickness NILOSTICK-1500 CS 3M S/Z \*\*NANOTEK\*\*

Reinforcement Type \*\*\* P.S JM 059-180 \*\*\*

Compound / Batch no. SAC -20/0 Batch No\*\*161103\*\*

Production date 12/06/2021 II

Direction LONGITUDINAL

Sample comments:  
 Conditioning at least 20 hrs

	Load at Max.Load (N/5cm)	Load at Cursor Point I (N/5cm)	% Strain at Cursor Point I (%)	% Strain at Max.Load (%)	Load at Cursor Point I (KN/m)
1	910.000	904.680	74.455	72.627	18.094
2	815.400	813.940	80.570	79.853	16.279
3	923.800	920.260	81.446	78.560	18.405
4	786.000	785.220	61.808	61.413	15.704
5	775.800	660.660	64.106	60.333	13.213
Mean	842.200	816.952	72.477	70.557	16.339
S.D.	69.895	104.657	9.134	9.259	2.093

BITUNIL  
 9 El. Saad El Aaly St. Wadi El Kamar  
 Alexandria , EGYPT

Tensile test ASTM D-5147

Test type: Tensile Instron Corporation  
 Operator name: EMAD GHONAME Series IX Automated Materials Testing System 8.2-1.00  
 Sample Identification: 161103 TAT Test Date: 14 June 2021  
 Interface Type: 4200/4300/4400

Sample Rate (pts/secs): 10.0000  
 Crosshead Speed: 50.0000 mm/min Humidity ( % ): 50  
 Second Speed: 0.0000 mm/min Temperature: 23 C  
 Third Speed: 0.0000 mm/min  
 Full Scale Load Range: 5.0000 kN

Membrane/Thickness NILOSTICK-1500 CS 3M S/Z \*\*NANOTEK\*\*

Reinforcement Type \*\*\* P.S JM 059-180 \*\*\*

Compound / Batch no. SAC -20/0 Batch No\*\*161103\*\*

Production date 12/06/2021 II

Direction TRANSVERSAL

Sample comments:  
 Conditioning at least 20 hrs

	Load at Max.Load (N/5cm)	Load at Cursor Point 1 (N/5cm)	% Strain at Cursor Point 1 (%)	% Strain at Max.Load (%)	Load at Cursor Point 1 (KN/m)
1	561.400	559.180	76.893	75.227	11.184
2	540.400	539.580	75.694	75.080	10.792
3	511.600	509.260	66.600	64.933	10.185
4	548.000	547.380	76.130	75.800	10.948
5	488.800	488.840	77.377	77.653	9.777
Mean	530.040	528.848	74.539	73.739	10.577
S.D.	29.386	28.996	4.486	5.028	0.580



BITUNIL  
9 EL Saad El Aaly St. Wadi El Kamar  
Alexandria , EGYPT

Tearing Strength ASTM D-4073-94

Test type: Tensile  
Operator name: EMAD GHONAME  
Sample Identification: 161103 RAL  
Interface Type: 4200/4300/4400

Instron Corporation  
Series IX Automated Materials Testing System 8 2-1,00  
Test Date: 14 June 2021

Sample Rate (pts/secs): 10.0000  
Crosshead Speed: 100.0000 mm/min  
Second Speed: 0.0000 mm/min  
Third Speed: 0.0000 mm/min  
Full Scale Load Range: 5.0000 kN  
Humidity ( % ): 50  
Temperature: 23 C

Membrane/Thickness NILOSTICK-1500 CS 3M S/Z \*\*NANOTEK\*\*

Reinforcement Type \*\*\* P.S JM 059-180 \*\*\*

Compound / Batch no. SAC -20/0 Batch No\*\*161103\*\*

Production date 12/06/2021 II

Direction LONGITUDINAL

Sample comments:  
Conditioning at least 20 hrs

	Load at Max Load (N)	Avg Ld Between Limits 1 (N)
1	815.800	601.447
2	642.400	593.593
Mean	729.100	597.520
S.D.	122.612	5.554

BITUNIL  
9 EL Saad El Aaly St. Wadi El Kamar  
Alexandria , EGYPT

Tearing Strength ASTM D-4073-94

Test type: Tensile  
Operator name: EMAD GHONAME  
Sample Identification: 161103 RAT  
Interface Type: 4200/4300/4400

Instron Corporation  
Series IX Automated Materials Testing System 8.2<1.00  
Test Date: 14 June 2021

Sample Rate (pts/secs): 10.0000  
Crosshead Speed: 100.0000 mm/min  
Second Speed: 0.0000 mm/min  
Third Speed: 0.0000 mm/min  
Full Scale Load Range: 5.0000 kN  
Humidity ( % ): 50  
Temperature: 23 C

Membrane/Thickness NILOSTICK-1500 CS 3M S/Z \*\*NANOTEK\*\*

Reinforcement Type \*\*\* P.S JM 059-180 \*\*\*

Compound / Batch no. SAC -20/0 Batch No\*\*161103\*\*

Production date 12/06/2021 II

Direction TRANSVERSAL

Sample comments:  
Conditioning at least 20 hrs

	Load at Max Load (N)	Avg Ld Between Limits 1 (N)
1	437.200	392.900
2	432.200	402.497
Mean	434.700	397.698
S.D.	3.536	6.786

BITUNIL  
9 EL Saad El Aaly St. Wadi ElKamar  
Alexandria , EGYPT

Tearing Strength EN 12310-1

Test type: Tensile  
Operator name: EMAD GHONAME  
Sample Identification: 161103 REL  
Interface Type: 4200/4300/4400

Instron Corporation  
Series IX Automated Materials Testing System 8.2<1.00  
Test Date: 14 June 2021

Sample Rate (pts/secs): 10.0000  
Crosshead Speed: 100.0000 mm/min  
Second Speed: 0.0000 mm/min  
Third Speed: 0.0000 mm/min  
Full Scale Load Range: 5.0000 kN  
Humidity ( % ): 50  
Temperature: 23 C

Membrane/Thickness NILOSTICK-1500 CS 3M S/Z \*\*NANOTEK\*\*

Reinforcement Type \*\*\* P.S JM 059-180 \*\*\*

Compound / Batch no. SAC -20/0 Batch No\*\*161103\*\*

Production date 12/06/2021 II

Direction LONGITUDINAL

Sample comments:  
Conditioning at least 20 hrs

	Load at Max.Load (N)	Avg Ld Between Limits I (N)
1	195.800	177.308
2	204.800	172.597
3	217.200	202.517
4	207.700	180.279
5	246.700	195.711
Mean	214.440	185.682
S.D.	19.584	12.792



BITUNIL  
9 EL. Saad El Aaly St. Wadi El Kamar  
Alexandria , EGYPT

Tearing Strength EN 12310-1

Test type: Tensile  
Operator name: EMAD GHONAME  
Sample Identification: 161103 RET  
Interface Type: 4200/4300/4400

Instron Corporation  
Series IX Automated Materials Testing System 8.24 .00  
Test Date: 14 June 2021

Sample Rate (pts/secs): 10.0000  
Crosshead Speed: 100.0000 mm/min  
Second Speed: 0.0000 mm/min  
Third Speed: 0.0000 mm/min  
Full Scale Load Range: 5.0000 kN

Humidity ( % ): 50  
Temperature: 23 C

Membrane/Thickness NILOSTICK-1500 CS 3M S/Z \*\*NANOTEK\*\*

Reinforcement Type \*\*\* P.S JM 059-180 \*\*\*

Compound / Batch no. SAC -20/0 Batch No\*\*161103\*\*

Production date 12/06/2021 II

Direction TRANSVERSAL

Sample comments:  
Conditioning at least 20 hrs

	Load at Max.Load (N)	Avg Ld Between Limits I (N)
1	459.100	405.153
2	383.400	286.615
3	379.600	343.631
4	398.300	350.448
5	409.700	350.660
Mean	406.020	347.302
S.D.	32.017	42.025

BITUNIL  
 9 EL. Saad El Aaly St. Wadi El Kamar  
 Alexandria , EGYPT

Shear resistance of Joint EN-12317-1

Test type: Tensile  
 Operator name: EMAD GHONAME  
 Sample Identification: 161103 JEL  
 Interface Type: 4200/4300/4400

Instron Corporation  
 Series IX Automated Materials Testing System 8.24 .00  
 Test Date: 14 June 2021

Sample Rate (pts/secs): 10.0000  
 Crosshead Speed: 200.0000 mm/min  
 Second Speed: 0.0000 mm/min  
 Third Speed: 0.0000 mm/min  
 Full Scale Load Range: 5.0000 kN

Humidity ( % ): 50  
 Temperature: 23 C

Membrane/Thickness NILOSTICK-1500 CS 3M S/Z \*\*NANOTEK\*\*

Reinforcement Type \*\*\* P.S JM 059-180 \*\*\*

Compound / Batch no. SAC -20/0 Batch No\*\*161103\*\*

Production date 12/06/2021 II

Direction LONGITUDINAL

Sample comments:  
 Conditioning at least 20 hrs

	Load at Max.Load (N/5cm)	Load at Cursor Point I (N/5cm)	% Strain at Max.Load (%)	% Strain at Cursor Point I (%)
1	901.700	896.640	45.735	46.068
2	935.600	934.490	47.620	47.871
3	786.800	786.040	40.340	40.171
4	826.600	820.930	44.805	44.887
5	860.900	856.370	42.830	43.497
Mean	862.320	858.894	44.266	44.499
S.D.	58.953	58.938	2.792	2.904

BITUNIL  
 9 EL Saad El Aaly St. Wadi El Kamar  
 Alexandria , EGYPT

Shear resistance of Joint EN-12317-1

Test type: Tensile Instron Corporation  
 Operator name: EMAD GHONAME Series IX Automated Materials Testing System 8.24 .00  
 Sample Identification: 161103 JET Test Date: 14 June 2021  
 Interface Type: 4200/4300/4400

Sample Rate (pts/secs): 10.0000  
 Crosshead Speed: 200.0000 mm/min Humidity ( % ): 50  
 Second Speed: 0.0000 mm/min Temperature: 23 C  
 Third Speed: 0.0000 mm/min  
 Full Scale Load Range: 5.0000 kN

Membrane/Thickness NILOSTICK-1500 CS 3M S/Z \*\*\*NANOTEK\*\*\*

Reinforcement Type \*\*\* P.S JM 059-180 \*\*\*

Compound / Batch no. SAC -20/0 Batch No\*\*161103\*\*

Production date 12/06/2021 II

Direction TRANSVERSAL

Sample comments:  
 Conditioning at least 20 hrs

	Load at Max.Load (N/5cm)	Load at Cursor Point I (N/5cm)	% Strain at Max.Load (%)	% Strain at Cursor Point I (%)
1	524.800	524.830	51.750	51.661
2	554.900	554.890	52.550	52.231
3	500.400	493.950	48.285	49.035
4	512.800	481.340	46.840	48.338
5	552.500	552.210	56.550	56.491
Mean	529.080	521.444	51.195	51.551
S.D.	24.089	33.320	3.816	3.223

BITUNIL  
9 EL Saad El Aaly St. Wadi El Kamar  
Alexandria , EGYPT

Peeling @ 180 EN-12316-2

Test type: Tensile  
Operator name: EMAD GHONAME  
Sample Identification: 161103 PEL  
Interface Type: 4200/4300/4400

Instron Corporation  
Series IX Automated Materials Testing System 8.24.00  
Test Date: 14 June 2021

Sample Rate (pts/secs): 10.0000  
Crosshead Speed: 100.0000 mm/min  
Second Speed: 0.0000 mm/min  
Third Speed: 0.0000 mm/min  
Full Scale Load Range: 5.0000 kN  
Humidity ( % ): 50  
Temperature: 23 C

Membrane/Thickness NILOSTICK-1500 CS 3M S/Z \*\*NANOTEK\*\*

Reinforcement Type \*\*\* P.S JM 059-180 \*\*\*

Compound / Batch no. SAC -20/0 Batch No\*\*161103\*\*

Production date 12/06/2021 II

Direction ( 5 x 40 ) Peeling @ 180

Sample comments:

Conditioning at least 20 hrs

	Avg Load Between Limits 1 ( N/5cm )	Load at Max.Load ( N/5cm )
1	126.900	139.900
2	113.016	122.100
3	109.852	121.700
Mean	116.589	127.900
S.D.	9.068	10.394