



Thickness Test Report

Client : **Cosline Woven Products (Malaka) Sdn Bhd**
PRC Test Report No. : **0012351-PL**
Page no. : **2 of 8**

Description of Specimen

Date received : **12.01.2001**
Material Identification : **NW12 (A1/MPET) - Non-Perforated**
Aluminium laminated onto HDPE fabric on one side and MPET laminated on the other side by using PE blend as the tie layer for both laminations
Composition : **A1/Polyester/HDPE woven/Polyester/MPET**
Conditioning Time : **N/A**

Thickness Test Results

Results (Average) : **0.300**
Standard Deviation : **± 0.018**
Unit : **mm**

Test Conditions

Test Date : **5.2.2001**
Test Method : **PRC TMB06/94**
Equipment : **L&W Micrometer**
Air pressure applied : **20MPa**
No. of specimens tested : **20**
Testing environment : **23 ± 1 °C, 50 ± 3% RH**



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Grammage Test Report

Client : Guelina Woven Products (Mekka) Sdn Bhd
PRC Test Report No. : 0012B01-PL
Page No. : 3 of 8

Description of Specimen

Date received : 12.01.2001
Material Identification : NFR2 (A1MPET) - Non-Perforated
Aluminium laminated onto HDPE fabric on one side and
MPET laminated on the other side by using PE blend as the
tie layer for both laminations
Composition : A1Polyester/HDPE woven/Polyester/MPET
Conditioning Time : Nil

Grammage Test Results

Results (Average) : 145.5
Standard Deviation : ± 3.6
Unit : g/m^2

Test Conditions

Test Date : 5.2.2001
Test Method : PRC TM00704
Equipment : Mettler Balance Scale
No. of specimens tested : 10
Testing environment : $23 \pm 1^\circ C$, $50 \pm 3\%$ RH



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Tensile Strength Test Report

Client : Gudang Wiroa Products (Malaka) Sdn Bhd
PRC Test Report No. : 0012D01-PL
Page No. : 4 of 8

Description of Specimens

Date received : 12.01.2001
Material Identification : NFRI (A1MPET) - Non-Perforated
Aluminium laminated onto HDPE fabric on one side and
MPET laminated on the other side by using PE Mead as the
tie layer for both laminations
Composition : A1Polymer/HDPE wovea/Polymer/MPET
Conditioning Time : Nil

Test Conditions

Test Date : 12.2.2001
Test Method : In-house
Equipment : Instron Universal Tester
No. of specimen tested : 5 for MD & 5 for TD
Testing environment : 23 ± 2 °C, 60 ± 5% RH



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Tensile Strength Test Report

Client : Gasline Waves Products (Malaka) Sdn Bhd
PRC Test Report No. : 0002001-PL
Page No. : 3 of 8

Test Results

Tensile Strength

Results (Average) - MD : 668.29
Standard Deviation : ± 17.90
Results (Average) - TD : 668.89
Standard Deviation : ± 37.10
Unit : N/50 mm

Elongation

Results (Average) - MD : 37.83
Standard Deviation : ± 5.36
Results (Average) - TD : 19.53
Standard Deviation : ± 2.40
Unit : %



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Bond Strength Test Report

Client : **Gasline Woven Products (Malaka) Sdn Bhd**
PRC Test Report No. : **0012D01-PL**
Page No. : **6 of 8**

Description of Specimen

Date received : **12.01.2004**
Material Identification : **NFK1 (A1MPET) - Non-Perforated**
Aluminium laminated onto HDPE fabric on one side and
MPET laminated on the other side by using PE blend as the
tie layers for both laminations
Composition : **A1/Polymer/HDPE woven/Polymer/MPET**
Conditioning Time : **Nil**

Test Conditions

Test Date : **12.2.2004**
Test Method : **30-bonus**
Equipment : **Instron Universal Tester**
No. of specimen tested : **5**
Testing environment : **23 ± 2 °C, 60 ± 5% RH**

Bond Strength Test Results

Results (Average) : **4.25**
Standard Deviation : **± 0.54**
Unit : **N/50mm²**



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Water Vapour Transmission Rate Test Report

Client : **Guinness/Wireless Products (Malaysia) Sdn Bhd**
PBC Test Report No. : **6081007-PL**
Page No. : **7 of 8**

Description of Specimen

Date received : **12.01.2001**
Material Identification : **NBR2 (A18MPET) - Non-Perforated**
Aluminium laminated onto HDPE fabric on one side and
MPET lamination on the other side by using PE bond at the
six layers for both laminations
Composition : **A3Polyester/HDPE woven/Polyester/MPET**
Conditioning Time : **Nil**

Test Conditions

Test Date : **9.2.2001**
Test Method : **ASTM F 1249-90 (Superseded 1997)**
Equipment : **MOCOV Permision W100**
No. of specimens tested : **2**
Testing environment : **37.8 °C, 90 % RH**

Water Vapour Transmission Rate Test Results

Results (Average) : **Specimen 1: 1.16g Specimen 2: 0.54**
Standard Deviation : **Specimen 1: ± 0.01; Specimen 2: ± 0.02**
Unit : **g/m²/day**



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DN-2114928

TEST REPORT

Our Ref : Letter dated 08 Feb 2001

Rev : 28 Feb 2001

Our Ref : 2078000603C/10-RWC
(Please quote our ref. no. in reply)

Page : 1/2

00 : 7720618

For : 7792033



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SUBJECT:

Testing of foil laminates submitted by Gudewa Woven Products (Malaka) Sdn Bhd on 06 Feb 2001.

TESTED FOR:

Gudewa Woven Products (Malaka) Sdn Bhd
Lots 9 & 13, Ayer Keroh Industrial Estate
75450 Malaka, Malaysia

Attn: Mr S. Prasad Sankarasegaran

DATE OF TEST:

16 Feb 2001 to 25 Feb 2001

DESCRIPTION OF SAMPLE:

1 sample of foil laminates material identified as "SAMPLE NPR 2" of nominal size of 1.2 m x 1.0 m was received.



Sample

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RESULTS OF TESTS:

As requested by the client, the test was conducted in accordance with ASTM D1684-04a (Standard test method for initial tear resistance of plastic films and sheeting)

RESULTS:

| Test | Date | Results - "WALPET 50R 2" | |
|-------------------------|------|--------------------------|-----------------|
| | | Machine Direction | Cross Direction |
| Initial tear resistance | N | | |
| - maximum reading | | 42 | 44 |
| - minimum reading | | 35 | 30 |
| - average 10 readings | | 38 | 37 |


Ho Wan Chong
Technical Executive


Goh Chow Hong Ping (Mr)
Principal Technical Executive
Mechanical Test Centre

METHOD OF TEST

As requested by the client, the test was conducted in accordance with DIN 53353 "Testing of plastic films - tear propagation test on trapezoidal specimens with a slit"

RESULTS

| Test | Unit | Results - "ATMPET 14R 2" | |
|-----------------------------|------|--------------------------|-----------------|
| | | Machine Direction | Cross Direction |
| Tear propagation resistance | N/mm | | |
| - maximum reading | | 502 | 510 |
| - minimum reading | | 399 | 371 |
| - average 10 readings | | 426 | 371 |
| Thickness of samples | mm | 0.157 | 0.160 |


Ho Wan Cheng
Technical Executive


Goh Chiew Chgar Ping (Mrs)
Principal Technical Executive
Mechanical Test Centre

TEST REPORT

Year Ref : Letter 0868 08 Feb 2001

Date : 28 Feb 2001

Ref Ref : 257948X003/03/WWD
(Please quote ref. no. in reply)

Type : 1/2

Ref : 772955

Ref : 772955



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SUBJECT:

Testing of RL laminates submitted by Gudene Woven Products (Malaka) Sdn Bhd on 05 Feb 2001.

TESTED FOR:

Gudene Woven Products (Malaka) Sdn Bhd
Lots 9 & 10, Ayer Keroh Industrial Estate
75400 Malaka, Malaysia

Attn : Mr S. Purna Sandanagaran

DATE OF TEST:

18 Feb 2001 to 28 Feb 2001

DESCRIPTION OF SAMPLE:

1 sample of RL laminates material identified as "X1AMPET NFR 2" of nominal size of 1.2 m x 1.0 m was received.



Sample

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METHOD OF TEST:

As requested by the client, the test was conducted in accordance with ASTM D4833-88 (Reapproved 1996) "Standard test method for Index puncture resistance of geotextiles"

RESULTS:

| Test | Unit | Results - "ASMPET NFR 1" |
|---------------------------|------|--------------------------|
| Index puncture resistance | N | |
| - maximum reading | | 285 |
| - minimum reading | | 183 |
| - average 10 readings | | 243 |


Ho Wei Chong
Technical Executive


Goh Chiew Chee Ping (MTC)
Principal Technical Executive
Mechanical Test Centre

