



Our reference: FRIM 394/KL490/5/4(Sub 1) Klt. 16(15)
Your reference:

Date: Mac 4, 2010

Honeycomb Enterprises Sdn. Bhd.
43, Jalan SetiaKasih, Damansara Heights
50490 Kuala Lumpur

(attn.: Mr. Simon Denby)

Dear Mr. Simon,

Test Report (Composite Testing)

With reference to the above matter and your letter dated February 2nd, 2010 enclosed is the result of the testing as required for sample labeled as 'Ricycle' tested according to British Standard, Japanese Industrial Standard and ASTM (American Society for Testing and Materials).

Specifications:

There is no specific specification for Ricycle products.

Thank you.

Yours sincerely,

()

DR. KOH MOK POH
for Director General
FRIM



Our reference: FRIM 394/KL490/5/4(Sub 1) Klt. 16(15)

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TEST REPORT

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This report is neither a certificate of quality nor an approval certificate. This report is only covers samples supplied by customer to be tested at FRIM. Wood Composite Testing laboratory is not responsible in selection of samples for testing. This report or any part of it cannot be published or used for any other purposes except with the permission from FRIM.	

CUSTOMER

Name and Address: Honeycomb Enterprises Sdn. Bhd.
43, Jalan SetiaKasih, Damansara Heights
50490 Kuala Lumpur

(attn.: Mr. Simon Denby)

SAMPLE DESCRIPTION

WCTL Series No. 230210

Material Identity: Ricycle

The remaining samples will be disposed after testing has been carried out.

TEST PERFORMED

Purpose of test:

To determine :

- a. Bending strength (MOR & MOE) – BS EN310:1993
- b. Tensile strength (Internal bond) – BS EN319:1993
- c. Thickness swelling & Water Absorption – BS EN317:1993
- d. Cyclic test – BS EN321:1993
- e. Screw withdrawal (facewise) – BS EN320:1993
- f. Moisture content – BS EN322:1993
- g. Density – BS EN323:1993
- h. Tensile properties – ASTM D638m – 1991a
- i. Acid and alkali resistance – Japanese Industrial Std
- j. Surface absorption (hydrocarbon resistance) – BS EN382-1:1993

Prepared by:

(Rozaida Latip)
Assistant Research Officer

Approved by:

(Dr. Koh Mok Poh)
Head of Biocomposite Branch



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TEST RESULTS

Sample: Ricycle from Honeycomb Enterprises Sdn. Bhd.		Unit	Test value ¹
Property			
Bending strength : Modulus of rupture	MPa	n=10	52.2 (3.8)
Bending strength : Modulus of elasticity	MPa	n=10	5210 (250)
Internal bond	MPa	n=10	6.64 (1.17)
Thickness swelling	%	n=10	0.13 (0.05)
Water absorption	%	n=10	0.58 (0.05)
Screw withdrawal (facewise)	N	n=10	2724 (421)
Tensile strength (ASTM)	MPa	n=10	31.7 (2.76)
Moisture content	%	n=10	0.44 (0.10)
Density	Kg/m ³	n=10	1513 (15)
Cyclic test : Thickness swelling	%	n=10	-0.1 (-0.1)
Cyclic test : Internal bond	MPa	n=10	5.7 (1.3)
Acid resistance (JIS)			No discoloration
Alkali resistance (JIS)			No discoloration
Toluene resistance (BS EN)			275 mm (length of stain)

Note:

¹ Results given are average values.

n number specimens tested

() standard deviation

Prepared by:

 (Rozaida Latip)
 Assistant Research Officer

Approved by:

 (Dr. Koh Mok Poh)
 Head of Biocomposite Branch



Our Ref : FRIM394/490/5/4(3)

11/03/2010

Honeycomb Enterprises Sdn. Bhd.
43, Jalan SetiaKasih, Damansara Heights
50490 Kuala Lumpur
(attn.: Mr. Simon Denby)

Dear Mr. Simon,

Test Report (Ricycle 15mm)

With reference to the above matter and your email dated March 04, 2010 enclosed is the result of the screw withdrawal testing as required for sample labeled as 'Ricycle 15mm' tested according to BS EN 320:1993.

Specifications:

There are no specific specifications for Ricycle products.

Thank you.

Yours sincerely,

(DR. KOH MOK POH)
for Director General FRIM

No Kotak: No Dokumen: 10081009





Our reference: FRIM 394/490/5/4 (3)
Your reference:

Date: Mac 11, 2010

TEST REPORT

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CUSTOMER

Name and Address: Honeycomb Enterprises Sdn. Bhd.
43, Jalan SetiaKasih, Damansara Heights
50490 Kuala Lumpur

(attn.: Mr. Simon Denby)

SAMPLE DESCRIPTION


WCTL Series No. 230210

Material Identity: Ricycle 15mm


The remaining samples will be disposed after testing has been carried out.

TEST PERFORMED

Purpose of test: To determine :
a. Screw withdrawal – BS EN320:1993

Prepared by:


(Rozaida Latip)
Assistant Research Officer

Approved by:


(Dr. Koh Mok Poh)
Head of Biocomposite Branch



Our reference: FRIM 394/490/5/4 (3)
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Date: Mac 11, 2010

TEST REPORT

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TEST RESULTS


Sample: Ricycle 15mm from Honeycomb Enterprises Sdn. Bhd.		
Property	Unit	Test value ¹
Screw withdrawal (facewise)	N	2772 n=7 (160)
Screw withdrawal (edgewise)	N	2706 n=10 (150)


Note:

¹ Results given are average values.

n number specimens tested

() standard deviation

Prepared by:

 (Rozaida Latip)
 Assistant Research Officer

Approved by:

 (Dr. Koh Mok Poh)
 Head of Biocomposite Branch