

TEST REPORT: 719166105-CHM09-STP-CR2

Date: 28 DEC 2009

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SUBJECT

Emission Rate Tests for "Engineered Wood Panel" Sample

CLIENT

Mahaphant Fiber-Cement Public Company Limited
59 Moo 12, Saraburi-lomsak RD.,
K.M. 16, Chongsarira DIST.,
Pattananikom, Lopburi
15220 Thailand

Attn: Mrs. Thanaporn Poonsukcharoen

DESCRIPTION OF SAMPLE

Two pieces of "Engineered Wood Panel" samples labelled as follow were received on 9 Nov 2009:

Sample : "SHERA ply / 15910074"

DATE OF ANALYSIS

21 Dec 2009 – 28 Dec 2009



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METHOD OF TEST

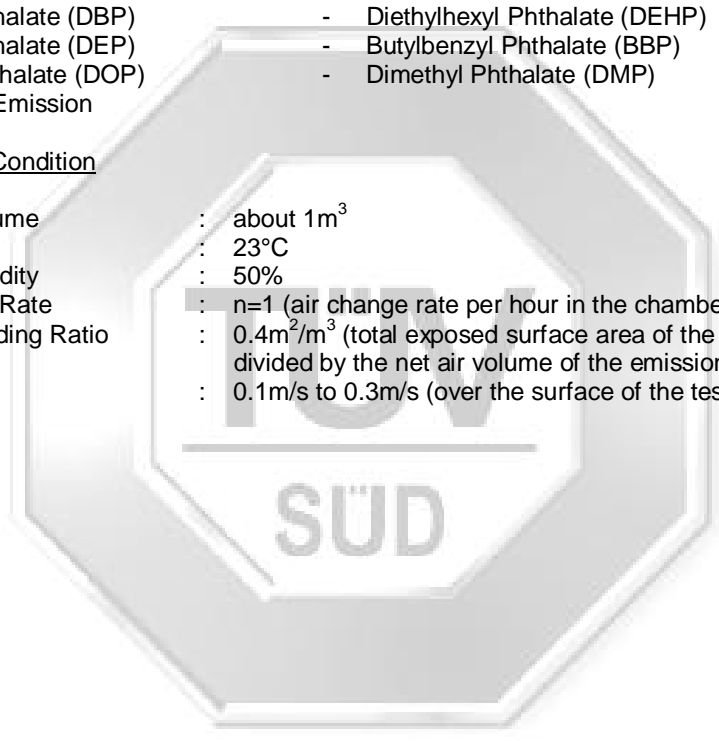
The following emission tests were conducted according to ASTM D5116-06 – *Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products*, as reference.

A) Emission Test

- 1) Total Volatile Organic Compounds (TVOC) Emission Rate
- 2) Formaldehyde Emission Rate
- 3) 4-Phenylcyclohexene Emission Rate
- 4) Total Phthalates Emission
 - Dibutyl Phthalate (DBP)
 - Diethyl Phthalate (DEP)
 - Di-octyl Phthalate (DOP)
 - Diethylhexyl Phthalate (DEHP)
 - Butylbenzyl Phthalate (BBP)
 - Dimethyl Phthalate (DMP)
- 5) Total Particles Emission

B) Emission Test Condition

- 1) Chamber Volume : about 1m³
- 2) Temperature : 23°C
- 3) Relative Humidity : 50%
- 4) Air Exchange Rate : n=1 (air change rate per hour in the chamber)
- 5) Chamber Loading Ratio : 0.4m²/m³ (total exposed surface area of the test specimen divided by the net air volume of the emission test chamber)
- 6) Air Velocity : 0.1m/s to 0.3m/s (over the surface of the test specimen)



**RESULTS****Table 1. Total Volatile Organic Compounds (TVOC) Emission Rate Test Result**

Sample	Test Result (After 24 hours)	Criteria for Singapore Green Label Product	Inferred Result
"SHERA ply/ 15910074" Sample	0.05 mg per m ³ per hour	0.25 mg per m ³ per hour or less	Pass

Table 2. Formaldehyde Emission Rate Test Result

Sample	Test Result (After 48 hours)	Criteria for Singapore Green Label Product	Inferred Result
"SHERA ply/ 15910074" Sample	<0.02 mg per m ³ per hour	0.02 mg per m ³ per hour or less	Pass

Table 3. 4-Phenylcyclohexene Emission Rate Test Result

Sample	Test Result (After 48 hours)	Criteria for Singapore Green Label Product	Inferred Result
"SHERA ply/ 15910074" Sample	Not Detected*	0.0065 mg per m ³ per hour or less	Pass

*The method detection limit was 0.002 mg per m³**Table 4. Total Phthalate Emission Test Result**

Sample	Test Result	Criteria for Singapore Green Label Product	Inferred Result
"SHERA ply/ 15910074" Sample	<0.003 mg per m ³	< 0.01 mg per m ³	Pass

Table 5. Total Particles Emission Test Result

Sample	Test Result	Criteria for Singapore Green Label Product	Inferred Result
"SHERA ply/ 15910074" Sample	< 0.01 mg per m ³	< 0.02 mg per m ³	Pass

MS STEPHANIE FOO
CHEMIST

MR ZHANG YI
CHEMIST
MICROCONTAMINATION DIAGNOSIS
CHEMICAL & MATERIALS

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PSB Singapore

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March 2009