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Aschaffenburg, 01 February 2012

From: Mr. Köttner  
Kö/ma

## REPORT

**Order No.:** 4637/12 **Page 1 of 3 pages**

**Client:** PT. Indah Kiat Pulp & Paper Tbk.  
Jl. Raya Serang Km. 76, Desa Kragilan, Sentul, 3rd Floor  
Serang 42184, Banten / Indonesia

**Date of order:** 20 July 2011

**Receipt of sample material:** 19 August 2011

**Origin of sample material:** From the client

**Purpose:** Analysis of a board grade for compostability according to  
EN 13432

(Dr. Derra)

(Köttner)  
Dipl.-Geoecologist  
Head of Environmental  
Department

The present report refers exclusively to the samples as laid out therein. Information and statistical data on the results can be obtained on request.

Non-accredited determinations have not been validated at the date of the accreditation. Individual determinations were not intended for accreditation owing to their restricted field of application. In these cases, the necessary accuracy for the evaluation is ensured by the internal quality management system.

## **Sample Material**

For analysis the following sample material was in hand:

**Sample 1**                      **FOOPAK HEATSEALABLE**

## **Carrying out of the Tests**

Examination period:        24 August 2011 to 23 January 2012

The characterization of the material, the test for disintegration and the test for compost quality have been carried out according to the EN 13432 "Packaging. Requirements for packaging recoverable through composting and biodegradation".

### **1. Material characterization**

<b>Parameter</b>	<b>Method</b>	<b>Sample 1</b>	<b>Limit</b>	
Grammage *	DIN EN 536	235	—	g/m <sup>2</sup>
Dry content *	DIN 38 414 – S2	93.5	—	%
Residue on ignition (550 °C)*	DIN 38 414 – S3	17.4	50	%
pH value *	ISO 6588	9.13	—	
Salt content *	VdLUFA	0.56	—	%
Nitrogen *	DIN ISO 11261	0.057	—	%
Ammonium *	DIN 38 406 – E5	0.0029	—	%
Calcium *	DIN ISO 11885	66020	—	mg/kg
Potassium *	DIN ISO 11885	56	—	mg/kg
Magnesium *	DIN ISO 11885	439	—	mg/kg
Phosphorus *	DIN ISO 11885	235	—	mg/kg
org. Halogen Compds. (OX)*	ISO 11480	102	—	mg/kg
Fluorine *	DIN ISO 10304	< 100	100	mg/kg
Zinc *	DIN ISO 11885	< 10	150	mg/kg
Copper *	DIN ISO 11885	< 5	50	mg/kg
Nickel *	DIN ISO 11885	< 2	25	mg/kg
Cadmium *	DIN ISO 11885	< 0.2	0,5	mg/kg
Lead *	DIN ISO 11885	< 5	50	mg/kg
Mercury *	DIN EN 1483	< 0.25	0,5	mg/kg
Chromium *	DIN ISO 11885	< 1	50	mg/kg
Molybdenum *	DIN ISO 11885	< 0.5	1	mg/kg
Selenium *	DIN ISO 11885	< 0.2	0,75	mg/kg
Arsenic *	DIN EN 11969	< 3	5	mg/kg

## 2. Compostability test (Disintegration)

The disintegration test had been carried out under practice-relevant conditions in an indoor test composting site (Pilot-scale test). The sample material was put into an insulated composting box filled with fresh compost and green waste according to SOP 168.850 by analogy with ISO 16929. Samples were taken in regular time intervals. The temperature surveyed composting process was documented with photographs which are presented in the annex.

Week of composting	Retain on screen mesh 2 mm, [% weight]
	Sample 1 FOOPAK HEATSEALABLE
1	82.0
2	58.5
3	46.4
4	44.7
5	34.1
6	31.5
7	30.1
8	26.7
9	15.2
10	18.6
11	12.9
12	8.0

According to EN 13432 the maximum admissible retain on a sieve with 2 mm screen mesh size after 12 weeks of composting is 10 %.

## 3.) Overall Evaluation

According to the test results and to the compostability criteria in the European standard EN 13432, the tested sample is evaluated as follows:

The Sample **FOOPAK HEATSEALABLE** fulfils the criteria for compostability according to EN 13432 with regard to the chemical characterisation and practical compostability (disintegration).

# Annex

## Photographic Documentation

### Test Set-up data for disintegration test

### Photographic Documentation

#### Sample 1: FOOPAK HEATSEALABLE



Original



After 7 days



After 14 days



After 21 days

**Photographic Documentation**

**Sample 1: FOOPAK HEATSEALABLE**



After 28 days



After 35 days



After 42 days



After 49 days

**Photographic Documentation**

**Sample 1: FOOPAK HEATSEALABLE**



After 56 days



After 63 days



After 70 days



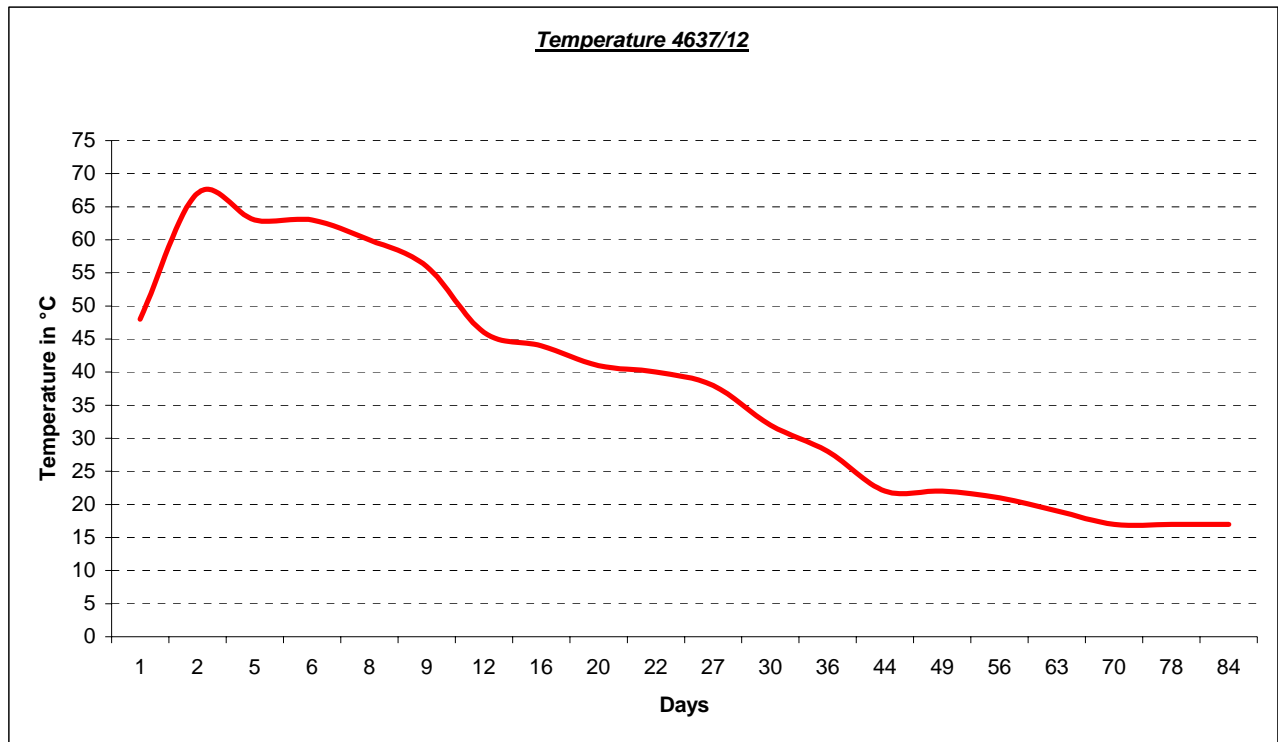
After 77 days



After 84 days

**Test set-up data of the disintegration test**

Annex page 4

**1.) Temperature profile in the test composter****2.) Rottegrad (compost maturity) in the test compost after the end of the test (12 Weeks)**

Parameter	Method	Result
Rottegrad	Methodenbuch Kompost	V

**3.) Oxygen content, humidity and pH-values in the test composter**

Parameter	Method	Week 1	Week 3	Week 5	
Oxygen	test sensor	16,7	18,5	19,9	%Vol
Humidity	gravimetric	75,0	73,3	71,0	%wt
pH-value	Methodenbuch Kompost	6,15	6,55	7,12	

Parameter	Week 7	Week 9	Week 11	Week 12	
Oxygen	19,9	20,0	20,1	20,0	%Vol
Humidity	68,1	66,9	66,5	65,7	%wt
pH-value	7,31	7,68	7,95	8,19	

The accreditation applies to the methods marked with \* in the test report (Register no. D-PL-14160-01-00).

End of report