SGS

Test Report

No. 2052151/JL Date : Apr 13 2007

The following sample was submitted and identified on behalf of the client

THICKNESS : 0.015MM
MATERIAL : 100% HIGH DENSITY POLYETHYLENE (HDPE), P-LIFE MASTER BATCH

SGS Job No.	:	2327138
Sample Receiving Date	:	APR 02 2007
Testing Period	:	APR 02-10 2007

Test Requested : For compliance with the Food and Drug Administration Regulations for determining the amount of maximum extractable fraction in n-hexane, maximum soluble fraction in xylene and density respectively for polyethylene olefin polymers.

Test Method : With reference to US FDA 21 CFR 177.1520.

Test Results :

Test Items	Results 1	Limit
1. Density at 23°C, gm/mL	0.950	0.85 – 1.00
2. Extractable fraction in n-hexane at 50°C , W/W%	2.02	5.5 max.
3. Soluble fraction in xylene at 25°C , W/W%	1.19	11.3 max.

Sample Description :
1. Transparent Plastic

Conclusion : When tested as specified, the submitted sample complies with the secifications for polyethylene olefin polymers requirement stated in US FDA 21 CFR 177.1520 (c)(2.1).

*** End of Report ***

Signed for and on behalf of
SGS Hong Kong Ltd.

for Corey
Wong Tak Ming, William
Operations Manager

H14709196

Hong Kong Productivity Council
香港生產力促進局
Materials Testing Laboratory

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TEST REPORT

Job Number : 0412F026
Date : 17-01-05
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Sample Description : Thin film sample

Sample Source :

Sampling Done by : The above company
Receipt Date : 17-12-04
Test Performing Date : 17-12-04 to 12-01-05
Nature of Test : Photo-degradation, Oven Heat Aging and Tensile Properties Test of Thin Films

Test Results :

I. Sample Description:

A pack of thin film sample was submitted by the client.
Sample was labelled as follow:

Sample Description	Thickness	Material
Agricultural Mulch Films	0.004mm - 0.005mm	LDPE

II. Objective:

1. Photo-degradation properties of the submitted sample by UV exposure and tensile test (ASTM D 3826).
2. Oven heat aging properties of the submitted sample at 80℃ and tensile test

III. Equipments:

1. UV Exposure Test:
   QUV Accelerated Weathering Tester, Q-Panel Lab Products
   Light source: UVA-340
   Weathering cycle: 20 hours UV/4 hours condensation (provided by client)

2. Oven Heat Aging Test
   Memmert Conditioning Oven

3. Tensile Test Machine: LLOYD LR 10K plus

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TEST REPORT

Job Number : 0412F026

Date : 17-01-05

Page 2 of 3

Sample Description : Thin film sample

Sample Source :

Sampling Done by : The above company

Receipt Date : 17-12-04

Test Performing Date : 17-12-04 to 12-01-05

Nature of Test : Photo-degradation, Oven Heat Aging and Tensile Properties Test of Thin Films

Test Results :

IV. Results:

1. Photo-degradation of thin film

Sample	UV Exposure (Day)	Percentage Elongation at break	Percentage Retained	Observations
Thin film	0	273.04	Nil	Thin, transparent, fragile
	2	114.46	41.92	Melting & too fragile to mount on tensile machine
	4	Nil	Nil	5 broken & other too fragile to mount on tensile machine
	5	Nil	Nil	All broken
	7	Nil	Nil	All Broken

All above results were shown in average value.
Please see Annex 1 for the raw data of the sample.

The thin film submitted by the client fulfils the degradation requirement of ASTM D3826 (degraded to 5% elongation) after an accelerated weathering test for 3.4 days. It is therefore estimated that the sample can be photo-degraded after about 7 weeks under normal environments.*

* 1 day accelerated weathering test using QUV tester is equivalent to approximately 2 weeks at Miami, Florida. However, this is only a rough estimation and the actual exposure period should be determined by a local field test.

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TEST REPORT

Job Number : 0412F026

Date : 17-01-05

Sample Description : Thin film sample

Sample Source :

Sampling Done by : The above company
Receipt Date : 17-12-04
Test Performing Date : 17-12-04 to 12-01-05
Nature of Test : Photo-degradation, Oven Heat Aging and Tensile Properties Test of Thin Films

Test Results :

2. Oven Heat Aging Test.

Temperature Condition: 80 ℃

Sample	Heat Exposure (Day)	Percentage Elongation at break	Percentage Retained	Observations
Thin film	0	273.04	Nil	Thin, transparent, fragile
	2	41.61	15.24	Melting & too fragile to mount on tensile machine
	4	Nil	Nil	All broken
	5	Nil	Nil	All broken
	7	Nil	Nil	All broken

All above results were shown in average value.
Please see Annex 1 for the raw data of the sample.

All thin films were deformed before the breakage occurred. The thin film submitted by the client fulfils the degradation requirement of ASTM D3826 (degraded to 5% elongation) after an oven aging for 3.2 days.

Dr. Kinny L. K. Yeung
B.Sc. M Sc. Ph.D. C.Chem MRSC FIMF. F.I.Ceram, FIM
General Manager – Materials Technology Division

Report № 35733

2) *Tensile properties of Thin Film at 80℃*

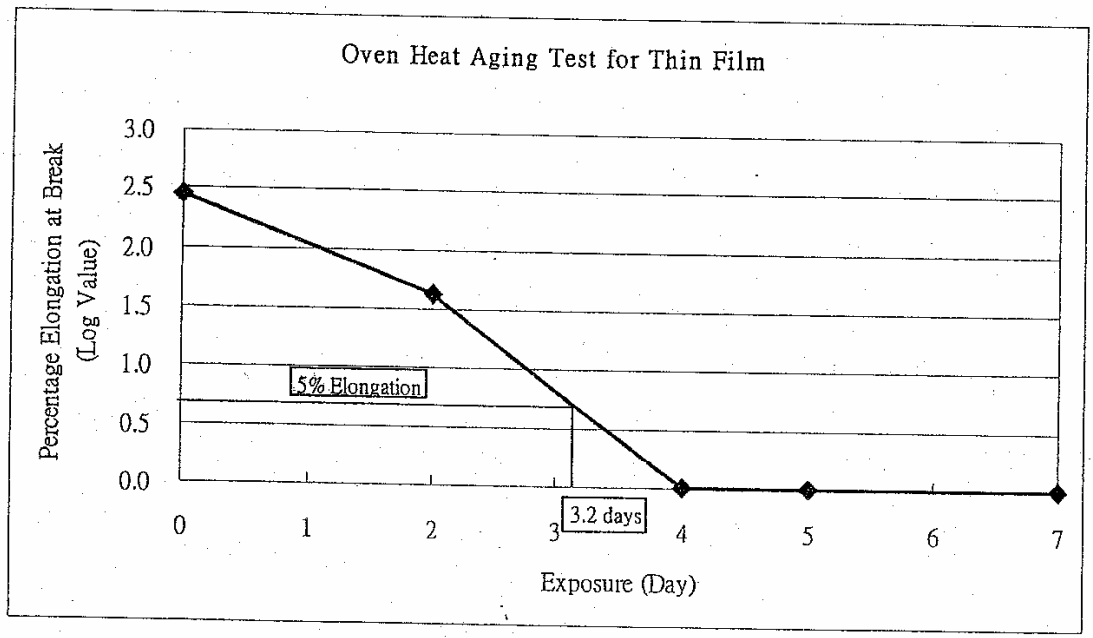
Table 2.1 Raw Data for Percentage Elongation at Break on Day 0

Sample No.	Percentage Elongation at Break
1	272.26
2	260.23
3	286.64
Average	**273.04**

Table 2.2 Raw Data for Percentage Elongation at Break on Day 2

Sample No.	Percentage Elongation at Break
1	25.20
2	41.65
3	57.98
Average	**41.61**

From Day 4 onwards, no percentage elongation at break was measured due to broken of samples after oven heat treatment.



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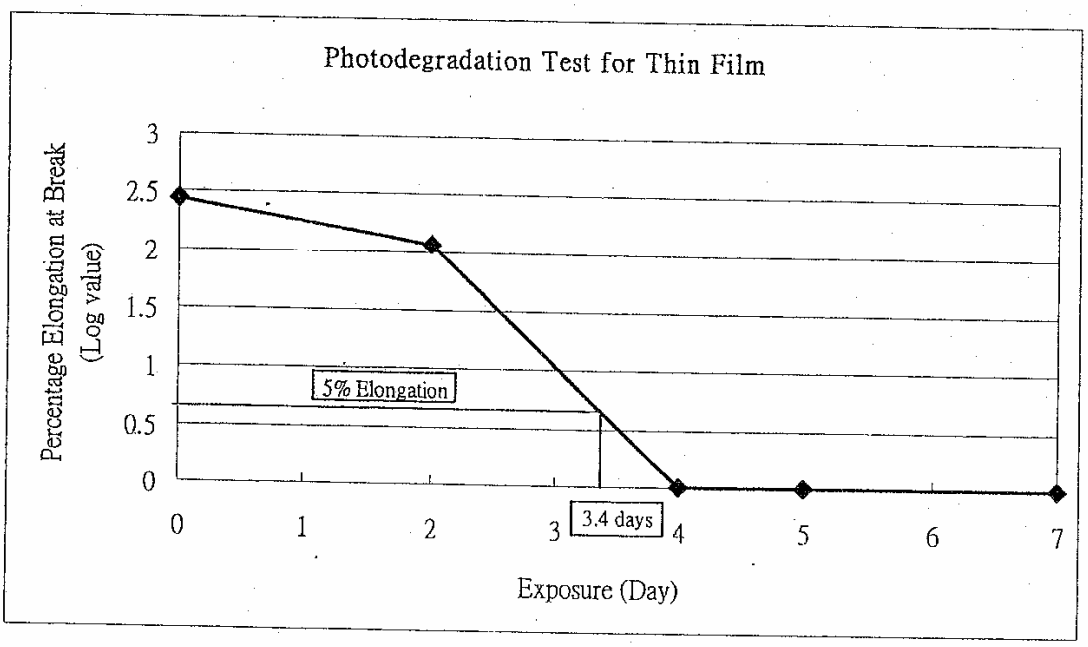

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Your ref :
Our ref : 0412F026
Our E-mail :

Annex 1

1) Photo-degradation of Thin Film

Table 1.1: Raw Data for Percentage Elongation at Break on Day 0

Sample No.	Percentage Elongation at Break
1	272.26
2	260.23
3	286.64
Average	**273.04**

Table 1.2: Raw Data for Percentage Elongation at Break on Day 2

Sample No.	Percentage Elongation at Break
1	119.53
2	103.19
3	120.66
Average	**114.46**

From Day 4 onwards, no percentage elongation at break was measured due to broken of samples after UV exposure.