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Number: HKGT05248675

TEST REPORT

Applicant: HEXETATE TECHNOLOGY CO LTD
RM 402 CITIC PLAZA
NO 233 TIANHEBEI RD
GUANGZHOU
CHINA 501610

Attn: ANTHONY

Date: JAN 10 , 2025

Sample Description As Declared :

Sample Description	:	RBD Recycled - Biodegradable Lens
Colour	:	Clear Crystal
Style No.	:	HTG1-ACS-2
Product End Uses	:	LENS
Fibre Content	:	Recycled Acrylic Modified
Ref.	:	Country Of Origin: China

Date Received/Date Test Started : JAN 15 , 2024

Original Sample Photo:

Figure 1: Test Sample

For any queries on this report, you are welcome to contact our customer service representatives:
Steve Yu - Mobile phone and Whatsapp (852) 63290534 or email to steve.yu@intertek.com

For and on behalf of
Intertek Testing Services Hong Kong Limited

Amy K.W. Wong
Assistant General Manager

Intertek Testing Services Hong Kong Limited 2/F Garment Centre 576 Castle Peak Road Kowloon, Hong Kong Tel +852 2173 8888 Fax +852 2786 1903 **intertek.com.hk**

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Tests Conducted (As Requested By The Applicant)

1 Determination Of Ultimate Aerobic Biodegradability Of Plastic Materials Under Controlled Composting Conditions - Method By Analysis Of Evolved Carbon Dioxide (ISO/IS 14855-1:2012):

PROJECT DESCRIPTION:

RBD Recycled Biodegradable Lens samples were submitted for testing under standard ISO/IS 14855-1:2012. The test method determines the ultimate biodegradability and degree of disintegration of test material under conditions simulating an intensive aerobic composting process. During the aerobic biodegradation of the test material. Carbon dioxide. water, mineral salts, and new microbial cellular constituents (biomass) are the ultimate biodegradation products. The carbon dioxide produced is continuously monitored. or measured at regular intervals. in test and blank vessels to determine the cumulative carbon dioxide production. The percentage biodegradation is given by the ratio of the carbon dioxide produced from the test material to the maximum theoretical amount of carbon dioxide that can be produced from the test material. The maximum theoretical amount of carbon dioxide produced is calculated from the measured total organic carbon (TOC) content.

Compost Inoculum:

Well aerated compost from a property operating aerobic composting plant shall be used as the Inoculum The inoculum shall be homogeneous and free from large inert objects such as glass, stones, or pieces of metal. Remove them manually and then sieve the compost on a screen of about 0.5cm to 1 cm. Determine the total dry solids and the volatile-solids content of the inoculum.

The total dry solids content shall be between 50 % and 55 % of the wet solids and the volatile solids no more than about 15 % of the wet or 30 % of the dry solids Adjust the water content, if necessary, before the compost is used by adding water or gentle drying, e.g., by aerating the compost with dry air. Prepare a mixture of 1 part of inoculum with 5 parts of deionized water MIX by shaking and measure the pH immediately, it shall be between 7,0 and 9,0. The compost inoculum should produce 50-150 mg of CO_2 per gram of volatile solids over the first 10 days of the test and an ash content of less than 70% and a pH between 7 and 8.2, is desired. The amount of total dry solids may range from 50 to 55%.

Figure 2: compost inoculum

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PROCEDURE:

The composting vessels will be incubated in diffuse light minimum for a period of 45 days or more & the temperature of the system will be maintained at 58°C and initiate aeration using water saturated carbon-dioxide-free air. This can be produced by passing the air through wash-bottles filled with sodium hydroxide solution.

Carbon Dioxide Analysis:

The carbon dioxide (CO_2) produced in each vessel reacted with $Ba(OH)_2$ and will be precipitated as barium carbonate ($BaCO_3$). The amount of carbon dioxide produced will be determined by titrating the remaining barium hydroxide with 0.05 N hydrochloric acid to a phenolphthalein end point. Data obtained from the titration will be used to calculate the amount of CO_2 produced.

RESULTS:

The **RBD Recycled Biodegradable Lens samples** were subjected to biodegradation as per ISO 14855-1:2012 biodegradability under controlled composting conditions at 58°C ± 2 °C and biodegradability was determined by measuring the actual metabolic conversion of the compostable material into carbon dioxide using the standard test method.

Table 1: Percentage Biodegradation of Positive control and Test samples

Day	% Biodegradation	
	Positive Control	Test samples
0	0.00	0.00
1	3.28	1.12
2	6.57	2.90
3	8.60	5.03
6	10.64	6.93
10	16.11	9.05
13	24.71	10.72
17	32.37	12.18
20	41.76	13.74
30	54.90	17.99
35	63.34	20.89
40	69.60	22.01
45	73.04	25.58

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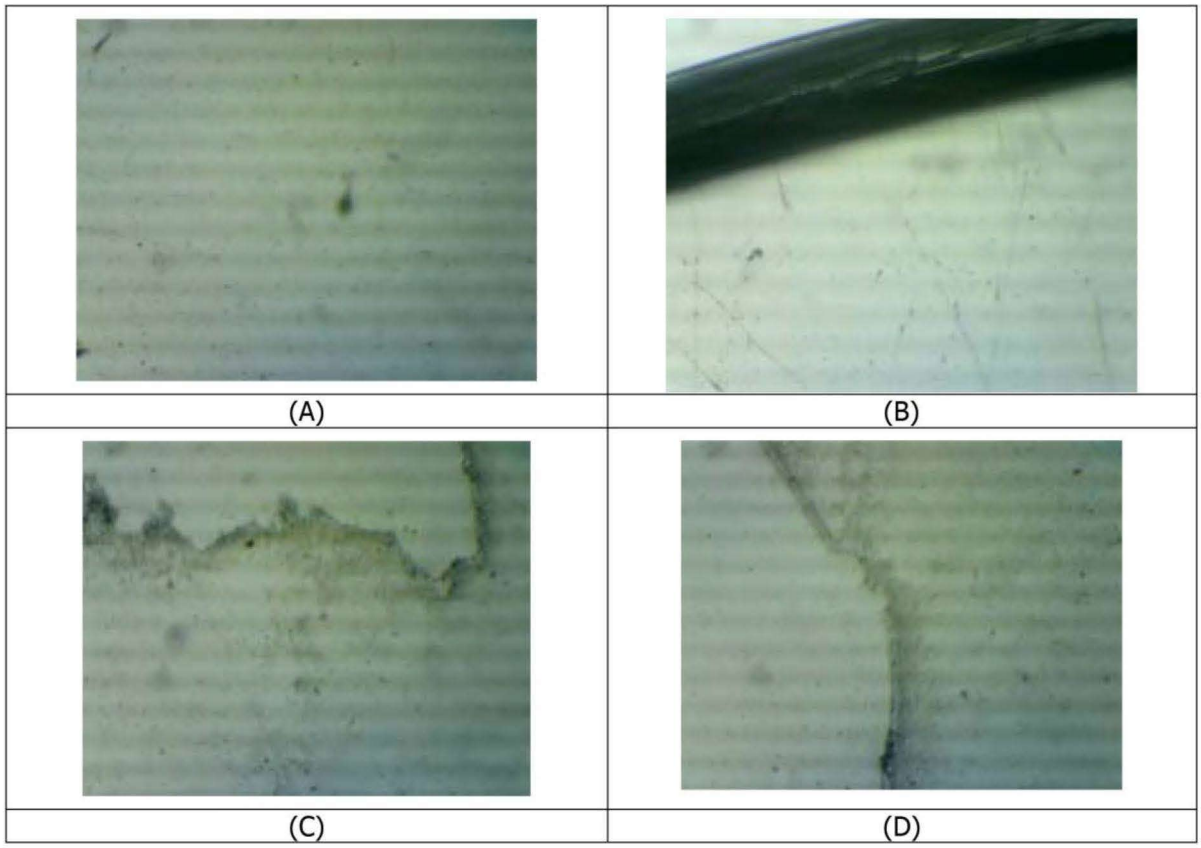

Figure 3: Microscopic image of Test samples Before and After 45 days Incubation Condition
A & B – Unexposed Test Sample RBD Recycled Biodegradable Lens to aerobic biodegradation process
C & D – Exposed Test Sample RBD Recycled Biodegradable Lens to aerobic biodegradation process

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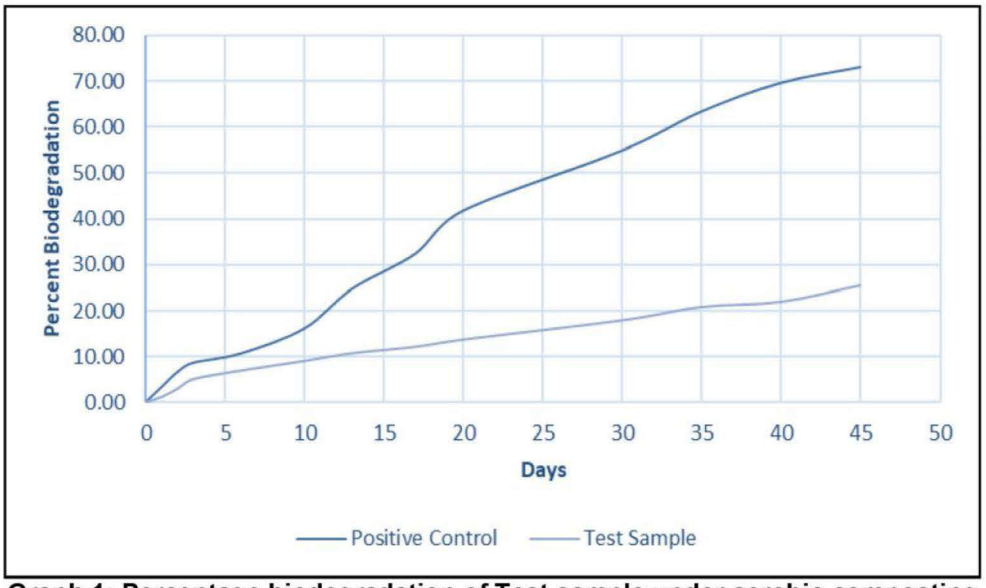

Graph 1: Percentage biodegradation of Test sample under aerobic composting

Conclusion:

After 45 days of incubation, the level of biodegradation for the positive control (cellulose) was 73.04 % while the RBD Recycled Biodegradable Lens samples showed 25.58 % relative to the positive control.

Remark : The test was performed by an approved subcontractor laboratory which is part of the Intertek Group.

End of Report

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