

APT TESTING AND RESEARCH PRIVATE LIMITED

APPROVED BY FDA - MAHARASHTRA STATE LIC NO. - 37-PD/TL/7
ISO 9001:2015 CERTIFIED LABORATORY (Regd. No. QMS.91.002.04.16)

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CIN-U74220PN2008PTC132043



STUDY CODE NO. PM357/1819/1552
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REGISTRATION NO. 40/PO/ReBiRc/S/99/CPCSEA

MINISTRY OF ENVIRONMENT AND FORESTS, GOVERNMENT OF INDIA

REPORT

PHOTODEGRADATION OF PLASTIC MATERIALS

OF

“GARBAGE BAG”

AS PER ASTM D 5208-91.

TESTING FACILITY:

APT TESTING AND RESEARCH PVT.LTD.,
S.N.36/1/1, M.N.199, VADGAON KHURD, PUNE- 411 041,
MAHARASHTRA, INDIA.

SPONSOR:

PINNACLE INNOVATORY SERVICES PVT. LTD.,
B-408, HILL SIDE CHS., RAHEJA VIHAR, CHANDIVALI FARM ROAD,
CHANDIVALI, ANDHERI (EAST), MUMBAI - 400072,
MAHARASHTRA, INDIA.

STUDY CODE NUMBER:
“PM357/1819/1552”

REPORT NUMBER:
“PM357/1819/1552”

DATE: 11/MARCH/2019

TOTAL NO. 12 PAGES IN THIS REPORT

STUDY CODE NO.PM357/1819/1552

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STUDY CODE NO.PM357/1819/1552

STATEMENT OF COMPLIANCE

We, the Undersigned hereby declare that this Study Code No. "PM357/1819/1552" entitled photo degradation of plastic materials of "GARBAGE BAG" by exposure to UV light was performed study was conducted in compliance Photo degradation of plastic materials with ASTM D 5208-91. Characterization of the test material was performed by the sponsor. The objective laid down in the study protocol was achieved. No Unforeseen circumstances were observed which might have affected the quality or integrity of the study.


This test report is valid for the specified test material tested at the time of study under the stated environmental condition.

This report represents a true and accurate report of the results obtained. We accept the responsibility for validity of the data, as well as the interpretation, analysis, documentation and reporting of the results.

This report contains 12 pages including Contents, Certificate and Tables.


Dr. K. G. Apte,

Study Director.


Mrs. R. P. Damle,

Q. A.

Date: 11/March/2019.

STUDY CODE NO.PM357/1819/1552

QUALITY ASSURANCE STATEMENT

This study report has been reviewed by the Quality Assurance Unit of APT TESTING AND RESEARCH PVT. LTD., for compliance of plastic materials for photo degradation as per ASTM D 5208-91, Study plan, Study Data and applicable Operating Procedures.

This statement confirms that the study report accurately reflects Study data.

The summary of inspections performed during the course of the study is as follows:

| S. No. | Phases of Study inspected | Date of Inspection | Type of Inspection |
|--------|---------------------------|--------------------|------------------------|
| 1 | Draft Study Plan | 21/February/2019 | Study Based Inspection |
| 2 | Definitive Study Plan | 22/February/2019 | |
| 3 | Initiation of Test | 22/February/2019 | |
| 4 | Raw Data | 07/March/2019 | |
| 5 | Draft Report | 07/March/2019 | |
| 6 | Final Report | 11/March/2019 | |

Name : Mrs. R. P. Damle,

Date: 11/March/2019.

Head Q. A.:

Damle R P

STUDY CODE NO.PM357/1819/1552

1. STUDY INFORMATION:

Study Code Number: "PM357/1819/1552"

Report Number : "PM357/1819/1552"

Study Title : Photo degradation of plastic materials
"GARBAGE BAG"

Sponsor : Pinnacle Innovatory Services Pvt. Ltd.,
B-408, Hill Side Chs., Raheja Vihar,
Chandivali Farm Road, Chandivali, Andheri (East),
Mumbai - 400072, Maharashtra, India.

Testing Facility : APT TESTING AND RESEARCH PVT. LTD.,
S. N. 36/1/1, M. N. 199,
Vadgaon Khurd, Pune 411 041,
Maharashtra, India.

Date of Submission of Final Report: 11/March/2019.

Study Director : Dr. K. G. Apte

Date : 11/March/2019.

Approved for issue

Sign

विष विज्ञान केंद्र

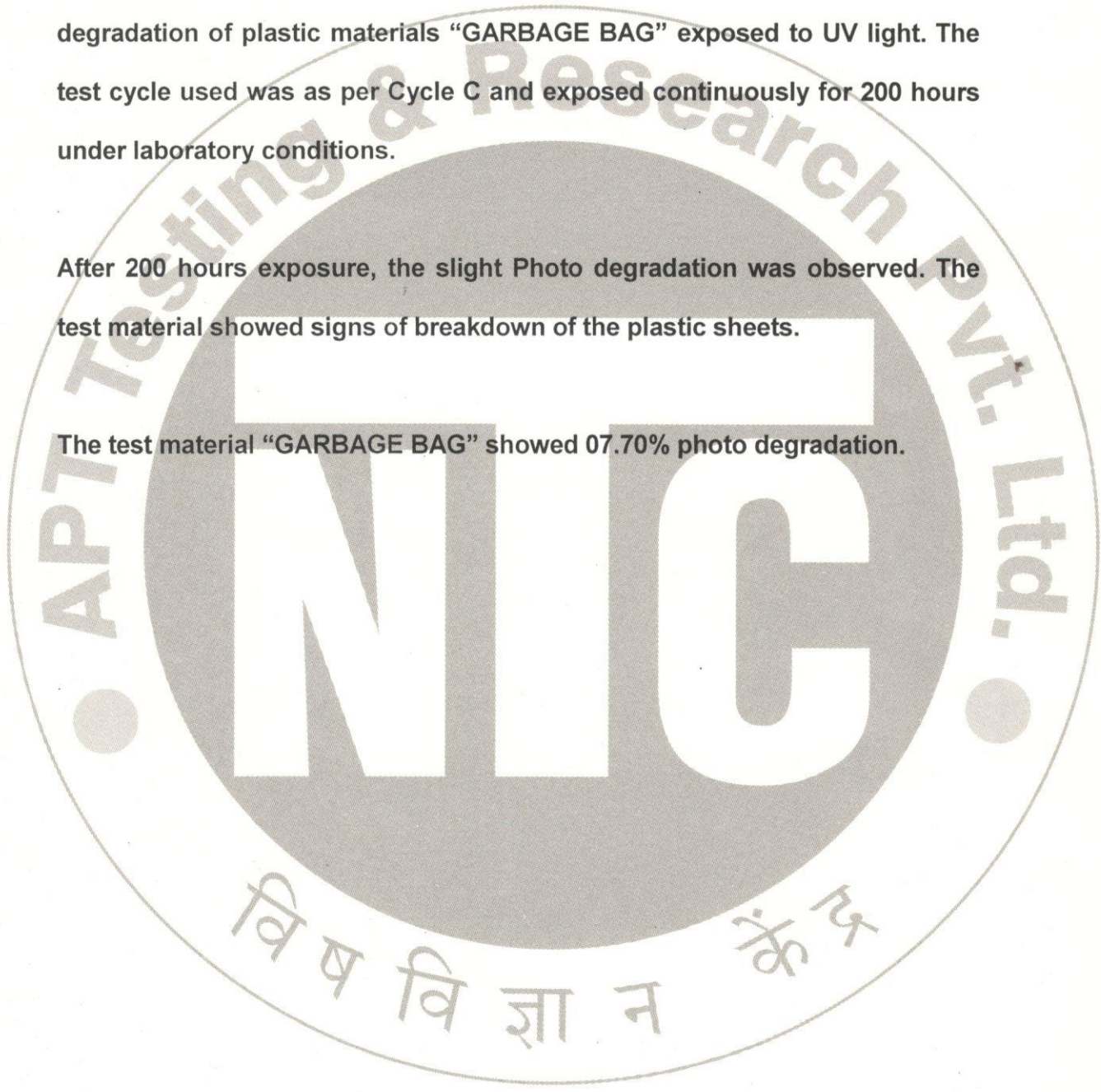
STUDY CODE NO.PM357/1819/1552

2. SUMMARY:

The objective of the study now reported was to evaluate the Photo degradation of plastic materials "GARBAGE BAG" exposed to UV light. The test cycle used was as per Cycle C and exposed continuously for 200 hours under laboratory conditions.

After 200 hours exposure, the slight Photo degradation was observed. The test material showed signs of breakdown of the plastic sheets.

The test material "GARBAGE BAG" showed 07.70% photo degradation.



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3. INTRODUCTION:

The study was conducted to evaluate the Biodegradability of the test material "GARBAGE BAG" exposure to UV light and following the Standard photo degradation of plastic materials as per ASTM D 5208-91 Test Guidelines.

3.1 OBJECTIVE

This study was designed to determine the degradability to the photo degradation and to establish the degradation properties of the test material.

3.2 TEST GUIDELINES:

ASTM BIODEGRADATION GUIDELINES, ASTM D 5208-91

3.3 STUDY PERSONNEL

Study Director : Dr. K. G. Apte, M.Sc., Ph.D.

Research Associate : Mr. S. A. Kashid, M. Sc.

Q. A. : Mrs. R. P. Damle, M. Sc.

विष विज्ञान केंद्र

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4. MATERIALS AND METHODS:

4.1 TEST MATERIAL

TEST MATERIAL NOT DRAWN BY ATR

Characterization of the test material was done by the Sponsor.

| | |
|-------------------------------|--|
| Test MATERIAL | : "GARBAGE BAG" |
| Physical State | : Bag |
| Quantity Received | : 20 |
| Batch No. | : Not Mentioned |
| Manufacturing Date | : Not Mentioned |
| Expiry Date | : Not Mentioned |
| Sponsor | : Pinnacle Innovatory Services Pvt. Ltd., B-408, Hill Side Chs., Raheja Vihar, Chandivali Farm Road, Chandivali, Andheri (East), Mumbai - 400072, Maharashtra, India. |
| Date of Test Material Receipt | : 20/February/2019 |
| Date of Initiation of Study | : 22/February/2019 |
| Date of Completion of Study | : 05/March/2019 |

4.2 STUDY DESIGN

Biodegradable film was exposed to UV light. The test cycle used was as per Cycle C and exposed continuously for 200 hours under laboratory conditions.

STUDY CODE NO.PM357/1819/1552

5. RESULTS:

After 200 hours exposure, the "GARBAGE BAG" showed 07.70% Photo degradation. The test material showed signs of breakdown of the plastic sheets.

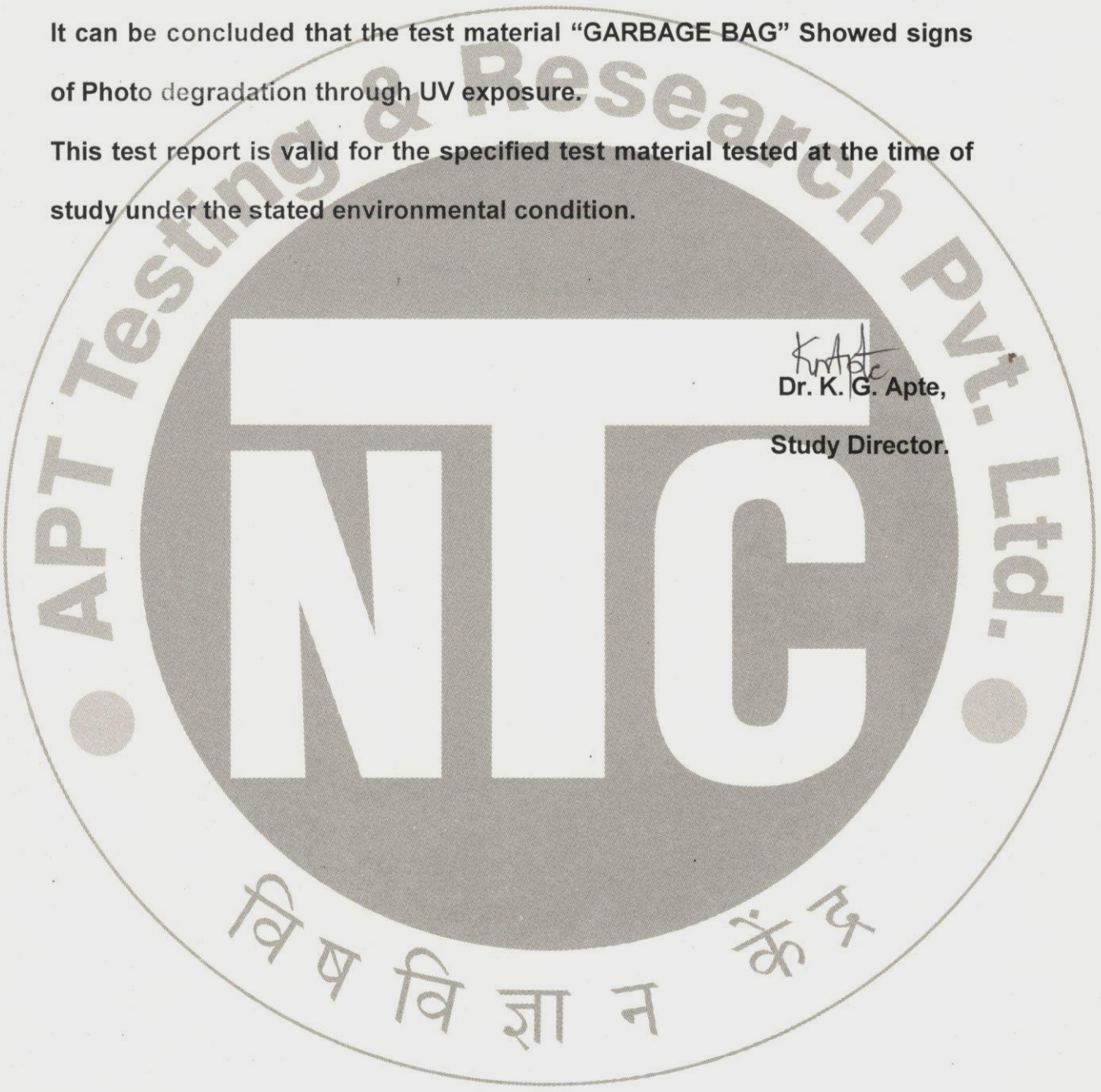
| Properties | Results | | |
|-----------------------|--------------------|------------------------------|-------------|
| | Before UV Exposure | After UV Exposure of 200 Hrs | % reduction |
| Tensile Strength (Kg) | 2.600 | 2.400 | 7.70 |

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6. CONCLUSION:

It can be concluded that the test material "GARBAGE BAG" Showed signs of Photo degradation through UV exposure.

This test report is valid for the specified test material tested at the time of study under the stated environmental condition.



K.G. Apte
Dr. K. G. Apte,
Study Director.

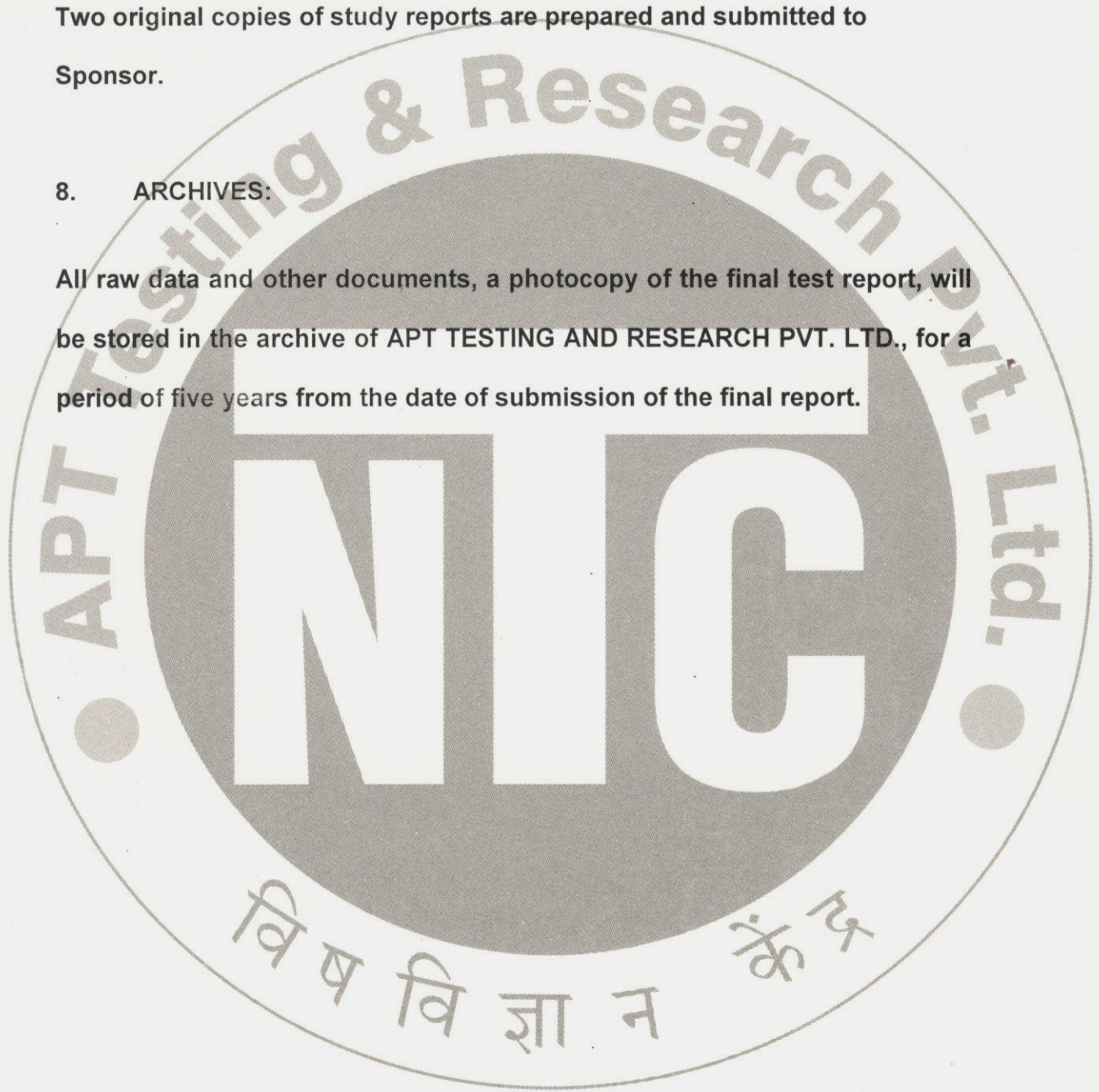
STUDY CODE NO.PM357/1819/1552

7. REPORT DISTRIBUTION:

Two original copies of study reports are prepared and submitted to Sponsor.

8. ARCHIVES:

All raw data and other documents, a photocopy of the final test report, will be stored in the archive of APT TESTING AND RESEARCH PVT. LTD., for a period of five years from the date of submission of the final report.



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Date: 11/March/2019.

C E R T I F I C A T E

This is to certify that the test material "GARBAGE BAG, supplied by Pinnacle Innovatory Services Pvt. Ltd., B-408, Hill Side Chs., Raheja Vihar, Chandivali Farm Road, Chandivali, Andheri (East), Mumbai - 400072, Maharashtra, India, according to the Photo degradation of plastic materials as per ASTM D 5208-91, was found to show signs of PHOTODEGRADATION by the tests studied by exposed to UV light.

The report of the test conducted has been submitted through Study Code No. "PM357/1819/1552."

This test report is valid for the specified test material tested at the time of study under the stated environmental condition.

The test material "GARBAGE BAG", showed 07.70% of photo degradation.

ATR is approved by the Food & Drug Administration, Maharashtra State, Pune, through License No. 37-PD/TL/7.


(Dr. K. G. Apte),

Study Director.