दूरभाष/Telephone : 040- 24188005
फैक्स/Fax : 040 - 24344056
: 040 - 24340704
ई-मेल /E-mail : veerabrahmamk. asl@gov.in
: kveerabrahmam@rediffmail.com
Dr. K. Veera Brahmam
M.Sc.; Ph.D.
Scientist-F & Associate Project Director

भारत सरकार, रक्षा मंत्रालय
Government of India, Ministry of Defence
रक्षा अनुसंधान एवं विकास संगठन
Defence Research & Development Organization
उन्नत प्रणाली प्रयोगशाला
ADVANCED SYSTEMS LABORATORY
डॉ. ए. पी. जे. अब्दुल कलाम प्रक्षेपास्त्र समष्टि
Dr. A. P. J. Abdul Kalam Missile Complex
कंचनबाग डाकघर, हैदराबाद - 500 058
P. O Kanchanbagh, Hyderabad - 500 058

No. ASL/41/2022/8000/02

Date: 11-11-2022

To

M/s. Oneness Solutions
Address: No 320-3/17,
1st Main Ranganath Colony,
Mysore Road Bangalore,
Bengalure Urban, Karnataka-560026

Sub: Authorization Letter for selling of DRDO Products– Reg

DRDO, Hyderabad has developed the bio-degradable bags, which were eco-friendly and a substitute to polyethylene carry bags. The same is recommended by NITIAYOG to various ministries of states and central to promote Swacha Bharat Programme. The same technology of production of bio-degradable bags have been transferred to various firms for promoting the technology and to minimize plastic pollution on the earth.

DRDO is hereby authorizing **M/s. Oneness Solutions**, Bangalore for marketing of bio degradable carry bags.

Dr. K. VEERA BRAHMAM 11/11/22
Deputy Project Director
Scientist 'F'
Dr. A.P.J. Abdul Kalam Missile Complex
Ministry of Defence, DRDO
ASL, Hyderabad - 500058

Test reports - CIPET

सिपेट : सेन्टर फॉर स्किलिंग एण्ड टेक्निकल सपोर्ट (सी एस टी एस)
रसायन एवं पेट्रोरसायन विभाग
रसायन एवं उर्वरक मंत्रालय, भारत सरकार
प्लॉट नं. जे-3/2, एम.आई.डी.सी. औद्योगिक क्षेत्र,
चिकलठाणा, औरंगाबाद - 431006
फोन : 0240-2478302-334
फैक्स : 0240-2478333
ईमेल : aurangabad@cipet.gov.in / cipetabad@gmail.com
वेबसाइट : www.cipet.gov.in
मुख्यालय : सिपेट, गिण्डी, चेन्नै-600 032

CIPET : CENTRE FOR SKILLING AND TECHNICAL SUPORT (CSTS)
Department of Chemicals & Petrochemicals,
Ministry of Chemicals & Fertilizers, Govt. of India
Plot No. J-3/2, MIDC Industrial Area,
Chikalthana, Aurangabad - 431006
Tel. : 0240-2478302-334
Fax : 0240 - 2478333
E-mail : aurangabad@cipet.gov.in / cipetabad@gmail.com
website : www.cipet.gov.in
Head Office : CIPET, Guindy, Chennai-600 032

क्र./सिपेट/औबाद/परीक्षण रिपोर्ट/(WO-1486/2019-20) 2020-21/239/2486 दिनांक : 21.12.2020

प्रति/ To

ECOLASTIC PRODUCTS PRIVATE LIMITED
Plot No. 35/2, 500051, Phase- I,
Sai Nagar, Cherlapalli,
Hyderabad, Telangana- 500062.

विषय: परीक्षण रिपोर्ट- बाबत.
Sub : Test Report - Reg.

संदर्भ/ Ref: Letter Dated: 18.02.2020 & Email Dated: 01.06.2020

महोदय / Dear Sir,

कृपया हमारी परीक्षण रिपोर्ट क्रमांक 22851 दिनांक 21.12.2020.

Please find enclosed herewith the Test Report No. : 22851 Dated. 21.12.2020.

कृपया संलग्न कस्टमर फीडबैक फार्म भरकर वापस भेजने का कष्ट करें ।

Kindly fill the enclosed customer feedback form & return the same

धन्यवाद / Thanking You.

भवदीय / Yours Sincerely,

कमल जीत घई / Kamal Jit Ghai
मुख्य प्रबंधक (तकनीकी) /Chief Manager (Technical)

संलग्न : उपरोक्तनुसार
Encl : As above

केंद्र : अहमदाबाद, अमृतसर, औरंगाबाद, अगरतला, बद्दी, बालासोर, बेंगलुरु, भोपाल, भुवनेश्वर, चंद्रपुर, चेन्नै, देहरादून, गुवाहाटी, ग्वालियर, हैदराबाद, हाजीपुर, हल्दिया, इम्फाल, जयपुर, कोच्चि, लखनऊ, मदुरै, मुम्बई, मैसूरु, रायपुर, रांची, वलसाड एवं विजयवाड़ा
Centres : Ahmedabad, Amritsar, Aurangabad, Agartala, Baddi, Balasore, Bengaluru, Bhopal, Bhubaneswar, Chandrapur, Chennai, Dehradun, Guwahati, Gwalior, Hyderabad, Hajipur, Haldia, Imphal, Jaipur, Kochi, Lucknow, Madurai, Mumbai, Mysuru, Raipur, Ranchi, Valsad & Vijayawada

सिपेट : सेन्टर फॉर स्किलिंग एण्ड टेक्निकल सपोर्ट (सी एस टी एस)
रसायन एवं पेट्रोरसायन विभाग
रसायन एवं उर्वरक मंत्रालय, भारत सरकार
प्लॉट नं. जे-3/2, एम.आई.डी.सी. औद्योगिक क्षेत्र,
चिकलठाणा, औरंगाबाद - 431006
फोन : 0240-2478302-334
फैक्स : 0240-2478333
ईमेल : aurangabad@cipet.gov.in / cipetabad@gmail.com

CIPET : CENTRE FOR SKILLING AND TECHNICAL SUPPORT (CSTS)
Department of Chemicals & Petrochemicals,
Ministry of Chemicals & Fertilizers, Govt. of India
Plot No. J-3/2, MIDC Industrial Area,
Chikalthana, Aurangabad - 431006
Tel. : 0240-2478302-334
Fax : 0240 - 2478333
E-mail : aurangabad@cipet.gov.in / cipetabad@gmail.com

श्रेणी / SERIES : A

क्रं / No. 15133

प्लास्टिक्स परीक्षण केंद्र
PLASTICS TESTING CENTRE

परीक्षण प्रमाण पत्र / **TEST CERTIFICATE**

Issued to:

ECOLASTIC PRODUCTS PRIVATE LIMITED
Plot No. 35/2, 500051, Phase- I,
Sai Nagar, Cherlapalli,
Hyderabad, Telangana- 500062

Test Report No	: 22851
Dated	: 21.12.2020
Your Ref	: Letter & Email
Dated	: 18.02.2020 & 01.06.2020

Page No. 1 of 3

Test Report

PART – A

PARTICULARS OF SAMPLE SUBMITTED

a)	Name of Sample	: "ECOLASTIC BAGS" as stated by party
b)	Grade/Variety/Type/Size/Class	: Nil
c)	Declared value, if any	: Nil
d)	Code No	: Nil
e)	Batch No. and Date of Manufacturing	: Nil
f)	Quantity	: 48 No's. Bags (Weight- 785 gms)
g)	Mode of Packing	: Packed in envelope
h)	Sealed or not	: Not Sealed
i)	Date of Receipt	: 20.02.2020
j)	Date (s) of Performance of Test	: 27.02.2020 to 21.12.2020
k)	Any other information	: Nil

PART -B

SUPPLEMENTARY INFORMATION

i)	Reference to sampling procedure	Samples supplied by Party
ii)	Supporting documents for the measurement taken and results derived	: As given in Part C
iii)	Deviation from the test method as prescribed in relevant work instruction, if any	: Nil

21/12/2020

21/12/2020

Dr. K. VEERA BRAHMAM
Associate Project Director
Scientist F
Dr. APJ Abdul Kalam Missile Complex

Visual & Material Identification test report - CIPET

Annexure

ANALYSIS RESULT

Test Report No. : 22851

Page No. 3 of 6
Dated. 21.12.2020

5) Visual Observation (As per ASTM D 5338-11,3.5)

Description	Week 1	Week 2	Week 3	Week 4
Structure	Square film plastic	Square film plastic	Square film plastic	Square film plastic
Moisture	Appropriate Moisture level	Appropriate Moisture level	Appropriate Moisture level	Appropriate Moisture level
Colour	White color	White color	light Brown	light Brown
Fungal Development	None	None	None	None
Smell	No smell	No smell	Organic/Dirt like	Organic/Dirt like
Description	Week 5/6	Week 7/8	Week 9/10	Week 11/12
Structure	Cracks on surface	Broken into Pieces	Converted into small Particles	Very small particles well mixed with the compost
Moisture	Appropriate Moisture level	Appropriate Moisture level	Appropriate Moisture level	Appropriate Moisture level
Colour	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Fungal Development	None	None	None	None
Smell	Organic/Dirt like	Organic/Dirt like	Organic/Dirt like	Organic/Dirt like

21.12.2020

21/12/2020

Authorized Signatory

TESTING

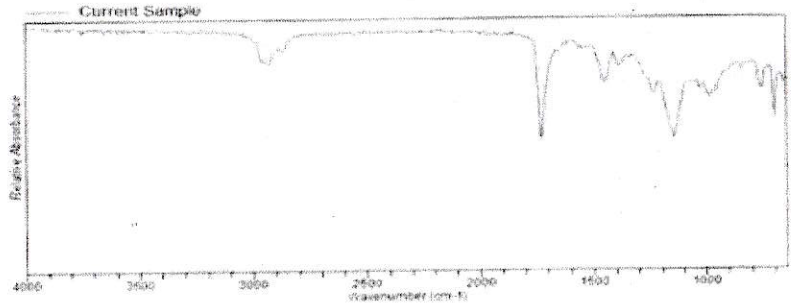
Annexure

ANALYSIS RESULT

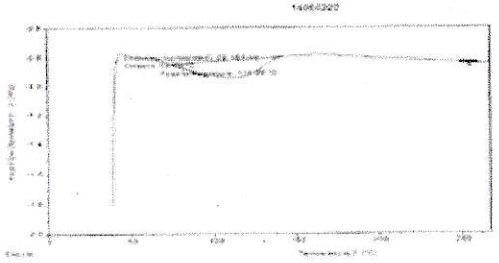
Test Report No. : 22851

Page No. 4 of 6
Dated. 21.12.2020

FTIR Analysis:
Sample Details: ECOLASTIC BAGS - as Stated by the party



DSC Analysis:



Comments: The above DSC & FTIR analysis indicates the above sample is Blend of Poly Lactic Acid & Poly Butylene Adipate Co-Terephthalate (PBAT + PLA).

21.12.2020

21/12/2020

Authorized Signatory

TESTING

Dr. K. VEERA BRAHMAM
Associate Project Director
Scientist F
Dr APJ Abdul Kalam Missile Complex
Ministry of Defence, DRDO
ASL, Hyderabad-500 058

Test report - CIPET

सिपेट :(सी एस टी एस) औरंगाबाद.
CIPET : (CSTS) Aurangabad

CONTINUATION SHEET

Test Report No : 22851
Date : 21.12.2020

PART-C

Test Result

Sl. No	Name of test	Test Method	Unit	Test Result	Specified requirements
01	Material Identification	FTIR/DSC	--	Blend of Poly Lactic Acid & Poly Butylene Adipate Co-Terephthalate (PBAT + PLA)	PBAT (As declared by party)
02	Disintegration (Dry mass remains in 2mm sieve after 84 days)	Cl. 6.2 of ISO 17088-2012/ IS-17088-2008	%	6.25	Not more than 10 %
03	Ultimate aerobic Biodegradation (with reference to 100% degradation of positive reference after 84 days)	Cl. 6.3 of ISO 17088-2012 / IS 17088-2008	%	80.32	>90% (At the end of the test period not more than 180 days)
04	Plant Growth study Monocotyledon (24/25) % Seedemergence	ISO:17088:2012/ IS 17088:2008	%	98.00	>90
	Dicotyledon (23/25) % Seedemergence		%	92.00	>90

Note: The detailed observation on Biodegradability test is enclosed as Annexure.

21-12-2020

21/12/2020

सिपेट :(सी एस टी एस) औरंगाबाद.
CIPET : (CSTS) Aurangabad

CONTINUATION SHEET

Test Report No : 22851
Date : 21.12.2020

Test Result

Sl. No	Name of test	Test Method	Unit	Test Result	Specified requirements
05	Heavy metals Concentration	ISO:17088:2012 / IS 17088:2008	mg/l		
	Arsenic (As)			0.36	20
	Copper (Cu)			0.97	500
	Nickel (Ni)			0.84	100
	Zinc (Zn)			4.87	2500
	Cobalt(Co)			--	--
	Chromium (Cr)			2.24	300
	Molybdenum (Mo)			--	--
	Mercury (Hg)			0.92	10
	Cadmium (Cd)			2.89	20
	Lead (Pb)			2.3	500
	Selenium (Se)			--	--

*Base on Municipal waste (Management and Handling) Rules, 1999 notified on 27th September, 1999 by Ministry of Environment and Forests, Government of India. Note that concentration of metals like Cobalt, Molybdenum and Selenium is not mentioned in the notification.

PART-D

Remarks: Nil

NOTE : 01 This Test Report Certificate is issued only for the samples submitted to the laboratory.
02 The results stated above related only to the items tested.
03 The quality of the subsequent production lot has to be ensured by the purchaser.
04 This Test Report shall not be reproduced except in full without the written approval of the laboratory.
05 Any anomaly/discrepancy in this report should be brought to the notice of the laboratory within 30 days from the date of issue.
06 Subcontracted Tests (if any): FTIR Subcontracted from MIT-Center For Analytical Research and studies (MIT-CARS), Aurangabad.

21-12-2020

21/12/2020

Authorized Signatory
Dr. Riyush Kumar
Technical Officer

Dr. K. VEERA BRAHMAM
Associate Project Director
Scientist F
Dr A.P.J Abdul Kalam Missile Complex
Ministry of Defence DRDO
ASL, Hyderabad-500 058

Bio-degradability Test report - CIPET

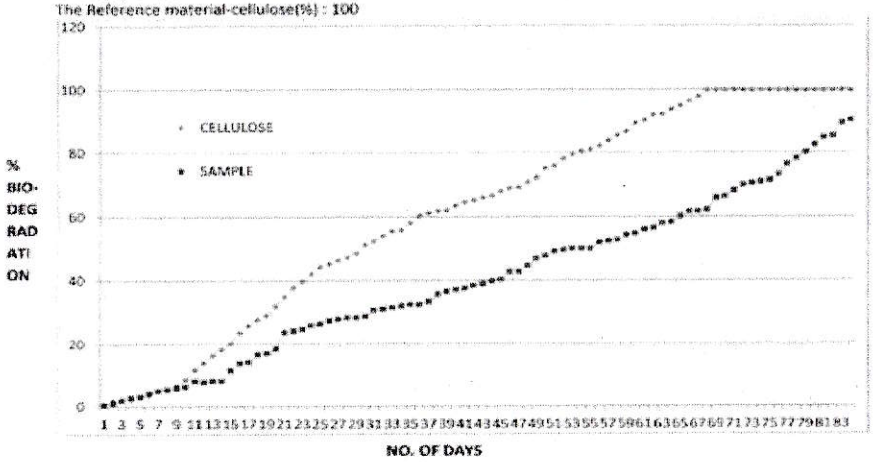
Annexure

ANALYSIS RESULT

Test Report No. : 22851

Dated. 21.12.2020

4. Result: Percentage Biodegradation relative to positive reference
Mean (%) : 90.32
The Reference material-cellulose(%) : 100



21.12.2020

Authorized Signatory

21/12/2020

TESTING

Annexure

ANALYSIS RESULT

Test Report No. : 22851

Dated. 21.12.2020

OBSERVATION FOR BIODEGRADABILITY TEST AS PER ISO 17088:2012/IS17088:2008

Name of the Party: -
ECOLASTIC PRODUCTS PRIVATE LIMITED
Plot No. 35/2, 500051, Phase- I,
Sai Nagar, Cherlapalli,
Hyderabad, Telangana- 500062.

Customers Details

1. Sample Details (As stated the party)	: Blend of Poly Lactic Acid & Poly Butylene Adipate co-Terephthalate (PBAT + PLA)
2. Material Identification by FTIR & DSC	: Blend of Poly Lactic Acid & Poly Butylene Adipate co-Terephthalate (PBAT + PLA)

3. Observation:
a. Conditions of reaction mixtures

Origin of Compost	: Livestock excrement, municipal & vegetable
Reaction Temperature	: 58°C (±2°C)
Dry Solid (%)	: 67.8%
Volatile Content (%)	: 54.33%
CO2 evolved during first 10days in blank vessels	: 53.45/g of volatile solids of compost.
Test duration	: 84 day
Reference material	: Cellulose
Volume of reaction vessel	: 3000ml

b. pH of test Medium

Sr. No.	Composting vessel	pH (before)	pH (after)
1	Blank 1	7.5	7.5
2	Blank 2	7.3	7.6
3	Blank 3	7.8	7.5
4	Cellulose 1	7.5	7.6
5	Cellulose 2	7.2	7.6
6	Cellulose 3	7.3	7.5
7	Negative 1	7.5	7.6
8	Negative 2	7.4	7.8
9	Negative 3	7.8	7.6
10	Sample-1	7.5	7.8
11	Sample -2	7.6	7.6
12	Sample – 3	7.5	7.8

21.12.2020

TESTING

Authorized Signatory

21/12/2020

Dr. K. VEERA BRAHMAM
Associate Project Director
Dr.APJ Abdul Kalam Missile Complex
Ministry of Defence

Disintegration & Plant Growth Test - CIPET

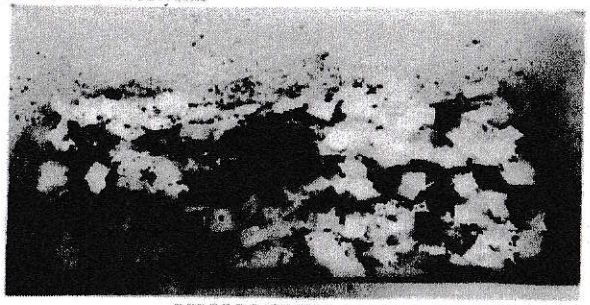
Annexure

ANALYSIS RESULT

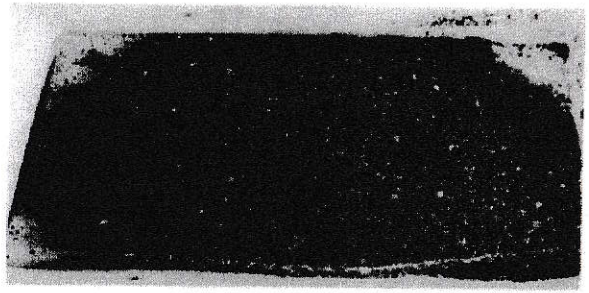
Test Report No. : 22851

Page No. 5 of 6
Dated. 21.12.2020

8. DISINTEGRATION – AFTER 12 WEEKS



BEFORE DISINTEGRATION



AFTER DISINTEGRATION

The disintegration of the supplied sample by passing through 2mm sieve after 12 week in composting condition as per ISO 17088/IS 17088:2008 was found not more than 30% of original dry mass remain

Authorized Signatory

TESTING

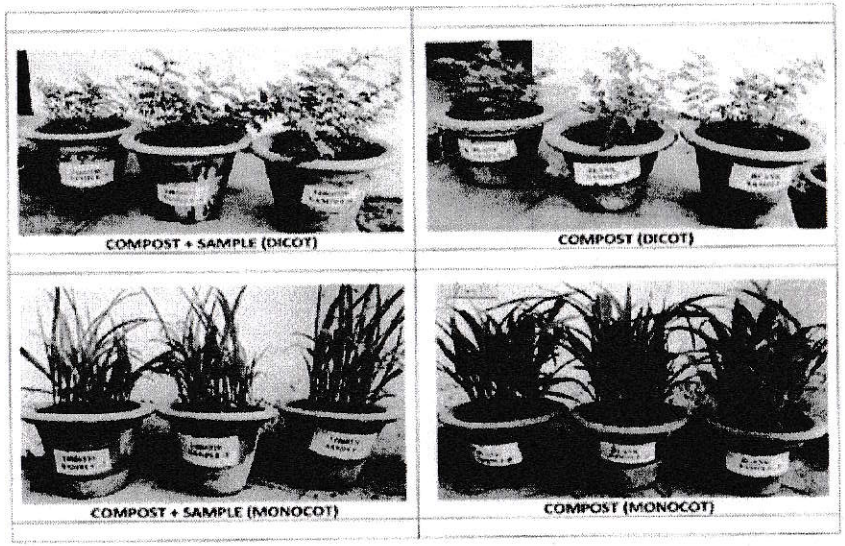
Annexure

ANALYSIS RESULT

Test Report No. : 22851

Page No. 6 of 6
Dated. 21.12.2020

9. GERMINATION AND PLANT GROWTHSTUDY



COMPOST + SAMPLE (DICOT)

COMPOST (DICOT)

COMPOST + SAMPLE (MONOCOT)

COMPOST (MONOCOT)

The Percentage of Seed Germination rate is found to be greater than 90% to both **Compost** and **Sample**.

Authorized Signatory

TESTING

Dr. K. VEERA BRAHMAM
Associate Project Director
Scientist 'F'
Dr.A.P.J Abdul Kalam Missile Complex
Ministry of Defence, DRDO
ASL, Hyderabad 500 058