

सिपेट : पेट्रोकेमिकल्स उन्नत अनुसंधान
स्कूल (एस ए आर पी) – ए आर एस टी पी एस

रसायन एवं पेट्रोसायन विभाग

रसायन एवं उर्वरक मंत्रालय, भारत सरकार

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फोन : +91-44-22254794

ई-मेल : arstps@cipet.gov.in

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CIPET : SCHOOL FOR ADVANCED RESEARCH IN
PETROCHEMICALS (SARP) - ARSTPS

Department of Chemicals & Petrochemicals,
Ministry of Chemicals & Fertilizers, Govt. of India
T.V.K. Industrial Estate, Guindy, Chennai - 600 032.

Phone : +91-44-2225 4794

e-Mail : arstps@cipet.gov.in

Website : www.cipet.gov.in / www.arstps.gov.in

Head office : CIPET, Guindy, Chennai - 600 032

CIPET: SARP-ARSTPS/PVT/20.23-24/...../TR. No. PVT/.....BP-06

Date: 02/02/2024

To

M/s. ponmaru Bio products,
No. 23, Thiru nagar,
Villivakkam,
Chennai- 600 069.

Sub: Submission of Test Report - Reg.

Ref: Test Requisition Form dated: 18/01/2024,.....

With reference to the above, please find enclosed the test report bearing test report number

.....BP-06..... dated 02/02/2024

Thank you


AUTHORISED SIGNATORY

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TEST REPORT

Issued to: M/s. Ponmari Bio Products, No. 23, Thiru Nagar, Villivakkam, Chennai – 600 049.	Test Report No. : BP-06 Date : 02.02.2024 Ref. No. : Test Requisition Form Date : 18.01.2023
Test Report as per Standard: -	
<u>PART A</u> PARTICULARS OF SAMPLE SUBMITTED	
a) Name of Sample (as stated by party) :	1. Bio Compostable Tablewares& Sheets
b) Grade/Variety/Type/size/class :	NA
c) Declared value, if any :	NA
d) Code No. :	NA
e) Batch No. and Date of Manufacture :	-
f) Quantity :	2.5 Kg.
g) Mode of packing :	Packed in Polyethylene Cover
h) Date of Receipt :	18.01.2023
i) Date of Initiation :	02.02.2023
j) Date of Completion :	15.06.2023
k) Sealed or not :	-
l) Condition of Sample on Receipt :	Received Sample in Good Condition
m) Any other information(as stated by Party) :	--
<u>PART B</u> SUPPLEMENTARY INFORMATION	
a) Reference to sample procedure :	Sampling not done by this lab
b) Supporting documents for the measurement taken and result derived :	NA
c) Deviation from the test method as per prescribed in relevant work instructions, if any :	--

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PART C
TEST RESULTS

Sample Details: Bio Compostable Tablewares & Sheets

S.No	Test Property	Test method / Standard	Unit	Results Obtained	Specified Requirements
1.	Material Identification	FTIR & DSC	-	Poly-Lactic Acid (PLA)	-
2.	Disintegration (Dry mass remains in 2mm sieve after 84 days)	Cl. 6.2 of ISO 17088:2021/IS 17088-2008	%	7.83	Not more than 10%
3.	Ultimate aerobic Biodegradation (with reference to 100% degradation of positive reference)	Cl. 6.3.1 of ISO 17088:2021/ IS 17088-2008	%	90.7% (At the end of 134 days)	> 90 (at the end of the test period not more than 180 days)
4.	Plant Growth study				
	Monocotyledon (Onion) % Seed Emergence	ISO 17088:2021 Cl. 6.4.3	%	92	> 90
	Dicotyledon(Fenugreek) % Seed Emergence			95	> 90
5.	Acute Ecotoxic effects to earthworm to earthworm				
a.	Survival of adult earthworm at the end of 7 days	ISO 17088:2021 Cl. 6.4.3	%	94	> 90
b.	Survival of adult earthworm at the end of 14 days			92	> 90
c.	Biomass end of the 14 days			92	> 90


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PART C
TEST RESULTS

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Sample Details: Bio Compostable Tableware & Sheets

S.No.	Test Property	Test method / Standard	Unit	Results Obtained	Specified Requirements
6.	Chronic Ecotoxic effects to earthworm				
a.	Survival of adult earthworm at the end of 28 days	ISO 17088:2021 Cl. 6.4.5	%	94	> 90
b.	Survival of adult earthworm at the end of 56 days			92	> 90
c.	Offspring at the end of 56 days			93	> 90
d.	Biomass end of the 56days			92	> 90

PART D
REMARKS (NIL)

Note:

1. This Test Report / Certificate is issued only for the samples submitted to the laboratory.
2. The results stated above related only to the items tested.
3. The quality of the subsequent production lot has to be ensured by the purchaser.
4. This Test Report shall not be reproduced except in full without the written approval of the laboratory.
5. Any anomaly/discrepancy in this report should be brought to the notice of CIPET within 30 days from the date of issue.
6. Tested Sample will be disposed-off after 90 days from the date of test.


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**OBSERVATION FOR BIODEGRADABILITY TEST AS PER ISO 17088:2021/ IS
17088:2008**

Name of the Party : M/s. Ponmari Bio Products,

23, Thiru Nagar,
Villivakkam,
Chennai – 600 049.

Sample Details (As stated by Party): Bio Compostable Tableware & Sheets

Material Identification by FTIR : Poly Lactic Acid (PLA)

BIODEGRADABILITY TEST AS PER ISO: 14855-1

1. Observation

(i) Conditions of reaction mixtures

Origin of Compost: Livestock excrement, municipal and vegetable waste

Reaction Temperature (°C) : 58±2

Dry Solid (%) : 54.6

Volatile Content (%) : 14.2

CO₂ evolved during first 10 days in blank

Vessels (mg/g of volatile content of : 82.6

Compost

Test duration (days) : 134 days

Reference Material : Cellulose

Volume of reaction vessel (mL) : 3000

(ii) pH of test medium :

S.No.	Compost Vessel	pH (Before)	pH (After)
1.	Blank 1	7.9	7.1
2.	Blank 2	7.6	7.3
3.	Blank 3	7.9	7.4
4.	Cellulose 1	7.9	7.1
5.	Cellulose 2	7.6	7.1
6.	Cellulose 3	7.6	7.2
7.	Negative 1	7.8	7.1
8.	Negative 2	7.6	7.2
9.	Negative 3	8.1	7.3
10.	Sample 1	7.6	7.1
11.	Sample 2	7.8	7.4
12.	Sample 3	8.1	7.3

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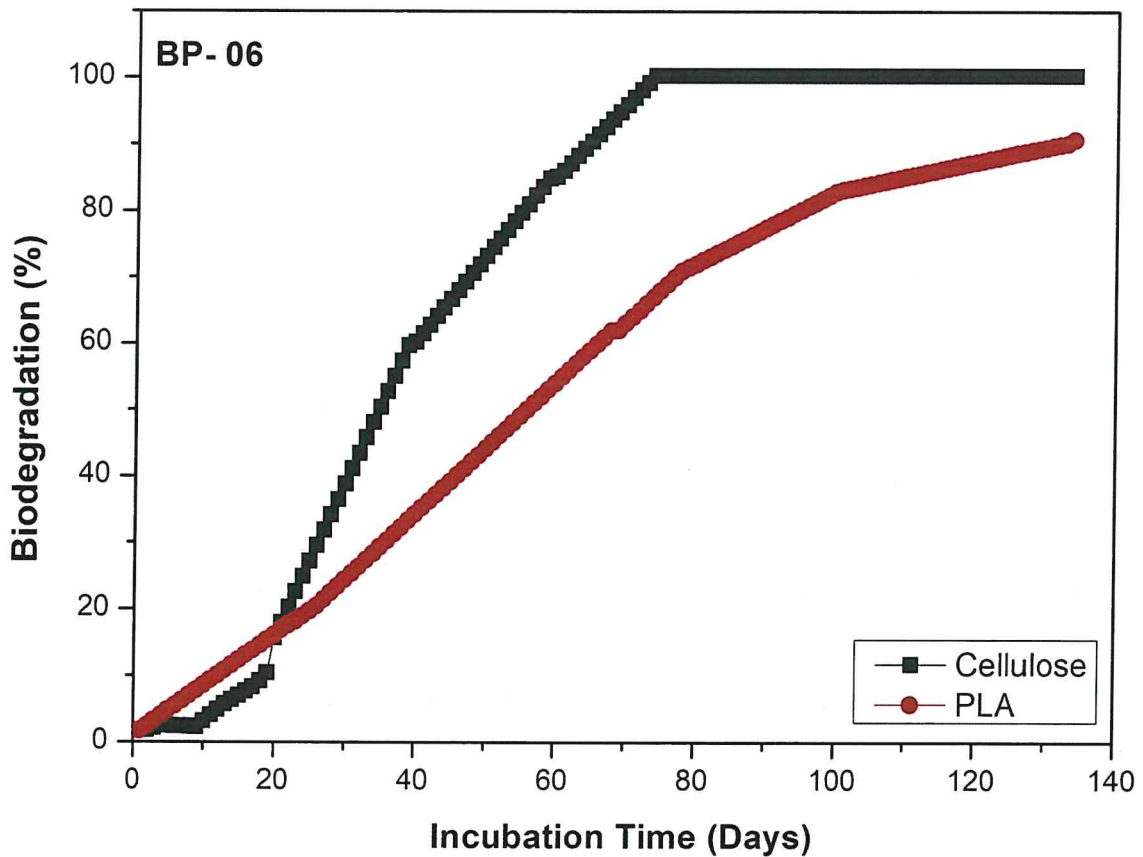
2. Result: Percentage biodegradation relative to positive reference

Sample (Mean)

: 90.7% (at the end of 134 days)

The reference Material - Cellulose

: 100%



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केन्द्र : अहमदाबाद, अमृतसर, औरंगाबाद, अगरतला, बदी, बालासोर, बेंगलुरु, भोपाल, भुवनेश्वर, चन्द्रपुर, चेन्नई, देहरादून, गुरुग्राम, गुवाहाटी, गुवालियर, हैदराबाद, हाजीपुर, हल्दिया, इम्फाल, जयपुर, कोच्चि, कोरबा, लखनऊ, मदुरै, मुरथल, मैसूरु, रायपुर, राँची, वलसाड, वाराणसी एवं विजयवाड़ा

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02.02.2024

3. Visual observation of Sample

Description	Week 2	Week 3	Week 4
Structure	Bio Compostable Tablewares & Sheets	Bio Compostable Tablewares & Sheets	Bio Compostable Tablewares & Sheets
Moisture	Appropriate moisture Level	Appropriate moisture Level	Appropriate moisture Level
Colour	White	Dirty White	-
Fungal Development	None	None	None
Smell	Organic/dirt like	Organic/dirt like	Organic/dirt like

Description	Week 8	Week 10	Week 12
Structure	Bio Compostable Tablewares & Sheets	Bio Compostable Tablewares & Sheets	Bio Compostable Tablewares & Sheets
Moisture	Appropriate moisture Level	Appropriate moisture Level	Appropriate moisture Level
Colour	-	-	-
Fungal Development	None	None	None
Smell	Organic/dirt like	Organic/dirt like	Organic/dirt like

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4. Visual Observation of Compost

Description	Week 2	Week 3	Week 4
Structure	Bio Compostable Tableware & Sheets	Bio Compostable Tableware & Sheets	Bio Compostable Tableware & Sheets
Moisture	Adequate Moisture Level	Appropriate moisture Level	Appropriate moisture Level
Colour	Dark Brown	Dirty White	-
Fungal Development	Nil	None	None
Smell	Organic/dirt like	Organic/dirt like	Organic/dirt like

Description	Week 8	Week 10	Week 12
Structure	Bio Compostable Tableware & Sheets	Bio Compostable Tableware & Sheets	Bio Compostable Tableware & Sheets
Moisture	Appropriate moisture Level	Appropriate moisture Level	Appropriate moisture Level
Colour	-	-	-
Fungal Development	None	None	None
Smell	Organic/dirt like	Organic/dirt like	Organic/dirt like


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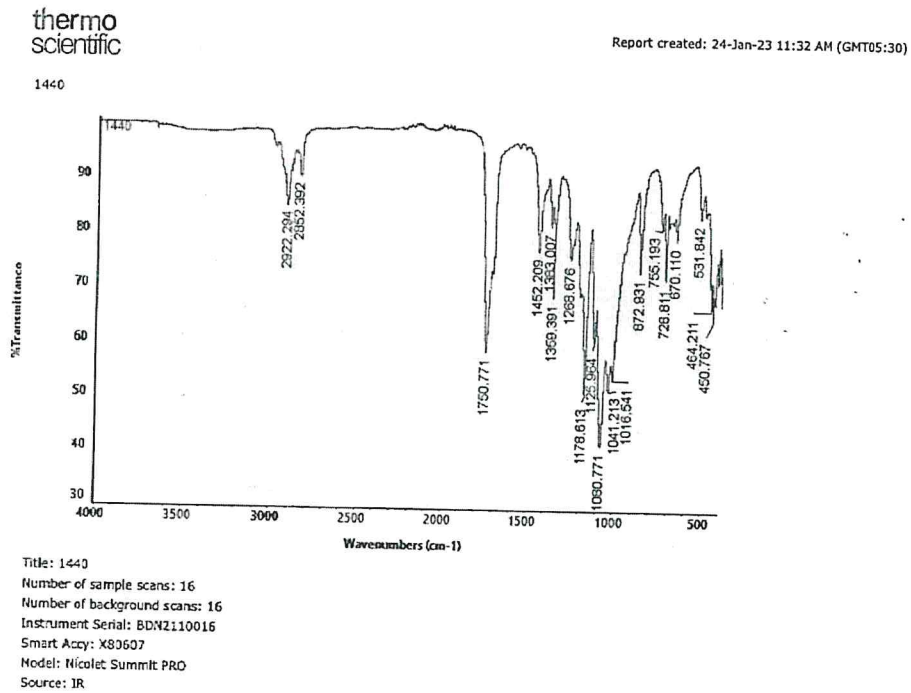


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5. FTIR Analysis

Sample Details (As stated by Party): Bio Compostable Tablewares & Sheets

FTIR Spectrum



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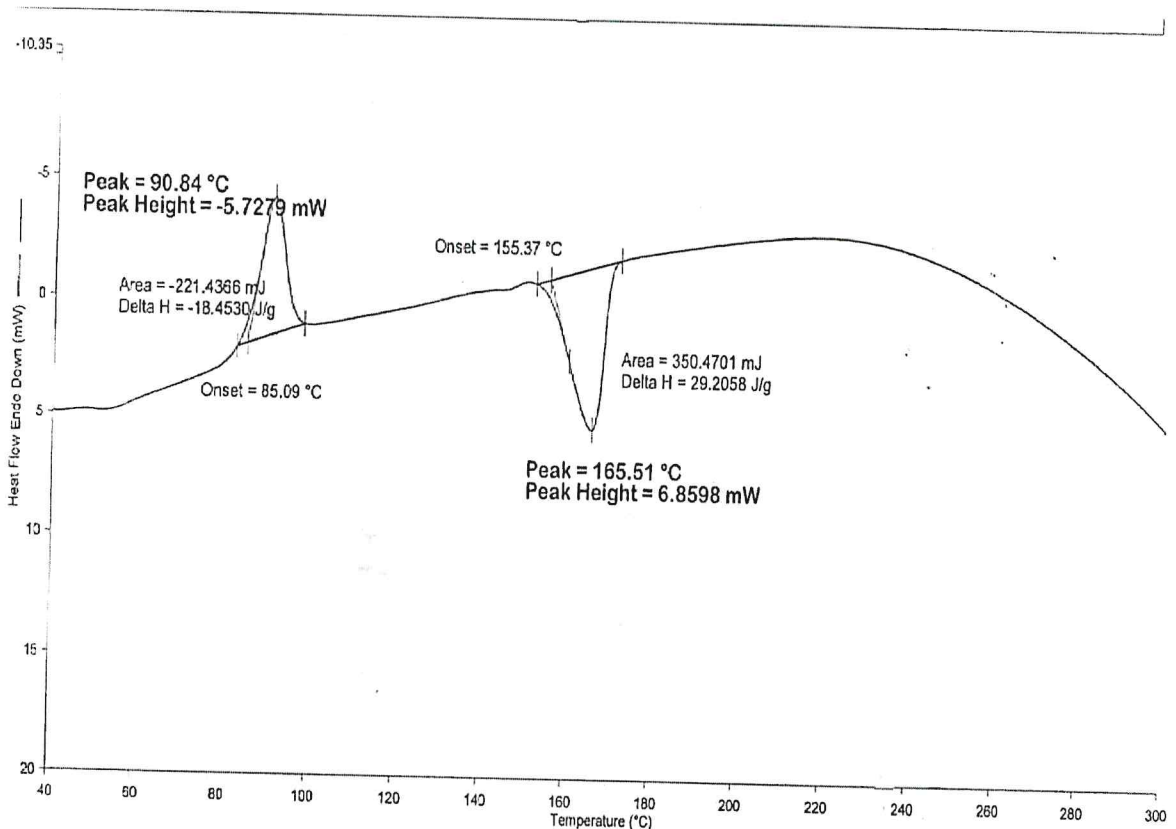
TR No. BP-06

02.02.2024

6. DSC Analysis



Sample Details (As stated by party): Bio Compostable Tablewares & Sheets



Comment: The above DSC & FTIR analysis indicates the submitted sample is
Poly Lactic Acid.

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B. RAVI

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T. BHARANI

Page 9 of 11

सिपेट : पेट्रोकेमिकल्स उन्नत अनुसंधान
स्कूल (एस ए आर पी) – ए आर एस टी पी एस

रसायन एवं पेट्रोसायन विभाग

रसायन एवं उर्वरक मंत्रालय, भारत सरकार

टी वी के इंडस्ट्रियल एस्टेट, गिण्डी, चेन्नै – 600 032

फोन : +91-44-22254794

ई-मेल : arstps@cipet.gov.in / arstpscipet@gmail.com

वेबसाइट : www.cipet.gov.in / www.arstps.gov.in

मुख्यालय : सिपेट, गिण्डी, चेन्नै – 600 032.



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CIPET : SCHOOL FOR ADVANCED RESEARCH IN
PETROCHEMICALS (SARP) - ARSTPS

Department of Chemicals & Petrochemicals,

Ministry of Chemicals & Fertilizers, Govt. of India

T.V.K. Industrial Estate, Guindy, Chennai - 600 032.

Phone : +91-44-2225 4794

e-Mail : arstps@cipet.gov.in / arstpscipet@gmail.com

Website : www.cipet.gov.in / www.arstps.gov.in

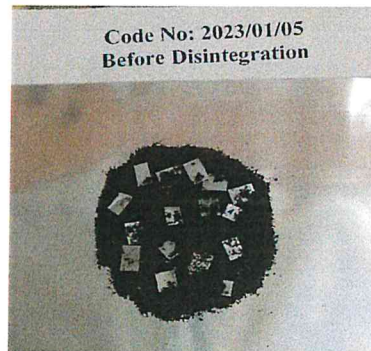
Head office : CIPET, Guindy, Chennai - 600 032

TR No. BP-06

02.02.2024

7. 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 ASTM D 6868 was found not more than 10% of original dry mass remain.

8. Seed Germination & Plant growth study



The percentage of seed germination rate is found to be greater than 90% for both Monocotyledon & Dicotyledon with reference to the blank compost.

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सिपेट : पेट्रोकेमिकल्स उन्नत अनुसंधान
स्कूल (एस ए आर पी) – ए आर एस टी पी एस

रसायन एवं पेट्रोसायन विभाग

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फोन : +91-44-22254794

ई-मेल : arstps@cipet.gov.in / arstpscipet@gmail.com

वेबसाइट : www.cipet.gov.in / www.arstps.gov.in

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TR No. BP-06



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Department of Chemicals & Petrochemicals,

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T.V.K. Industrial Estate, Guindy, Chennai - 600 032.

Phone : +91-44-2225 4794

e-Mail : arstps@cipet.gov.in / arstpscipet@gmail.com

Website : www.cipet.gov.in / www.arstps.gov.in

Head office : CIPET, Guindy, Chennai - 600 032

02.02.2024

PART C – TEST RESULTS

Sample Details: Bio Compostable Tablewares & Sheets

S No	Name of the Test	Test Method/ Standard	Unit	Results Obtained	Specified Requirements
9.	Heavy Metals Concentration				
a.	Arsenic (As)			0.465	10
b.	Copper (Cu)			0.503	300
c.	Nickel (Ni)			0.338	50
d.	Zinc (Zn)			1.485	1000
e.	Cobalt (Co)			0.488	-
f.	Chromium (Cr)	ISO 17088:2021	mg/kg	0.533	50
g.	Molybdenum (Mo)			6.397	-
h.	Mercury (Hg)			0.005	0.15
i.	Cadmium (Cd)			0.023	5
j.	Lead (Pb)			0.541	100
k.	Selenium (Se)			0.098	-

Note: BDL – Below Detection Limit, DL – Detection Limit

Based on Municipal waste (Management and Handling) Rules, 2016 notified on 8th April 2016 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:

1. This Test Report / Certificate is issued only for the samples submitted to the Laboratory.
2. The results stated above related only to the items tested.
3. The quality of the subsequent production lot has to be ensured by the purchaser
4. This Test Report shall not be reproduced except in full without the written Approval of the laboratory.
5. Any anomaly/discrepancy in this report should be brought to the notice of the Laboratory with 30 days from the date of issue.


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B. RAVI


AUTHORIZED SIGNATORY
T. BHARANI

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(ORIGINAL FOR RECIPIENT)

Invoice No. CSA/23-24/P-259

Dated 26-Sep-23

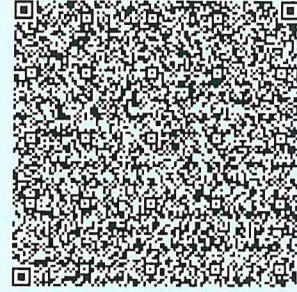
e-Invoice

Ref. No. CIPET/ARSTPS/Cons-BP/2022-23/05

CIPET:SARP-ARSTPS



Department of Chemicals and Petrochemicals,
Ministry of Chemicals and Fertilizers,
Govt. of India,
TVK Industrial Estate,
Guindy, Chennai-600032
GSTIN/UIN: 33AAAAC0606R2ZV
State Name : Tamil Nadu, Code : 33
E-Mail : arstps@cipet.gov.in/ arstpscipet@gmail.com



Tax Invoice

IRN : f4daaafb876828a944b05ac122fbdd07f1fc504aeeb5709-
ee0b60631a6ccb1b0
Ack No. : 152315782840693
Ack Date : 26-Sep-23

Party : **Ponmari Bio Products**
No.18/20, New No. 23, 29th Street,
Thirunagar Villiwakkam
Chennai
GSTIN/UIN : 33AMOPS5036J2ZN
State Name : Tamil Nadu, Code : 33

SI No	Description of Services	HSN/SAC	Quantity	Rate	per	Amount
1	Product Validation & Testing / TST <i>Biodegradability / Compostility As Per IS/ISO : 17088</i> 1. Material Identification and Composition Analysis 2. Degree of Disintegration 3. Aerobic Biodegradation 4. Ecotoxicity (Heavy Metal Analysis And Plant Growth Study) Test Report No: BP/06	998393	1 Nos	2,81,250.00	Nos	2,81,250.00
	Output CGST @ 9%				9 %	25,312.50
	Output SGST @ 9%				9 %	25,312.50
	Total		1 Nos			₹ 3,31,875.00

Amount Chargeable (in words)

INR Three Lakh Thirty One Thousand Eight Hundred Seventy Five Only

E. & O.E

HSN/SAC	Taxable Value	Central Tax Rate	Central Tax Amount	State Tax Rate	State Tax Amount	Total Tax Amount
998393	2,81,250.00	9%	25,312.50	9%	25,312.50	50,625.00
Total	2,81,250.00		25,312.50		25,312.50	50,625.00

Tax Amount (in words) : **INR Fifty Thousand Six Hundred Twenty Five Only**

Remarks:

Customer Ref No: Test Requisition Form Dtd: 18.01.2023

Company's PAN : **AAAAC0606R**

Declaration

We declare that this invoice shows the actual price of the goods described and that all particulars are true and correct.

This is a Computer Generated Invoice

for CIPET:SARP-ARSTPS

