



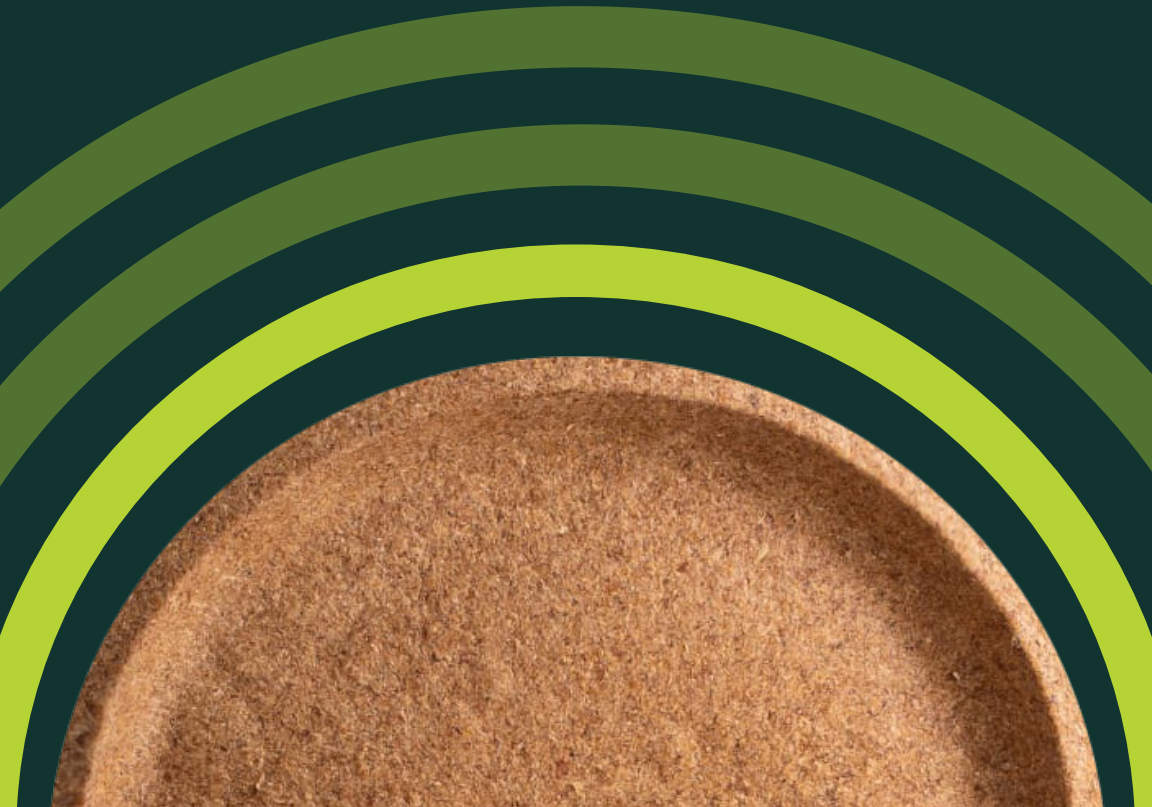
# THOOSHAN<sup>®</sup>

## HUSK TO RUSK

BIODEGRADABLE TABLEWARE FROM  
AGRICULTURAL WASTE

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PRODUCT INFORMATION





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To request permission, contact:  
mail@thooshan.com or  
+91 99 11 88 77 27



## **Thooshan**

No.L-6, AVM Hatchery Campus,  
Nethajipuram Velanthavalam Road,  
K.G Chavadi, Coimbatore-641105,  
Tamil Nadu, India

## ABOUT

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# THOOSHAN

**THOOSHAN** is a brand that is driven by a clear vision to provide the world with eco-friendly products. The brand proudly originates from Kerala, India, also known as "God's own country." The founder of the brand, **Vinayakumar Balakrishnan (Vinay)**, is renowned for his innovative approach and was motivated to create a brand that could revolutionize the niche market of disposable products such as straws, cutleries and plates. His vision resulted in **THOOSHAN**, a line of fully biodegradable tableware made from sustainable organic materials like wheat bran, rice bran, paddy husk, and other agricultural waste products. The brand technically collaborated with two of India's premier research laboratories, namely the CSIR-National Institute for Interdisciplinary Science and Technology (NIIST CSIR) and the Central Institute of Petrochemicals, Engineering and Technology (CIPET), to fully develop their innovative idea.



# MANUFACTURING

THOOSHAN is a product that has been conceptualized and crafted from a state-of-the-art, fully automatic, and robotic factory that adheres to strict standards of hygiene and precision. Thanks to a network of independent distributors who have received orientation on the brand's philosophy and product dynamics, THOOSHAN strives to exceed all market expectations. THOOSHAN is committed to delivering high-quality biodegradable products and ensuring that each product undergoes a value-added manufacturing process, which enhances the brand's reliability. The company achieves this through a system that keeps up with market trends and responds to changing demands. As a result, THOOSHAN is becoming known as a brand that consistently delivers superior products while remaining committed to sustainable and environmentally friendly practices.

# PRODUCTS

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FEATURES & CERTIFICATIONS

**Product Name:** Wheat Bran Plates

**Available Sizes:** 6/10/12 inch (round)

**Packing:** As per wholesale requirement

**Weight:** 35-180 gms per piece

**Ingredients:** Wheat bran with natural, organic additives

**Colour:** Brown

**HSN Code:**  
19059090

**Usage:**

Ideal for usage in parties, picnics, buffet meals, events, weddings, public functions, 5 star hotels, resorts and **HORECA** segment.

**Storage:** Cool, dry place, with humidity <75%, temperature <25°, prevent wetting



**Product Features:**

1. Single use only
2. Biodegradable in 30 days
3. Home compostable
4. Microwave friendly
5. Can withstand temperatures from -10° to +140°
6. High water retention capacity
7. Shelf life of 6 months
8. Can be used as organic manure
9. Contains gluten
10. Can be reused as cattle/fish/poultry feed.
11. Extra income for farmers, for their waste.
12. Single use
13. Blisters may appear



# Certifications: Certified as safe for human contact

TUV SUD (Hungary)

CERTIFICATE



**CERTIFICATE OF COMPLIANCE**

No: C-200320000723      Date: Szentendre, 05/03/2024

Name of product: THOOSHAN Wheat bran plates

Type and identification of product: THOOSHAN Wheat bran plates

Produced by / Origin: India

EM-TUV SÜD Kft. confirms that the THOOSHAN Wheat bran plate samples, on the basis of the tests performed under registration number R.200320000723

**COMPLY**

with the requirements of the following regulations, guide, standards:

- 1253/2004 on materials and articles intended to come into contact with food (as amended)
- 10/2011 relating to plastic materials and articles intended to come into contact with foodstuffs and 2002/1345 amendments
- Regulation (EC) No 282/2005 and Commission Regulation (EU) 2023/1173 amending Annexes II and III of 282/2005 Regulation
- Commission Regulation (EU) 2023/915 on maximum levels for certain contaminants in food and repealing Regulation (EC) No 1831/2006
- Decree No. 4 of 1986 of the Ministry of Health on the allowable limits of microbiological contamination of foodstuffs

The assessment was made taking into account and applying the decision rule based on the IAC-GR 08/2019 Guide to Decision Rules and Declarations of Conformity.

Valid until: 05/03/2027, or the change of material, production technology and the concerning relevant regulations.






S. S. Saha  
Saha Saha Saha  
Business unit manager  
EM-TUV SÜD Kft.



EM-TUV SÜD Kft. KHERKEP department  
H-2003 Szentendre, Deces Gyogy ut 25

**TUV**

NIIST CSIR (Govt of India)




एन.एन.टी.एस. इंटरडिसिप्लिनरी विज्ञान तथा प्रौद्योगिकी संस्थान  
**NATIONAL INSTITUTE FOR INTERDISCIPLINARY SCIENCE AND TECHNOLOGY**

एन.एन.टी.एस. इंडस्ट्रियल एस्टेट  
एन.एन.टी.एस. इंडस्ट्रियल एस्टेट, पापानाम्बो  
श्रीवैद्यनाथपुरम, केरल, भारत 695019

4<sup>th</sup> December 2020

**To whomsoever it may concern**

The technology for manufacturing agri based cutleries have been developed by CSIR-NIIST. The entire process is optimized and machineries designed for the bulk production of single use, eco-friendly, biodegradable and micro wave friendly agri based cutleries. The technology is now ready for commercialization. Biodegradability test, Shelf life test and Toxicity test have been conducted and the product is found to biodegradable in nature within thirty days with a shelf life of six months and have no toxicity.

  
 Nishy P  
(Nishy P)

Tel: 91 471 232529, 2486572; Fax: 91 471 2493295; E-mail: nishy@niist.res.in, info@niist.res.in, website: http://www.niist.res.in

Ministry of Health (Govt of Kuwait)

Huwait Institute for Scientific Research



معدن الكوئيت للابحاث العلمة

ENVIRONMENT & LIFE SCIENCE  
RESEARCH CENTER  
Biotechnology Program

**MICROBIOLOGICAL EXAMINATION REPORT**

Client: Future Air Conditioning-Refrigeration & Contr. Co. W.L.L.

Sample: THOOSHAN Wheat Bran Plate

Receipt conditions : Satisfaction

Sample ID : ELSHC376\_15082023\_01

Client Sample ID : THOOSHAN Wheat Bran Plate

Number of Samples : 1 Sample

Received: 15/08/2023

Analyzed: 17/08/2023

Report Date : 24/08/2023

Approval:

Section Head  OC/QA Unit Head  
Mohamed Ali Eng. Hamad Al-Mansour

Tests Undertaken: Microbiological Examination for detection of E. Coli & Salmonella

The Results Obtained:

Parameters	Test Methods	Units	Results	Specification
Enumeration of Escherichia coli	Mod. ISO 16649-2:2001	CFU/g	<1	<1
Enumeration of Salmonella	Mod. ISO 6579-1:2017	CFU/g	<1	<1

Remarks: \*Absence of Escherichia coli and Salmonella in the sample \*




Eng. Hamad Al-Mansour  
Lab Focal Point  
Environmental and Life Sciences Research Center

\* The results specified in this report relate only to the material submitted for testing.  
\* Liability of Kuwait Institute for Scientific Research (KISR) and its employees is limited to the accuracy of analysis results of the submitted samples as received from the client.

Ministry of Health (Govt of UAE)

	Organization/Units: <b>إدارة مختبرات دبي المركزي</b> Dubai Central Laboratory Department	الوحدة المتكاملة: مركز البحوث Dubai Municipality	
Document Title:	Food Sample Test Report		
Doc Ref:	DM-CLD-TRF-CML-4096		

Report ID: 669935

**REQUEST NO.: FITR-2023-0007525**      **Report Issue Date: 04/11/2023**

**TEST RESULTS**

<b>CONCLUSION:</b>	The Tested Parameters Are Compliant with Regulation / Standards.
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**Remarks :**

- Type of Test: Fitness
- Test Method Variation

**NOTE:**

- \* This analytical report relates only to the sample(s) as received by the laboratory.
- \* This report shall not be reproduced except in full without written approval of the Laboratory.
- \* The customer can communicate / by direct dialogue for options and interpretations of standards
- \*\* Tests accredited by EIAC (EIAC Certification: LR-TEST-2003)
- \*\* Tests accredited by EIAC (EIAC Certification: HEN-TEST-0021)

This is a system generated and electronically approved test report by Laboratory Team Leader(s) and does not require any signature.

HOC-IRA      EIAC  
LAB-TEST-006

Date of Issue :	13/07/2023	Rev No. : 7
Shared / Confidential / Public / Internal / Restricted / Level of Confidentiality / درجة السرية :		

PO Box 67, Dubai, UAE - Tel (+971 4) 3027126 / 3027092 - Fax (+971 4) 3338848

**Product Name:** Paddy Husk Plates (Rice)

**Available Sizes:** 6, 10, 12 inch (round)

**Packing:** As per wholesale requirement

**Weight:** 100 gms per piece

**Ingredients:** Rice paddy husk with natural, organic additives

**Colour:** Brown

**HSN Code:**  
14049090

**Usage:**

Ideal for use in parties, picnics, buffet meals, events, weddings, public functions, 5 star hotels, resorts and **HORECA** segment.



**Product Features:**

1. Recommended single use only (can be reused for dry items)
2. Biodegradable in 30 days
3. Home compostable
4. Microwave friendly
5. Can withstand temperatures from  $-10^{\circ}$  to  $+140^{\circ}$
6. High water retention capacity
7. Shelf life of 12 months
8. Can be reused as organic manure
9. Extra income for farmers, for their waste.

**Storage:** Cool, dry place, with humidity  $<75\%$ , temperature  $<25^{\circ}$ , prevent wetting

## Certification: Certified as safe for human contact



राष्ट्रीय अंतर्विषयी विज्ञान तथा प्रौद्योगिकी संस्थान  
NATIONAL INSTITUTE FOR INTERDISCIPLINARY SCIENCE AND TECHNOLOGY

वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद् Council of Scientific & Industrial Research  
इंडस्ट्रियल एस्टेट पी. ओ. पाप्पानमकोड Industrial Estate P O, Pappanamcode  
तिरुवनंतपुरम, केरल, भारत 695019 Thiruvananthapuram, Kerala, India 695019

Dr. P. Nishy  
Chief Scientist  
Head, RPSD

4<sup>th</sup> December 2020

To whomsoever it may concern

*The technology for manufacturing agri based cutleries have been developed by CSIR-NIIST. The entire process is optimized and machineries designed for the bulk production of single use, eco-friendly, biodegradable and micro wave friendly agri based cutleries. The technology is now ready for commercialization. Biodegradability test, Shelf life test and Toxicity test have been conducted and the product is found to biodegradable in nature within thirty days with a shelf life of six months and have no toxicity.*

*P. Nishy P*  
*Chief Scientist*  
(Nishy P)

**Product name:** Rice Drinking Straws

**Sizes:**

**Thin straws:** 6.5mm(dia) x200mm (length)

**Cocktail straws:** 8mm(dia) x140mm (length)

**Standard straws:** 8mm(dia)x200mm (length)

**Jumbo straws:** 12mm(dia) x200mm (length)

**Colour:** Multicolour

**HSN Code:**  
19030000

**Weight:** 8-12gms per straw

**Ingredients:** Rice flour, corn starch, tapioca flour

**Packaging:** As per requirement

**Available as:**  
Individually wrapped or unwrapped



**Product features:**

1. Withstands upto 1 hour in normal or cold drinks
2. Approved food colouring used
3. Certified by Govt of India, TUV, EU & FDA complied
4. Biodegradable in 60 days & kitchen compostable
5. Can be reused as cattle/fish/poultry feed or as organic manure

**Usage:**

**(not recommended for hot drinks):**

Ideal for use in Parties, Picnics, Buffet meals, events, weddings, public functions, 5 star hotels, resorts and **HORECA** segment.

**Storage:** Cool, dry place, with humidity <75%, temperature <25°, prevent wetting

# Certifications: Certified as safe for human contact

CERTIFICATE CERTIFICADO CERTIFICAT CERTIFICATE 认证证书

## CERTIFICATE OF COMPLIANCE



No: C-200320000482 Date: Szentendre, 01/02/2024  
 Name of product: THOOSHAN STRAWS  
 Type and identification of product: THOOSHAN STRAWS  
 Straws are made from washed broken rice mixed with  
 tapioca starch (thin slice, orange and green colors)  
 Produced by / Origin: India

EMI-TUV SUD Kft. confirms that the THOOSHAN STRAWS Bio-degradable and neutral flavoured edible  
 drinking Straw samples, on the basis of the tests performed under registration number R-200320000462

### COMPLY

- with the requirements of the following regulations, guide, standards:
- 1935/2004 on materials and articles intended to come into contact with food (as amended)
  - 10/2011 relating to plastic materials and articles intended to come into contact with foodstuffs and 2002/72/EC amendment;
  - Regulation (EC) No 396/2005 and Commission Regulation (EU) 2023/173 amending Annexes II and III of 396/2005 Regulation;
  - Commission Regulation (EU) 2023/915 on maximum levels for certain contaminants in food and repealing Regulation (EC) No 1831/2003
  - Directive No. 4 of 1988 of the Ministry of Health on the allowable limits of microbiological contamination of foodstuffs

Based on specific migration test performed on material with simulants below identified according the regulation and guide, the product is food contact compliant.

### Test conditions:

Used simulant: 3 % (V/V) acetic acid  
 Time, temperature, cycle: 2 hours, 70 °C, 1 cycle  
 Ratio of food contact surface area to volume (S/V) used to establish the compliance of the material: S/V=1

The assessment was made taking into account and applying the decision rule based on the IAC-G8, 09/2018 Guide to Decision Rules and Declarations of Conformity.

Valid until: 01/02/2027, or the change of material, production technology and the concerning relevant regulations.



Zsolt Szépvölgyi  
 Business unit manager  
 EMI-TUV SUD Kft.



EMI-TUV SUD Kft. HESM department  
 H-2000 Szentendre, Dózsa György út 8.

TUV®

DocuSign Envelope ID: CF7ED625-68C3-4338-B0D8-205F277C46E



## CERTIFICATE 100 % EDIBLE PRODUCT

PRODUCT: Rice drinking straws

Considering the information provided by the manufacturer (see attached technical data sheet), where the product is described as a drinking straw 100% Bio-degradable and neutral flavoured edible drinking Straws".

Considering that, according to the technical data sheet, the ingredients of the product are: "Rice, comminate starch, water and Tapioca flour".

Considering that all ingredients used are of food grade quality and that the product has been prepared, packed, stored and transported following the guidelines and food regulations.

Considering the final product is not regulated by any specific legislation, so allowed ingredients or specific composition are not defined.

Considering that, according to the technical data sheet, the presence of additive sulphur dioxide (E220-E228) in the final product is due to the presence of ingredient comminate starch (possibility of naturally occurring or as a processing aid) but the quantity of this additive in comminate starch complies with the following regulation related the use of additives:

- Regulation (EC) No. 1333/2008 of the European Parliament and of the Council of 16 December 2008 on food additives.

Considering that the final product is biodegradable, according with the point 4.3.2 of the UNE-EN 13432 REQUIREMENTS FOR PACKAGING RECOVERABLE THROUGH COMPOSTING AND BIODEGRADATION TEST SCHEME AND EVALUATION CRITERIA FOR THE FINAL ACCEPTANCE OF PACKAGING:

"4.3.2 Materials of natural origin: Non-chemically modified packaging materials and constituents of natural origin, such as wood, wood fibres, starch, paper, pulp or silk, must be accepted as biodegradable without testing stage Chapter 8, but must be chemically characterised (see Chapter 8, section 4.2) and meet the criteria for characterization (see Chapter 7) and compost quality (see Chapter 6)".

And considering the product is marketed as a foodstuff,

Based on the foregoing,

### WE CERTIFY THAT:

The product "Rice drinking straw" as described above with the established conditions, is 100% edible and biodegradable like all other food.

December 17<sup>th</sup>, 2021



Director =  
 Rog. =

Annex: Technical data sheet of the product provided by the producer.

Sede Madrid  
 Fontanilla, 7  
 28014 Madrid  
 Tel. 911 788 539  
 silliker@merieux.com

**SILLIKER** Iberica S.A.U.  
 Calle de la Industria, 10  
 08040 Barcelona  
 Tel. 932 632 454  
 Fax. 932 632 646  
 silliker@merieux.com

Sede Barcelona  
 Longhedral, 8, 20  
 08040 Barcelona  
 Tel. 932 632 454  
 Fax. 932 632 646  
 silliker@merieux.com



**Form C**  
**Government of India**  
**Food Safety and Standards Authority of India**  
**License under FSS Act, 2006**



अनुमति संख्या / License Number: 1362299000275



Category of License / अनुमति का वर्ग: **Central License**

This license is granted under and is subject to the provisions of FSS Act, 2006 and all which must be complied with for the license. It is valid till 20th Feb 2026. After 20th Feb 2026, it will be valid till 20th Feb 2027. For details, refer Annexure 2th www.fssai.gov.in website.

Place / स्थान: FSSAI Chennai  
 Issued On / जारी: 04-06-2023 (Renewal License)  
 Valid Upto: / वैध: 20-06-2024 (For details, refer Annexure)

Designated Officer

### Annexures:

1. Product Annexure
2. Safety Annexure
3. Non-Form C Annexure
4. Conditions of License

### Note:

1. Application for renewal of License can be filed as early as 180 days prior to expiry date of License. You can file application for renewal or modification of License by login into FSSAI's Food Safety Compliance System (<https://fscos.fssai.gov.in>) with your user id and password or call us at 1800112100 for any clarification.
2. This License is only to commence or carry on food businesses and not for any other purpose.
3. This is computer generated license and doesn't require any signature or stamp by authority.

**Product name:** Fork, Knife, Spoon & Spork  
Available sizes: 7/8/9 inches

**Weight:** Less than 10 gms

**Ingredients:** Rice bran mixed with bioplastic

**Packaging:** As per requirement

**Colour:** Black

**HSN Code:**  
39241000

**Usage:**

Ideal for use in parties, picnics, buffet meals, events, weddings, public functions, airline & seadline industry, 5 star hotels, resorts and **HORECA** segment.



**Product features:**

1. Sturdy
2. Sleek
3. Customisable
4. Not edible
5. Industrially compostable
6. Single use
7. Long shelf life
8. Not microwavable

95% biodegradable in 90 days, 100% biodegradable in 180 days.

**Storage:** Cool, dry place, with humidity <75%, temperature <25, prevent wetting

# Certifications: Certified as safe for human contact

केन्द्रीय पेट्रोकेमिकल इंजीनियरिंग एंड टेक्नोलॉजी संस्थान (CIPTET)  
 ०१६ मध्य प्रदेश सरकार, भोपाल (MP)  
 ०१६ मध्य प्रदेश सरकार, भोपाल (MP)  
 ०१६ मध्य प्रदेश सरकार, भोपाल (MP)  
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 ०१६ मध्य प्रदेश सरकार, भोपाल (MP)



परीक्षण रिपोर्ट  
 TEST REPORT

CENTRAL INSTITUTE OF PETROCHEMICALS  
 ENGINEERING & TECHNOLOGY (CIPTET)  
 (Formerly Central Institute of Pesticide Engineering & Technology)  
 Ministry of Chemicals & Fertilizers, Govt. of India  
 H-6, Colony, Edayar Road, Patancheru  
 Udyogmandali P.O., Kotha, Karim-683 501  
 E-mail: ciot@ciptet.gov.in, ciot@ciptet@gmail.com  
 Web: www.ciptet.gov.in

क्र.सं. / S/No. 8984

Text Report No.: 22050  
 Date : 21.04.2022  
 Page 2 of 2

**PART C : TEST RESULTS**

Sl. No.	Name of the Test	Test Method	Unit	Specified Requirement	Results obtained
1.	Overall Migration (Simulant : n Heptane Temperature : 38°C Duration : 30 Minutes)	IS 9845:1998	mg/dm <sup>2</sup>	10 (Max.)	0.50
	(Simulant : Distilled Water Temperature : 40°C Duration : 10 days)		mg/dm <sup>2</sup>	10 (Max.)	2.97
	(Simulant : 3% Acetic Acid Temperature : 40°C Duration : 10 days)		mg/dm <sup>2</sup>	10 (Max.)	5.58
	(Simulant : 10% Ethanol Temperature : 40°C Duration : 10 days)		mg/dm <sup>2</sup>	10 (Max.)	3.12

Note(i) Statement of Conformity & Decision Rule (if any): NA  
 (ii) Opinion & Interpretation: NA

**PART D: REMARKS**

NB: I. This Test Report / Certificate is issued only for the samples submitted to CIPTET.  
 II. The results stated above related only to the items tested.  
 III. The quality of the subsequent production lot has to be ensured by the purchaser.  
 IV. This Test Certificate shall not be reproduced except in full without the written approval.  
 \*Except of test subcontracted - Nil.

Dr. Manjula K S  
 Technical Officer  
 Authorised Signatory

Dr. S. Anandayyaiah  
 Sr. Technical Officer  
 Authorised Signatory

\*\*\*End of the Report\*\*\*

केन्द्रीय पेट्रोकेमिकल इंजीनियरिंग एंड टेक्नोलॉजी संस्थान (CIPTET)  
 ०१६ मध्य प्रदेश सरकार, भोपाल (MP)  
 ०१६ मध्य प्रदेश सरकार, भोपाल (MP)  
 ०१६ मध्य प्रदेश सरकार, भोपाल (MP)  
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 ०१६ मध्य प्रदेश सरकार, भोपाल (MP)



परीक्षण रिपोर्ट  
 TEST REPORT

CENTRAL INSTITUTE OF PETROCHEMICALS  
 ENGINEERING & TECHNOLOGY (CIPTET)  
 (Formerly Central Institute of Pesticide Engineering & Technology)  
 Ministry of Chemicals & Fertilizers, Govt. of India  
 H-6, Colony, Edayar Road, Patancheru  
 Udyogmandali P.O., Kotha, Karim-683 501  
 E-mail: ciot@ciptet.gov.in, ciot@ciptet@gmail.com  
 Web: www.ciptet.gov.in

क्र.सं. / S/No. 8984

Issued to :  
 M&VIR Nutraceuticals Pvt Ltd  
 C3 Tower LANKEL Business Park  
 Angamaly, Kozhikode-683573  
 Kerala, India

Text Report No.: 22050  
 Date : 21.04.2022

Page 1 of 2

Ref No: Your mail Dt: 02.07.2021

**PART A : PARTICULARS OF SAMPLE SUBMITTED**

Nature of Sample	: PLA / rice bran outley samples as stated by party
Grade / Variety / type / Size / Class etc.	: Nil
Brand names, if any	: Nil
Declared values, if any	: Nil
Code No.	: Nil
Batch No. and date of manufacture	: Nil
Quantity	: 1 Set
Mode of Packing	: Not Packed
Date of receipt of sample	: 10.04.2022
Date of commencement of test	: 10.04.2022
Date of completion of test	: 20.04.2022
Sealed or not	: Not Sealed
Any other information	: Nil

**PART B: SUPPLEMENTARY INFORMATION**

- Reference to sampling procedure : Specified by the party
- Supporting documents for the measurements : Nil  
 tables and results derived like graphs, tables, sketches and / or photographs as appropriate to test report, if any (to be attached)
- Deviation from the test methods as : Nil  
 prescribed in relevant IS / Work instructions, if any

Mangalika S. S. Anand

राष्ट्रीय अंतर्विषयी विज्ञान तथा प्रौद्योगिकी संस्थान  
 NATIONAL INSTITUTE FOR INTERDISCIPLINARY SCIENCE AND TECHNOLOGY  
 भारतीय तंत्र औद्योगिक अनुसंधान परिषद्  
 Council of Scientific and Industrial Research  
 इण्डियन एस्टेट पी. ०, अ. पारवती, बेंगलूर, कर्णा - ५५० ०१९  
 Industrial Estate P.O., Papanasandra, Bengaluru-560009, India

Report No.: NIIST-ETD/APTD/Bio-Deg-R-25/SP(PLA-WB)-02 Date: 19-12-2022

Description	Week 9	Week 10	Week 11
Sample Structure/ Colour	Granular / light brown colour	Granular / light brown colour	Granular / light brown colour
Moisture	Appropriate	Appropriate	Appropriate
Matrix Colour	Dark brown	Dark Brown	Dark Brown
Smell	Wheat flour like	Wheat flour like	Wheat flour like
Fungal Development	Not observed	Not observed	Not observed

**Comments:**

- Significant physical disintegration or structural change of the sample observed in due course of degradation study.
- Noticeable change in colour of the test sample was observed.
- No test sample was observed after sieving the material through a 2.0 mm sieve (IS standard) at the end of experiment.

Dr. Manjula K S  
 Technical Officer  
 Authorised Signatory

(Contd....)

राष्ट्रीय अंतर्विषयी विज्ञान तथा प्रौद्योगिकी संस्थान  
 NATIONAL INSTITUTE FOR INTERDISCIPLINARY SCIENCE AND TECHNOLOGY  
 भारतीय तंत्र औद्योगिक अनुसंधान परिषद्  
 Council of Scientific and Industrial Research  
 इण्डियन एस्टेट पी. ०, अ. पारवती, बेंगलूर, कर्णा - ५५० ०१९  
 Industrial Estate P.O., Papanasandra, Bengaluru-560009, India

Report No.: NIIST-ETD/APTD/Bio-Deg-R-25/SP(PLA-WB)-02 Date: 19-12-2022

**PART-V: DECLARATION**

- Remarks:**
- All the testing and analysis is done by following standard methods.
  - No deviation from the standard test method.

**NOTE:**

- The testing and analysis results are related only to the items tested as submitted by the party.
- All the testing and analysis were performed with the same material submitted by the party "As Is" without any physico-chemical modifications.
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- This report cannot be used in connection with any judiciary trial/civil proceedings.

Dr. Manjula K S  
 Technical Officer  
 Authorised Signatory

---End of the report---

**Product name:** Food  
takeaway containers

**Available as:** 500ml,  
750ml, 1000ml  
container with lid

**Weight:** below 25gms  
**Packaging:** As per  
required

**Ingredients:** Rice  
bran mixed with  
bioplastic

**HSN Code:**  
39241000

**Usage:**

Ideal for use in parties,  
picnics, buffet meals,  
events, weddings,  
public functions, airline  
& seairline industry, 5  
star hotels, resorts and  
**HORECA** segment.



**Product Features:**

1. Sturdy
2. Sleek
3. Customisable shape
4. Not edible
5. Industrially compostable
6. Single use
7. Long shelf life
8. Can be reused to plant seedlings

95% biodegradable  
in 90 days, 100%  
biodegradable in 180  
days.

**Storage:** Cool, dry  
place, with humidity  
<75%, temperature <25  
, prevent wetting



# Certifications: Certified as safe for human contact

केन्द्रीय पेट्रोकेमिकल इंजीनियरिंग एंड टेक्नोलॉजी संस्थान (CIPTET)  
 ०१६ नम्बर, एनएच २४, बंगलौर ५६०००१, भारत  
 (Formerly Central Institute of Petrochemical Engineering & Technology (CIPTET))  
 १००१, एनएच २४, बंगलौर ५६०००१, भारत  
 (Formerly Central Institute of Petrochemical Engineering & Technology (CIPTET))



परीक्षण रिपोर्ट  
 TEST REPORT

CENTRAL INSTITUTE OF PETROCHEMICALS  
 ENGINEERING & TECHNOLOGY (CIPTET)  
 (Formerly Central Institute of Petrochemical Engineering & Technology)  
 Ministry of Chemicals & Fertilizers, Govt. of India  
 H-6, Colony, Edge Road, Park Road,  
 Udyogmandal P.O., Kochi, Kerala-683 501  
 Ph: 0484-2546742  
 E-mail: ciot@ciptet.gov.in, ciotetech@ciptet.gov.in  
 Web: www.ciptet.gov.in

क्र.सं. / S/No. 8984

Text Report No.: 22050  
 Date : 21.04.2022  
 Page 2 of 2

**PART C : TEST RESULTS**

Sl. No.	Name of the Test	Test Method	Unit	Specified Requirement	Results obtained
1.	Overall Migration (Simulant : n Heptane Temperature : 38°C Duration : 30 Minutes)	IS 9845:1998	mg/dm <sup>2</sup>	10 (Max.)	0.50
	(Simulant : Distilled Water Temperature : 40°C Duration : 10 days)		mg/dm <sup>2</sup>	10 (Max.)	2.97
	(Simulant : 3% Acetic Acid Temperature : 40°C Duration : 10 days)		mg/dm <sup>2</sup>	10 (Max.)	5.58
	(Simulant : 10% Ethanol Temperature : 40°C Duration : 10 days)		mg/dm <sup>2</sup>	10 (Max.)	3.12

Note(i) Statement of Conformity & Decision Rule (if any): NA  
 (ii) Opinion & Interpretation: NA

**PART D: REMARKS**

- NB: I. This Test Report / Certificate is issued only for the samples submitted to CIPTET.  
 II. The results stated above related only to the items tested.  
 III. The quality of the subsequent production lot has to be ensured by the purchaser.  
 IV. This Test Certificate shall not be reproduced except in full without the written approval.  
 \*Except of test subcontracted - Nil.

Dr. Manjula K S  
 Technical Officer  
 Authorised Signatory

Dr. S. Anandayyaiah  
 Sr. Technical Officer  
 Authorised Signatory

\*\*\*End of the Report\*\*\*

केन्द्रीय पेट्रोकेमिकल इंजीनियरिंग एंड टेक्नोलॉजी संस्थान (CIPTET)  
 ०१६ नम्बर, एनएच २४, बंगलौर ५६०००१, भारत  
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 (Formerly Central Institute of Petrochemical Engineering & Technology (CIPTET))



परीक्षण रिपोर्ट  
 TEST REPORT

CENTRAL INSTITUTE OF PETROCHEMICALS  
 ENGINEERING & TECHNOLOGY (CIPTET)  
 (Formerly Central Institute of Petrochemical Engineering & Technology)  
 Ministry of Chemicals & Fertilizers, Govt. of India  
 H-6, Colony, Edge Road, Park Road,  
 Udyogmandal P.O., Kochi, Kerala-683 501  
 Ph: 0484-2546742  
 E-mail: ciot@ciptet.gov.in, ciotetech@ciptet.gov.in  
 Web: www.ciptet.gov.in

क्र.सं. / S/No. 8984

Issued to :  
 M&VIR Nutraceuticals Pvt Ltd  
 C3 Tower LANKEL Business Park  
 Angamaly, Kochi-683573  
 Kerala, India

Text Report No.: 22050  
 Date : 21.04.2022

Page 1 of 2

Ref No: Your mail Dt: 02.07.2021

**PART A : PARTICULARS OF SAMPLE SUBMITTED**

Nature of Sample	: PLA / rice bran outley samples as stated by party
Grade / Variety / type / Size / Class etc.	: Nil
Brand names, if any	: Nil
Declared values, if any	: Nil
Code No.	: Nil
Batch No. and date of manufacture	: Nil
Quantity	: 1 Set
Mode of Packing	: Not Packed
Date of receipt of sample	: 10.04.2022
Date of commencement of test	: 10.04.2022
Date of completion of test	: 20.04.2022
Sealed or not	: Not Sealed
Any other information	: Nil

**PART B: SUPPLEMENTARY INFORMATION**

- a) Reference to sampling procedure : Specified by the party  
 b) Supporting documents for the measurements : Nil  
 (Tables and results derived like graphs, tables, sketches and / or photographs as appropriate to test report, if any (to be attached))  
 c) Deviation from the test methods as : Nil  
 prescribed in relevant IS / Work instructions, if any

*Manjula K S* *S. Anandayyaiah*

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 NATIONAL INSTITUTE FOR INTERDISCIPLINARY SCIENCE AND TECHNOLOGY  
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 इण्डियन एस्टेट पी. ०, अ. परवरा, हैदराबाद, तमिः - ५०१ ०१९  
 Industrial Estate P.O., Papamouli, Hyderabad-501019

Report No.: NIIST-ETD/APTD/Bio-Deg-R-25/SP(PLA-WB)-02

Date: 19-12-2022

Description	Week 9	Week 10	Week 11
Sample Structure/ Colour	Granular / light brown colour	Granular / light brown colour	Granular / light brown colour
Moisture	Appropriate	Appropriate	Appropriate
Matrix Colour	Dark brown	Dark Brown	Dark Brown
Smell	Wheat flour like	Wheat flour like	Wheat flour like
Fungal Development	Not observed	Not observed	Not observed

**Comments:**

- Significant physical disintegration or structural change of the sample observed in due course of degradation study.
- Noticeable change in colour of the test sample was observed.
- No test sample was observed after sieving the material through a 2.0 mm sieve (IS standard) at the end of experiment.

Dr. Manjula K S  
 Technical Officer  
 Authorised Signatory

Dr. S. Anandayyaiah  
 Sr. Technical Officer  
 Authorised Signatory

(Contd....)

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 इण्डियन एस्टेट पी. ०, अ. परवरा, हैदराबाद, तमिः - ५०१ ०१९  
 Industrial Estate P.O., Papamouli, Hyderabad-501019

Report No.: NIIST-ETD/APTD/Bio-Deg-R-25/SP(PLA-WB)-02

Date: 19-12-2022

**PART-V: DECLARATION**

- Remarks:**
- All the testing and analysis is done by following standard methods.
  - No deviation from the standard test method.

**NOTE:**

- The testing and analysis results are related only to the items tested as submitted by the party.
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Dr. Manjula K S  
 Technical Officer  
 Authorised Signatory

Dr. S. Anandayyaiah  
 Sr. Technical Officer  
 Authorised Signatory

---End of the report---

**Product name:**

Compostable and biodegradable bags

**Available in:**

Customisable sizes

**Weight:** Carrying weight can be customised

**HSN Code:**

39206919

**Ingredients:**

Cornstarch & Bioplastic mix

**Packaging:**

Available in kilograms



**Product Features:**

1. Sturdy
2. Customisable shape
3. Not edible
4. Industrially compostable
5. Single use
6. Biodegradable in 6 months
7. Brand details can be printed (single colour)

**Usage:**

Can be used as garbage bag, laundry bag, grocery bag, carry bag etc.

**Storage:** Cool, dry place, with humidity <75%, temperature <25°, prevent wetting

# Certifications: Certified as safe for human contact

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प्रौद्योगिकी संस्थान  
पेट्रोकेमिकल एंजनीयरींग संस्थान  
मुख्यालय, चेन्नई  
मुख्यालय, चेन्नई - 600 032  
फोन: 91-44-22242714 व 44-22242717  
ई-मेल: central@cipet.gov.in, www: www.cipet.gov.in



CENTRAL INSTITUTE OF PETROCHEMICALS  
ENGINEERING & TECHNOLOGY  
INSTITUTE OF PETROCHEMICALS TECHNOLOGY  
Department of Chemicals & Petrochemicals  
Ministry of Chemicals & Fertilizers, Govt. of India  
Chennai, Chennai - 600 032  
Tel: 91-44-2224 4714 & Fax: 91-44-22242717  
E-mail: central@cipet.gov.in, www: www.cipet.gov.in

प्रमाणन रिपोर्ट / TEST REPORT  
रिपोर्ट नं. / REPORT NO. : 68131  
दिनांक / Date : 29-08-2022



क्रमांक / S.I. No. 30055

परीक्षण परिणाम / TEST RESULTS  
दिनांक / Date : 29-08-2022

Sl.No	Name of the Test	Test Method/ Standard	Unit	Results Obtained	Specified Requirements
1	Material Identification	FTIR & DSC	-	Blend of Poly Lactic Acid (PLA) and Poly Butylene Adipate Co-Terephthalate (PBAT)	-
2	Disintegration (Dry mass remains in 2 mm sieve after 64 days)	ISO 17088:2021	%	8.6	No more than 10%
3	Ultimate Biodegradation (with reference to 100% degradation of positive reference)	ISO 17088:2021	%	90.2 (at the end of 136 days)	> 90 (at the end of the test period not more than 180 days)
4	Plant Growth study Monocotyledon (Onion) % Seed emergence Dicotyledon (Tomato) % Seed Emergence	ISO 17088:2021	%	91 92	> 90 > 90
5	Acute Ecotoxic effects to earthworm				
a	Survival of adult earthworm at the end of 7 days	ISO 17088:2021	%	100	> 90
b	Survival of adult earthworm at the end of 14 days	ISO 17088:2021	%	100	> 90
c	Biomass end of the 14 days	ISO 17088:2021	%	96	> 90
6	Chronic Ecotoxic effects to earthworm				
a	Survival of adult earthworm at the end of 28 days	ISO 17088:2021	%	93	> 90
b	Survival of adult earthworm at the end of 56 days	ISO 17088:2021	%	97	> 90
c	Chopping at the end of 56 days	ISO 17088:2021	%	91	> 90
d	Biomass end of the 56 days	ISO 17088:2021	%	95	> 90

The detailed observation on biodegradability test is enclosed as Annexure  
2 of 2  
Contd.

29/08/2022  
AUTHORISED SIGNATORY

रिपोर्ट नं. / REPORT NO. : 68131  
दिनांक / Date : 29-08-2022

## PART C - TEST RESULTS

Sl.No	Name of the Test	Test Method/ Standard	Unit	Results Obtained	Specified Requirements*
7	Heavy metals concentration				
a	Arsenic (As)	ISO 17088:2021	mg/g	BDL (DL 0.006)	10
b	Copper (Cu)	ISO 17088:2021	mg/g	0.009	300
c	Nickel (Ni)	ISO 17088:2021	mg/g	0.045	50
d	Zinc (Zn)	ISO 17088:2021	mg/g	0.009	1000
e	Cobalt (Co)	ISO 17088:2021	mg/g	0.05	-
f	Chromium (Cr)	ISO 17088:2021	mg/g	0.055	50
g	Molybdenum (Mo)	ISO 17088:2021	mg/g	0.021	-
h	Mercury (Hg)	ISO 17088:2021	mg/g	BDL (DL 0.0007)	0.15
i	Cadmium (Cd)	ISO 17088:2021	mg/g	0.191	5
j	Lead (Pb)	ISO 17088:2021	mg/g	0.003	100
k	Selenium (Se)	ISO 17088:2021	mg/g	BDL (DL 0.013)	-

\* Based on Municipal solid waste (Management and Handling) Rules, 2016 notified on 8th April, 2016 by Ministry of Environment, Forests and climate change, Government of India. Note that concentration of metals like cobalt, molybdenum, and selenium is not mentioned in the notification.

Note: BDL-Below Detection Limit ; DL-Detection Limit

## PART D - REMARKS

- Note
- This Test Report / Certificate is issued only for the samples submitted to the laboratory.
  - The results stated above related only to the items tested.
  - The quality of the subsequent production lot has to be ensured by the purchaser.
  - This Test Report shall not be reproduced except in full without the written approval of the laboratory.
  - Any anomaly/discrepancy in this report should be brought to the notice of the laboratory within 30 days.
  - Subcontracted Tests (if any): Nil

29/08/2022  
AUTHORISED SIGNATORY

रिपोर्ट नं. / REPORT NO. : 68131  
दिनांक / Date : 29-08-2022

परीक्षण परिणाम / TEST RESULTS

OBSERVATION FOR BIODEGRADABILITY TEST AS PER ISO 17088:2021

Name of the Party : M/s. ADS Green Products, Kayakuma (PO), Via Panamaram, Nadavayal Kayakunnu Panamaram, Nadavayal, wayanad, Kerala - 67021.

1 Sample Details (As stated by Party): Compostable carry bags & products

2 Material Identification by FTIR : Blend of Poly Lactic Acid (PLA) and Poly Butylene Adipate Co-Terephthalate (PBAT)

3 Observation  
(i) Conditions of reaction mixtures  
Origin of Compost: Livestock excrement, municipal and vegetable waste  
Reaction Temperature (°C) : 58  
Dry Solid (%) : 88  
Volatile content (%) : 18.4  
CO<sub>2</sub> evolved during first 10days in blank : 113.52 mg/g  
Test duration (days) : 136 days  
Reference material : Cellulose  
Volume of reaction vessel (mL) : 3000 ml  
(ii) pH of test medium

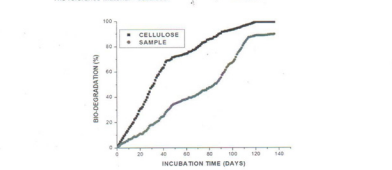
S.No.	Compost vessel	pH (Before)	pH (After)
1	Blank 1	7.4	7.2
2	Blank 2	7.3	7.2
3	Blank 3	7.4	7.3
4	Cellulose 1	7.3	7.2
5	Cellulose 2	7.4	7.3
6	Cellulose 3	7.5	7.3
7	Negative 1	7.3	7.2
8	Negative 2	7.3	7.2
9	Negative 3	7.3	7.2
10	Sample 1	7.4	7.2
11	Sample 2	7.4	7.2
12	Sample 3	7.3	7.2

Contd.  
29/08/2022  
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रिपोर्ट नं. / REPORT NO. : 68131  
दिनांक / Date : 29-08-2022

परीक्षण परिणाम / TEST RESULTS

4 Result: Percentage biodegradation relative to positive reference Sample (Mean) : 90.2% at the end of 136 days  
The reference Material - cellulose : 100%



5 Visual Observation of Sample

Description	Week 3	Week 6	Week 9
Structure	Cut pieces	Cut pieces	Fragmented pieces
Moisture	Adequate moisture Level	Adequate moisture Level	Adequate moisture Level
Colour	Pale white	Dirty	Dirty
Fungal Development	None	None	None
Smell	Organic/soil like	Organic/soil like	Organic/soil like

Description	Week 12	Week 16	Week 19
Structure	Fragmented pieces	Fragmented pieces	Fragmented pieces
Moisture	Adequate moisture Level	Adequate moisture Level	Adequate moisture Level
Colour	Dirty	Dirty	Dirty
Fungal Development	None	None	None
Smell	Organic/soil like	Organic/soil like	Organic/soil like

Contd.  
29/08/2022  
AUTHORISED SIGNATORY

# ECOLOGY

THOOSHAN was founded with a master vision to eliminate the use of disposable utensils made from plastic and paper that have left a significant impact on the environment. As an excellent alternative, THOOSHAN provides products that are highly eco-friendly and fully biodegradable, decomposing within 180 days. The company's commitment to sustainability and environmentally friendly practices ensures that its products are not only functional but also contribute to reducing the negative impact on the environment. THOOSHAN's approach to manufacturing and product development aligns with the global movement towards more sustainable and responsible consumption.

# FUTURE

Thooshan will be adding more products under the brand name in its kitty, which will be 100% biodegradable compostable and eco-friendly.

# APPLICATION

THOOSHAN tableware is versatile and can be used to serve both hot and cold food. It is safe to use in a microwave and is highly durable, making it suitable for use in both home and industry environments. THOOSHAN's straws and plates are convenient to carry and can be used for outdoor parties, picnics, or any activity where food consumption is required. These products have a long shelf life and are highly recommended for use in bars and restaurants. With its durability, versatility, and eco-friendliness, THOOSHAN is quickly becoming the preferred choice for those who value sustainability and convenience.

After initial use, they can be shredded to use as cattle feed, fish feed, poultry feed or even as organic manure.



## AWARDS AND CERTIFICATIONS

Thooshan has been the proud recipient of a multitude of accolades and recognitions so far.



Special Jury Award for being the top 10 Eco friendly Startups in India



Invited by the Prime Minister for 'Kissan Samelan' to showcase products



FICCI Agritech National Award



National Winner of RAFTAAR ABI for Innovation in Agriculture Products, Govt of India, 2021



United Nations, UNDP "Green Innovation Fund" from Kerala Start-up Mission, 2021



Golden Award for promoting responsible tourism and qualified for WTM, London



Runner-up at Climathon 2022 conducted by EY & Kerala Startup Mission



Recipient of idea & startup grant from Kerala Startup Mission



Official tableware partner of G20 Summit 2023, Kumarakom, Kerala, India

## INCUBATED AT






# LET THE PURPOSE BE SERVED RESPONSIBLY



## Biodegradable tableware from agri waste

## Cutleries & containers



100% natural



Can withstand temperatures from -10 to +140 degrees



Withstands weight upto 2kg



The smell and taste of bran/husk may be present



Biodegrades within 30 days



Wheat bran plates contain gluten, rice husk plates contain lignan



Food contact safe



Shelf life upto 1 year



Home compostable



Vegan friendly



Blisters may appear



Organic manure



Non washable



Poultry feed



Cattle feed



Fish feed



Food contact safe



Not edible



Can withstand temperatures upto 40 degrees



Non washable



Home compostable



Shelf life of upto 3 years



Vegan friendly

## Thooshan

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