



THOOSHAN®

HUSK TO RUSK

**BIODEGRADABLE TABLEWARE FROM
AGRICULTURAL WASTE**

PRODUCT INFORMATION



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CIRCULAR ECONOMY

WASTE TO WEALTH

Mill



Agri
Waste



Bio-
degradation
& feed



Tableware



Production



THOOSHAN[®]

VIR NATURALS PRIVATE LIMITED
REGISTERED OFFICE

Gokulam, 11/916B, Rajiv Gandhi Jn,
Kakkanad, Kochi-682037, Kerala

FACTORY

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



THOOSHAN®

Husk to Rusk: Biodegradable Tableware from Agricultural Waste

About Thooshan:

THOOSHAN is an innovative eco-friendly brand born from Kerala, India, with the vision to eliminate single-use plastic and compostable disposable products. Founded by Vinayakumar Balakrishnan (Vinay), the brand represents a revolutionary approach to sustainable tableware, creating fully biodegradable and partially edible products made from agricultural waste materials.

Mission & Vision

Our mission is to start a cutlery revolution and provide the world with eco-friendly, sustainable alternatives to conventional plastic, paper and compostable disposable products. We are committed to reducing the environmental impact of millions of single-use cutleries that end up in landfills annually.





MANUFACTURING & TECHNOLOGY

Advanced Production

Thooshan operates a state-of-the-art, fully automatic robotic factory that adheres to strict standards of hygiene and precision. Our dry process technology minimizes water usage and waste during production — a sustainable approach that sets us apart from traditional manufacturing methods.

Production Capacity: 1,000-5,000 plates per day

Global Recognition: Only the 2nd company in the world and 1st in India using this dry process technology.

Technology Partners: CSIR-National Institute for Interdisciplinary Science and Technology (NIIST) & Central Institute of Petrochemicals Engineering and Technology (CIPET),

Sustainability Commitment

Our manufacturing process is optimized for:

- Minimal water consumption
- Reduced waste generation
- Natural, organic binders and additives

PRODUCTS

FEATURES & CERTIFICATIONS

Product Name: Paddy Husk Plates

Available Sizes: 6/8/10/12 inch (round)

Packing: As per wholesale requirement

Weight: 100 gms per piece (uniform)

Color: Brown (natural)

HSN Code: 14049090

Shelf Life: 12 months

Temperature

Range:

-10°C to +140°C

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. 100% biodegradable in 30 days
2. Home compostable
3. High water retention capacity upto 1 hour
4. Extended shelf life (12 months)
5. Can be reused for dry food items
6. Converts to organic manure
7. Generates additional income for farmers from agricultural waste

Certifications: 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
इन्डियन स्टेट पी. ओ., पाप्पानमकोड Industrial Estate P. O. Pappanamcode
थिरुवनंतपुरम, केरल, भारत 695019 Thiruvananthapuram, Kerala, India 695019

Dr. P. Nishy
Chief Scientist
Head, RPIED

4th 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.

Dr. P. Nishy
(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)

Big Straws: 10mm (dia)
x200mm (length)

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

Colour: Multicolor

HSN Code:
19030000

Weight: 8-12gms per straw

Colour: Multicolour
(Approved food coloring)

Packaging: As per requirement

Biodegradability:
60 days (kitchen compostable)

Temperature

Tolerance: Not advised for hot drinks

Storage: Cool, dry place with humidity <75% and temperature <25°C.

Packaging: Available individually wrapped or in bulk, as per requirement.



Product features:

1. 100% biodegradable
2. Certified by Government of India (FSSAI), TUV SUD certification (EU compliance), FDA-compliant
3. Neutral flavor formulation
4. Can be used as cattle, fish, or poultry feed
5. Converts to organic manure
6. Approved food coloring only, CE-marked for food safety

Usage:

1. Normal, Cold and iced drinks
2. Parties, celebrations, and social events
3. Restaurants, bars, and café operations
4. Hotels and resorts
5. Catering and food service industries
6. Picnics and outdoor events
7. Festival and wedding celebrations

Certifications: Certified as safe for human contact

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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-TÜV SÜD KfL 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-200320000482

COMPLY

- with the requirements of the following regulations, guide, standards:
- 1935/2006 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, 09/2019 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-TÜV SÜD KfL



EMI-TÜV SÜD KfL HESM department
 H-2000 Szentendre, Dózsa György út 8.

TÜV*

DocuSign Envelope ID: 0F7ED8E2-580C-4838-B0D8-B26FF277C3AE



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, comminuted 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 comminute starch (possibility of naturally occurring or as a processing aid) but the quantity of this additive in comminute 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 13430 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 17th, 2021

Director =

Pro: _____

Responsible =

Attest: Technical data sheet of the product provided by the producer:



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



अवधि समूह / License Number: 1362299000275



Category of License / अवधि 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 by the licensee. For updated list visit all rules effective, 2006 & visit upon the link or address to check if there is any amendment on the 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-Food 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 FEATURE SUMMARY

FEATURE	RICE HUSK PLATES	RICE DRINKING STRAWS
Biodegradable	30 days	60 days
Food Safe	Yes	Yes (edible)
Edible	Animal edible	Yes
Shelf Life	12 months	12 months
Temperature Range	-10 to +140°C	Room Temp only
Home Compostable	Yes	Yes
Industrial Composting	Yes	Yes
Secondary Use	Feed/Manure	Feed/Manure
Customization	Limited	Yes



Certifications & Standards Compliance

Thooshan products are rigorously tested and certified by leading international and national authorities:

International Certifications

TÜV SÜD (Hungary)

Certificate of Compliance for food contact safety

EU Regulation 1935/2004 compliance

Food safety standards certification FSSAI (Government of India)

Central License for food business operations

Microbiological examination certified (E. Coli and Salmonella negative)

Valid compliance for food contact products

A carbon Neutral Certified sustainable company by JPAL

National Certifications

CSIR-NIIST (National Institute for Interdisciplinary Science and Technology)

Biodegradability testing (verified within 30 days)

Shelf life testing (6-12 months)

Toxicity testing (non-toxic confirmation)

Technology development partner

CIPET (Central Institute of Petrochemicals Engineering & Technology)

Overall migration testing (compliant)

Material safety verification

Biodegradation and composability testing

Industrial composting standards validation

Regional Testing & Approvals

Kuwait Institute for Scientific Research (KISR)

Microbiological examination

E. Coli and Salmonella testing

Food safety certification

Dubai Municipality (Dubai Central Laboratory)

Food safety compliance testing

Fitness for use certification



Performance & Quality Standards

Water Retention Capacity

Rice Husk Plates: High water retention capacity

Straws: Not recommended for hot drinks

Temperature Performance

Rice Husk Plates: -10°C to +140°C range

Straws: Room temperature only (not for hot drinks)

Biodegradation Timeline

30 days: Rice husk plates (home/industrial composting)

60 days: Rice straws (kitchen composting)

Shelf Life Assurance

Rice Husk Products: 12 months with proper storage

Straws: 12 months with proper storage

Storage & Handling Guidelines

Optimal Storage Conditions

Temperature: Below 25°C

Humidity: Less than 75%

Environment: Cool, dry location

Moisture: Prevent direct wetting or moisture exposure

Packaging: Keep in original nitrogen- flushed packaging when possible

Handling Precautions

Avoid prolonged exposure to moisture

Store away from direct sunlight

Keep away from strong odor sources

Ensure proper ventilation in storage area

Handle with clean, dry hands

Open only at the time of usage

Do not crush or apply excessive pressure during storage

Transport & Delivery

Use appropriate humidity-controlled packaging

Avoid exposure to rain or water during transit

Keep packages sealed until point of use

Store in cool conditions during distribution



Environmental Impact & Sustainability

From Agricultural Waste to Valuable Products

Thooshan transforms agricultural by-products that would otherwise be burned or landfilled into high-quality biodegradable tableware. This approach:

Supports Farmers: Generates additional income from agricultural waste

Reduces Pollution: Prevents open burning of crop residue

Circular Economy: Creates a sustainable resource utilization model

Waste Reduction: Diverts millions of tons from land fills annually

End-of-Life Value

After single use, Thooshan products offer multiple sustainable end-of-life options:

Home Composting: Decomposes in 30-60 days in home compost piles

Industrial Composting: Certified for municipal composting facilities

Organic Manure: Converts to nutrient-rich soil amendment

Animal Feed: Reusable as cattle feed, fish feed, or poultry feed

ASPECT	THOOSHAN	TRADITIONAL PLASTIC	COMPOSTABLE PLASTIC
Bio degradation	30-180 days	500+ years	5-10 years
Secondary Value	Yes (feed/manure)	None	Minimal
Renewable Resources	100% (agricultural waste)	0% (fossil fuel based)	Partial
Landfill Impact	Minimal	Permanent	Reduced
Global Warming Potential	Low	High	Moderate
Resource Regeneration	Supports agriculture	Deplete oil reserves	Mixed impact

Awards & Recognition

Thooshan has received prestigious recognition for its innovative approach to sustainable tableware:

International Awards

WTM London 2022: Golden Award for promoting responsible tourism

UN-UNDP: "Green Innovation Fund" award from Kerala Startup Mission (2021)

National Awards

FICCI Agri tech: National Award for agricultural innovation

RAFTAAR ABI: National Winner for Innovation in Agriculture (Government of India, 2021)

Runners Up: Climathon: Organized by EY and Kerala Startup Mission

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

Winner Disha 2025, conducted by IIT Palakkad

Invited for Prime Minister meet up for National MSME Summit 2026

Government Recognition

Kissan Samelan: Invited by the Prime Minister's office to showcase products at agricultural conference

Ministry of Agriculture & Farmers Welfare: Recognition as innovative agro-based enterprise

Kerala Grassroot leader award for promoting sustainability, by Govt of Kerala, India

Startup Recognition

IIT Kanpur: Incubated startup

Kerala Agricultural University: Incubation partner

Indigram Lab Foundation: Incubation support

Kerala Startup Mission: Idea & startup grant recipient

Zomato-Startups India: Special Jury Award for top 4 eco-friendly startups



APPLICATIONS & MARKET SEGMENTS

Primary Market Applications

- HORECA Segment
- Hotels, Restaurants, Cafes
- Banquet halls and event venues
- Catering companies, food delivery services Retail, E-commerce
- Online food delivery platforms
- Retail grocery stores
- Quick-service restaurants (QSR)
- Takeaway and delivery operations

Events & Functions

- Corporate events and conferences
- Weddings and celebrations
- Public functions and festivals
- Exhibition and trade show

Institutional Use

- Schools and colleges
- Corporate cafeterias
- Hospital food services
- Military and defense establishments

Airline & Maritime

- Inflight catering
- Ship and cruise food service
- Airline complimentary services

Geographic Markets

- Domestic (India)
- All-India restaurant and hotel chains
- Quick-service restaurant (QSR) operators
- Catering services
- Retail channels (online and off)

International Markets

- European Union (EU standards compliance)
- Mauritius
- Singapore
- United Arab Emirates
- Saudi Arabia
- Australia
- Canada
- USA



SOURCING & WHOLESALE INFORMATION

Minimum Order Quantities

Products are available in customizable wholesale quantities to meet bulk requirements of hotels, restaurants, catering companies, and event organizers.

Pricing & Quotation

For wholesale pricing, volume discounts, and customization quotations, please contact:

Email: mail@thooshan.com

Phone: +91 9911 8877 27

Website: www.thooshan.com

Delivery Options

Door Delivery: Available with courier charges included

Bulk Shipments: Specialized packaging for large orders

Custom Orders: Branding and customization available upon request

Payment & Terms

Standard Terms: To be discussed based on order volume

Corporate Accounts: Special pricing for institutional buyers

Logistics: Flexible delivery options across India and internationally

Future Product Development

Thooshan is committed to expanding its product portfolio with additional eco-friendly offerings:

Biodegradable Cups & Glasses: For hot and cold beverages

Advanced Containers: Enhanced designs for specific food types

Specialized Tableware: Custom solutions for unique applications

Research & Development: Continuous innovation in material science and biodegradability



SUSTAINABILITY COMMITMENT

Mission Statement

"Let the purpose be served responsibly."

Thooshan's core mission is to revolutionize the disposable tableware industry by providing 100% biodegradable, partially edible alternatives that:

- Eliminate single-use plastic waste
- Support agricultural communities
- Reduce environmental pollution
- Promote sustainable consumption patterns
- Create a circular economy model

WHY CHOOSE THOOSHAN?

- **Proven Technology:** Developed with CSIR-NIIST and CIPET
- **Multiple Certifications:** TÜV SÜD, FSSAI, EU-compliant
- **Biodegradable:** Decomposes in 30 days
- **Edible & Safe:** Partially edible, food-contact certified
- **Secondary Value:** Reusable as feed or manure
- **Microwave Friendly:** (Plates)
- **Long Shelf Life:** 6-12 months storage capability
- **Farmer-Friendly:** Generates income from agricultural waste
- **Award-Winning:** International and national recognition
- **Affordable:** Competitive pricing for bulk orders





DISCLAIMER & IMPORTANT NOTES

Shelf Life: Products have varying shelf lives (6 months to 1 years) depending on type. Store in cool, dry conditions below 25°C with humidity <75%.

Allergen Information: Rice husk plates contain lignin compounds. Please inform consumers accordingly.

Blistering: Minor blistering may appear on plates due to the natural composition. This does not affect functionality.

Microwave Safety: Plates are microwave-friendly.

Hot Beverages: Rice straws are not recommended for hot drinks due to potential softening.

Composting Requirements: Home compostable

Secondary Use: When reusing products as animal feed or organic manure, ensure they are clean and free from contaminants.

Customization: Orders for custom sizes, designs, or branding require minimum order quantities and lead times. Please contact for details.





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

Key features

Cutlery & 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

References

All product specifications and certifications are based on:

- TÜV SÜD testing and certification reports
- FSSAI food safety license and testing
- CSIR-NIIST research and validation
- CIPET material testing reports
- Kuwait Institute for Scientific Research (KISR) microbiological testing
- Dubai Municipality food safety verification

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"Husk to Rusk: Transforming agricultural waste
into eco-friendly excellence."



VIR NATURALS PRIVATE LIMITED
REGISTERED OFFICE

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Kakkanad, Kochi-682037, Kerala

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