

Manufacturer of Certified **Compostable Products**









Plastics in our life !!!!

- Modern life is unthinkable without plastic.
- But are durable, light weight and low cost.
- Plastics such as polyethylene (PE), polypropylene (PP) etc. are non biodegradable, pose threat to the planet.
- We propose biodegradable i.e compostable material which will be converted onto gas and soil





Current End Of Life Stream For Single Use Plastics

Collected For Recycling

40%

Inceneration

Leakage









The circular economy.





Drivers for compostable products

DRIVERS	SHORT IMP/
Increasing demand for sustainable products from the food and beverage service sector	
Enforcement of environment protection rules and provision of economic incentives by the government bodies	
HIGH MEDIUM LOW	







Global Compostable Market 2016-2024 in USD Million.





Value

stable Tableware Market: Global Industry Analysis, Trends, Market Size & Forecasts up to



Compostable products growth CAGR region wise.







Market Share with growth rate CAGR 7.08%



By End-User

Market Share 2017 (%)







What is compostability (Biodegradability)? A technology for degrading plastics.

- Biodegradable technologies works well in a biologically active environment (e.g. compost)
- Destruction happens directly through the consumption of microbes.
- Final product results CO₂, water, methane, minerals, biomass etc.





Short Fact about the compostable material.

- Compostability according to EN13432, ASTM D 6400, NFU 52001.
- Stable while in use, good disintegration in soil after ploughing under.
- Cost-efficiency : no collection and dispose cost.
- High strength and tear resistance.
- Increased moisture barrier properties.





Advantages of Bio-compostable polymers.

- Compost completely into biomass, carbon dioxide and water.
- No harm to environment, animals and surrounding.
- Much lower carbon footprint.
- Compare to paper
 - More environment friendly, less energy to produce, water resistant, air tight and water resistant.
 - Compare to glass
 - Light weight easier to carry, Durable
 Not fragile, safe in handling broken glass, easier to recycle.





Eco DNA

- M/s Ecopak has originated from an eco sensitive area of Maharastra i.e Dahanu which is under DTEPA "Dahanu Taluka Environment Protection Authority" a Supreme Court authority.
- M/s Ecopak specialises in Bio-based and compostable products manufacturing (Extrusion and Thermoforming) in India.
- M/s Ecopak is consistently improvising technically and introducing commercially effective solutions for thermoformed products.
- Together our Aim is to develop and produce sustainable
 thermoformed packaging at affordable price and
 - Reduce use of fossil resources (like oil and gas)
 - Reduce CO₂ emissions (reduce pollution of atmosphere)
 - Offer alternative waste route (reduce pollution of soil/ water)





Where we work

- Location: Plot No 41 Achaad Industrial Estate, Talasari, Palghar, Maharastra.
- Located on Mumbai Ahemdabad Expressway and in close proximity to Logistics hubs such as Vapi, Vasai, Boisar.
- Company owned property.
- Installed with 200 KVA electricity supply.
- The project is installed as per the Standard operating procedures issued by Government of India for compostable products / bioplastics.
- We have an annual capacity of 600 MT of producing compostable products for packaging applications.













Challenges and strategy.

- First stage commenced in 2018 with trials of bioplastic for our product range and understanding the bio based plastic material behaviour in processing.
- Second stage commenced in 2019 in setting up a specialised unit for processing compostable thermoformed products.
- Third stage commenced in 2020 with tool designing for a F&B company for PLA compostable product and issuing samples for testing in CIPET lab.
- June 2021, we have received certificate from CPCB for commercial production of compostable products and marketing of compostable products.









Expertise in Compostable products.

- We are equipped with Extrusion lines designed for bio based plastics.
- We are equipped with pressure forming machines.
- We are efficient in tool designing and tool production for customised products for our clients.
- Over the span of 12 years in extrusion and thermoforming we have experienced the challenges in product development for Bioplastics and are gaining more experience and knowledge in our continuous effort to create solutions on replacing conventional plastic packaging products.





Actual production floor



Plant Photos















End of life options for bioplastics





Table 2: Overview of end-of-life options for bioplastics compared to traditional plastics

	Bioplastics					(both)		Traditional plastics					
	PLA	PLA compounds*	PBAT	PBS	PHA	Starch	Multi-layer films	PET	F	đ	82	ABS	Multi-layer films
Biobased**	Х	(X)		(X)	Х	х	(X)						
Mechanical recycling	х	х	х	х				х	х	х	х		
Chemical recycling***	Х			Х				х	х	х	х		
Incineration	Х	х	х	х	х	х	х	х	х	х	х	х	х
Industrial composting	Х	х	Х	х	Х	Х	х						
Home composting		х	Х	х	х	х	х						
Biodegradable soil		х		х	х	Х							
Biodegradable water					х	х							
Biodegradable marine					х	х							
Anaerobic digestion	Х	Х	Х	Х	Х	Х	х						

* PLA compounds typically contain up to 40% PLA in combination with starch, PBAT or PHA.

** X means 100% biobased, (X) means that it is partially biobased or can be either biobased or fossil-based.

*** Chemical recycling is technically possible, but not in commercial stage yet for post-consumer plastics



Figure 6: The pyramid of plastic waste management, adapted for bioplastics¹³

Prevention and

Reuse

Mechanical / mate

Chemical rec

Organic rec

Incinerati

Landfilli



Plastic Waste Management for Bioplastics.

reduction	Prevention and reduction of plastic use where unnecessary
	Design for long life and increased utilization
rial recycling	Design for recyclability Maintains highest value
yding	Recycling of materials that cannot be mechanically recycled Food contact approval (other than PET)
ycling	 Includes 'industrial composting', 'home composting' 'anaerobic digestion' and 'controlled degradation' of applications that could end up in the environment (e.g. mulch films)
ion +i ove as mi	ncineration with energy recovery is preferred r normal incineration, but should be prevented uch as possible.
ng • Landfilli	ng should be prevented where possible
e • Worst-case ac	anario - should be prevented by all means



Product Identification and Certification.

- Product can be identified by the seller code issued from CPCB.
- Our seller code is "ECOP"
- With QR code on the packaging as per CPCB guidelines.
- European and Indian Standard : EN13432 / ISO 17088
- American Standard : ASTM D6400
- Certification Body in India : CPCB Delhi
- Testing Lab : CIPET.









CIPET : INSTITUTE OF PLASTICS

Department of Chemicals & Petrochemicals Ministry of Chemicals & Fertilizers, Govt. of India Piot No. 630, Phase-IV, G.I.D.C., Vatva, Ahmedabad- 382 445. Tele: (079) 40103900-902, 925, Fax: (079) 40083905

Head Office : CIPET, Guindy, Chennai - 600 032

E-mail : cipetahmd@gmail.com | ahmedabad@cipet.gov.in

Report No.: 903

Date : 12.04.2021

pH (after test)

breto

AUTHORISED SIGNATORY

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Plot No. 630, Phase-IV, G.I.D.C., Vatva

Report No.: 903

Date : 12.04.2021

AFTER DISINTEGRATION

forto

AUTHORISED SIGNATORY

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TECHNOLOGY (IPT)

Web.: www.cipet.gov.in





To,

केन्द्रीय प्रदूषण नियंत्रण बोर्ड

Dated: 22.06.2021

CENTRAL POLLUTION CONTROL BOARD पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE GOVT. OF INDIA

Certificate No.- B-17011/7/PWM(COMP)/2021/ECOP

2490

M/s Ecopak Plot 41, Achaad Industrial Estate, Achaad, Tal & Dist Palghar Maharshtra -401404

Sub: <u>Certificate to manufacturer for Manufacturing / Selling of Compostable</u> <u>plastics/products</u>

With reference to the application no nil dated 10.02.2021 this is to certify that **M/s. Ecopak** plant located at Plot 41, Achaad Industrial Estate, Achaad, Tal & Dist Palghar, Maharshtra is fulfilling the criteria as per revised Standard Operating Procedure (SOP) for issuing certificate as per the provisions '4(h)'&'11(c)' of Plastic Waste Management Rules, 2018, for manufacturing and selling of compostable carry bags in Indian Market as '**MANUFACTURER**'.

Certificate for manufacturing and selling of compostable plastic bags in Indian market is hereby issued to **M/s. Ecopak** plant located at Plot 41, Achaad Industrial Estate, Achaad, Tal & Dist Palghar, Maharshtra as '**MANUFACTURER**' with the following conditions:

- The end product "Compostable products" shall be manufactured using the raw materials " Compostable Bioflex Resins" and following the production process (Annexure I)
- ii. Each carrybag made from compostable material or plastic shall bear a label "COMPOSTABLE" IS/ISO:17088 titled as Specifications for "Compostable Plastic" in English & regional language. Each carrybag shall also have printed code and Certificate Number of "MANUFACTURER" as given above.
- iii. The manufacturer shall generate QR code based on the details (Name, plant address, CPCB certificate no. etc.) provided in the certificate issued by CPCB and QR code shall be provided on each of the carry bag manufactured at the certified unit. The "verifiable" details of the QR code shall be shared with the SPCB/PCC/CPCB within one month of issue of this Certificate.

Dunp

Contd....2

'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली-110032 Parivesh Bhawan, East Arjun Nagar, Delhi-110032 दूरभाष/Tel : 43102030, 22305792, वेबसाईट/Website : www.cpcb.nic.in iv. This certificate issued by CPCB shall not require renewal. However, a fresh application shall be filed with CPCB for grant of certificate, in case there is any change in raw material/ production process or product.

-2-

- v. The Manufacturer shall provide six-monthly report giving details of raw material procurement and product sale to SPCB/PCC/CPCB as per the prescribed format.
- vi. The "Manufacturer" shall comply with provisions of PWM Rules/ Guidelines issued from time to time by the Ministry of Environment, Forest & Climate Change or Central Pollution Control Board
- vii. The manufacturer shall manufacture/sell the compostable carrybags only after they obtain a valid Registration for manufacturing of Compostable carrybags from concerned SPCB/PCC. The Registration should be submitted to CPCB within 03 months of issue of the Certificate by CPCB, failing which the Certificate shall stand cancelled.
- viii. If the certified Manufacturer is found non-complying with the provisions of the PWM Rules, 2018, the Certificate shall stand cancelled

Additional Director & I/C UPC-I

Date: 28.07.2021

То,

Divya Sinha Madam, CPCB, New Delhi.

Respected Madam,

Please find the attached QR code for Ecopak as per revised SOP.



Details in QR Code For your Reference: 100% CERTIFIED COMPOSTABLE PLASTICS IS/ISO 17088:2012 Manufactured by : M/s. Ecopak Plot 41, Achaad Industrial Estate Achaad, Tal & Dist Palghar CPCB License No : B-17011/7/PWM(COMP)/2021/ECOP Email Id: ecopakindia@yahoo.com Contact No: +91 9920499496

Thanking you,

M/S Ecopak,

Plot No. 41, Achaad Industrial Estate, Village Achhad, Taluka Talasari,Palghar, Maharashtra, Pin Code: 401606Email: ecopakindia@yahoo.comGST No: 27AAFFE0647Q1Z1PAN Card No: AAFFE0647Q





Study of Compostable products.

- Requirements of EN 13432 (ASTM D6400)
- Chemical characterisation (organic share > 50 %; thresholds for hazardous substances)
- Biodegradability tests (laboratory scale: • max. 5 % non degradable/1 % per substance; rest degrades to CO₂, H₂O, salts and biomass)
- Compostability tests (field test: 90 %) of fragments < 2 mm after 12 weeks)
- Eco toxicity tests (seedling rate of plants > 90 % of untreated seedling rate)

facilities within a defined time frame.



	Industrial	Home	Environment Aerobic	Aqueous	Mari
rd	EN 13432:2000 ISO 14855 ASTM D6400 ASTM D6868	EN 17427 NF T51-800	ISO 17556	ISO 14851	ASTM E
ation example	OK compost Industrial	OK compost Home	OK biodegradable Soil	OK biodegradable Water	Ol biodegr Mar
nperature	58°C ± 2°C	28°C ± 2°C	25°C ± 2°C	20°C - 25°C	30°C :
radation time	6 months	12 months	24 months	56 days	6 mo
gration time	12 weeks	6 months	Not required	Not required	84 d

"Compostable" Certified compostable material - being converted to compost, example industrial composting









Innovative Partnership

Product Design & Development.











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Clear your doubts !

Questions?