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

Certificate No.- CPCB/ECO365 Pvt.Ltd/Karnataka/64 Dated: 14-07-2022

To,

M/s ECO365 Pvt.Ltd
Plot/Phase No. No. 155/2, Bhimmanakuppe Village,
Kengeri Hobli, Bangalore- 560074

Sub: Certificate to manufacturer for Manufacturing / Selling of Compostable plastics

With reference to the application no. **ECO365 Pvt.Ltd/Karnataka/64 dated 14 Jul 2022** this is to certify that **M/s ECO365 Pvt.Ltd** plant located at **PLOT/PHASE No. No. 155/2, Bhimmanakuppe Village, Kengeri Hobli, Bangalore- 560074** 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 ECO365 Pvt.Ltd** plant located at **PLOT/PHASE No. No. 155/2, Bhimmanakuppe Village, Kengeri Hobli, Bangalore- 560074** as 'MANUFACTURER' with the following conditions:

i. The end product "Compostable plastics & commodities" shall be manufactured using the raw materials "**Compostable starch granules,PLA,PBAT,Cellulose compounds,Bio degradable resin**" 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.

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.

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.

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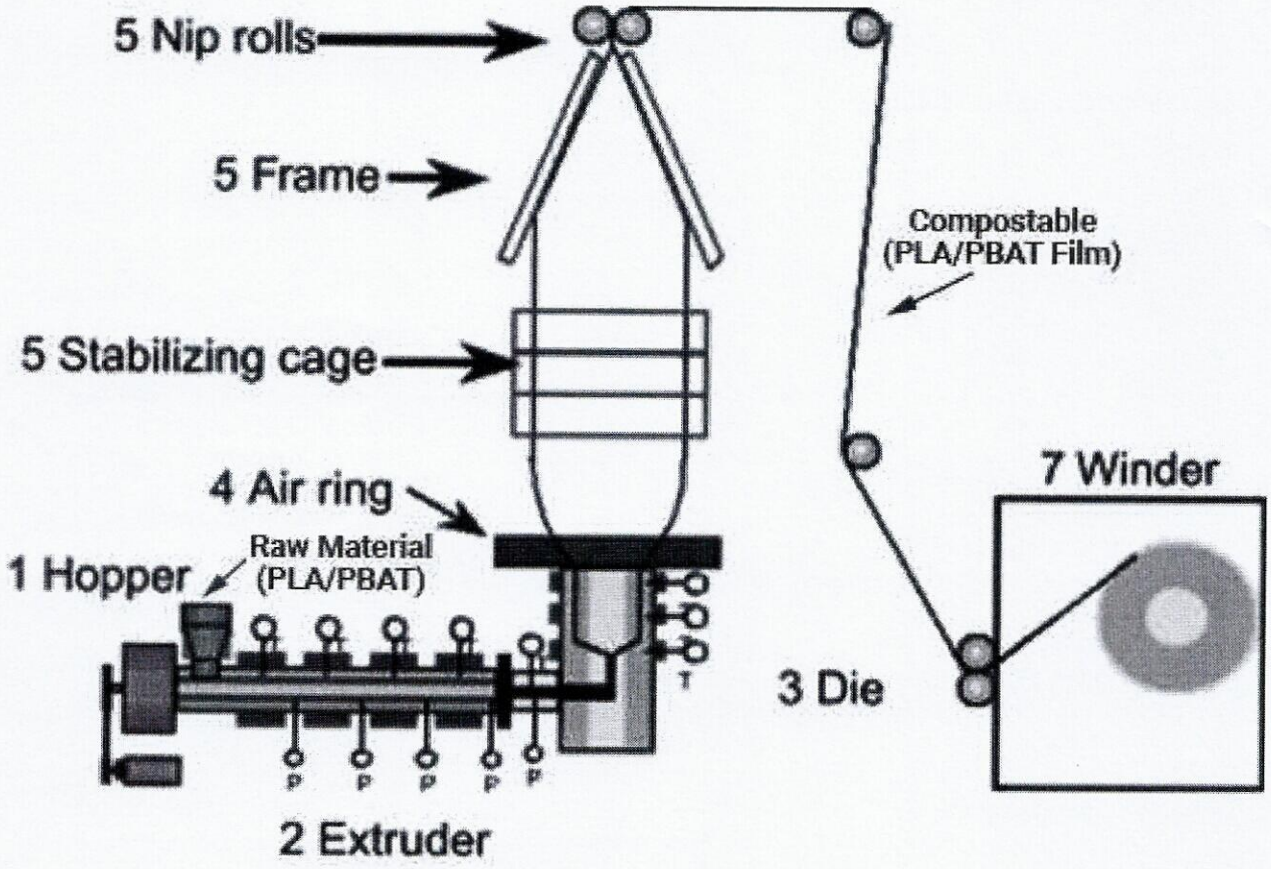
vi. The "Manufacturer" shall comply with provisions of PWM Rules / Guidelines issued from time to time by the Ministry of Environment, Forest & Climate Change or Central Pollution Control Board.

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.

दिव्या सिन्हा / Divya Sinha
वैज्ञानिक "ई"
(Divya Sinha)
केंद्रीय प्रदूषण नियंत्रण बोर्ड
Additional Director & I/c UPC-II
Central Pollution Control Board
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
M/o Envt. Forest & Climate Change, Govt. of India
परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली–110 032
Parivesh Bhawan, East Arjun Nagar, Delhi-110032

The Compostable Blown Film Flow Chart



Overall process Flow Chart

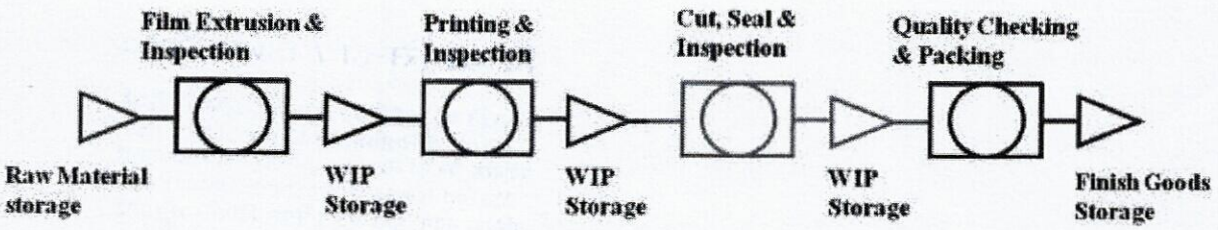


Figure: 1

Compostable Raw Material Used: PLA & PBAT

Process Description:

The blown film extrusion is carried out vertically upwards. Figure 1 shows a schematic of the set-up for blown film extrusion. This procedure consists of four main steps:

1. **The compostable polymer like PBAT & PLA** material starts in a pellet form, which are successively compacted and melted to form a continuous, viscous liquid. This molten plastic is then forced, or extruder through an annular die.
2. Air is injected through a hole in the center of the die, and the pressure causes the extruded melt to expand into a bubble. The air entering the bubble replaces air leaving it, so that even and constant pressure is maintained to ensure uniform thickness of the compostable film.
3. The bubble is pulled continually upwards from the die and a cooling ring blows air onto the film. The film can also be cooled from the inside using internal bubble cooling. This reduces the temperature inside the bubble, while maintaining the bubble diameter.
4. After solidification at the frost line, the film moves into a set of nip rollers which collapse the bubble and flatten it into two flat film layers. The puller rolls pull the film onto windup rollers. The film passes through idler rolls during this process to ensure that there is uniform tension in the film. Between the nip rollers and the windup rollers, the film may pass through a treatment centre, depending on the application. During this stage, the compostable film may be slit to form one or two films, or surface treated.
5. Post the compostable film is made, the roller is placed on cutting and sealing machine to make pockets/pouches/bags/garbage bags etc in required sizes demanded by customer.
6. Final product manufactured: Garbage bags, packaging material, pouches, bags.

The Blow Film Machine Picture