



CENTRAL POLLUTION CONTROL BOARD

Ministry of Environment Forest & Climate Change, Govt. of India
'Parivesh Bhawan' C.B.D. Cum-Office Complex,
East Arjun Nagar, Shahdara, Delhi-110032

Standard Operating Procedure (SOP) for Issuing Certificate to Manufacturers/Sellers/Stockists of Compostable Plastic Carry Bags/Products

(Rule 4(1)(h) of Plastic Waste Management (PWM) Rules, 2016)

1.0 Provisions for compostable carry bags/products under Plastic Waste Management Rules, 2016

As per the **Rule 3(e)(Definitions)** of PWM Rules, 2016 “**compostable plastics**” mean plastic that undergoes degradation by biological processes during composting to yield CO₂, water, inorganic compounds and biomass at a rate consistent with other known compostable materials, **excluding conventional petro-based plastics**, and does not leave visible, distinguishable or toxic residue.

Whereas, as per the **Rule 4(1)(h) (Conditions)** of **PWM Rules, 2016**, the manufacturers or sellers of compostable plastic carry bags/products shall obtain a certificate from **the Central Pollution Control Board** before marketing or selling compostable carry bags/products. Every compostable plastic carry bag manufacturer/seller/stockist shall comply following provisions under PWM Rules, 2016:

- **Rule 4-h (Conditions):** The provision of minimum thickness of 50 micron shall not be applicable to carry bags made up of compostable plastic. Carry bags made from compostable material or plastics shall conform to the Indian Standard: IS 17088 (as amended time to time) titled as ‘Specifications for Compostable Plastics’.
- **Rule 10 (Protocols for compostable plastic material):** Determination of the degree of degradability and degree of disintegration of plastic material shall be as per the protocols of the Indian Standards IS/ISO: 17088 (as amended time to time).
- **Rule 11 (Marking or labelling):**
 - 1(c):** shall have the following information printed in **English** namely; name and certificate number in case of carry bags made from compostable plastic.
 - (2):** Each carry bag made from compostable plastics shall bear a label “**compostable**” and shall conform to the Indian Standard: IS/ISO 17088 (as amended time to time) titled as “Specifications for Compostable Plastics”.

- **Rule 13-(1&2) (Registration of producer, recycler and manufacturer):** No person shall manufacture carry bags or recycle plastic bags or multilayered packaging unless the person has obtained a registration from the State Pollution Control Board or the Pollution Control Committee of the Union Territory concerned, as the case may be, prior to the commencement of production. Every producer shall, for the purpose of registration or for renewal of registration, make an application to the State Pollution Control Board or the Pollution Control Committee of the Union territory concerned, in **Form I** of PWM Rules, 2016.

2.0 Standard Operating Procedure (SOP) for Issue of Certificate

The interested manufacturer/seller/stockist of compostable plastic carry bags/products can apply to CPCB for the registration in **Form-A (Manufacturer) and Form-B (Seller/Stockist)**, along with the prescribed documents.

Documents to be attached with the Application Form:

A. Manufacturer

1. Duly filled **Form-A**.
2. Registration Certificate from concerned SPCB/PCC, as per Rule '13(2)' of PWM Rules, 2016.
3. The valid consents to operate under Air and Water Acts and acknowledgement of submission of consent applications, if applicable, as per Rule '13(5)' of PWM Rules, 2016.
4. Flow diagrams of manufacturing process.
5. For issuing Provisional Certificate, interim test report of the sample (after 180 day's test report for ultimate aerobic biodegradation, as per provision '6.3' of IS/ISO:17088) from CIPET or any other laboratory, recognized by CPCB for this purpose shall be forwarded to CPCB.
6. For issuing Final Certificate, complete test report of the sample, including seed germination and heavy metal analysis test (after 180 days), as per Indian Standard IS/ISO 17088 (as amended time to time) from CIPET or any other laboratory, recognized by CPCB for this purpose, shall be forwarded to CPCB.
7. Details of end products and by-products.
8. Details of pollution control measures.

B. Seller/Stockist

1. Duly filled **Form-B**.
2. Registration certificate from concerned Local Body or any other Statutory Body.
3. The import license from Directorate General of Foreign Trade, in case of import from abroad.
4. For issuing Provisional Certificate, interim test report of the sample (after 180 day's test report for ultimate aerobic biodegradation, as per provision '6.3' of IS/ISO:17088) from CIPET or any other laboratory, recognized by CPCB for this purpose, shall be forwarded to CPCB.

5. For issuing Final Certificate, complete test report of the sample, including seed germination and heavy metal analysis test (after 180 days), as per Indian Standard IS/ISO 17088 (as amended time to time) from CIPET or any other laboratory, recognized by CPCB for this purpose shall be forwarded to CPCB.
6. In case, seller/stockist is selling compostable carry bags/products on the behalf of manufacturer, the details of certificate issued to manufacturer by CPCB shall be submitted along with the application.

3.0 Application Process Timelines:

S. No.	Process	Processing Time
1	Issue of Provisional Certificate (to manufacturer/seller/stockist for marketing and selling of compostable plastic carry bags/products)	Within 30 days from the date of receipt of application (The Application should accompany the Interim test report of the sample (180 day's test report for ultimate aerobic biodegradation, as per provision '6.3' of IS/ISO:17088) from CIPET or any other laboratory, recognized by CPCB for this purpose.
2	Issue of Final Certificate (to manufacturer/seller/stockist for marketing and selling of compostable plastic carry bags/products)	Within 30 days from the receipt of the complete test report of the sample, including seed germination and heavy metal analysis test, as per Indian Standard IS/ISO 17088 (as amended time to time) from CIPET or any other laboratory, recognized by CPCB for this purpose. Note: For Final Certificate, complete test report shall be forwarded to CPCB along with the application or within 10 months from the receipt of the application.

4.0 Testing Protocol:

Specifications for Compostable Materials/Plastics (As per Indian Standard: IS/ISO: 17088)

4.1 Scope:

IS/ISO:17088 Standard specifies procedures and requirements for the identification and labelling of plastics, and products made from plastics, that are suitable for recovery through aerobic composting. The four following aspects are addressed:

- i. Biodegradation;
- ii. Disintegration during composting;
- iii. Negative effects on the composting process and facility;
- iv. Negative effects on the quality of the resulting compost, including the presence of high levels of regulated metals and other harmful components.

This specification is intended to establish the requirements for the labelling of plastic products and materials, including packaging made from plastics, as "**compostable**" or "**compostable in municipal and industrial composting facilities**" or "biodegradable during composting" (for the purposes of this International Standard, these three expressions are considered to be equivalent). The labelling will, in addition, have to conform to all international, regional, national or local regulations.

4.2 Terms and definitions:

i) Biodegradable during composting: Material that undergoes degradation by biological processes during composting to yield CO₂, water, inorganic compounds and biomass at a rate consistent with other known compostable materials and leave no visible, distinguishable or toxic residue.

ii) Catalyst: Substance, used in small proportion, that augments the rate of a chemical reaction and, in theory, remains, unchanged chemically at the end of the reaction.

iii) Compost: Organic soil conditioner obtained by biodegradation of mixture consisting principally of vegetable residues, occasionally with other organic material and having a limited mineral content.

iv) Composting: Aerobic process designed to produce compost.

4.3 Principle:

The purpose of IS/ISO:17088 specification is to establish standards for identifying and labelling plastic products and materials that will compost satisfactorily in well-managed composting facilities where the typical conditions of composting can be consistently obtained (i.e. a long thermophilic phase, aerobic conditions, sufficient water content, a suitable carbon/nitrogen ratio, etc.). Products meeting the requirements outlined below are appropriate for labelling as "compostable", "**compostable in municipal and commercial facilities**" or "**biodegradable during composting**".

The test used simulates an intensive aerobic composting process. It measures:

- i) the ultimate-level of aerobic biodegradation of the test material;
- ii) the degree of disintegration obtained;
- iii) any negative effects on the finished compost;
- iv) the maximum concentration of regulated metals in the compost.

The test is terminated when the plateau phase of the biodegradation has been attained; the standard time for termination is **45 days** , but the test could continue for up to **six months**.

4.4 Basic Requirement: In order to compost satisfactorily, a plastic product or material shall demonstrate each of the following characteristics:

i) Disintegration during composting: The plastic product or material shall disintegrate during composting such that any remaining plastic is not readily distinguishable from the other organic materials in the finished compost. Additionally, the plastic product or material shall not be found in significant quantities during screening prior to final distribution of the compost.

ii) Ultimate aerobic biodegradation: The ultimate level of aerobic biodegradation shall be established by testing under controlled conditions.

iii) No adverse effect on ability of compost to support plant growth: The plastic product or material tested shall have no adverse effect on the ability of the compost to support plant growth, when compared to blank composts to which no test or reference substance has been added at the start of testing. In order to ensure that the composting of plastic products or materials does not have any harmful effects on the finished compost or on the environment and complies with appropriate regional and national regulations, following requirements shall be met:

i) The concentrations of regulated metals and other toxic substances in the plastic product or material shall be less than 50 % of those prescribed for sludges, fertilizers and composts in the country where the final product will be placed on the market or disposed of.

ii) The plastic product or material shall contain a minimum of 50 % of volatile solids.

iii) The seedling germination rate of the finished compost and the plant biomass in the compost shall not be less than **90%** of that of corresponding blank composts to which no test or reference material was added at the start of testing, determined in accordance with OECD Guideline 208 with the modifications specified in **Annex E** of EN 13432:2000.

iv) Compliance with national regulations: Based on the relevant national and/or regional regulations, the plastic product or material shall not, upon decomposition, release unacceptably high levels of regulated metals or other toxic substances into the environment. It is the responsibility of the user to conform to the applicable national and/or regional regulations dealing with metals, other elements and toxic substances in the environment.

v) The term "biodegradable": shall not be used to describe the performance of plastics which meet this specification unless the conditions typically found in composting and described in ISO:14855-1 and ISO 14855-2 are included (for example "**biodegradable during composting**").

4.5 Disintegration during composting:

A plastic product is considered to have demonstrated satisfactory disintegration if, after **84days** in a controlled composting test, no more than 10 % of its original dry mass remains after sieving through a **2.0 mm** sieve. The test shall be carried out in accordance with ISO 16929, ISO 20200, ISO 14855-1 or ASTM D5338 under thermophilic composting conditions without the CO₂-trapping equipment.

4.6 Ultimate aerobic biodegradation:

i) A plastic product is considered to have demonstrated a satisfactory rate and level of biodegradation, when tested in accordance with ISO 14855-1, ISO 14855-2 or ASTM D5338, it achieves the ratio of conversion to carbon dioxide (CO₂) within specified time period. The ultimate aerobic biodegradability shall be determined for the whole material and for each organic constituent which is present in the material at a concentration of more than 1 % (by dry mass). Constituents which are present at concentrations of less than 1% do not need to demonstrate biodegradability, however, the sum of such constituents shall not exceed 5% .

ii) For all polymers, 90% of the organic carbon (relative to a positive-control reference material) shall have been converted to carbon dioxide by the end of the test period. Both the positive control and the test sample shall be composted for the same length of time and the results compared at the same point in time after the activity of both has reached a plateau. The positive control used shall be microcrystalline cellulose.

iii) As an alternative, 90 % (in absolute terms) of the organic carbon shall have been converted to carbon dioxide by the end of the test period.

iv) The test period shall be no longer than **180 days**.

4.7 Marketing and labelling:

i) Plastic products or materials meeting all the requirements specified in **Clause '6'** (IS/ISO:17088) may be labelled "**compostable**" or "**biodegradable during composting**".

ii) The labelling shall conform to international, regional, national or local regulations.

iii) The name of the country where the plastic product or material is to be marketed or recycled by composting shall be indicated.

4.8 Test report:

The test report shall provide all pertinent information, including:

i) All information necessary to identify and describe the product or material tested;

ii) References to all standards, guidelines and regulations regarding the content of regulated metals and other toxic substances (a table of regulated *metals* and other *toxic* substances shall be presented, specifying each such reference and stating the prescribed limit for each metal and other toxic substance, the concentration determined in the test and the percentage of the prescribed limit);

iii) A description of other relevant requirements in the referenced documents and a statement, for each such requirement, as to whether the test result was in conformity with the requirement or not.

5.0 Testing Laboratory:

The compostable products made from 100% bio-based material can be tested in the CIPET or any other laboratory, recognized by CPCB for this purpose. The test shall be carried out as per Indian Standard IS/ISO:17088, as amended time to time. The test report shall include the results of following test:

1. Disintegration during composting.
2. Ultimate aerobic biodegradation.
3. Heavy metal analysis and seed germination.

**Form- A. Application for obtaining certificate from CPCB for Compostable Carry
Bags/Products by Manufacturer**

(Rule 4(1)(h) of Plastic Waste Management Rules, 2016)

S. No.	Item	Detail
1	Company Details	Address:
		Contact No:
		email:
		Tel-fax:
2	Registration from concerned SPCB/PCC	
3	Production details	
(a)	Raw material used (bio-based/non-bio based, nature of additive used etc.); <i>in case of imported material, attach necessary document</i>	
(b)	Manufacturing process along with flow diagrams	
(c)	Details of end products and by-products	
(d)	Plant capacity (as per the consent issued from SPCB/PCC)	
4	Test reports as per Indian Standards IS/ISO: 17088 (as amended time to time) from CIPET or any other laboratory, recognized by CPCB for this purpose	
5	Valid Consent Order from concerned SPCB/PCC	a. Air Consent b. Water Consent
6	Details of pollution control measures.	

Note: 1. Enclose necessary documents wherever applicable.
2. Attach extra sheet for the information where the space is not enough.

Date:
Place:

Signature of the Applicant
(with seal)

Form- B. Application for obtaining certificate from CPCB for Marketing and Selling of Compostable Plastic Carry Bags/Products by Seller/Stockist
(As per Rule 4(1)(h) of Plastic Waste Management Rules, 2016)

S. No.	Item	Detail			
1	Company Details	Address:			
		Contact No:			
		email:			
		Tel-fax:			
2	Registration from Local Body				
3	Product details				
S. No.	Product	Annual sale (kilos/annum)	Complying IS/ISO:17088 (Yes/No)	Proper marking and labelling (Yes/No)	Details of Dealers Stockists and Users of the product
	1	2	3	4	5

- Note:**
1. Enclose necessary documents wherever applicable.
 2. Attach extra sheet for the information where the space is not enough.
 3. In case, seller/stockist is selling compostable carry bags/products on the behalf of manufacturer, the details of certificate issued to manufacturer by CPCB shall be submitted along with the application.

Date:
Place:

Signature of the Seller/Stockist
(with seal)