

INTERIM REPORT

CIPET/CHN-IR/AP/2019-01

17th June, 2019**BIODEGRADABILITY TEST AS PER IS/ISO 17088**

Name of the Party : M/s Arth Bioplast Products Pvt. Ltd.,
Plot No. 2/37, GIDC Estate Phase 3,
Chandrapura, Halol – 389350 (PMS),
Gujarat, India.

Date of Initiation : 11/03/2019

Date of Completion : 09/06/2019

1. Sample detail: (as declared by the party): Compostable bag samples

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

3. Observation

(1) Conditions of reaction mixtures

Origin of compost: Livestock excrement, municipal and vegetable waste

Reaction Temperature : 58⁰C (± 2⁰C)

Dry Solid (%) : 60.1

Volatile content (%) : 38.7

CO₂ evolved during first 10days in blank vessels: 69.3 mg/g of volatile content of compost

Test duration (day) : 90 days

Reference material : Cellulose

Volume of reaction vessel : 3000 ml

(2) pH of test medium

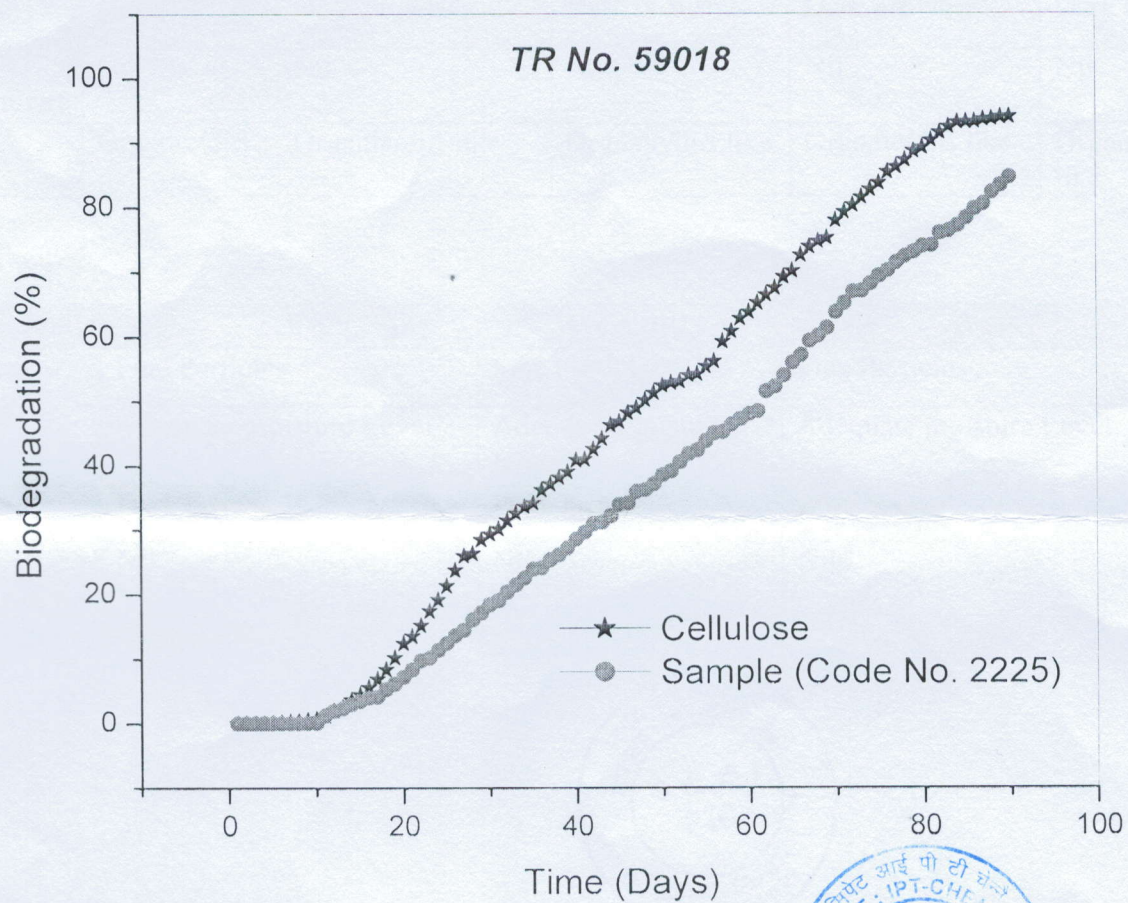
Composting Vessel (Material with test medium)	pH (before)	pH (after)
1 Sample 1	7.5	7.3
2 Sample 2	7.5	7.3
3 Sample 3	7.5	7.3
4 Blank	7.5	7.5
5 Cellulose 1	7.5	7.4
6 Cellulose 2	7.5	7.3
7 Cellulose 3	7.5	7.3
8 Negative	7.5	7.3



4. Result: Percentage biodegradation relative to positive reference

Sample : 90.09%

Positive reference cellulose : ~ 100 %



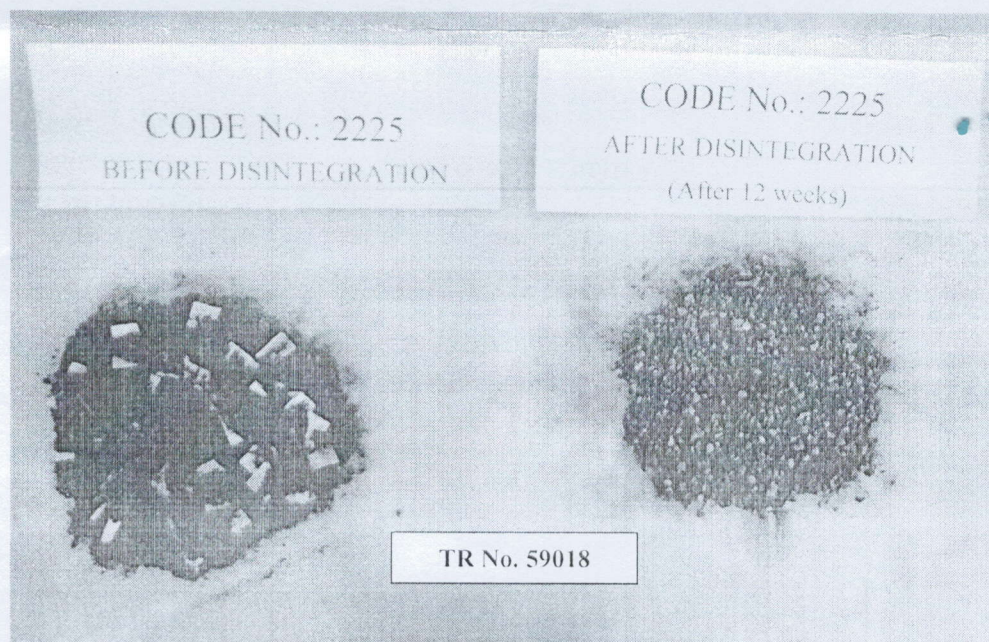
5. Visual Observation

Description	Week 1	Week 2	Week 3	Week 4/5	Week 6/7
Structure	Fine Particles	Fine Particles	Fine Particles	Fine Particles	Fine Particles
Moisture	Adequate moisture Level	Adequate moisture Level	Adequate moisture Level	Adequate moisture Level	Adequate moisture Level
Colour	Dark brown	Dark brown	Dark brown	Dark brown	Dark brown
Fungal Development	Nil	Nil	Nil	Nil	Nil
Smell	Organic/dirt like	Organic/dirt like	Organic/dirt like	Organic/dirt like	Organic/dirt like

Description	Week 8/9	Week 10/11	Week 12
Structure	Fine Particles	Fine Particles	Fine Particles
Moisture	Adequate moisture Level	Adequate moisture Level	Adequate moisture Level
Colour	Dark brown	Dark brown	Dark brown
Fungal Development	Nil	Nil	Nil
Smell	Organic/dirt like	Organic/dirt like	Organic/dirt like



6. Disintegration- After 12 weeks



Comment

Percentage of disintegration of submitted sample is determined based on the sieve analysis and visual examination. After 12 weeks the sample is passed through 2.0 mm sieve and total mass retained is determined as 5.9%. Further, the submitted sample is not distinguishable in the organic compost. The above observation indicates that the submitted sample demonstrates satisfactory disintegration.

Note

The submitted sample is exposed under controlled compost condition as per ISO 14855-1 and at the end of 90 days, the cumulative biodegradation is estimated as 90.09% with reference to the degradation of the cellulose. The test is being continued as per IS/ISO 17088 to evaluate Seed germination and heavy metal analysis. The final report will be issued after completion of the above tests.

Authorized Signatory

