



परीक्षण रिपोर्ट  
TEST REPORT

क्र.सं / Sl. No. **20957**

रिपोर्ट सं / REPORT NO. : **57696 B**

Pages.....Nos. Part A,B,C & D

दिनांक / Date : **22.05.2019**

को जारी / Issued to :

**M/s. Barnett Polypet Pvt. Ltd.,**

**Brand Name: "Unigreen",**

**F-7, Satyamev Complex – 2, Opp. Kargil Petrol Pump,**

**Near Gujarat High Court, S.G. Highway,**

**Ahmedabad – 380 060.**

संदर्भ / Ref. : **Dated: 04.07.2018**

परीक्षण मानक स्तर के अनुसार परीक्षण रिपोर्ट / TEST REPORT AS PER TEST STANDARD : Refer Part C

भाग - क / PART - A

प्रस्तुत सैपिल का विवरण / PARTICULARS OF SAMPLE SUBMITTED

- अ) सैपिल का नाम / a) Name of the Sample : Carry bags, Grocery bags and films  
Brand Name: Unigreen  
-as stated by the party
- आ) सैपिल प्राप्त होने की तारीख / b) Date of Receipt of sample : 05.07.2018
- इ) ग्रेड/प्रकार/आकार/वर्ग / c) Grade / variety / type / size / class : Not applicable
- ई) घोषित मूल्य / d) Declared value, If any : Not applicable
- उ) कोड सं. / e) Code No. : Not applicable
- ऊ) बैच सं. एवं निर्माण तारीख / f) Batch No. and Date of Manufacture: Not applicable
- ऋ) मात्रा / g) Quantity : 01 Packet
- ए) पैकिंग की रीति / h) Mode of Packing : Packed in cloth line cover
- ऐ) मोहर बंद या नहीं / i) Sealed or not : Not Sealed
- ओ) कोई अन्य सूचना / j) Any other information : --

भाग - ख / PART - B

अनुपूरक सूचनाएँ / SUPPLEMENTARY INFORMATIONS

- अ) सैपिलिंग कार्यवाहियों हेतु संदर्भ / a) Reference to sampling procedure : Sampling not done by this lab
- आ) माप करने हेतु लिए गए सहायक दस्तावेज एवं प्राप्त परिणाम  
ब) Supporting documents for the measurement taken and result derived : As given in Part C
- इ) संबंधित कार्य अनुदेशों में निर्धारित के अनुसार परीक्षण रीति से कोई परिवर्तन  
c) Deviation from the test method as prescribed in relevant work instructions, if any : No deviation from the standard

सिपेट : इंस्टिट्यूट ऑफ प्लास्टिक्स टे

(रसायन एवं उर्वरक मंत्रालय, भारत सरकार)

गिण्टी, चेन्नै - 600 032.

फोन : 91-44-2225 4701-6 फैक्स : 91-44-22254707

ई-मेल : chennai@cipet.gov.in वेबसाइट : www.cipet.gov.in



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भाग - ग / PART - C

परीक्षण परिणाम / TEST RESULTS

Test Duration: 05.07.2018 to 22.05.2019

Sl.No.	Property	Standard	Unit	Results obtained	Specified Requirements
1.	Material Identification by FTIR	--	--	Blend of Poly Lactic Acid (PLA) and Poly Butylene Adipate co-terephthalate (PBAT)	--
2.	Disintegration (Dry mass passing through 2mm sieve after 84 days)	ISQ-17088 / IS-17088	%	94.4	Greater than 90
3.	Ultimate Aerobic Biodegradation (with reference to 100% degradation of positive reference)	ISO-17088 / IS-17088	%	91.06	Greater than 90
4.	Plant Growth study a) Rice % Seed emergence b) Tomato % Seed Emergence	ISO-17088 / IS-17088	%	92 92	Greater than 90 Greater than 90

(Contd...)

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सिपेट : इंस्टिट्यूट ऑफ प्लास्टिक्स टेक्नॉलॉजी

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4.	Plant Growth study a) Rice % Seed emergence	ISO-17088 IS-17088	%	92	Greater than 90
	b) Tomato % Seed Emergence		%	92	Greater than 90

(Contd...)



## BIODEGRADABILITY TEST AS PER IS/ISO 17088

**1. Sample detail:** Carry bags, Grocery bags and film. Brand name “Unigreen” (as declared by the party)

### **2. Observation**

#### (1) Conditions of reaction mixtures

Origin of compost: Livestock excrement, municipal and vegetable waste

Reaction Temperature : 58<sup>0</sup>C (± 2<sup>0</sup>C)

Dry Solid (%) : 52.8

Volatile content (%) : 32.9

CO<sub>2</sub> evolved during first 10days in blank vessels : 55.9 mg/g of volatile content of compost

Test duration (day) : 132 days

Reference material : Cellulose

Volume of reaction vessel : 3000 ml

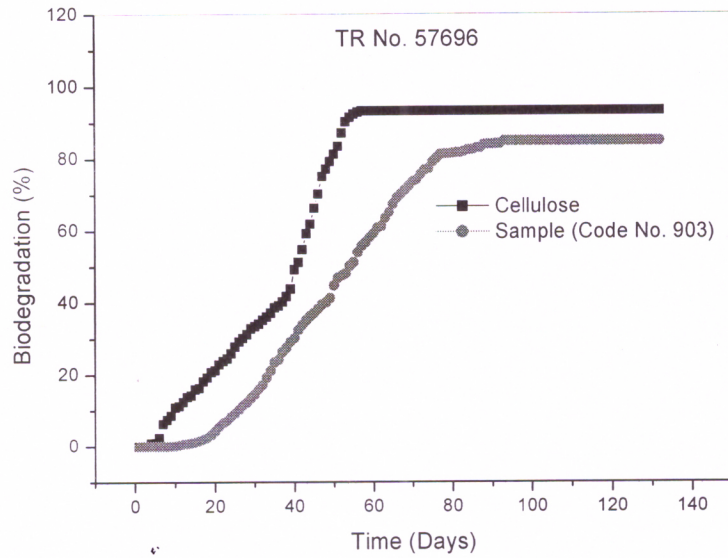
#### (2) pH of test medium

S.No	Composting Vessel (Material with test medium)	pH (before)	pH (after)
1	Sample 1	7.5	7.4
2	Sample 2	7.5	7.2
3	Sample 3	7.5	7.3
4	Blank	7.5	7.4
5	Cellulose 1	7.5	7.3
6	Cellulose 2	7.5	7.3
7	Cellulose 3	7.5	7.2
8	Negative	7.5	7.5

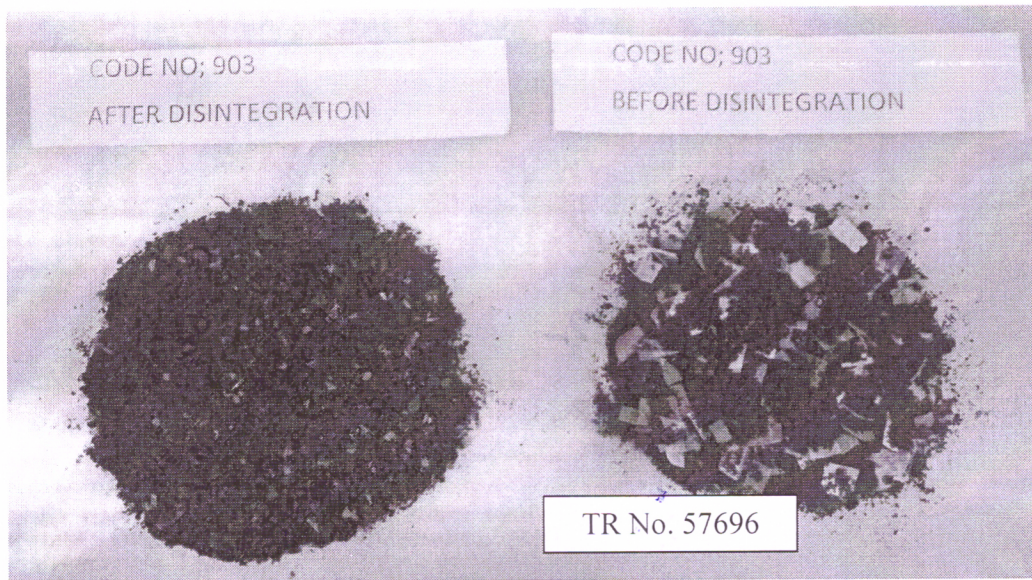




**3. Result:** Percentage biodegradation relative to positive reference  
Sample (Mean of 3 replicates) : 91.06%  
Positive reference cellulose : ~ 100 %



**4. Disintegration- After 12 weeks**





### 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 12/13
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

Description	Week 8/9	Week 10/11	Week 12/13	Week 14/15
Structure	Fine Particles	Fine Particles	Fine Particles	Fine Particles
Moisture	Adequate moisture Level	Adequate moisture Level	Adequate moisture Level	Adequate moisture Level
Colour	Dark brown	Dark brown	Dark brown	Dark brown
Fungal Development	Nil	Nil	Nil	Nil
Smell	Organic/dirt like	Organic/dirt like	Organic/dirt like	Organic/dirt like

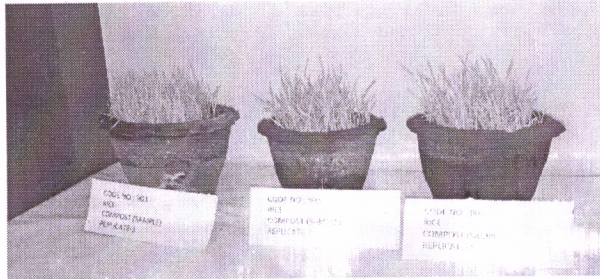
Description	Week 16/17	Week 18
Structure	Fine Particles	Fine Particles
Moisture	Adequate moisture Level	Adequate moisture Level
Colour	Dark brown	Dark brown
Fungal Development	Nil	Nil
Smell	Organic/dirt like	Organic/dirt like





## 6. Plant Growth Study

Paddy growth in sample degraded compost



Paddy growth in control compost



Tomato growth in sample degraded compost



Tomato growth in control compost



*[Handwritten Signature]*  
Authorized Signatory

