KERONE

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ELECTRO MAGNETIC innovative technologies

Kerone Research & Development Centre (KRDC),
B/47, Addl. MIDC. Anand Nagar, Ambernath (East), Thane- 421 506, India
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Batch Convection Heat Treatment for Drying of Waste Plastic

ISO 9001-2008 | ISO 9001-2015 | EMS 14001 | OHSAS 18001
In Association with SVCH-Technologii, Moscow (Russia)

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Customer :	**M/s. Pyrotask Energy**
Process :	**Batch Convection Heat Treatment for Drying of Waste Plastic**

TEST REPORT No: 47/KRDC/LAB/17 Mum 30/10/2018

Date Sample reception : 30/10/2018
ID : 47/LAB/64

SAMPLE DESCRIPTION:

Sampling : As Requested
Sample Condition : Acceptable
Quantity : 10 kg
Sampling date : 30/10/2018
Product : Waste Plastic
Requirement : Drying
Start Date test : 03/11/2018
End Date test : 03/11/2018

LABORATORY EXPERIMENTAL SET UP:

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LAB BATCH CONVECTION HEATING SYSTEM SPECIFICATIONS:

Heating Zone (width*height*depth)	510*480*410 mm
No. of Heaters	6
Total Heater Power	6 kW
Motor	0.5 HP
Centrifugal Exhaust Blower	1440 rpm
No. of trays	6
Tray size (width*height*depth)	560*25*435 mm

ENVIRONMENT-LABORATORY AMBIENT CONDITIONS:

Temperature (degree C)	28.5^{o}C (±5^{o}C)
Humidity (%)	≤60% RH
Pressure (kN/m2 or kPa)	Not recorded

Note for recommendation: Environmental conditions have a direct impact on test results. Accuracy and consistency of test data are affected by the laboratory conditions

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EQUIPMENTS USED:

Name of Equipment	Picture of Equipment	Specifications
Compact Thermal Imaging Camera		Model: FLIR E-30 Resolution: 160x 120 IR Thermal sensitivity of 0.10°C
Thermo Hygrometer		Model No: HTC-2 Temperature accuracy: ±°C (1.8°F) Temperature resolution: 0.1°C (0.2°F) Humidity range: 10%~99% RH Humidity accuracy: ±5% RH Humidity resolution: 1% RH

SAMPLE PREPARATION AND METHOD/PROCEDURE:

The experiment has been performed on waste plastic to speed up the drying rate. For this experimental run, waste plastic has been dipped in water for 3-5 minutes for cleaning and then drained plastic on perforated tray has placed in such manner that it forms uniform layer for uniform drying. Initial weight before drying, final weight after drying has been taken.

ANALYTICAL RESULTS:

Initial weight (grams)	1000
Setting Temperature(°C)	60
Total Drying Time (hours)	1
Final weight (grams)	967
Total Weight Loss (%)	3.3

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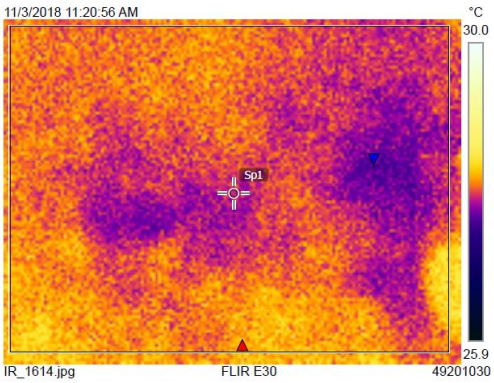
THERMAL IMAGE BEFORE AND AFTER HEAT TREATMENT:

1. **Before Heat Treatment:**

Measurements		
Bx1	Max	28.6 °C
	Min	27.3 °C
	Average	28.0 °C
Sp1		28.0 °C

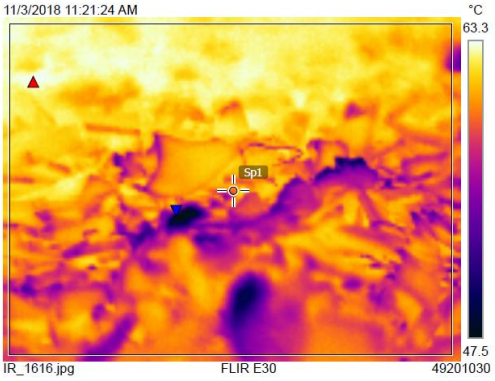
Parameters	
Emissivity	0.95
Refl. temp.	20 °C



2. **After Heat Treatment:**

Measurements		
Bx1	Max	63.3 °C
	Min	46.7 °C
	Average	59.8 °C
Sp1		59.2 °C

Parameters	
Emissivity	0.95
Refl. temp.	20 °C



BEFORE AND AFTER PICTURES OF SPECIMEN SAMPLE:

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OBSERVATIONS:

The Drying behavior of wet waste plastic has been investigated under the convection heating system. The drying rate is found to be increasing with respect to increasing drying time. It has been found that the moisture on the dry basis (%) decreases with respect to increase in drying time. As per physical investigation, it has been observed that there is no change in final treated material.

K Komal

Miss Komal Bhoite
Tested By