

Kerone Research & Development Centre (KRDC), B/47, Addl. MIDC. Anand Nagar, Ambarnath (East), Thane- 421 506, India
Tel- +91-251-2620542/13/44/45/46, Email-info@kerone.com, www.kerone.com

Customer :	M/s. Adept Impex Private Limited
Process :	Continuous Microwave+Infrared Heat Treatment for Drying of Neem Leaves

TEST REPORT No: 47/KRDC/LAB/17 Mum 24/07/2018

Date Sample reception : 24/07/2018
ID : 47/LAB/51

SAMPLE DESCRIPTION:

Sampling : As Requested
Sample Condition : Acceptable
Quantity : 1 bag
Sampling date : 24/07/2018
Product : Neem leaves
Requirement : Treated leaves should be almost dry with minimum moisture content
Start Date test : 24/07/2018
End Date test : 24/07/2018

LABORATORY EXPERIMENTAL SET UP:



Format: F/R&D/01

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LAB MICROWAVE+INFRARED HEATING SYSTEM SPECIFICATIONS:

Microwave Power	3 kW(CW) at 90% output
Frequency	2450 MHz \pm 50
Infra-red Power	4 kW
Microwave Exposure Zone (Cavity)	2200 mm length wise
Infrared Exposure Zone (Cavity)	2000 mm length wise
Web width	400 mm
Entry Vestibule length	2000 mm
Exit Vestibule Length	2000 mm
Exhaust Power	0.5 HP

ENVIRONMENT-LABORATORY AMBIENT CONDITIONS:



Temperature (degree C)	26.8°C (\pm 5°C)
Humidity (%)	\leq 85 % RH
Pressure (kN/m ² 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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Tel- +91-251-2620542/13/44/45/46, Email-info@kerone.com, www.kerone.com**EQUIPMENTS USED:**

Name of Equipment	Picture of Equipment	Specifications
Moisture Analyzer		Make: Axis Balance Description: Moisture range: 1%(sample 0.02/0.05g), 0.1% (Sample 0.5/5g), 0.01%(Sample>5g)
Thermo Hygrometer		Model No: HTC-2 Temperature accuracy: $\pm^{\circ}\text{C}$ (1.8 $^{\circ}\text{F}$) Temperature resolution: 0.1 $^{\circ}\text{C}$ (0.2 $^{\circ}\text{F}$) Humidity range: 10%~99% RH Humidity accuracy: $\pm 5\%$ RH Humidity resolution: 1% RH

SAMPLE PREPARATION AND METHOD/PROCEDURE:

The experiment has been performed on neem leaves which were dried in continuous microwave+infrared heating system without adding any additive to speed up the drying rate. Neem leaves on conveyor has placed in such a manner that it forms uniform layer for air to circulate for achieving even drying characteristics. The observations are made on the basis of moisture content and colour change of material.

ANALYTICAL RESULTS:**Initial Moisture Content: 59.65%****Conveyor speed: 0.5 Hz****Magnetron 1 Intensity: 89%****Magnetron 2 Intensity: 85%****Magnetron 3 Intensity: 87%****IR Lamp temperature: 60 $^{\circ}\text{C}$** **Microwave Exposure Time: 8 minutes****Total Cycle Time: 16 minutes****Final Moisture Content: 6.25%****Format: F/R&D/01**

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OBSERVATIONS:

The Drying behavior of neem leaves has been investigated under the microwave+infrared irradiation mode dryer. It has been found that the moisture content on the dry basis (%) decreases with respect to increase drying time. As per physical investigation, it has been observed that there is uniform heating and no burning effect.



Miss Komal Bhoite
Tested By

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