

Kerone Research & Development Centre (KRDC), B/47, Addl. MIDC. Anand Nagar, Ambarnath (East), Thane- 421 506, India
Tel- +91-251-2620542/43/44/45/46, Email-info@kerone.com, www.kerone.com

Customer :	Laboratory Experimental Analysis
Process :	Batch Microwave+Convection Heat Treatment for Dehydration of Cooked food

TEST REPORT No: 47/KRDC/LAB/17 Mum 17/05/2018

Date Sample reception : 17/05/2018
ID : 47/LAB/36

SAMPLE DESCRIPTION:

Sampling : As Requested
Sample Condition : Acceptable
Quantity : 2 containers
Sampling date : 19/05/2018
Product : Cooked food (Dal tadka and mix veg)
Requirement : Final product should be dried like powder form with minimum moisture content
Start Date test : 19/05/2018
End Date test : 19/05/2018

LABORATORY EXPERIMENTAL SET UP:



Format: F/R&D/01

The value obtained is already corrected for possible recover value stated, if applicable. This document may not be reproduced or disclosed wholly or partly in any part thereof without the written consent of the laboratory management or customer. This document relates only to the specimen samples processed. The processed sample will be kept in this laboratory for 7 days from the date of heat treatment.

Kerone Research & Development Centre (KRDC), B/47, Addl. MIDC. Anand Nagar, Ambarnath (East), Thane- 421 506, India
Tel- +91-251-2620542/43/44/45/46, Email-info@kerone.com, www.kerone.com

LAB BATCH MICROWAVE+CONVECTION HEATING SYSTEM SPECIFICATIONS:

Microwave Power	2 kW(CW)
Frequency	2450 MHz \pm 50
Convective Power	3.5 kW (air flow 350 l/min at 20°C)
Microwave Exposure Zone (cavity)	1 cubic meter
Mode Stirrer	One
Thermal Monitoring System	Single Channel Fiber Optic: Range -40 to 250°C
Exhaust Power	1HP
Tray Size	450x950x50 mm

ENVIRONMENT-LABORATORY AMBIENT CONDITIONS:

Temperature (degree C)	31.5°C (\pm 5°C)
Humidity (%)	\leq 60% 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

EQUIPMENTS USED:

Name of Equipment	Picture of Equipment	Specifications
Thermo Hygrometer		<p>Model No: HTC-2</p> <p>Temperature accuracy: \pm°C (1.8°F) Temperature resolution: 0.1°C (0.2°F)</p> <p>Humidity range: 10%~99% RH Humidity accuracy: \pm5% RH Humidity resolution: 1% RH</p>

Format: F/R&D/01

The value obtained is already corrected for possible recover value stated, if applicable. This document may not be reproduced or disclosed wholly or partly in any part thereof without the written consent of the laboratory management or customer. This document relates only to the specimen samples processed. The processed sample will be kept in this laboratory for 7 days from the date of heat treatment.

Kerone Research & Development Centre (KRDC), B/47, Addl. MIDC. Anand Nagar, Ambarnath (East), Thane- 421 506, India
Tel- +91-251-2620542/43/44/45/46, Email-info@kerone.com, www.kerone.com

SAMPLE PREPARATION AND METHOD/PROCEDURE:

The experiment has been performed on cooked food in batch microwave heating system for dehydration treatment. For this, given cooked food samples has been placed on microwave safe tray with uniform layer to achieve even drying characteristics in microwave system. Drying treatment has been continued till it gives dry powder form of texture. After every half hour pictures of dried samples has been captured.

SETTING PARAMETERS:

Microwave Power: 0.5 kW

Temperature: 45°C

Total Drying Time: 4.5 hours

SAMPLE PICTURES DURING TRIAL:

1. Initial (Before Heat Treatment):



2. After 30 minutes:



Format: F/R&D/01

The value obtained is already corrected for possible recover value stated, if applicable. This document may not be reproduced or disclosed wholly or partly in any part thereof without the written consent of the laboratory management or customer. This document relates only to the specimen samples processed. The processed sample will be kept in this laboratory for 7 days from the date of heat treatment.

Kerone Research & Development Centre (KRDC), B/47, Addl. MIDC. Anand Nagar, Ambarnath (East), Thane- 421 506, India
Tel- +91-251-2620542/43/44/45/46, Email-info@kerone.com, www.kerone.com

3. After 60 minutes:



4. After 90 minutes:



5. After 120 minutes:



Format: F/R&D/01

The value obtained is already corrected for possible recover value stated, if applicable. This document may not be reproduced or disclosed wholly or partly in any part thereof without the written consent of the laboratory management or customer. This document relates only to the specimen samples processed. The processed sample will be kept in this laboratory for 7 days from the date of heat treatment.

Kerone Research & Development Centre (KRDC), B/47, Addl. MIDC. Anand Nagar, Ambarnath (East), Thane- 421 506, India
Tel- +91-251-2620542/43/44/45/46, Email-info@kerone.com, www.kerone.com

6. After 150 minutes:



7. After 180 minutes:



8. After 210 minutes:



Format: F/R&D/01

The value obtained is already corrected for possible recover value stated, if applicable. This document may not be reproduced or disclosed wholly or partly in any part thereof without the written consent of the laboratory management or customer. This document relates only to the specimen samples processed. The processed sample will be kept in this laboratory for 7 days from the date of heat treatment.

Kerone Research & Development Centre (KRDC), B/47, Addl. MIDC. Anand Nagar, Ambarnath (East), Thane- 421 506, India
Tel- +91-251-2620542/43/44/45/46, Email-info@kerone.com, www.kerone.com

9. After 240 minutes:



10. After 270 minutes:



OBSERVATIONS:

The Drying behavior of cooked food has been investigated under the microwave+convection heating system. The drying rate is found to be increasing with respect to increasing drying time. 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 crunchiness in texture without burning and there is little colour change to dark reddish.

K Komal

**Miss Komal Bhoite
Tested By**

Format: F/R&D/01

The value obtained is already corrected for possible recover value stated, if applicable. This document may not be reproduced or disclosed wholly or partly in any part thereof without the written consent of the laboratory management or customer. This document relates only to the specimen samples processed. The processed sample will be kept in this laboratory for 7 days from the date of heat treatment.