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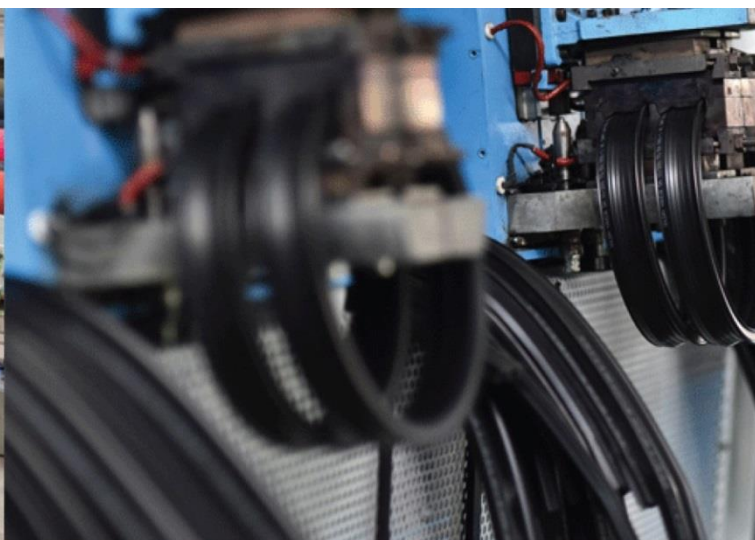


ELECTRO MAGNETIC innovative technologies

Kerone Research & Development Centre (KRDC),

B/47, Addl. MIDC. Anand Nagar, Ambernath (East), Thane- 421 506, India

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**Batch Microwave+Convection Heat
Treatment for Sterilization of Rice brawn**

ISO 9001-2008 | ISO 9001-2015 | EMS 14001 | OHSAS 18001

In Association with SVCH-Technologii, Moscow (Russia)



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Customer :	Laboratory Experimental Analysis
Process :	Batch Microwave+Convection Heat Treatment for Sterilization of Rice Brawn

TEST REPORT No: 47/KRDC/LAB/17 Mum 11/01/2019

Date Sample reception : 11/01/2019

ID : 47/LAB/85

SAMPLE DESCRIPTION:

Sampling : As Requested

Sample Condition : Acceptable

Quantity : 15 kg

Sampling date : 25/01/2019

Product : Rice Brawn

Requirement : Sterilization

Start Date test : 25/01/2019

End Date test : 25/01/2019

LABORATORY EXPERIMENTAL SET UP:





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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 (°C)	28.1°C (\pm 5°C)
Humidity (%)	\leq 64% 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
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: $\pm 1^\circ\text{C}$ (1.8°F) Temperature resolution: 0.1°C (0.2°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 rice brawn to speed up the drying rate for sterilization treatment. For this experimental run, given rice brawn has been seal packed in plastic bags and placed in batch microwave+convection heating system for various setting parameters like microwave power, setting temperature and cycle time. The observations are made on the basis of temperature on product and colour change in product.

ANALYTICAL RESULTS:

Sr. No.	Microwave Power (kW)	Setting Temperature (°C)	Cycle Time (minutes)	Temperature on Product (°C)
1.	1	100	6	75-80
2.	1.5	130	5	85-88
3.	2	150	4	88-90



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BEFORE AND AFTER PICTURES OF TREATED SPECIMEN SAMPLE:



OBSERVATIONS:

The Drying behavior of rice brawn has been investigated under the microwave irradiation mode dryer for sterilization treatment. As per physical investigation, it has been observed that there is no colour change in any of the sample, no damage to plastic bag also.

K Komal

Miss Komal Bhoite
Tested By