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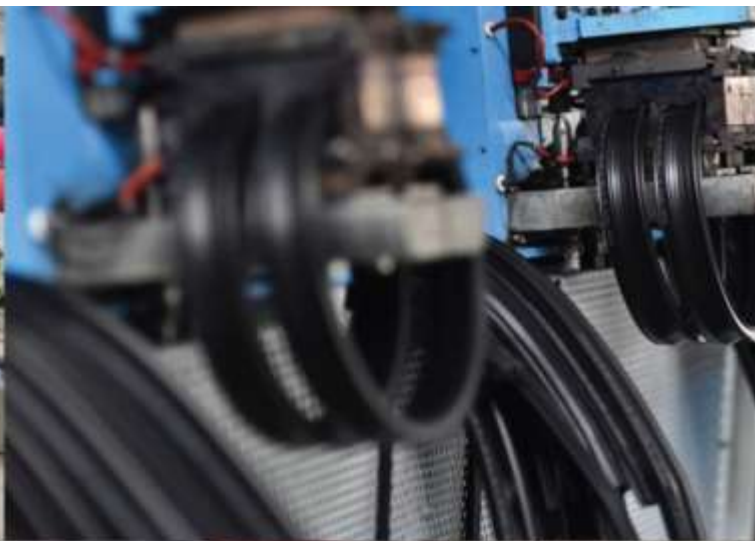
A.M.P.E.R.E (EUROPE)

In Association With



ELECTRO MAGNETIC innovative technologies

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



**Batch Microwave+Convection Heat
Treatment for Sterilization of Candy Pulp**

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



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Customer :	M/s. Go Desi Foods Pvt Ltd
Process :	Batch Microwave+Convection Heat Treatment for Sterilization of Candy Pulp

TEST REPORT No: 47/KRDC/LAB/17 Mum 08/02/2021

Date Sample reception : 08/02/2021

ID : 47/LAB/186

SAMPLE DESCRIPTION:

Sampling : As Requested
 Sample Condition : Acceptable
 Quantity : 6-7 kg
 Sampling date : 09/02/2021
 Product : Mango and Imlu Candy Pulp
 Requirement : Sterilization
 Start Date test : 09/02/2021
 End Date test : 09/02/2021

LABORATORY EXPERIMENTAL SET UP:**Format: F/R&D/01**

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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 (degree C)	28°C (\pm 5°C)
Humidity (%)	\leq 30% 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



RESEARCH & DEVELOPMENT ASSOCIATES


KERONE
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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: $\pm^{\circ}\text{C}$ (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 given sample of Mango and Imli candy pulp to speed up the heating rate for sterilization treatment. For this experimental run, given sample has been placed in microwave transparent tray with layer of about 50-70 mm and microwave exposure has been given with different parameters. The observations are made on the basis of the temperature on product and taste of product.

ANALYTICAL RESULTS:

Trial No.	Mango Pulp	Imli Pulp
1.	Microwave Power: 0.6 kW Cycle Time: 5 minutes Temp on Product: 65-70°C	Microwave Power: 0.6 kW Cycle Time: 5 minutes Temp on Product: 70-75°C
2.	Microwave Power: 0.8 kW Cycle Time: 5 minutes Temp on Product: 75-80°C	Microwave Power: 0.8 kW Cycle Time: 5 minutes Temp on Product: 75-80°C

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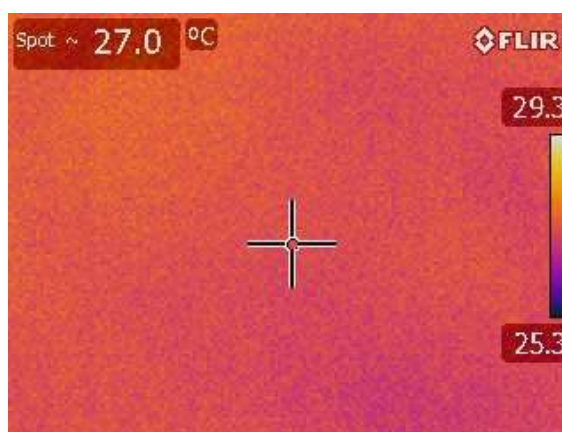
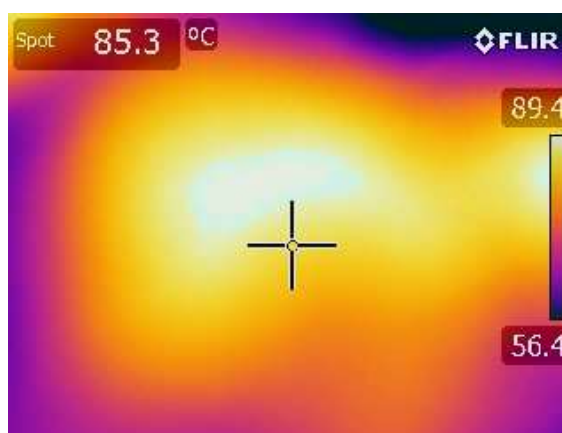
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3.	Microwave Power: 1 kW Cycle Time: 4 minutes Temp on Product: 80-90°C	Microwave Power: 1 kW Cycle Time: 4 minutes Temp on Product: 80-90°C
4.	<u>Trial on candies:</u> Microwave Power: 0.8 kW Cycle Time: 5 minutes Temp on Product: 80-90°C	<u>Trial on candies:</u> Microwave Power: 0.8 kW Cycle Time: 5 minutes Temp on Product: 90-95°C

THERMAL IMAGE BEFORE AND AFTER HEAT TREATMENT:**1. Before Heat Treatment:****2. After Heat Treatment:****Format: F/R&D/01**

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BEFORE AND AFTER PICTURES OF TREATED SPCIMEN SAMPLE:

1. Mango Pulp:



BEFORE



AFTER

2. Imli Pulp:



BEFORE



AFTER

3. Candies:



BEFORE



AFTER

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MEMBER OF A.M.P.E.R.E (EUROPE)

MEMBER OF AIMCAL (USA)

IN ASSOCIATION WITH EMitech, ITALY



RESEARCH & DEVELOPMENT Associates Pvt. Ltd.



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OBSERVATIONS:

The Heating behavior of Candy pulp has been investigated under the microwave irradiation mode system for sterilization treatment. As per physical investigation, it has been observed that there is no colour change with required temperature on product.

Miss. Komal Bhoite

Tested By

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