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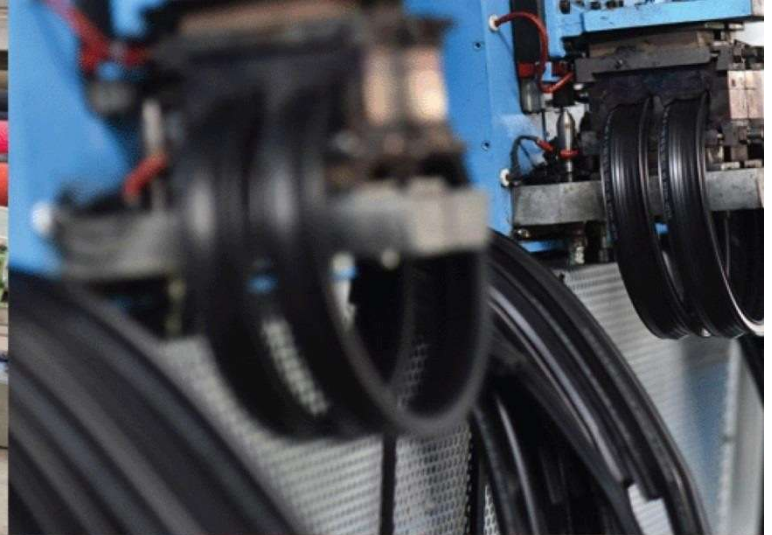
A.M.P.E.R.E (EUROPE)

In Association With



ELECTRO MAGNETIC Innovative technologies

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



**Gas Infra-red Heat Treatment for
baking of Bebinca**

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

In Association with SVCH-Technologii, Moscow (Russia)



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Customer :	M/s. Costa and Company Pvt. Ltd.
Process :	Gas Infra-red Heat Treatment for baking of Bebinca.

TEST REPORT No: 51/KRDC/LAB/17 Mum 01/02/2022

Date Sample reception : 31/01/2022
ID : 51/LAB/31

SAMPLE DESCRIPTION:

Sampling : As Requested
Sample Condition : Acceptable
Quantity : 500gms each
Sampling date : 31/01/2022
Product : liquid batter
Requirement : Baking of bebinca forming layers properly.
Start Date test : 31/01/2022
End Date test : 31/01/2022

LABORATORY EXPERIMENTAL SET UP:





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LAB GAS INFRARED HEATING SYSTEM SPECIFICATIONS:

Heating area	175mm × 270mm
Working area	450mm × 450mm × 400mm
Temperature Range	0-850°C
No .of IR burner	2
Material	Ceramic surface

ENVIRONMENT-LABORATORY AMBIENT CONDITIONS:



Temperature (degree C)	26°C (±5°C)
Humidity (%)	≤78% 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 120IR 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 gas infra-red heating system. For this experimental run, the sample has been placed in a molding container and baked layer by layer under gas IR heating system with suitable parameters. The final observations are made on the on-product temperature and appearance.



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ANALYTICAL RESULTS:

TRAIL 1

Height: 240 mm

Burner flames: low

Exposure time: 1hr 3 min.

No. of layers	Total time	On product Temperature
After 1 st layer	1 min 53 sec.	109°C
After 5 TH layer	25 min 33 sec.	123°C
After 10 TH layer	1 hour 3 min.	155°C

TRAIL 2

Height: 300 mm

Burner flames: lowest

Exposure time: 1hr 36 min.

No. of layers	Total time	On product Temperature
After 1 st layer	6 min.	108°C
After 5 TH layer	49 min 43 sec.	114°C
After 10 TH layer	1 hour 36 min.	110°C



TRAIL 3

Height: 240 mm

Burner flames: lowest

Exposure time: 1hr 50 min.

No. of layers	Total time	On product Temperature
After 1 st layer	6 min 45 sec.	106°C
After 5 TH layer	58 min 45 sec.	114°C
After 10 TH layer	1 hour 36 min.	118°C

TRAIL 4

Height: 220 mm

Burner flames: lowest

Exposure time: 2hr.

No. of layers	Total time	On product Temperature
After 1 st layer	9 min 50 sec.	102°C
After 5 TH layer	1 hour 2 min.	114°C
After 10 TH layer	2 hour	113°C



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PICTURES OF TREATED SPECIMEN SAMPLE:

240 mm (low flame) – 1 hr 3 mins.



300 mm (lowest flame)- 1hr 36 mins



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240 mm (lowest flame)- 1hr 50 min.



220 mm (lowest flame)- 2hr



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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.



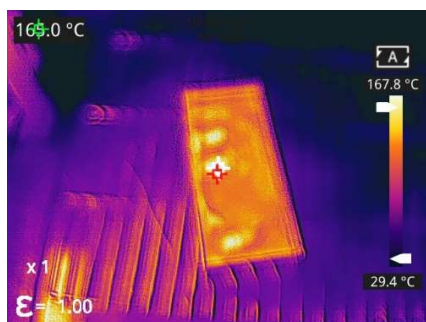
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THERMAL ANALYSIS REPORTS:



Trial 1



Trial 2



Trial 3



Trial 4

OBSERVATIONS:

The baking behavior of bebinca batter has been investigated under the infra-red gas heating system. As per physical investigation, it has been observed that there is no bubble formation after heat treatment at lowest flame, also at the 240 mm height between mold and burner result in formation of layers as required, but some burning spots are also observed.

Ms. Sayali Asole
Tested By

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