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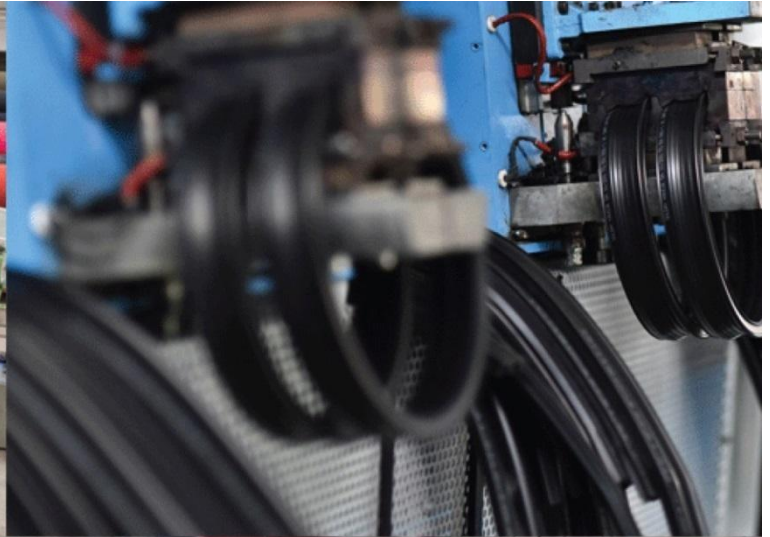
A.M.P.E.R.E(EUROPE)

In Association With



ELECTRO MAGNETIC innovative technologies

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



**Batch Electric Tray Dehydration
of Mint**



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Customer :	M/s. Gramin Tantradnyan Sanstha
Process :	Batch Electric Tray Dehydration of Mint

TEST REPORT No: 118/KRDC/LAB/66 Mum 26/07/2022

Date Sample reception : 25/07/2022
ID : 118/LAB/26

SAMPLE DESCRIPTION:

Sampling : As Requested
Sample Condition : Acceptable
Samples opening date : 25/07/2022
Product : Mint
Requirement : Moisture less than 10%
Start Date test : 25/07/2022
End Date test : 26/07/2022

LABORATORY EXPERIMENTAL SETUP:



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SYSTEM SPECIFICATIONS:

Heating Zone (width*height*depth)	1190W *1950D *1950H
Total Heater Power	36 kW
No. of trays	72
Tray size	813W*407D*35H

ENVIRONMENT-LABORATORY AMBIENT CONDITIONS:

Temperature (°C)	26°C (±5°C)
Humidity (%)	≤74% 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 120 IR Thermal sensitivity of 0.10°C
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°C (1.8°F) Temperature resolution: 0.1°C (0.2°F) Humidity range: 10%~99% RH Humidity accuracy: \pm5%RH Humidity resolution: 1%RH

SAMPLE PREPARATION AND METHOD/PROCEDURE:

The experiment has been performed on Mint to speed up the drying rate. For this experimental run, given sample has been placed on a perforated tray and then placed in Horizontal Batch Convection Oven at certain decided temperature and time cycle. Observations are made on the final moisture content of sample weight and appearance of product.

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ANALYTICAL RESULTS:

Trial 1: (sample without chopping)

Initial Wt. of Sample – 1.8 kg

Initial moisture – 87.5%

Setting Temperature: (55-60) °C

Sr. No	Cycle Time	Product Temp. (°C)	Remarks, if any
1	After 1 hour.	(40-42)	Drying starts
2	After 1 hour 45 min.	(45-59)	Dried effectively as desired Color: darkened

Total Cycle time- 1 hour 45 min.

Final Weight- 224gms.

Final moisture – 10.8%

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Trial 2 (sample without chopping)

Initial Wt. of Sample – 1 kg

Initial moisture – 87.5%

Setting Temperature: 55°C

Sr. No	Cycle Time	Product Temp. (°C)	Remarks, if any
1	After 2 hours.	(50-53)	Drying starts
2	After 3 hours.	(53-55)	Drying continues
3	After 4 hours.	(53-51)	Dried effectively as desired Color: some retained some darkened

Total Cycle time- 4 hours.

Final Weight- 103 gms.

Final moisture – 9.6%



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Trial 3: (Chop sample)

Initial Wt. of Sample - 22gms

Initial moisture – 87.5%

Setting Temperature: (45-50) °C

Sr. No	Cycle Time	Product Temp. (°C)	Remarks, if any
1	After 1 hour.	(50-53)	Drying starts
2	After 2 hour.	(53-55)	Drying continues
3	After 3 hour.	(40-42)	Dried effectively as desired Color: retained

Total Cycle time- 3 hour.

Final Weight- 138gms.

Final moisture – 5.7%

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BEFORE AND AFTER PICTURES OF TREATED SPECIMEN SAMPLE:

Untreated

Treated





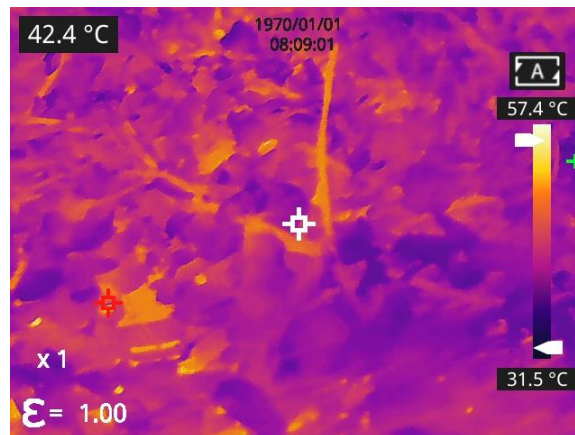
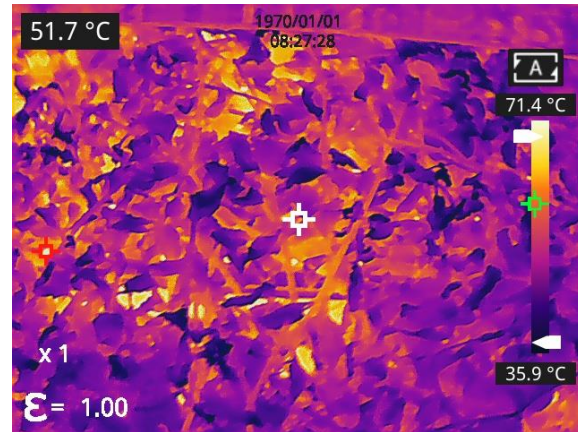
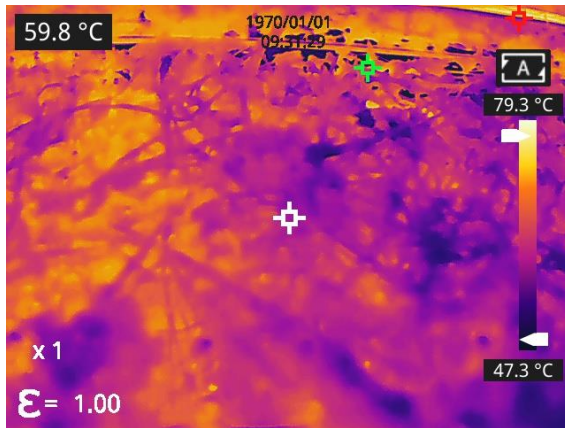
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THERMAL ANALYSIS REPORTS:



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MOISTURE ANALYSIS REPORT:

	Trial 1	Trial 2	Trial 3
Drying started			
Date	: 25-07-2022	: 26-07-2022	: 26-07-2022
Time	: 12:20:34	: 14:24:52	: 15:50:34
Model	: AOS200	: AOS200	: AOS200
Serial number	: 138	: 138	: 138
Drying parameters			
Product	: 0	: 0	: 0
Drying temperature	: 105.0 °C	: 105.0 °C	: 105.0 °C
Drying profile	: standard	: standard	: standard
Mode	: Short mode	: Short mode	: Short mode
Calculation	: $((m0-m)/m0)*100\%$: $((m0-m)/m0)*100\%$: $((m0-m)/m0)*100\%$
Finished	: 3 samples	: 3 samples	: 3 samples
Initial weight	: 0.521 g	: 0.576 g	: 0.363 g
Final weight	: 0.065 g	: 0.514 g	: 0.350 g
Drying time	: 00:05:20s	: 00:02:20s	: 00:01:40s
Sampling interval	: 20 sec	: 20 sec	: 20 sec
Moisture	: 87.5 %	: 10.8 %	: 5.7 %
NOTE	Initial moisture	Final moisture	Final moisture
The analysis performed by:			
Signature	<i>Anand</i>	<i>Anand</i>	<i>Anand</i>

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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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OBSERVATIONS:

The Drying behavior of Mint has been investigated under the 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 When product is allowed to dry steadily at comparatively lower temperature (around 50°C), the colour of product is mostly retained and dried without burning.

A handwritten signature in black ink, appearing to read "Sayali".

Ms. Sayali Asole
Tested By