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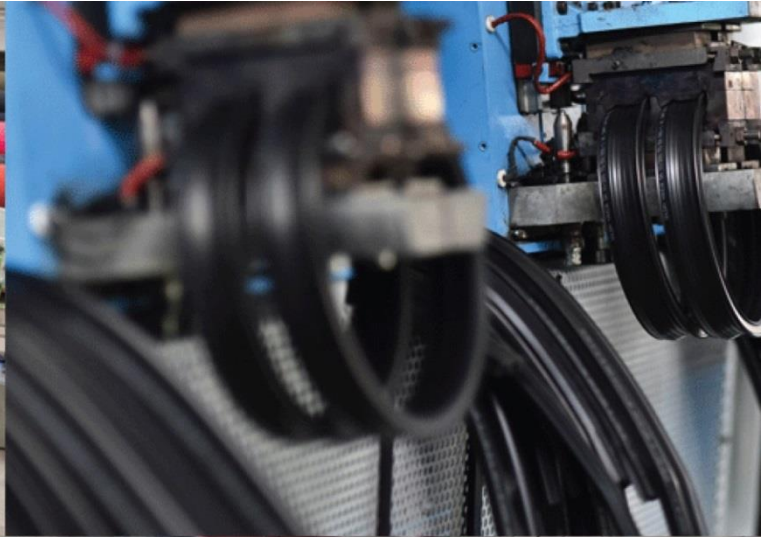
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In Association With



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



**Continuous Infra-red Drying of Pulp  
Trays**



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<b>Customer :</b>	<b>M/s. SHRI GANESH MULTIPACK PVT. LIMITED</b>
<b>Process :</b>	<b>Continuous IR Drying of Pulp trays</b>

**TEST REPORT No: 47/KRDC/LAB/43 Mum 01/10/2021**

Date Sample reception            01/10/2021  
ID    : 47/LAB/43

**SAMPLE DESCRIPTION:**

Sampling                                : As Requested  
Sample Condition                    : Acceptable  
Quantity                                : 8 Different types of trays  
Sampling date                        : 01/10/2021  
Product                                 : Cardboard trays  
Requirement                         : Complete drying  
Start Date test                        : 01/10/2021  
End Date test                         : 01/10/2021

**LABORATORY EXPERIMENTAL SET UP:**



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### LAB CONTINUOUS INFRARED HEATING SYSTEM SPECIFICATIONS:

<b>IR Medium Wave Emitters</b>	6 Nos (-each having 0.5 kW, 445 mm heating length)
<b>Short Wave IR Emitter with special reflectors</b>	6 Nos (-each having 1 kW, 406 mm heating length)
<b>IR Emitter to Object Distance</b>	120 mm (- in medium wave zone)
<b>IR Emitter to Object Distance</b>	100 mm (- in short wave zone)
<b>Overall IR Heating Zone length</b>	1400 mm
<b>Web width</b>	400 mm
<b>IR wavelength range</b>	0.7 to 10 microns
<b>Direct Exposure of MW IR</b>	500 mm
<b>Direct Exposure of SW IR</b>	750mm
<b>Temperature Range</b>	0-400°C

### ENVIRONMENT-LABORATORY AMBIENT CONDITIONS:

<b>Temperature (degree C)</b>	27.1°C ( $\pm 5^{\circ}\text{C}$ )
<b>Humidity (%)</b>	$\leq 70\%$ RH
<b>Pressure (kN/m<sup>2</sup> or kPa)</b>	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
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: $\pm 0.1^\circ\text{C}$ (1.8°F) Temperature resolution: 0.1°C (0.2°F) Humidity range: 10%~99% RH Humidity accuracy: $\pm 1\%$ RH Humidity resolution: 1% RH

### SAMPLE PREPARATION AND METHOD/PROCEDURE:

The experiment has been performed on pulp trays to speed up the drying rate. For this experimental run, given sample has been placed on a SS mesh belt and passed under Continuous IR heating system with suitable parameters. Observations are made on the basis of weight loss and appearance.

### ANALYTICAL RESULTS:

Setting Temperature: 200°C  
Intensity of IR : 80%

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DRYING PARAMETERS								
TRAY	INITIAL WT. (g)	WATER ADDED(ml)	TOTAL INITIAL WT.(g)	PASS 1	PASS 2	PASS 3	Total cycle time	Final wt.
A	73	150	223	200°C 6min30s	200°C 6min30s	-	13min	67
B	75	150	225	200°C 6min30s	200°C 6min30s	-	13min	75
C	80	160	240	200°C 6min30s	200°C 6min30s	-	13min	80
D	80	160	240	200°C 6min30s	200°C 6min30s	-	13min	80
E	92	185	277	200°C 6min30s	200°C 6min30s	200°C 6min30s	19 min	88
G	98	160	258	200°C 6min30s	200°C 6min30s	200°C 2min30s	19 min	88
H	66	102	168	200°C 6min30s	200°C 6min30s	200°C 2min30s	19 min	74
I1	26	50	76	200°C 6min30s	200°C 6min30s	-	13min	25
I2	29	50	79	200°C 6min30s	200°C 6min30s	-	13min	29
J	360	550	910	200°C 6min30s	200°C 6min30s	-	13min	338

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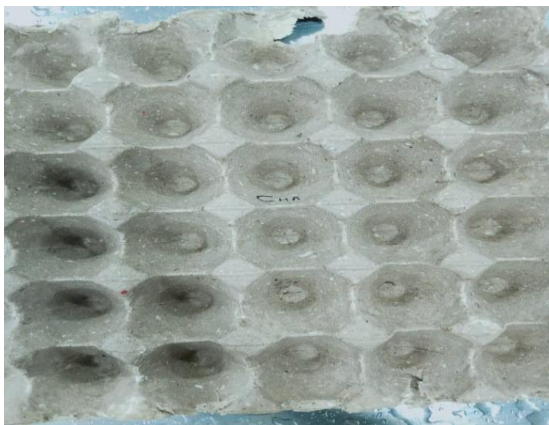


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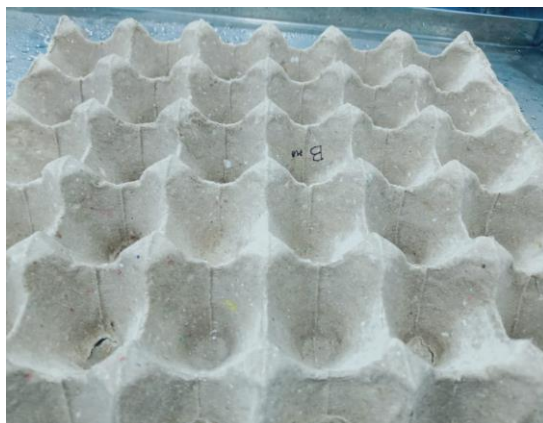
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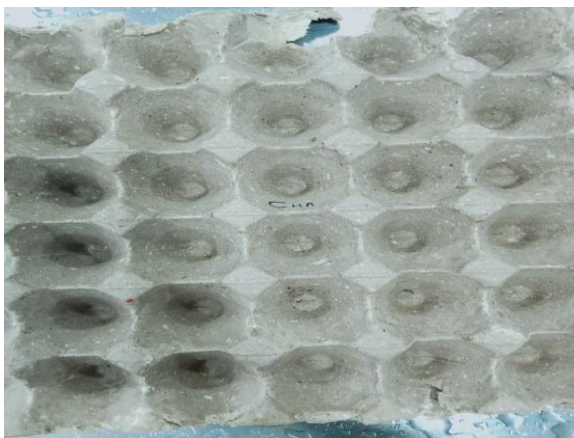
### IMAGES OF DIFFERENT TYPES OF SAMPLE TRAYS:



a) Tray A



b) Tray B



c) Tray C



d) Tray E

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e) Tray G



f) Tray H



g) Tray I1 & I2



f) Tray J

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## OBSERVATIONS:

The drying behavior of Pulp trays has been investigated under the continuous IR heating system. As per physical investigation, it has been observed that its moisture reduces with increase in cycle time and trays are dried as desired without any burns.

A handwritten signature in blue ink that reads "Komal".

Ms. Komal Ingle  
Tested By