



KRDC
Kerone Research &
Development Center



KERONE
Kerone Engineering Solutions Limited



48⁺ Year
Of experience

**CONTINUOUS IR HEAT
TREATMENT FOR RUBBER
SHEETS LAMINATION.**



In Association with SVCH-Technologii, Moscow (Russia)
ISO 9001:2015 | ISO 14001:2015 | EMS 14001 | OHSAS 18001:2007

Customer:	
Process:	CONTINUOUS IR HEAT TREATMENT FOR RUBBER SHEETS TO LAMINATE.

Test Report No: 251/KRDC/LAB/17 Mum 13/03/2024

Date Sample reception : 18/04/2024

ID : 182/LAB/24

Sample Description:

Sampling : As Requested,

Sample Condition : Acceptable

Sampling Date : 18/04/2024

Product : RUBBER SHEETS

End Date Test : 18/04/2024

Laboratory Experimental System –



Format: F/R&D/01

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Address

Kerone Research & Development Center (KRDC) Plot
No K2, Industrial Gala F4A, D-Wing, MGN Properties,
Opposite Godrej Co., Addl MIDC Anand Nagar,
Ambarnath (E)- 421506 (India) +91-2512620543/44

Specifications –

NO. IR HEATERS	6
Frequency	2450 MHz \pm 50
Power	6 KW
Thermal Monitoring System	Single Channel Fiber Optic: Range - 40 to 250°C
Tray size (width*height*depth)	450*950*50 mm

Laboratory's Environmental Conditions –

Temperature (degree C)	29.4°C (\pm 5°C)
Humidity (%)	\leq 50% 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.

Laboratory's Environmental Conditions –

Name of Equipment	Picture of Equipment	Specification
Compact Thermal Imaging Camera		Model: FLIR E-30 Resolutions: 160x120IR Thermal Sensitivity of 0.10°C

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Procedure of the Experiment –

- The experiment was performed on Rubber sheets to hold it together.
- For this experimental run, the gives sample was taken and passed in the Continuous IR heating system with suitable parameters.
- After the heating treatment, the sample was analyzed.

Analytical Results:

Trial no.	Time (min)	Temperature °C	On Product Temperature °C	Observations
1	60	80	74	Fumes and burning smell were observed.
2	45	160	165	Fumes and burning smell were observed and the rubber sheets holds together.
3	30	185	190	Fumes and burning smell were observed and the rubber sheets holds together.

Images During Trials:

Initial Image



Final Image



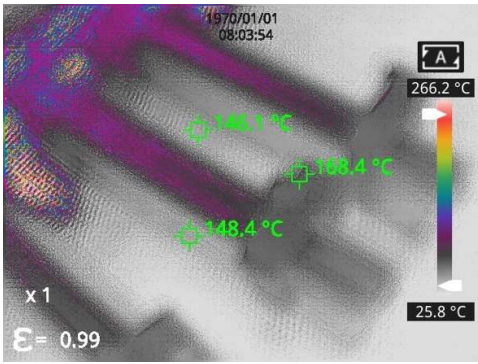
Format: F/R&D/01

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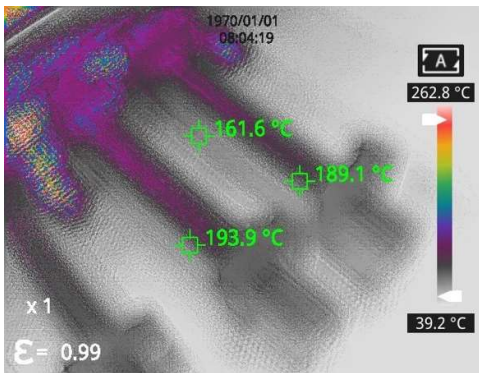
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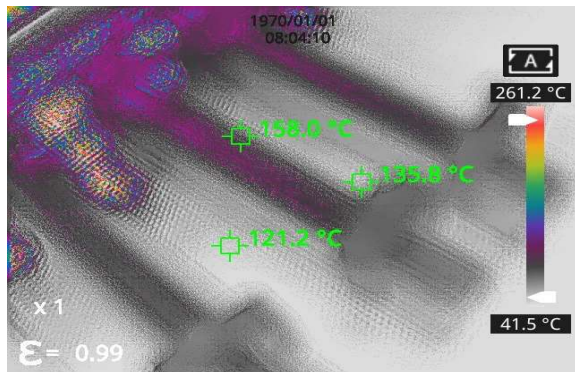
Thermal Images :-



Measurements	
Sp1	168.4 °C
Sp2	148.4 °C
Sp3	146.1 °C
Parameters	
Emissivity	0.99
Temperature	154.3°C



Measurements	
Sp1	193.9 °C
Sp2	189.1 °C
Sp3	161.6 °C
Parameters	
Emissivity	0.99
Temperature	181.53°C



Measurements	
Sp1	158.0 °C
Sp2	135.8 °C
Sp3	121.2 °C
Parameters	
Emissivity	0.99
Temperature	138.33°C

Format: F/R&D/01


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Observations:

The heating behavior of Rubber sheets bundles was investigated under the Conveyor IR heating system. The heating rate was found to be increasing with respect to the increase in time. As per the physical investigation it was observed that the rubber sheets laminating to each other.


Mr. Pranay Yerunkar
(Tested by)

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