KERONE

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Kerone Research & Development Centre (KRDC),
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Continuous Infra-red Heat Treatment for Curing of Latex on Fabric

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

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Customer:	**M/s. Vegan Fashion Pvt. Ltd., Kolkata**
Process:	**Continuous Infra-red Heat Treatment for Curing of Latex on Fabric**

TEST REPORT No: 47/KRDC/LAB/17 Mum 18/02/2021

Date Sample reception : 18/02/2021
ID : 47/LAB/189

SAMPLE DESCRIPTION:

Sampling : As Requested
Sample Condition : Acceptable
Quantity : 0.5 litre of latex solution and 1 bundle of fabric
Sampling date : 20/02/2021
Product : Latex solution and Fabric
Requirement : Curing
Start Date test : 20/02/2021
End Date test : 20/02/2021

LABORATORY EXPERIMENTAL SET UP:

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LAB CONTINUOUS INFRARED HEATING SYSTEM SPECIFICATIONS:

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

ENVIRONMENT-LABORATORY AMBIENT CONDITIONS:

Temperature (degree C)	30^{o}C (±5^{o}C)
Humidity (%)	≤35% 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: ± (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 by following steps given below:

1. Take 50% latex solution + 50% water + 3-4 drops of detergent to increase the PH
2. Spread this solution evenly on palm-size of latex fabric to make it wet (make sure solution should not be dripping from fabric)
3. Expose it under IR at 80-100C and retain that temp for 30-40 sec
4. After treatment observes two things-
    a) If the fabric is dry and water is evaporated from it, depositing/curing particles on the fabric surface.
    b) If the fabric is still wet but when you quench it, only water is coming out from It not the white color solution.

ANALYTICAL RESULTS:

Setting Temperature: 170°C
Cycle Time: 3 minutes
Temperature on Product: 60-65°C

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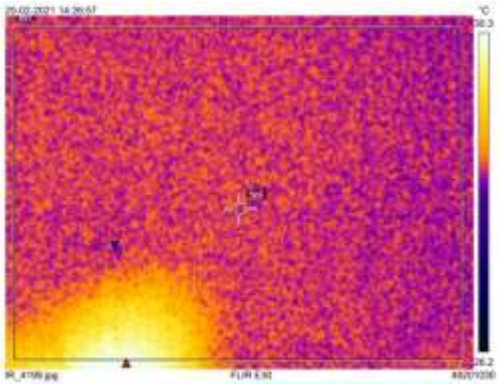
THERMAL IMAGE BEFORE AND AFTER HEAT TRAETMENT:

1. **Before Heat Treatment:**

Measurements		
Bx1	Max	30.6 °C
	Min	28.1 °C
	Average	28.7 °C
Sp1		28.5 °C

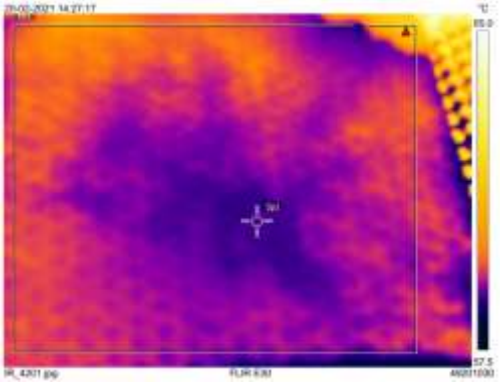
Parameters	
Emissivity	0.95
Refl. temp.	20 °C



2. **After Heat Treatment:**

Measurements		
Bx1	Max	64.8 °C
	Min	56.2 °C
	Average	60.5 °C
Sp1		62.5 °C

Parameters	
Emissivity	0.95
Refl. temp.	20 °C



BEFORE AND AFTER PICTURES OF TREATED SPCIMEN SAMPLE:

BEFORE

AFTER

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OBSERVATIONS:

The curing behavior of Latex coated fabric has been investigated under the Continuous Infrared 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 in drying time. As per physical investigation, it has been observed that curing has been achieved with drying of fabric.

Miss. Komal Bhoite
Tested By