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# Kerone Research & Development Centre (KRDC),

B/47, Addl. MIDC. Anand Nagar, Ambernath (East), Thane- 421 506, India

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

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Customer :	M/s. India Nets
Process :	Continuous Microwave Heat Treatment for Drying of Ropes

#### TEST REPORT No: 47/KRDC/LAB/17 Mum 10/02/2020

Date Sample reception	: 10/02/2020
ID	: 47/LAB/159

## SAMPLE DESCRIPTION:

Sampling	: As Requested
Sample Condition	: Acceptable
Quantity	: 8 Nos.
Sampling date	: 12/02/2020
Product	: Plastic Rope
Requirement	: Drying
Start Date test	: 12/02/2020
End Date test	: 12/02/2020

#### LABORATORY EXPERIMENTAL SET UP:



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## LAB CONTINUOUS MICROWAVE HEATING SYSTEM SPECIFICATIONS:

Microwave Power	34.8 kW
Frequency	2450 MHz ± 50
Convective Power	6 kW
Microwave Exposure Zone (Cavity)	5600 mm lengthwise
Web width	500 mm
Entry Vestibule length	1000 mm
Exit Vestibule Length	1000 mm
Exhaust Power	3 HP

#### **ENVIRONMENT-LABORATORY AMBIENT CONDITIONS:**

Temperature (degree C)	36°C (±5°C)	
Humidity (%)	≤30% 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		
Infrared Thermometer		Model: FLUKE 566 Temperature Range: -40°C to 650°C Display Resolution: 0.1°		
Thermo Hygrometer	Torran A	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 plastic ropes after dipping in given solution to speed up the drying rate. For this experimental run, dipping solution has been made from water, LAGO-1 and LAGO-2 solution as per requirement and the ropes has been dipped in this solution for 10 minutes and then allowed for drying in continuous microwave heating system. Observations are made on the basis of LOD method by checking weight loss and physical appearance.

## **ANALYTICAL RESULTS:**

1. Trial No. 1:

Dipping Solution for 12 mm dia.: 500 gm water+ 200 gm LAGO-1 solution Dipping Solution for 24 mm dia.: 1000 gm water+ 400 gm LAGO-1 solution Microwave Power: 34.8 kW

Sr.	Rope Dia.	Initial Wt.	Wt. after	Final Wt.	Cycle Time	Surface	Remarks
No.	(mm)	(gms)	Dipping (gms)	(gms)	(minutes)	Temp. (°C)	
1.	12	48	60	54	3	95-100	Dried
2.		49	61	55			
3.	24	120	168	132	6	92-95	Dried
4.		114	160	132			

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2. Trial No. 2:

Dipping Solution: 1 litre water+ 120 gm LAGO-2 solution

Microwave Power: 34.8 kW

Sr.	Rope Dia.	Initial Wt.	Wt. after	Final Wt.	Cycle Time	Surface	Remarks
No.	(mm)	(gms)	Dipping (gms)	(gms)	(minutes)	Temp. (°C)	
1.	12	47	54	52	2	82-85	Dried
2.		48	54	53			
3.	24	114	143	130	4	78-80	Dried
4.		119	148	135			

#### **BEFORE AND AFTER PICTURES OF TREATED SPCIMEN SAMPLE:**

1. 12 mm Diameter:



2. 24 mm Diameter:

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#### **OBSERVATIONS:**

The Drying behavior of plastic ropes has been investigated under the Continuous Microwave 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. In the processed sample, as per physical investigation, it has been observed that there is no damage to sample with required amount of drying.

Komal

Miss. Komal Bhoite Tested By

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