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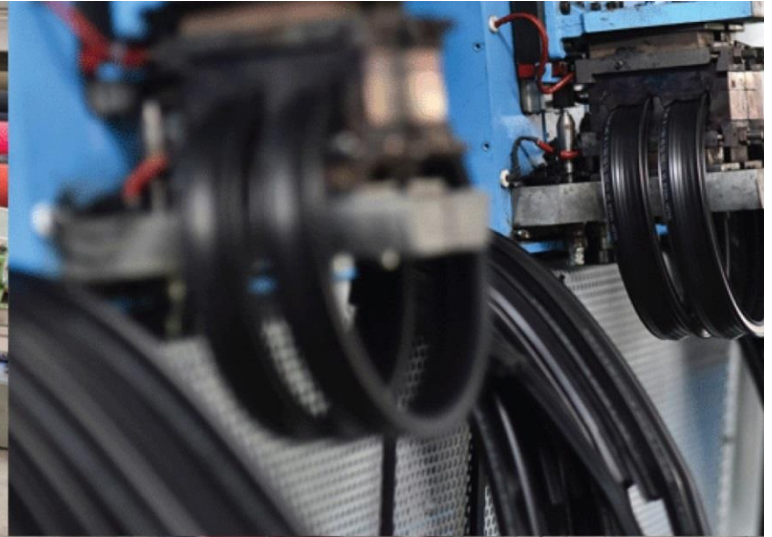


ELECTRO MAGNETIC innovative technologies

Kerone Research & Development Centre (KRDC)

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

Tel- +91-251-2620542/13/44/45/46, Email-info@kerone.com, www.kerone.com



**Continuous Infra-red Heat Treatment to Coloured Sand**

ISO 9001-2008 | ISO 9001-2015 | EMS 14001 | OHSAS 18001

In Association with SVCH-Technologii, Moscow (Russia)



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Customer :	M/s. SIDEC NV, BELGIUM
Process :	Continuous Infra-red Heat Treatment to Coloured Sand

**TEST REPORT No: 47/KRDC/LAB/17 Mum 20/06/2018**

Date Sample reception : 20/06/2018

ID : 47/LAB/47

**SAMPLE DESCRIPTION:**

Sampling : As Requested

Sample Condition : Acceptable

Quantity : 1 container

Sampling date : 01/10/2018

Product : Coloured sand

Requirement : Treated coloured sand should not release its colour in boiling water test

Start Date test : 01/10/2018

End Date test : 03/10/2018

**LABORATORY EXPERIMENTAL SET UP:****Format: F/R&D/01**

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**LAB INFRARED HEATING SYSTEM SPECIFICATIONS:**

<b>Medium Wave IR Emitter with special reflectors</b>	6 No( 03 kW, each having 240 mm heating length)
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**ENVIRONMENT-LABORATORY AMBIENT CONDITIONS:**

<b>Temperature (degree C)</b>	36°C (±5°C)
<b>Humidity (%)</b>	≤ 66% RH
<b>Pressure (kN/m2 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

**EQUIPMENTS USED:**

<b>Name of Equipment</b>	<b>Picture of Equipment</b>	<b>Specifications</b>
<b>Compact Thermal Imaging Camera</b>		<b>Model: FLIR E-60</b> <b>Resolution: 320*230 IR Thermal</b> <b>sensitivity of 0.05°C</b>

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<b>Digital Contact Thermometer</b>		<b>Model No: TM-902C</b> <b>Temperature range: -50~750°C</b> <b>Temperature accuracy: ±1°C</b>
<b>Thermo Hygrometer</b>		<b>Model No: HTC-2</b> <b>Temperature accuracy: ±°C (1.8°F)</b> <b>Temperature resolution: 0.1°C (0.2°F)</b> <b>Humidity range: 10%~99% RH</b> <b>Humidity accuracy: ±5% RH</b> <b>Humidity resolution: 1% RH</b>

#### SAMPLE PREPARATION AND METHOD/PROCEDURE:

The experiment has been performed on given sample of coloured sand to speed up the drying rate. For this experimental run, coloured sand has been placed under infrared heating system with uniform layer for a time period till it reaches temperature of 450°C. Then the treated sand is boiled with water as per instructions given (900 gm water and 60 gm treated sand) and colour of water has been checked in transparent container.

#### ANALYTICAL RESULTS:

**Quantity of treated sand: 10 kg**

**Thickness of layer: 5 mm**

**Time required for sand to reach temperature 450°C: 8 minutes**

**Boiling Time of treated sand: 5 hours**

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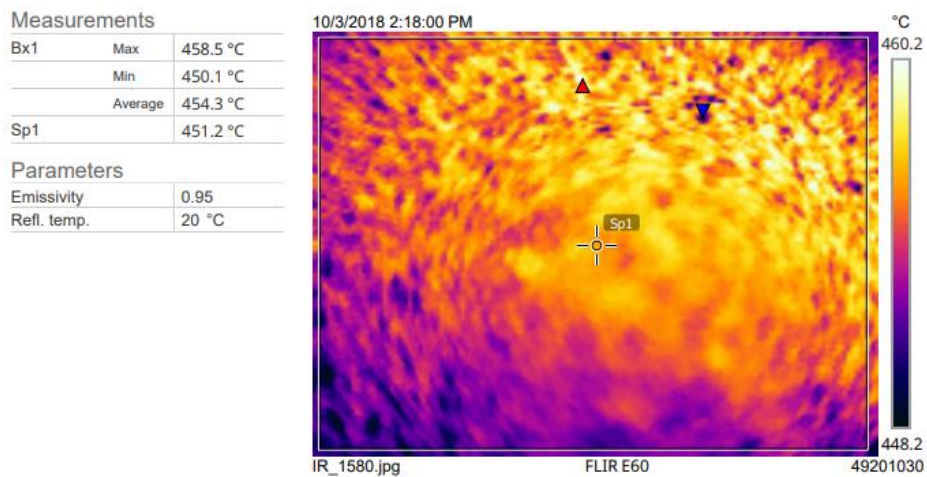
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**THERMAL IMAGE OF TEMPEPRATURE PROFILE:**



**BEFORE AND AFTER PICTURES OF TREATED SPECIMEN SAMPLE:**



**Untreated sand**



**Sand just after treatment**



**Treated sand at room temperature**



**Treated sand after boiling water test**

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### PICTURES DURING WATER TEST OF TREATED SAND:



### OBSERVATIONS:

The drying behavior of coloured sand has been investigated under the infra-red heating system. It has been found that there is little colour change in sand after heat treatment, it turned little darker than original colour. Also, sand didn't release its colour during the test of treated sand.

*K Komal*

Miss Komal Bhoite  
Tested By

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