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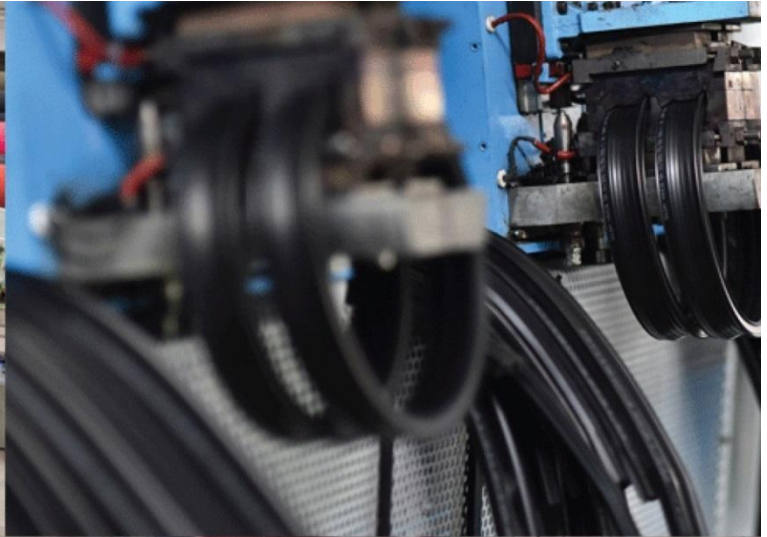
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In Association With



Kerone Research & Development Centre (KRDC),  
B/47, Addl. MIDC. Anand Nagar, Ambernath (East), Thane- 421 506, India  
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Muffle Furnace Heat Treatment for LOI  
Reduction of Spent Alumina Balls



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Customer :	M/s. Chaitanya Refractory Pvt. Ltd.
Process :	Muffle Furnace Heat Treatment for LOI Reduction of Spent Alumina Balls.

### TEST REPORT No: 79/KRDC/LAB/66 Mum 11/06/2022

Date Sample reception : 17/05/2022

ID : 79/LAB/11

### SAMPLE DESCRIPTION:

Sampling : As Requested  
Sample Condition : Acceptable  
Samples opening date : 09/06/2022  
Product : 5Kg Spent Alumina Balls (used 100gms)  
Start Date test : 09/06/2022  
End Date test : 10/06/2022

### LABORATORY EXPERIMENTAL SETUP:



Format: F/R&D/01



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#### LAB MUFFLE FURNACE HEATING SYSTEM SPECIFICATIONS:

Heating Zone (width*height*depth)	350*350*350 mm
Design Temperature	1000°C
Total Power	30 kW
HAC Fan	0.5 HP
Scrubber ID Fan	1 HP

#### ENVIRONMENT-LABORATORY AMBIENT CONDITIONS:

Temperature (°C)	26°C (±5°C)
Humidity (%)	≤74% RH
Pressure (kN/m <sup>2</sup> 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 120 IR Thermal sensitivity of 0.10°C
Thermo Hygrometer		Model No: HTC-2 Temperature accuracy: $\pm^{\circ}\text{C}$ (1.8°F) Temperature resolution: 0.1°C (0.2°F) Humidity range: 10%~99% RH Humidity accuracy: $\pm 5\%$ RH Humidity resolution: 1% RH

## SAMPLE PREPARATION AND METHOD/PROCEDURE:

The experiment has been performed on Spent Alumina Balls to speed up its heating rate of the product. For this experimental run, the sample was taken in crucible vessel and then placed in Muffle furnace. The appearance of the sample was observed after treatment.

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**ANALYTICAL RESULTS:****Trial 1**

Initial weight: 100g

Setting Temperature: 1000°C

Cycle	Cycle Time (min.)	Remarks, if any
C1	After 1 hr. 30 min.	Heated as desired

Total Cycle time- 1hr. 30 min.

Final weight:70g

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

Untreated Sample



Treated Sample

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## OBSERVATIONS:

The heating behavior of Spent Alumina Balls has been investigated under Muffle Furnace Heating System for LOI reduction treatment. The heating rate is found to be increasing with respect to increasing heating time. As per physical investigation, it has been observed that there is colour changes of the product after heating.

**Ms. Sayali Asole**  
Tested By

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