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Kerone Research & Development Centre (KRDC),  
B/47, Addl. MIDC. Anand Nagar, Ambarnath (East), Thane- 421 506, India  
Tel- +91-251-2620542/43/44/45/46, Email-info@kerone.com, www.kerone.com



**Infrared Heat Treatment for Drying  
of Silicon Carbide**



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<b>Customer :</b>	<b>M/s. Grindwell Norton Ltd, Gujrat</b>
<b>Process :</b>	<b>Infrared Heat Treatment for Drying of Silicon Carbide</b>

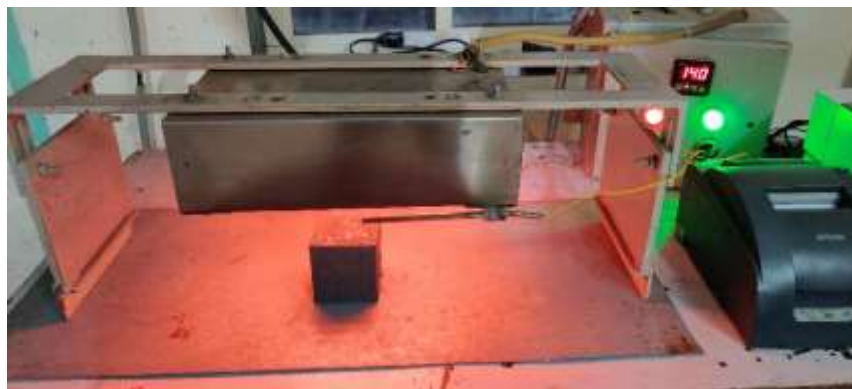
### TEST REPORT No: 47/KRDC/LAB/17 Mum 18/06/2020

Date Sample reception : 06/06/2020  
ID : 47/LAB/163

#### SAMPLE DESCRIPTION:

Sampling : As Requested  
Sample Condition : Acceptable  
Quantity : 26 nos.  
Sampling date : 18/06/2020  
Product : Silicon Carbide  
Requirement : Drying  
Start Date test : 18/06/2020  
End Date test : 18/06/2020

#### LABORATORY EXPERIMENTAL SET UP:



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**ANALYTICAL RESULTS:****1. Trial No. 1: No. 6**

IR Temperature: 140°C

Initial Moisture Content: 3.06%.

(By calculation): 1.9%.

Initial Weight: 1135 gm.

Sr. No.	Cycle time (min)	Final Wt. (gm)	Total Wt. Loss (gm)	Surface Temp. (°C)	Remarks
1.	After 15	1119	16	90	Drying rate started
2.	After 45	1112	7	110	Dried
3.	After 60	1109	3	123	Dried

Total Wt. Loss: 26 gm.

Final Moisture Content (By calculation): 0.07%,

**2. Trial No. 2: No. 9**

IR Temperature: 150°C

Initial Moisture Content: 3.06%.

(By calculation): 2%.

Initial Weight: 1134 gm.

Sr. No.	Cycle time (min)	Final Wt. (gm)	Total Wt. Loss (gm)	Surface Temp. (°C)	Remarks
1.	After 110	1108	26	141	Dried

Total Wt. Loss: 26 gm

Final Moisture Content (By calculation): 0.7%,

(Note: Please note, we have considered initial moisture content as per data given by M/s. Grindwell Norton Ltd., actual initial moisture content during trials might be less than mentioned.)

**Formula used to calculate the Final Moisture Content:**Final Moisture Content =  $3.06/100 - (\text{Total weight loss}/\text{Initial weight})$



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**MOISTURE ANALYSIS REPORTS:**

**No. 6 & 9 Initial Moisture Content**

Drying started		Drying started	
Date: 10-06-2020	Time: 11:00:00	Date: 10-06-2020	Time: 11:00:00
Flow: 1000000	Temp: 100000	Flow: 1000000	Temp: 100000
Serial number: 100		Serial number: 100	
Drying parameters		Drying parameters	
Product: Test		Product: Test	
Drying temperature: 105.0 °C		Drying temperature: 105.0 °C	
Drying profile: standard		Drying profile: standard	
Mode: Short mode		Mode: Short mode	
Calculation: ((a-b)/a)*100		Calculation: ((a-b)/a)*100	
Finished: 3 samples		Finished: 3 samples	
Initial weight: 1.900 g		Initial weight: 1.800 g	
Final weight: 1.870 g		Final weight: 1.870 g	
Drying time: 00:01:00		Drying time: 00:01:00	
Sampling interval: 30 sec		Sampling interval: 30 sec	
Moisture: 1.6 %		Moisture: 1.6 %	
NOTE No. 6		NOTE No. 9	
Initial Moisture		Initial Moisture	
The analysis performed by:		The analysis performed by:	

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

**1. Trial No. 1**



**2. Trial No. 2**



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### IMAGE OF FINAL WEIGHT:

#### 1. Trial 1:



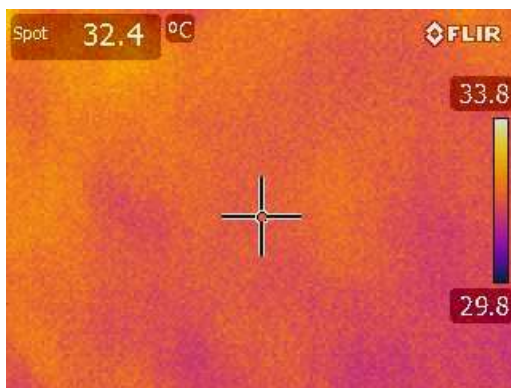
#### 2. Trial2:



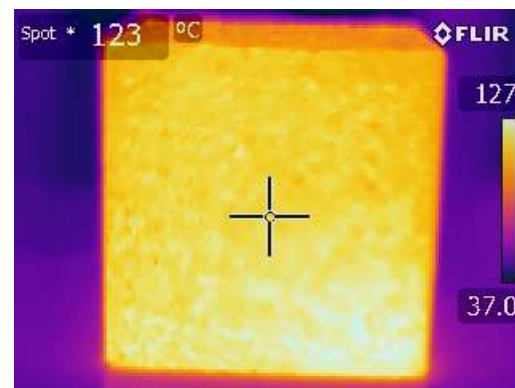
### THERMAL IMAGE BEFORE AND AFTER HEAT TREATMENT:

#### 1. Trial 1

##### Before Heat Treatment:



##### After Heat Treatment:



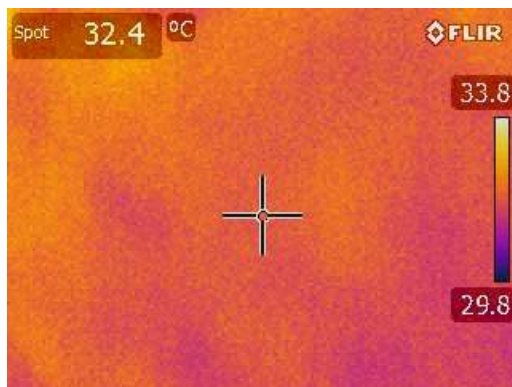


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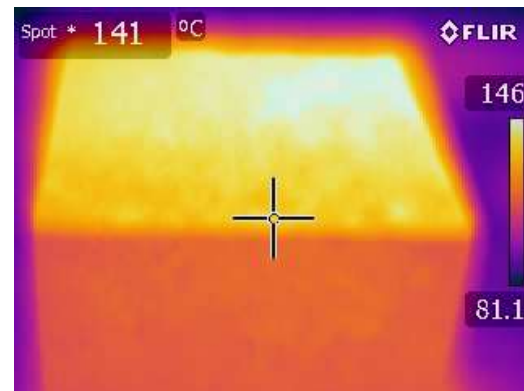
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## 2. Trial 2

**Before Heat Treatment:**



**After Heat Treatment:**



### OBSRVATIONS:

The heating behavior of Silicon Carbide samples has been investigated under the Infrared heating mode for drying treatment. 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 colour change and cracks on sample with required temperature on product.

Miss. Komal Bhoite  
Tested By

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