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Director: Berger M.B.



Your ceramics technology partner

| | | | |
|-------------------------------|------------------------------------------------------|-----------------|---------------------------|
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| Pages including cover: | | 7 | |

5 May 2021

Dear Thokozane,

Here is your report on the investigation of the semi-face clay bricks (FBA) which we received on the 15 April 2021. This work was carried out as requested and has been allocated Cermalab project number C21-030 C.

Please contact me if you have any questions.

Regards,


Compiled by
Dries van Vuuren
(Operations Manager)

Cermalab Materials Testing Laboratory

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TEST REPORT

INVESTIGATION OF CLAY BRICKS FROM OCON BRICKS

| | |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Date: | 5 May 2021 |
| Client: | Ocon Brick (Pty) Ltd |
| Attention: | Thokozane (Quality Control) |
| Address: | Potchefstroom Road (N12) Plot, 70 Zuurbekom Westonaria |
| Contract/order number | Paid (19March 2021) |
| Material: | 40 x Semi-face clay bricks (FBA) |
| Description of Tests: | SANS 227: 2007 which includes: <ul style="list-style-type: none"> • Shape, appearance and colour • Dimensions • Warpage • Water absorption • Efflorescence • Compressive strength • Soundness |
| Report no. | C21-030 C |
| Lab Reference cr. No/s. | C21-030 C |

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Technical Signatory:
M B Berger

Date: 05/05/2021

.....
Operations Manager:
D van Vuuren

Date: 05/05/2021

1. INTRODUCTION

Ocon Bricks supplied Cermalab with 40 Semi-face clay bricks (FBA) for SANS 227 testing.

2. METHODS

Shape, appearance, texture and colour is done according to CER-WP-328 (Rev. 0), dimensions according to CER-WP-331 (Rev. 0), compressive strength according to CER-WP-330 (Rev. 0), efflorescence according to CER-WP-324 (Rev. 0), soundness according to CER-WP-327 (Rev. 0), warpage according to CER-WP-326 (Rev. 0) and water absorption according to CER-WP-325 (Rev. 0). Testing is done according to SANS 227:2007 with no deviation from test methods. These procedures are SANAS accredited for this laboratory. The tests were carried out between the 15th April 2021 and the 5th May 2021.

These results pertain only to the material tested. Opinions and interpretations, where expressed, fall outside the SANAS scope of accreditation of this laboratory. The results form an integral part of this report and cannot be copied or duplicated without approval by Cermalab.

3. Test Results

| Name | Class | Condition |
|----------------|-------|-----------|
| OCON SEMI-FACE | FBA | Good |

Face Brick Aesthetic (FBA) – Units that are selected or produced for their durability and aesthetic effect deriving from non-uniformity of size, shape or colour.

3.1 Shape

All samples are rectangular, without perforations, cavities or frogs.

3.2 Appearance

| Sample name | Appearance |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ocon Semi-face | The samples are well fired. It has slight damage to some of the edges and corners. There are some medium sized pebbles present and there are no expansive particles of lime. |
| Average weight (kg) | 2,5 |

3.3 Texture and colour

The texture of all samples is satin. The colours of the samples are not uniform and they were not compared to a sample panel.

3.4 Dimensions

| Sample name | Dimensions | Stated work size (mm) | SANS requirement Individual size tolerances (mm) | Average size 32 units (mm) | SANS requirement Average size tolerances (mm) | Pass / Fail |
|----------------|------------|--------------------------|--------------------------------------------------------|-------------------------------|-----------------------------------------------------|-------------|
| Ocon Semi-face | Length | 217,0 | No requirement | 217,1 | No requirement | Pass |
| | Width | 101,0 | No requirement | 101,8 | No requirement | Pass |
| | Height | 72,0 | No requirement | 72,4 | No requirement | Pass |

3.5 Efflorescence

| Sample name | Number of units that exhibit efflorescence | | | | | |
|----------------|--------------------------------------------|--------|----------|-------|---------|-----------|
| | Degrees of efflorescence | | | | | |
| | Nil | Slight | Moderate | Heavy | Serious | Pass/Fail |
| Ocon Semi-face | 8 | 12 | 0 | 0 | 0 | Pass |
| SANS Standard | | 10 | 10 | | | |



Figure 3.5.1: Samples after efflorescence testing

3.6 Soundness

| Sample name | Pop out 2-5 mm | Pop out 5-10 mm | Pop out > 10 mm | Pass / Fail |
|----------------|------------------------|--------------------------|-----------------|-------------|
| Ocon Semi-face | 0 | 0 | 0 | Pass |
| SANS Standard | 2 samples x 2 pop-outs | OR 1 sample x 2 pop-outs | | |

3.7 Cold Compressive Strength

| | Length (mm) | Breadth (mm) | CCS (MPa) | Ocon Semi-face | |
|----|----------------|-----------------|--------------|------------------------------------|-------------|
| 1 | 217,0 | 101,5 | 33,90 | Average CCS (MPa) | 30,5 |
| 2 | 219,0 | 100,0 | 28,68 | Std dev | 2,48 |
| 3 | 216,0 | 102,0 | 27,45 | Max CCS (MPa) | 33,90 |
| 4 | 216,5 | 104,0 | 31,28 | Min CCS (MPa) | 26,54 |
| 5 | 219,5 | 101,0 | 32,89 | SANS Individual requirement | 12,5 |
| 6 | 217,0 | 98,5 | 32,59 | Pass/Fail | Pass |
| 7 | 217,5 | 104,0 | 32,10 | SANS Average requirement | 17,0 |
| 8 | 219,5 | 100,5 | 31,35 | Pass/Fail | Pass |
| 9 | 219,0 | 102,0 | 29,91 | | |
| 10 | 215,0 | 101,0 | 26,54 | | |
| 11 | 218,5 | 103,0 | 27,21 | | |
| 12 | 215,0 | 100,5 | 32,13 | | |



Figure 3.7.1: Samples as received and numbered for reference on CCS

3.8 Warpage

| Warpage | Ocon Semi-face |
|-----------------------|--------------------------------------------------------------|
| Batch size | 32 |
| Average (mm) | 1,7 |
| STD deviation (mm) | 0,93 |
| Maximum (mm) | 3,50 |
| Minimum (mm) | 0,25 |
| SANS Requirement (mm) | No requirement (Agreed between supplier and purchaser) |
| Pass / Fail | Pass |

3.9 Water absorption

| Sample name | Water absorption 24 hrs (%) | Water absorption 5 hrs boil (%) | Saturation coefficient |
|---------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|
| Ocon Semi-face | 11,4 | 21,6 | 0,54 |
| SANS Requirement | No requirement (agreed between supplier and purchaser) | No requirement (agreed between supplier and purchaser) | No requirement (agreed between supplier and purchaser) |

These results pertain only to the material tested.

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