PB(Basic)(BII)



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检测
TESTING
CNAS L1978

160000122473

# 检 测 报 告
# TEST REPORT

报 告 编 号:
REPORT NO. : 25201602251

样 品 名 称:
NAME OF SAMPLE: 瓷片 CERAMIC WALL TILE

委 托 单 位:
APPLICANT: 佛山市尼罗建材有限公司 NIRO CERAMIC (M) SDN BHD

检 验 日 期:
DATE OF TEST: 16/06/2016 – 04/07/2016 (dd/mm/yy)

国 家 建 筑 卫 生 陶 瓷 检 测 重 点 实 验 室
STATE KEY TESTING LABORATORY OF BUILDING CERAMICS AND SANITARY WARE
佛山出入境检验检疫局检验检疫综合技术中心
INSPECTION AND QUARANTINE COMPREHENSIVE TECHNOLOGY CENTRE
OF FOSHAN ENTRY-EXIT INSPECTION & QUARANTINE BUREAU

# 佛山出入境检验检疫局检验检疫综合技术中心
# INSPECTION AND QUARANTINE COMPREHENSIVE TECHNOLOGY CENTRE OF FOSHAN ENTRY-EXIT INSPECTION & QUARANTINE BUREAU

# 检测报告
# TEST REPORT

报告编号： 25201602251 
Report No: 

| | | | |
|---|---|---|---|
| 样品名称<br>Name of sample | 瓷片<br>CERAMIC WALL TILE | 名义尺寸<br>Nominal size (N) | 30cm×60cm |
| 表面特性<br>Nature of the surface | 有釉砖<br>Glazed (GL) | 工作尺寸<br>Work size ($S_w$) | 300mm×600mm×9.8mm |
| 类别<br>Group | BIII | 样品描述<br>Description of Samples | 样品完好,适合测试<br>The samples are sound, intact and fit for test. |
| 样品标记<br>Mark of samples | BASIC/PB | 样品数量<br>Quantity of samples | 30 块<br>30 Pieces |
| 委托单位<br>Applicant | 佛山市尼罗建材有限公司<br>NIRO CERAMIC (M) SDN BHD | 委托单位地址<br>Address of applicant | 广东省佛山市禅城区南庄镇紫南村南北路 53 号<br>NO53, NAN BEI ROAD, ZI NAN, NANZHUNAG TOWN, CHANCHENG DISTRICT, FOSHAN, GUANGDONG, CHINA |
| 委托单位电话<br>Telephone of applicant | 86-13702564373 | 委托单位传真<br>Fax of applicant | / |
| 样品来源<br>Source of Samples | 委托单位自送样品<br>Samples selected by applicant | 接样日期<br>Received on | 15/06/2016 |
| 检验依据<br>Test Standard | 1. MS ISO 13006:2014 *Ceramic tiles – Definitions, classification, characteristics and marking*<br>2. EN 15771:2010 *Vitreous and porcelain enamels - Determination of surface scratch hardness according to the Mohs scale* | | |
| 检验结论<br>Conclusion of Test | 1. 样品经检验,所检验项目的检验结果符合 MS ISO 13006:2014 标准的规定。<br>The results conform to the requirement of standard MS ISO 13006:2014 with respect to the test items.<br>2. 莫氏硬度的检验结果见报告第 6 页。<br>The test result of *scratch hardness of surface according to Mohs* see Page 6. | | |
| 检验单位盖章<br>Stamp of Test Unit | 日期： 11/07/2016<br>Date: | 检验单位联系方式<br>Address of Test Unit | 地址：广东省佛山市禅城区魁奇一路澜石（国际）金属交易中心十八座二楼<br>Address : 2/F, Building 18, Lanshi International Metal Exchange Center, Kuiqiyi Road, Chancheng District, Foshan, Guangdong, China (528000)<br>电话（Tel）：86-757-83960558<br>86-757-83827991<br>传真（Fax）：86-757-83827971<br>邮箱（E-mail）：fsiqtc@163.com<br>网址（url）：http://www.fsiqtc.com/ |
| 声明<br>Notes | 1、我们已尽所知所能实施上述检验，不能因签发本报告而免除有关各方根据合同和法律所承担的责任和义务。<br>All inspections are carried out conscientiously to the best of our knowledge and ability. This report does not in any respect absolve the other related parties from his contractual and legal obligations.<br>2、未经本实验室书面许可，不得部分复制本报告；<br>This report shall not be reproduced, except in full, without the prior written approval from the issuing laboratory.<br>3、本报告仅是样品的检测结果。<br>The results in this report apply to the samples only. | | |

检验 Tested by _____ 审核 Inspected by _____ 批准 Approved by _____

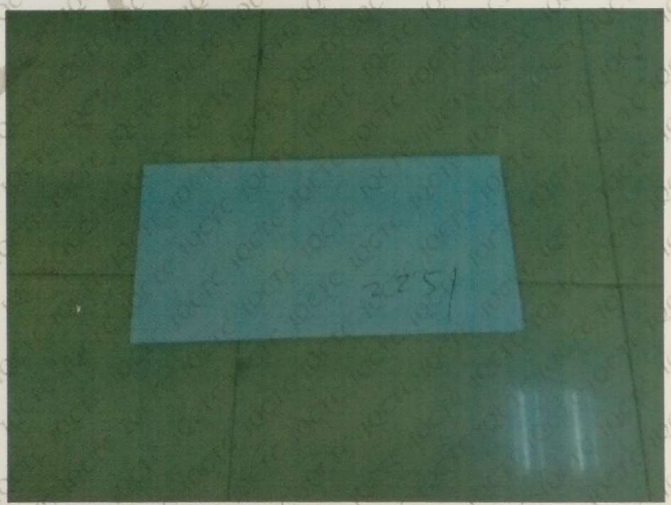
# 检测报告
# TEST REPORT

报告编号： 25201602251
Report No:



样品照片
Photo of Samples



MS ISO 13006:2014 *Ceramic tiles – Definitions, classification, characteristics and marking*

| 条款 Clause | 性能 Properties | 检验方法 Test Method | 要求 Requirements | | 检验结果 Results | 判定 Verdicts |
|---|---|---|---|---|---|---|
| 附录 L 表 L.1 Annex L Table L.1 | **尺寸和表面质量** **Dimensions and surface quality** | | | | | |
| | **长度** **Length** 每块砖的平均尺寸相对于工作尺寸的允许偏差 The deviation,of the average size for each tile (2 sides) from the work size | MS ISO 10545-2 | N≥15cm | ±0.5% | +0.05%~+0.08% | P |
| | | | | ±2.0mm | +0.3mm ~+0.5mm | P |
| | **宽度** **Width** 每块砖的平均尺寸相对于工作尺寸的允许偏差 The deviation,of the average size for each tile (2 sides) from the work size | MS ISO 10545-2 | N≥15cm | ±0.5% | +0.07%~+0.12% | P |
| | | | | ±2.0mm | +0.2mm ~+0.4mm | P |
| | **厚度** **Thickness** | | | | | |
| | 制造商应声明厚度 The thickness shall be specified by the manufacturer | — | 声明厚度 Declared thickness | | 9.8mm | — |
| | 每块砖厚度的平均值相对于工作尺寸的最大允许偏差 The deviation of the average thickness of each tile from the work size thickness | MS ISO 10545-2 | N≥15cm | ±10% | -0.26%~+1.17% | P |
| | | | | ±0.5mm | 0~+0.1mm | P |
| | **边直度** **Straightness of sides** 相对于工作尺寸的最大允许偏差 The maximum deviation from straightness related to the corresponding work sizes | MS ISO 10545-2 | N≥15cm | ±0.3% | -0.01%~+0.01% | P |
| | | | | ±1.5mm | 0 ~+0.1mm | P |
| | **直角度** **Rectangularity** 相对于工作尺寸的最大允许偏差 The maximum deviation from Rectangularity related to the corresponding work sizes | MS ISO 10545-2 | N≥15cm | ±0.5% | -0.06%~+0.06% | P |
| | | | | ±2.0mm | -0.2mm ~+0.4mm | P |
| | **表面平整度**: 最大允许偏差 **Surface flatness**: The maximum deviation from flatness | | | | | |
| | a)对于由工作尺寸计算的对角线的中心弯曲度 a) centre curvature, related to diagonal calculated from the work size; | MS ISO 10545-2 | N≥15cm | +0.5% -0.3 % | +0.06% | P |
| | | | | +2.0mm -1.5mm | +0.4mm | P |
| | b)对于由工作尺寸计算的边弯曲度 b) edge curvature, related to the corresponding work sizes; | MS ISO 10545-2 | N≥15cm | +0.5% -0.3 % | +0.05%~+0.08% | P |
| | | | | +2.0mm -1.5mm | +0.2mm~+0.5mm | P |
| | c)对于由于工作尺寸计算的对角线的翘曲度 c) warpage, related to diagonal calculated from the work size. | MS ISO 10545-2 | N≥15cm | ±0.5% | +0.03%~+0.04% | P |
| | | | | ±2.0mm | +0.2mm~+0.3mm | P |

# 检测报告
# TEST REPORT



MS ISO 13006:2014 *Ceramic tiles – Definitions, classification, characteristics and marking*

| 条款 Clause | 性能 Properties | 检验方法 Test Method | 要求 Requirements | 检验结果 Results | 判定 Verdicts |
|---|---|---|---|---|---|
| 附录 L 表 L.1 Annex L Table L.1 | **物理性能 Physical properties** | | | | |
| | **吸水率** 质量分数 **Water absorption** Percent mass fraction | MS ISO 10545-3 | $E_b$>10% | 15.7% | P |
| | | | 单个值不小于 9% Individual minimum 9% | 15.4%~16.0% | P |
| | **破坏强度/N Breaking strength, in N** | MS ISO 10545-4 | ≥600 | 1336 | P |
| | **断裂模数/($N/mm^2$) Modulus of rupture, in $N/mm^2$** 不适用于破坏强度≥ 3000N 的陶瓷砖 Not applicable to tiles with breaking strength ≥ 3000N | MS ISO 10545-4 | ≥12 | 24.3 | P |
| | **抗冲击：恢复系数 Impact resistance:** Coefficient of restitution (COR) | MS ISO 10545-5 | 报告检验结果 Test method available | 0.76 | — |
| | **抗热震性 Thermal shock resistance** | MS ISO 10545-9 | 报告检验结果 Test method available | 样品经试验，无炸裂或裂纹 Fully resistance | — |
| | **抗釉裂性：有釉砖 Crazing resistance**: glazed tiles | MS ISO 10545-11 | 应通过此项测试 Required | 样品经试验，无裂纹或剥落 Fully resistance | P |
| | **抗冻性 Frost resistance** | MS ISO 10545-12 | 应通过此项测试 Required | 所有样品无裂纹或破损 Fully resistance | P |
| | **化学性能 Chemical properties** | | | | |
| | **耐污染性 Resistance to staining** | | | | |
| | a)轻油中的铬绿 a) Green staining agent in light oil | MS ISO 10545-14 | 不低于 3 级 Minimum Class 3 | 5 级 Class 5 | P |
| | b)轻油中的红色污染物 b) Red staining agent in light oil | MS ISO 10545-14 | 不低于 3 级 Minimum Class 3 | 5 级 Class 5 | P |
| | c) 13g/L 碘酒液 c) Iodine, 13g/L solution in alcohol | MS ISO 10545-14 | 不低于 3 级 Minimum Class 3 | 5 级 Class 5 | P |
| | d)橄榄油 d) Olive oil | MS ISO 10545-14 | 不低于 3 级 Minimum Class 3 | 5 级 Class 5 | P |

MS ISO 13006:2014 *Ceramic tiles – Definitions, classification, characteristics and marking*

| 条款 Clause | 性能 Properties | 检验方法 Test Method | 要求 Requirements | 检验结果 Results | 判定 Verdicts |
|---|---|---|---|---|---|
| 附录 L 表 L.1 Annex L Table L.1 | **耐化学腐蚀性 Resistance to chemicals** | | | | |
| | 耐家庭化学试剂和游泳池盐类 Resistance to household chemicals and swimming pool salts | | | | |
| | a) 家庭化学试剂：氯化铵溶液，100g/L a) Household chemicals: Ammonium chloride, 100g/L | MS ISO 10545-13 | 不低于 GB Minimum GB | GA | P |
| | b) 游泳池盐类：次氯酸钠溶液，20mg/L b) Swimming pool salts: Sodium hypochlorite solution, 20mg/L | MS ISO 10545-13 | 不低于 GB Minimum GB | GA | P |
| | 耐低浓度酸和碱 Resistance to low concentrations of acids and alkalis | | | | |
| | a) 3%盐酸溶液(v/v) a) Hydrochloric acid solution, 3% (v/v) | MS ISO 10545-13 | 制造商应声明等级 Manufacturer to state classification | GLA | — |
| | b) 柠檬酸溶液，100g/L b) Citric acid solution, 100g/L | MS ISO 10545-13 | 制造商应声明等级 Manufacturer to state classification | GLA | — |
| | c) 氢氧化钾溶液，30g/L c) Potassium hydroxide, 30g/L | MS ISO 10545-13 | 制造商应声明等级 Manufacturer to state classification | GLA | — |
| | 耐高浓度酸和碱 Resistance to high concentrations of acids and alkalis | | | | |
| | a) 18%盐酸溶液(v/v) a) Hydrochloric acid solution, 18% (v/v) | MS ISO 10545-13 | 报告检验结果 Test method available | GHA | — |
| | b) 5 %乳酸溶液(v/v) b) Lactic acid, 5 % (v/v) | MS ISO 10545-13 | 报告检验结果 Test method available | GHA | — |
| | c) 氢氧化钾溶液，100g/L c) Potassium hydroxide, 100g/L | MS ISO 10545-13 | 报告检验结果 Test method available | GHA | — |

用语说明 Possible test case verdicts
1. P(ass)：合格 *Test item does meet the requirement.*
2. F(ail)：不合格 *Test item does not meet the requirement.*
3. —：未进行判定 *Verdict was not carried out.*
4. N/A：不适用 *Test case does not apply to the test item.*

EN 15771:2010 *Vitreous and porcelain enamels - Determination of surface scratch hardness according to the Mohs scale*

| 性能 Properties | 检验方法 Method | 检验结果 Results |
|---|---|---|
| **莫氏硬度 Scratch hardness of surface according to Mohs** | EN 15771 | 4 |

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报告结束 End of Test Report

Date : 14-Feb-15



## NIRO IN-HOUSE TEST REPORT

(This report is subject to the terms & conditions set out below)

Subject : Testing of Glaze Porcelain Tiles

| Method of test : | | |
|---|---|---|
| 1) | Surface Quality Test | = ISO 10545 - 2 |
| 2) | Dimension Test | = ISO 10545 - 2 |
| 3) | Straightness of Side Test | = ISO 10545 - 2 |
| 4) | Rectangularity Test | = ISO 10545 - 2 |
| 5) | Centre Curvature Test | = ISO 10545 - 2 |
| 6) | Warpage test | = ISO 10545 - 2 |
| 7) | Edge curvature | = ISO 10545 - 2 |
| 8) | Water Absorption | = ISO 10545 - 3 |
| 9) | Modulus of Rupture Test | = ISO 10545 - 4 |
| 10) | Resistance to Surface Abrasion | = ISO 10545 - 7 |
| 11) | Chemical resistance | = ISO 10545 - 13 |
| 12) | Stain resistance | = ISO 10545 - 14 |
| 13) | Slip resistance test ( wet pendulum ) | = AS/NZS 4586 : 2004 |

Specification : ISO 13006 : 2003
Annex G : Group bla
AS/NZS 4586 : 2004

Description of Sample : 42pcs of sample tile size 299 mm x 299 mm x 7.8 mm
Series : Granite Un polished Matt GG200
Brand : Niro granite
Made in Malaysia

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**Results :-**

1) **Surface Quality Test**

10 pieces of the batch of the tile sample inspected were found to be free from cracks, crazing, dry spots, unevenness, holes, faults, chips, blister,spots, decoration rough edges on the surface from 1 M away under normal lighting.

2) **Dimension Test**

| Sample Reference | | Granite Un polished Matt GG200 | | | | | | | | | | ISO 13006 : 2003 | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| Length (mm) | Measured | 299.5 | 299.4 | 299.5 | 299 | 299.5 | 299.6 | 299.5 | 299 | 299.4 | 299 | | |
| | Average | 299.34 | | | | | | | | | | | |
| | Work Size | 299 | | | | | | | | | | | |
| | Deviation of Measurement size from Average, % | 0.17 | 0.13 | 0.17 | 0.00 | 0.17 | 0.20 | 0.17 | 0.00 | 0.13 | 0.00 | ± 0.5 % | Passed |
| | Deviation of Measurement size from Work Size, % | 0.17 | 0.13 | 0.17 | 0.00 | 0.17 | 0.20 | 0.17 | 0.00 | 0.13 | 0.00 | ± 0.5 % | Passed |
| Width (mm) | Measured | 299.6 | 299.5 | 299.6 | 299.2 | 299.5 | 299.6 | 299.5 | 299 | 299.5 | 299.2 | | |
| | Average | 299.42 | | | | | | | | | | | |
| | Work Size | 299 | | | | | | | | | | | |
| | Deviation of Measurement size from Average, % | 0.06 | 0.03 | 0.06 | -0.07 | 0.03 | 0.06 | 0.03 | -0.14 | 0.03 | -0.07 | ± 0.5 % | Passed |
| | Deviation of Measurement size from Work Size, % | 0.20 | 0.17 | 0.20 | 0.07 | 0.17 | 0.20 | 0.17 | 0.00 | 0.17 | 0.07 | ± 0.5 % | Passed |
| Thickness (mm) | Measured | 7.9 | 7.9 | 8 | 7.9 | 7.9 | 7.9 | 8 | 7.9 | 7.9 | 7.9 | | |
| | Average | 7.92 | | | | | | | | | | | |
| | Work Size | 7.8 | | | | | | | | | | | |
| | Deviation of Measurement size from Work Size, % | 1.28 | 1.28 | 2.56 | 1.28 | 1.28 | 1.28 | 2.56 | 1.28 | 1.28 | 1.28 | ± 5.0 % | Passed |

NIRO CERAMIC (M) SDN BHD (Company No: 169869-M)

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Results :-

3) Straightness of Side Test

| Sample Reference | Granite Un polished Matt GG200 | | | | | | | | | | ISO 13006 : 2003 | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| Maximum Deviation, $L_{max}$ (Work Size) % | -0.05 | -0.08 | -0.06 | -0.04 | -0.04 | 0.02 | -0.03 | -0.04 | -0.09 | -0.04 | ± 0.5 % | Passed |

4) Rectangularity Test

| Sample Reference | Granite Un polished Matt GG200 | | | | | | | | | | ISO 13006 : 2003 | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| Maximum Deviation, $L_{max}$ (Work Size) % | -0.07 | 0.05 | -0.07 | 0.04 | 0.03 | -0.05 | -0.05 | -0.08 | -0.09 | -0.06 | ± 0.6% | passed |

5) Centre Curvature Test

| Sample Reference | Granite Un polished Matt GG200 | | | | | | | | | | ISO 13006 : 2003 | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| Related to diagonal calculated from the work sizes % | -0.07 | -0.09 | -0.09 | -0.08 | -0.06 | 0.08 | -0.09 | -0.09 | 0.05 | -0.10 | ± 0.5 % | Passed |

6) Warpage test

| Sample Reference | Granite Un polished Matt GG200 | | | | | | | | | | ISO 13006 : 2003 | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 87 | 9 | 10 | | |
| Related to diagonal calculated from the work sizes % | -0.10 | -0.05 | -0.07 | -0.10 | 0.08 | -0.10 | -0.08 | -0.10 | -0.06 | -0.07 | ± 0.5 % | Passed |

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**Results :-**

7) **Edge curvature**

| Sample Reference | Granite Un polished Matt GG200 | | | | | | | | | | ISO 13006 : 2003 | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 5 | 7 | 8 | 9 | 10 | | |
| Maximum Deviation, $L_{max}$ (Work Size) % | 0.10 | -0.12 | 0.06 | -0.07 | -0.12 | 0.09 | -0.06 | -0.07 | -0.06 | 0.05 | ± 0.5% | passed |

8) **Water Absorption**

| Sample Reference | Granite Un polished Matt GG200 | | | | | | | | | | ISO 13006 : 2003 | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 5 | 7 | 8 | 9 | 10 | | |
| Water Absorption By Vacuum (%) | 0.02 | 0.03 | 0.03 | 0.02 | 0.03 | 0.03 | 0.02 | 0.03 | 0.03 | 0.03 | < ≈ 0.5 % | Passed |
| Average Water Absorption By Vacuum (%) | 0.03 | | | | | | | | | | | |

Classification Group : Group B1a
Remarks :The above result were found under B1a group with water absorbtion ≤ 0.5 % .

9) **Modulus of Rupture Test**

| Sample Reference | Granite Un polished Matt GG200 | | | | | | | | | | Average | ISO 13006 : 2003 | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 5 | 7 | 8 | 9 | 10 | | | |
| Width b (mm) | 299.5 | 299.5 | 299.6 | 299.1 | 299.5 | 299.5 | 299.6 | 299.0 | 299.5 | 299.0 | 2993.8 | | passed |
| Min. Thickness h (mm) along broken edge | 6.9 | 7.0 | 7.0 | 6.9 | 6.7 | 7.1 | 7.0 | 6.8 | 7.0 | 6.9 | 6.93 | | |
| Breaking Load F (N) | 1816 | 1819 | 1981 | 1868 | 1702 | 1892 | 1610 | 1797 | 1689 | 1679 | 1785.30 | | |
| Breaking Strength S (N) = FL/b | 2365 | 2369 | 2579 | 2436 | 2216 | 2464 | 2096 | 2344 | 2199 | 2190 | 2325.69 | Not less than 1300 | |
| MOR R ($N/mm^2$) = $3S/2h^2$ | 49.7 | 48.3 | 52.6 | 51.2 | 49.4 | 48.9 | 42.8 | 50.7 | 44.9 | 46.0 | 48.44 | minimum 35 N/mm2 | passed |

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Results :-

9) Resistance to Surface Abrasion

| Sample Reference | Granite Un polished Matt GG200 |
|---|---|
| Abrasion Stage :<br>Failure visible at (Revolutions) | 12000 |
| Class | 4 |

Classification

| Abrasion Stage : Failure visible at (Revolutions) | Class | Classification |
|---|---|---|
| 100 | 0 | Not recommended for use in floor |
| 150 | 1 | Areas that are walked on with soft soled footwear/ barefeet without scratching dirt. (Eg. Residential bathrooms & bedrooms). |
| 600 | 2 | Areas that are walked on with soft soled/ normal footwear with ocassional small amounts of scratching dirt. (Eg. Living room. Exception of kitchen + entrances). |
| 750, 1500 | 3 | Areas that are walked on with footwear with small amounts of scratching dirt. (Eg. Residential kitchen, corridors, balconies). |
| 2100, 6000, 12000 | 4 | Areas that are walked on by regular traffic with some sratching dirt. (Eg. Hotel, commercial kitchen, exhibition room) |
| >12000 | 5 | Areas subjected to severe pedestrian traffic over sustained periods with scratching dirt. (Eg shopping centres, public walkway) |

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NIRO GRANITE THE SWISS QUALITY TILE ZIRCONIO ORIN Bathroom Architecture NIRO

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NIRO GRANITE THE SWISS QUALITY TILE ZIRCONIO ORIN Bathroom Architecture NIRO TILE & BATH

Results :-

10) Chemical Resistance rest

| Sample Reference | Granite Un polished Matt GG200 | | | | | |
|---|---|---|---|---|---|---|
| Specimen Reference | 1 | 2 | 3 | 4 | 5 | ISO 13006 : 2003 |
| Date of Test commencement | 14/2 2015 | | | | | |
| Ammonium Chlorise Solution ( 100g/l) | UA | UA | UA | UA | UA | Minimum UB |
| Sodium Hpochlorite ( 20mg/l) | UA | UA | UA | UA | UA | |
| Hydrochloric Acid ( 3%(v/v) | ULA | ULA | ULA | ULA | ULA | Manufacturer to state classification |
| Citric acid (100g/l) | ULA | ULA | ULA | ULA | ULA | |
| Potasssium Hydroxide ( 30g/l) | ULA | ULA | ULA | ULA | ULA | |

CLASSCIFICATION

| Test solutions | Classcification | Description |
|---|---|---|
| ( 1 ) Ammonium Chloride | UA | No visible effects |
| ( 2 ) Sodium Hypochlorite | UB | Visible effectes on cut sides |
| | UC | Visible effects on cut & non cuts sides & on the proper surface |

Low concentration

| | | |
|---|---|---|
| (3A) Hydrocloric acid | ULA | No visible effects |
| (3b) Citric acid | ULB | Visible effectes on cut sides |
| ( 3c ) Potassium Hydroxide | ULC | Visible effects on cut & non cuts sides & on the proper surface |



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Result :

11) Stain resistance test

| Sample Reference | | Granite Un polished Matt GG200 | | | | | ISO 13006 : 2003 | Status |
|---|---|---|---|---|---|---|---|---|
| Test solution | | 1 | 2 | 3 | 4 | 5 | | |
| Iodine solution | | Class | Class | Class | Class | Class | | |
| 5 | | 5 | 5 | 5 | 5 | 5 | min class 3 | Passed |

Classification






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**Result :**

**12) Slip resistance by wet pendulum test**

| Sample Reference | Granite Un polished Matt GG200 | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| **Swing 1** | 45 | 45 | 45 | 51 | 45 |
| **Swing 2** | 46 | 46 | 45 | 51 | 48 |
| **Swing 3** | 46 | 52 | 44 | 50 | 50 |
| **Average** | **46** | **48** | **45** | **50** | **48** |
| **Classification** | **W** | **W** | **W** | **W** | **W** |

**Extration - AS / NZ 4586 : 2004**
**Classification of pedestrian Surface Material According To The Wet Pendulum Test**

| Classification | Pendulum BPN ( British Pendulum Four S Rubber | Contribution of the floor surface to the risk of slipping when wet |
|---|---|---|
| V | > 54 | Very low |
| W | 45 to 54 | Low |
| X | 35 to 44 | Moderate |
| Y | 25 to 34 | High |
| Z | < 25 | Very High |

**Classification of pedastrian Flooring Selection Guide - Minimum Pendulum or Ramp Location Recommendation For Sepecific .Extration - Standart Austrlia HB - 197**

| Location | Pendulum | Ramp |
|---|---|---|
| External colonnade,walkways and pedestrian crossings | W | R10 |
| External ramps | V | R11 |
| Entry foyers hotel,office , public buildings - wet | X | R10 |
| Entry foyers hotel,office , public buildings - dry | Z | R9 |
| Shopping centre excluding food court | Z | R9 |
| Shopping centre - food court | Z | R9 |
| Internal ramps slopes (greater then 2 degrees ) - dry | X | R10 |
| Lift lobbies above external entrances - entry area | Z | R9 |
| Other separate shops inside shopping centres | X | R10 |
| Fast food outlets,buffet food servery areas | X | R10 |
| Hospitals and aged care facilities - dry areas | Z | R9 |
| Hospitals and aged care facilities - ensuites | X | R10 |
| Supermarket aisles except fresh food areas | Z | R9 |
| Shop and supermarket fresh fruits and vegetable ares | X | R10 |
| Communal changing rooms | X | A |
| Swimming pool surrounds and communal shower rooms | W | B |
| Swimming pool ramps and staira leading into water | V | C |
| Toilet facilities in offices,hotels,shopping centres | X | R10 |
| Under cover concourse areas of sports stadium | X | R10 |
| Accessible internal stair nosings (dry) - handrails present | X | R10 |
| Accessible internal stair nosings (wet) - handrails present | W | B or R11 |
| External stair nosing | W | R11 |

Note 1 - Appropriate measures need to be taken ro exclude water from dry areas.
Note 2 - All floors with awet pendulum classification of Z should have a dry floor friction of F unless usage dictates that the floor should have a low dry coefficient of friction , e.g dance floor.

Tested by

Palsang Lama
**Qc Inspector**

Verified by :

Zulkiple Rusman
**QA- Asst Manager**

Date : 12-Aug-15 Page 1 of 8

**NIRO IN-HOUSE TEST REPORT**

(This report is subject to the terms & conditions set out below)

Subject : Testing of Glaze Porcelain Tiles

| | | | |
|---|---|---|---|
| Method of test : | 1) | Surface Quality Test | = ISO 10545 - 2 |
| | 2) | Dimension Test | = ISO 10545 - 2 |
| | 3) | Straightness of Side Test | = ISO 10545 - 2 |
| | 4) | Rectangularity Test | = ISO 10545 - 2 |
| | 5) | Centre Curvature Test | = ISO 10545 - 2 |
| | 6) | Warpage test | = ISO 10545 - 2 |
| | 7) | Edge curvature | = ISO 10545 - 2 |
| | 8) | Water Absorption | = ISO 10545 - 3 |
| | 9) | Modulus of Rupture Test | = ISO 10545 - 4 |
| | 10) | Resistance to Surface Abrasion | = ISO 10545 - 7 |
| | 11) | Chemical resistance | = ISO 10545 - 13 |
| | 12) | Stain resistance | = ISO 10545 - 14 |
| | 13) | Slip resistance test ( wet pendulum ) | = AS/NZS 4586 : 2004 |

Specification : ISO 13006 : 2003
Annex J: Group BIIa
AS/NZS 4586 : 2004

Description of Sample : 10 pcs of sample tile size 300 mm x 300 mm x 7.5 mm
Series : Serenity - PSR02 GREY - Matt Surface ( MP )
Brand : Portino
Made in Malaysia

**Results :-**



**1) Surface Quality Test**

10 pieces of the batch of the tile sample inspected were found to be free from cracks, crazing, dry spots, unevenness, holes, faults, chips, blister,spots, decoration rough edges on the surface from 1 M away under normal lighting.

**2) Dimension Test**

| Sample Reference | | Serenity - PSR02 GREY - Matt Surface ( MP ) | | | | | | | | | | ISO 13006 : 2003 | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| Length (mm) and width | Measured | 301.2 | 301 | 301.2 | 301.3 | 301.4 | 301.2 | 301.7 | 301.2 | 301.2 | 301.2 | | |
| | Average | 301.26 | | | | | | | | | | | |
| | Work Size | 301 | | | | | | | | | | | |
| | Deviation of Measurement size from Average, % | 0.07 | 0.00 | 0.07 | 0.10 | 0.13 | 0.07 | 0.23 | 0.07 | 0.07 | 0.07 | ± 0.6 % | Passed |
| Thickness (mm) | Measured | 7.3 | 7.3 | 7.4 | 7.3 | 7.4 | 7.2 | 7.5 | 7.4 | 7.3 | 7.4 | ± 5.0 % | Passed |
| | Average | 7.35 | | | | | | | | | | | |
| | Work Size | 7.5 | | | | | | | | | | | |
| | Deviation of Measurement size from Work Size, % | -2.67 | -2.67 | -1.33 | -2.67 | -1.33 | -4.00 | 0.00 | -1.33 | -2.67 | -1.33 | | |

**Results :-**



**3) Straightness of Side Test**

| Sample Reference | Serenity - PSR02 GREY - Matt Surface ( MP ) | | | | | | | | | | ISO 13006 : 2003 | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| Maximum Deviation, $L_{max}$ (Work Size) % | -0.01 | -0.09 | 0.03 | 0.12 | 0.16 | 0.08 | 0.01 | 0.15 | -0.06 | 0.11 | ± 0.5 % | Passed |

**4) Rectangularity Test**

| Sample Reference | Serenity - PSR02 GREY - Matt Surface ( MP ) | | | | | | | | | | ISO 13006 : 2003 | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| Maximum Deviation, $L_{max}$ (Work Size) % | 0.03 | -0.03 | -0.10 | -0.12 | -0.13 | -0.12 | -0.08 | 0.17 | 0.07 | 0.15 | ± 0.5% | passed |

**5) Centre Curvature Test**

| Sample Reference | Serenity - PSR02 GREY - Matt Surface ( MP ) | | | | | | | | | | ISO 13006 : 2003 | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| Related to diagonal calculated from the work sizes % | -0.05 | -0.01 | -0.01 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | ± 0.5% | Passed |

**6) Warpage test**

| Sample Reference | Serenity - PSR02 GREY - Matt Surface ( MP ) | | | | | | | | | | ISO 13006 : 2003 | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 87 | 9 | 10 | | |
| Related to diagonal calculated from the work sizes % | 0.12 | 0.11 | 0.13 | 0.17 | 0.15 | 0.14 | 0.16 | 0.17 | 0.17 | 0.16 | ± 0.5% | Passed |

**Results :-**

**7) Edge curvature**

| Sample Reference | Serenity - PSR02 GREY - Matt Surface ( MP ) | | | | | | | | | | ISO 13006 : 2003 | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 5 | 7 | 8 | 9 | 10 | | |
| Maximum Deviation, $L_{max}$ (Work Size) % | 0.06 | 0.15 | 0.03 | 0.08 | 0.03 | 0.05 | 0.01 | 0.04 | 0.09 | 0.06 | ± 0.5% | passed |

**8) Water Absorption**

| Sample Reference | Serenity - PSR02 GREY - Matt Surface ( MP ) | | | | | | | | | | ISO 13006 : 2003 | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 5 | 7 | 8 | 9 | 10 | | |
| Water Absorption By Vacuum (%) | 3.4 | 3.4 | 3.8 | 3.4 | 3.5 | 3.5 | 3.4 | 3.6 | 3.4 | 3.8 | 3 % < E ≤ 6 % Individual maximum 6.5 % | Passed |
| Average Water Absorption By Vacuum (%) | 3.52 | | | | | | | | | | | |

Classification Group : Group BIIa
Remarks :The above result were found under BIIa group with water absorbtion 3 % E ≤ 6 % .

**9) Modulus of Rupture Test**

| Sample Reference | Serenity - PSR02 GREY - Matt Surface ( MP ) | | | | | | | | | | Average | ISO 13006 : 2003 | Status |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 5 | 7 | 8 | 9 | 10 | | | |
| Width b (mm) | 301.2 | 301.0 | 301.3 | 301.3 | 301.2 | 301.3 | 301.3 | 301.0 | 301.3 | 301.5 | 301.24 | | passed |
| Min. Thickness h (mm) along broken edge | 6.1 | 6.2 | 6.3 | 6.1 | 6.2 | 6.3 | 6.1 | 6.2 | 6.1 | 6.3 | 6.19 | | |
| Breaking Load F (N) | 937 | 938 | 922 | 1029 | 1033 | 1026 | 1013 | 993 | 942 | 1631 | 1046.40 | | |
| Breaking Strength S (N) = FL/b | 2365 | 2369 | 2579 | 2436 | 2216 | 2464 | 2096 | 2344 | 2199 | 2190 | 2325.69 | Not less than 1000 | |
| MOR R (N/mm$^2$) = 3S/2h$^2$ | 32.6 | 31.6 | 30.1 | 35.8 | 34.8 | 33.5 | 35.2 | 33.5 | 32.8 | 53.2 | 35.30 | minimum 22 N/mm2 individual minimum 20 N/mm2 | passed |

**Results :-**

**9) Resistance to Surface Abrasion**

| Sample Reference | Serenity - PSR02 GREY - Matt Surface ( MP ) |
|---|---|
| **Abrasion Stage : Failure visible at (Revolutions)** | **12000** |
| **Class** | **4** |

**Classification**

| Abrasion Stage : Failure visible at (Revolutions) | Class | Classification |
|---|---|---|
| **100** | **0** | Not recommended for use in floor |
| **150** | **1** | Areas that are walked on with soft soled footwear/ barefeet without scratching dirt. (Eg. Residential bathrooms & bedrooms). |
| **600** | **2** | Areas that are walked on with soft soled/ normal footwear with ocassional small amounts of scratching dirt. (Eg. Living room. Exception of kitchen + entrances). |
| **750, 1500** | **3** | Areas that are walked on with footwear with small amounts of scratching dirt. (Eg. Residential kitchen, corridors, balconies). |
| **2100, 6000, 12000** | **4** | Areas that are walked on by regular traffic with some sratching dirt. (Eg. Hotel, commercial kitchen, exhibition room) |
| **>12000** | **5** | Areas subjected to severe pedestrian traffic over sustained periods with scratching dirt. (Eg shopping centres, public walkway) |

**Results :-**

**10) Chemical Resistance rest**

| **Sample Reference** | **Serenity - PSR02 GREY - Matt Surface ( MP )** | | | | | **ISO 13006 : 2003** |
|---|---|---|---|---|---|---|
| **Specimen Reference** | 1 | 2 | 3 | 4 | 5 | |
| **Date of Test commencement** | 08/12/2015 | | | | | |
| Ammonium Chlorise Solution ( 100g/l) | **GA** | **GA** | **GA** | **GA** | **GA** | Minimum GB |
| Sodium Hpochlorite ( 20mg/l) | **GB** | **GB** | **GB** | **GB** | **GB** | |
| Hydrochloric Acid ( 3%(v/v) | **GLB** | **GLB** | **GLB** | **GLB** | **GLB** | Manufacturer to state classification |
| Citric acid (100g/l) | **GLB** | **GLB** | **GLB** | **GLB** | **GLB** | |
| Potasssium Hydroxide ( 30g/l) | **GLB** | **GLB** | **GLB** | **GLB** | **GLB** | |
| Hydrochloric Acid ( 3%(v/v) | **GHB** | **GHB** | **GHB** | **GHB** | **GHB** | Manufacturer to state classification |
| Citric acid (100g/l) | **GHB** | **GHB** | **GHB** | **GHB** | **GHB** | |
| Potasssium Hydroxide ( 30g/l) | **GHB** | **GHB** | **GHB** | **GHB** | **GHB** | |

**CLASSCIFICATION**

House hold chemical, swimming pool salts

| **Test solutions** | **Classcification** | **Description** |
|---|---|---|
| ( 1 ) Ammonium Chloride | GA | No visible effects |
| ( 2 ) Sodium Hypochlorite | GB | Definite change in appearance |
| | GC | Partial or complete loss of the original surface |

Low concentration

| | | |
|---|---|---|
| Hydrocloric acid 3 % | GLA | No visible effects |
| Citric acid | GLB | Definite change in appearance |
| Potassium Hydroxide 30G/L | GLC | Partial or complete loss of the original surface |

high concentration

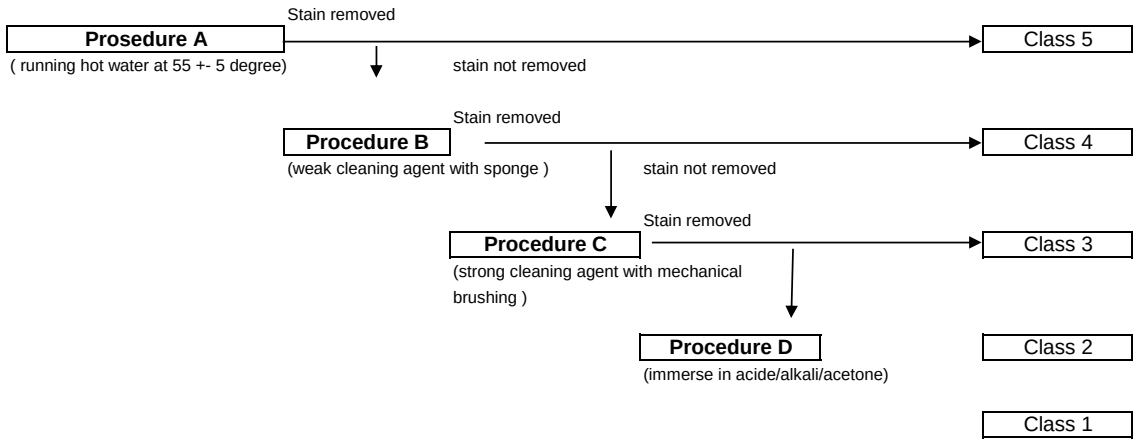
| | | |
|---|---|---|
| Hydrocloric acid 18 % | GHA | No visible effects |
| Latic acid 5% | GHB | Definite change in appearance |
| Potassium Hydroxide 100g/l | GHC | Partial or complete loss of the original surface |

**Result :**

**11) Stain resistance test**

| Sample Reference | Serenity - PSR02 GREY - Matt Surface ( MP ) | | | | | ISO 13006 : 2003 | Status |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | | |
| **Test solution** | **Class** | **Class** | **Class** | **Class** | **Class** | | |
| | | | | | | **min class 3** | **Passed** |
| **Iodine solution** | **5** | **5** | **5** | **5** | **5** | | |

**Classification**



**Result :**

**12) Slip resistance by wet pendulum test**

| Sample Reference | Serenity - PSR02 GREY - Matt Surface ( MP ) | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| **Swing 1** | 45 | 45 | 45 | 51 | 45 |
| **Swing 2** | 46 | 46 | 45 | 51 | 48 |
| **Swing 3** | 46 | 52 | 44 | 50 | 50 |
| **Average** | **46** | **48** | **45** | **50** | **48** |
| **Classification** | **W** | **W** | **W** | **W** | **W** |

**Extration - AS / NZ 4586 : 2004**
**Classification of pedestrian Surface Material According To The Wet Pendulum Test**

| Classification | Pendulum BPN ( British Pendulum Number ) | Contribution of the floor surface to the risk of slipping |
|---|---|---|
| V | > 54 | Very low |
| W | 45 to 54 | Low |
| X | 35 to 44 | Moderate |
| Y | 25 to 34 | High |
| Z | < 25 | Very High |

**Classification of pedastrian Flooring Selection Guide - Minimum Pendulum or Ramp Location Recommendation For Sepecific .Extration - Standart Austrlia HB - 197**

| Location | Pendulum | Ramp |
|---|---|---|
| External colonnade,walkways and pedestrian crossings | W | R10 |
| External ramps | V | R11 |
| Entry foyers hotel,office , public buildings - wet | X | R10 |
| Entry foyers hotel,office , public buildings - dry | Z | R9 |
| Shopping centre excluding food court | Z | R9 |
| Shopping centre - food court | Z | R9 |
| Internal ramps slopes (greater then 2 degrees ) - dry | X | R10 |
| Lift lobbies above external entrances - entry area | Z | R9 |
| Other separate shops inside shopping centres | X | R10 |
| Fast food outlets,buffet food servery areas | X | R10 |
| Hospitals and aged care facilities - dry areas | Z | R9 |
| Hospitals and aged care facilities - ensuites | X | R10 |
| Supermarket aisles except fresh food areas | Z | R9 |
| Shop and supermarket fresh fruits and vegetable ares | X | R10 |
| Communal changing rooms | X | A |
| Swimming pool surrounds and communal shower rooms | W | B |
| Swimming pool ramps and staira leading into water | V | C |
| Toilet facilities in offices,hotels,shopping centres | X | R10 |
| Under cover concourse areas of sports stadium | X | R10 |
| Accessible internal stair nosings (dry) - handrails present | X | R10 |
| Accessible internal stair nosings (wet) - handrails present | W | B or R11 |
| External stair nosing | W | R11 |

Note 1 - Appropriate measures need to be taken ro exclude water from dry areas.
Note 2 - All floors with awet pendulum classification of Z should have a dry floor friction of F unless usage dictates that the floor should have a low dry coefficient of friction , e.g dance floor.

Tested by

Khairudin Abdullah
**QA Supervisor**

Verified by :

Zulkiple Musman
**QA- Asst Manager**

**TEST REPORT**
**EN 14411**
**Ceramic tiles-Definitions, classification, characteristics, evaluation of conformity and marking**

| | |
|---|---|
| Report Reference No……: | 151118069GZU-001 |
| Tested by (name and signature) .....: | Jones Zhong |
| Approved by (name and signature)..: | Jeff Deng |
| Date of issue.....: | December 18, 2015 |
| Contents……..: | Total test report 18 pages including: |
| | Report text: 10 pages |
| | Appendix A for test data: 1 page |
| | Appendix B for manufacturer ISO9001 certification: 1 page |
| | Appendix C for product photos: 5 pages |
| | Appendix D for Revision history: 1 page |
| **Testing Laboratory name**……..: | Intertek Testing Services Shenzhen Ltd. Guangzhou Branch |
| Address……: | Block E, No.7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, GETDD, Guangzhou, China |
| Testing location ……: | Same as above |
| **Applicant's name**……: | Niro Ceramic Sales & Services(M) Sdn Bhd |
| Address……...: | Lot 2, Persiaran Sultan, Seksyen 15, 40200 Shah Alam, Selangor, Malaysia |
| **Test specification:** | |
| Standard……..…..: | EN 14411:2012 (E) |
| Non-standard test method……: | N/A |
| **Test Report Form No**……..: | TTRF EN 14411:2012 (E) C |
| TTRF Originator……: | Intertek Testing Services Shenzhen Ltd. Guangzhou Branch |
| Master TTRF……..: | Dated 2013-01 |
| **Test item description**……: | CERAMIC TILES |
| Trade Mark……: | Niro Granite |
| Model and/or type reference……: | See 'General product information' |
| Manufacturer……..: | PT. NIRO CERAMIC NASIONAL INDONESIA |
| Rating(s)……: | Dry-pressed ceramic tiles with glazed finish, water absorption more than 0,5% and not more than 3%, Group $BI_b$, for internal and external wall & floor finishes. |

Copy of marking plate and summary of test results (information/comments):
Only example for specified model: e.g. PB501 (600*300*9mm, Matt)

Marking on the package

| |
|---|
| Niro Ceramic Sales & Services(M) Sdn Bhd |
| Made in Indonesia |
| First Quality |
| Glazed Floor and Wall Tile (Annex G, $BI_a$) |
| 600mm x 300mm(W600mm x 300mm x 9mm) |
| Weight: kg/ carton |
| Coefficient of friction:<br>CEN/ TS 16165: 2012 Annex C, Slider 57, PTV:<br>Dry 62, Wet 37. |

CE

Niro Ceramic Sales & Services(M) Sdn Bhd
Lot 2, Persiaran Sultan, Seksyen 15, 40200 Shah Alam, Selangor, Malaysia
15
XXXXX-CPR-2015/12/18

EN14411: 2012
Ceramic tile, dry-pressed, for internal wall & floor finishes

| **Characteristics** | **Declared values** |
|---|---|
| Reaction to fire | $A1_{fl}$ |
| Release of dangerous substances, for:<br>- Cadmium<br>- Lead | <br>N/A<br>N/A |
| Breaking strength | 1456N |
| Bond strength | N/A |
| Slipperiness | CEN/ TS 16165: 2012 Annex C<br>Slider 57, PTV: Dry 62, Wet 37. |
| Thermal shock resistance | Pass |
| Durability for:<br>- internal uses<br>- external uses: freeze-thaw resistance | <br>Pass<br>Pass |
| Tactility | N/A |

Note:
a) If the CE marking is reduced or enlarged the proportions given in the above graduated drawing must be respected.
b) The various components of the CE marking must have substantially the same vertical dimension, which may not be less than 5 mm.
c) CE marking and label shall be affixed visibly, legibly and indelibly.
d). “XXXXX-CPR-2015/12/18” should be the reference number of the DoP.

Summary of testing:

The submitted samples were tested and found to **COMPLY WITH** applicable requirements of EN 14411: 2012 (E).

**Test item particulars**

Intended use..... : For internal wall & floor finishes.

**Possible test case verdicts:**

- test case does not apply to the test object..... : N/A
- test object does meet the requirement..... : P(Pass)
- test object does not meet the requirement..... : F(Fail)

**Testing**..... :

Date of receipt of test item..... : November 18, 2015

Date (s) of performance of tests..... : November 18, 2015 to December 18 , 2015

**General remarks:**

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

"(See remark #)" refers to a remark appended to the report.
"(See Appendix #)" refers to an appendix appended to the report.
Throughout this report a comma (point) is used as the decimal separator.

When determining the test result, measurement uncertainty has been considered.

The clause which indicated with * is the subcontract test item.

**General product information:**

This report included 21 models, the client claimed all of those models were the same in material, method of manufacture (dry-pressed), water absorption (0,5%<E≤3%), surface finish (glazed), size and usage (for wall & floor finishes), except for the colour design. The report data were mainly based on model PB501 (600*300*9mm, Matt). Besides, PB505(Structured), PD501(Matt), PH502(Matt), PI503(Matt) and PR504(Matt) were tested the abrasion resistance and slipperiness, test data was listed in Appendix A. Detail product information refers to below table.

| Series | Model No. | Surface code | Wall or Floor | Glazed or not | Internal or external | Nominal size, mm | Work size, mm |
|---|---|---|---|---|---|---|---|
| Portino Stoneware | PB501 | Matt Structured | Wall &floor | Glazed | Internal& external | 600x300x9 | 597x297x9 |
| | PB502 | | | | | | |
| | PB503 | | | | | | |
| | PB504 | | | | | | |
| | PB505 | | | | | | |
| | PD501 | Matt | Wall &floor | Glazed | Internal& external | 600x600x10<br>600x300x9 | 597x597x9<br>597x297x9 |
| | PD502 | | | | | | |
| | PD503 | | | | | | |
| | PD504 | | | | | | |
| | PH501 | | | | | | |
| | PH502 | | | | | | |
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| | PI504 | | | | | | |
| | PR501 | | | | | | |

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|---|---|---|---|---|---|---|---|
| | PR502<br>PR503<br>PR504 | | | | | | |

Detail photos refer to Appendix C.

**********End of page**********

| EN 14411 | | | |
|---|---|---|---|
| Clause | Requirement - Test | Result - Remark | Verdict |
| 4 | Classification of ceramic tiles | Methods of manufacture:<br>Method B, dry-pressed tiles<br>Water absorption (E) groups:<br>0,5%<E ≤3% (Group $BI_b$) | — |
| 5 | Requirements | | — |
| 5.2 | Characteristics<br>The characteristics for different applications of ceramic tiles are given in Table 2: | Used as internal floor and wall finishes, meet the requirement, listed in Annex H. | — |
| 6.1 | General<br>The conformity of a family of ceramic tiles with the requirement of this European Standard and with the stated values (Including classes) shall be demonstrated by: Initial type testing and Factory production control: | Refer clause 6.2 and clause 6.3 | — |
| 6.2 | Initial type testing<br>ITT shall be carried out to confirm that the characteristics of a family of products meet the requirements of the standard: | Meet the requirement, listed in clause 5 | P |

| EN 14411 | | | |
|---|---|---|---|
| Clause | Requirement - Test | Result - Remark | Verdict |
| 6.3 | Factory Production Control (FPC) | | P |
| 6.3.1 | General<br>The manufacturer shall establish, document and maintain a factory production control (FPC) system to ensure that the products placed on the market conform to the stated performance characteristics. | The manufacturer was qualified according to ISO 9001<br>(Detail refers to Appendix B) | P |
| 6.3.2 | Equipment<br>The manufacturer shall maintain and apply documented procedures to control, calibrate and maintain inspection, measuring and test equipment, used to demonstrate the conformance of product to the specified requirements. | The manufacturer was qualified according to ISO 9001<br>(Detail refers to Appendix B) | P |
| 6.3.3 | Product testing and evaluation<br>The manufacturer shall carry out all final inspection and testing in accordance with the quality plan or documented procedures to complete the evidence of conformance of the finished product to the specified requirements. | The manufacturer was qualified according to ISO 9001<br>(Detail refers to Appendix B) | P |
| 6.3.4 | Inspection and test records<br>The manufacturer shall maintain records in order to be able to prove that a product or a family in a group of products have been inspected and/or tested. | The manufacturer was qualified according to ISO 9001<br>(Detail refers to Appendix B) | P |
| 7 | Designation | | — |

| EN 14411 | | | |
|---|---|---|---|
| Clause | Requirement - Test | Result - Remark | Verdict |
| 8 | Marking<br>Each ceramic tile covered by this European Standard shall bear on its reverse side or edge, the indication of the country where the tile was manufactured.<br>Furthermore, each packaging of ceramic tiles shall bear the following marking information:<br>a) manufacturer's mark and/or trademark and indication of the country where the tile was manufactured, that is, the country where the tile was first fired;<br>b) indication of quality designation, when relevant (see 5.1);<br>c) reference to the appropriate annex of this European Standard, i.e. EN 14411:2012, and classification ("Precision" or "Natural"), where applicable;<br>d) nominal and work sizes;<br>e) nature of the surface, i.e. glazed (GL) or unglazed (UGL);<br>f) surface treatment applied after firing, if any;<br>g) maximum total dry weight of a packaging of ceramic tiles. | Complied, See 'Marking on the package' and Appendix C.3. | P |
| Annex H | Length and width<br>a) for modular tiles in order to allow a nominal joint width of between 2 mm and 5 mm;<br>b) for non-modular tiles so that the difference between the work size and the nominal size is not more than ±2 % (max.±5 mm).<br>The permissible deviation of the average size for each tile (2 or 4 sides) from the work size (W):<br>7 cm ≤Nominal size N < 15 cm: shall be within ±0,9mm<br>Nominal size N≥ 15 cm: shall be within ± 0,6% and ±2,0mm | Work size: 597*297mm<br><br>Average length: 597,29mm<br>The deviation of the average size from the work size: 0,05% and 0,29mm<br>Average width: 297,30mm<br>The deviation of the average size from the work size: 0,10% and 0,30mm | P |

| EN 14411 | | | |
|---|---|---|---|
| Clause | Requirement - Test | Result - Remark | Verdict |
| | Thickness<br>a) The thickness shall be specified.<br>b) The permissible deviation, of the average thickness of each tile from the work size thickness:<br>7 cm ≤Nominal size N < 15 cm: shall be within ±0,5mm<br>Nominal size N≥ 15 cm: shall be within ± 5% and ±0,5mm | Nominal thickness: 9mm<br>Average:8,70mm<br>The deviation of the average size from the work size: -3,33% and -0,30mm | P |
| | Straightness of sides<br>The maximum permissible deviation from straightness, related to the corresponding work sizes:<br>7 cm ≤Nominal size N < 15 cm: shall be within ±0,75mm<br>Nominal size N≥ 15 cm: shall be within ± 0,5% and ±1,5mm | Specimen size: 297*297mm<br>Maximum:<br>0,08% and 0,25mm | P |
| | Rectangularity<br>The maximum permissible deviation from rectangularity related to the corresponding work sizes:<br>7 cm ≤Nominal size N < 15 cm: shall be within ±0,75mm<br>Nominal size N≥ 15 cm: shall be within ± 0,5% and ±2,0mm | Specimen size: 297*297mm<br>Maximum:<br>0,04% and 0,11mm | P |
| Annex H | Centre curvature, related to diagonal calculated from the work sizes:<br>7 cm ≤Nominal size N < 15 cm: shall be within ±0,75mm<br>Nominal size N≥ 15 cm: shall be within ± 0,5% and ±2,0mm | Specimen size: 297*297mm<br>Maximum:<br>0,04% and 0,24mm | P |

| EN 14411 | | | |
|---|---|---|---|
| Clause | Requirement - Test | Result - Remark | Verdict |
| | Edge curvature, related to the corresponding work sizes:<br>7 cm ≤Nominal size N < 15 cm: shall be within ±0,75mm<br>Nominal size N≥ 15 cm: shall be within ± 0,5% and ±2,0mm | Specimen size: 297*297mm<br>Maximum:<br>0,02% and 0,05mm | P |
| | Warpage, related to diagonal calculated from the work sizes:<br>7 cm ≤Nominal size N < 15 cm: shall be within ±0,75mm<br>Nominal size N≥ 15 cm: shall be within ± 0,5% and ±2,0mm | Specimen size: 297*297mm<br>Maximum:<br>0,01% and 0,07mm | P |
| | Surface quality<br>A minimum of 95 % of the tiles shall be free from visible defects that would impair the appearance of a major area of tiles | No defect was found. | P |
| | Water absorption<br>0,5%<Eb ≤ 3,0%. Individual maximum 3,3%: | Average: 0,78%<br>Maximum: 0,94% | P |
| | Breaking strength<br>Thickness ≥7,5mm, Breaking strength shall be not less than 1100 N;<br>Thickness<7,5mm, Breaking strength shall be not less than 700 N: | Average: 1456 N<br>Minimum: 1298 N | P |
| | Modulus of rupture<br>Average ≥ 30 N/mm$^2$. Individual minimum 27 N/mm$^2$: | Average: 30,5 N/mm$^2$<br>Minimum: 27,1 N/mm$^2$ | P |
| Annex H | Abrasion resistance<br>a) Resistance to deep abrasion of unglazed tiles: removed volume: Maximum 175 mm$^3$<br>b) Resistance to surface abrasion of glazed tiles intended for use on floors: Report the abrasion class and cycles passed: | Glazed tiles<br>Refer to Appendix A | P |

| EN 14411 | | | |
|---|---|---|---|
| Clause | Requirement - Test | Result - Remark | Verdict |
| | Coefficient of linear thermal expansion<br>Declared value: | $4,5\times10^{-6}K^{-1}$ | P |
| | Thermal shock resistance<br>Pass according to EN ISO 10545-1: | No defect was found after being tested. | P |
| | Crazing resistance<br>For glazed tiles, pass according to EN ISO 10545-1: | No defect was found after being tested. | P |
| | Frost resistance<br>Pass according to EN ISO 10545-1: | $E_1$: 0,76%<br>$E_2$: 0,98%<br>No defect was found after being tested. | P |
| | Slipperiness<br>Declared value: | CEN/TS 16165: 2012 Annex C, Slider 57, PTV:<br>Refer to Appendix A | — |
| | Bond strength/adhesion<br>Declared value: | No intend use as wall tiles of transit area. | N/A |
| | Moisture expansion<br>Declared value: | Average: 0,10 mm/m<br>Maximum: 0,41 mm/m | — |
| | Small color differences<br>a) Glazed tiles: $\Delta E_{cmc} < 0,75$<br>b) Unglazed tiles: $\Delta_{Ecmc} < 1,0$ | This test is only applicable to plain colour tiles and is considered to be of importance in certain specialized circumstances | N/A |
| | Impact resistance<br>Declared value: | ε=0,81 | — |
| | Reaction to fire | $A1_{fl}$, without testing. | P |
| Annex H | Tactility<br>Declare surface description | Not intended use for tactile paving surfaces | N/A |
| | Resistance to staining<br>For Glazed tiles: Minimum Class 3:<br>For Unglazed tiles: Declare value. | Class 5 | — |

| EN 14411 | | | |
|---|---|---|---|
| Clause | Requirement - Test | Result - Remark | Verdict |
| | Resistance to chemicals<br>Resistance to low concentration of acids and alkalis:<br>Declared value | Class GLA | — |
| | Resistance to chemicals<br>Resistance to high concentration of acids and alkalis:<br>Declared value | Class GHA | — |
| | Resistance to chemicals<br>Resistance to household chemicals and swimming pool salts<br>Minimum class B: | Class GA | P |
| | Release of dangerous substances<br>a) Cadmium (in mg/dm$^2$): Declared value<br>b) Lead (in mg/dm$^2$): Declared value<br>c) other dangerous substances: Declared value | No this intended use | N/A |

**********End of page**********

**Appendix A**

**Table 1 Test Data for Abrasion Resistance and COF**

| NO. | Model No. | Abrasion Resistance | | Coefficient of Friction (COF) | | |
|---|---|---|---|---|---|---|
| | | Visible failure | Final class | Dry | Wet | Test Method |
| 1 | PB501(Matt) | 1500 | 3 | 62 | 37 | CEN/TS 16165: 2012 Annex C, Slider 57, PTV |
| 2 | PB505(Structured) | 1500 | 3 | 78 | 58 | |
| 3 | PD501(Matt) | 1500 | 3 | 60 | 37 | |
| 4 | PH502(Matt) | 1500 | 3 | 59 | 37 | |
| 5 | PI503(Matt) | 1500 | 3 | 65 | 40 | |
| 6 | PR504(Matt) | 1500 | 3 | 60 | 37 | |

**********End of page**********

**Appendix B**

**Manufacturer's ISO 9001 certification**



WQA

# Certificate of Registration

## PT. Niro Ceramic Nasional Indonesia

**Jl. Raya Mercedes, Desa Cicadas Kec. Gunung Putri, Kab. Bogor 16964, Jawa Barat, Indonesia**

Operate a management system that complies with the requirements of

ISO 9001:2008

With the scope:

Manufacture of porcelain tiles

EA Code: 15

Certificate No. QM 2980

Originally Registered: 08th February 2011

Registered by WQA: 08th February 2011

Re-Certification: 20th November 2016

Latest Issue: 23rd September 2015

Signed on behalf of WQA

Validity of this certificate can be checked by contacting:
Worldwide Quality Assurance Ltd
Derwent House,
Mandale Business Park,
Belmont Industrial Estate,
Durham,
DH1 1TH
www.worldwideqa.com

UKAS MANAGEMENT SYSTEMS
134

This certificate remains the property of Worldwide Quality Assurance Ltd and must be returned on request.

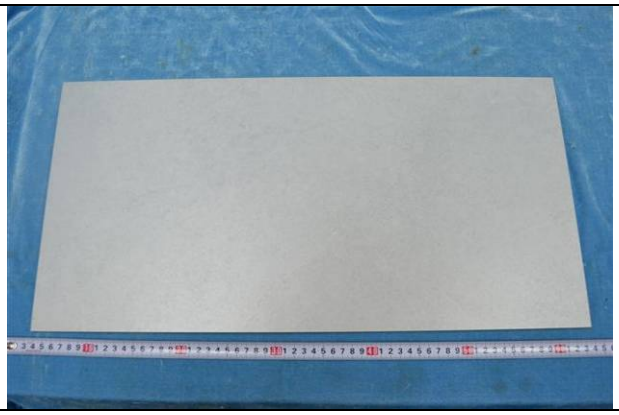
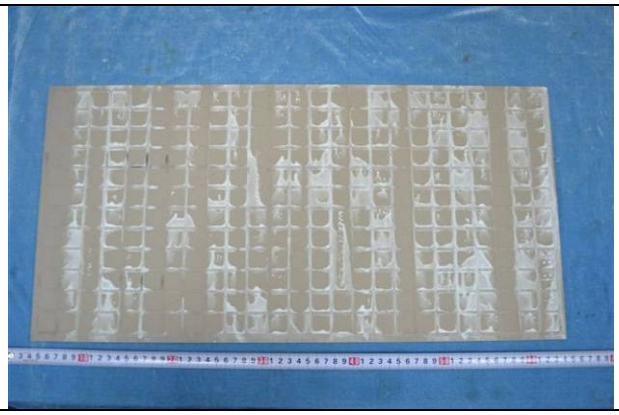
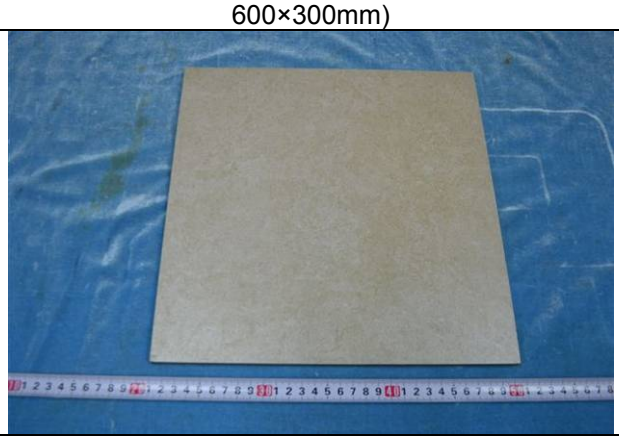
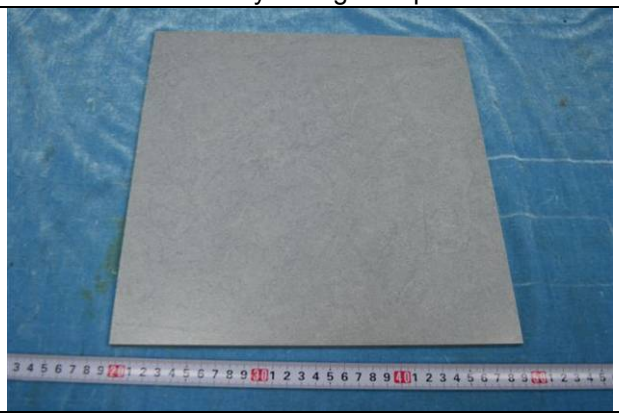
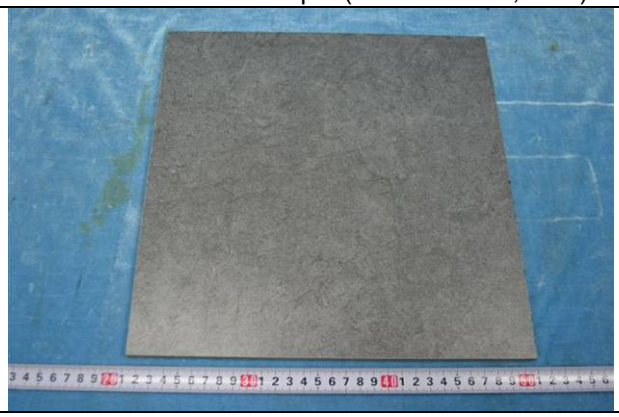
WQA 14C, Issue 7

B.1: Manufacturer's ISO 9001 certification

**********End of page**********

**Appendix C**

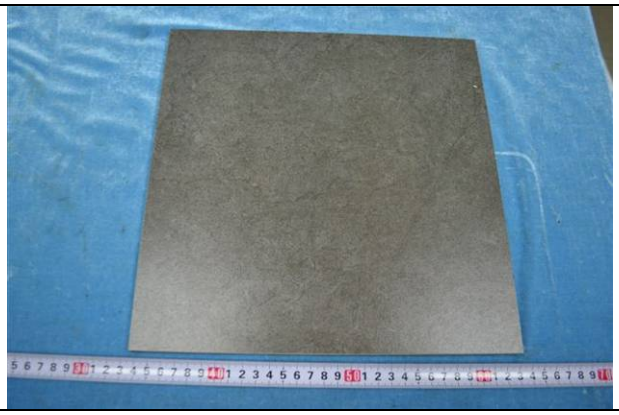
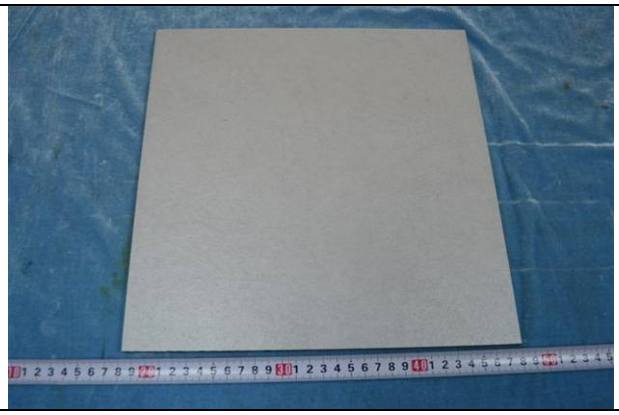
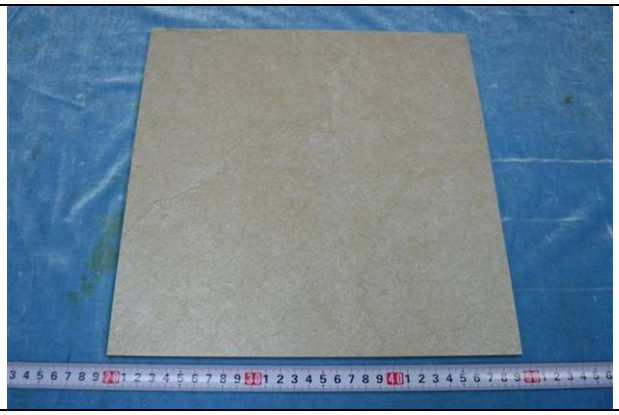
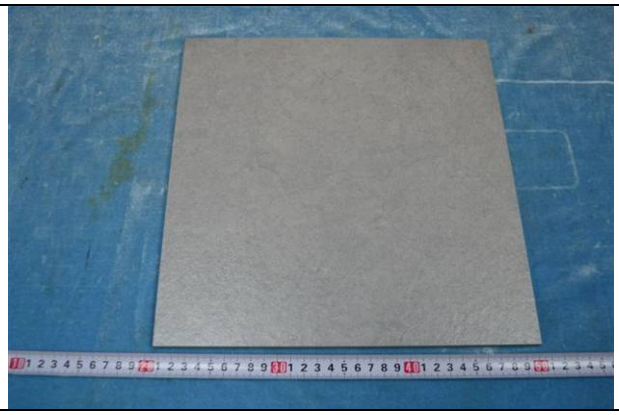
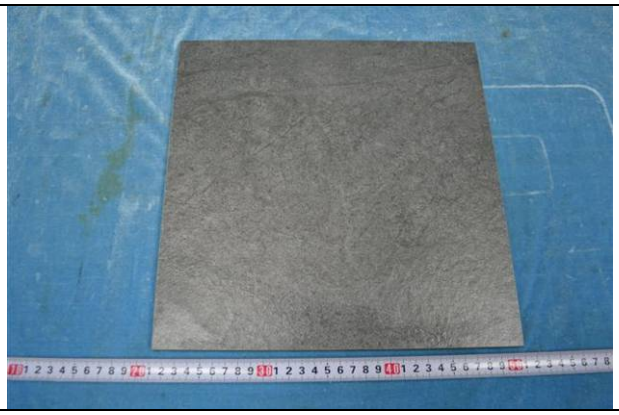
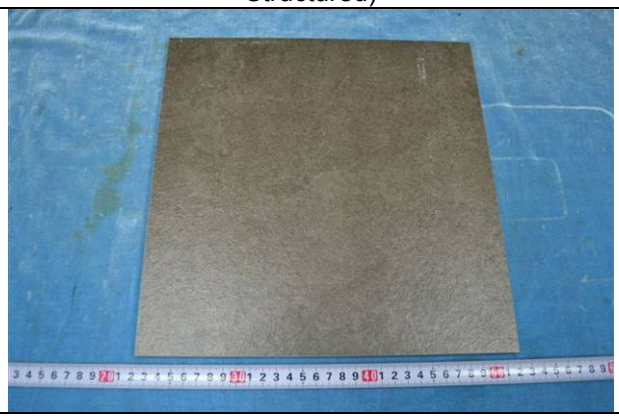
**Product photos**

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<tr><td></td><td></td></tr>
<tr><td>C.3: Country of origin on product</td><td>C.4: Front view of sample (Model PB502, Matt)</td></tr>
<tr><td></td><td></td></tr>
<tr><td>C.5: Front view of sample (Model PB503, Matt)</td><td>C.6: Front view of sample (Model PB504, Matt)</td></tr>
</table>

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**Appendix C**

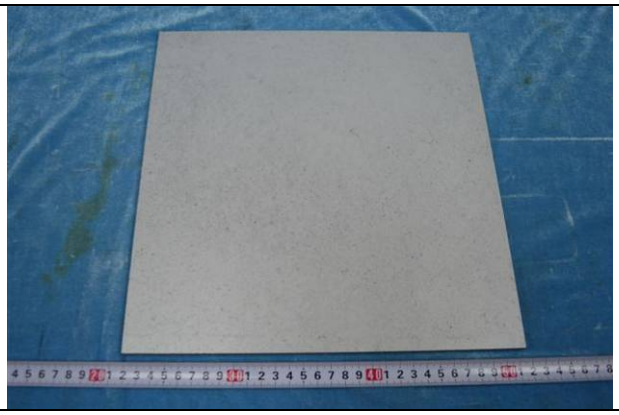
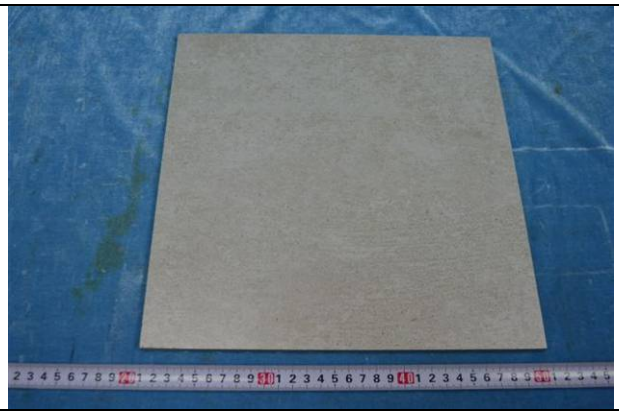
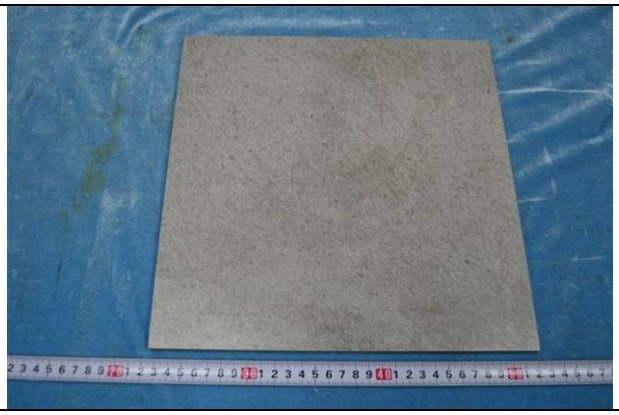
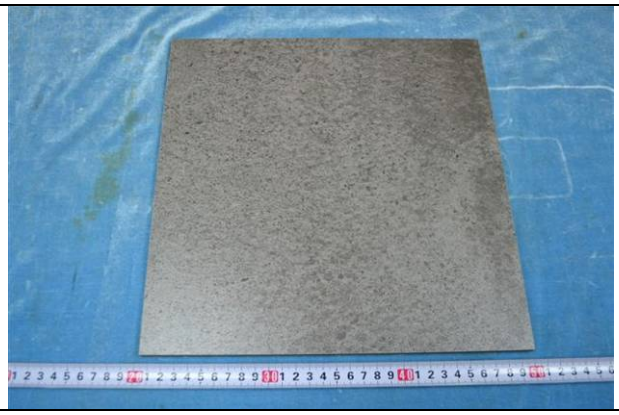
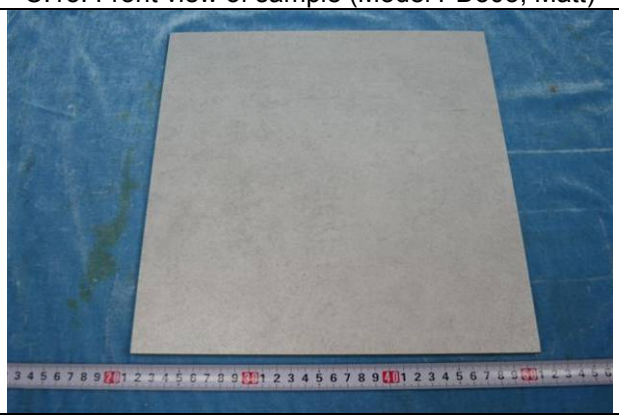
**Product photos**

| | |
|---|---|
|  |  |
| C.7: Front view of sample (Model PB505, Matt) | C.8: Front view of sample (Model PB501, Structured) |
|  |  |
| C.9: Front view of sample (Model PB502, Structured) | C.10: Front view of sample (Model PB503, Structured) |
|  |  |
| C.11: Front view of sample (Model PB504, Structured) | C.12: Front view of sample (Model PB505, Structured) |

**********End of page**********

**Appendix C**

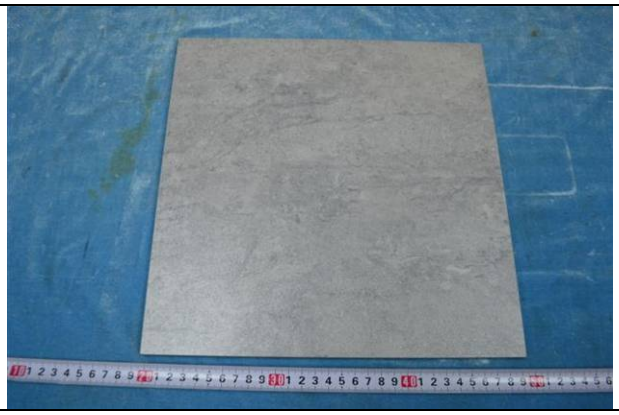
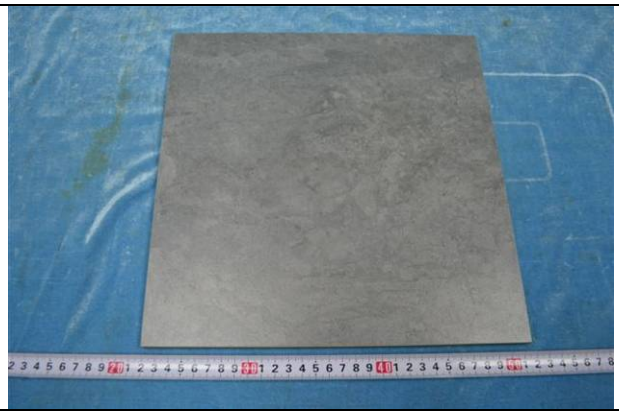
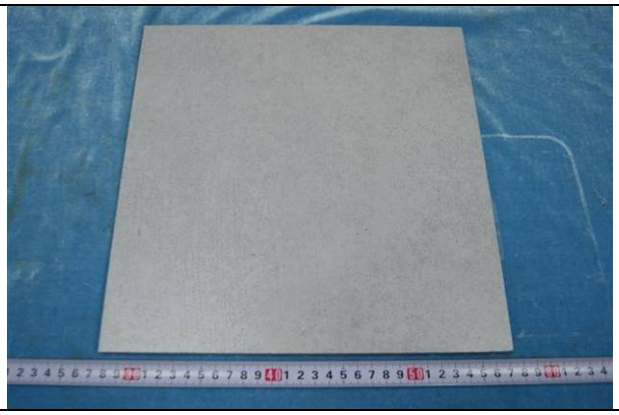
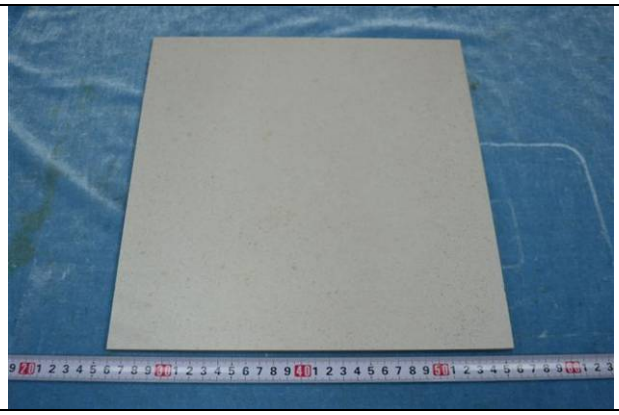
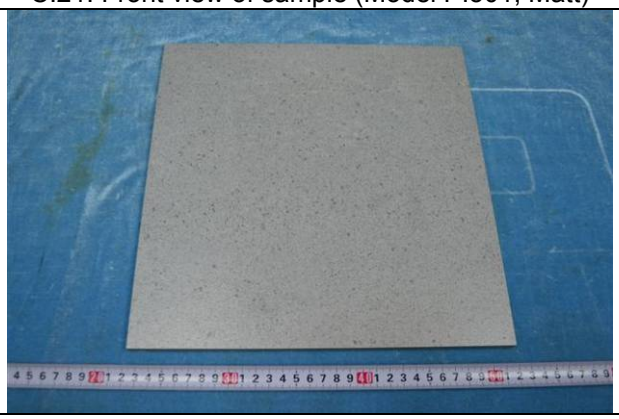
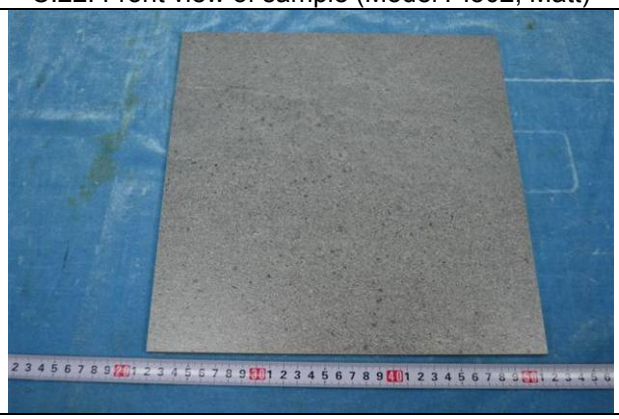
**Product photos**

| | |
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| C.13: Front view of sample (Model PD501, Matt) | C.14: Front view of sample (Model PD502, Matt) |
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| C.15: Front view of sample (Model PD503, Matt) | C.16: Front view of sample (Model PD504, Matt) |
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| C.17: Front view of sample (Model PH501, Matt) | C.18: Front view of sample (Model PH502, Matt) |

**********End of page**********

**Appendix C**

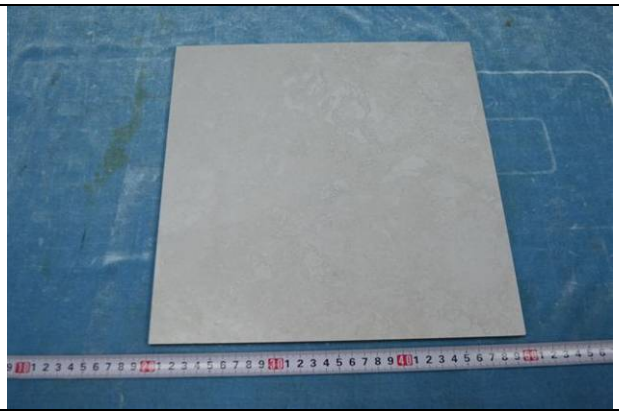
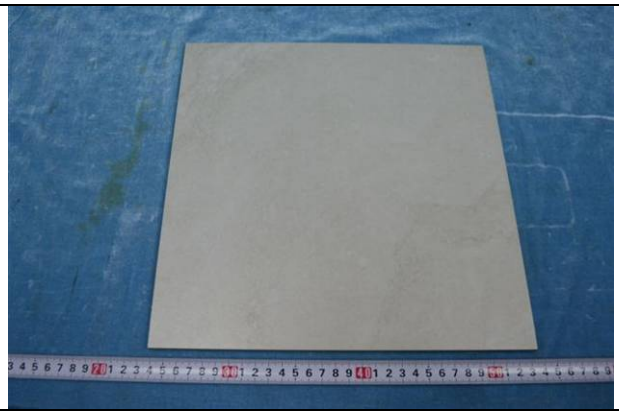
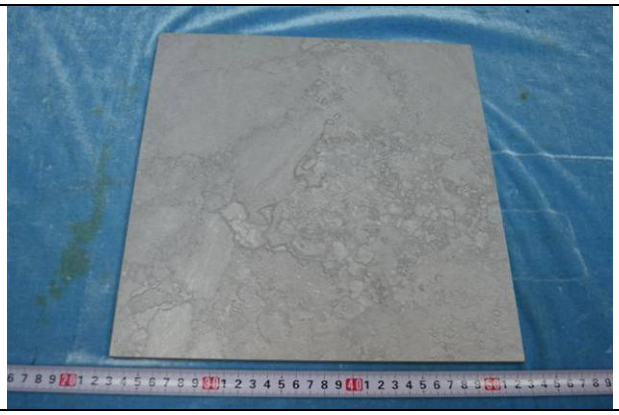
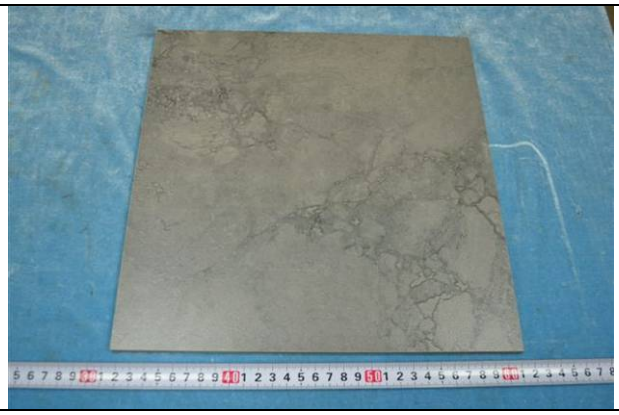
**Product photos**

| | |
|---|---|
|  |  |
| C.19: Front view of sample (Model PH503, Matt) | C.20: Front view of sample (Model PH504, Matt) |
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| C.21: Front view of sample (Model PI501, Matt) | C.22: Front view of sample (Model PI502, Matt) |
|  |  |
| C.23: Front view of sample (Model PI503, Matt) | C.24: Front view of sample (Model PI504, Matt) |

**********End of page**********

**Appendix C**

**Product photos**

<table>
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<tr><td>C.25: Front view of sample (Model PR501, Matt)</td><td>C.26: Front view of sample (Model PR502, Matt)</td></tr>
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<tr><td>C.27: Front view of sample (Model PR503, Matt)</td><td>C.28: Front view of sample (Model PR504, Matt)</td></tr>
</table>

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**Appendix D**

**Revision history**

| Revision No. | Date | Author | Reviewer |
|---|---|---|---|
| Original | December 18, 2015 | Jones Zhong | Jeff Deng |
| | | | |
| | | | |
| | | | |
| | | | |

**********End of report**********