

CASTLE STONES REPORT TEST LABORATORY



1. Determination of the anti-slip properties (prCEN/TS16165, annex B and DIN 51130)

Testing of floor coverings - Determination of the anti-slip properties - workrooms and fields of activities with slip danger, walking method - Ramp test in accordance with prCEN/TS 16165, annex B and DIN 51130.

TCKI order number: 12.05.01122

Sample test number: Castle stones

Type of floor covering material: See cover page

Description of the surface characteristics of the floor covering: Structured

Contaminant: SAE motor oil, viscosity category 10W-30 1

Footwear: Uvex safety shoes Athletic

Test results:

Maximum angle of inclination in degrees:

Test walker 1	Test walker 2
12.9	13.4
12.8	12.6
12.9	11.5

Average maximum angle of inclination: 12.7

Category assessment: R10

Assessment table for slip resistance characteristics:

Average maximum angle of inclination	Slip resistance category
6° to 10°	R9
more than 10° to 19°	R10
more than 19° to 27°	R11
more than 27° to 35°	R12
more than 35°	R13

2. Determination of the anti-slip properties (prCEN/TS16165, annex A and DIN 51097)

Testing of floor coverings - Determination of the anti-slip properties - wet loaded barefoot areas; walking method - Ramp test in accordance with prCEN/TS 16165, annex A and DIN 51097.

TCKI order number: 12.05.01122

Sample test number: Castle stones

Type of floor covering material: See cover page

Description of the surface characteristics of the floor covering: Structured

Contaminant: Water / 0.1 % soap solution

Type of test: barefoot

Test results:

Maximum angle of inclination in degrees:

Test walker 1	Test walker 2
33.0	33.0
33.0	33.0
33.0	33.0
33.0	33.0

Average maximum angle of indication: 33.0

Category assessment: C

Assessment table for slip resistance characteristics:

Average maximum angle of inclination	Slip resistance category
ù 12°	A
ù 18°	B
ù 24°	C



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3. Water absorption, apparent porosity, apparent relative density and bulk density (EN-ISO 10545-3)

TCKI order number: 12.05.01123

Sample test number: Castle Stones

Sample number	Dry mass (grams)	Water absorption by boiling (mass %)	Water absorption by vacuum (mass %)	Apparent porosity (volume %)	Apparent relative density (g/cm ³)	Bulk density (g/cm ³)
01	1802.50	11.5	5.0	9.9	2.21	1.99
02	2007.00	11.6	4.5	9.0	2.18	1.99
03	1499.50	11.2	5.3	10.6	2.23	1.99
04	1768.50	10.9	4.8	9.5	2.20	1.99
05	1619.50	11.8	4.7	9.6	2.26	2.04
11	1595.50	12.9	1.6	3.2	2.06	1.99
12	1687.50	13.0	1.6	3.2	2.06	2.00
13	1682.00	12.7	1.7	3.3	2.06	2.00
14	1231.00	12.7	2.2	4.3	2.07	1.98
15	1562.50	12.4	2.0	4.1	2.09	2.01

Number	10	10	10	10	10	10
Minimum	1231.00	10.9	1.6	3.2	2.06	1.98
Maximum	2007.00	13.0	5.3	10.6	2.26	2.04
Mean	1645.60	12.1	3.3	6.7	2.14	2.00

4. Modulus of rupture and breaking strength (EN-ISO 10545-4)

TCKI order number: 12.05.01123

Sample test number: Castle Stones

Rod diameter (mm): 20

Overlap of tile beyond the edgesupport (mm): 10

Thickness of rubber (mm): 5

Span between support rods (mm): 180

Work size (mm) :

Tile with relief: No

Sample number	Breaking load (N)	Minimum thickness (mm)	Breaking strength (N)	Modulus of rupture (N/mm ²)	
010	600	600	5.2	500	30.3
011	600	600	6.0	500	22.5
012	800	800	7.4	700	19.9
013	800	800	5.6	700	35.0
014	600	600	5.7	500	25.3
015	1000	1000	7.9	900	21.3
016	1200	1200	7.9	1100	25.3

Number	7	7	7	7
Minimum	600	5.2	500	9.9
Maximum	1200	7.9	1100	35.0
Mean	800	6.5	700	26.0

TCKI result (tested according to EN 14411): Meets the requirements

Remarks

To determine the bending strength, an unimpregnated sheet was sawn into pieces measuring 200 x 200 mm. An attempt was also made to determine the bending strength of pieces measuring 200 x 200 mm that were sawn from an impregnated sheet. However, these pieces were so flexible that, within the range of movement provided by our testing machine, they did not break but simply bent.



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5. Resistance to deep abrasion, unglazed tiles (EN-ISO 10545-6)

TCKI order number: 12.05.01123

Sample test number: Castle Stones

Sample number	Chord length groove 1 (mm)	Chord length groove 2 (mm)	Volume groove 1 (mm ³)	Volume groove 2 (mm ³)
017	41.0	41.0	577	573
018	41.5	40.0	612	532
017	41.5	41.5	599	599
018	40.5	40.0	561	548
019	39.5	41.5	524	608

Mean volume (mm³): 574

Meets the requirements

6. Chemical resistance (EN-ISO 10545-13)

TCKI order number: 12.05.01123

Sample test number: Castle Stones

Sample number: 33, 34, 35, 36 and 37

Resistance to	Test solution	Concentration	Classification
Household chemicals	Ammoniumchloride	100 g/l	UA
Swimming pool salts	Sodiumhypochlorite	20 mg/l	UA
Low concentration acids and alkalis	Hydrochloric acid	3 vol. %	ULC
	Citric acid	100 g/l	ULA
	Potassium hydroxide	30 g/l	ULA
High concentration acids and alkalis	Hydrochloric acid	18 vol. %	UHC
	Lactic acid	5 vol. %	UHC
	Potassiumhydroxide	100 g/l	UHA

TCKI result (tested according to EN 14411): Does not meet the requirements

7. Resistance to stains (EN-ISO 10545-14)

TCKI order number: 12.05.01123

Sample test number: Castle Stones

Staining agent	Successful cleaning procedure*					Classification
	Product 1	Product 2	Product 3	Product 4	Product 5	
Green staining agent	B	B	B	B	B	4
Red staining agent	-	-	-	-	-	-
Iodine	B	B	B	B	B	4
Olive oil	A	B	B	B	B	4

General classification: Class 4

* Procedure A: running hot water
 Procedure B: Weak cleaning agent, sponge and running hot water
 Procedure C: Mechanical cleaning with brush and powerful cleaning agent
 Procedure D: Appropriate solvent (acid, alkali or acetone)

TCKI result (tested according to EN 14411): Meets the requirements

