

**Van:** Castle Stones [info@castle-stones.net]  
**Verzonden:** maandag 22 februari 2016 8:17  
**Aan:** Matser E Castle-Stones  
**Onderwerp:** rapport eng



**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

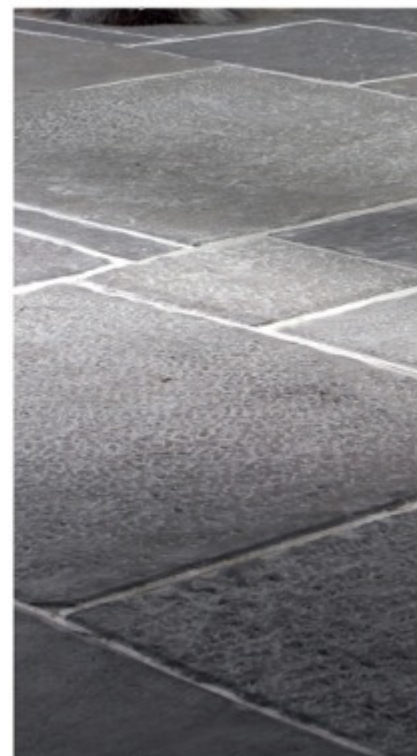
Footwear: Uvex safety shoes Athletic

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:

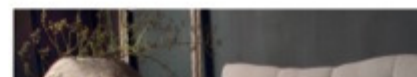
Average maximum angle of inclination	Slip resistance category
6° to 10°	R9
more than 10° to 19°	R10
more than 19° to 27°	R11
more than 27° to 35°	R12
more than 35°	R13

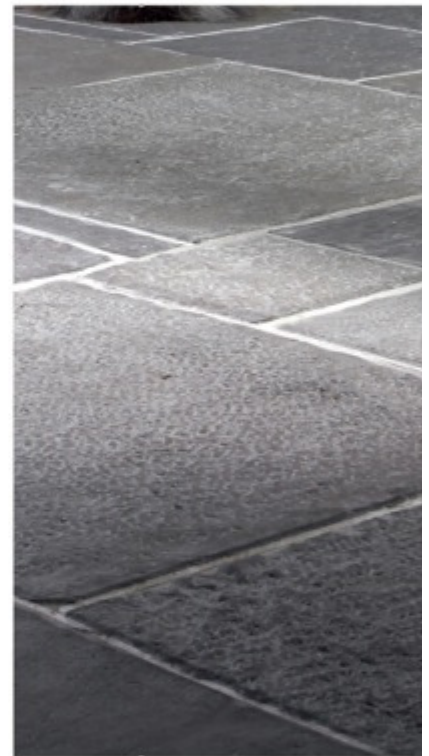


**2. Determination of the anti-slip properties (prCEN/TS16165, annex A and DIN 51097)**

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





**Q' 1. 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 <sup>3</sup> )	Bulk density (g/cm <sup>3</sup> )
O1	1802.50	11.5	5.0	9.9	2.21	1.99
O2	2007.00	11.6	4.5	9.0	2.18	1.99
O3	1499.50	11.2	5.3	10.6	2.23	1.99
O4	1768.50	10.9	4.8	9.5	2.20	1.99
O5	1619.50	11.8	4.7	9.6	2.26	2.04
I1	1595.50	12.9	1.6	3.2	2.06	1.99
I2	1687.50	13.0	1.6	3.2	2.06	2.00
I3	1682.00	12.7	1.7	3.3	2.06	2.00
I4	1231.00	12.7	2.2	4.3	2.07	1.98
I5	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

**Q' 2. 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  
Thickness of rubber (mm) : 5  
Overlap of tile beyond the edge support (mm) : 10  
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 <sup>2</sup> )
O10	600	5.2	500	30.3
O11	600	6.0	500	22.5
O12	800	7.4	700	19.9
O13	800	5.6	700	35.0
O14	600	5.7	500	25.3
O15	1000	7.9	900	21.3
O16	1200	7.9	1100	25.3
Number	7	7	7	7
Minimum	600	5.2	500	19.9
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

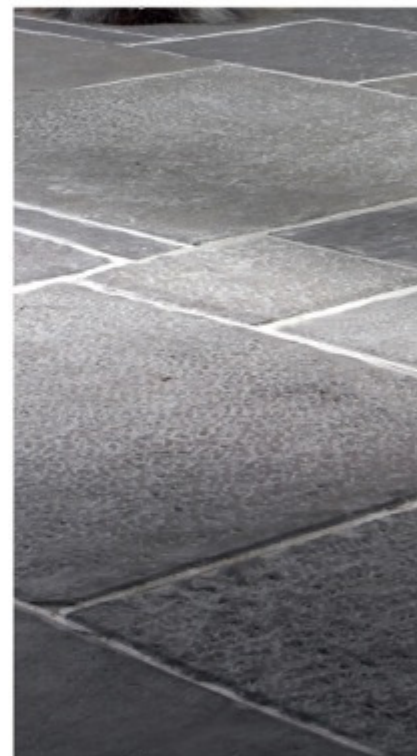


**Q' 3. Resistance to deep abrasion, unglazed tiles (EN-ISO 10545-6)**

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 <sup>3</sup> )	Volume groove 2 (mm <sup>3</sup> )
O17	41.0	41.0	577	573
O18	41.5	40.0	612	532
I17	41.5	41.5	599	599
I18	40.5	40.0	561	548
I19	39.5	41.5	524	608
Mean volume (mm <sup>3</sup> ):		574		

Meets the requirements



**Q' 4. 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



**Q' 5. Resistance to stains (EN-ISO 10545-14)**

TCKI order number : 12.05.01123  
Sample test number : Castle Stones  
Sample number :

Staining agent	Successful cleaning procedure 1)					Classification
	Product	Product	Product	Product	Product	