

OVERVIEW PER DETERMINATION OR ACTIVITY TCKI

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	DETERMINATION/ACTIVITY	Standard or guideline	Accepted time needed	Quantity needed
	1 Analysis of clay, additives and solutions			
	General: Sample preparation and removal contribution (per sample)			
	1.1. Physical analyses			
RvA	1.1.1. Moisture content	NEN 5781	3 weekdays	150 g
RvA	1.1.2. Particle size distribution			
	Loam, course sand, fine sand (resp. <10, >250 resp. 63-250 µm)	Own method	1 weekday	100 g
RvA	2 µm	Own method	2 weeks	100 g
RvA	Total granular (2, 10, 16, 45, 63, 125, 250 µm)	Own method	2 weeks	500 g
	Granular-curve (laser diffraction)	Own method	2 weeks	100 g
RvA	Sieve analysis, 8 fractions	Own method	1 week	500 g
		Own method		
	1.1.3. Seperation of solid particles	Own method	2 weeks	3000 g
	1.1.4. Specific surface area	Own method	2 weeks	100 g
	1.1.5. Pore size distribution	Own method	2 weeks	100 g

	1.1.6.	Consistency stability according to Pfefferkorn	Own method	2 weeks	1000 g
	1.1.7.	Plasticity index according to Atterberg	Std. RAW determinations: test 15	2 weeks	1000 g
	1.1.8.	Moisture conductivity coefficient	Own method	2 weeks	500 g
	1.1.9.	Porosity	Own method	2 weeks	250 g
	1.2.	Chemical analysis			
RvA	1.2.1.	Iron and calcium, incl. destruction	-	1 weekday	100 g
RvA	1.2.2.	Manganese, titanium chromium, iron and calcium, incl. destruction	-	1 weekday	100 g
RvA	1.2.3.	Loss on ignition, 1025 °C	-	1 week	100 g
RvA	1.2.4.a.	Chemical composition (XRF) Si, Al, Ca, Fe, Mg, K,Na, Mn, Ti, Cr ¹⁾ , Ba ¹⁾ , P ¹⁾ incl. loss on ignition and destruction	-	1 week	100 g
	1.2.4.b.	Additional chemical composition (XRF) metal oxides and trace elements	-	1 week	100 g
	1.2.5.	X-ray fluorescence element scan (XRF)	-	1 week	-
	1.2.6.	Electron microscopy element scan (EDAX, SEM, TEM)	-	2 weeks	-
RvA	1.2.7.	Water soluble components in clay (shaking test)	-	1 week	250 g
RvA	1.2.8.a	Element analysis, ICP-AES (per element)	AP-04	1 week	100 g/100 ml
	1.2.8.b	Element analysis, ICP-AES (per element), hydride (Sb, Sn, Se and Hg)			
RvA	1.2.9.	Sulphur in scrubbing liquids, ICP-AES	-	1 week	100 g/ 100 ml
RvA	1.2.10.	Sulphur, ICP-AES, incl. destruction (clay or fired material)	-	1 week	100 g/ 100 ml
RvA	1.2.11.	Electrical conductivity of an eluate	ISO 7888	1 week	100 ml
RvA	1.2.12.	Package of soluble salts, ICP-AES (S, Ca, K, Na, Mg, incl. electrical conductivity of the eluate)	-	2 weeks	250 g

RvA	1.2.13.	Fluorine in eluates or scrubbing liquids	AP-04, NEN 2819 and NEN 6483	1 week	100 ml
RvA	1.2.14.	Fluorine in clay or fired material	NEN 3106	1 week	100 g
RvA	1.2.15.	Chlorine in scrubbing liquids	-	1 week	250 ml
RvA	1.2.16.	Carbonate - CaO	-	1 week	100 g
RvA	1.2.17.	Organic carbon	-	1 weekday	100 g
	1.2.18.	Total Carbon	-	2 weekdays	100 g
	1.2.19.	pH-H ₂ O or pH-KCl	NEN 5750	1 week	150 g
RvA	1.2.20.	pH of fluid	NEN 6411	1 week	200 ml
RvA	1.2.21.a	SO ₄ , Cl, ion-chromatography	AP-04	1 week	100 ml
	1.2.21.b	PO ₄ , ion-chromatography	Own method	1 week	100 ml
RvA	1.2.22.	Br, Ion-chromatography	AP-04	1 week	100 ml
	1.3.	Thermal analysis			
RvA	1.3.1.a	Dilatometry, 1 °C/ min. up to 1200 °C	-	2 weeks	100 g
RvA	1.3.1.b	Dilatometry, programme curve	-	2 weeks	100 g
RvA	1.3.1.c	Dilatometry, expansion-coefficient, up to 750 °C	-	1 week	100 g
	1.3.1.d	Preparation of glaze powder for expansion coefficient measurement	-	1 week	100 g
	1.3.1.e	Flex Measurement (Steger Measurement)	-	2 Weeks	Flatt testpiece
	1.3.2.	TGA/DSC (Thermogravimetric Analysis/)	-	2 weeks	100 g
	1.3.3.	Electric kiln, firing test	-	2 weeks	-
	1.3.4.	Gas kiln, test (oxidizing, reducing atmosphere)			
	a.	0-24 h	-	2 weeks	-
	b.	24-48 h	-	2 weeks	-
	c.	>48 h	-	2 weeks	-
	1.4.	Mineralogical analysis			
	1.4.1.	X-Ray Diffraction (XRD)	-	2 weeks	10 g
	1.4.2.	X-Ray Diffraction (XRD), clay mineralogy	-	2 weeks	100 g

	2	Analysis of fired products			
	2.1.	Dimensions and geometry			
RvA	2.1.1.	Dimensions/face sizes/curvature, masonry bricks	EN 772-16 and EN 771-1 or BRL 1007	1 week	1 unit
RvA	2.1.2.	Determination of the flatness of a surfaces, masonry bricks	EN 772-20	1 week	1 unit
RvA	2.1.3.	Rectangularity of sides and of the shape, masonry bricks	NBN B24-207	1 week	1 unit
RvA	2.1.4.	Dimensions, clay roofing tiles	EN 1024	1 week	1 unit
RvA	2.1.5.	Overlap dimensions, clay roofing tiles	EN 1024 and BRL 1510	1 week	24 units
RvA	2.1.6.	Camber and twist, clay roofing tiles	EN 1024	1 week	1 unit
RvA	2.1.7.	Dimensions/curvature, clay pavers	EN 1344 or BRL 2360	1 week	1 unit
RvA	2.1.8.	Geometric properties, wall and floor tiles	EN-ISO 10545-2	1 week	10 units
	2.1.9.	(Combined) thickness of webs and shells in perforated masonry bricks	NEN-EN 772-16	1 week	1 units
	2.1.10.	Plane parallelism of the bed faces	NEN-EN 772-16	1 week	1 units
	2.2.	Mechanical properties			
RvA	2.2.1.	Compressive strength, masonry bricks	EN 772-1 and EN 771-1	2 weeks	1 unit
RvA	2.2.2.	Bending strength, clay roofing tiles	EN 538	2 weeks	1 unit
RvA	2.2.3.	Skid/slip resistance, unpolished & polished clay pavers	1344/ENV 12633	2 weeks	4 units
RvA	2.2.4.	Transverse breaking strenght and modulus of rupture, clay pavers	EN 1344	2 weeks	1 unit
RvA	2.2.5.	Abrasion resistance, clay pavers and unglazed ceramic tiles	EN 1344 and EN-ISO 10545-6	2 weeks	5 units
RvA	2.2.6.	Abrasion resistance, glazed ceramic tiles	EN-ISO 10545-7	2 weeks	11 units
RvA	2.2.7.	Modules of rupture and breaking strength, ceramic tiles	EN-ISO 10545-4	2 weeks	1 unit

	2.2.8.	Flexural strength, masonry	NEN-EN 1052-2	2 weeks	1 unit masonry
	2.2.9	Adhesive strength of surface materials/layers	Own method	2 weeks	30x30 cm
	2.2.10.	Anti-slip properties, walking method-rampstest	draft CEN/TS15673-1 51130/BIN51097 DIN51130/DIN51097	2 weeks	1 m ²
	2.2.11.	Anti-slip properties, dynamic coefficient of friction	prCEN/TS15673-1	2 weeks	1 m ²
	2.2.12.	Impact resistance, ceramic tile	ISO 10545-5	2 weeks	5 units
	2.3.	Physical/hygric properties			
RvA	2.3.1.	Free water absorption, gross and net dry density of masonry bricks and clay pavers, volume of frogs or voids, masonry bricks	EN 771-1 and 772-3 or NEN-EN 772-9	2 weeks	1 unit
RvA	2.3.2.	Initial rate of water absorption, masonry bricks	EN 772-11	2 weeks	1 unit
RvA	2.3.3	Water absorption by boiling in water, masonry bricks	EN 772-7	2 weeks	1 unit
RvA	2.3.4.a	Impermeability, clay roofing tiles	EN 539-1, method 2 and BRL 1510	2 weeks	10 units
	2.3.4.b	Impermeability, clay roofing tiles	EN 539-1, method 1	2 weeks	10 units
RvA	2.3.5.	Water absorption, aparent porosity, apparent relative density, and bulk density, ceramic tiles	EN-ISO 10545-3	2 weeks	1 unit
RvA	2.3.6.	Crazing resistance, glazed ceramic tiles	EN-ISO 10545-11	2 weeks	5 units
	2.4.	Frost resistance			
RvA	2.4.1.a	Frost resistance, masonry bricks	BRL 1007 and NEN 2872	10 weeks	4 units
RvA	2.4.1.b	Frost resistance, masonry bricks	NBN B27-009	10 weeks	5 units
RvA	2.4.2.	Frost resistance, masonry bricks	CEN/TS 772-22	10 weeks	20 units
RvA	2.4.3.	Frost resistance, clay roofing tiles	EN 539-2, method E	10 weeks	6 units
RvA	2.4.4.	Frost resistance, clay pavers	EN 1344	10 weeks	10 units
RvA	2.4.5.	Frost resistance, ceramic tiles	EN-ISO 10545-12	10 weeks	10 units

	2.5. Chemical/Environmental properties			
RvA	2.5.1. Shaking test for active and water soluble salts in fired material, element analysis excluded	EN 772-5	-	-
RvA	2.5.2. Package of active soluble salts, masonry bricks (Na, K, Mg, Ca, sulphate and specific electrical conductivity, shaking test included	EN 772-5 BRL 1007	4 weeks	10 units
RvA	2.5.3. Risk of brick efflorescence	NBN B24-209	3 weeks	5 units
	2.5.4. Acid resistance, clay pavers	EN 1344	2 weeks	5 units
RvA	2.5.5.a Pb and Cd release, consumer pottery and ceramic tiles	EN 1388-1/NEN-EN-ISO 10545-15	2 weeks	1 unit
RvA	2.5.5.b Pb and Cd release, consumer pottery and ceramic tiles	EN 1388-1/NEN-EN-ISO 10545-15	2 weeks	4 units
RvA	2.5.6. Chemical resistance, ceramic tiles	EN-ISO 10545-13	2 weeks	5 units
RvA	2.5.7. Staining resistance, ceramic tiles	EN-ISO 10545-14	2 weeks	5 units
	2.5.8. Leaching behaviour, moulded building materials, availability test (element analysis excluded)	NEN 7371	4 weeks	3 units
RvA	2.5.9. Leaching behaviour, moulded building materials, diffusion test (element analysis excluded)	NEN 7375/AP04	12 weeks	3 units
RvA	2.5.10. Leaching behaviour, moulded building materials, shortened leaching test (element analysis excluded)	NEN 7375 and BRL 1007,1010, 1510 or 2360	3 weeks	3 units
	3 Miscellaneous			
	3.1. Cement in mortar	-	2 weeks	150 g
	3.2. Leaching behaviour, granulated building materials, column test (element analysis excluded)	NEN 7343	10 weeks	2000 g
	3.3. Analysis of steamboiler water and demineralised water	-	2 weeks	2 x 1000 ml
RvA	3.4. Preparation of washing bottles for (flue) gas (emission) measurements	NEN 2819	-	-
	4 On request			
	4.1. Microscopic analysis	-	2 weeks	-

4.2.	Soil survey, environmental parameters	-	4 weeks	by arrangement
4.3.	Bigot curve, dry shrinkage of clay body	-	4 weeks	1000g
4.4.	Caloric value	-	4 weeks	100 g