



# TESTCATALOG

Aggregates  
Soil  
Asphalt  
Bitumen  
Ceramics

Concrete  
Hydraulic binders  
Natural stone  
Pigments & Road marking  
On site tests



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## How to deliver your materials at GEOS?

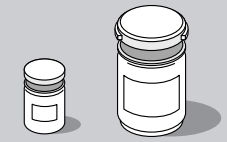


Bags (aggregates, asphalt)

Explain your situation in advance with our specialists. They can tell you precisely in what form, size and quantity the test material should be delivered.



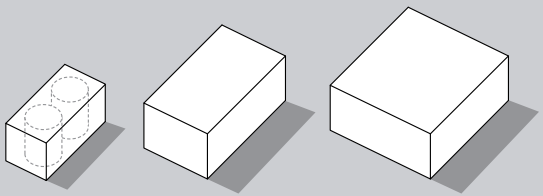
Metal containers: S-M-L



Plastic containers: S-L

Geos Laboratories offers free customized packaging material for transporting various samples.

Through our pick-up service, your materials arrive in our laboratories without any problems.



Cardboard boxes: S-M-L

# AGGREGATES

## Chemical tests

Alkali content (ICP-AES)	CUR-aanbeveling 89 § 6.2 (2018)	B
	EN 196-2	B
	LPC n° 37	B
CaCO <sub>3</sub> content	XP P 18-544	B L
	EN 196-2	B
	Geos	B
Acid-soluble chloride salts	EN 1744-5	B
Water-soluble chloride salts	EN 1744-1 § 8	B L
	NEN 5921	B
	EN 1744-1 § 7	B
Carbonates (CO <sub>2</sub> )	EN 196-2	B
Bulk crushing resistance	Geos	
Dangerous substances	EN 1423 Annex I	B
Free lime	EN 1744-1 § 18.4	B L
Water solubility	EN 1744-1 § 16.1	L
Hydrochloric acid test	NBN 589-209 (1969)	B
Dispersion with nitric acid, hydrochloric acid and HF	Geos	B
Discharge by fusion with lithium tetraborate	Geos	B
Discharge with nitric acid and hydrochloric acid (aqua regia)	Geos	B
Chemical composition (ICP-AES)	Geos	B
Loss on ignition	EN 1744-1 § 17	B L
	ISO 3262-1	
Metallic aluminium and zinc	CUR-aanbeveling 116 Annex A (2012)	
MgCO <sub>3</sub> content	EN 196-2	
Organic contaminators (fulvo acid)	EN 1744-1 § 15.2	B L
Organic matter (H <sub>2</sub> O <sub>2</sub> )	NBN 589-207 Par. 3 (1969)	B
	PTV 406 Annex C	
	SB 250 (3.1) Hfdst. XIV § 4.15	B
Organic contaminators (humus)	NBN B 11-256	B
	EN 1744-1 § 15.1	B L
	NBN 589-207 Par. 4 (1969)	B
Organic matter (K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> )	NF P 94-055	L
Organic contaminators (mortar)	EN 1744-1 § 15.3	B
pH	ISO 787-9	B
Acid soluble sulfides	EN 1744-1 § 13	L
SiO <sub>2</sub> (XRF)	EN 196-2	B
Acid-soluble sulfates (IC)	EN 1744-1	B L

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## AGGREGATES

Water-soluble sulfates (IC)	EN 1744-1	B	L
Total sulfur content (ICP-AES)	EN 1744-1 § 11	B	L
Total organic carbon	EN 13639		

## Petrographical tests

### Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate

(accelerated mortar-bar method)	ASTM C1567		
ASR-sensitivity of aggregates by PFM	CUR-aanbeveling 89 § 7.2 (2018)	B	
	XP P 18-543	B	L
Petrographic examination of aggregates	FD P 18-542		
	ASTM C295		
	BS 812 part 104		
	EN 932-3	B	L
Geological file	TRA 411 (Annex C)		
Power's scale of roundness	Geos		
Qualitative XRD analysis	Geos		
Quantitative XRD analysis	Geos		

## Physical tests

Accelerated test on mortar by autoclave	NF P 18-594 § 5.1	B	L
Accelerated test on mortar by concrete prism test	CUR-aanbeveling 89 § 7.3.2 (2006)	B	
	CUR-aanbeveling 89 § 7.3.2 (2018)	B	
	NF P 18-594 § 6		
	CUR-aanbeveling 89 § 7.3.1 (2018)		
	DAfstb Alkali-Richtlinie, 2007-2, Teil 3 §5.2		
	Infrabel Spécification tech. No. L23 (2018)		
	RILEM TC 106-2	B	
Reduction of a sample to laboratory size	EN 932-2 (excl. §9 and §12)	B	
Abrasiveness And Grindability Test	NF P18-579		L
Affinity between aggregate and bitumen	EN 12697-11	B	L
Aggregate type	Geos		
Accelerated test by "Microbar"	NF P 18-594 § 5.2	B	L
Accelerated test on mortar by UAMBT	ASTM C 1260		
Atterberg limits	EN ISO 17892-12	B	L
	NF P 94-051		
	Afl. PM - Hfdst. 01 (01.03)	B	
Clay pellets	NF P 18 545 § 10.1.6		
Determination of impurities and clay pellets	XP P 18 546		L
Percentage of crushed and broken surfaces	EN 933-5	B	L
	EN 13055 Annex A		



## AGGREGATES

Loose bulk density (Annex A)	EN 1097-3 Annex A	B	L
Particle density	EN 1097-6 Annex B	B	L
	EN 1097-6 §7	B	L
	EN 1097-6 §8	B	L
	EN 1097-6 §9	B	L
Loose bulk density	EN 1097-3	B	L
Pre-dried particle density (31,5 - 63 mm)	EN 1097-6 Annex A	B	L
Particle density and water absorption (31,5 - 63 mm)	EN 1097-6 Annex B	B	L
	EN 1097-6 §7	B	L
	EN 1097-6 §8	B	L
	EN 1097-6 §9	B	L
Particle density and water absorption	ASTM C127		
Particle density and water absorption (w/ fines)	EN 1097-6	B	L
Designation of aggregates	EN 12620		
	EN 13139		
	RAW (2020) Hfdst. 22 § o6		
	RAW (2020) Hfdst. 83 § 16.o1		
Resistance to disintegration	EN 13055-1 Annex B		
Drying shrinkage	EN 1367-4	B	
Fines content	EN 12620		
Flakiness index	EN 933-3	B	L
Flow coefficient	EN 933-6 § 8	B	L
Foreign matter in reclaimed asphalt	EN 12697-42		
Freeze-thaw resistance	EN 1367-1	B	L
Friability index	EN 1423 Annex G	B	
	NF P18-576		
Freeze-thaw resistance	EN 13055-1 Annex C		
Prohibited impurities	NF P 18 545 § 3.43	B	
Reactive iron sulfide particle	EN 1744-1 § 14.1	B	L
Calculation of control frequency (k-value)	BRL 9324		
Los Angeles coefficient (LA)	ASTM C535		
	EN 1097-2	B	L
	NF P 18-572	B	
	EN 1097-2	B	L
Lightweight contaminators	EN 1744-1 § 14.2	B	L
Methylene blue test	EN 933-9	B	L
	NEN 5941		
	NF P 94-o68		L
	EN 933-9 Annex A	B	L
Micro-Deval coefficient	Verhoef		
	EN 1097-1	B	L
	NF P 18-572	B	
	EN 1097-1	B	L



## AGGREGATES

Magnesium sulfate test	ASTM C88		
	EN 1367-2		
Particle size distribution	EN 933-1	B	L
	RAW (2020) proef 11	B	
Polished stone value (PSV)	EN 1097-8	B	L
Sand equivalent test	EN 933-8	B	L
	EN 933-8 Annex A	B	L
Shape-index	EN 933-4	B	
Percentage of shells	EN 933-7	B	L
	FM 5-555		
Shell content	BS 812 part 106		
Staining iron and vanadium compounds	CUR-aanbeveling 100 Annex H (2004)		
	NEN 5923		
Comparison of the particle size with Talbot curve	Geos		
Thermal shock resistance	EN 1367-5	B	
Vialit plate shock test - mechanical adhesion	EN 12272-3 § 4.3.2.2		
Water absorption	EN 1097-6 §7	B	L
	EN 1097-6 §8	B	L
	EN 1097-6 §9	B	L
	ASTM C127		
Water content	EN 1097-5	B	L

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## Building lime

Sulfate content (IC)	EN 459-2 §5.3		
CaO content	EN 459-2 §5.8	B	
Ca(OH) <sub>2</sub> content	EN 459-2 §5.8	B	
Standard mortar by mass and water demand for values of flow and penetration	EN 459-2 §6.8		
Grading of filler (air jet)	EN 459-2 §6.2	B	

## Fillers

Compressive strength (28 days)	EN 196-1	B	
Accelerated test on mortar by UAMBT	Geos		
Bitumen number	EN 13179-2	B	
Influence on soundness (Châtelier)	EN 196-3 §7	B	
Chloride	EN 196-2 §4.5.16	B	
Particle density of filler	EN 1097-7	B	L
Water susceptibility of fillers	EN 1744-4	B	
Water solubility of filler	EN 1744-1 § 16.2		L
Solubility in hydrochloric acid	PTV 812 o.3NL		
Loss on ignition	EN 196-2 §4.4.1	B	
	EN 196-2	B	
Soluble phosphate content	EN 450-1 Annex C	B	



## AGGREGATES

Grading of filler (air jet)	EN 933-10	B	
Delta ring and ball test	EN 13179-1	B	L
Sulfate content (IC)	EN 196-2	B	
Influence on the initial setting time	EN 196-3 §6	B	
Voids of dry compacted filler	EN 1097-4	B	L

## Agressivity towards concrete (groundwater)

Aggressive carbon dioxide content in water	EN 13577		
NH <sub>4</sub> <sup>+</sup>	ISO 7150-1		
pH	ISO 4316	B	
Assessment of groundwater for attack on concrete	NBN EN 206-1		

## Recycled aggregates

Asbestos in recycled aggregates	CMA/2/II/C.2		
	CMA/2/II/C.3		
Asbest screening	OVAM Eenheidsreglement bijlage 2		
Classification test	RAW (2020) proef 35	B	
	CMA/2/II/A.22	B	
	CMA/2/II/A.23	B	
	EN 933-11	B	L
	PTV 406 Annex I	B	
	406 Annex J	B	
	RAW (2020) proef 35	B	
Water-soluble sulfates in rec. aggregates (IC)	EN 1744-1	B	L
Influence on the initial setting time	EN 1744-6	B	
Chloride	EN 1744-5	B	

## Slag

Dicalcium silicate disintegration of blast-furnace slag	EN 1744-1 § 19.1		L
Iron disintegration of blast-furnace slag	EN 1744-1 § 19.2		L
Expansion of steel slag (168 h)	CME 01.12	B	
	EN 1744-1 § 19.3	B	L
Chloride	EN 1744-5	B	
Fineness modulus	RAW (2020) proef 15		
	EN 12620 - Annex B		
Foreign matter in steel slag	BRL 9310 § 5.6.1		



# SOIL

## Chemical tests

Acidity by Baumann-Gully	EN 16502	
Extraction of water soluble nutrients and elements (Cl- by titration)	EN 13652	
Hydrochloric acid test	RAW (2020) proef 37	B
Loss on ignition, organic matter and CaCO <sub>3</sub> -content	RAW (2020) proef 28	B
Mg <sup>2+</sup> (ICP-AES)	ISO 7980	
Organic matter (CCl <sub>3</sub> COOH)	SB 250 (3.1) Hfdst. XIV § 3.4	
Organic matter (H <sub>2</sub> O <sub>2</sub> )	RAW (2020) proef 36	B
Organic matter by calcination (TGA)	XP P 94 047	
pH	ISO 10390	
	Afl. PM - Hfdst. 01 (01.07)	B
	RAW (2020) proef 27	
Salt content per liter of soil moisture	RAW (2020) proef 38	B
Sulfate content (IC)	EN 196-2	

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## Geotechnical tests

Measurement of swelling pressure	BS 1377-5	
Consolidated drained triaxial test	BS 1377-8	
	EN ISO 17892-9	
	NEN 5117	
Consolidated undrained triaxial test	BS 1377-8	
	EN ISO 17892-9	
	NEN 5117	
Unconsolidated undrained triaxial test	BS 1377-8	
	EN ISO 17892-8	
Unconfined compression test	EN ISO 17892-7	
(pocket) Vane shear test	Geos	
Vane shear test	ASTM D4648	
	BS 1377-7	

## Petrographical tests

Geological description of soil	Geos	
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## Physical tests

Atterberg limits	RAW (2020) proef 14	B	
Classification of soil	NEN 5104		
	NF P 11-300		
	GTR		
	SB 250 (3.1) Hfdst. III § 3		
	SB 260 (1.0) Hfdst. XXII § 4.1.1.2.F		
Particle density	EN ISO 17892-3		L
Density	EN ISO 17892-2 § 5.1		
	NEN 5110 & 5112		
	NF P 94-053		
Designation of soil	RAW (2020) Hfdst. 22 § 06		
Electrical conductivity	EN 13038		
Erosion resistance	RAW (2020) Hfdst. 22 § 06.07		
Particle size distribution - Hydrometer	EN ISO 17892-4 § 5.3	B	L
	NF P 94-057		L
	RAW (2020) proef 1	B	
Permeability coefficient	Geos		
Permeability by Eykelkamp (based ISO/TS 17892-11)	Geos		
Permeability by "Constant Head"	NEN 5123		
Permeability by falling head (based on ISO/TS 17892-11)	Geos		
Particle size distribution particles <0,020 mm	RAW (2020) proef 12		
Particle size distribution particles <0,063 mm	RAW (2020) proef 2	B	
Particle size distribution by laser diffraction	Geos		
Particle size distribution	EN ISO 17892-4 §5.2	B	L
	NF P 94 056		
Assessment of soil for attack on concrete	NBN EN 206-1		
Texture of soil	RAW (2020) proef 29		
Soil texture	SB 250 (3.1) Hfdst. III § 4.2		
Water content	EN ISO 17892-1		L
	NF P 94-050		
	SB 260 (1.0) Hfdst. XXII § 4.2		

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## Proctor tests

Binder dosing curve	Geos		
Binder study	Geos		
California bearing ratio (CBR)	EN 13286-47	B	L
	NF P 94 078		L
Determination of compressive strength	RAW (2020) proef 18	B	
	EN 13286-41	B	L
Immediate bearing index (IBI)	EN 13286-47	B	L
1-point standard Proctor compaction	EN 13286-2	B	L
1-point modified Proctor compaction	EN 13286-2	B	L
5-point standard Proctor compaction	EN 13286-2	B	L
5-point modified Proctor compaction	EN 13286-2	B	L
Resistance to immersion	CME 52.23		
Determination of tensile strength	EN 13286-42	B	L
Accelerated swelling test	EN 13286-49		
Test for determining the treatment ability of a soil	NF P 94-100		
Workability period	EN 13286-45	B	

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# ASPHALT

## Mix design

Laboratory mixing	EN 12697-35	B	
Specimen preparation by gyratory compactor	EN 12697-31	B	
	CME 54.09	B	
Specimen preparation by roller compactor	EN 12697-33 §7.1	B	L
Wheel tracking (large size wheel-tracker)	EN 12697-22 §8.1	B	L
Wheel tracking (small size wheel tracker)	EN 12697-22 §8.3		
Wheel tracking (starting from cores of 400 cm <sup>2</sup> )	CME 54.13	B	
Wheel tracking (starting from laboratory bituminous mixtures)	CME 54.18	B	
Stiffness	EN 12697-26 (Methode A)		L
Fatigue test	EN 12697-24 (Methode A)		L

## Physical tests

Sampling of bituminous mixtures	CME 54.28	B	
Coring of asphalt specimens	Geos		
Water content	EN 12697-14		
Compactibility of hot mix asphalt	EN 12697-10		
Specimen preparation by impact compactor	EN 12697-30	B	
Dimensions of a bituminous specimen	EN 12697-29	B	L
Thickness of a bituminous pavement	EN 12697-36 §6.1	B	L
Stratigraphy and presence of PAH of a bituminous pavement	SB 250 (4.1) Hfdst. VI § 2	B	
	CME 54.42		
Bulk density (procedure D)	EN 12697-6	B	L
	RAW (2020) proef 67	B	
Bulk density (procedure A)	EN 12697-6	B	L
	RAW (2020) proef 67	B	
Bulk density (procedure B)	EN 12697-6	B	L
	RAW (2020) proef 67	B	
Maximum density	EN 12697-5	B	L
	RAW (2020) proef 68	B	
Relative density	SB 250 (2.2) Hfdst. XIV §4.2	B	
	CME 54.08	B	



## ASPHALT

Void characteristics	EN 12697-8	B	L
	RAW (2020) proef 69	B	
	SB 250 (4.1) Hfdst. XIV § 4.3	B	
	CME 54.09		
Water sensitivity of bituminous specimens (ITSR, method A)	EN 12697-12	B	L
	CME 54.40	B	
Indirect tensile strength (dry, wet)	EN 12697-23	B	L
Degree of compaction	RAW (2020) proef 66	B	
	CME 54.08		
Bucket maniability	Geos		
Preparation of samples for determination of binder content, water content and particle size distribution	EN 12697-28		L
Adhesive strength	EN 12697-48		
Binder drainage	EN 12697-18 §5	B	
Indentation using plate specimens	EN 12697-21		
Indentation	EN 12697-20	B	L
Resistance to de-icing fluids	EN 12697-41		
Resistance to fuel	EN 12697-43		
Shrinkage of asphalt at constant temperature	Geos		
Extraction of binder (Asphalt analyser)	EN 12697-1 Annex B.2.1	B	L
Extraction of binder (Soxhlet)	EN 12697-1 Annex B.1.3	B	L
Soluble binder content (Asphalt analyser)	EN 12697-1 Annex B.2.1	B	L
	TP Asphalt-StB Teil 1	B	
Soluble binder content (Soxhlet)	EN 12697-1 Annex B.1.3	B	L
	RAW (2020) proef 65.1	B	
Particle size distribution	EN 12697-2	B	L
Bitumen recovery: rotary evaporator	EN 12697-3	B	L

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## Recyclability

Stratigraphy of a bituminous pavement	CROW Publicatie 210		
	RAW (2020) proef 77.1	B	
	SB 250 (3.1) Hfdst. VI §2		
Stratigraphy and presence of PAH of a bituminous pavement	CROW Publicatie 210		
	(RAW Proef 77.1 & RAW Proef 77.2) (2020)	B	
Thickness of a bituminous pavement (semi-quantitative)	RAW (2020) proef 64	B	
Presence of tar in asphalt by IR	SB 250 (3.1) Hfdst. XIV §3.7.2.3	B	



## ASFALT

Presence of PAH by DLC	CROW Publicatie 210 (RAW Proef 77.3)(2020)	B
PAH-content by HPLC (10 components, OVAM)(based on NEN 6977+C1, NEN 7331/A1 §9.6)	Geos	B
PAH-content by HPLC (10 components, VROM)(based on NEN 6977+C1, NEN 7331/A1 §9.6)	Geos	B
PAH-content by HPLC (16 components, EPA)(based on NEN 6977+C1, NEN 7331/A1 §9.6)	Geos	B

## Cold asphalt

Particle size distribution	EN 12697-2	B	L
	PTV 861 - version 2.0 §4.3 (2017)	B	
Soluble binder content (Asphalt analyser)	EN 12697-1 Annex B.2.1	B	L
	PTV 861 - version 2.0 §4.4 (2017)	B	
Void characteristics	EN 12697-8	B	L
Hardening ability	PTV 861 - version 2.0 §4.5 (2017)		
Ability to compact	PTV 861 - version 2.0 §4.10 (2017)	B	
Stability	PTV 861 - version 2.0 §4.6 (2017)		
Resistance to stripping	PTV 861 - version 2.0 §4.7 (2017)		
Indirect tensile strength	PTV 861 - version 2.0 §4.9 (2017)	B	
Resistance to rutting	PTV 861 - version 2.0 §4.8 (2017)	B	

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# BITUMEN

Preparation of test samples	EN 12594		L
Penetration (25°C-100g-5s)	EN 1426	B	L
	AASHTO T 49	B	A
	ASTM D5	B	A
	IRAM 6576		
	PTV 866 - version 1.0 §4.3 (2020)	B	
	GOST 11501-78		
Penetration (15°C-100g-5s)	EN 1426	B	L
Penetration 5 temperatures (IP-5T)	FD T 66-064-2015		
Softening point (R&B)	AASHTO T 53	B	A
	ASTM D36	B	A
	EN 1427	B	L
	IRAM 6841		
	PTV 866 - version 1.0 §4.4 (2020)	B	
Penetration index	EN 12591 Annex A	B	
	IRAM 6835 5.1		
Fraass breaking point	EN 12593	B	L
Dynamic viscosity	AASHTO T 202		A
	AS 2341.2		
	ASTM D2171	B	A
	EN 12596	B	L
Kinematic viscosity	EN 12595	B	L
	AASHTO T 201		A
	ASTM D2170	B	A
Solubility	AASHTO T 44	B	A
	ASTM D2042	B	A
	EN 12592	B	L
	IRAM 6835 5.2		
Flash point - COC	AASHTO T 48	B	A
	ASTM D92	B	A
	EN ISO 2592	B	
	IRAM IAP A65-55		
Change of mass	AASHTO T 240	B	A
	ASTM D2872	B	A
	EN 12607-1	B	L
	IRAM 6839		
Dynamic Shear Rheometer (DSR)	AASHTO T 315	B	A
	ASTM D7175	B	A



	AL DSR Prüfung (BTSV)		L
	EN 14770	B	L
	AL DSR Prüfung (konstante Sherrate)		L
DSR: Flow curve at a range of temperatures	EN 14770	B	L
Temperature sweep (DSR)	AL DSR-Prüfung (T-Sweep)		
	TL Bitumen - StB § 5.4 - EN 14770	B	
	EN 14770	B	L
Adhesivity by water immersion test aggregate method	EN 15626		
Ash content	BS 2000-223	B	
	DIN 52005	B	
	EN 12697-47	B	
	ASTM D3174		
	ASTM D3180		
Bending Beam Rheometer	AASHTO T313	B	A
	AL BBR-Prüfung		
	ASTM D6648	B	A
	EN 14771	B	L
Element analysis (ICP-AES)	Geos		
Blending PMB	Geos		
Relative density	AASHTO T 228	B	A
	ASTM D70	B	A
	EN 15326	B	L
	EN ISO 3838		
	EN 1097-7	B	L
Density @ 15°C	ASTM D70	B	A
	ASTM D4052		
	EN 15326	B	L
	EN ISO 3838		L
	EN ISO 12185		
	ASTM D70	B	A
Density @ 25°C & 15°C	ASTM D70	B	A
	EN 15326	B	L
	ASTM D70	B	A
	EN ISO 3838		L
	ASTM D70	B	A
Polymer dispersion	EN 13632	B	L
VOC	Geos		
	EN ISO 3405		



BITUMEN

Ductility	ASTM D113	B	A
	DIN 52013		
	NBN T 54-208 (1971)	B	
	Afl. PM - Hfdst. 8 (08.36)	B	
Durability index	IRAM 6835 5.3		
Durability	NZTA T13		L
Elastic recovery	AASHTO T301		A
	ASTM D7175		A
	EN 13398	B	L
Equiviscous temperature by DSR	prEN 15324		
Equiviscous temperature	NEN 3945	B	
Fatigue test	RILEM TC 182 ATB		
Force ductility	AASHTO T 300		
	EN 13589 - EN 13703	B	L
	IP 570		
H <sub>2</sub> S	IP 570		
H <sub>2</sub> S in headspace of bitumen by Draeger tubes	Geos		
Content of asphaltenes	DIN 51595	B	
	BS 2000-IP 143	B	
Estimating fatigue resistance of asphalt binders using the Linear Amplitude Sweep	AASHTO TP 101		
Loss in mass after heating	ASTM D6	B	
	EN 13303	B	L
Loss on ignition	Geos		
TTS Mastercurve	EN 14770	B	L
MSCR	AASHTO T 350	B	A
	ASTM D7405		A
	AL MSCR	B	
Polymer content	Geos		
Na (ICP-AES)	Geos		
Presence of PAH by PAH-marker	CROW Publicatie 210 § 4.2 (RAW Proef 77.2 )(2015)		B
PAH-content by HPLC (16 components, EPA) (based on NEN 6977+C1, NEN 7331/A1 §9.6)	Geos		B
PAH-content (16 components, EPA)	NEN 7331/A1 § 9.6		
Pressure Ageing Vessel (PAV)	AASHTO R28	B	A
	ASTM D6521	B	A
	EN 14769	B	L
Pendulum test	EN 13588	B	L
Determination Performance Binder Grade and Continuous Performance Grade	AASHTO M320		





## BITUMEN

Plasticity index	EN 14023	B	L
Polymer content	Geos		
	LPC n° 71		
IR fingerprint	Geos		
Polymer type	Geos		
Flash point - PMCC	ASTM D93	B	
	EN ISO 2719	B	L
Perceptible properties	EN 1425		
Total sulfur	ASTM D2622		
Salts in bitumen	Geos		
Salt content	CEN TC336 WG2		
SARA analysis	ASTM D4124		
	IP 469		
Spot test	AASHTO T 102		
Spot test (Ensayo de la mancha)	IRAM 6594		
Staining tendency	EN 13301	B	L
Storage stability	ASTM D7173		
	ASTM D5976		
	EN 13399	B	
Susceptibility index	Geos		
Change of mass	AASHTO T 179		A
	ASTM D1754	B	A
	EN 12607-2	B	L
	EN 12607-3		L
Fuming loss	Geos		
Tensile properties	EN 13587	B	
Chromaticity co-ordinates and luminance factor	EN 1871 (Annex A)		
Verifying of capillary	Verification of capillary viscometers B		
Dynamic viscosity	ASTM D4402	B	A
	EN 13302	B	L
Dynamic viscosity (Temperature sweep)	EN 13302	B	L
Viscosity - Cone and plate	EN 13702	B	L
Dynamic viscosity @ 60°C	ASTM D4402	B	A
Visual characteristics	Geos		
Paraffin by distillation	EN 12606-1	B	L
Paraffin by extraction	EN 12606-2	B	L
Zero Shear Viscosity	CEN/TS 15325		
Determination of Delta Tc	PTV 854 §4.3	B	



## Emulsions

Water content	EN 16849		L
Breaking value	EN 13075-1	B	L
Cement mixing of emulsified asphalt	ASTM D6935		
Distillation characteristics	EN 13358		
Elastic recovery	EN 13398	B	L
Recovery (evaporation)	EN 13074-1	B	L
Stabilisation (recovery)	EN 13074-2	B	L
Efflux time	EN 12846-1	B	L
	NFT T 66-005		
Penetration (25°C-100g-5s)	EN 1426	B	L
pH	EN 12850	B	L
Particle polarity	EN 1430	B	L
Softening point (R&B)	EN 1427	B	L
Residual binder and oil distillate (outs.)	EN 1431		
Determination of settling tendency of bituminous emulsions	EN 12847		
Residue on sieving (0,160 mm)	EN 1429	B	L
Residue on sieving (0,500 mm)	EN 1429	B	L
Storage stability	EN 1429	B	L
Dynamic viscosity	EN 13302	B	L
Water content	EN 1428	B	L
	EN 16849	B	
Water immersion test	EN 13614		

## Joint sealants

Compatibility	EN 13880-9		
Cone penetration (25°C)	EN 13880-2	B	
Density at 25°C	EN 13880-1	B	
Flow resistance	EN 13880-5	B	
Change in weight	EN 13880-8		
Penetration (25°C-100g-5s)	EN 1426	B	L
Pen & recovery	EN 13880-3	B	
Softening point (R&B)	EN 1427	B	L
Heat resistance	EN 13880-4	B	
Adhesion and cohesion	EN 13880-10		
Discontinuous extension	EN 13880-13		



# CERAMICS

Abrasion resistance	EN 1344 - Annex E	B
	EN ISO 10545-6	B
Capillary water absorption	EN 772-11	B
Cold water absorption	EN 772-21	B
Determination of uniaxial compressive strength	EN 14617-15	
	EN 772-1	B
Gross dry density	EN 772-13	B
Net dry density	EN 772-13	B
Dimensions of clay pavers	EN 1344 - Annex B	B
Dimensions	EN 772-16 §7.1	B
Efflorescence	NBN B 24-209	B
Flatness of masonry units	EN 772-20	
Determination of flexural strength	EN 14617-2	
	EN 1344 - Annex D	B
	EN 15037-3+A1	
Freeze/thaw resistance	EN ISO 10545-4	B
	NBN B 27-009 (1996)	B
	EN 772-22 (2019)	B
	EN 1344 - Annex C	B
Frost resistance - water absorption by capillarity	NBN B 23-101 (2020)	
	NBN B 27-010 (1983)	B
Plane parallelism of the bed faces	EN 772-16 §7.4	
Shells and webs	EN 772-16 §7.2 & §7.5	B
Slip resistance	CEN TS 16165	B
Active soluble salts content (ICP-AES)	EN 772-5 §9.3	B
Net volume and percentage of voids	EN 772-3	B
Moisture movement	EN 772-14	B



# CONCRETE

## Chemical tests

Alkali content of concrete (ICP-AES)	EN 196-2	B
Cement content	GrandDuBé	
	NBN B 15-250	B
Chloride content by potentiometric titration	BSW n° 96-01	B
	EN 14629	
	NBN B 15-250	B
	GrandDuBé	
Water-soluble chloride salts	EN 1015-17	B
Chloride (total)	GrandDuBé	
CO <sub>2</sub> (TGA)	NBN B 15-250	B
Insoluble residue on mortar (HCl-test)	Geos	
	GrandDuBé	
Insoluble residue	NBN B 15-250 §8	B
Loss on ignition	NBN B 15-250 §7	B
	NBN B 15-250	B
Nitrate content (IC)	Geos	
Sulfate content (IC)	NBN B 15-250	B
Sulfate content (gravimetric)	NBN B 15-250	B

## Durability tests

Reactivity of a concrete formula for alkali-aggregate reactivity (AAR)	NF P 18-454	B
Acid resistance of concrete	Geos	
Air void characteristics	ASTM C 457	B
	EN 480-11	B L
Accelerated test on concrete	NBN B 15-001	
Resistance to carbonation	Geos	
	EN 13295	
Carbonation depth	CUR-aanbeveling 48 (2010)	
	EN 14630	B
Chemical resistance of concrete	EN 1825-1 §8.2.1	
	EN 858-1 §8.1.4	
Resistance to seawater	CUR-aanbeveling 48 § 7.5 (2010)	
	NBN B 15-100 § 6.4.2.5	
Resistance to sulfates	CUR-aanbeveling 48 § 7.5 (2010)	
	NBN B 15-100 § 6.4.2.6	

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## CONCRETE

Resistance to freezing - Internal damage	NBN B15-100		
Frost resistance (freeze/thaw in water)	NF P 18-424		
Resistance to freezing w. de-icing salts	NBN B15-100		
Freeze/thaw resistance with de-icing salt	EN 1433 Annex C		B
	CEN/TS 12390-9 §5		B
	RNR 06		B
	XP P 18-420		
	ISO/DIS 4846-2		
	SB 250 (3.1) Hfdst. XIV §4.8		
Determination of frost resistance	NBN B 15-231 (1987)		B
Gas permeability of hardened concrete	XP P 18-463		B L
Water impermeability	EN 491 §5.7		B
Depth of penetration of water under pressure	EN 12390-8		B
	ISO 7031		
RCM (Rapid Chlorid Migration)	XP P 18-462		B L
	NT Build 492		B
Electrical resistivity of concrete	Geos		
Accelerated test on mortar by concrete prism test	LPC n° 66		

## Fresh tests

Preparation and conservation of samples for compressive strength test	EN 12390-2		L
Air content of fresh mortar	EN 1015-7		B
	EN 12350-7		B L
	EN 413-2 §7		B
	EN 1015-7		B
Density	EN 12350-6		B L
Flow value	EN 12350-5		B L
Slump-test	EN 12350-2		B L
Vébé test	EN 12350-3		
Water content	TRA 550 Deel P, Annex A § 2.2		

## Petrographic tests

Petrographic examination of mortar	Geos		
Petrographic examination of concrete	Geos		



## Physical tests

Tensile test	PTV 8450-2 - version 2.0 (2016)	B	
	SB 250 (3.1) Hfdst. III § 43.3.5.4		
	EN 1542		
	EN 1348		
	NBN B 14-210 (1969)		
Capillary water absorption	Geos		
	NBN B 15-217 (1984)	B	
Compressive strength	EN 12390-3	B	L
	NBN B 15-220 (1990)	B	
	PTV 100 (2002)	B	
	RAW (2020) proef 32		
	PTV 21-101 (2010)		
Compressive strength on cores in situ taken	CME 52.05	B	
Layer thickness of cores and thickness of reinforcements	CME 53.17	B	
	EN 13863-3	B	
Layer thickness of foundation and road structure	CME 52.04	B	
Determination of compression behaviour	EN 826		
Coring of concrete specimens	EN 12504-1		
Concrete cover	EN 1917 § 6.3.2		
Creep	NBN B 15-228 (1976)		
Density of hardened concrete by dimensions	EN 12390-7	B	
	NBN B 15-218 (1986)	B	
Density of hardened concrete by water displacement	EN 12390-7	B	
Density of hardened mortar by dimensions	EN 1015-10	B	
Porosity accessible to water and density	NF P 18-459	B	L
	GrandDuBé		
Mass per unit area	EN 845-2 § 5.2.2		
Dynamic E-module of concrete by speed of sound	NBN B 15-229 (1976)		
Static module of elasticity	EN 12390-13		
Flexural tensile strength residual of metallic fibre concrete	EN 14651		
Fibre content in fresh or hardened concrete	EN 14721+A1 (2007)	B	
Flexural strength (one-point loading)	EN 12390-5 Annex A	B	
Flexural strength (two-point loading)	EN 12390-5	B	
Shrinkage and expansion	NBN B 15-216 (1974)		
Slip resistance	EN 13036-4	B	
Tensile splitting strength of test specimens	EN 12390-6	B	



## CONCRETE

### Strength

(based on NBN EN 1338 Annex F (2003))	Geos	
Loading test on gully tops and manhole tops	EN 124-1	
Loading test on drainage channel	EN 1433 §9.1	B
Crushing strength of gully tops and manhole tops	BRL 9203 § 4.2.13	
Vertical strength of reducing units and capping units	PTV 114 §7.5.2 (2012)	
Shear strength of hollow concrete core slabs	EN 1168 Annex J	
Loading test on gully tops and manhole tops	NEN 7067 § 5.5.2	
Crushing strength of pre-cast drainage boxes	PTV 105 (2002)	
Crushing strength of concrete pipes	EN 1916 Annex C	B
Crushing strength of chamber and shaft units	EN 1917 Annex A	B
Dimensions of a concrete core	Afl. PM - Hfdst. 53 (53.01)	B
Coating thickness	Geos	
Water absorption by immersion	NBN B 15-215 (2018)	B
	EN 13369 - Annex F	B
	EN 1433 §9.2	B
	EN 1916 Annex F	B
	EN 1917 Annex D	
	CME 53.13	B
	PTV 100 (2002)	
Water permeability	PTV 126 § 8.3 (2017)	B

### Concrete blocks

Density of concrete blocs	CERIB Fiche 391 (2007)	
Permeability - permeable hybrid products	PTV 823 D §4.2	
Water absorption on sulphur concrete products	PTV 126 §8.3.2	
Capillary water absorption sample	EN 772-11	B
Compressive strength sample	EN 772-1	B
Freeze/thaw resistance	EN 772-22 (2019)	B
Moisture movement	EN 772-14	B
Drying shrinkage	EN 680	B

### Concrete Kerb Units

Abrasion resistance (Capon)	EN 1340 - Annex G	B
Determination of flexural strength	EN 1340 - Annex F	B
Freeze/thaw resistance with de-icing salt	EN 1340 - Annex D	B



## CONCRETE

Slip resistance	EN 1340 - Annex I	B
Water absorption by immersion	EN 1340 - Annex E	B

### Concrete Paving Block

Abrasion resistance (Capon)	EN 1338 - Annex G	B
Dimensions of concrete paving blocks	EN 1338 - Annex C	
Freeze/thaw resistance with de-icing salt	EN 1338 - Annex D	B
Penetration value of packing pieces	EN 1338 - Annex F	
Slip resistance	EN 1338 - Annex I	B
Strength	EN 1338 - Annex F	B
Water absorption by immersion	EN 1338 - Annex E	B

### Concrete Paving Flag

Abrasion resistance (Capon)	EN 1339 - Annex G	B
Chloride ion ingress (products and system for protection and repair of concrete structures)	EN 13396	
Determination of flexural strength	EN 1339 - Annex F	B
Freeze/thaw resistance with de-icing salt	EN 1339 - Annex D	B
Slip resistance	EN 1339 - Annex I	B
Water absorption by immersion	EN 1339 - Annex E	B

### Mixing Water

Alkalinity	EN 1008	
Assessment of mixing water	EN 1008	
Chlorides (IC)	EN 196-2	B
Density @ 20°C	EN 1008	B
Dissolved matter	EN 1008	
Alkali (ICP-AES)	EN 196-2	B
Nitrates	EN 196-2	B
P <sub>2</sub> O <sub>5</sub> - Pb - Zn	EN 196-2	B
pH	ISO 4316	
Preliminary assessment	EN 1008	
Sugars	Geos	
Sulphates (IC)	EN 196-2	B
Magnesium content	Geos	B





## Concrete

SEM analysis	Geos
Quantitative XRD analysis	Geos
Qualitative XRD analysis	Geos

## Admixture

Alkali content (ICP-AES)	EN 480-12	B
Capillary water absorption	EN 480-5	B
Water-soluble chlorides by titration	EN 480-10	B
Density at 20°C	EN 480-7	B
	ISO 758	B
Conventional dry material content	EN 480-8	B
Infrared analysis	EN 480-6	B
pH	EN 480-9	B
	ISO 4316	B
Effect on setting time (TRA 500 v6.0 01/01/2016)	EN 480-2	B
Visual characteristics (homogeneity and colour)	Geos	



# HYDRAULIC BINDERS

## Cement - Fly ash

Alkali content (ICP-AES)	LPC n° 48		
	Geos		
Influence on soundness (Châtelier)	EN 196-3 §7		B
Chloride (potentiometric)	EN 196-2		B
	EN 196-2 §4.5.16		
	EN ISO 1158		
CO <sub>2</sub> (TGA)	EN 196-2		B
	NF P18-805		
Compressive strength	EN 196-1		B
Content of cement constituents	CEN/TR 196-4 §6.2		
Water-soluble chromium (VI)	EN 196-10		B
Particle density	EN 1097-7	B	L
	EN 196-6 §4	B	L
Fineness by sieving (90 µm)	EN 196-6 §3	B	L
Fineness by air permeability	EN 196-6 §4	B	L
Determination of flexural strength	EN 196-1		B
Free CaO	EN 451-1		B
Water retention	EN 413-2 §6		B
Air content of fresh mortar	EN 413-2 §7		B
Water solubility	Geos		
Heat of hydration	EN 196-9		B
Chemical composition (ICP-AES)	EN 196-2		B
Impure SiO <sub>2</sub>	EN 196-2 §4.5.5		
Loss on ignition (TGA)	EN 196-2		B
	NF P18-805		
Reactive Al <sub>2</sub> O <sub>3</sub>	EN 197-1		
Reactive CaO	EN 197-1		B
Reactive SiO <sub>2</sub>	EN 197-1		B
Sulfide	EN 196-2 §4.4.5		B
Determination of shrinkage and swelling	NF P 15-433		B
Sulfates (gravimetric)	EN 196-2 §4.4.2		B
Sulfates (IC)	EN 196-2		B
Soluble phosphate content	EN 450-1 Annex C		B
Total organic carbon	EN 13639		
Total carbon	ISO 10694 - ISO 12902		B
Standard consistence	EN 196-3 §5		B

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## HYDRAULIC BINDERS

Final setting time (Vicat)	EN 196-3 §6.3	B
Initial setting time (Vicat)	EN 196-3 §6.2	B
Chemical composition (XRF)	EN 196-2 §5	B
Insoluble residue	EN 196-2 §4.4.3	B
Particle size distribution	ISO 13320	

## Specific fly ash tests

Compressive strength	EN 196-1	B
Determination of flexural strength	EN 196-1	B
Activity index	EN 450-1 §5.3.2	B
False set (Tusschenbroeck test)	NF P18-363	
Fineness by wet sieving	EN 451-2	B
Water requirement of fly ash	EN 450-1 Annex B	
Chemical composition (ICP-AES)	EN 196-2	B
Influence on the initial setting time	EN 196-3 §6	B
Chemical composition (XRF)	EN 196-2 §5	B
Soluble phosphate content	EN 450-1 Annex C	B
Particle size distribution	ISO 13320	

## Gypsum

Anhydrite content (calculation)	Geos	
Chloride (potentiometric)	VGB M 701 § 8.8	
HCl insolubles	VGB M 701 § 8.11	
Chemical composition (ICP-AES)	VGB M 701 § 8.7	
pH	VGB M 701 § 4	
Sulfates (IC)	VGB M 701 § 2.3	
CaSO <sub>3</sub> · ½ H <sub>2</sub> O	VGB M 701 § 8.9	
Total organic carbon (based on ISO 10694/12902)	VGB M 701 § 8.10	
Moisture, purity and CaCO <sub>3</sub> content (TGA)	VGB M 701 § 3	

## Lime

Free lime	PTV 847 Annex A (2019)	
	EN 1744-1 § 18.4	B
Ca(OH) <sub>2</sub> content	EN 459-2 §6.9	
CaO content	EN 459-2 §6.9	
Free water in buiding lime	EN 459-2 §6.4	
Reactivity of lime	EN 459-2 §7.6	
Stability of lime	EN 459-2 §7.4.4	



## HYDRAULIC BINDERS

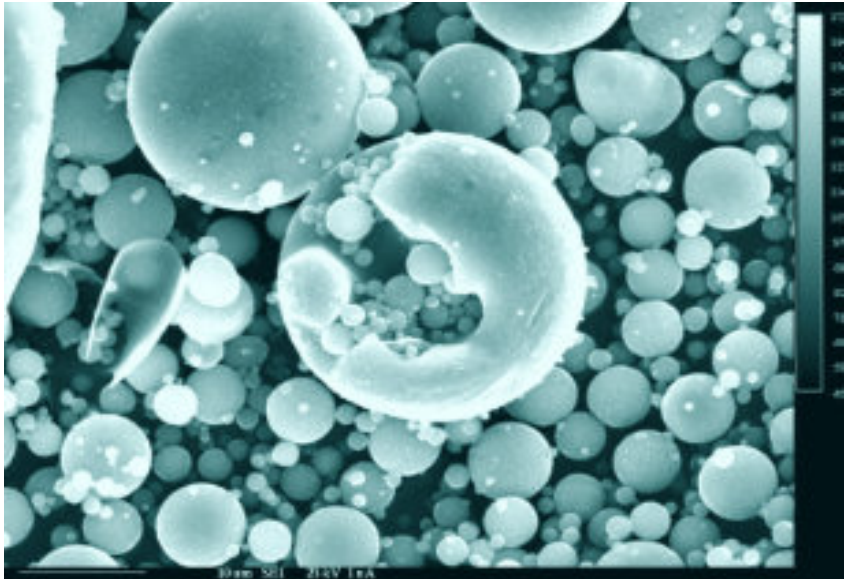
Final setting time (Vicat)	EN 459-2 §7.5.4
Initial setting time (Vicat)	EN 459-2 §7.5.4

### Mortar

Abrasion resistance	EN 12808-2	
Determination of strength	EN 1015-11	B
Compressive and flexural strength	EN 12808-3	
Consistence of fresh mortar (plunger)	EN 1015-4	
Freeze-thaw resistance of mortar	EN 12808-3	
Determination of frost resistance (by flexural and compressive strength)	PTV 844 - version 1.0 (2019)	
Determination of shrinkage	EN 12808-4	
Determination of water absorption	EN 12808-5	

### Slag

Compressive strength	EN 196-1	B
Activity index	EN 15167-1 §5.3.2.3	B
Determination of slag content	CEN/TR 196-4 §7.2.2	B
Moisture content	EN 15167-1 Annex A	
Chemical analysis	Geos	B
Glas content (XRD)	BRL 9325	



Fly ash: microscopic view



# NATURAL STONE

Acid resistance of natural stone	Geos	
Resistance to ageing by SO <sub>2</sub> action	EN 13919	B
Basic resistance of natural stone	Geos	
Abrasion resistance (Capon)	EN 14157 (method A)	B
Chemical analysis	PTV 819-5	B
Classification of natural stone	PTV 819-4	
Determination of uniaxial compressive strength	ASTM D7012	
	EN 1926	B
	NF P 94-420	
Continuity index	NF P 18-556	
Apparent density and open porosity	EN 1936	B
Breaking load at dowel hole (type IIa)	EN 13364	
Determination of flexural strength	EN 12372	B
Determination of frost resistance (identification)	EN 12371	B
Visual analysis of presence of limestone	Geos	
Petrographic examination of natural stone	EN 12407	B
Determination of porosity	NF P 94-410-3	
Slip resistance	EN 14231	B
Tensile splitting strength	ASTM D3967	
Ageing by thermal shock	EN 14066	B
Waterabsorption by capillarity	EN 1925	B
Waterabsorption at atmospheric pressure	EN 13755	B
Dimensions of natural stone products	EN 13373 §7.1 + 7.2 + 7.3	
Dynamic E-modulus of elasticity (resonance frequency)	EN 14146	
Infrared analysis	EN 14581	
Particle density and water absorption	EN 13383-2 §8	B
Point load test	ASTM D5731	
Resistance to freezing and thawing	EN 13383-2 §9	B
Sonnenbrand	EN 13383-2 §10	B

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# MISCELLANEOUS

## Pigments

Total chlorine	EN 12878	
Watersoluble chloride (potentiometric)	ISO 787-13 § 7	
Loss on ignition (TGA)	EN 12878	
Water solubility	ISO 787-3	
Compressive strength (28 days)	EN 196-1	B
Influence on the setting time	EN 196-3 §6	B

## Road Marking

Storage stability	EN 1871 (Annex G)	
Softening point (R&B) after heating	EN 1871 (Annex F)	
Indentation value after heating	EN 1871 (Annex J)	
Softening point (R&B)	EN 1871 (Annex F)	
Density	ISO 2811-2	B
Indentation value	EN 1871 (Annex J)	



## ON SITE TESTS

Map with location of tests on construction site	Geos	
Sampling of a sample for subfoundation or foundation (aggregates)	CME 01.24	B
Coating thickness	SB 250 (3.1) Hfdst. III § 43.3.5.2	
Manual cone penetration test	Afl. PM - Hfdst. 50 (50.03)	
	CME 50.03	B
Pachometer (horizontal and vertical)	Geos	
Sclerometer	EN 13791	
Plate loading test according to Westergaard	SNV 670 319	B
	NF P 94-117-3	B
Plate loading test (200 cm <sup>2</sup> )	Afl. PM - Hfdst. 50 (50.01)	B
Plate loading test (750 cm <sup>2</sup> )	Afl. PM - Hfdst. 50 (50.01)	B
Dynamic plate load test	TP BF-StB Part B 8.3	B
Investigation and assessment of drain and sewer systems	EN 13508 (codification)	
	CCT Qualiroutes	
	BEFDSS-DP (Format d'échange)	B



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