

Water and geosynthetics in standardization

BGS info sessie “Drainage en grondwaterbeheersing met geokunststoffen” – 21/11/2023

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Background

Developing standards for Geosynthetics

Belgium: CENTEXBEL/ E189 Geosynthetics

Managed by NBN Sector operator CENTEXBEL

Mirror committee to:

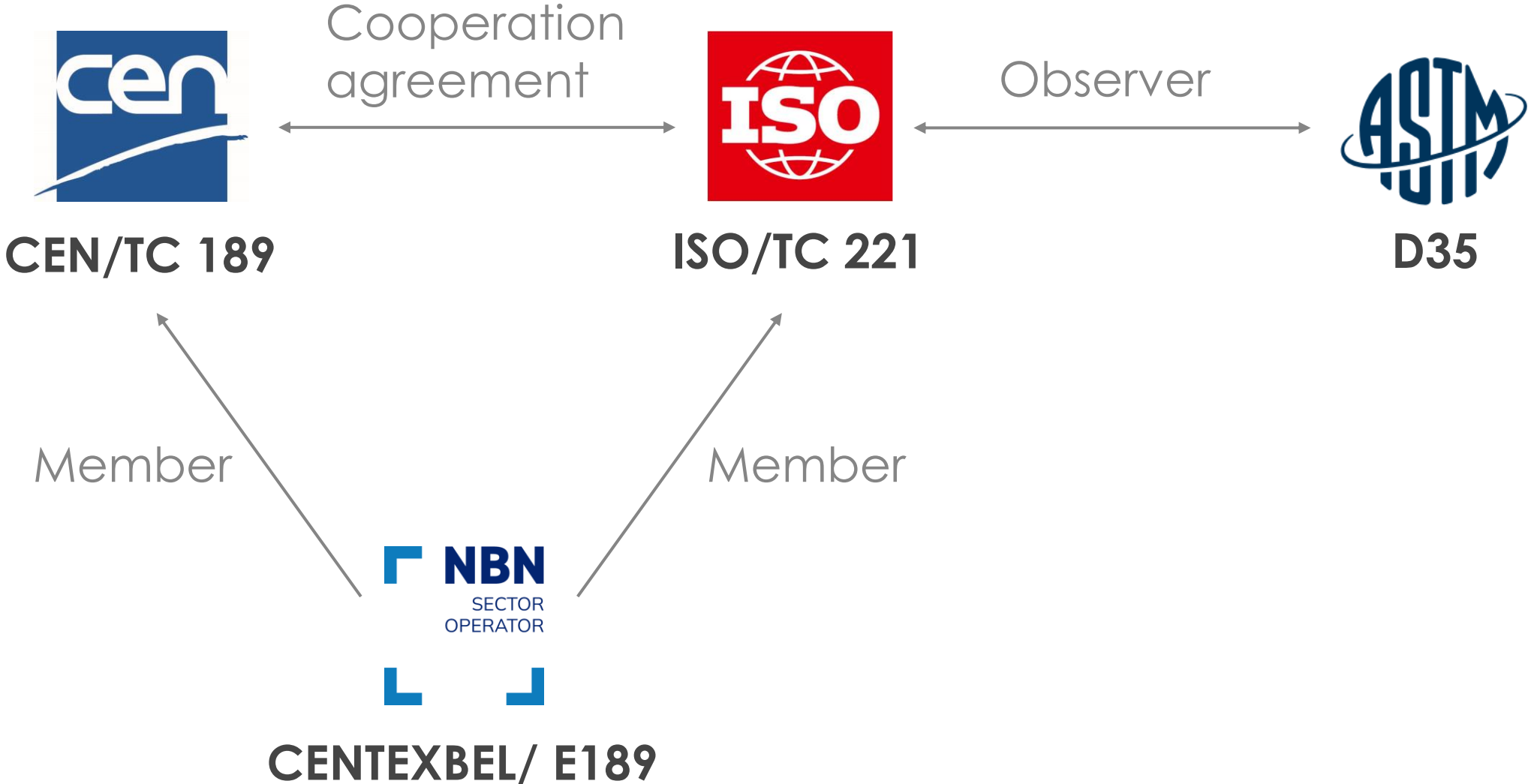
CEN/TC 189 Geosynthetics (Europe)

ISO/TC 221 Geosynthetics (International)

Other:

ASTM D35 Geosynthetics

Relationships



CEN/TC189 Geosynthetics

- Belgian National Mirror committee, managed by NBN Sector operator CENTEXBEL
- Discusses & follows the work CEN/TC189 and ISO/TC 221
- Sends national delegates and experts to the European and International meetings



CEN/TC 189 Geosynthetics

Working groups:

WG 1 Geotextiles and geotextile-related products - General and specific requirements

WG 2 Terminology, identification, sampling and classification

WG 3 Mechanical testing

WG 4 Hydraulic testing

WG 5 Durability

WG 6 Geosynthetic barriers - General and specific requirements

ISO/TC 221

Working groups

WG 1 (NONE)

WG 2 Terminology, identification and sampling => CEN

WG 3 Mechanical properties => CEN

WG 4 Hydraulic properties => CEN

WG 5 Durability => CEN

WG 6 Design using geosynthetics (only ISO)

CEN/TC 189 Geosynthetics

Working groups:

WG 1 Geotextiles and geotextile-related products - General and specific requirements

WG 2 Terminology, identification, sampling and classification => ISO

WG 3 Mechanical testing => ISO

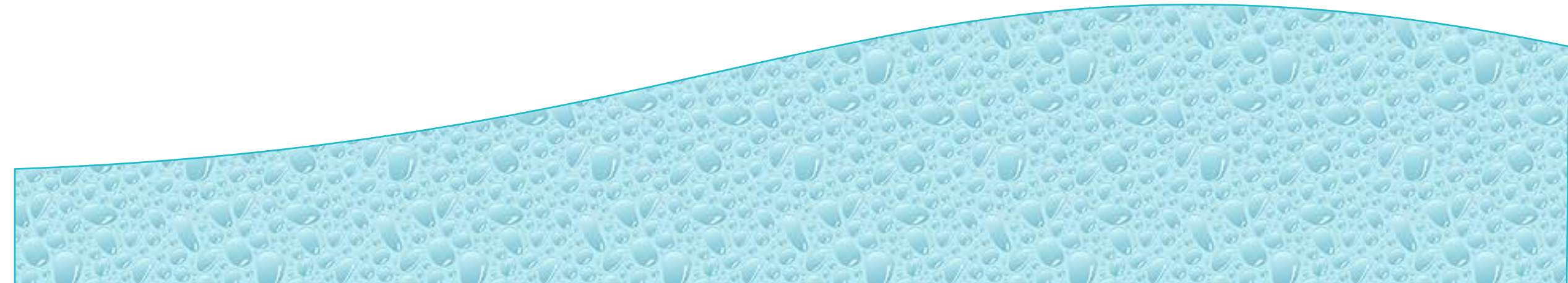
WG 4 Hydraulic testing => ISO

WG 5 Durability => ISO

WG 6 Geosynthetic barriers - General and specific requirements

WG1 and WG6 develop the harmonized standards required for CE marking

Standards for Geosynthetics in hydraulic (and other) applications



Test methods

CEN/TC 189 & ISO/TC 221 WG4: Hydraulic properties

CEN standards

CEN/TS 14416:2014	Geosynthetic barriers - Test method for determining the resistance to roots
CEN/TS 14417:2014	Geosynthetic barriers - Test method for the determination of the influence of wetting-drying cycles on the permeability of clay geosynthetic barriers
CEN/TS 14418:2014	Geosynthetic Barriers - Test method for the determination of the influence of freezing-thawing cycles on the permeability of clay geosynthetic barriers
CEN/TS 17445:2021	Geosynthetics - Standard test for the simulation of rainfall-induced erosion on the surface of a slope protected by geosynthetic erosion control products
EN 13562:2000	Geotextiles and geotextile-related products - Determination of resistance to penetration by water (hydrostatic pressure test)
EN 14150:2019	Geosynthetic barriers - Determination of permeability to liquids
EN 16416:2023	Geosynthetic clay barriers - Determination of water flux index - Flexible wall permeameter method at constant head

CEN-ISO common standards

EN ISO 11058:2019	Geotextiles and geotextile-related products - Determination of water permeability characteristics normal to the plane, without load
EN ISO 12956:2020	Geotextiles and geotextile-related products - Determination of the characteristic opening size
EN ISO 12958-1:2020	Geotextiles and geotextile-related products - Determination of water flow capacity in their plane - Part 1: Index test
EN ISO 12958-2:2020	Geotextiles and geotextile-related products - Determination of water flow capacity in their plane - Part 2: Performance test
EN ISO 10776:2012	Geotextiles and geotextile-related products — Determination of water permeability characteristics normal to the plane, under load
EN ISO 10773:2011	Clay geosynthetic barriers — Determination of permeability to gases
EN ISO 10772:2012	Geotextiles - Test method for the determination of the filtration behaviour of geotextiles under turbulent water flow conditions
EN ISO 10769:2011	Clay geosynthetic barriers — Determination of water absorption of bentonite

ISO standards

ISO 18325:2015 | Geosynthetics — Test method for the determination of water discharge capacity for prefabricated vertical drains

Specification standards

CEN/TC 189/WG 1 Geotextiles

CEN/TC 189/WG 6 Geosynthetic barriers

ISO/TC 221/WG6 Design using Geosynthetics

CE-marking: Harmonised standards

Standard (dated version!) cited in the Official Journal of the European Union (OJEU) for supporting European legislation.

Under the CPR (Construction products regulation) use of the harmonized standards is mandatory

Care must be taken to use the version of the standard cited in the OJEU; this may not necessarily be latest version published by CEN.

CEN/TC 189/WG 1 Geotextiles and geotextile-related products – Characteristics

Published and cited standards

EN 13249:2016	Construction of roads and other trafficked areas (excl. railways and asphalt inclusion)
EN 13250:2016	Construction of railways
EN 13251:2016	Earthworks, foundations and retaining structures
EN 13252:2016	Drainage systems
EN 13253:2016	Erosion control works (coastal protection, bank revetments)
EN 13254:2016	Construction of reservoirs and dams
EN 13255:2016	Construction of canals
EN 13256:2016	Construction of tunnels and underground structures
EN 13257:2016	Solid waste disposals
EN 13265:2016	Liquid waste containment projects
EN 15381:2008	Pavements and asphalt overlay

CEN/TC 189/WG 6 – Geosynthetic Barriers - Characteristics

Published standards

EN 13361:2018	Construction of reservoirs and dams
EN 13362:2018	Construction of canals
EN 15382:2018	Transportation infrastructure
EN 13491:2018	Construction of tunnels and associated underground structures
EN 13492:2018	Construction of liquid waste disposal sites, transfer stations or secondary containment
EN 13493:2018	Construction of solid waste storage and disposal sites
EN 16993:2018	Construction of storage lagoons, secondary containment (above and below ground) and other containment applications for chemicals, polluted water and produced liquids
EN 16994:2018	Construction of underground structures (other than tunnels and associated structures)

CEN/TC 189/WG 6 – Geosynthetic barriers - Characteristics

Cited standards

EN 13361:2004 + A1:2006	Construction of reservoirs and dams
EN 13362:2005	Construction of canals
EN 13491:2004 + A1:2006	Fluid barrier in the construction of tunnels and underground structures
EN 13492:2004 + A1:2006	Construction of liquid waste disposal sites, transfer stations or secondary containment
EN 13493:2005	Construction of solid waste storage and disposal sites
EN 15382:2013	Transportation infrastructure

=> only the cited version can be used for CE marking

https://single-market-economy.ec.europa.eu/single-market/european-standards/harmonised-standards/construction-products-cpdcpr_en

ISO/TC 221 / WG6 Design using geosynthetics

ISO/TR 18228-1:2020	General
ISO/TR 18228-2:2021	Separation
ISO/TR 18228-3:2021	Filtration
ISO/TR 18228-4:2022	Drainage
ISO/CD TR 18228-5	Stabilization
ISO/PRF TR 18228-6	Protection (<i>under publication</i>)
ISO/TR 18228-7:2021	Reinforcement
ISO/DTR 18228-8	Part 8: Surface erosion control (<i>under development</i>)
ISO/TR 18228-9:2022	Barriers
ISO/DTR 18228-10	Asphalt pavements (<i>under development</i>)

Interested in joining the work?

=> become a member of CENTEXBEL/ E 189 !

Contact

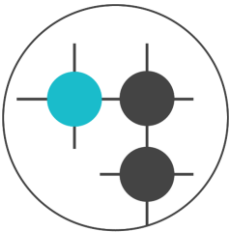
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