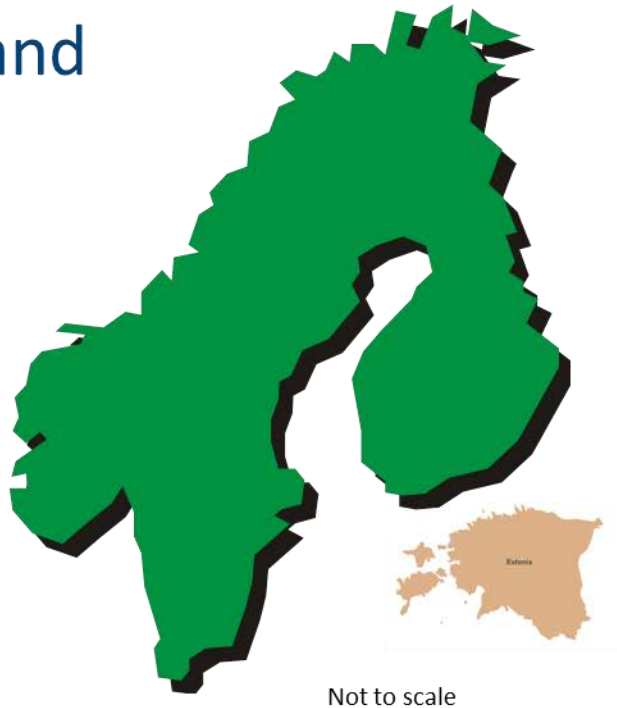
NorGeoSpec 2012

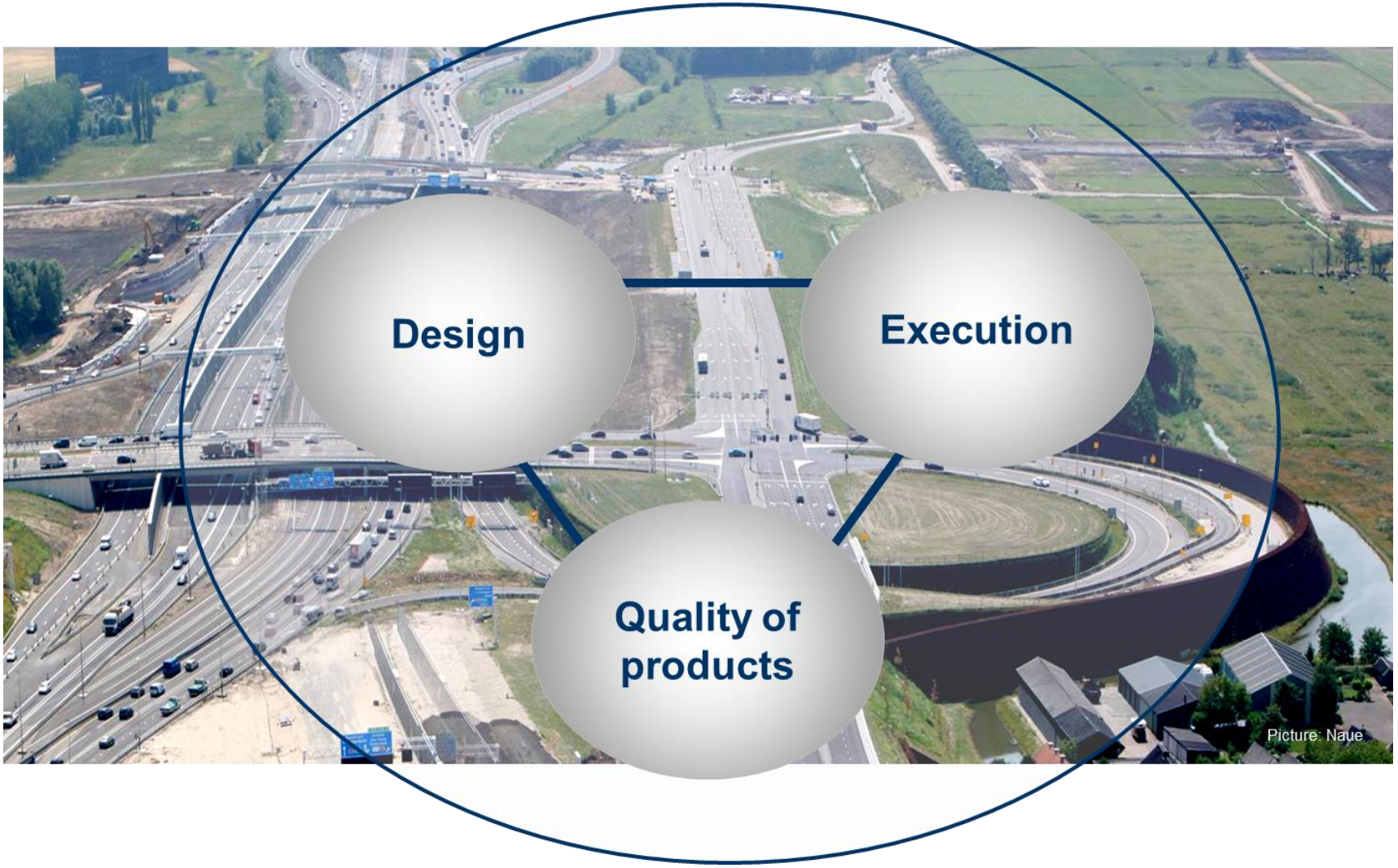
Nordic system for certification and specification of geosynthetics

- Finland
- Norway
- Sweden
- Estonia



Not to scale

NorGeoSpec: Technical Seminar 2014



CE marking: Geosynthetics and geosynthetic related products

CE

CE = Communauté Européenne

CE marking:

a passport for the products in Europe

- **a legal obligation:**
  Without CE Marking, a product can't be placed on the market in the countries members of the European Union and in Norway, Island and Liechtenstein.

CE marking: Geosynthetics and geosynthetic related products

Construction Product Regulation (CPR)

since 01.07.2013

Harmonized Standards

EN 13249 Roads and other trafficked areas
EN 13250 Railways
…..
…..
…..
EN 13265 Liquid waste containment
EN 15381 Pavements and asphalt overlays

CE Marking + Declaration of Performance (DoP)*

*** The product is conform with the declared values"**

CE marking: Geosynthetics and geosynthetic related products

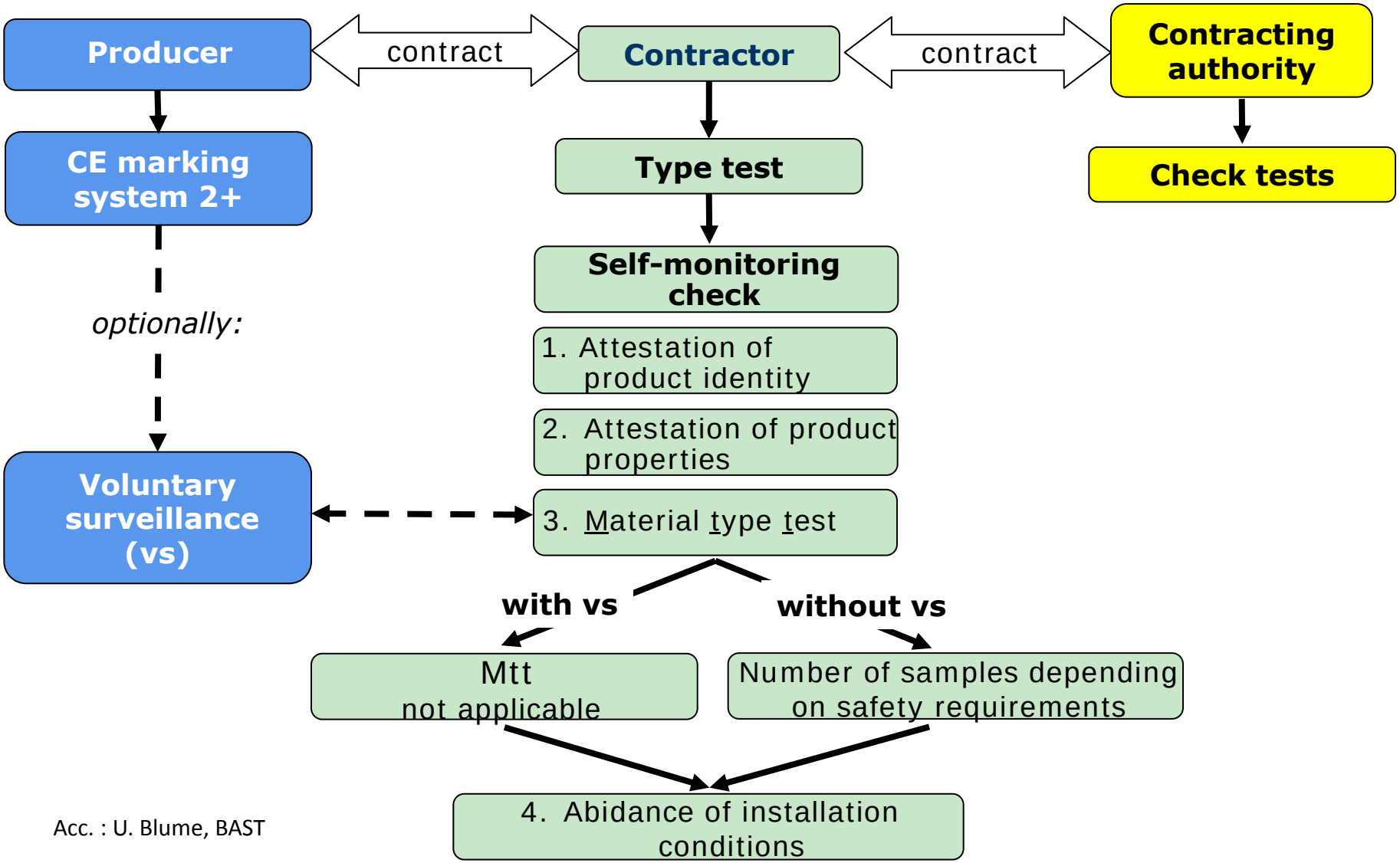
- **Producer declaration of conformity (DoP)**
- **The producer defines the tolerances for the different tests required in the harmonized standards**
- **Procedure based on**

  - Product testing

  - Certification of the factory and factory production control (Notified body)

It is not a product certification

It is not a quality mark !!



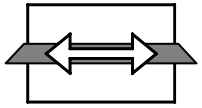
Acc. : U. Blume, BAST

NorGeoSpec 2012:

Nordic system for certification and specification of geosynthetics

Filtration and separation

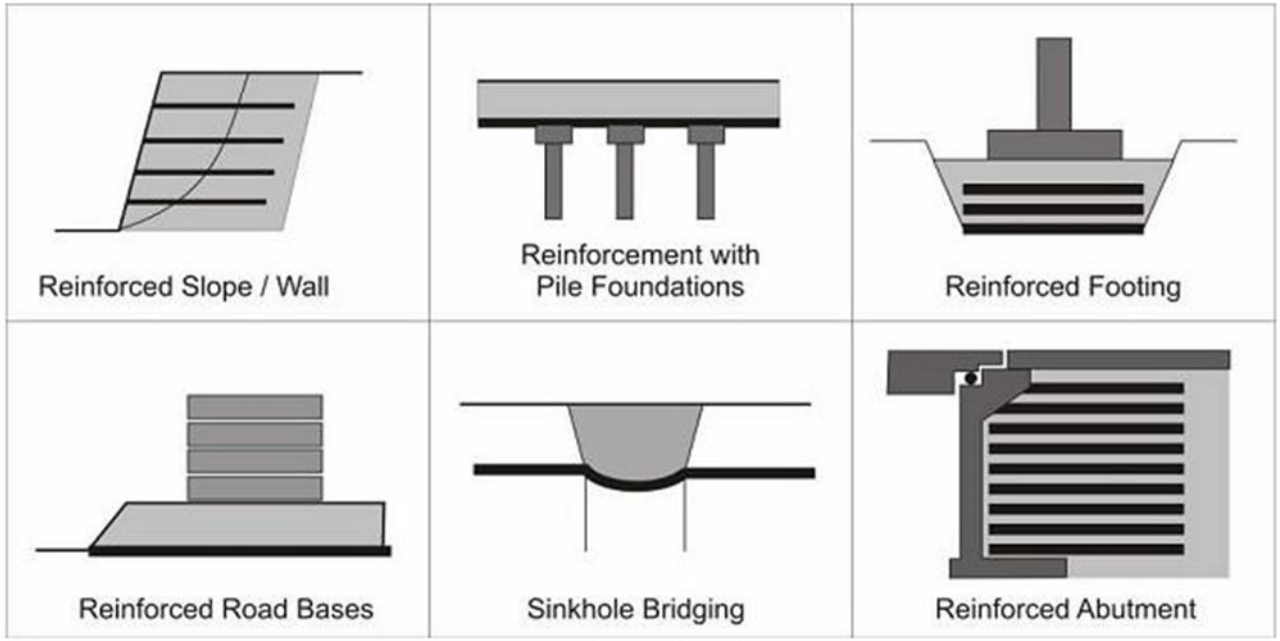
Reinforcement



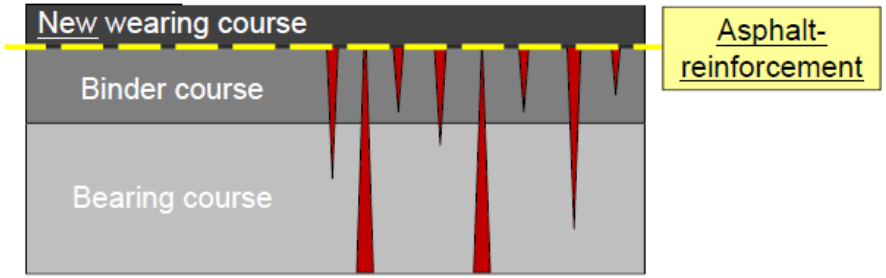
Service life: 25, 50 and 100 years (acc. Annex B hEN)

NorGeoSpec 2012:

Function: Reinforcement



Source: Axel Nernheim; Web.- 19.05.2014



Source: Huesker

NorGeoSpec 2012: Certification and specification

A two-stage product-certification procedure is used when deciding whether geotextiles and geotextile-related products comply with the requirements of NorGeoSpec

Stage 1
Certification

Function

- Separation + Filtration
- Reinforcement

NGS 2012:
Part 1, Table 1

NorGeoSpec 2012: Certification and specification

Stage 1 Certification

Table 1: Certified values with tolerance (in % of values) depending on the function fulfilled by the product

CHARACTERISTIC	STANDARD	UNIT	FUNCTION		
			Filtration	Separation	Reinforcement
Mass per unit area[1)]	EN ISO 9864	g/m²	± 10 %	± 10 %	± 10 %
Dimensions	--[2)]	mm	n.r.	n.r.	± 10 %
MECHANICAL TESTS					
Tensile strength	EN ISO 10319[3)]	kN/m	-10 %	-10 %	-5 %
Elongation at max. load	EN ISO 10319	%	-20 %	-20 %	± 20 %
Strength at 2, 5, 10% strain	EN ISO 10319	kN/m	---	---	-20 %
Static puncture test	EN ISO 12236	kN	-10 %	-10 %	n.r.
Dynamic perforation resistance	EN ISO 13433	mm	+25 %	+25 %	n.r.
HYDRAULIC TESTS					
Permeability normal to the plane without load	EN ISO 11058	mm/s	-30 %	-30 %	-30 %[4)]
Characteristic opening size	EN 12956	µm	±30 %	±30 %	n.r

NorGeoSpec 2012: Part 1 Quality Product Certification

NorGeoSpec 2012: Certification and specification

A two-stage product-certification procedure is used when deciding whether geotextiles and geotextile-related products comply with the requirements of NorGeoSpec

Stage 1
Certification

Function

- Separation + Filtration
- Reinforcement

NGS 2012:
Part 1, Table 1

Stage I procedure is obligatory and must in all cases precede any stage II procedure.

Stage 2
Specification

Function

- Separation + Filtration

NGS 2012:
Part 2, Table 1

NorGeoSpec 2012: Certification and specification

Stage 2 Specification

Table 1: Required values – Quality Product Specification

Function: separation and filtration

CHARACTERISTIC	UNIT	MAXIMUM TOLERANCE [1]	REQUIRED[2] VALUES CORRESPONDING TO 95% CONFIDENCE LIMIT				
			SPECIFICATION PROFILES				
			1	2	3	4	5
Min. tensile strength	kN/m	-10 %	6	10	15	20	26
Min. tensile strain at max. load	%	-20 %	15	20	25	30	35
Max. cone drop diameter	mm	+25 %	42	36	27	21	12
Min. energy index	kN/m		1.2	2.1	3.2	4.5	6.5
Min. velocity index	10^{-3} m/s	-30 %	3	3	3	3	3
Max. char. Opening size, O90	mm	±30 %	0.2	0.2	0.2	0.15	0.15
Max. tolerance for mass per unit area			±12 %	±12 %	±10 %	±10 %	±10 %
Max. tolerance for static puncture strength			-10 %				

NorGeoSpec 2012: Part 2 Quality Product Specification

NorGeoSpec 2012: Certification and specification

A two-stage product-certification procedure is used when deciding whether geotextiles and geotextile-related products comply with the requirements of NorGeoSpec

Stage 1
Certification

Function

- Separation + Filtration
- Reinforcement

NGS 2012:
Part 1, Table 1

Stage I procedure is obligatory and must in all cases precede any stage II procedure.

Stage 2
Specification

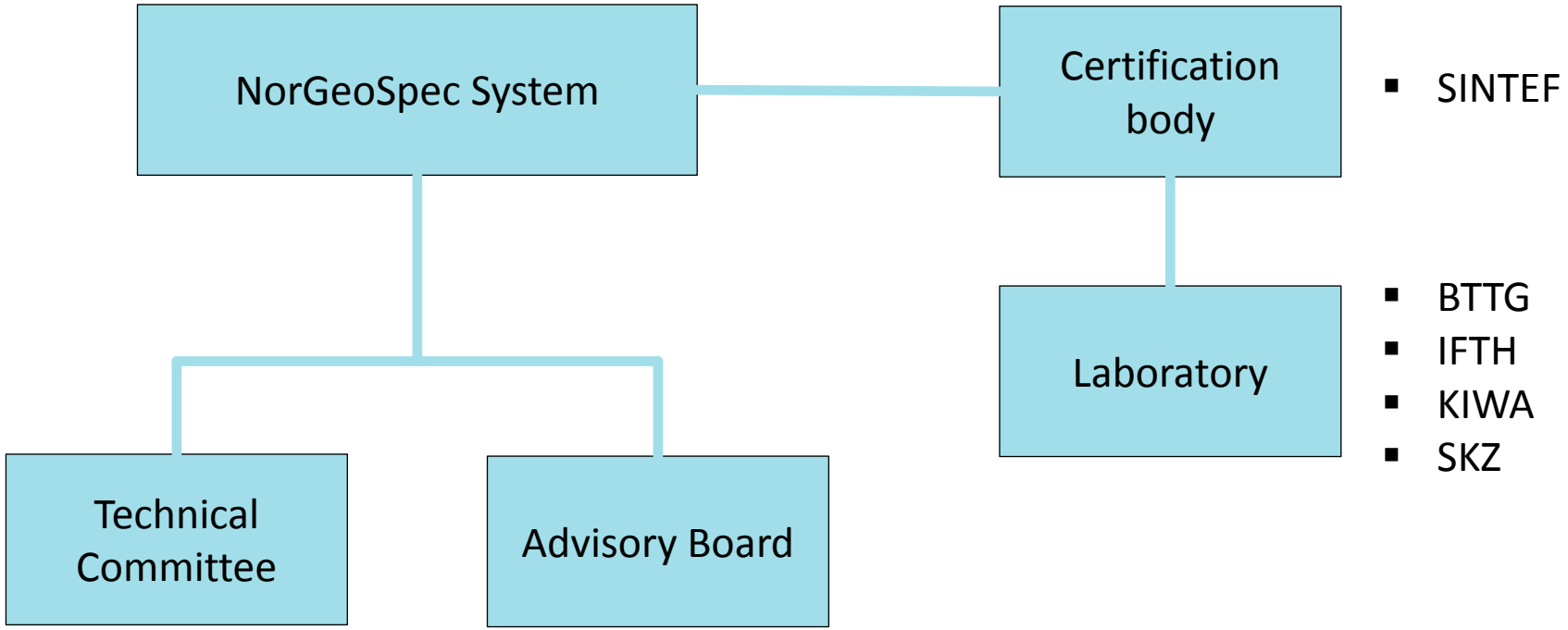
Function

- Separation + Filtration

NGS 2012:
Part 2, Table 1

Stage II procedure is obligatory for function separation and filtration

NorGeoSpec 2012: Components



NorGeoSpec 2012: Components

Technical Committee

Responsibilities: Technical Committee (TC)

- examining files, inspection reports and laboratory test, reports which are presented by the NCB
- recommending decisions for the certification of single products

NorGeoSpec 2012: Components

Advisory Board

Responsibilities: Advisory Board (AB)

- contribution to drawing up and revising the NorGeoSpec document
- proposing the strategic evolution and supporting the promotion of the system
- ensuring that the NorGeoSpec document is harmonized to European and national regulations
- helping to solve any conflicts out of court between involved parties by setting up Working Groups if necessary.

NorGeoSpec 2012: Components

Certification body

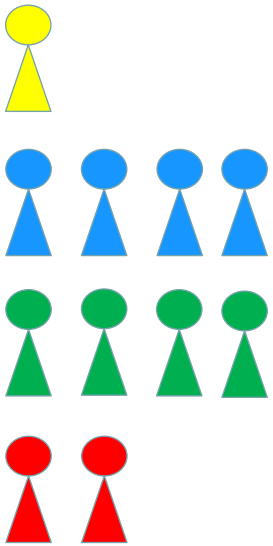
The NCB is responsible for the following:

- the application of the rules set out in NorGeoSpec doc.
- the implementation of decisions recommended by the Technical Committee / Advisory Board
- organizing and running the administrative and technical secretariat
- organization and management of all inspections and verifications
- continual improvement in the quality of the test results of participating laboratories

NorGeoSpec 2012: Composition TC and AB

Technical Committee: Representatives from

- Transport administration: Estonia, Finland, Norway and Sweden(Blue)
- NorGeoSpec Certification Body (Yellow)



Advisory Board: Members

- Technical Committee
- Representatives from the manufacturers[1)] (Green)
- Representatives from the Laboratories (Red)

[1)] Nominated by the EAGM

NorGeoSpec 2012: Persons

Technical Committee

Christian Recker
Plippe Delmas

Arnstein Watn **(Chairman)**

Taivo-Ahti Adamson **(Estonia)**

Minna Leppänen
Veli-Matti Uotinen **(Finland)**

Aina Anthi **(Norway)**

Lovisa Moritz **(Sweden)**

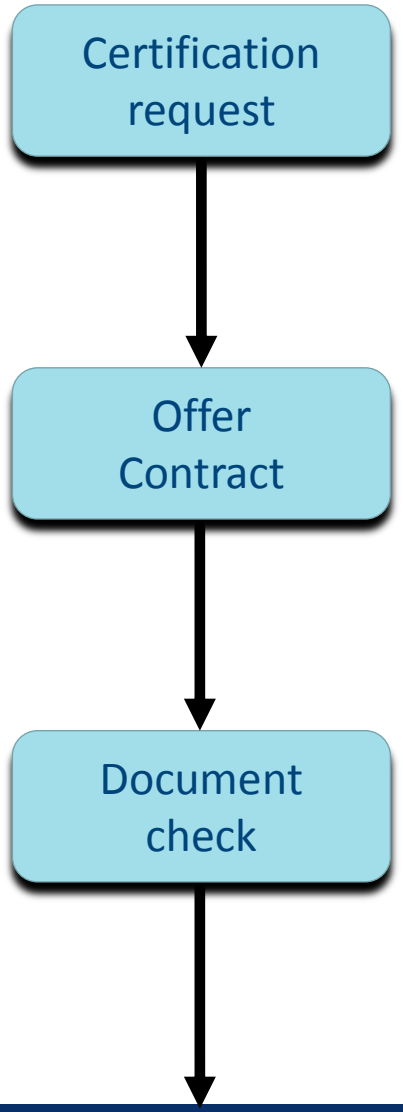
NorGeoSpec 2012: Components

Advisory Board

Christian Recker
Plippe Delmas

Arnstein Watn	(Chairman)	Technical Committee
Taivo-Ahti Adamson	(Estonia)	
Minna Leppänen		
Veli-Matti Uotinen	(Finland)	
Aina Anthi	(Norway)	
Lovisa Moritz	(Sweden)	
Romain Diederich	(DuPont de Nemour)	Producer
Henning Ehrenberg	(NAUE)	
Anders Kroer	(Fibertex)	
Alain Nancey	(TenCate)	
Clarissa Austin	(BTTG)	Laboratories
Ernö Németh	(KIWA)	

NorGeoSpec 2012: Certification procedure (Part 1)



- Products
- Function
- Profile

- DoP
- Life time assessment

Responsibility

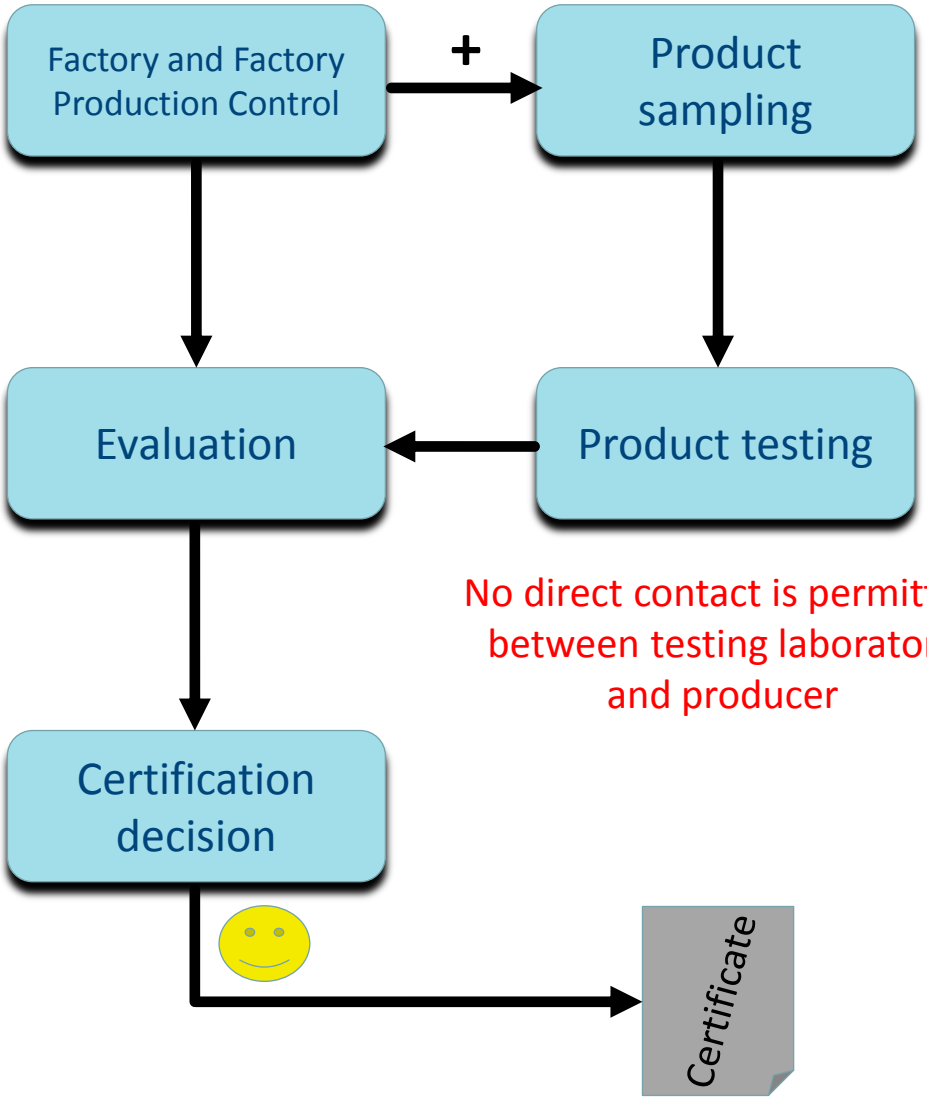
Producer

Certification Body

Certification Body

SINTEF

NorGeoSpec 2012: Certification procedure (Part 2)



NorGeoSpec 2012 Product Certificate

SINTEF

Certificate no.: 2304-QC-1408 | Manufacturer: NAUE GmbH&Co.KG | Raw material: PP
Date: 20.05.14 | Product: Secugrid 30/30 Q1 NGS | Function: Reinforcement
Valid until: 19.05.16 | Product Type: GGR

Quality Product Certification Reinforcement

page 1 of 2

Characteristic		Standard	Unit	Declared value	Max. tolerance	Certification value
Mass per unit		EN ISO 9864	g/m²	200	20	**180-220**
Dimension		NorGeoSpec 2012				
Elements (width x height)	MD		mm	7,5 x 0,8	±10%	-
	CMD		mm	7,1 x 0,8	±10%	-
Grid apertures	MD		mm	32	3,2	**28,8-35,2**
	CMD		mm	32	3,2	**28,8-35,2**
Mechanical tests						
Tensile strength	MD	EN ISO 10319	kN/m	30	-0	**30**
	CMD	EN ISO 10319	KN/m	30	-0	**30**
Elongation at max. load	MD	EN ISO 10319	%	8	1,6	**6,4 – 9,6**
	CMD	EN ISO 10319	%	8	1,6	**6,4 – 9,6**
Force at 2% elongation	MD	EN ISO 10319	kN/m	12	-0	**12**
	CMD	EN ISO 10319	kN/m	12	-0	**12**
Force at 5% elongation	MD	EN ISO 10319	kN/m	24	-0	**24**
	CMD	EN ISO 10319	kN/m	24	-0	**24**
Force at 10% elongation	MD	EN ISO 10319	kN/m	-	-	-
	CMD	EN ISO 10319	kN/m	-	-	-
Durability (Declared value)		Service live	years	☐ 25	☒ 50	☐ 100

Information about reduction factors are given on page 2 of this certificate.

Issued by

Christian Recker, NorGeoSpec project manager

Approved by

Arnstein Watn, Head of the Technical committee

The products are regulary audited and tested to verify that the characteristics fulfill the NorGeoSpec requirements.
Approved by the NorGeoSpec Technical committee: 20.05.2014

NorGeoSpec certification body: SINTEF Building and Infrastructure - Høgskoleringen 7a - No-7465 Trondheim
SINTEF ist notified as a competent body related to directive 89/106/EEC by the Norwegian Royal Ministry of Trade and Industry: Notified body ID no 1071

First certificates
Function: Reinforcements

NorGeoSpec 2012: Quality assurance

The certification body shall:

- take responsibility for all activities outsourced to another body (ISO 17065: Requirements for bodies certifying products)

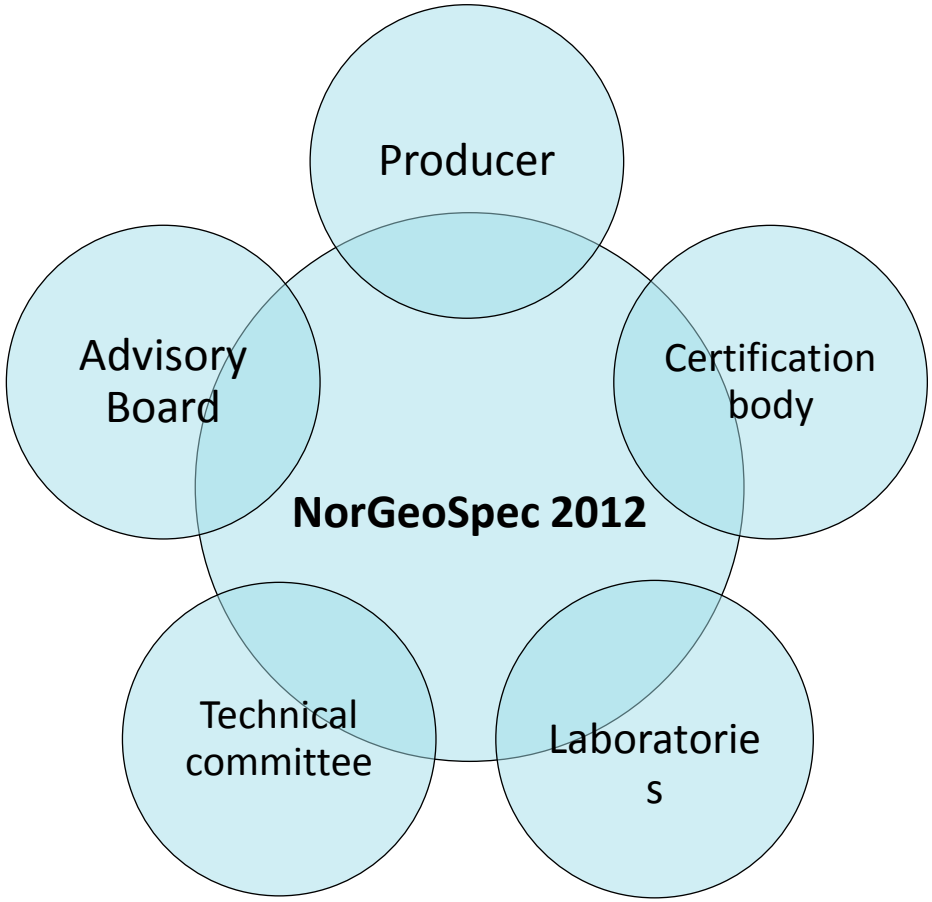
→ Evaluation of suppliers (Laboratories)

→ Program of continuous improvement of testing quality (Organized by Certification Body)

Content of the program:

- continuously round robin tests (evaluation of test results)
- harmonization of test procedures (technical notes)
- regular visit to the laboratories (each 2 years)
- Regular meetings (once per year) of the involved laboratories

Nordic system for certification and specification of geosynthetics



NorGeoSpec 2012: www.norgeospec.org

NorGeoSpec NGS

A Nordic system for certification and specification of geosynthetics and geosynthetics related products.

Home | NorGeoSpec | Product Certificates | Laboratories | Experts | SLQP | News/Seminars | Contact | Imprint

NorGeoSpec

Following the successful introduction of the NorGeoSpec 2002, the revised version of this guideline, NorGeoSpec 2012, is now available.

NorGeoSpec 2002 was the result of a Nordisk Industrifond project with financial support from the road authorities in Finland, Sweden and Norway and a group of geotextile producers and distributors. The project has resulted in a common Nordic system for specification and control of geotextiles which is likely to have a strong beneficial effect both economically and technically.

On the initiative and with the financial support of the traffic agencies in Finland, Sweden and Norway, the existing guideline dealing with the separation and filtration functions have been extended to include the reinforcement function.

The new guidelines are valid for products covered by the following European standards

Profile test

The profile test gives applicants a means of evaluating their application profile ... more »

Certificate

Compliance with the NorGeoSpec requirements is declared by the NorGeoSpec Certification ... more »

News/Seminars

We have pleasure in inviting you to the NorGeoSpec-