

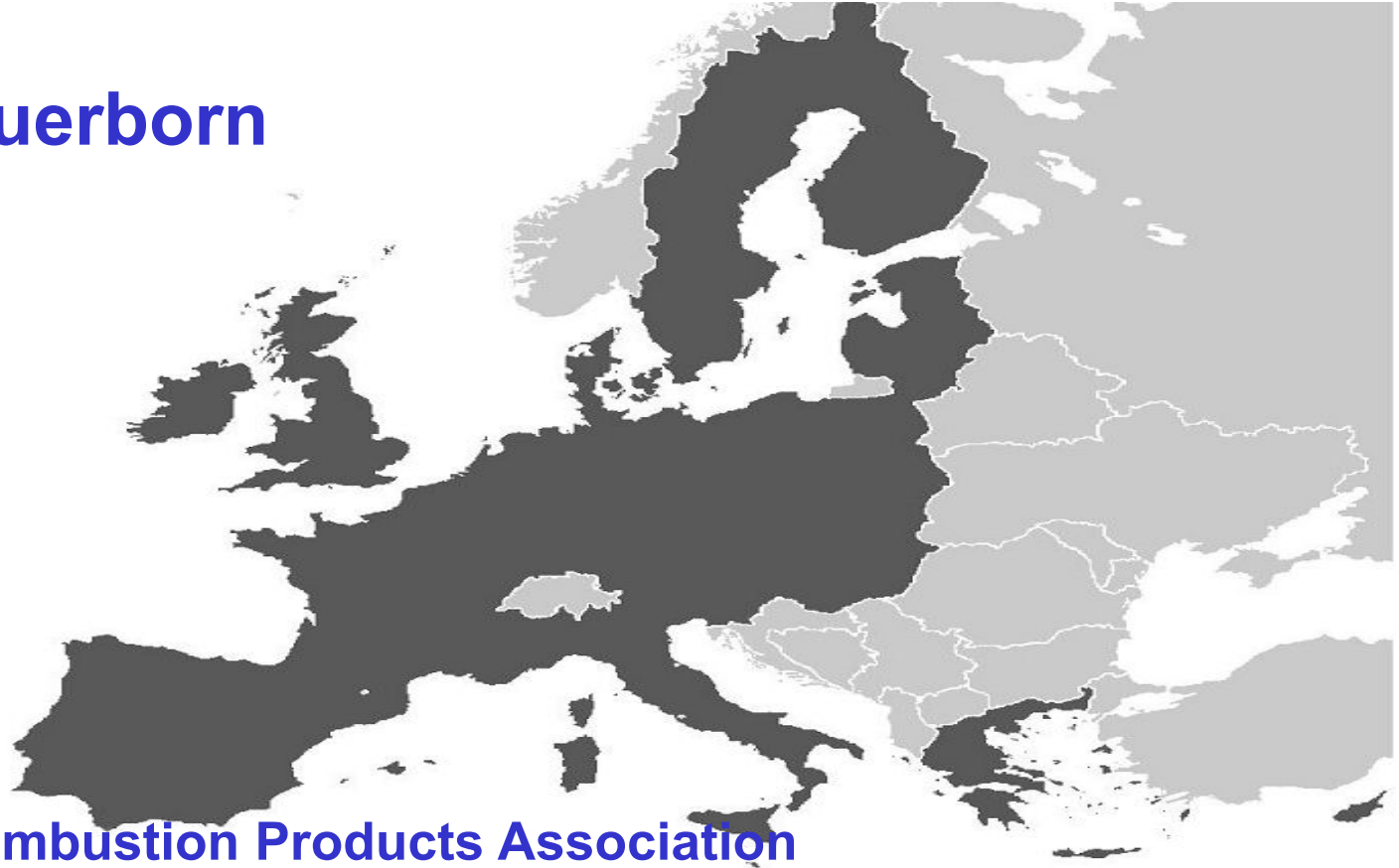
European standards relevant for CCPs

- Update for UPS meeting 28.02.2018 -

Joachim Feuerborn

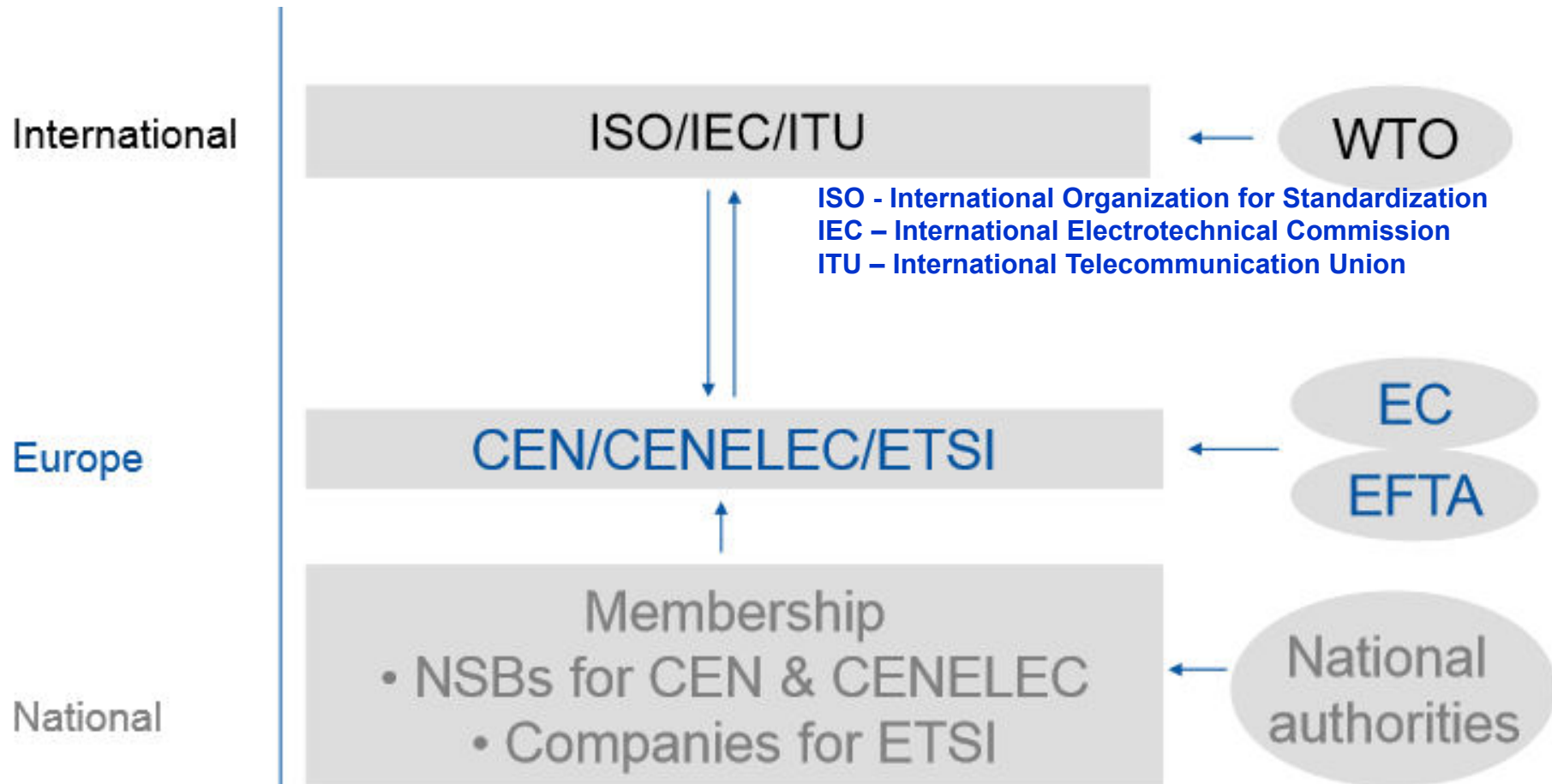


European Coal Combustion Products Association



- ▶ **Introduction**
- ▶ **Definitions of ashes in product standards**
- ▶ **Status of selected harmonised product standards
(cement, lime, fly ash, aggregates, ..)**
- ▶ **Status of selected non harmonised standards
(earthworks, ..)**
- ▶ **Status of testing standards (TC 351)**
- ▶ **Ongoing activities in CEN TCs
(TC 154/WG12; TC 396/WG7)**
- ▶ **Upcoming issues
(EN 450-1; EN 14227-4; ...)**

Introduction



CEN - *Comité Européen de Normalisation*
 CENELEC - European Committee for
 Electrotechnical Standardisation
 ETSI - European Telecommunications Standards
 Institute

NSBs - National Standardisation Bodies
 WTO - World Trade Organisation
 EC - European Commission
 EFTA - European Free Trade Association

Comité Européen de Normalisation

Austria
Belgium
Bulgaria
Croatia
Cyprus
Czech Republic
Denmark
Estonia
Finland
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CEN Members

Poland



PKN - Polish Committee for Standardization

» Postal address

skr. poczt. 411
PL-00-950 Warszawa

Lithuania
Luxembourg
Malta
The Netherlands
Norway
Poland
Portugal
Romania
Slovakia
Slovenia
Spain
Sweden
Switzerland
The Former Yugoslav Republic of Macedonia
Turkey
United Kingdom

European Standards

Harmonised

Non harmonised

**European
Technical Approval
(Assessment)**

National Standards

Guidelines & Specifications

Quality agreement in Industrie

**National Technical
Approval
(Assessment)**

Introduction

Product Standards

Detailed Information on product and it's intended use

Scope

Normative references

Specifications

- chemical
- physical
- others
- Information on request

Packaging and Labelling

Sampling Criteria

Application Standards

Detailed information on how products are used for different applications

(e.g. EN 206, with regulations how to produce concrete from cement, aggregates, additions, additives and water in different exposure; min cement content and defined w/c-ratio.

Additional national standards or guidance papers for regulations not covered in EN standards

Introduction

Selected standards for products and applications

- ▶ EN 197-1 Cement
- ▶ EN 450 Fly ash for concrete
- ▶ prEN 13282 Hydraulic road binder
- ▶ prEN 14227 Hydraulically bound mixtures
- ▶ EN 12620 Aggregates for concrete
- ▶ EN 13055 Lightweight aggregates
- ▶ EN 13242 Aggregates for asphalt

Product Standards

Selected standards for application of ashes:

- ▶ EN 206 Concrete
- concrete products, road constr. materials

Application Standards

Definitions of ashes in product standards

EN - nr	titel	siliceous ash	calcareous ash
197-1	cement	X	X
450-1	Fly ash for concrete	X	
13282-1, -2	Hydraulic Road Binders	X (ref. 197-1)	X (ref. 197-1)
14227-4	Hydraulically bound mixtures	X	X

Content of Standards



Definitions



Requirements (identification, reactivity, soundness,)

Definition of fly ash according EN 197-1

Fly ash (V,W)



General

- (1) Fly ash is obtained by electrostatic or mechanical precipitation of dust-like particles from the flue gases from furnaces fired with pulverized coal.
- (2) Fly ash may be siliceous or calcareous in nature. The former has pozzolanic properties; the latter may have, in addition, hydraulic properties.

Definitions of ashes in product standards

Definition of fly ash according EN 197-1

Fly ash (V,W)



Siliceous fly ash (V)

- is a fine powder of mostly spherical particles having pozzolanic properties
- it consists essentially of reactive silicon dioxide (SiO_2) and aluminium oxide (Al_2O_3)
- the proportion of reactive calcium oxide (CaO) shall be less than 10 % by mass
- The reactive silicon dioxide content shall not be less than 25 % by mass

Definitions of ashes in product standards

Definition of fly ash according EN 197-1

Fly ash (V,W)



Calcareous fly ash (W; W1/W2)

- is a **fine powder**, having **hydraulic and/or pozzolanic properties**
- it consists essentially of **calcium oxide (CaO)**, reactive silicon dioxide (SiO_2) and aluminium oxide (Al_2O_3)
- the proportion of **reactive calcium oxide (CaO)** shall not be **less than 10 % by mass**
- fly ash containing between **10.0 to 15.0 % by mass of reactive calcium oxide** shall contain **not less than 25.0 % by mass of reactive silicon dioxide (W1)**
- fly ash with **> 15 % by mass reactive calcium oxide** shall have a **compressive strength of at least 10 MPa** at 28 days when tested in accordance with EN 196-1 (W2)

Definitions of ashes in product standards

Requirements for siliceous and calcareous fly ash in EN 197-1

Parameter	Siliceous Fly Ash	Calcareous Fly Ash	
	V	W 1	W 2
Reactive calcium oxide ¹⁾	≤ 10 % by mass	10–15 % by mass	≥ 15 % by mass
Free calcium oxide	≤ 1 % by mass ²⁾		
Reactive silicon dioxid	≥ 25 % by mass	≥ 25 % by mass	-
Compressive strength at 28d ⁴⁾	-	-	≥ 10 N/mm ²
Expansion ⁵⁾	-	-	≤ 10 mm
Loss on ignition	0 up to 5 % by mass up to 7 % by mass up to 9 % by mass		

1) $\text{CaO}_{\text{reactiv}}$ = total CaO reduced by the fractions calculated as CaCO_3 and CaSO_4

2) CaO_{free} = amount up to 2,5 % by mass accepted when soundness is given (see 5))

3) $\text{SiO}_{2\text{reactiv}}$ = fraction of SiO_2 which is soluble after treatment with HCl and boiling KOH-so

4) mortars with ground fly ash as binder, amount < 40µm between 10 and 30 % by mass

5) mixture of 30 % by mass ground fly ash, 70 % by mass cement

Definitions of ashes in product standards

Definition of fly ash according EN 450-1



Fly ash

- is a **fine powder of mainly spherical, glassy particles**, derived from **burning of pulverised coal**, with or without **co-combustion materials**, which has pozzolanic properties and consists essentially of SiO_2 and Al_2O_3

fly ash is **obtained by electrostatic or mechanical precipitation** of dust-like particles from the flue gases of the **power stations**.

fly ash **may be processed**, for example by classification, selection, sieving, drying, blending, grinding or carbon reduction, or by combination of these processes, in **adequate production plants**. Such processed fly ash may consist of fly ashes from different sources, each conforming to the definition given in this clause.

Definitions of ashes in product standards

Definition of siliceous and calcareous fly ash in EN 13282-1, -2

5.1 Main constituents

- constituents which conform to **clause 5 of EN 197-1: 2000**
 - Portland cement clinker (k);
 - granulated blast furnace slag (S);
 - pozzolanic materials: natural pozzolans (P) and natural calcined pozzolanas (Q);
 - **fly ash: siliceous fly ash (V) and calcerous fly ash (W);**
 - burnt shale (T);
 - limestone (L);
- CL and NHL limes which conform to EN 459-1; CL limes may be either quick lime (CL-Q) or hydrated lime (CL-S)
- unslaked calcareous fly ash (Wa) containing at least 15 % reactive oxide (CaO), to be used only as a constituent of hydraulic road binders of classes 5 and 12,5.

Definitions of ashes in product standards

Definition of siliceous and calcareous fly ash in EN 13282-1, -2

5.1 Main constituents

- constituents which conform to **clause 5 of EN 197-1: 2000**
 - Portland cement clinker (k);
 - granulated blast furnace slag (S);
 - pozzolanic materials: natural pozzolans (P) and natural calcined pozzolanas (Q);
 - **fly ash: siliceous fly ash (V) and calcerous fly ash (W), except that when used as a constituent of hydraulic road binders of classes 5; 12,5; 22,5 the loss on ignition of the fly ash shall not exceed 10 % for the N1, N2 and N3 classes;**
 - burnt shale (T);
 - limestone (L, LL);
- CL and NHL limes which conform to EN 459-1; CL limes may be either quick lime (CL-Q) or hydrated lime (CL-S)

Definitions of ashes in product standards

- **siliceous fly ash of circulating fluidised bed (Va)** resulting from the coal combustion in accordance with the following characteristics:
 - $(\text{SiO}_2) + (\text{Al}_2\text{O}_3) + (\text{Fe}_2\text{O}_3) \geq 70 \%$
 - free lime $< 2 \%$
 - reactive silica $\geq 20 \%$
 - $\text{SO}_3 < 6 \%$
 - loss on ignition $\leq 10 \%$
 - passing to $45 \mu\text{m} > 75 \%$
- **unslaked calcareous fly ash (Wa)** containing at least 15 % reactive oxide (CaO), to be used only as a constituent of normal hardening hydraulic road binders of classes N1 and N2.
- **crystallized basic oxygen furnace slag (Sb)** resulting from the transformation of pig iron into steel through an oxygen treatment process, in accordance with the following characteristics:
 - total CaO $> 40 \%$
 - $(\text{SiO}_2) + (\text{Al}_2\text{O}_3) + (\text{Fe}_2\text{O}_3) \geq 40 \%$
 - MgO $< 9 \%$
 - free lime from 7 to 15 % (according to EN 459-2)
 - $\text{SO}_3 < 0,3 \%$
 - soundness of ground basic oxygen furnace slag (fineness Blaine $> 2000 \text{ cm}^2/\text{g}$) $\leq 30 \text{ mm}$ (according to EN 196-3)

Definitions of ashes in product standards

Definition of siliceous and calcareous fly ash in EN 14227-4 Fly Ash for Hydraulic Bound Mixtures

3.2 siliceous fly ash (alumino-silicate fly ash)

fly ash where the essential chemical components are silicates, aluminates and iron oxides, expressed as SiO_2 , Al_2O_3 and Fe_2O_3 and which has pozzolanic properties.

3.3 calcareous fly ash (sulfo-calcitic fly ash)

fly ash where the essential chemical components are silicates, aluminates, calcium oxide and sulfates, expressed as SiO_2 , Al_2O_3 , CaO and SO_3 and which has hydraulic and pozzolanic properties.

Definitions of ashes in product standards

Requirements for siliceous and calcareous fly ash in EN 14227-4 - **Fly ash for hydraulically bound mixtures**

parameter	siliceous	calcareous
particle size	90 μm \geq 70 % passing 45 μm \geq 40 % passing	315 μm \geq 95 % passing 90 μm \geq 60 % passing
loss on ignition	max 10 % by mass	-
SO ₃	max 4 % by mass	-
CaO _{free} / soundness	< 1 % by mass*	-
water content	< 1 % by mass	< 1 % by mass
pozzolanic activity hydraulic activity	to be declared	to be declared
reactive CaO		> 5 % by mass

Status of selected harmonised product standards



REGULATION (EU) No 305/2011 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
of 9 March 2011

laying down harmonised conditions for the marketing of construction products and repealing
Council Directive 89/106/EEC

(Text with EEA relevance)

Since July 2013, the Construction Products Regulation (EU 305/2011) replaces completely the Construction Products Directive (89/106/EEC).

The goals of the Regulation are the same as those of the Construction Products Directive (CPD):

to foster the free movement and use of construction products in the internal market!

Status of selected harmonised product standards



REGULATION (EU) No 305/2011 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 9 March 2011

laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC

(Text with EEA relevance)

CPR focus i.a.: Basic Requirements for “Construction Works for an economically reasonable working life”

Subject to extension mandates for product standards



- 1. Mechanical resistance and stability**
- 2. Safety in case of fire**
- 3. Hygiene, health and the environment**
- 4. Safety and accessibility in use**
- 5. Protection against noise**
- 6. Energy economy and heat retention**
- 7. Sustainable use of natural resources**

Summary *(Presentation in one slight!)*

- **All standards have to be revised** to meet requirements of the **Construction Products Regulation**
 - **Two reasons for delays: formal or technical aspects**
 - **Consequences:**
 - **formal aspects:** the revised standards passed Formal Vote but are not in line with regulation
 - **technical aspects:** standards where **new classes** have to be introduced are delayed as **not covered by mandate** (finally also formal!)
- result: not published in the official journal (OJEU) or postponed**

Good news: the former standards can be used further!

BUT

There is a need to act before EC will do it for CEN (e.g. BWR3 – VOC)!!!

EN 197-1 Cement

- had to be revised for CPR needs
- Main change in the revised version is the introduction of low clinker ternary cements.
The standardisation of these cements is based on the work of TC 51 dating back to 2006 on possible standardization of new cements produced with traditional constituent materials and manufacturing methods, but according to composition limits out of the limits defined so far in EN 197-1.
- Standard is ready but Formal Vote would most likely not be positive and/or standard most likely not published in the Official Journal of the EU (OJEU)
- Reason for this is a pending mandate M 114

- EN 459-1:2015-04: Lime and hydraulic lime
 - standard has been revised taking into account the requirements of CPR, but published with a template for Annex ZA which does not correspond to the latest version of Annex ZA.
 - standard has **not been published in the OJEU**, for CE-marking the EN 459-1:2010-09 has to be referenced.

- EN 459-2: 2010-09; Test procedures
 - standard in the 5-years revision.
 - work **postponed** due to new **Round Robin Test** to evaluate the test procedures described in the standard compared with test procedures used in daily routine testing.

- EN 459-3:2015-04: Conformity Evaluation
 - standard to be has been revised to have a version in line with the CPR

Status of selected harmonised product standards



- ▶ **EN 13282-1:** Composition, specification and conformity criteria of **rapid** hardening road binders.
*These are **cement based binders** which follow the requirements as already known from prEN13282.*

Published
implemented since 1.11.2014
- ▶ **prEN 13282-2:** Composition, specification and conformity criteria of **normal** rapid hardening road binders. Tese *binders have **lower cements contents**, the compressive strength have to be **tested after 56 days** (part 1 at 28 days).*
*A **slaking procedure** was implemented to guarantee that also lime rich mixtures can be evaluated in the laboratory. Also **FBC ash** of specific composition can be used as a main constituent of HRB.*

Revised and positive FV,
but not published in
OJEU due to declaration
of composition which is
not in the mandate
- ▶ **EN 13282-3:** Conformity evaluation

Published
implemented since 1.11.2014

Aggregates Standards

EN 12620 aggregates for concrete

EN 13043 aggregates or bituminous mixtures and surface treatments...

EN 13139 aggregates for mortars

EN 13242 aggregates for unbound and hydraulically bound materials

- Status
- all standards were already revised in 2013 but were not published in the OJEU or national lists for formal reasons and could therefore not be used.
 - all standards are again revised and ready to start Formal Vote. Publication is likely although some basic requirements of the CPR are not considered (BWR3)

Status of selected harmonised product standards



Why are these standards important?

Annex A of the standards for source materials

Nr	Source	Subnr.	Specific material	History of use	Special requirement in standard	Additional requirement in standard
.....						
C	Coal Power Generation Industry	C1	Coal fly ash	Yes	No	Yes
		C2	Fluidised bed combustion fly ash (FBCFA)	Yes	No	No
		C3	Boiler slag	Yes	No	Yes
		C4	Coal bottom ash	Yes	No	Yes
		C5	Fluidised bed combustion bottom ash (FBCFA)	Yes	No	No
					

Columns removed in final version

Excerpt of table A.1 in revised aggregate standards

Aggregates Standards

EN 13285 aggregates for unbound mixtures

- Status
- standards was already revised in 2013 but was not published in the OJEU or national lists for formal reasons and could therefore not be used.
 - standard was again revised and is ready to start Formal Vote. Publication is likely although some basic requirements of the CPR are not considered (BWR3)
 - standard was intended to become a harmonised product standard (requiring auto and third party control!). However, TC 227 has decided to publish the revised version as non harmonised standard again to allow quick publication.

EN 13055 for lightweight aggregates

EN 13055- Part 1: “Lightweight aggregates for concrete, mortar and grout” and EN 13055-2 Lightweight aggregates - Part 2: Lightweight aggregates for bituminous mixtures and surface treatments and for unbound and bound applications” were merged into one standard according a decision of TC 154. The **new standard EN 13055** will be entitled “Lightweight aggregates for concrete, mortar, grout, bituminous mixtures, surface treatments and for unbound and bound applications“.

Standard available but not published in Official Journal.

Note: New procedure for density determination based on former BVK procedure implemented (parameters adjusted to be valid also for other lightweight aggregates

In May 2012, the revision of prEN 14227 on „ soil treatment“

- part 10: by cement
- part 11: by lime
- part 12: by slag
- part 13: by hydraulic road binders
- part 14: by fly ash

was started. Following the basic requirement of CEN the standards were merged into one part and published as

- **prEN 14227-15 for "hydraulically stabilized soils".**

Status: ■ published

Note: ■ Standard may be tackled by new standard on soil treatment as developed by TC 396:
prEN16907-4: soil treatment with lime and/or hydraulic binders (FV recently started together with all other 16907-standards)

Status of selected non harmonised standards



ECOBA is not observer to TC 396 but linked via national committees. TC 396 was established to deal with non-harmonised standards in the field of earthworks. They have prepared 6 standards which all passed the enquiry and will be send to formal vote in spring 2018

FprEN 16907; Part 1 Principles and general rules

FprEN 16907; Part 2 Classification of materials

FprEN 16907; Part 3 Construction procedures

FprEN 16907; Part 4 Soil treatment with lime and or hydraulic binders

FprEN 16907; Part 5 Quality control

FprEN 16907; Part 6 Land reclamation

Formal vote recently started!

Status of testing standards (TC 351)

BWR3 “Hygiene, Health and Environment”

Responsible: CEN TC 351 on "Construction products: Assessment of release of dangerous substances"

Task: **Development of testing standards for release into indoor air and into soil and ground.**

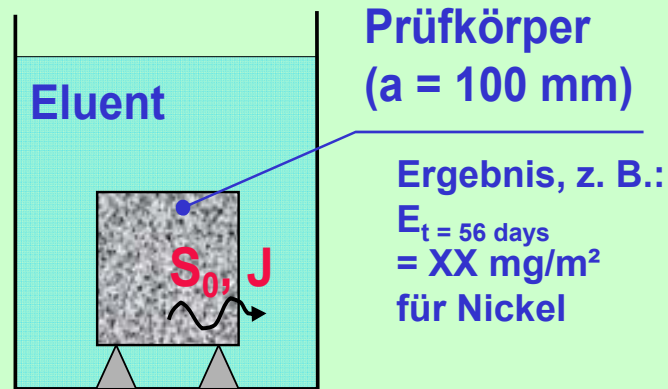
Status: The standards for release into indoor air and emission into soil and ground of bound materials are published as draft standards.

The standard for release into soil and ground of unbound material was under severe discussion as only one defined test procedure will be accepted by the Commission. Finally a compromise was found which was accepted by all parties.

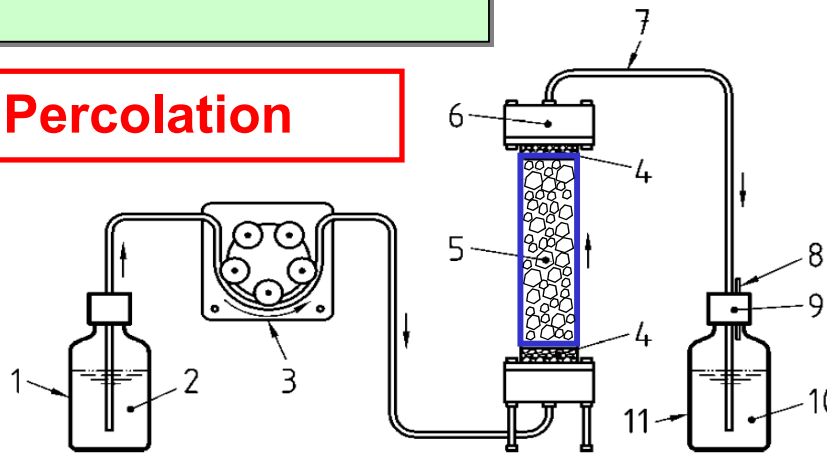
Status of testing standards (TC 351)

DSLTL (Tank Leaching

Standtest (Labor)



Up-flow Percolation Test



BWR3 “Hygiene, Health and Environment”

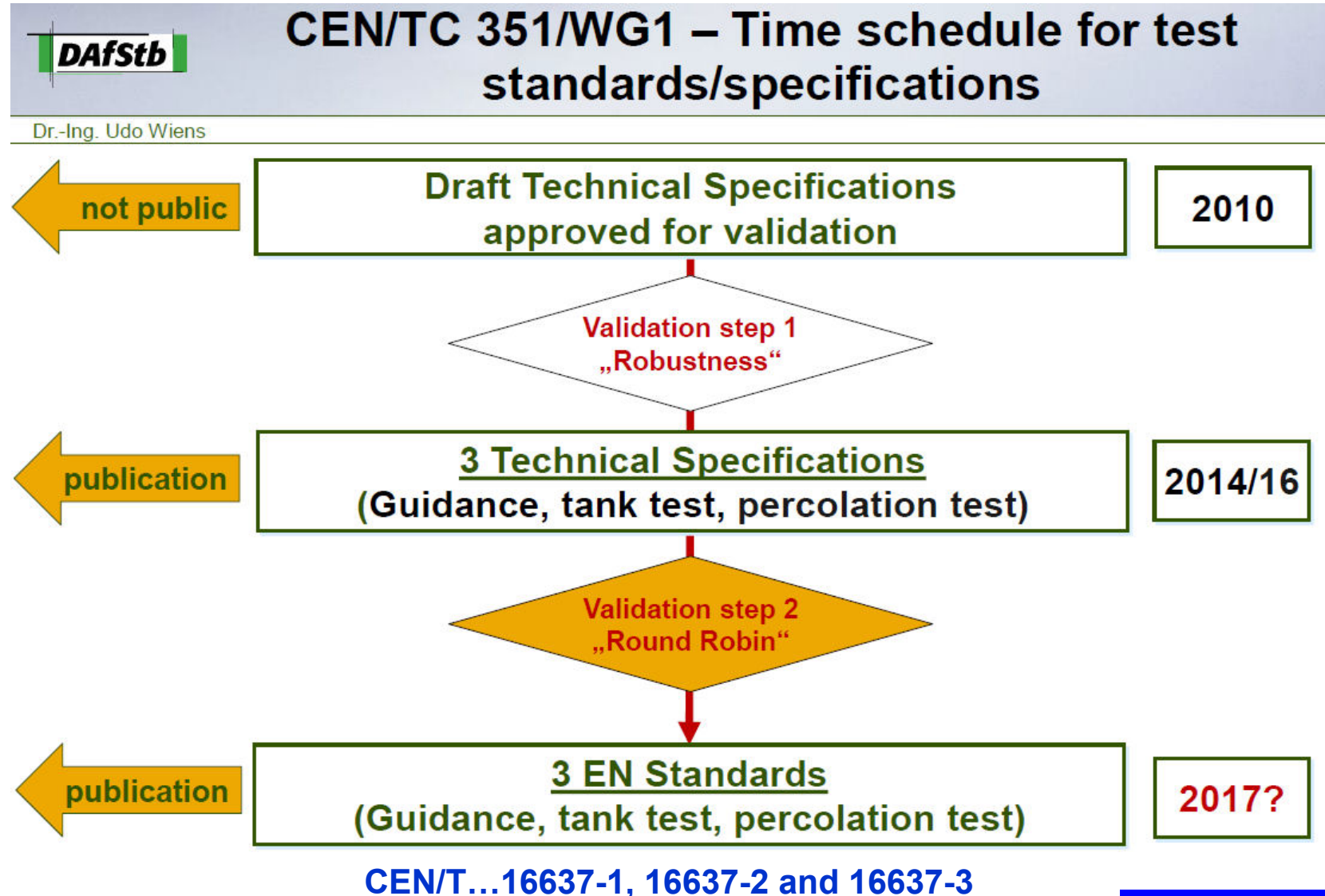
TC 351 – Horizontal Standardisation

Set of proposed standard for leaching test into soil and ground

Legende

- 1 Vorratsgefäß
- 2 Elutionsmittel
- 3 Mehrkanalpumpe
- 4 Quarzsandschicht
- 5 Säule mit Probenmaterial
- 6 Säulenverschlusskappe (PTFE)
- 7 inertes Schlauchmaterial
- 8 Entlüftungskanüle
- 9 Schraubverschluss mit PTFE-Einlage
- 10 Eluat
- 11 Glassammelgefäß

Status of testing standards (TC 351)



CEN TC 351/WG 3 Radiation from construction products:

- **TS 003510014** “Construction products — **Assessment of release of dangerous substances** — Determination of activity concentrations of radium-226, thorium-232 and potassium-40 in construction products using gamma-ray spectrometry”
 - Based on the relevant Dutch standard NEN 5697

- **TR 00351020** “Construction products: Assessment of release of dangerous substances — radiation from construction products — **Dose assessment of emitted gamma radiation**”
 - Taking into account MS regulations, EC RP 112, BSS Directive
 -

On June 30 it was informed about the most important outcome of TC meetings and especially to the ongoing debate in TC 154 on the transfer of the list of source materials in Annex A and B of all aggregate standards into a CEN TS.

The proposal is based on a discussion with the **EC who is not willing to publish the revised and finally agreed standards as the list of source materials is too wide with regard to the scope.** TC 154 has agreed on the transfer to allow publication in the official journal of the revised standards.

TC 154/WG12 on secondary aggregates is ordered to prepare the technical specification.

WG12 met on January 15, 2018 and discussed a first draft consisting of a one to one copy of the information in Annexes A/B of the aggregates standards.

Ongoing activities – TC 154 / WG 12

Source materials considered in the development of the Aggregate standards of TC 154

The purpose of this Technical Specification (TS) is to inform users about the source materials that have been considered in the development of the Aggregate standards EN 12620, 13043, 13139, 13242, 13383, 13450 and the light weight Aggregate standard 13055.

....

Only Source materials with a history of use in one or more member states are included in this TS. For some sources the history of use is limited to only the scope of one or more TC 154 standards. This TS also specifies Source material with a history of use for the scope of only a specific TC 154 standard.

A revised version of the draft TR will be provided when available!

Ongoing activities – TC 396/WG7

February 2017, TG 3 was disbanded and a new Working Group (WG7) was established to continue the work on „Use of secondary manufactured and recycled materials in earthworks“.

The group shall **compile the existing experiences in member states in a status report which will be published as CEN TR in consecutive numbering to the other application standards.**

In a first step the group has prepared an enquiry on experiences and national regulations for the use of secondary materials in member states. The list of materials is similar to the list of source materials in annex A of the aggregate standards

The experience in **Austria, Czech Republic, Finland, France, Germany and Norway will be covered.** The group seeks to include also the experience from other countries. Proposal was made to check the experts in TC 154/WG12.

ECOBA members are asked to propose ...

Ongoing activities – TC 396/WG7



Tables for national enquiry



Material	Use of Material						
	Remedial layer under embankment	Fill / Embankment	Capping layer	Drainage ribs	Transition zone to bridges	Can the material be stabilized with binder(s)	Can the material be used in contact with ground or surface water
Reclaimed asphalt							
Crushed concrete							

Material	Use for Material	Standard or Specification and reason for use	Reason for Excluding Use of Material	Risks and Mitigation Measures	Specific Environmental Legislation for use of this material.	Can the material be used in contact with Ground or Surface Water
Reclaimed asphalt	Remedial layer under embankment					
	Fill / Embankment					
	Capping layer					
	Drainage ribs					
	Transition zone to bridges					
	Can the material be stabilized with binder(s)					

At the last meeting of TC 104 on May 23/24 in Berlin CEN TC 104 / WG 4 proposed to start the revision of EN 450-1 for fly ash for concrete and also of EN 450-2 on conformity evaluation.

The **report of WG 4 also contained options to implement requirements for BWR3**. However, TC 104 could not decide to start the revision as the mandate M 128 is too vague and as there are several standards pending publication due to the vague mandates.

TC 104 supports the proposal for categories for communication requirements regarding BWR3 on the market and has asked WG 4 to prepare the text for the revision of EN 450-1 and EN 450-2 to speed up the revision process once the Work Item for the revision is opened.

Upcoming issues – EN 450-1

EN 450-1: 5-year revision

Von: CEN Event Notifications
Gesendet: Sonntag, 15. Oktober 2017 06:02
An: Land, Gerrit
Betreff: CEN ballot event notifications - New ballots

Dear Mr Dr. rer. nat. Gerrit Land

Please find attached a list of ballots/consultations that have recently been opened for voting in your committees.

Open ballots

Ballot	Type	Committee	Closing date
EN 450-1:2012	CENSR	CEN/TC 104	2018-03-04

Fly ash for concrete - Part 1: Definition, specifications and conformity criteria

This email was sent by the CEN Business Events Notifications application.

Diese automatisch verschickte E-Mail erhalten alle zuständigen NSBs, da es vorgesehen ist, dass nur das Normungsinstitut abstimmen kann und nicht jeder Experte im TC. Das zuständige TC muss dann nach Ablauf der Umfrage einen Beschluss zum weiteren Verlauf der Norm fassen.

Im CEN/TC 104 sehen Sie in Livelink auf der rechten Seite eine Spalte „Ballots“, die auch auf die Umfrage aufmerksam macht:

CEN TC 104/WG 4 prepared a proposal for implementation of BWR3 into EN 450-1 based on categories

Category = set of parameters, test procedures and limit values to be considered in a member state.

The proposal was introduced and explained in all product TCs and also heavily discussed during the TC 104 in May 2017 which resulted in the order to prepare the clauses.

However, the revision was not started due to non proper mandates.

Upcoming issues – EN 450-1

Consequences „declared values“ versus „classes/categories“ in Declaration of Performance and CE-mark – Excerpt A. Saraber at EUROCOALASH 2017

Essential characteristic	Performance	Harmonised technical specification
Activity index	Pass	DIN EN 450-1:2005 + A1:2007
Fineness	category N (declared value) \pm 10 percentage points	
Soundness - Expansion - Free CaO	pass pass	
Loss on ignition	category A	
Composition: - Sum of contents of silicon dioxide, aluminium oxide und iron oxides - Total content of alkalis - Reactive silicon dioxide - Sulphate content - Chloride - Reactive calcium oxide - Magnesium oxide - Soluble phosphate - Total phosphate	pass pass pass pass pass pass pass pass pass	
Particle density	(declared value) \pm 200 kg/m ³	
Initial setting time	pass	
Durability	given based on declared performance above for use in concrete, mortar and grout	
Release of dangerous substances and emissions of radioactivity		

Parameter	test procedure	declared value*
arsenic (As)	EN ISO 11885	[mg/kg]
lead (Pb)		
cadmium (Cd)		
chromium, total (Cr _{tot})		
copper (Cu)		
nickel (Ni)	EN 1483	
mercury (Hg)		
thallium (Tl)		
vanadium (V)	EN ISO 11885	
zink (Zn)		

Parameter	test procedure	declared value*
antimony (Sb)	NEN 7345	[mg/m ²]
arsenic (As)		
barium (Ba)		
lead (Pb)		
bromium (Br)		
cadmium (Cd)	or DAFStb guidance**	
chromium, total (Cr _{tot})		
cobalt (Co)		
copper (Cu)	or CEN/TS 16637-2	
molybdenum (Mo)		
nickel (Ni)		
mercury (Hg)		
selenium (Se)		
thallium (Tl)		
vanadium (V)		
zink (Zn)		
Chloride (Cl-)		
Fluoride (F-)		
Sulfate (SO ₄ 2-)		

or

Parameter	test procedure	evaluation
Release of dangerous substances	-	Class 1 Class 2 NPD
Radioactivity (AI)	xxxx	Declared value NPD

BWR 3 in product standards

by declared values

or by categories

TC 227/WG4, dealing with hydraulically bound and unbound materials, has also informed about upcoming **5-years-reviews for 14227- part 1 to 5 in 2018.**

Furthermore, there is a pending discussion on the product standard **14227-4 for fly ash for hydraulically bound mixtures regarding harmonisation needs and the move of responsibility to TC 51** as well as on the overlap of standards of TC 396 with e.g. 14227-15 for soil treatment.

In Germany as mirror committee is working on a **conformity standard for system 2+** (like for lime) for all parameters as given in 14227-4. It may serve for a revision once WG4 will ask the TG3/4 to revise 14227-4.

Conclusions

- All product and conformity evaluation standards have to be revised to meet the requirements of the Construction Product Regulation.
- Revision of formal aspects are mostly addressing CPR wording and the informative annex ZA in the product standards and evaluation of conformity of constancy of performance in all conformity evaluation standards
- Most of the revised standards are delayed for formal reasons (not meeting CPR Terminology or format (Annex ZA, BWR3) or for Technical changes (classes which are not covered by mandate)
- TC 154 WG 12 is preparing a CEN TR which will replace the former Annexes A and B in the aggregate standards
- TC 396 WG 7 is ordered to prepare a CEN TR on existing experiences in member states on the use of secondary materials in earthworks. Input from Poland missing!
- CEN TC 104 WG4 started to prepare a revision of EN 450-1 including implementation of existing environmental regulations. Proposal for declaration of results via categories!!

Thank you for your attention!

Hans- Joachim Feuerborn

***ECOPA - European Coal Combustion Products Association e.V.
Deilbachtal 173, 45257 Essen, Germany (www.ecoba.org)***

E-mail: info@ecoba.org