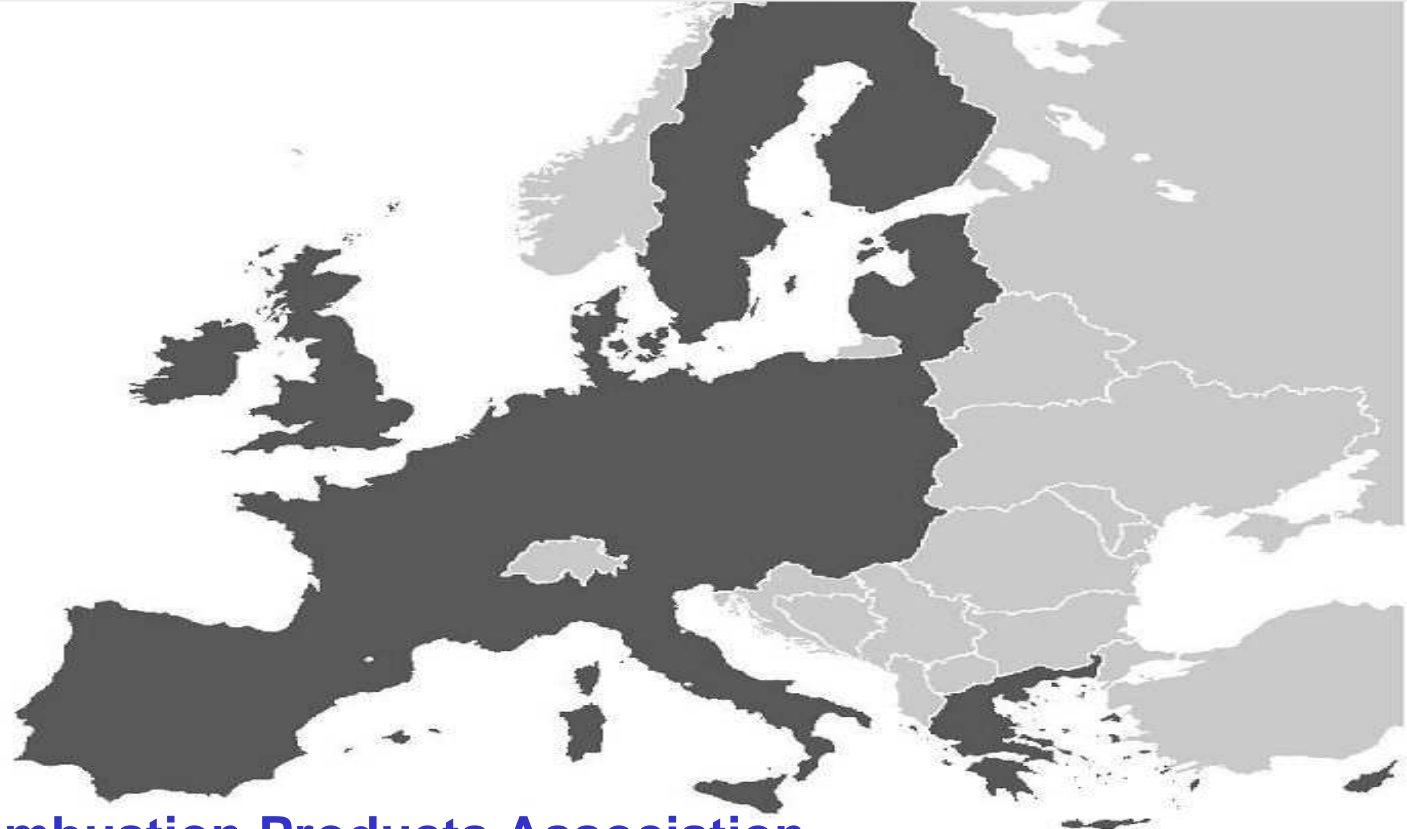


**ECOBA position to EESC own opinion regarding  
“The processing and exploitation, for economic and  
environmental purposes, of industrial and mining waste  
deposits in the European Union**

**- Contribution for waste from thermal power plants -**



**European Coal Combustion Products Association**



- 1. Introduction**
- 2. Technical and Environmental Considerations**
- 3. Coal combustion products (CCPs) -  
production and utilisation**
- 4. Properties of siliceous and calcareous ash**
- 5. European Standards for use in different  
applications**
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## 1. Introduction

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- ◆ **Production of CCPs in Europe (EU15) was 56 million tonnes in 2008**
- ◆ **Out of this about 44 million tonnes of coal ash**
- ◆ **Total production of CCPs in EU 27 is estimated to be more than 100 million tonnes annually in EU 27**

## 1. Introduction

### Use of CCPs

**The CCPs are mainly utilised in the building material industry, in civil engineering, in road construction, for construction work in underground coal mining as well as for recultivation and restoration purposes in open cast mines.**

**The majority of the CCPs is produced to meet certain requirements of standards or other specifications with respect to utilisation in certain areas.**



## 1. Introduction

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### ECOBA mission

**ECOBA was founded in 1990 by European energy producers to ensure full beneficial and high grade utilisation of all CPPs.**

**ECOBA members consider coal ashes and desulphurization products generated in coal-fired power plants to be valuable raw and construction materials which can be utilized in various environmentally compatible ways.**

## 2. Technical and Environmental considerations



### Demands of the construction market

- ▶ availability of huge amounts of material
  - ▶ constant quality (continuous process)
  - ▶ sufficient product properties (grain size distribution, surface,
  - ▶ long term availability
  - ▶ meeting of technical requirements
  - ▶ environmental compatibility
- ▶ research work and pilot projects
  - ▶ teaching of CCP properties, education
  - ▶ installation of silo capacity
  - ▶ beneficiation of fly ash to increase availability in summer time (re-drying facilities)

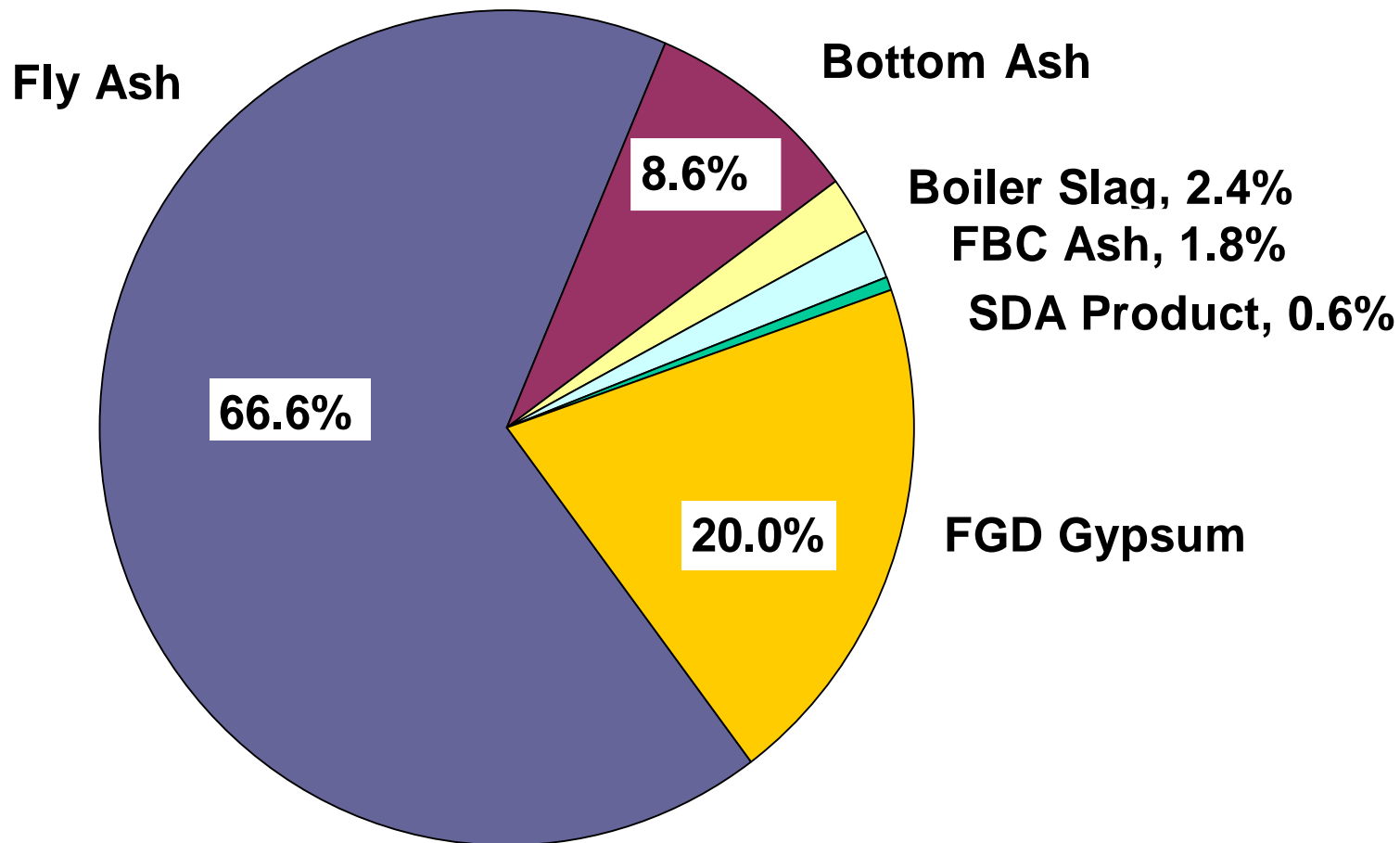
## 2. Technical and Environmental considerations



The use of CCPs leads to

- ▶ **saving of natural resources**
  - mining
  - processing
  - transport
- ▶ **reduction of energy demand**
- ▶ **reduction of emissions (CO<sub>2</sub>) needed for or result from manufacturing process of products which are replaced**
- ▶ **CCPs are fine grained raw materials**
- ▶ **CO<sub>2</sub> reduction in**
  - **cement production (0.7 to 1.2 kg CO<sub>2</sub> per kg clinker, dep. on fuel)**
  - **concrete when fly ash is used as conc. add.**
- ▶ **saving of drying energy when fly ash is used to dry wet raw materials**

### 3. CCPs - production and utilisation

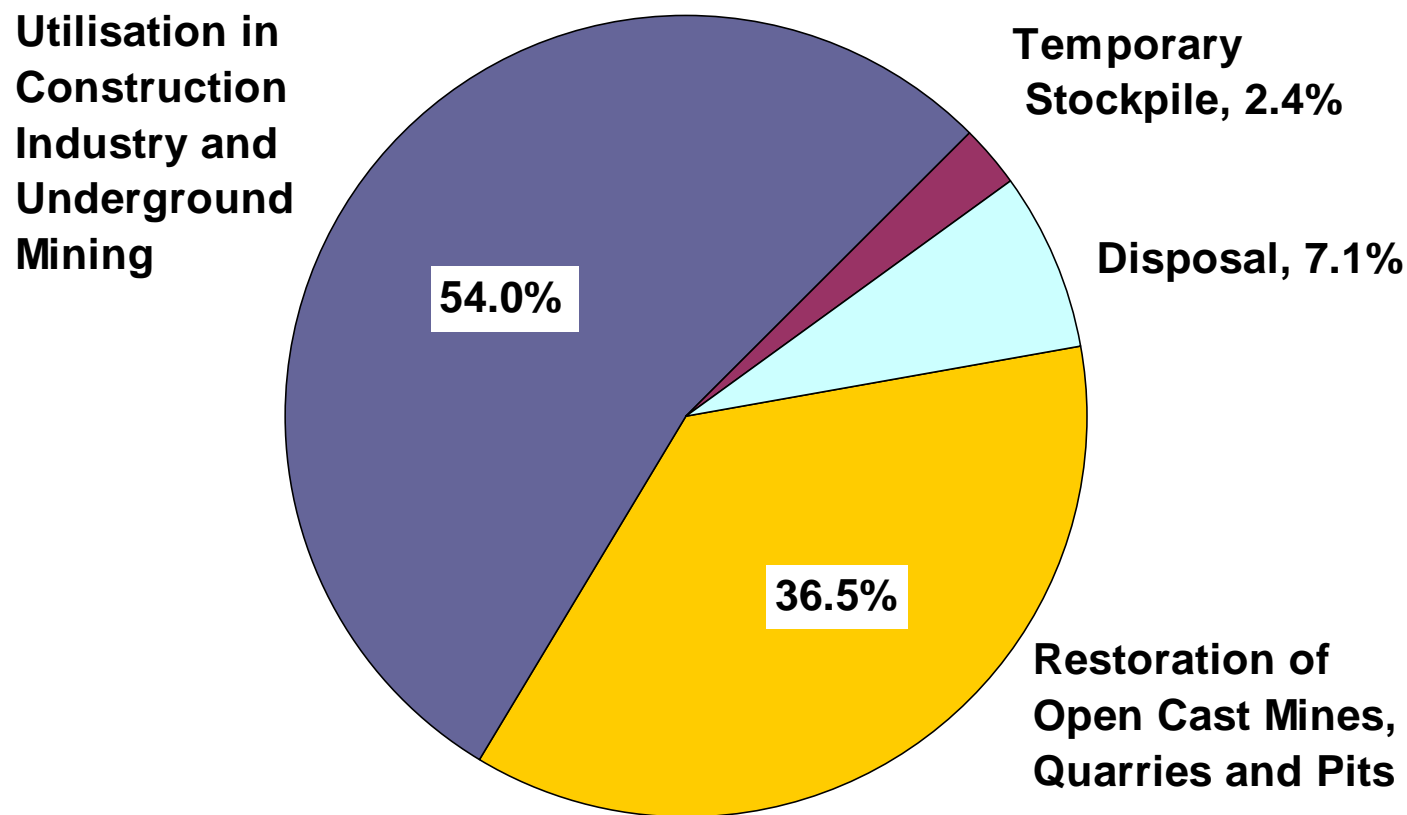


Total production: 56 million tonnes

### Production of CCPs in Europe (EU 15) in 2008

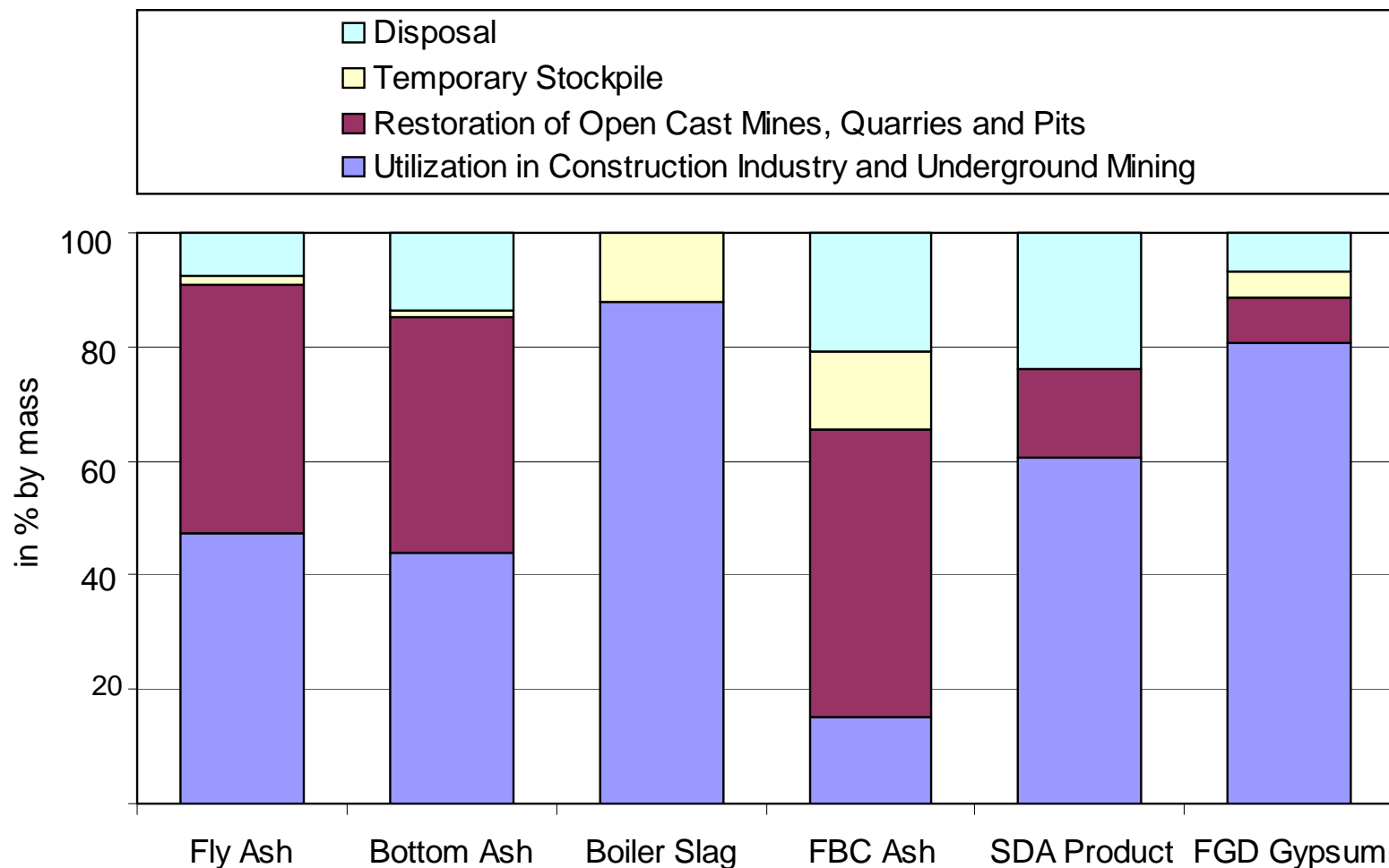


### 3. CCPs - production and utilisation



### Utilisation and Disposal of CCPs in Europe (EU 15) in 2008

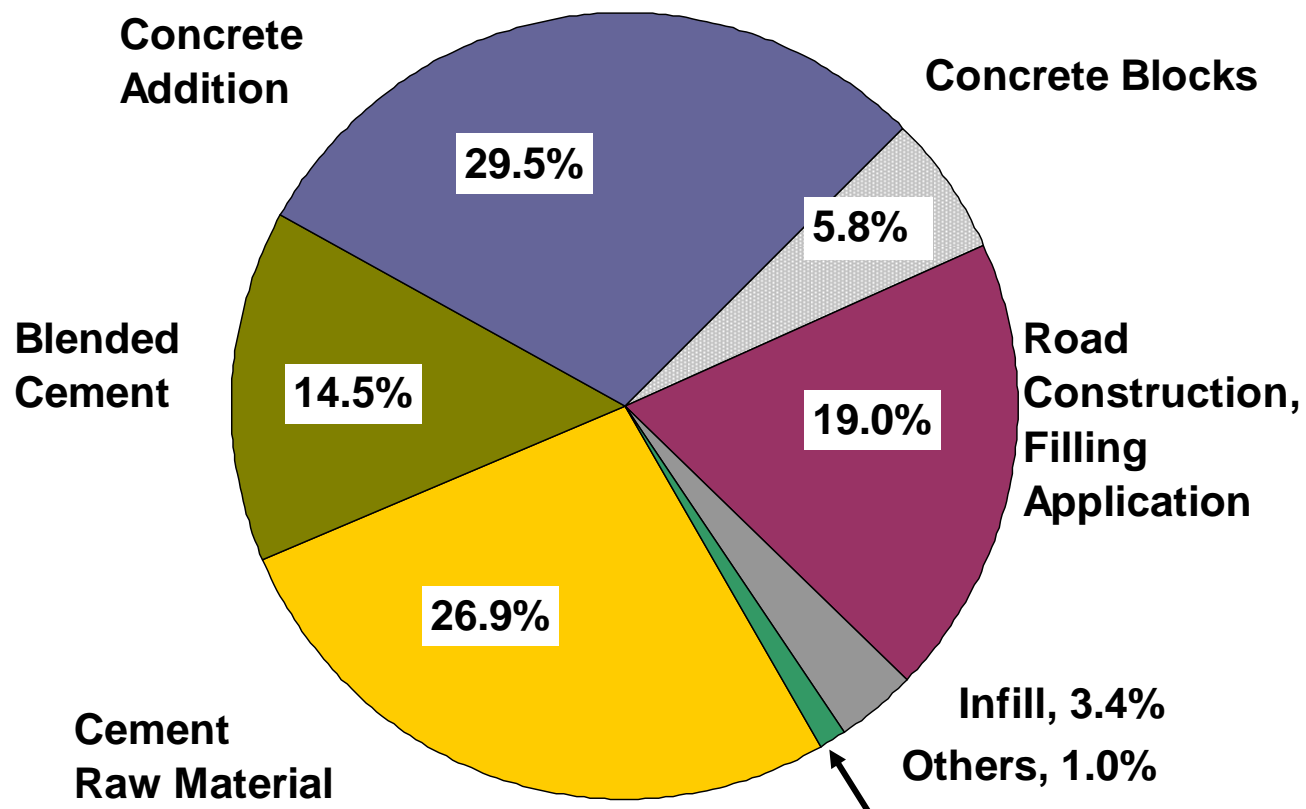
### 3. CCPs - production and utilisation



## Utilisation, temporary stockpile and disposal of CCPs in Europe (EU 15) in 2007

### 3. CCPs - production and utilisation

#### Utilisation of **fly ash** in the construction industry and in underground mining in Europe (EU 15) in 2007



**Total utilisation: 20.0 million tonnes**

## 4. Properties of siliceous and calcareous ash

### Chemical composition of fly ashes from coal and lignite

Parameter	Fly Ash from Coal	Fly Ash from Lignite
SiO <sub>2</sub>	36 – 60	18 – 80
Al <sub>2</sub> O <sub>3</sub>	23 – 35	1 – 19
FeO <sub>3</sub>	3 – 17	1 – 22
CaO	0,3 – 8,5	2 – 52
CaO <sub>frei</sub>	0,1 – 1,5	0,1 – 25
MgO	0,5 – 5,4	0,5 – 11
K <sub>2</sub> O	0,5 – 6	0,1 – 2
Na <sub>2</sub> O	0,1 – 3,5	0,01 – 2
SO <sub>3</sub>	0,1 – 2,1	1 – 15

## 5. European Standards for use in different applications

Standard	Definition of ash	Requirements			
		chem.	react.	phys.	env.
EN 197-1	X	X	X		X
EN 450-1	X	X	X	X	X
EN 13282-1/-2	X	X	X		X
EN 14227-4	X	X	X	X	X
EN 12620		X		X	X
EN 13055		X		X	X
.....					

Cement

Fly ash for concrete

Hdraulic Road Binders/Bound Mixtures

Normal and lightweight aggregates

## 6. Revision of the Waste Directive

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### Revised Waste Directive

### Definition of by-products and end-of-waste:

#### *Article 5 “By-products”*

*„**A substance or object, resulting from a production process, the primary aim of which is not the production of that item, may be regarded as not being waste referred to in point (1) of Article 3 but as being a by-product only if the following conditions are met:***

### *Article 6 “End-of-waste” (1)*

1. *Certain specified waste shall **cease to be waste** within the meaning of point (1) of Article 3 when it **has undergone a recovery**, including recycling, operation and complies with specific criteria to be developed in accordance with the following conditions:*
  - (a) the substance or object is **commonly used** for specific purposes;*
  - (b) a **market or demand exists** for such a substance or object;*
  - (c) .....*

## 6. Revision of the Waste Directive

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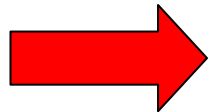
**Due to these criteria the CCP producers are of the opinion that CCPs are by-products as the production process is fully controlled to meet the requirements of emission regulations as well as of standards and specifications and as the product is offered to existing the construction material markets.**

**Consequently, the producers have also registered their products according the REACH Regulation.**

**Ashes from stockpile however meet the criteria for definition of end-of-waste materials.**



# Registration Evaluation Authorisation and Restriction of Chemicals



In Europe, non registered substances can not be placed on the market after **1st June 2008** any more!

Each **producer or importer** of coal combustion products (CCPs) placed on the market as construction materials have to register their substances.

The **registration** requires i.a. comprehensive information about human toxicology and ecotoxicology of the substances.

## 7. REACH Regulation

### CCPs and REACH – Status of Pre-/registration activities

EC-Nr.	EC-Name /preSIEF	Number pre-registered Parties	CCPs	preSIEF-facilitator	consortia
231-900-3	Calcium sulphate	1578	FGD-gypsum	EUROGYPSUM	Calcium sulphate consortium
268-627-4	Ashes (residues)	1084	FA, BA, BS, FBC-ash, CE? BMA?	EVONIK Steag	Ash-REACH-Consortium By-Products Consortium Mixed Ash Consortium
300-212-6	Ashes (residues) Cenospheres	113	CE	B-Lands Consult	Not defined
270-708-4	Slags, coal	524	FA, BA, BS, FBC-ash, CE?, BMA?	EVONIK Steag	Ash-REACH-Consortium By-Products Consortium
302-652-4	SDA-product - >10% ash - < 10% ash	99 11	SDA-product	B-Lands Consult -	By-Products Consortium -
297-049-5	Biomass ash	97	BMA	Södra?-	Not defined

## 8. Concluding remarks

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- ▶ **Every year more than 100 million tonnes of CCPs are produced in Europe (EU-27). 56 million tonnes of Coal Combustion Products (CCPs) were produced in Europe (EU-15) in 2008**
- ▶ **CCPs are used to replace natural raw materials as or in construction materials.**
- ▶ **The properties of CCPs, e.g. siliceous or calcareous ash, are decisive for their utilisation, especially the homogeneity.**
- ▶ **Ashes from stock have reacted in different ways and need processing after excavation.**
- ▶ **In some countries basic research will be necessary**
- ▶ **CCPs may be redefined as by-products according the revised Waste Directive.**
- ▶ **By-products and end-of-waste-substances are subject to REACH. CCPs were registered according REACH.**

**Thank you for your attention!**



European Coal Combustion Products Association

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