UNE APPROCHE EUROPÉENNE POUR LES CO-PRODUITS INDUSTRIELS ?

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24th May 2012
Maison de la Fédération Nationale du Bâtiment et des Travaux Publics (FNBTP house), Paris

History

Production/Use per year since 1975:

about

30 million tonnes

Blast Furnace Slag

and

20 million tonnes

Steel Slag

Source: EUROFER

History

1989 Start European Harmonisation of Road Construction Standards via CEN

1993 Meeting of European Slag Producers and Slag Processors, organised by FEhS-Institute, Germany

1995 Foundation of the WG „Metallurgical By-products", organised by FEhS-Institute

1998 1st European Slag Conference in Marseilles organised by AFOCO

2000 2nd European Slag Conference in Düsseldorf organised by FEhS-Institute and

Foundation of EUROSLAG

Main Objectives

EUROSLAG STATUTES

- To create favourable technical, legislative and regulatory prerequisites for the use of slags from the iron and steel making.
- To promote the use of slags at the highest possible specification level with regard to the environment.
- To counter or minimise any obstacles to the use of slags.
- To promote the image of slags to build confidence in members, products and processes.

Members

Ordinary Members

- National associations that represent producers and/or processors in their country
  e.g. AFOCO, CTPL, FEhS-Institute, MPA, UNESID

- Individual companies that operate in the fields of producing, processing, marketing and/or selling slag, unless these are represented by national organisations.

Associate Members

- Non-European associations or companies of producers or processors of slag

- Producers and/or processors of slag from non-ferrous metals industry

Members

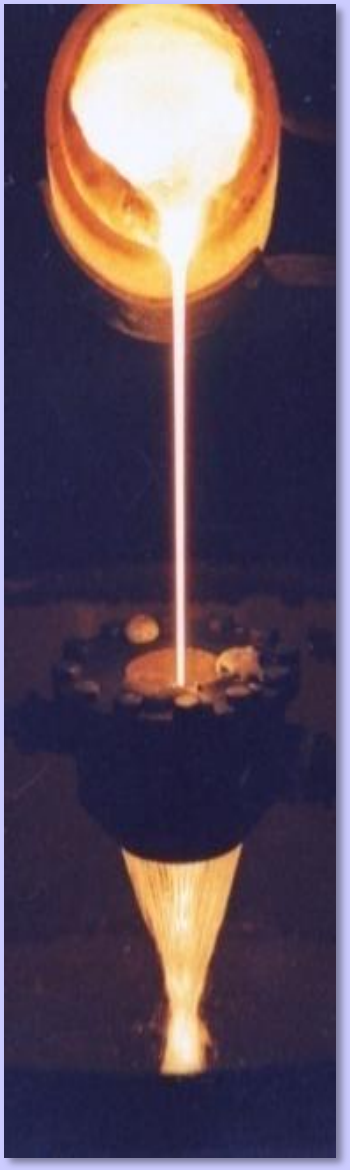
Austria,
Belgium,
Denmark,
Finland,
France,
Germany,
Greece,
Italy,
Luxembourg,
Poland,
Romania,
Slovak Republic,
Slovenia,
Spain,
Sweden,
Turkey,
The Netherlands,
United Kingdom,
USA

Work Items

EUROSLAG is the European association of organizations and companies

The association is concerned with all aspects of manufacturing slag and its utilization as product e.g. for building purposes and as fertilizer.

EUROSLAG deals with promotion of slag as a product, enables exchange of information and research as well as facilitates the interaction with governing bodies.

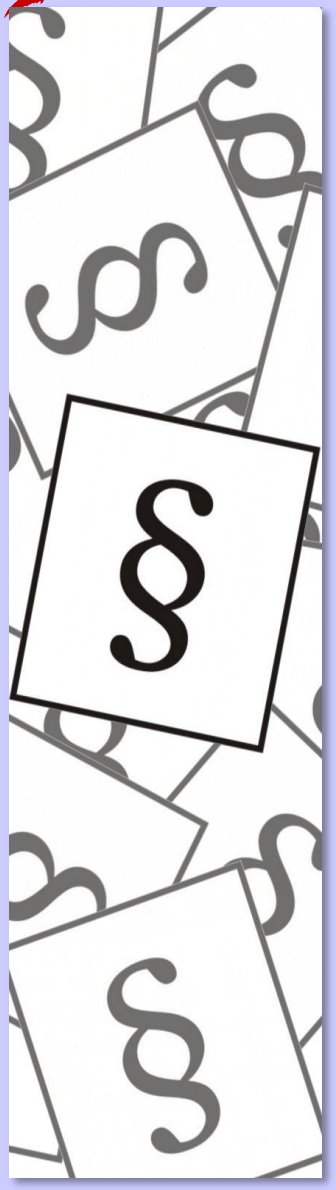


Main Work Items

Activities on:

- **Legislation**
- **Standardisation**
- **Research**
- **Promotion**

What are Slags?
Wastes or By-Products?



In the European countries exist two possibilities:

- **Slag is considered as a by-product already in the liquid state, directly after its manufacture, with or without processing steps.**

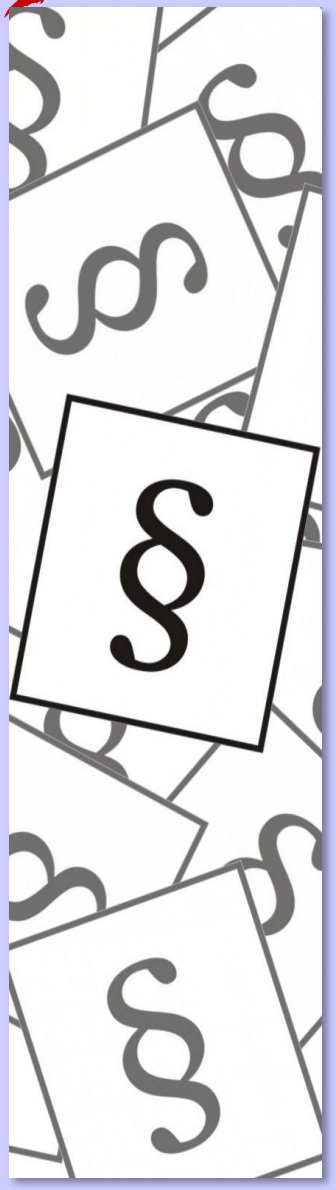
- **Slag is first considered as waste but ceases to be waste after a number of recovery measures to become a product or secondary raw material.**

Work Item Legislation

What are Slags?
Wastes or By-Products?

2005 – 2008 Revision of the Waste Framework Directive as DIRECTIVE 2008/98/EC with conditions for :

- **By-Products (see Article 5)**
- **End-of-Waste Status (see Article 6)**



Work Item Legislation

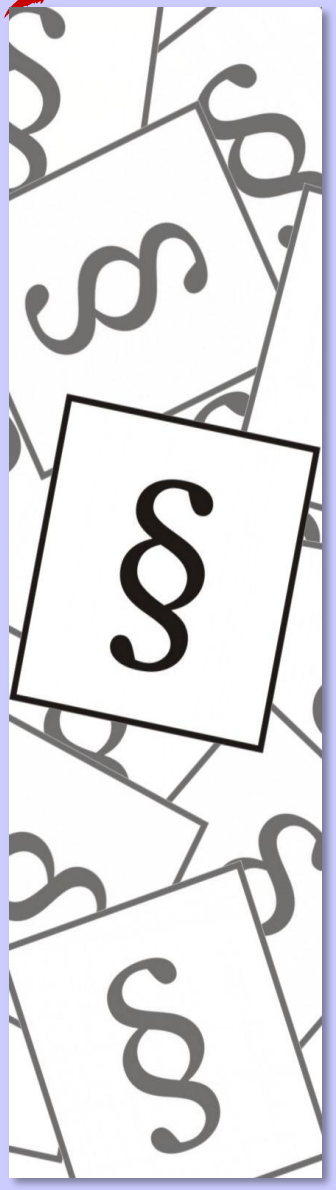
What are Slags?
Wastes or (By-)Products?

2007 – 2010 REACh Registration

Opinion and Decision
of the
European Steel Industry:

Slags are By-products!!

2010 registration as
Non Hazardous Substances
within a consortium of 160 slag producing and processing companies

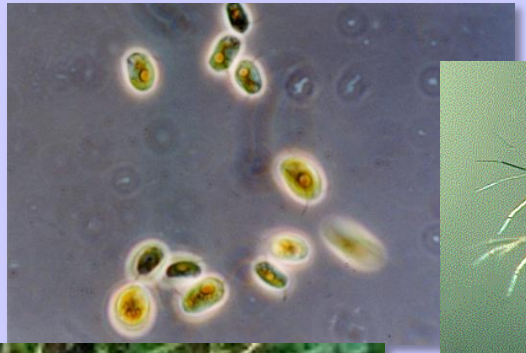


Work Item Legislation

Tests which were carried out:

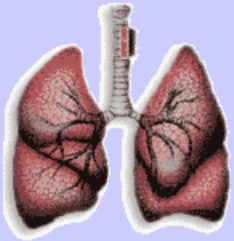
Eco-toxicological tests, e.g.

- Growth inhibition of algae
- Short-term and long-term toxicity to invertebrates
- Effects on soil micro-organisms
- Short-term toxicity to plants



Toxicological tests, e.g.

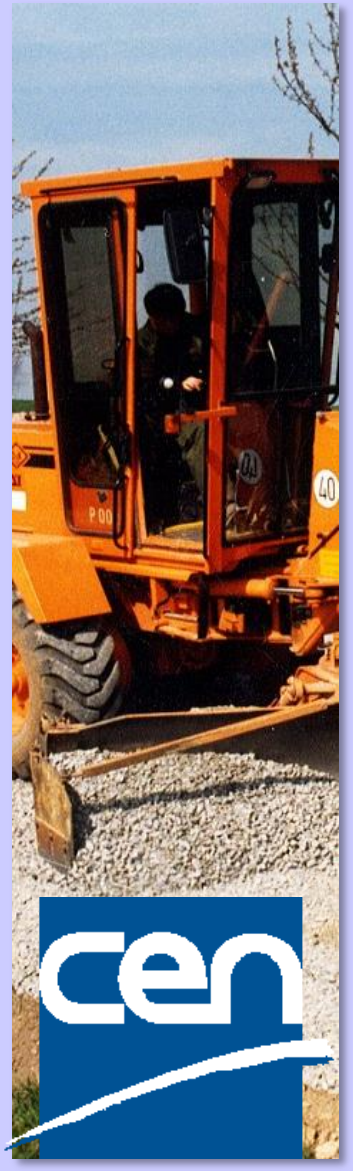
- Cytogenicity studies in mammalian cells
- Gene mutation studies in mammalian cells
- Skin irritation tests
- Eye irritation tests
- Inhalation studies



Work Item Standardisation

EUROSLAG representatives are members of:

- CEN/TC 51 "Cement"
- CEN/TC 104 "Concrete" and CEN/TC 104/WG 15 "GGBS"
- CEN/TC 154 "Aggregates"
- CEN/TC 227 "Road Materials"
- CEN/TC 292 "Wastes"
- CEN/TC 260 "Fertiliser"
- CEN/TC 351 "Dangerous Substances"
- CEN/TC 350 "Sustainability of Construction Works"



Work Item Standardisation

CEN/TC 154 Standards - Annex A (normative)
EN 13043 - Aggregates for bituminous bound mixtures

Nr.	Source	Subnr.	Specific material	History of use	Special requirements in standard	Additional requirements identified for inclusion
D	Iron and steel industry	D1	Granulated blast furnace slag (GBS) (vitrified)	No	–	–
		D2	Air-cooled blast furnace slag (ABS) (crystallized)	Yes	Yes	No
		D3	Basic oxygene furnace slag (converter slag, BOS)	Yes	Yes	No
		D4	Electric arc furnace slag (from carbon steel production, EAF C)	Yes	Yes	No
		D5	Electric arc furnace slag (from stainless/high alloy steel production, EAF S)	Yes	Yes	No
E	Non ferrous metal industry	E1	Copper slag	Yes	No	
		E2	Molybdenum slag	Yes	No	
		E3	Zinc slag	No	–	
		E4	Phosphorus slag	Yes	No	

Work Item Standardisation

CEN/TC 227
EN 14227-2: Slag Bound Mixtures

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

prEN 14227 - 2

Hydraulically bound mixtures - Specifications -

Part 2: Slag Bound Mixtures

Mélanges traités hydrauliques – Specifications - Partie 2: Mélanges traités au laitier

Hydraulisch gebundene Gemische – Anforderungen - Teil 2: Schlackengebundene Gemische

This draft European Standard is submitted to CEN members for formal vote. It has been drawn up by the Technical Committee CEN/TC 154.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Warning : This document is not a European Standard. It is distributed for review and comment. It is subject to change without notice and shall not be referred to as a European Standard.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Central Secretariat: rue de Stassart 36 B-1050 Brussels

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ref. No. prEN 13242:2001 E

DEUTSCHE NORM

September 2004

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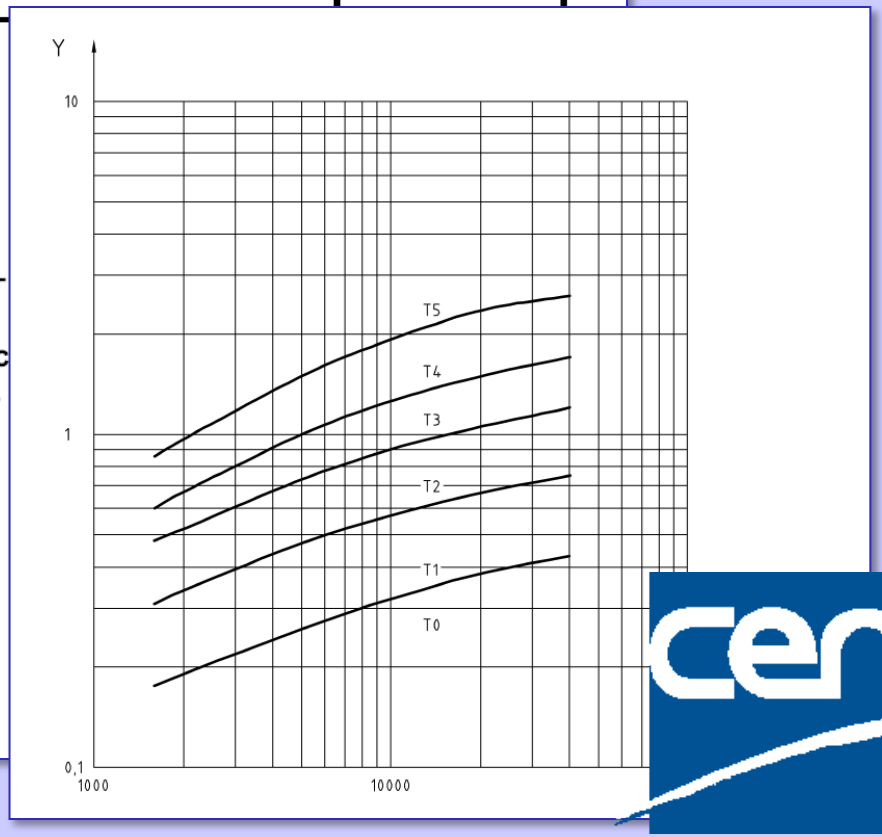
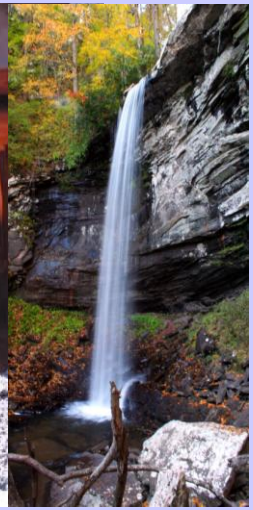


Revision started in 2010

Work Item Research

Title: Using Slag as Sorbent to Remove Phosphorus from Wastewater



Partners: ARMINES - Ecole des Mines, France
FEhS-Institute, Germany
ArGe Hüttenkalk, Germany
Epur Nature, France
AKUT, Germany
ArcelorMittal, Luxembourg

Duration: 3 years 01.07.2009 - 30.06.2012

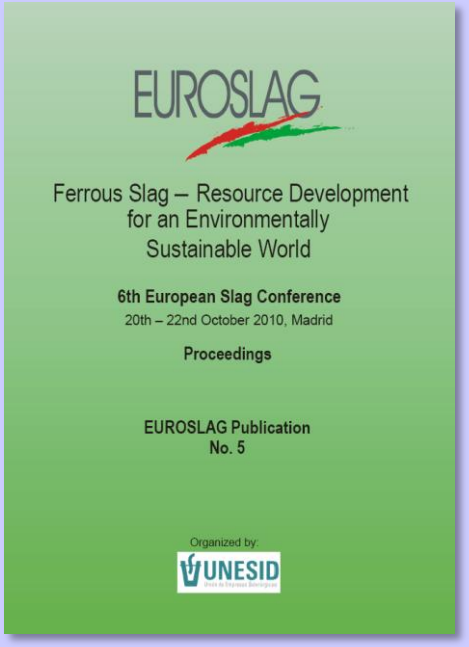
Work Item Research

Examples of Common Research work:

- Evaluation of volume stability of steel slag concerning:
  test methods, requirements, plant treatment etc.
- Use of steel slag for asphalt, railway tracks & waterways
- Characterisation of slags and other building materials concerning:
  - Contents
  - Mineral structure
  - Leaching behaviour
  - Eco-toxicological and toxicological tests
- Heat recovery by dry granulation
- Transformation of steel slag into clinker

Work Item Promotion

Conference Proceedings

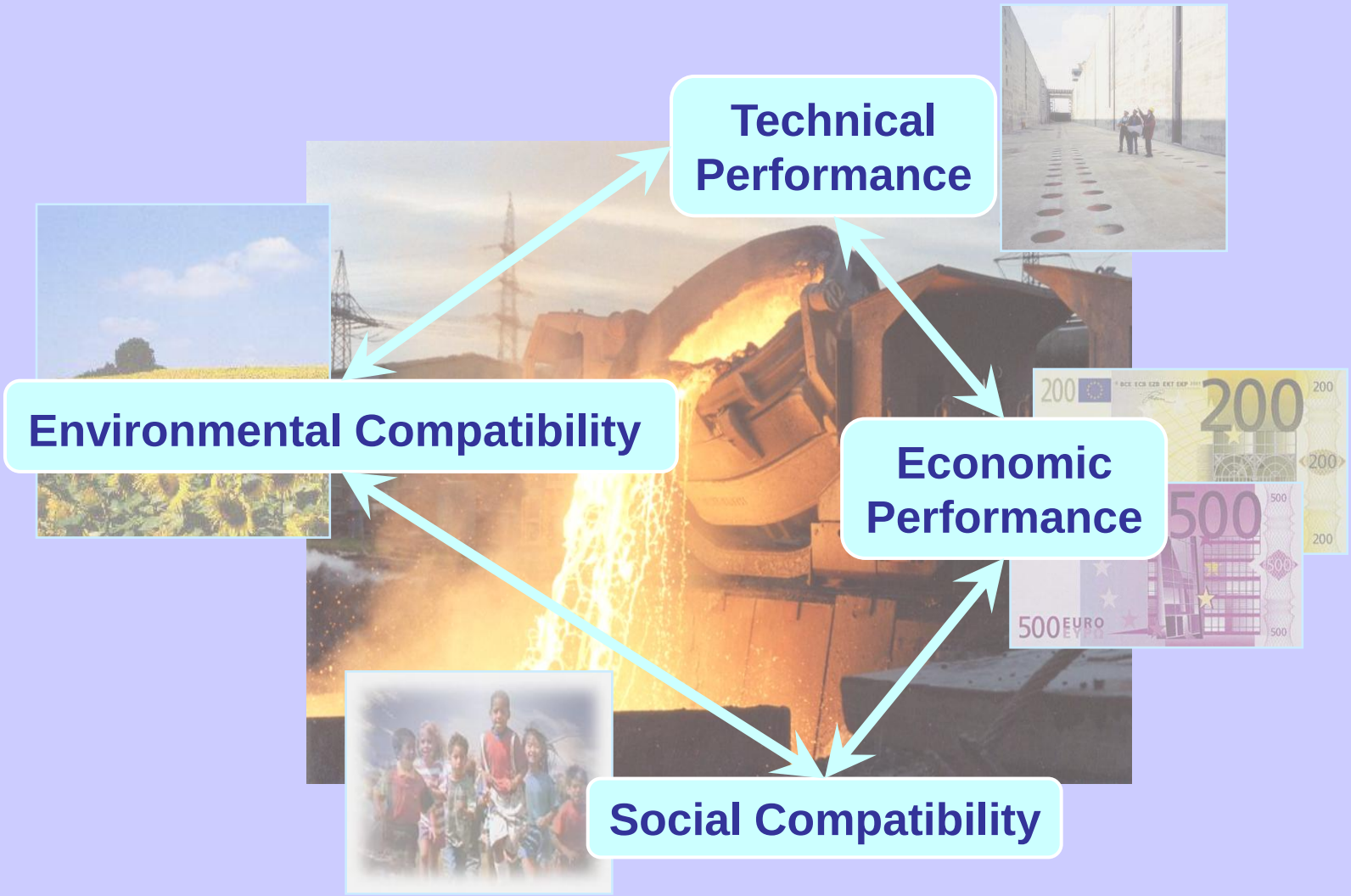


Brochures

Technical Leaflets

Next EUROSLAG Conference in The Netherlands October 2013

Sustainability Model



Using slag products - a contribution to a sustainable development

Many thanks for your attention