



Technical implications of REACH in the refractory industry

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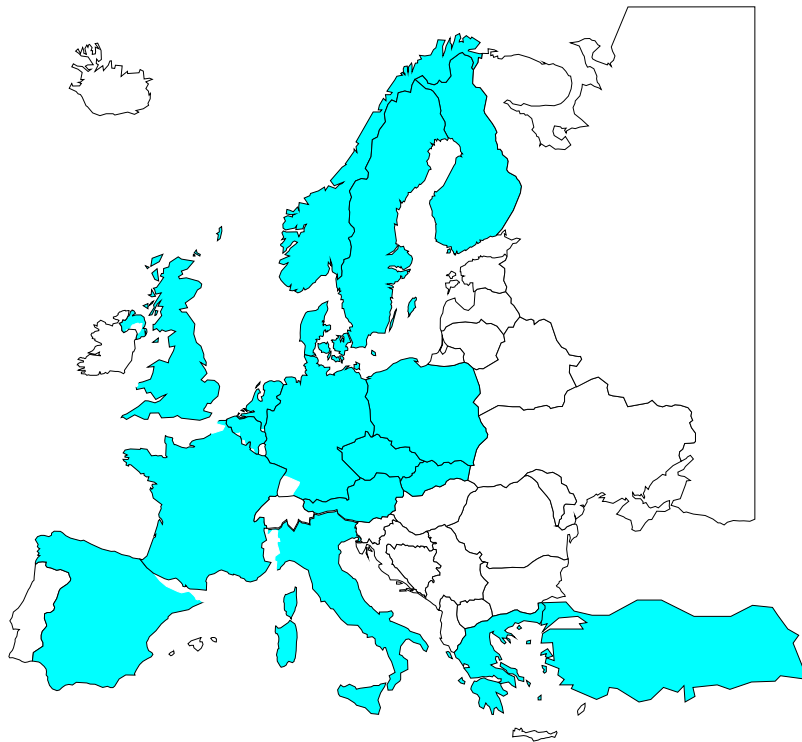
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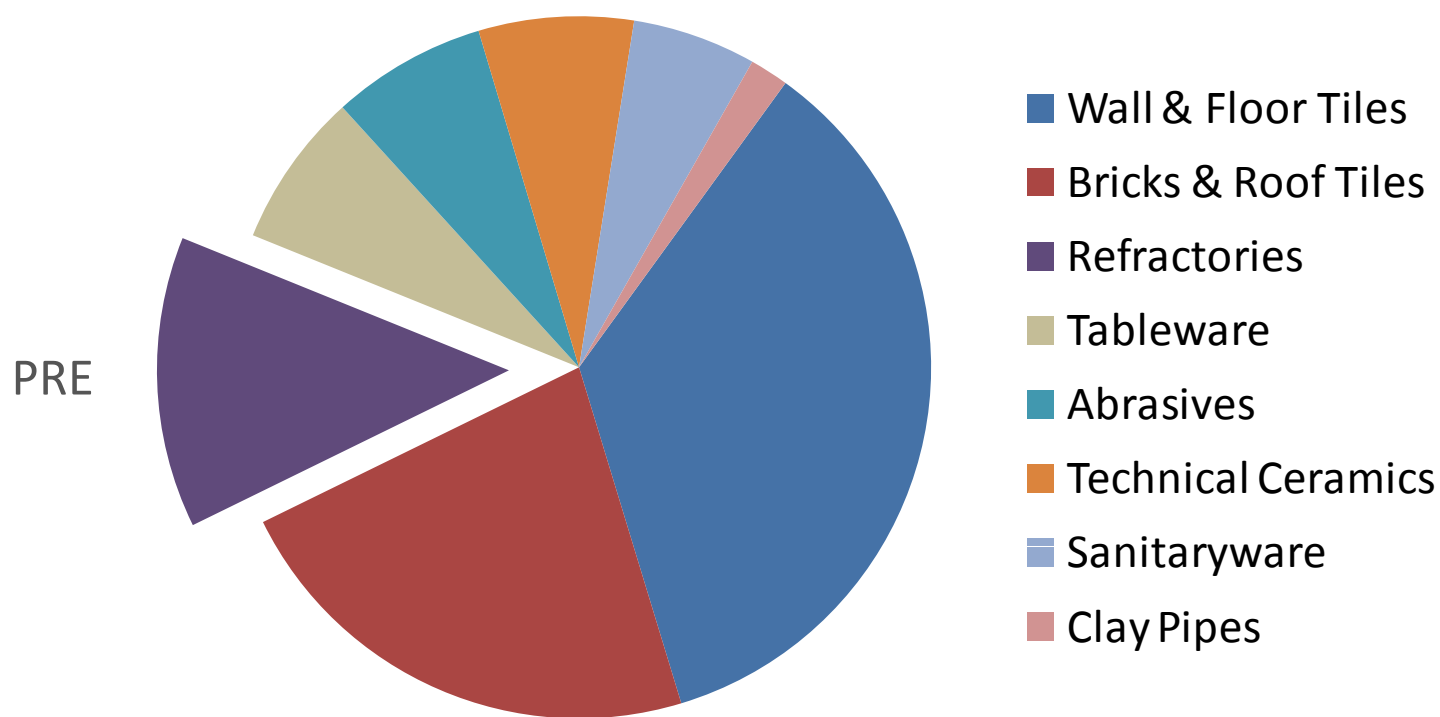
- PRE and the European refractory industry
- The PRE REACH WG
 - Pre-registration and registration
 - Generic use descriptors
 - Candidate list
 - REACH concerns
- Classification, Labelling and Packaging (CLP) Regulation
- Conclusions

PRE membership



- 12 National Associations
(and 17 Countries)
- 4 Multinational Groups

PRE – a member of Cerame-Unie



Cerame-Unie 2008:

220.000 employees
28 billion € turnover

The refractory industry



The refractories industry is a **major industry within the Ceramics sector:**

- 24.000 employees (PRE: 19.500)
- 5 million tons of refractories (PRE: 3,5)
- 3.75 billion € turnover (PRE: 2.7)

The industry is **highly exposed to international competition**

- Exports 35 - 45 % of production
- Imports 15 - 20 % of consumption (mainly from China)

The refractories industry is of **strategic importance**

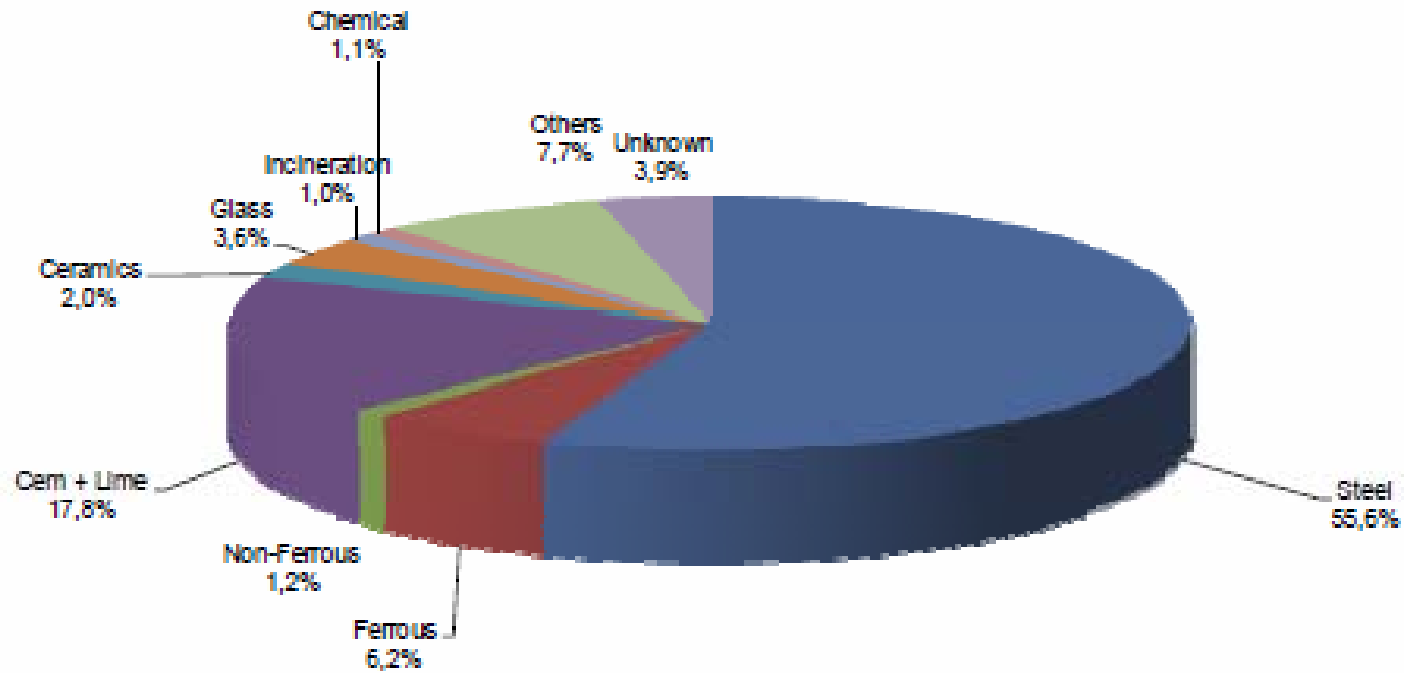
- Without refractories, there would be no materials industry
- No steel, no glass, no cement, no aluminium, no building bricks, no porcelain, no cars, no trains, no electricity...

Refractory supply chain



Refractory material flowchart from mine to industry customer (example magnesia)

Refractory end-use



PRE REACH WG



- Set-up in May 2007
 - 13 meetings so far, between 10 and 16 participants
 - 37 members (mainly companies) on REACH mailing list
-
- Focus 2007: substance identification
 - Focus 2008: pre-registration (from 1 June 2008 to 1 December 2008)
 - Focus 2009: pre-SIEF and SIEF, preparing for 2010 registration
 - Focus 2010: use-descriptors, candidate list

Pre-registration



- On-line PRE REACH database (substance-inventory)
 - 11 countries
 - 47 companies
 - More than 7000 substances
- PRE discussions on substance identity
- PRE list of registration intentions
- No intention to register, because
 - Recovered substance (art. 2(7)d) → no (pre-) SIEF
 - Change in supplier, no longer 'Importer' → no (pre-) SIEF
 - 'Interpretation' → pre-SIEF, no SIEF
- Exemptions from registration

Exemptions from registration



- REACH Annex V:
 - Point 7: The following substances which occur in nature, if they are not chemically modified: Minerals, ores, ore concentrates, raw and processed natural gas, crude oil, coal.
 - Point 10: The following substances if they are not chemically modified: Liquefied petroleum gas, natural gas condensate, process gases and components thereof, coke, cement clinker, magnesia.

Registration



- PRE does not co-ordinate any consortia
- PRE **generic letters** to facilitate communicating throughout supply chain
- Specific work on:
 - Coal tar pitch,
 - Lime,
 - Borates,
 - Refractory Ceramic Fibres
- PRE **generic use descriptors** including a generic manufacturing process.

Generic manufacturing process



1. Shaped refractory products (Article)

Process step 1: Delivery and raw material handling (RFa)

The raw materials are delivered by trucks, big-bags and bags.

The raw materials from trucks is fed into silos or boxes.

Process step 2: Crushing and sieving (RFb)

Part of the raw materials are crushed with crushers or grinded with grinding mills. After the comminution the raw materials are sieved to obtain the grading fractions.

The first two process steps are only necessary for mineral raw materials.

Process step 3: Weighing (RFbc)

To prepare the mixture, each substance fraction is weighed.

Process step 4: Mixing (RFd)

The weighed portions of substances are mixed.

Process step 5: Forming (RFe)

The mix of substances is transported to hydraulic presses, or to the extruder, or to the slinger machine or to the cast line where a shaped product is formed.

For a part of the bricks the next process step is process step 7.

Generic manufacturing process



Process step 6: Drying and thermal treatment (RFf)

The shaped bricks are transported to the dryer where they are dried. For a part of the bricks the production process stops after this step. The next step is then process step 10.

Process step 7: Firing (RFg)

The dried bricks are fired in kilns.

The production process ends after this step for a part of the bricks. The next step is then process step 10.

The lifecycle of different substances (binders, additives,...) ends here.

Process step 9: Finishing treatment (RFh)

In some cases, grinding and cutting of the bricks is necessary to get the required shape and dimension accuracy.

Process step 10: Packaging (RFi)

The bricks are stacked on a pallet and wrapped with cardboard, plastic foil or the like. The pallets are transferred to the storage area.

After use of the shaped refractory products become waste or are being recycled.

Generic manufacturing process



2. Unshaped refractory products (Preparations, Mixtures)

Process step 1: Delivery and raw material handling (RFa)

The raw materials are delivered in bulk, in big-bags and bags. The raw materials are fed into silos or boxes.

Process step 2: Crushing and sieving (RFb)

Part of the raw materials are crushed with crushers or grinded with grinding mills. After the comminution the raw materials are sieved to obtain the graded fractions.

The first two process steps are only necessary for mineral raw materials.

Process step 3: Weighing (RFc)

To prepare the mixture, each substance fraction is weighed.

Process step 4: Mixing (RFd)

The weighed portions of substances are mixed.

Process step 5: Packaging/Filling (RFj)

The unshaped refractory products are transferred from the mixer into big-bags or bags. These are transferred to the storage area.

Generic manufacturing process



3. Refractory customer use

Process step 1: Mixing (RFk)

A part of the unshaped refractory products are mixed with batching liquids.

Process step 2: Lining (RFI)

Lining of the unshaped refractory products is done by gunning, vibrating, ramming and casting.

Lining of shaped refractory may include cutting of bricks.

Process step 3: Tempering (RFm)

Heating the installed refractory products

The lifecycle of different substances (binders, additives,...) ends here.

Process step 4: Demolition (RFn)

Demolition of the used material.

After use of the unshaped refractory products, they become waste or are being recycled.

Process step characterisation



Code	Process Step	SU	PC	PROC	AC	ERC
RFa	Delivery and raw material handling	3	-	1-4/8a/26	-	2
RFb	Crushing and sieving	3	-	1-4/24	-	2
RFc	Weighing	3	-	3-5	-	2
RFd	Mixing	3	-	3-5/26	-	2
RFe	Forming	3	-	1/14	-	2/3/5
RFf	Drying and thermal treatment	3	-	2/22	4 (TARIC 6902, 6901, 6903)	5
RFg	Firing	3	-	2/22/23	4 (TARIC 6902, 6901, 6903)	5
RFh	Finishing treatment	3	-	21/24	4 (TARIC 6902, 6901, 6903)	-
RFi	Packaging	3	-	-	4	-
RFj	Packaging/Filling	3	0 (K35100, K35120, R30200)	9/8a	-	2
RFk	Mixing	3/13/14	0 (K35100, K35120, R30200)	5/19/24	-	2
RFI	Lining	3/13/14	-	8a/21/24	-	5
RFm	Tempering	3/13/14	-	22/23	-	10a/11a
RFn	Demolition	3/13/14		21/24		

Use descriptors used in the final guidance document

Candidate list



- 38 substances on Candidate List
- 11 new proposals SVHC (Substances of Very High Concern)
- 73 substances in Registry of Intentions
- 6 substances proposed for Annex XIV (Authorisation list)

- Substances on Candidate list relevant for refractory industry:
 - Aluminosilicate Refractory Ceramic Fibres
 - Zirconia Aluminosilicate Refractory Ceramic Fibres
 - Boric acid
 - Disodium tetraborate, anhydrous
 - Pitch, coal tar, high temp.
 - Tetraboron disodium heptaoxide, hydrate

Refractory Ceramic Fibres



- Refractory ceramic fibres (RCF) proposed on 1 September 2009
 - PRE reply to **public consultation**
 - Main arguments: wrong scope, ongoing discussion on correct classification, lack of substitution
- Certain RCF added to candidate list in January 2010
- RCF: **Facts and consequences document** prepared by ECFIA
 - PRE meetings with Commission (DG Enterprise, DG Environment)
 - PRE meetings with Downstream User associations: CPIV (glass), Eurofer (Steel), Eurometaux (Non-ferrous)
- Ongoing discussion exact scope amongst Member States and ECHA

REACH concerns



- Costs:
 - ❖ Consultants, training and meetings
 - ❖ Toxicological studies for registration dossiers
 - ❖ Registration fee
- Competitiveness:
 - ❖ REACH puts a substantial additional pressure on the European manufacturing industry
 - ❖ Non-European suppliers of substances might turn their back on the European market
 - ❖ Importers of articles in the EU have a competitive advantage

CLP Regulation



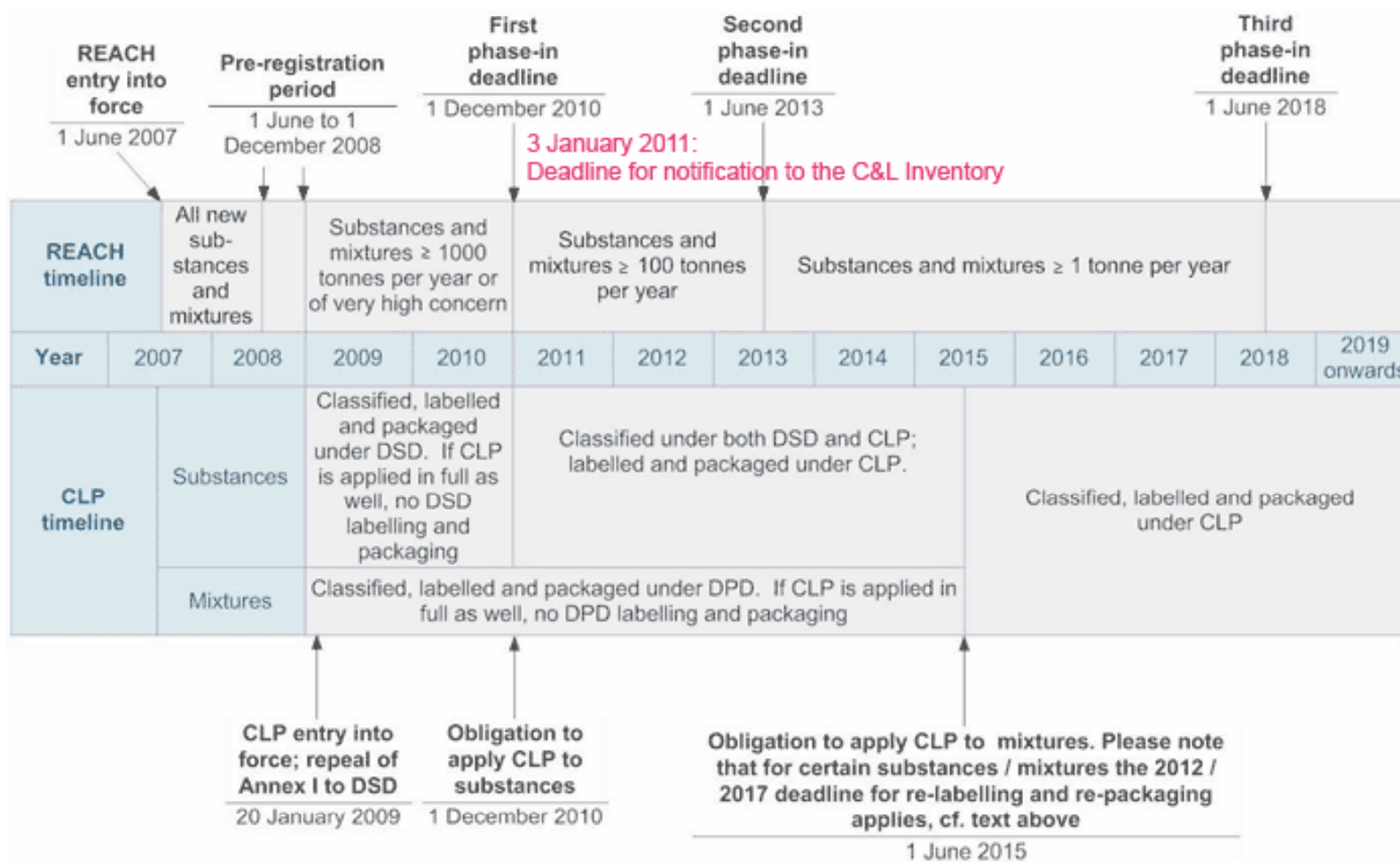
- CLP regulation (takes over provisions from GHS)
- Main roles and obligations for suppliers:
 - Classify before placing on the market
 - Respect harmonised classification (Annex VI) or self-classify
 - Ensure appropriate Labelling and Packaging before placing on the market
 - Cooperate with others in the supply chain for meeting requirements
- Annexes
 - Annex I Classification and labelling requirements for hazardous substances and mixtures
 - Annex II Special rules for labelling and packaging
 - Annex III List of Hazard Statements
 - Annex IV List of Precautionary Statements
 - Annex V Pictograms
 - Annex VI **Harmonised List of Hazardous Substances**
 - Annex VII Translation Tables for classification

Notification to C&L inventory



- **What:** substances placed on the market on their own or in a mixture
 - Either meeting the criteria for classification as hazardous
 - Or subject to registration in accordance with REACH (for inventory no extended timetables or thresholds)
 - If not already submitted as part of the registration dossier
- **By whom:** manufacturer or importer or group of M or I
- **When:** within one month after the substance is placed on the market
 - First deadline is 3 January 2011

REACH & CLP timetable



Source: http://echa.europa.eu/clp/clp_regulation/transition_en.asp

CLP labelling



Old pictograms:



New pictograms:



Conclusion



- ✓ PRE is not involved directly in Consortia, but provides platform for communication on all substances relevant for the refractory industry
- ✓ Improved communication and detailed discussions on substance identification through PRE REACH WG
- ✓ REACH is complex regulation, the industry tried to identify and resolve all problems, but problems will remain
- ✓ High financial burden on the industry
- ✓ Uncertainty for Downstream Users



Thank you for your attention