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Joint Research Centre

# **EU Ecolabel revision for hard coverings criteria**

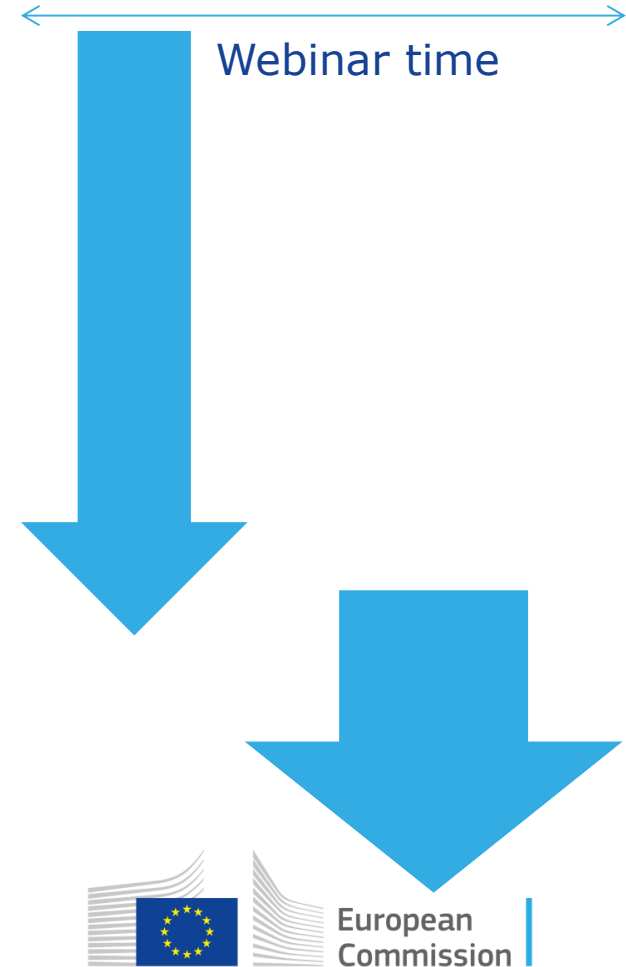
**1<sup>st</sup> Ad-Hoc Working Group meeting  
Webinar on ceramic/clay based products**

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Carretero*



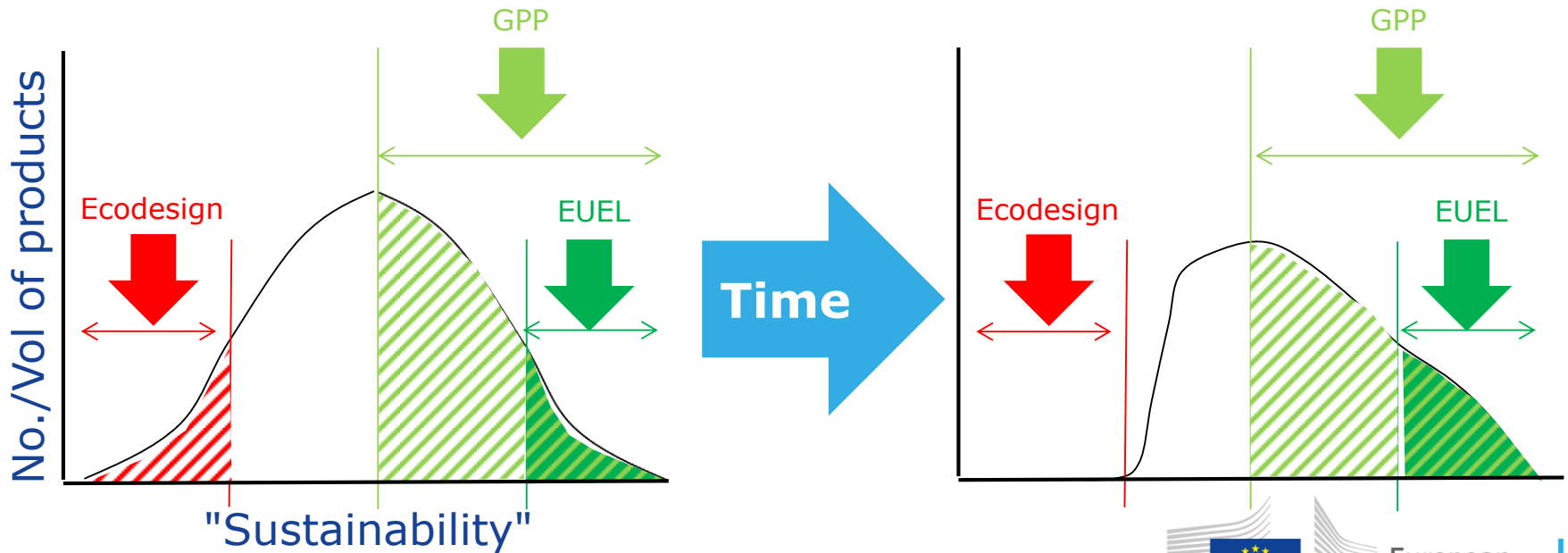
# Contents

- Policy and project background.
- Uptake.
- Timeline.
- REFIT considerations.
- Green Building Assessment schemes.
- EPDs (Environmental Product Declarations).
- Aim of the 1st AHWG meeting.
- Scope and definition considerations.
- **Criteria structure and scoring approach.**
- **A look at horizontal criteria.**
- **A look a sub-product specific criteria.**



# Policy background

- EU Ecolabel, part of the Sust. Consumption & Production policy.
- COM(2008) 397.
- 26 product groups, > 2100 licenses, >71000 products/services\*



## Project background

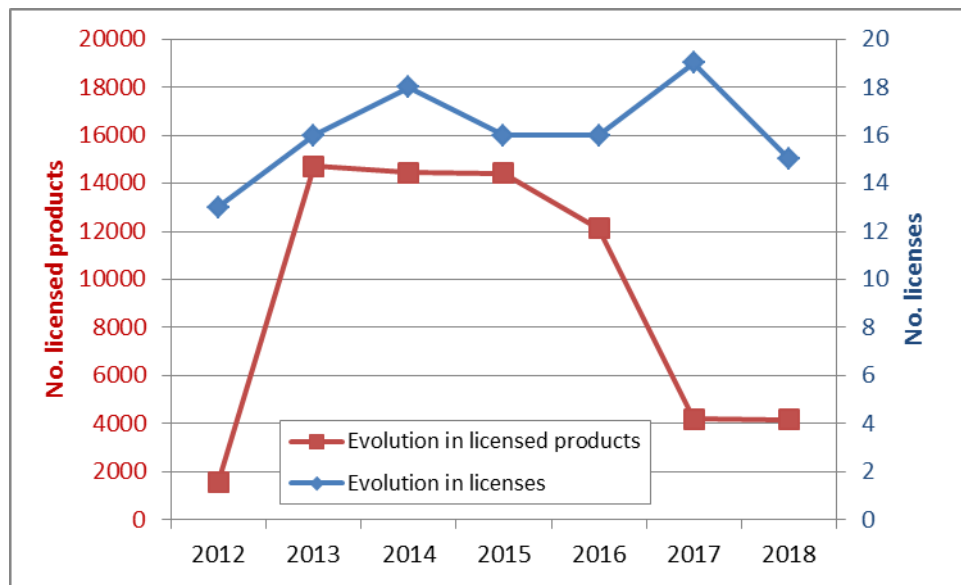
- Existing criteria published in Decision 2009/607/EC.
  - Prolonged until June 2021.
  - Criteria are already 9 years old.
  - Criteria were published before current EU Ecolabel Regulation (EC) No 66/2010.
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- A revision of EU Ecolabel criteria is much needed!

# Uptake

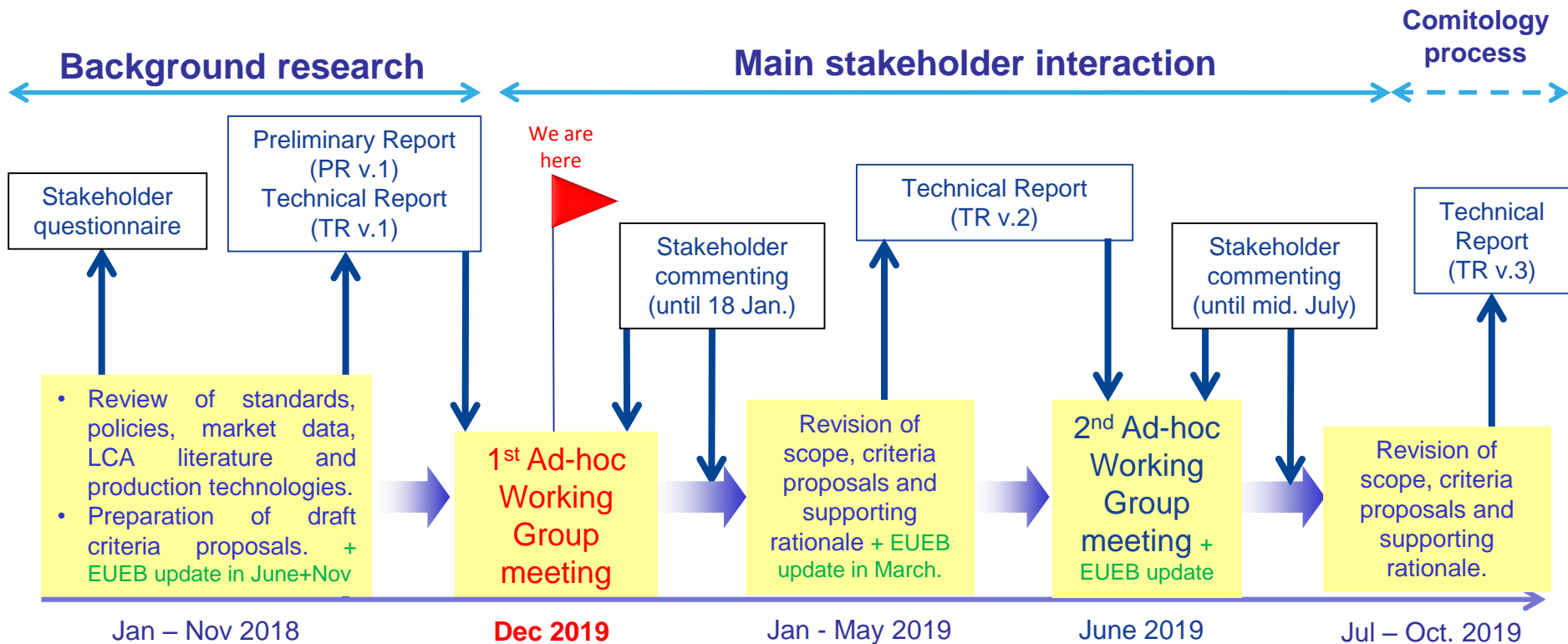
- Moderate uptake achieved for ceramics (mainly IT).
- Small uptake for natural stone (ES).
- Declining trend in licensed products....*why?*

	Evolution in licenses						
	2012	2013	2014	2015	2016	2017	2018
CZ	1	1	1	0	0	1	1
IE	1	1	1	1	1	1	0
UK	3	0	0	0	1	1	1
ES	1	2	2	1	2	5	4
IT	7	12	14	14	12	11	9
<b>TOTAL</b>	<b>13</b>	<b>16</b>	<b>18</b>	<b>16</b>	<b>16</b>	<b>19</b>	<b>15</b>

	Evolution in licensed products						
	2012	2013	2014	2015	2016	2017	2018
CZ	1	4	4	0	0	2	2
IE	1	35	35	35	35	35	0
UK	6	0	0	0	14	14	14
ES	10	6	44	40	44	575	571
IT	1520	14651	14352	14352	12024	3561	3235
<b>TOTAL</b>	<b>1538</b>	<b>14696</b>	<b>14435</b>	<b>14427</b>	<b>12117</b>	<b>4187</b>	<b>3822</b>

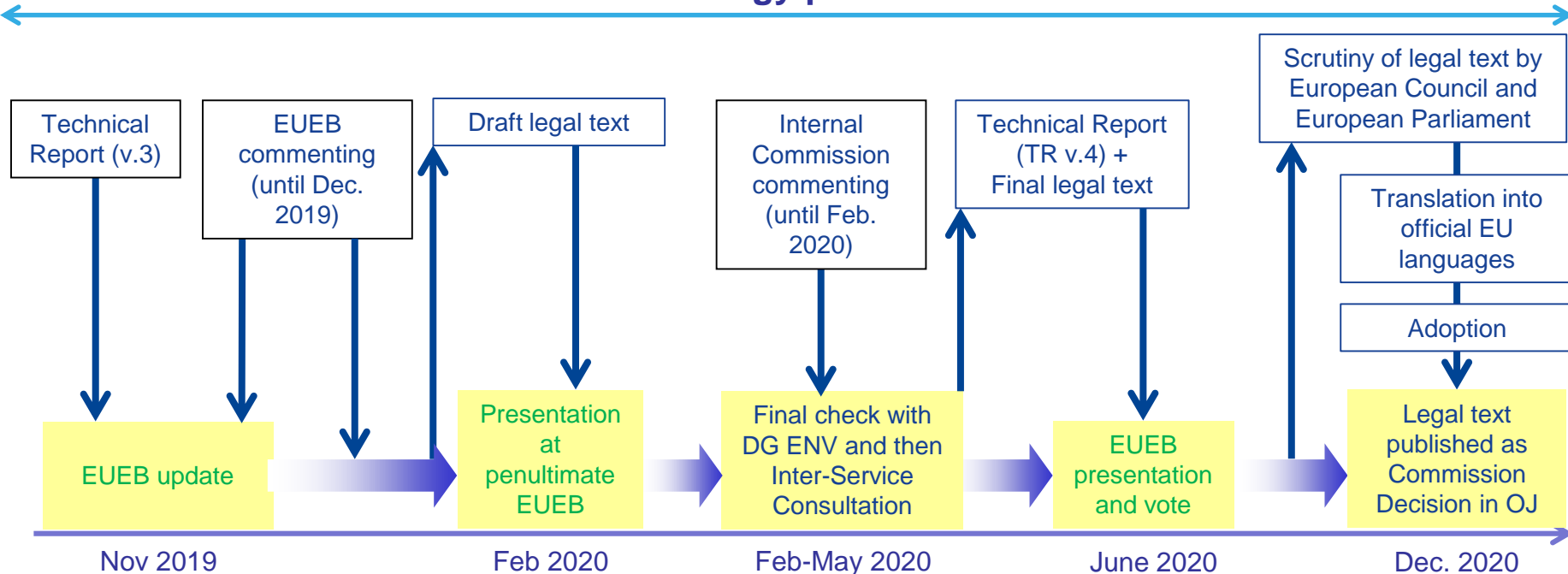


# Timeline-1



# Timeline-2

## Comitology process



## REFIT considerations

- Is the EU Ecolabel Regulation working? → REFIT exercise
- Result → *Yes, but could do better!* (see COM(2017) 355).
- Need to improve awareness and uptake.
- Better integration with EMAS and Green Public Procurement.
- Reduce Commission administration efforts (bundling of similar products into a single Commission Decision).
- Reduce criteria complexity (especially with Article 6(6) compliance). Base criteria on data that applicants can easily obtain AFAP.
- Reduce assessment and verification efforts/costs.
- **Need to embrace circular economy opportunities and other related Commission policy goals.**



# Green Building Assessment (GBA) schemes

- Look at the environmental impact of buildings.
- A holistic approach but not an LCA as such.
- Specific aspects defined and assessed, **e.g. materials.**
- Well-known and successful in general.
- A plethora of schemes out there: BREEAM, LEED, HQE, VERDE, DGNB etc.
- Commission has launched Level(s) to try and set some common ways of reporting certain building indicators.
- Major boost for EU Ecolabel if hard coverings recognised by GBAs.
- EPDs are already recognised but EUEL not. **Why?**



# Environmental Product Declarations (EPDs)

- At global level: ISO 14025 (Type III).
- At EU level, for construction products: EN 15804.
- LCA approach.
- 3rd party certified.
- Quantitative data.
- Assumptions behind them.
- Useful for B2B sector.
- Rise of sectorial EPDs....
- But not understandable to end consumer.
- *EPD is no guarantee of envi. excellence – benchmarks needed!*

Impact	Unit	Value
Global warming potential	Kg CO2 eq.	10.7E-01
Acidification potential	Kg SO2 eq.	3.87E-03
Eutrophication potential	Kg PO4 eq.	1.1E-02
Ozone Depletion Potential	Kg CFC11 eq.	6.1E-07
Photochemical Oxidant Creation Potential	Kg C2H4 eq.	2.8E-04
Abiotic depletion potential	Kg Sb eq.	8.1E-09

## Main aims of 1<sup>st</sup> AHWG meeting

- To present initial ideas about criteria revision and scope.
- To put a lot of criteria on the table.
- Obtain feedback (during and after the meeting) about:
  - The scope and definitions
  - Which criteria are most important (even if not originally proposed).
  - Which criteria could be dropped (REFIT → reduce complexity).
- Identify more specialised stakeholders for further discussion about the criteria revision up until and including 2nd AHWG meeting.
- *Bonus – to obtain feedback about ambition levels of criteria.*

## Scope considerations

- REFIT says increase uptake:
- REFIT says increase awareness:
- REFIT says to bundle products:
- EPDs cover ALL construction products:
- GBAs look at ALL construction materials:

Expand scope for  
EU EEL HC

### Already decided to include:

- Kitchen countertops
- Table tops

*(Relevant for natural stone,  
agglomerated stone and ceramics.  
Important future link to furniture PG)*

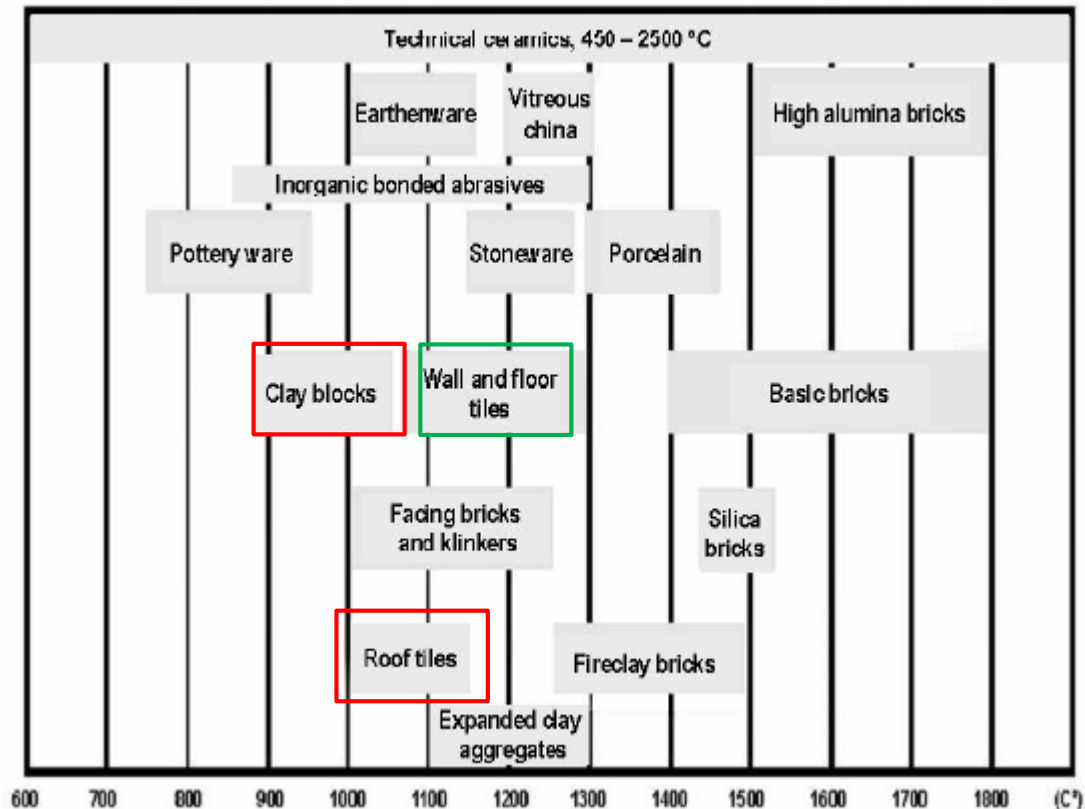
### Propose to include:

- Roofing tiles
- Masonry units

*(Relevant for natural stone, concrete  
and ceramics)*

## Some extra work to be aware of if scope expanded:

- Different types of sub-product are associated with different firing temperatures.
- And thus different specific kiln energy consumption.
- Already the case with existing scope (clay tiles).
- But a closer look at these processes is necessary for any expanded scope.
- *Any contacts working in the clay block and roof tile sector would be much appreciated.*



# Definitions-1

## *Decision 2009/607/EC*

The product group 'hard coverings' shall comprise — for internal/external use, without **any relevant structural function** — natural stones, agglomerated stones, concrete paving units, terrazzo tiles, ceramic tiles and clay tiles. For hard coverings, the criteria can be applied both to floor and wall coverings, if the production process is identical and uses the same materials and manufacturing methods.

## *Current proposal*

The product group 'hard coverings' shall comprise **floor coverings and wall coverings**, for internal or external use and without **any relevant loadbearing function for building structures**.

Hard coverings shall be made of either: natural stone, agglomerated stone, unreinforced concrete, terrazzo tiles, ceramic tiles or clay pavers.

- **Red text**, to clarify better what is meant by "*structural*".
- Still need to incorporate kitchen counters and table tops **in green text** (and potentially roofing tiles and masonry units). *Opinions?*
- "*Clay pavers*" should say "*fired clay*".

# Definitions-2

## Specific material standards:

- Agglomerated stone (EN 14618). But also known as "*manufactured stone*" and "*engineered stone*". Cement or resin bound...
- Terrazzo tile (EN 13748). Cement bound only.
- *Difference between cement-bound agglomerated stone and cement-bond terrazzo tile? Where would "epoxy-terrazzo" come in as well?*
- **Ceramic tiles (EN 14411: extruded or dry-pressed).**
- Concrete paving blocks, paving flags and kerb units (EN 1338-1340).
- Natural stone (EN 1467-1469, EN 12057-12059, EN 1341-1343).

## Other potentially relevant standards:

- EN 771 masonry units → engage with CEN/TC 125.
- EN ??? Roofing tiles → engage with CEN/TC 128.
- EN ??? Kitchen countertops → *engage with who?*

# Questions on the high level introductory points?

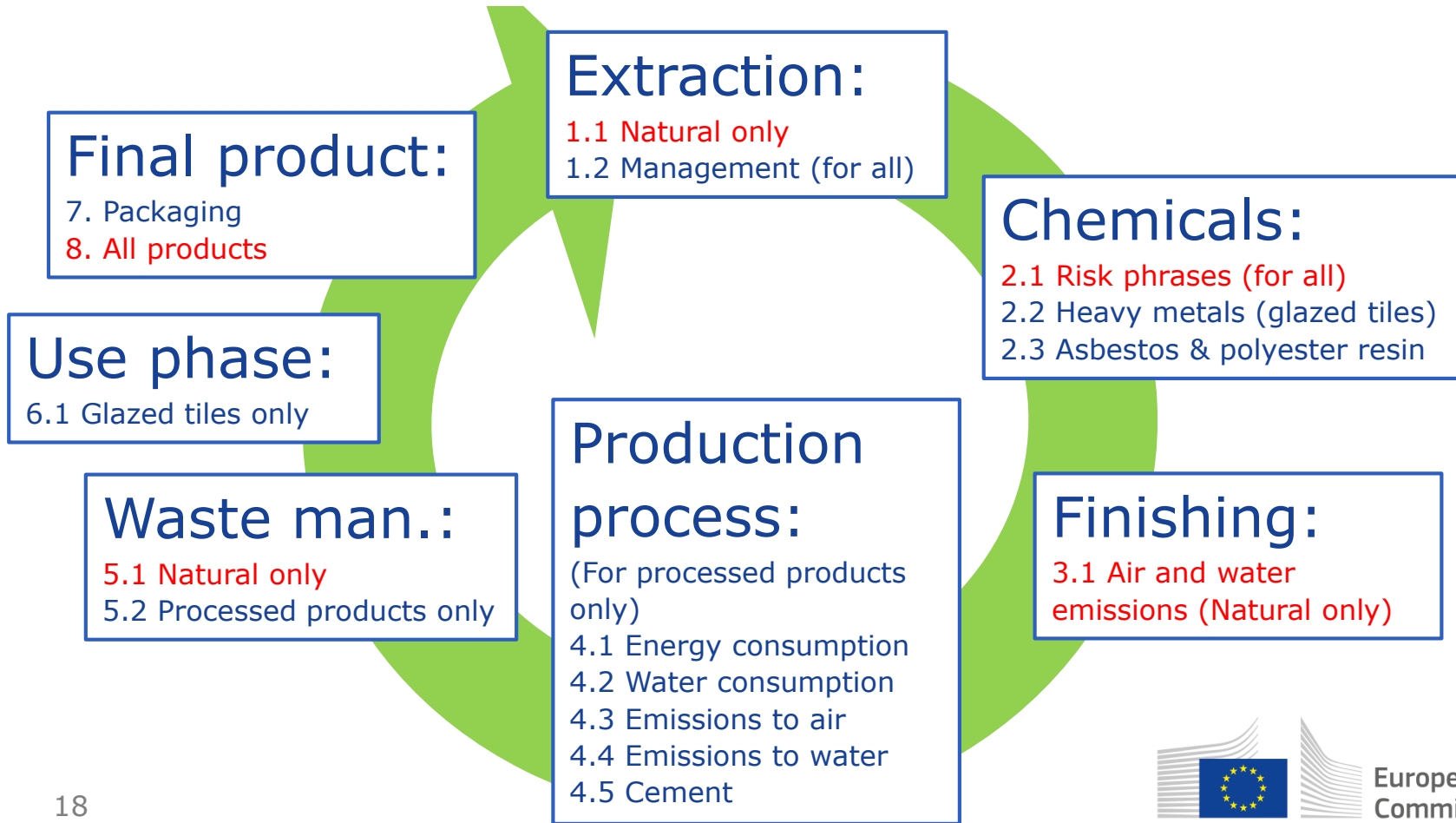
- Project background?
- Uptake?
- Timeline?
- REFIT considerations?
- Green Building Assessment schemes?
- EPDs (Environmental Product Declarations)?
- Aim of the 1st AHWG meeting?
- Scope considerations?
- Definitions?



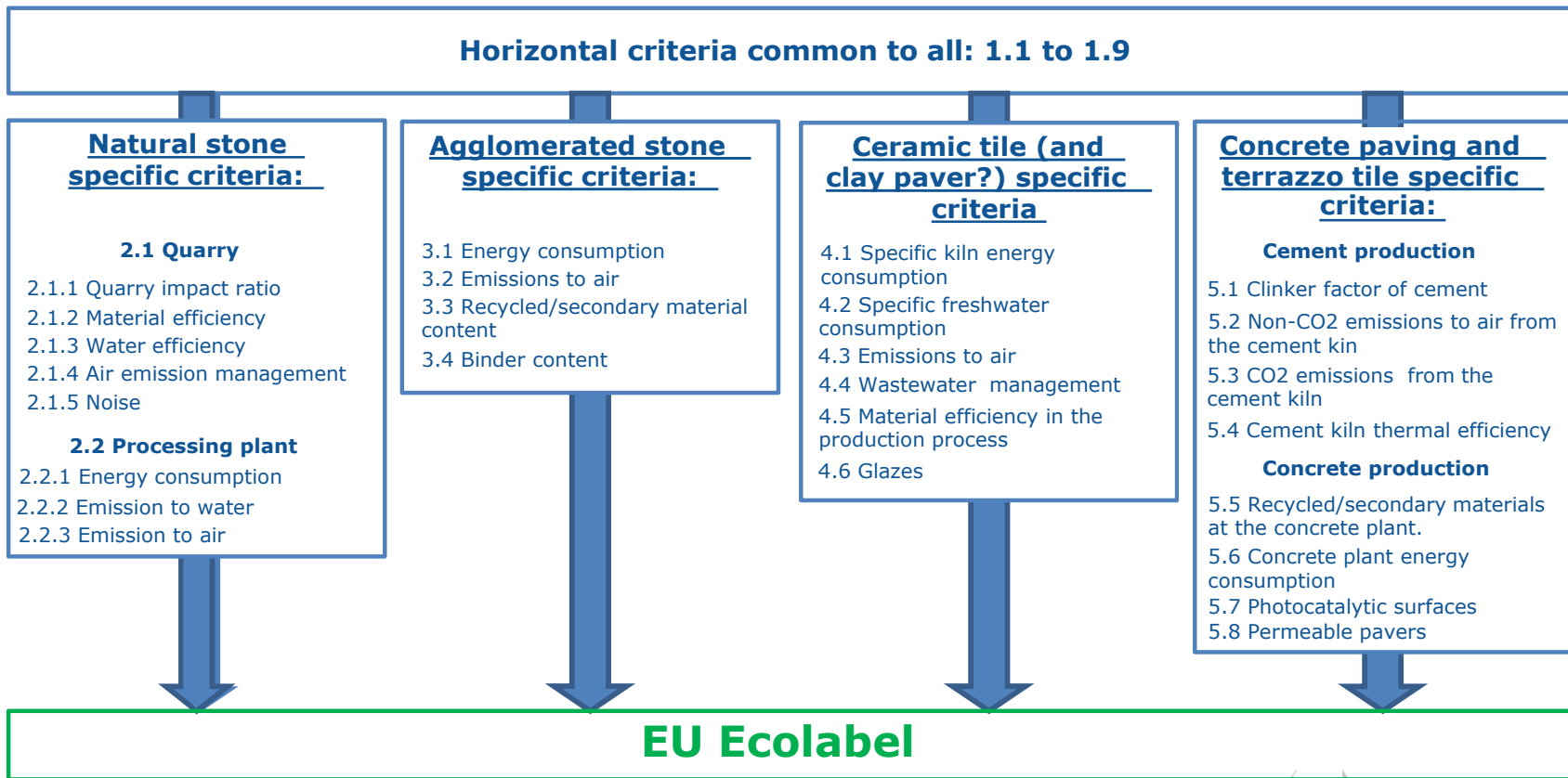
# Criteria

- General structure.
- Scoring approach.
- Horizontal criteria.
- Specific criteria.

# Old Criteria Structure



# New structure



# Scoring approach

- Most criteria have a mandatory element. *Why? → safety net.*
- Some criteria have points. *Why? → encourage all improvement.*
- Some criteria are optional and have points. *Why? → niche/innovative.*
- To get EU Ecolabel, minimum number of points needed (e.g. 50 out of 100).
- No bronze, silver, gold though. *Opinions?*
- No mention of points inside EU Ecolabel logo. *Inconsistency with other EU Ecolabel product groups.*
- But could be mentioned elsewhere by license holder...
- And could be distinguished by GBAs or award criteria in GPP.
- General aim: *bigger environmental impact = more points* but also need to not place all points in supply chain.

# Horizontal criteria: apply to all sub-products

1.1 Environmental Management System

1.2 Raw material extraction

1.3 Hazardous substances

1.4 Asbestos

1.5 VOC emissions

1.6 Business to consumer packaging

1.7 Fitness for use

1.8 Consumer information

1.9 Information appearing on the ecolabel

JRC considers essential

JRC considers as potentially interesting but needs discussion.

JRC considers as a potential criteria to be removed (little added value).

All criteria subject to stakeholder discussion and opinions.

Questions after 1.3, after 1.6 and after 1.9.

# Criterion 1.1. Environmental Management System

The applicant shall have a documented Environmental Management System in place.

## EU Ecolabel points

The applicant shall have a documented environmental management system according to **ISO 14001** in place and certified by an accredited organization (2 points).

or

The applicant shall have a documented environmental management system according to the **EU Eco-Management and Audit Scheme (EMAS)** in place and certified by an accredited organization (5 points).

### **Assessment and verification:**

*The applicant shall provide a declaration of compliance with the mandatory requirement of this criterion, supported by a copy of their own Environment Management System documentation.*

*Where points are claimed for ISO 14001 or EMAS certification, the applicant shall provide a copy of the ISO 14001 or EMAS certificate, as appropriate, and provide the Competent Body with the details of the organization which carried out the accreditation.*

*In cases where an applicant has both ISO 14001 and EMAS certification, only the points for the EMAS certification shall be awarded.*

# Criterion 1.1. Environmental Management System

## Rationale

- Environmental Management System is needed to be able to systematically collect some or all of the data that would be asked for to demonstrate compliance with EU Ecolabel criteria.
- External certification of EMS not obliged, but encouraged.
- REFIT exercise: better integration with EMAS, most points for EMAS.
- EMAS is still more comprehensive than ISO 14001.

# Criterion 1.2. Raw material extraction management activities

The extraction of industrial and construction minerals (for example limestone, clay, aggregates, ornamental or dimension stone etc.) to manufacture any EU Ecolabel hard covering product shall respect the following requirements, as appropriate.

## **Extraction activity carried out within the EU:**

If they are extracted from Natura 2000 network areas, composed of Special Protection Areas under Directive 2009/147/EC on the conservation of wild birds, and Special Areas of Conservation under Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora, extraction activities **have been assessed and authorised in accordance with the provisions of Article 6 of Directive 92/43/EEC** and taking into account the EC Guidance document on non-energy mineral extraction and Natura 2000.

## **Extraction activity carried out outside the EU:**

If they are extracted from areas officially nominated as candidates for or adopted as Areas of Special Conservation Interest, part of the Emerald network pursuant to Recommendation No. 16 (1989) and Resolution No. 3 (1996) of the Standing Committee of the Convention of the Conservation of the European Wildlife and Natural Habitats (Bern Convention), or protected areas designated as such under the national legislation of the sourcing / exporting countries, the extraction activities **have been assessed and authorised in accordance with provisions that provide assurances equivalent to Directives 2009/147/EC and 92/43/EEC.**

### **Assessment and verification:**

*In case industrial or construction mineral extraction activities have been carried out in Natura 2000 network areas (in the EU), the Emerald network or protected areas designated as such under the national legislation of the sourcing/exporting countries (outside the EU), the applicant shall provide a declaration of compliance with this requirement issued by the competent authorities or a copy of their authorisation issued by the competent authorities.*



# Criterion 1.2. Raw material extraction management activities

## Rationale

- The requirement on Natura 2000 sites comes from previous discussions that led to this same text for EU Ecolabel Soil Improvers and Growing Media (see Decision (EU) 2015/2099).
- But unintentionally deleted the parts on non-Natural sites...*a mistake!*
- Propose to reintroduce the authorisation, envi. recovery plan/impact assessment and the map of the quarry(ies).
- *What can be considered as equivalent to assurances of Directives 2009/147/EC or 92/43/EEC in reality?*

↑  
Birds Directive

↑  
Habitats Directive

# Criterion 1.3. Hazardous substance restrictions

## a) Restrictions on Substances of Very High Concern (SVHC)

The **product shall not contain** substances that have been identified according to the procedure described in Article 59(1) of Regulation (EC) No 1907/2006 and included in the Candidate List for **SVHCs in concentrations greater than 0.10% w/w**. **No derogation** from this requirement shall be granted.

### **Assessment and verification:**

*The applicant shall provide a declaration that the product does not contain any SVHC in concentrations greater than 0.10 % (weight by weight). The declaration shall be supported by safety data sheets of process chemicals used or appropriate declarations from chemical or material suppliers. The list of substances identified as SVHC and included in the candidate list in accordance with Article 59(1) of Regulation (EC) No 1907/2006 can be found here:*

*[http://echa.europa.eu/chem\\_data/authorisation\\_process/candidate\\_list\\_table\\_en.asp](http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp). Reference to the list shall be made on the date of application.*

## b) Classification, Labelling and Packaging (CLP) restrictions

Unless derogated, the **product shall not contain substances** or mixtures in concentrations greater than **0.10% (w/w)** that are classified with any of the following hazard statements in accordance with Regulation (EC) No 1272/2008:

- **Group 1 hazards:** Category 1A or 1B CMR: H340, H350, H350i, H360, H360F, H360D, H360FD, H360Fd, H360Df.
- **Group 2 hazards:** Category 2 CMR: H341, H351, H361, H361f, H361d, H361fd, H362; Category 1 aquatic toxicity: H400, H410; Category 1 and 2 acute toxicity: H300, H310, H330; Category 1 aspiration toxicity: H304; Category 1 specific target organ toxicity (STOT): H370, H372.
- **Group 3 hazards:** Category 2, 3 and 4 aquatic toxicity: H411, H412, H413; Category 3 acute toxicity: H301, H311, H331; Category 2 STOT: H371, H373.

The use of **substances or mixtures** that are **chemically modified** during the production process so that any relevant restricted CLP hazard no longer applies **shall be exempted** from the above requirement.

### **Assessment and verification:**

*The applicant shall provide a list of all relevant chemicals used in their production process together with the relevant safety data sheet or chemical supplier declaration. Any chemicals containing substances or mixtures with restricted CLP classifications shall be highlighted. The approximate dosing rate of the chemical, together with the concentration of the restricted substance or mixture in that chemical (as provided in the safety data sheet or supplier declaration) and an assumed retention factor of 100 %, shall be used to estimate the quantity of the restricted substance or mixture remaining in the final product. Justifications for any deviation from a retention factor of 100 % or for chemical modification of a restricted hazardous substance or mixture must be provided in writing to the competent body. For any restricted substances or mixtures that exceed 0.10 % (weight by weight) of the final hard covering product but are derogated, proof of compliance with the relevant derogation conditions must be provided.*

# Criterion 1.3. Hazardous substance restrictions

## Rationale

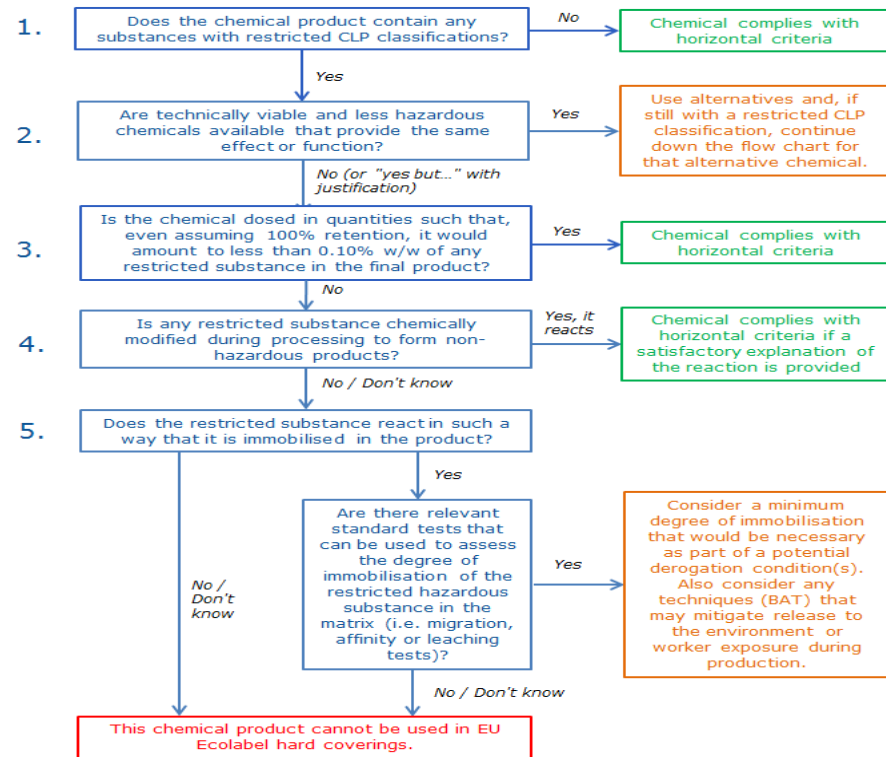
- Had to change to respect Article 6(6) of the 2010 EU Ecolabel Regulation.
- Follows the recommendations of the EU Ecolabel Chemicals Task Force.
- Wording is based predominantly on the most recently voted product group, which is an article (i.e. Graphic paper & Tissue paper).
- 0.10% threshold applies to weight of article or entire glazed article.
- Chemical modification → e.g. resin polymerisation, exemption by default.
- Physical immobilisation → e.g. pigment, no exemption but derogation conditions can be considered (e.g. maximum leachability under standard conditions).
- Any derogations need to be discussed and agreed before adoption, later amendments are problematic. TiO<sub>2</sub> proposed even though not yet classified.
- *Input needed about the use of hazardous substances in the production process and their chemistries in general.*

# Criterion 1.3. Hazardous substance restrictions

## Step-wise process:

1. Know the chemicals going in (SDS).
2. Are there haz. substances?
3. Know the quantities involved.
4. Chemical modification?
5. If not, do they remain in the product?
6. If so, is there a derogation.

Please share any relevant SDSs and an relevant dosing rate ranges.



# Questions / comments

- New criteria structure
- Overall scoring approach
- 1.1 Environmental Management System.
- 1.2 Extraction Management.
- 1.3 Horizontal hazardous substance requirement.

## Criterion 1.4. Asbestos

No asbestos shall be present in the raw materials used for the manufacture of hard coverings products, as laid down in entry 6 of Annex XVII to Regulation (EC) No 1907/2006.

### **Assessment and verification:**

*The applicant shall provide a declaration of compliance with the criterion. In cases where natural stone is used, the applicant shall additionally specify the type of stone used. If the natural stone is one of the types at risk of containing naturally occurring asbestos, the Competent Body may request the applicant to provide a representative chemical and mineralogical analysis of the natural stone.*

### **Rationale**

- Requirement already present in Decision 2009/607/EC.
- May be unintentionally present in certain natural stone.
- But of questionable added value as a criterion. General need to streamline criteria and focus on main areas (REFIT). *Opinions?*
- Already covered by horizontal criteria >0.10%....

# Criterion 1.5. VOC emissions

The applicant shall declare if the final product surface has been treated with any waxes, adhesives, coatings, resins or similar surface treatment chemicals.

In cases where treatment has been carried out, safety data sheets or supplier declarations for the waxes, adhesives or resins used shall be provided together with the approximate dosing rate used and an estimate of the total quantity of the resin or wax remaining in the final product.

No formaldehyde-based resins are permitted.

In cases where the VOC content of the wax or resin used exceeds 5% and the total quantity of wax or resin on the final product accounts for more than 1% of the final product weight, VOC emissions of the final product shall also be tested.

## **EU Ecolabel points**

Up to a maximum of 5 points shall be awarded for applicants that can demonstrate compliance with the following aspects:

Where the wax or resin used is less than 1% by weight of the final product (2 points).

Where the wax or resin used has a VOC content less than 5% by weight (3 points).

Where the results of a chamber test according to EN 16516 or ISO 16000 show that after 28 days the air concentration is:  $\leq 0.01$  mg/m<sup>3</sup> formaldehyde;  $\leq 0.3$  mg/m<sup>3</sup> TVOC,  $\leq 0.1$  mg/m<sup>3</sup> TSVOC and  $\leq 0.001$  mg/m<sup>3</sup> category 1A and 1B carcinogens (excluding formaldehyde); styrene 450 µg/m<sup>3</sup> (5 points).

Where **no final surface treatment with VOCs** has been applied (5 points).

## **Assessment and verification:**

*The applicant shall provide a declaration of the use or non-use of surface treatment chemicals used during product finishing operations.*

*In cases where such chemicals have been used, the safety data sheet or supplier declarations shall be provided regarding the VOC content. Furthermore, the applicant shall provide an estimate of the quantity of surface treatment chemicals used in the finishing operations (in g or ml per m<sup>2</sup>) and how much remains in the final product (% w/w).*

*In cases where a VOC emission test is required, or where the applicant voluntarily wishes to obtain the extra 5 points for compliance with this requirement, the applicant shall provide a declaration of compliance, supported by a test report carried out according to EN 16516 or the ISO 16000 series or standards. If compliance with the chamber concentration limits specified at 28 days can be met at any other time between 3 and 28 days, the chamber test may be stopped prematurely.*

*A maximum of 5 points can be awarded under this criterion.*

# Criterion 1.5. VOC emissions

## Rationale

- Hard coverings can be coated with waxes and resins.
- But VOC emissions not normally an issue *except agglomerated stone*.
- Want to positively recognise this aspect in *all hard covering products*.
- Plug into recognition by Green Building Assessment schemes.
  - E.g. BREEAM and LEED.
- Testing only an option, not mandatory.
- No surface treatment = Surface treatment complying with limits.
- Limits set correspond to requirements defined in BREEAM (exemplary).
- Styrene limit also added (important when polyester resins used).
- *Request for information (SDSs) of surface treatment chemicals.*



# Criterion 1.6. Business to consumer (B2C) packaging

Packaging must be made out of one of the following:

- materials made out or **recycled** materials
- materials intended to be **reusable**;
- easily recyclable materials;

## **Assessment and verification:**

*A sample of the product packaging shall be provided together with a corresponding declaration of compliance with all the requirements.*

Tiles packed in cardboard boxes



Natural stone stacked in wooden crates



loose gaps tightened with filling material like wood, foamsheet



# Criterion 1.6. Business to consumer packaging

## Rationale

- Existing requirement in Decision 2009/607/EC (paperboard packaging design for reuse or 70% recycled content).
- Quite a narrow focus (only paperboard).
- Type and specific quantity of packaging can vary a lot.
- Wood, wood fibres, polystyrene and plastic film also important.
- Focus now expanded to all packaging materials, but
- *Is B2C packaging really important in terms of environmental impacts? (REFIT)*
- *Or is it an important aspect to maintain with regards to the circular economy? Which the EU Ecolabel should support (REFIT)*
  - ***In latter case, need to define "reusable" and "easily recyclable"?***

# Questions / comments

- 1.4 Asbestos.
- 1.5 VOC emissions.
- 1.6 Business to Consumer (B2C) packaging.

## Criterion 1.7 Fitness for use

The applicant shall have a quality control and quality assessment procedure in place to ensure that products are fit for use. Where relevant, evidence demonstrating fitness for use may be provided. Any such evidence provided should be based on test results according to appropriate ISO or EN standards or equivalent test methods. An indicative list of potentially relevant standards is included below.

### **Assessment and verification:**

*The applicant shall provide a declaration of compliance with the criterion, supported by a description of their in-house quality control and quality assessment procedures.*

*In cases where test data according to EN or ISO standards, or equivalent methods is considered necessary, an indicative list of potentially relevant standards is indicated below:*

- Natural stone: EN1341, EN1342, EN1343, EN1467, EN1468, EN 1469, EN12057, EN12058 or EN12059;
- Cement-based terrazzo tiles: EN13748
- Agglomerated stone: EN15285, EN15286, EN 15388 or EN16954
- Clay pavers and ceramic tiles: EN1344, **EN13006** or EN 14411
- Concrete paving blocks, flags and kerb units: EN1338, EN1339 or EN1340

## Rationale

- Good quality products will tend to have longer life.
- Requirements applicable for construction material CE marking (not for counter-tops and table tops though).
- No limits set because too much nuancing needed.
- *If no specific requirements, do we need it? (REFIT)*

# Criterion 1.8. Consumer information

The product shall be sold with **relevant user information**, which provides advice on the product's **proper and best general and technical use** as well as its **maintenance**. It shall bear the following information on the packaging and/or on documentation accompanying the product:

- a) **Recommendations for correct use and storage** so as to maximise the product lifetime (e.g., whether the product needs coating or sealing, etc). As appropriate, reference should be made to the features of the product's use under difficult climatic or other conditions, for example, frost resistance/water absorption, stain resistance, resistance to chemicals, necessary preparation of the underlying surface, cleaning instructions and recommended types of cleaning agents and cleaning intervals. The information should also include any possible indication on the product's potential life expectancy in technical terms, either as an average or as a range value;
- b) **Installation instructions including recommended techniques and materials**. These instructions must not specify nor require the use of any component that does not comply with the materials requirements of this criterion.
- c) **Maintenance instructions**, if required. Maintenance instructions must not specify nor require the use of any chemical or coating limited by any part of this criterion.
- d) Recycling or environmentally preferable disposal instructions for the product end-of-life.

## **Assessment and verification:**

*The applicant should provide a sample of the packaging and/or texts enclosed.*

## **Rationale**

- A general requirement for almost all EU Ecolabel product groups.
- Important to ensure optimum use/maintenance of product.
- Correct installation is a crucial factor in all applications (some even more so).
- *Other suggestions welcome.*

# Criterion 1.9. Information appearing on the ecolabel

The applicant shall follow the instructions on how to properly use the EU Ecolabel logo provided in the EU Ecolabel Logo Guidelines:

[http://ec.europa.eu/environment/ecolabel/documents/logo\\_guidelines.pdf](http://ec.europa.eu/environment/ecolabel/documents/logo_guidelines.pdf)

If the optional label with text box is used, it shall contain the following three statements, as appropriate

## **For natural stone products:**

- From limited landscape impact quarries;
- Material efficient extraction and processing operations;
- Reduced emissions to water and air.

## **For agglomerated stone products:**

- Energy efficient production process;
- Reduced emissions to air;
- Maximum binder content xx% / minimum recycled or secondary material content yy% (as appropriate).

## **For concrete products:**

- Reduced CO2 footprint cement
- Reduced air emissions
- Minimum recycled or secondary material content xx% / energy efficient production / anti-NOx surface / permeable paving (as appropriate)

## **For ceramic products:**

- Energy efficient production process;
- Reduced emissions to air;
- Material efficient product (in case of thin format tiles < 10mm thick or tiles with a high recycled content > 10%)/Material efficient production process (in all other cases).

## **Assessment and verification:**

*The applicant shall provide a declaration of compliance with this criterion, supported by an image of the product packaging that clearly shows the label, the registration/licence number and, where relevant, the statements that can be displayed together with the label.*

# Criterion 1.9. Information appearing on the ecolabel

## Rationale

- Standard criterion required for all EU Ecolabel product groups.
- As per Article 8 (3b).
- A simple message that can be communicated to consumers.
- Must be related to the EU Ecolabel criteria.
- Premature to specify the messages now.
- First need to agree on criteria.
- Then on final messages to the consumer.
- Message may differ depending on sub-product involved.
  
- *Maybe look at it from the opposite angle – what is the message we want to give? → then make sure criteria support that message...*

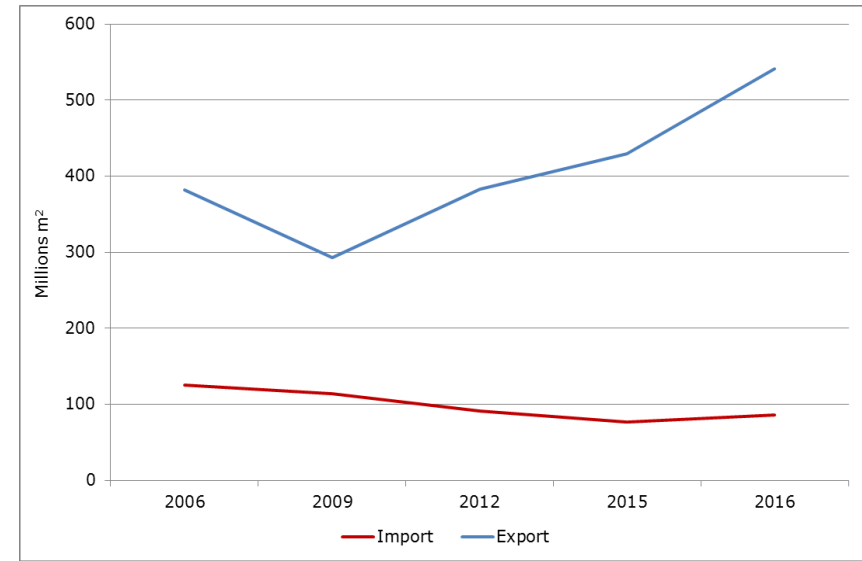
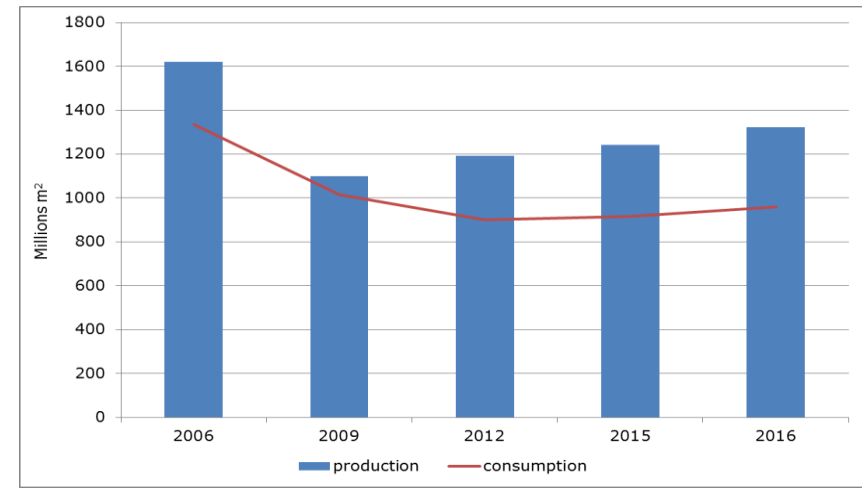
# Questions / comments

- 1.7 Fitness for use.
- 1.8 Consumer information.
- 1.9 Information appearing on the EU Ecolabel.



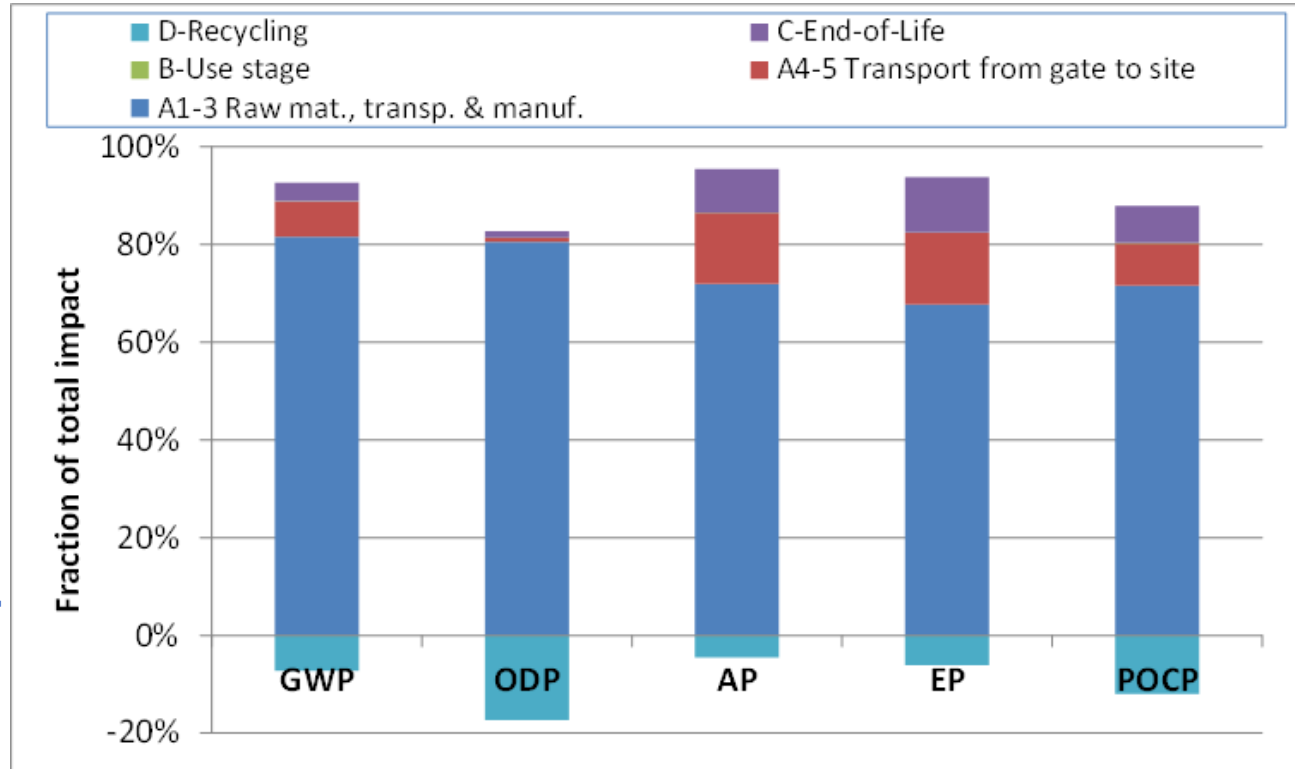
# Market analysis

- EU: net exporter
- 9% global production
- 7% global consumption
- ES (37%) and IT (31%) of EU28 total production.
- IT: price & quality premium
- Moderate recovery in EU since economic crisis
- Mainly due to growth in exports (ES and IT)
- *Anti-dumping measures against Chinese imports*



# Technical analysis-LCA

- A1 energy and material inputs.
- A2 transport to factory gate.
- A3 manufacturing processes.
- A4-5 transport to site and installation
- **A1-A3 is the clear hotspot – under control of EUEL applicant**

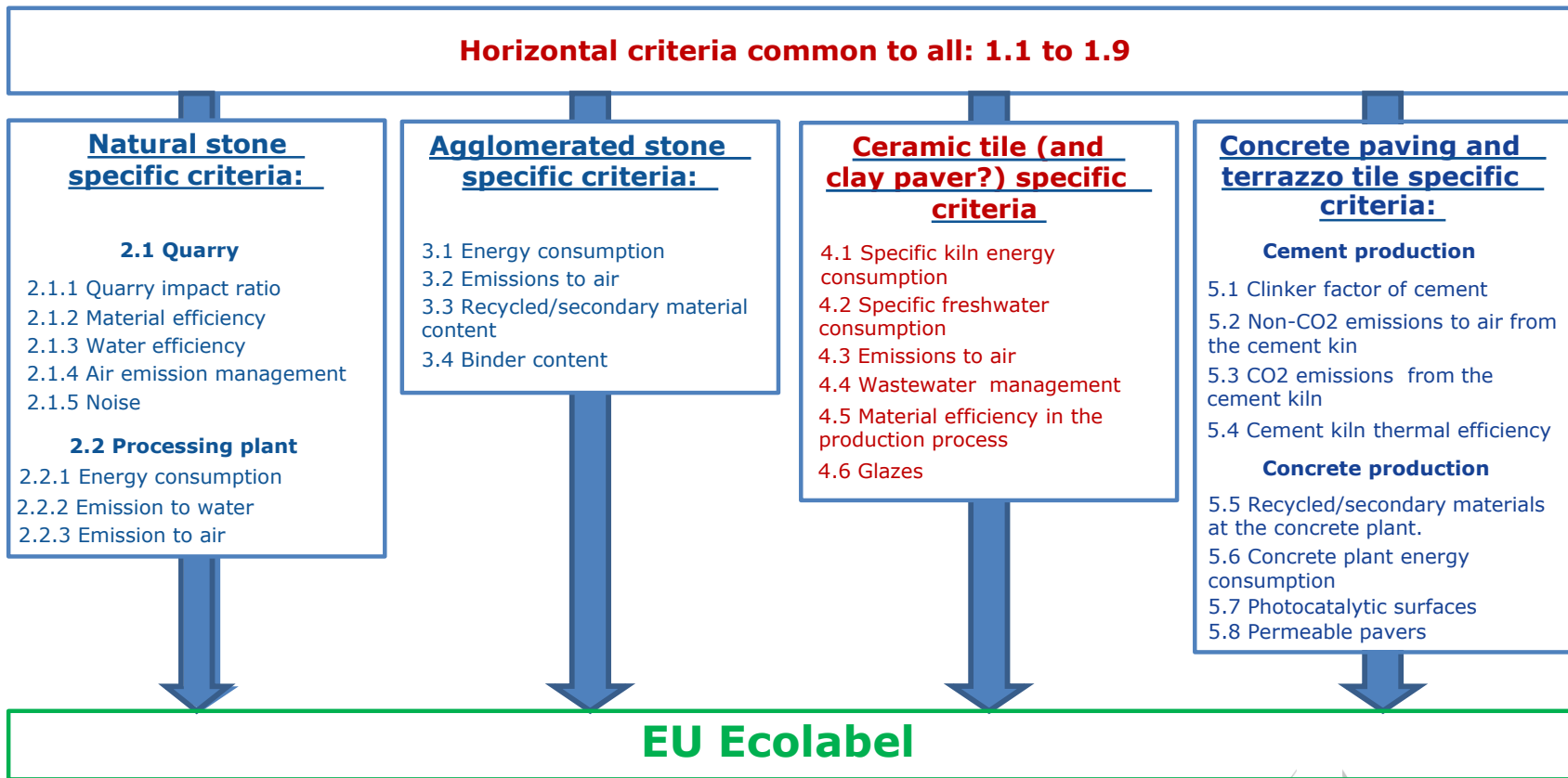


# Environmental innovations and improvements

## A combination of production technologies and product characteristics

- BREF Document for emissions (published 2007) (*Dust, NOx, SO2 and others*).
- *New BREF exercise imminent...*
- Atomisation of raw material (*energy intensive, shift to large scale, centralised plants*)
- Shaping and pressing (*thin format tiles – better resource efficiency per m2 surface*)
- Digital printing (*reduced ink consumption, more flexible processing and customisation possible*)
- Improved thermal efficiency of kilns (*insulation and heat recovery*)
- Low NOx burners
- Onsite CHP
- Innovation in frits and glazes (*reduced risk of emission of heavy metals*)
- Reincorporation of process wastes
- Incorporation of small amounts of recycled content (*especially waste glass*)
- Minor shift to non-fossil fuels.

# New structure



## Criterion 4. Ceramic/clay criteria and scoring

Proposed criteria	Decision 2009/607/EC	Proposed criteria details	
		Mandatory?	Points?
1.1. Environmental Management System	No	Yes	5
1.5. VOC emissions	No	Yes	5
4.1. Specific kiln energy consumption	No	Yes	25
4.2. Specific freshwater consumption	Yes	Yes	10
4.3. Emissions to air	Yes	Yes	30
4.4. Wastewater management	Yes	Yes	5
4.5. Material efficiency in the production process	Yes	Yes	10
4.6. Glazes	Yes	Yes	10
<b>TOTAL points available in proposed criteria</b>			<b>100</b>
<b>MINIMUM points needed in proposed criteria</b>			<b>50</b>

- All focussed on the A1-A3 stages (LCA hotspots).
- Very similar to 2009/607/EC Decision.
- Many points on energy and emissions – but nothing on CO2 exactly...*opinions?*
- *Errata – there was also a specific kiln energy consumption in 2009 Decision.*

# Questions / comments

- Market data for ceramics.
- LCA hotspot identification.
- Innovation and environmental improvements.
- Criteria structure for ceramic/clay-based products
- Specific scoring for ceramic/clay-based products

# Criterion 4.1. Specific kiln energy consumption

## Mandatory requirement

The specific energy consumption for ceramic tile production shall not exceed **3.5 MJ/kg** or, for tiles <10mm thick, **70 MJ/m<sup>2</sup>**.  
EU Ecolabel points

Points shall be awarded for applicants that can demonstrate the following aspects:

- Non-use of coal, petroleum coke, light fuel oil and heavy fuel oil for kiln firing (2 points).
- Installation of onsite CHP (3 points).
- Meeting up to 10% of total fuel requirement for kiln firing via gas, liquid or solid fuels from renewable sources (up to 5 points).
- Reduction of specific kiln energy production towards a best practice of 1.9 MJ/kg (up to 15 points).

## Assessment and verification

*The applicant shall provide a declaration of compliance with the mandatory requirement for specific kiln firing energy consumption and any relevant declaration regarding the non-use of fuel oils in kiln firing, onsite CHP and renewable energy sources.*

*The applicant shall calculate all inputs of fuel to the kiln system. The total thermal energy of the fuel input (in MJ) shall be calculated by multiplying the mass of fuel consumed in a defined production period (in kg, t, L or Nm<sup>3</sup>) by a specific or generic calorific value for the same fuel (in MJ/kg, t, L or Nm<sup>3</sup>).*

*The specific thermal energy consumption (MJ/t) shall be determined by dividing the total fuel input (MJ) by the total ceramic tile output (in kg or m<sup>2</sup>, as appropriate) during the same production period.*

*For continuously operating kilns, the production period should be 12 months. In cases where production is non-continuous, the production period shall be mentioned and should not be less than 30 days.*

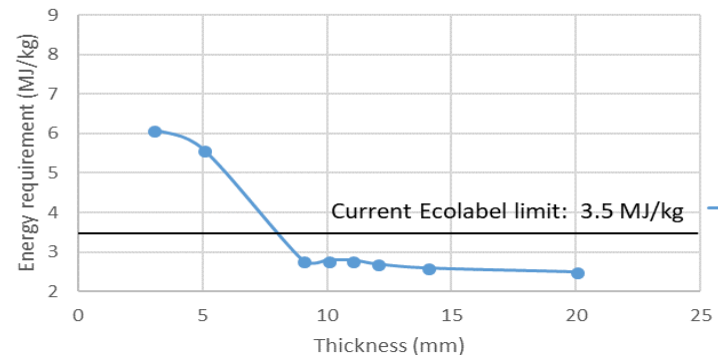
*In cases where points are awarded for renewable fuels or lower kiln energy consumption, these shall be awarded in proportion to the maximum benchmark set (i.e. for renewable fuels: 0% = 0 points and 10% = 5 points; for specific kiln energy consumption: 3.5 MJ/kg = 0 points and 1.9 MJ/kg = 15 points).*

# Criterion 4.1. Specific kiln energy consumption

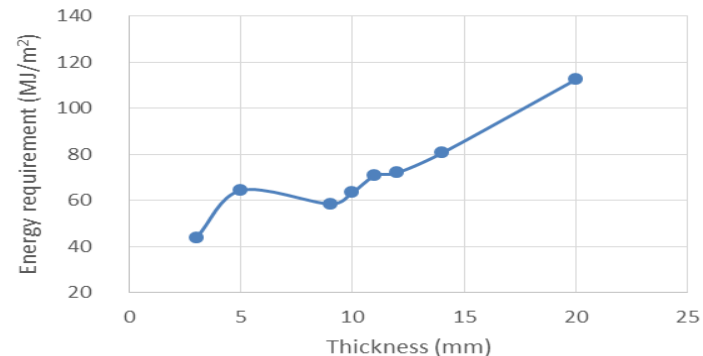
## Rationale

- Standard tile thickness is 10-12mm.
- Density of around 20 kg/m<sup>2</sup>.
- *But products can range from 3-30mm.*
- Densities vary accordingly.
- Difficult to set a single specific energy consumption threshold, in per kg or per m<sup>2</sup>, really depends on the thickness.
- *Draft ISO 17889-1...*
- For maximum points: 1.9 MJ/kg (based on BREF). Can translate to /m<sup>2</sup> if needed.

Energy requirement for firing (MJ/kg)



Energy requirement for firing (MJ/m<sup>2</sup>)





# Criterion 4.1. Specific kiln energy consumption

## Points for discussion about specific kiln energy consumption

Q. Opinions about the ambition level for specific kiln energy consumption – is 3.5 MJ/kg still relevant?

Q. Clarification on scope of kiln firing needed. Is onsite CHP to be included or not? Default position is that it should not be included since the primary purpose is electricity generation but perhaps the ETS approach has a different way of interpreting this?

Q. Is the ambition level of 70 MJ/m<sup>2</sup> appropriate for thinner format tiles? (Additional input about the relationship between kg/m<sup>2</sup> and tile thickness would be particularly welcome).

Q. Opinions about the proposals for points?

Q. Should all calorific values be according to Regulation 601/2012 or is it necessary to also allow for specific calorific values of fuels?

# What about CO2?

- Point raised in some initial discussions.
  - In scoping questionnaire, when asked if a requirement for CO2 should be applied, response was:
    - 10% strongly agree
    - 25% agree
    - 25% no opinion
    - 20% disagree
    - 20% strongly disagree
- A very split opinion
- Current focus is on kiln only.
  - Why not simply translate to kiln energy to CO2 via emission factor for NG?
  - Surely all installations looking at this already (*ETS approach*)?
  - Likely to help convince GBAs that the EUEL is in line with their thinking.
  - *Opinions?*

## Criterion 4.2. Specific freshwater consumption

The specific freshwater consumption, from **grinding of raw material, spray drying, shaping, glazing and firing processes** shall not exceed **1.0 L/kg or 20.0 L/m<sup>2</sup>**.

For plants where grinding and spray drying operations are not carried out because spray dried material is purchased, the specific water consumption shall not exceed 0.5 L/kg or 10.0 L/m<sup>2</sup>.

### EU Ecolabel points

Points shall be awarded in proportion to how much the applicant can reduce the specific freshwater consumption to 50% of the applicable limit (up to 10 points).

### ***Assessment and verification:***

*The applicant shall provide a declaration of compliance with the mandatory requirement, supported by the total freshwater consumption data (in L or m<sup>3</sup>) for the most recent calendar year or 12 month period and the total ceramic tile production data (in kg or m<sup>2</sup>) for the same period.*

*In case it is not possible to provide specific data for a production line or product, the applicant shall refer to data for the entire plant.*

*Water consumption due to toilets, canteens and other activities not directly relevant to tile production should be metered separately and not be included in the calculation.*

*Points shall be awarded in proportion to how closely the data reaches the maximum benchmark set (e.g. for plants where grinding and spray drying is carried out: 1.0 L/kg = 0 points and 0.5 L/kg = 10 points).*

## Criterion 4.2. Specific freshwater consumption

### Rationale

- Need to distinguish between plants which buy spray dried material and those which produce it in-house.
- Water lost (evaporated) during drying operation.
- Difference is arbitrarily 50% (Draft ISO 17889-1).
- Water recycling ratio removed because it is arguably easier to meet for processes that use the wet process.
- *Not sure if it makes any sense to allow unit to be alternatively expressed as /m<sup>2</sup> instead of as /kg.*
- *Surely a much more direct relationship between thickness and water consumption than with energy consumption?*

## Criterion 4.2. Specific freshwater consumption

### Points for discussion about specific freshwater consumption

Q. Should harvested rainwater be specifically exempted from the freshwater calculation or can it already be assumed to be excluded based on the current criterion formulation?

Q. Should the applicant be given a choice between the L/m<sup>2</sup> or L/kg unit or should the former apply to standard thickness tiles (e.g.  $\geq 10\text{mm}$ ) and the latter to thinner format tiles (e.g.  $< 10\text{mm}$ )?

Q. How might onsite CHP affect the specific freshwater consumption?

Q. Do you agree with the arguments to justify no longer requiring the water recycling ratio?

# Questions / comments

- 4.1. Specific kiln energy consumption
- 4.2. Specific freshwater consumption
- Discussion on CO<sub>2</sub>

## Criterion 4.3. Emissions to air

The following emissions to air limits shall be respected.

Parameters		Limit value	Test method
<b>Particulate matter</b> (dust) from <b>cold processes</b> in ceramic production.		0.125 g/kg	EN 13284-1
<b>Particulate matter</b> (dust) from <b>glaze application</b> and <b>kiln firing</b> .		0.2 g/m <sup>2</sup> * or 0.01 g/kg**	EN 13284-1
<b>Fluorides</b> (as HF) from firing		0.2 g/m <sup>2</sup> * or 0.01 g/kg**	ISO 15713
<b>Nitrogen oxides</b> (as NO <sub>x</sub> )		2.5 g/m <sup>2</sup> * or 0.125 g/kg**	EN 14792
<b>Sulphur dioxide</b> (SO <sub>2</sub> )	If S content of clay is < 0.125%	0.75 g/m <sup>2</sup> * or 0.0375 g/kg**	EN 14791
	If S content of clay is 0.125% < 0.25%	1.5 g/m <sup>2</sup> * or 0.075 g/kg**	
	If S content of clay is ≥ 0.25%	3.0 g/m <sup>2</sup> * or 0.15 g/kg**	

*\*for ceramic tile of 10mm thickness or more. \*\*for tile formats of thickness less than 10mm.*

# Criterion 4.3. Emissions to air cont.

## EU Ecolabel points

Points shall be awarded for applicants that can demonstrate the following aspects:

- **Reduction of dust emissions** from the kiln towards a **best practice** limit of 0.1g/m<sup>2</sup> for tiles that are ≥10 mm thick, or 0.005 g/kg for tiles < 10 mm thick (up to 10 points).
- **Reduction of HF emissions** towards a **best practice** limit of 0.1g/m<sup>2</sup> for tiles that are ≥10 mm thick, or 0.005 g/kg for tiles < 10 mm thick (up to 10 points).
- **Reduction of SO<sub>2</sub> emissions** towards a **best practice** limit of 0.4g/m<sup>2</sup> for tiles that are ≥10 mm thick, or 0.02 g/kg for tiles < 10 mm thick (up to 10 points).

## Assessment and verification

The applicant shall provide a declaration of compliance with the mandatory requirements of this criterion, supported by site data in mg/Nm<sup>3</sup> and expressed as an annual average value calculated from daily average values. The data shall have been generated via continuous or periodic monitoring according to EN 13284-1 or -2 for dust, EN 14792 for NO<sub>x</sub> and EN 14791 for SO<sub>2</sub>.

To convert exhaust gas monitoring results from mg/Nm<sup>3</sup> into g/t of clinker, it is necessary to multiply by the specific gas flow volume (Nm<sup>3</sup>/t ceramic tile). One Nm<sup>3</sup> refers to one m<sup>3</sup> of dry gas under standard conditions of 273K, 101.3 kPa and 10% O<sub>2</sub> content.


For continuously operating kilns, the production period should be 12 months. In cases where production is non-continuous, the production period shall be mentioned and should not be less than 30 days.

Points shall be awarded in proportion to how closely the data reaches the maximum benchmark set (e.g. for dust from kiln firing: 0.2g/m<sup>2</sup> = 0 points and 0.1g/m<sup>2</sup> = 10 points).



# Criterion 4.3. Emissions to air

## Rationale

- Ambition level based on BREF data.
- But this data was published in 2007...
- *Still relevant?*
- *Can we take advantage of BREF data gathering exercise, or pre-empt it?*
- Considered relevant to distinguish between /kg and /m<sup>2</sup> depending on the tile thickness.
- *Draft ISO 17889-1 approach*
- SO<sub>2</sub>:
  - <0.25% S → <1500 mg/m<sup>2</sup>
  - >0.25% S → <5000 mg/m<sup>2</sup>
  - <0.125% S → <750 mg/m<sup>2</sup>
  - <0.25% S → <1500 mg/m<sup>2</sup>
  - >0.25% S → <5000 mg/m<sup>2</sup>
- NO<sub>x</sub>, HF, dust same but also as /kg → *need new data!*

## Criterion 4.3. Emissions to air

### Points for discussion about emissions to air

#### General

Q. Is it normal practice to continually monitor dust, HF, NO<sub>x</sub> and SO<sub>2</sub> emissions from ceramic kilns?

Q. Clarification needed about whether Nm<sup>3</sup> refers to 18% O<sub>2</sub> or 10% O<sub>2</sub> in the ceramic sector.

Q. How common is non-continual production in the ceramic sector?

Q. Opinions about the proposals for points? (The general logic is basically maximum points for being about 50% of the allowable emission or lower).

## Criterion 4.3. Emissions to air

### Points for discussion about emissions to air –NO<sub>x</sub> emissions

Q. What are the reasons behind such large variations in NO<sub>x</sub> emission concentrations (5-150mg/m<sup>3</sup>)?

Q. BREF does not seem ambitious, but maybe EU Ecolabel is too ambitious. Opinions?

Q. What improvements can be made to emissions by low-NO<sub>x</sub> burners, flue gas recirculation or even SCR/SNCR? Are any of these measures being implemented by the ceramics industry?

Q. Is there more recent NO<sub>x</sub> emission data that can be shared?

Q. Does CHP have an influence on NO<sub>x</sub> emissions? Especially if biomass-based CHP?

*Same question for SO<sub>2</sub>, although to a lesser extent.*

Q. Any important inputs of N from auxiliary chemicals in glaze preparation?

Q. Opinions about the general two-pronged approach to specific emission limits (i.e. g/kg and g/m<sup>2</sup>)?

## Criterion 4.4. Wastewater management

Wastewater shall be **treated onsite via sedimentation** to recover sludge for potential reuse and shall **not be mixed with wastewater** from toilets, canteens and **any other non-process related** inputs of wastewater.

In cases where **process wastewater is discharged to local watercourses**, the applicant must demonstrate compliance with the following limits:

Parameter	Limit	Test methods
<b>Suspended solid emission to water</b>	40 mg/l	ISO 5667-17
<b>Cd emission to water</b>	0,015 mg/l	ISO 8288
<b>Cr(VI) emission to water</b>	0,15 mg/l	ISO 11083
<b>Pb emission to water</b>	0,15 mg/l	ISO 8288

If the settled wastewater is **discharged to a municipal sewage works** or other third party operated treatment plant, the applicant shall be **exempted from demonstrating compliance with the emission limits** defined above.

## Criterion 4.4. Wastewater management cont.

### EU Ecolabel points

5 points shall be awarded if the applicant does **not use glazes at all** **or**, in cases where glazes are used, the applicant can demonstrate that **wastewater** from the glazing process is collected and **treated separately** to facilitate **glaze recovery**.

#### **Assessment and verification:**

*The applicant shall provide a declaration of compliance with the mandatory requirements of this criterion, clearly state if process wastewater is discharged to local watercourses or to the sewerage network and provide details about any glazing process wastewater handling.*

*In cases where treated process wastewater is discharged to local watercourses and it is not possible to provide specific data for a production line or product, the applicant shall refer to data for the entire plant and provide test reports based on weekly analysis of the discharged wastewater according to the standard test methods defined above or equivalent in-house laboratory methods.*

*Less frequent testing may be permitted in cases where the operating permit sets less frequent testing.*

# Criterion 4.4. Wastewater management

## Rationale

- Same emissions to water requirement as before.
- But monitoring only required if it is applicant who is in charge of wastewater treatment.
- If sent to a third party wastewater treatment plant, not considered relevant.
- *Why?*
  - *Difficulties with monitoring and sample collection.*
  - *Other wastewater influent could affect results.*
  - *Beyond applicant control.*
- For onsite discharges to watercourses, how frequent should sampling be?

## Criterion 4.4. Wastewater management

### Points for discussion about wastewater management

Q What was the basis for these original test requirements and limits? Is it based on an Italian Regulation?

Q. Is Cr(VI) a relevant pollutant to the ceramic industry?

Q. Opinions about the general approach in the proposal?

## Criterion 4.5. Process waste reuse

**At least 85% by mass** of the process waste\* generated in ceramic tile production shall be **reincorporated into the ceramic production process onsite**, be reincorporated into ceramic production processes **by third parties offsite** **or** be **reused in other production processes**.

\*i.e. sludge from grinding, body preparation and glaze preparation, reject/broken material from shaping, drying, firing, rectification and surface finishing operations and residues from exhaust gas abatement systems such as separated dust/ashes, gas scrubbing residues and peelings from cascade adsorber bed materials.

### EU Ecolabel points

Points shall be awarded for applicants that can demonstrate **higher reuse rates** of process waste up a maximum of 95% reuse (up to 10 points).

#### **Assessment and verification:**

*The applicant shall provide a declaration of compliance with the mandatory requirement of this criterion, supported by a calculation of total production process waste (in kg or t), split between sludge, reject/broken material and gas treatment residues for the most recent calendar year or 12 month period. Details about the destination of these process wastes shall also be provided with clarifications about whether it is internal reuse in ceramic production, external reuse in ceramic production, external reuse in another process or sent to landfill. For any external reuse or landfill disposal, shipment notes shall be presented.*

*In case it is not possible to provide specific data for a production line or product, the applicant shall refer to data for the entire plant.*

*Points shall be awarded in proportion to how closely the data reaches the maximum benchmark set (e.g. process waste reuse rate of 85% = 0 points and 95% = 10 points).*



# Criterion 4.5. Process waste reuse

## Rationale

- Not strictly recycling (ISO 14021).
- But reincorporation into process is advantageous:
  - **Reduced demand for raw materials**
  - **Reduced waste production**
- Circular economy principles (tight circle).
- Resource efficiency.
- Arguably at or near the top of the WFD waste hierarchy (prevention).
- Quantities are negligible compared to total material needed (limited influence on product properties).
- Due to clustering of industry, should also recognise reincorporation in other sites.

## Criterion 4.6. Glazes

The migration of Pb and Cd from glazed ceramic tiles or kitchen counter-tops shall **not exceed 8 mg/m<sup>2</sup> or 0.7 mg/m<sup>2</sup>** respectively when tested according to EN ISO 10545-15.

### EU Ecolabel points

In cases where ceramic tiles are **unglazed** or where the glaze formulation contains **less than 0.1% Pb and less than 0.1% Cd**, (10 points)

### **Assessment and verification:**

*The applicant shall provide a declaration of compliance with the mandatory requirement of this criterion. Where tiles are glazed, the declaration shall be supported by test results according to EN ISO 10545-15.*

## Rationale

- Increase strictness by a factor of 10.
- Much tighter levels (DSVs) are being discussed for food contact ceramics.
- *Are Pb and Cd containing glazes necessary?*
- If not, the points are awarded for applicants that avoid them. The 0.1% is to allow for impurities. If used, need to test migration.

# Questions / comments

- 4.3 Emissions to air.
- 4.4 Wastewater management.
- 4.5 Process waste reuse.
- 4.6 Glazes.

# Next steps

- Draft minutes to be sent out to participants within 1 week.
- Few days to suggest any amendments.
- Anonymised minutes published together with presentation (BATIS and JRC website)
- BATIS is open for written comments on Technical Report until **18 January 2019**.
- Please embed comments on html file in BATIS (*instructions about how to do this have been uploaded on BATIS*).
- 2nd Technical Report due in **May 2019**.
- 2nd AHWG meeting in **June 2019**.



# Thanks

Any questions?

Email: [JRC-B5-HARDCOVERINGS@ec.europa.eu](mailto:JRC-B5-HARDCOVERINGS@ec.europa.eu)

Keep up to date with the project:

JRC website: [http://susproc.jrc.ec.europa.eu/Hard\\_coverings/index.html](http://susproc.jrc.ec.europa.eu/Hard_coverings/index.html) (for everyone)

BATIS: <http://eippcb.jrc.ec.europa.eu/batis/> (for registered stakeholders only)