

ANNEX

EU Ecolabel criteria for awarding the EU Ecolabel for hard covering products

FRAMEWORK

Aims of the criteria

The EU Ecolabel criteria target the best environmental performing hard covering products on the market. The scope extends to a number of different types of material that are manufactured using very different production processes, but generally from similar raw materials.

The criteria are therefore set with some horizontal requirements common to all materials and some specific criteria that are unique to the production process of the material in question.

A blend of mandatory requirements and optional criteria associated with the awarding of EU Ecolabel points is presented. To obtain the EU Ecolabel, a minimum number of points must be achieved, generally 50% of the maximum points available. The aim of the scoring approach is to recognise the reality that an exclusive pass-fail approach can sometimes exclude producers with excellent performance in all criteria except one. A scoring approach also respects an important market development for construction products in general, which is the rise of green building assessment schemes. Such schemes attempt to recognise environmentally friendly construction products and both the EU Ecolabel on its own, as well as a score for each product, will help such distinction. The score is also considered as an in-built incentive for applicants and license holders to continually improve year on year, even after being awarded the EU Ecolabel.

The importance of land use impacts caused by the large scale extraction of raw materials is reflected by requirements for quarries to have a rehabilitation plan or environmental impact assessment report. Progressive rehabilitation of natural stone quarries and the opportunistic use of quarry land for renewable energy generation are actively encouraged by the award of points to natural stone producers.

Common issues for all types of material included in the scope are energy consumption, emissions to air, water and wastewater management and the reuse of process waste. Specific requirements for each type of material are nuanced to the nature of the relevant production process.

The criteria for awarding the EU Ecolabel to 'hard coverings' are as follows:

Horizontal criteria:

1. Environmental Management System;
2. Industrial and construction mineral extraction;
3. Hazardous substance restrictions;
4. VOC emissions;
5. Fitness for use;

6. Consumer information;
7. Information appearing on the EU ecolabel;

Natural stone specific criteria:

8. Quarry Landscape Impact Ratio (at quarry);
9. Material efficiency (at quarry);
10. Water and waste water management (at quarry);
11. Quarry dust control (at quarry);
12. Energy consumption (at transformation plant);
13. Water and waste water management (at transformation plant);
14. Dust control (at transformation plant);
15. Transformation waste reuse (at transformation plant);

Ceramic and fired clay product specific criteria:

16. Specific fuel energy consumption;
17. Specific CO₂ emissions;
18. Process water;
19. Emissions of dust, HF, NO_x and SO_x to air;
20. Waste water management;
21. Process waste reuse;
22. Glazes

Concrete product specific criteria:

23. Clinker factor of cement;
24. CO₂ emissions from the cement kiln;
25. Non-CO₂ emissions from the cement kiln;
26. Concrete recovery and responsible sourcing of raw materials;
27. Concrete plant energy management;
28. Environmentally innovative concrete product designs.

The ecological criteria cover the raw material extraction and its processing and transformation into hard covering products made of natural stone, ceramic/fired clay or concrete.

The natural stone criteria are split into criteria that apply at the quarry and criteria that apply at the transformation plant, which are normally operated by different entities. The EU Ecolabel can be awarded to both dimension stone or ornamental stone blocks leaving the quarry or to transformed natural stone hard covering products leaving the transformation plant.

The concrete product criteria are split into criteria that apply at the cement production plant and criteria that apply at the concrete production plant, which are normally

operated by different entities. The EU Ecolabel can only be awarded to the concrete hard covering product.

The ecological criteria do not apply to transport or packaging.

Emission levels, water consumption and energy consumption data associated with production processes should be specific to the product or production line as far as possible. In cases where data cannot be gathered for a specific product or production line, this shall be explained to the competent body and an allocation made based on factory average data.

Assessment and verification: *The specific assessment and verification requirements are indicated within each criterion.*

Where the applicant is required to provide declarations, documentation, analyses, test reports or other evidence to show compliance with the criteria, these may originate from the applicant and/or his supplier(s) and/or their supplier(s), etc. as appropriate.

Competent bodies shall preferentially recognise attestations and verifications that are issued by bodies accredited according to the relevant harmonised standard for testing and calibration laboratories, and verifications issued by bodies that are accredited according to the relevant harmonised standard for bodies certifying products, processes and services.

Where appropriate, test methods other than those indicated for each criterion may be used if the competent body assessing the application accepts their equivalence.

Where appropriate, competent bodies may require supporting documentation and may carry out independent verifications or on-site inspections to check compliance with these criteria.

The following definitions shall apply:

- (1) ‘Aggregate concrete masonry units’ as defined by EN 771-3, means masonry units manufactured from cementitious binder, aggregates and water and which may contain admixtures and additions and colouring pigments and other materials incorporated or applied during or subsequent to unit manufacture and which are suitable for all forms of walling, including single leaf, external leaf to chimneys, cavity wall, partitions, retaining, and basement. They can provide fire protection, thermal insulation, sound insulation and sound absorption;
- (2) ‘Ceramic tile products’ as defined by CEN/TC 67, means thin slabs made from clays and/or other inorganic raw materials, such as feldspar and quartz, which are usually shaped by extrusion or dry-pressing techniques, dried and subsequently fired at temperatures sufficient to develop the required properties. Tiles can be glazed or unglazed, are non-combustible and generally unaffected by light. For the purposes of the EU Ecolabel criteria, the term ceramic tile shall also include thin format pieces and large format pieces which may be used in table-tops or kitchen countertops;
- (3) ‘Clay masonry units’ as defined in EN 771-1, means masonry units masonry unit made from clay or other argillaceous materials with or without sand, fuel or other additives fired at a sufficiently high temperature to achieve a ceramic

bond and for which the main intended uses are protected masonry (masonry which is protected against water penetration and is not in contact with soil and ground water) or unprotected masonry structure (masonry which may be exposed to rain, freeze/thaw and/or may be in contact with soil and ground water without a suitable protection). Examples include facing and rendered masonry, loadbearing or non-loadbearing masonry structures, including internal linings and partitions, for building and civil engineering);

- (4) 'Clay pavers' as defined by EN 1344, means pavers and accessories manufactured from clay for interior or exterior use that will be subjected to pedestrian and vehicular traffic and used in the flexible form of construction (pavers laid with narrow sand-filled joints on a sand bed) or in the rigid form of construction (pavers laid with cementitious mortar joints on a similar mortar bed, itself placed on a rigid base). It does not include clay floor tiles or masonry units;
- (5) 'Clay roofing tiles' as defined by EN 1304, means products for discontinuous laying on pitched roofs, and for wall cladding, which are manufactured by shaping (extrusion and/or pressing), drying and firing of the prepared clay, with or without additives and where all or part of their surface can be covered with an engobe or glaze;
- (6) 'Concrete paving blocks' as defined by EN 1338, means precast, unreinforced cement bound concrete blocks and complimentary fittings for pedestrian use, vehicular use and roof coverings. These products are manufactured by mixing sands, gravel, cement, inorganic pigments and additives, and vibro-compression as defined by CEN/TC 178. This group also includes concrete paving flags, kerb units and terrazzo tiles, as defined in EN 1339, EN 1340 and EN 13748 respectively;
- (7) 'Renewable energy' according to Article 2(a) of Directive 2009/28/EC, means energy from renewable non-fossil sources, namely wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases.
- (8) 'Natural stone masonry unit' as defined by EN 771-6, means masonry units manufactured from natural stone the width of which is equal to or greater than 80 mm, for which the main intended uses are common, facing or exposed masonry units in loadbearing or non-loadbearing building and civil engineering applications. These units are suitable for all forms of coursed or random masonry walling, including single leaf, cavity, partition, retaining and the external masonry to chimneys. They can provide fire protection, thermal insulation, sound insulation and sound absorption;
- (9) 'Natural stone products' as defined by EN 12670, means worked pieces of naturally occurring used in building and for monuments. Naturally occurring rock includes marble, granite and other natural stones defined in EN 12670. The term '*other natural stones*' refers to natural stones whose technical characteristics are on the whole different from those of marble and granite as defined by EN 12670 "*Natural stone — Terminology*". Generally, such stones

do not readily take a mirror polish and are not always extracted by blocks:
sandstone, quartzite, slate, tuff, schist;

- (10) ‘Volatile Organic Compounds’ (VOC) means any organic compounds having an initial boiling point less than or equal to 250°C measured at a standard pressure of 101,3 kPa as defined in Directive 2004/42/EC¹ and which, in a capillary column, are eluting up to and including n-Tetradecane (C₁₄H₃₀);

¹ *OJ L 143, 30.4.2004, p. 87–96*

EU ECOLABEL CRITERIA

1. HORIZONTAL CRITERIA

1.1 — Environmental Management System

Note: This criterion is optional only and applies to the production facility or facilities of the applicant where the EU Ecolabel product is produced.

EU Ecolabel points

Points shall be awarded for applicants that have a documented environmental management system in place according to ISO 14001 and certified by an accredited organization (3 points).

or

Points shall be awarded for applicants that have a documented environmental management system in place according to the EU Eco-Management and Audit Scheme (EMAS) and certified by an accredited organization (5 points).

Assessment and verification: 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.

1.2 — Industrial and construction mineral extraction

Mandatory requirement

The extraction of industrial and construction minerals (for example limestone, clay, aggregates, ornamental or dimension stone etc.) for the manufacture of any EU Ecolabel hard covering product shall only come from sites which are covered by the following documentation:

- the authorisation for the extraction activity;
- a map indicating the location of the quarry;
- the rehabilitation management plan and/or environmental impact assessment report;
- a declaration of conformity with EU Regulation No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species.
- a declaration of conformity with Council Directive 92/43/EEC (habitats) and Council Directive 79/409/EEC (birds)**.*.

*In cases where extraction sites are located in 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 shall have been assessed and authorised in accordance with the provisions of Article 6 of Directive 92/43/EEC and have taken into account the [EC Guidance document on non-energy mineral extraction and Natura 2000](#).

**In cases where extraction sites are located 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: *The applicant shall provide a declaration of compliance with this requirement issued by the issued by the competent authorities or a copy of their authorisation issued by the competent authorities.*

The rehabilitation management plan shall include the objectives for the rehabilitation of the quarry, the conceptual final landform design, including the proposed post quarry land use; details on the implementation of an effective revegetation program and details of an effective monitoring programme to assess performance of the rehabilitated areas.

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.

1.3. Hazardous substance restrictions

Mandatory requirement

a) Restrictions on Substances of Very High Concern (SVHCs)

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 Substances of Very High Concern in concentrations greater than 0.10 % (weight by weight). 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 SVHCs 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.

Reference to the list shall be made on the date of application.

Mandatory requirement

b) Classification, Labelling and Packaging (CLP) restrictions

Unless derogated in Table X, the product shall not contain substances or mixtures in concentrations greater than 0.10 % (weight by weight) 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 carcinogenic, mutagenic and/or toxic for reproduction (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.

Table X. Derogations to the CLP hazard restrictions and applicable conditions

Substance /mixture type	Applicability	Derogated classification(s)	Derogation conditions
Titanium dioxide	All materials within scope	H350i	That TiO ₂ is not intentionally added to the product but is present because it is a naturally occurring impurity in raw materials used. The maximum TiO ₂ content (expressed as TiO ₂) in the final product shall be 2.0% (w/w) of the product.
Crystalline silica	All materials within scope	H372, H373 (STOT RE 1 & 2)	The applicant shall provide a declaration of compliance with any relevant instructions for safe handling and dosing specified in the safety data sheet or supplier declaration. Factory cutting operations shall be carried out use wet process tools or dry processes where a vacuum hood is in place to collect dust. Safety instructions regarding exposure to dust during any cutting operations carried out by installers shall be provided with the product

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, a relevant derogation must be in place and proof of compliance with any relevant derogation conditions must be provided.

1.4. VOC emissions

Mandatory requirement

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.

EU Ecolabel points

A total of 5 points shall be awarded for applicants that can demonstrate compliance with either of the following aspects:

- Where the results of a chamber test according to EN 16516 or ISO 16000 show that after 28 days the air concentration is: $\leq 0.01 \text{ mg/m}^3$ formaldehyde; $\leq 0.3 \text{ mg/m}^3$ TVOC, $\leq 0.1 \text{ mg/m}^3$ TSVOC and $\leq 0.001 \text{ mg/m}^3$ category 1A and 1B carcinogens (excluding formaldehyde); styrene $< 250 \mu\text{g/m}^3$.
- Where no final surface treatment with VOCs has been applied.

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.

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.

1.5. Fitness for use

Mandatory requirement

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 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 provided 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 products: EN771-6, 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 masonry units, pavers and ceramic tiles: EN 771-1, EN1344, EN13006 or EN 14411
- Concrete masonry units, paving blocks, flags and kerb units: EN771-3, EN771-4, EN1338, EN1339 or EN1340

1.6. Consumer information

Mandatory requirement

The product shall be sold with relevant user information, which provides advice on the product's proper installation, appropriate use environment and correct maintenance. It shall bear the following information on the packaging and/or on documentation accompanying the product:

- 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;
- 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.
- 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.
- 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.

1.7. Information appearing on the EU 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

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

For natural stone products:

- Sourced from responsibly managed quarries;
- Reduced dust emissions from quarry and transformation plant;
- Closed loop wastewater recycling at quarry and transformation plant;
- Material efficient production process.

~~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 ceramic and fired clay products:

- Energy efficient and low CO₂ production process;
- Reduced emissions to air;
- Material efficient product* / Material efficient production process**.

**applies to all thin format tiles <6mm thick, to any other tiles or fired clay products with recycled content $\geq 20\%$ or to any other tiles or fired clay products with a void content $\geq 25\%$, ** applies to all other cases.*

For concrete products:

- Low CO₂ cement
- Reduced air emissions
- Material efficient product* / Material efficient production process**

**applies to any precast concrete products with a recycled content $\geq 20\%$ or a void content $\geq 25\%$ in cases, ** applies to 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.*

2. NATURAL STONE CRITERIA

2.1. — Quarry requirements

2.1.1. — Quarry landscape impact ratio

Mandatory requirement

The applicant shall identify the quarry from which the dimension stone or ornamental stone blocks have been procured. The impact of the quarry on the landscape shall be evaluated according to the following metrics:

$$\text{quarry footprint ratio} = \frac{\text{QF}_s \text{ (m}^2\text{)} + \text{EWDA (m}^2\text{)} + \text{BPDA(m}^2\text{)}}{\text{total authorized area (m}^2\text{)}}$$

Where:

- QFs is the active Quarry Front area.
- EWDA is the Extractive Waste Deposition Area, including the extractive waste facility.
- BPDA is the By-Products Deposition Area occupied for storage of materials that may, in principle, qualify as by-products/products.
- Authorized Area is the total surface area authorized in the permit for extraction activity.

$$\text{Quarry beneficial land use ratio} = \frac{\text{BA (m}^2\text{)} + \text{REA (m}^2\text{)}}{\text{total authorized area (m}^2\text{)}}$$

Where:

- BA is the Biodiverse Area; where (i) topsoil and vegetation cover or wetlands/engineered reed-beds have been established using native species as part of progressive rehabilitation and/or (ii) where topsoil and vegetation has simply not been disturbed in the first place and is not isolated in pockets within the quarry.
- REA is the Renewable Energy Area, where land has been occupied for the generation of electricity via solar, hydroelectric, wind or biomass energy.
- Authorized Area is the total surface area authorized in the permit for extraction activity.

All areas shall be estimated based on satellite imagery that is not older than 12 months prior to the date of application for or renewal of the EU Ecolabel license.

EU Ecolabel points

Points shall be awarded for applicants that can prove the following

- Quarry footprint ratio of less than 0.6 and as low as 0.2 (up to 10 points).

- Demonstrate that up to 40% of the quarry site has established vegetation cover (undisturbed or rehabilitated) or is being used for the generation of renewable energy (up to 20 points).

Assessment and verification: A declaration from the quarry operator shall be provided, together with documentation including maps or satellite images in which the QF_s, EDWA, BPDA, BA, REA and the authorized area are outlined, and estimations of the surface area of each provided.

In cases where the applicant is not the quarry operator, the applicant shall declare the quarry from which the material used to produce the EU Ecolabel natural stone tiles or slabs has been sourced, supported by delivery invoices and a relevant declaration from the quarry operator regarding the QF_s, EDWA, BPDA, BA, REA and the authorized surface areas.

Any points shall be awarded in proportion to how closely the result reaches the minimum threshold value (e.g. quarry footprint ratio of $\geq 0.60 = 0$ points; quarry footprint ratio of $\leq 0.20 = 10$ points) or the maximum threshold value (e.g. 0% of quarry site with established vegetation cover or being used for renewable energy generation = 0 points; $\geq 40\%$ of quarry site with established vegetation cover or being used for renewable energy generation = 20 points), as appropriate.

2.1.2. — Material efficiency

Mandatory requirement

The quarry operator shall, for the most recent calendar year or rolling 12 month period, provide data relating to the extraction activities and provide the following information:

- **A:** Total quantity of material extracted (m³).
- **B:** Yield of saleable blocks sold and/or, in cases of integrated production, transferred to the transformation plant (m³).
- **C:** Total quantity of extractive waste and materials from the quarry that qualify as by-products (i.e. irregular blocks, stones and fine fraction) that is sold or used internally for useful purposes by replacing other materials which otherwise would have been used to fulfil that particular function (m³).
- **D:** Total quantity of extractive waste transferred to the extractive waste deposition area or landfill and materials from the quarry that qualify as by-products stored in the by-products deposition area that is stored or deposited onsite (m³).

In cases where data is available in tonnes, it should be converted to m³ using a fixed bulk density factor for the rock material being extracted.

a) Extraction efficiency ratio

With the exception of slate, the extraction efficiency ratio shall be at least 0.25, and in all cases shall be calculated as follows:

$$\text{extraction efficiency ratio} = \frac{\mathbf{B}}{\mathbf{A}}$$

EU Ecolabel points

Points shall be awarded for applicants that can demonstrate a higher extraction ratio up to an environmental excellence threshold of 0.50. (Up to 20 points).

b) Useful by-product ratio

The useful by-product ratio shall be calculated as:

$$\text{Useful by – product ratio} = \frac{\mathbf{C}}{\mathbf{C + D}}$$

EU Ecolabel points

Points shall be awarded for applicants that can demonstrate a higher useful by-product ratio up to a best practice target of 0.60. (Up to 10 points).

Assessment and verification: A declaration from the quarry operator shall be provided that states the values of A, B, C and D, expressed in m³ and calculating extraction efficiency ratio and useful by-product ratio.

In cases where the applicant is not the quarry operator, the applicant shall declare the quarry from which the material used to produce the EU Ecolabel natural stone tiles or slabs has been sourced, supported by delivery invoices and a relevant declaration from the quarry operator regarding values A, B, C and D.

For calculation purposes, it should be assumed that A-B = C+D. For any material calculated under C that was sold, invoices of the material delivery to the other sites shall be provided.

a) Points shall be awarded in proportion to how closely the data reaches the maximum value (e.g. extraction efficiency ratio of 0.00 = 0 points and of 0.50 = 20 points).

b) Points shall be awarded in proportion to how closely the data reaches the maximum value (e.g. useful by-product ratio of 0.00 = 0 points and 0.60 = 10 points).

2.1.3. — Water and wastewater management

Mandatory requirement

The applicant shall provide a description of water use in quarrying operations including strategies and methods for collection, recirculation and reuse of water.

In general:

- The site shall make provisions for the opportune collection of storm water run-off to compensate for water lost in wet sludge and evaporation.
- The site shall make provisions for the diversion of storm water run-off via a drainage network to prevent the surface flow of rainwater across the working area carrying suspended solid loads into the impermeable ponds which supplies water to the cutting equipment or into natural watercourses.

In cases where wet cutting techniques are used:

- Water for use by wet cutting equipment shall be stored in an impermeable container (for example a tank, lined pond or an excavated pond set in impermeable rock).
- The separation of solids from cutting wastewater shall be achieved by sedimentation systems, retention basins, cyclone separators inclined plate clarifiers, filter presses or any combination thereof. Clarified water shall be returned to the impermeable pond or container which supplies the cutting equipment.
- Settled sludge shall be dewatered prior to: internal use for useful purposes, external use for useful purposes or transport offsite to a suitable waste disposal facility.

Assessment and verification: *The quarry operator shall provide a declaration of compliance with this criterion, supported by relevant documentation describing how water is used onsite and providing details of the water management system, sludge separation and sludge disposal operations and destinations.*

In cases where the applicant is not the quarry operator, the applicant shall declare the quarry from which the material used to produce the EU Ecolabel natural stone tiles or slabs has been sourced, supported by delivery invoices and a relevant declaration from the quarry operator regarding water use and the water management system at the quarry site.

2.1.4. — *Quarry dust control*

Mandatory requirement

The applicant shall demonstrate operational and site features that have been implemented at the quarry site for dust control. Features will vary from site to site but should include the following aspects, where relevant:

- the employment of dust suppression water sprays or vacuum hoods linked to dust filter bags/electrostatic precipitators for any dry cutting, crushing or other activities that are likely to generate significant quantities of dust.
- regularly assess meteorological and air quality monitoring data and have a plan developed for the relocation/modification/stoppage of operations onsite to prevent or minimise dust emissions to air during normal and adverse weather conditions;
- to include wind protection features in the quarry design that aim to reduce wind speed and thus minimise dust emissions and soil erosion onsite (e.g. wind fences or windbreaks consisting of one or more rows of plants along the border of the extractive waste deposition area, including the extractive waste facility and/or extractive waste handling area).
- in cases where wet cutting operations are carried out, enclosed storage of dried wastewater sludge prior to sale, shipment to landfill or use for useful purposes onsite.
- cover the most heavily used road areas with concrete or asphalt paving.
- provision of appropriate training to employees about good practice for dust control and provision of adequate personal protective equipment to employees and visitors.

Assessment and verification:

The quarry operator shall provide a declaration of compliance with this criterion, supported by relevant documentation and a description of the dust control features implemented at the quarry site.

In cases where the applicant is not the quarry operator, the applicant shall declare the quarry from which the material used to produce the EU Ecolabel natural stone tiles or slabs has been sourced, supported by delivery invoices and a relevant declaration from the quarry operator regarding dust control at the quarry site.

2.2. — Transformation plant requirements

2.2.1. — Energy consumption

Mandatory requirements

The applicant shall complete an inventory of energy use for the transformation plant. The inventory shall detail the type and quantity of energy consumed (e.g. diesel, grid electricity) and break down the consumption into fuel and electricity and, depending on the precise set-up of the transformation plant, into specific operations.

The energy inventory shall cover a 12 month period and, during that same period, the total product output shall be estimated both in terms of mass (kg or tonne) and surface area (m²).

EU Ecolabel points

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

Up to 20 points can be awarded in proportion to how much of the electricity consumed is from renewable sources (i.e. 0 points for 0% renewable electricity, 20 points for 100% renewable electricity).

Assessment and verification:

The applicant shall provide an energy inventory for transformation plants for a period of at least 12 months prior to the date of award of the EU Ecolabel license and shall commit to maintaining such an inventory up to date during the validity of the EU Ecolabel license.

In cases where points are claimed for renewable electricity, the applicant shall provide a declaration from the grid electricity supplier, indicating the nature of the energy source(s) associated with the contracted tariff and the percentage of electricity supplied that is from a renewable source. In cases where guarantee of origin certificates are purchased to increase the renewables share, the applicant shall provide appropriate documentation to ensure that the guarantee of origin certificates have been purchased in accordance with the Principles and Rules of Operation of the European Energy Certificate System.

2.2.2. — Water and wastewater management

Mandatory requirement

The applicant shall provide a description of water use in the natural stone transformation plant, including strategies and methods for collection, recirculation and reuse of water.

The recovery of solids from wastewater from cutting operations must be carried out onsite using sedimentation and/or filtration principles. Any clarified waste water after solids removal that is discharged to local watercourses must not exceed the following limits:

Parameter	Limit
Total Suspended Solids (TSS)	35 mg/L
Chemical Oxygen Demand (COD)	100 mg/L
Cr(VI)	<0.15 mg/L
Fe	<1.5 mg/L

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, but the third party wastewater treatment operator shall declare compliance with the limits for TSS and COD.

EU Ecolabel points

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

The reuse of treated waste water for all cutting operations and dust control purposes (up to 5 points).

The installation of a rainwater collection system to collect and store rainwater that lands on impermeable areas on site (5 points).

Assessment and verification: *The applicant shall provide a declaration describing the use of water onsite and the wastewater collection network and treatment system. The declaration shall also state if effluent waste water is reused, discharged to local watercourses and/or discharged to the sewerage network.*

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 requirements.

2.2.3. — *Dust control*

Mandatory requirement

The applicant shall demonstrate features and operations that have been implemented at the transformation plant for dust control. Features will vary from site to site but should include the following aspects, where relevant:

- the employment of dust suppression water sprays or vacuum hoods linked to dust filter bags/electrostatic precipitators for any dry cutting or shaping activities that are likely to generate significant quantities of dust.
- To regularly clean indoor floor areas of dust using either water sprays on surfaces that drain to a water treatment system onsite or the use of a vacuum device for dry dust removal (sweeping of dry dust should not be carried out).
- The storage of any settled solids in enclosed containers prior to their shipment off-site, regardless of whether it is for reuse or disposal to landfill.
- cover the most heavily used road areas with concrete or asphalt paving.
- provision of appropriate training to employees about good practice for dust control and provision of adequate personal protective equipment to employees and visitors.

Assessment and verification:

The applicant shall provide a declaration of compliance with this criterion, supported by relevant documentation and a description of the dust control features implemented at the quarry site.

In cases where the applicant is not the quarry operator, the applicant shall declare the quarry from which the material used to produce the EU Ecolabel natural stone tiles or slabs has been sourced, supported by delivery invoices and a relevant declaration from the quarry operator regarding dust control at the quarry site.

2.2.4. — Transformation waste reuse

Mandatory requirement

The applicant shall complete an inventory of process waste production for the transformation plant. The inventory shall detail the type and quantity of waste produced (e.g. process scrap* and sludge).

The process waste inventory shall cover a 12 month period and, during that same period, the total product output shall be estimated both in terms of mass (kg or tonne) and surface area (m²).

At least 80% by mass of the process scrap* generated from natural stone processing operations onsite shall be reused in other applications or stored onsite in preparation for future sale.

*fragments, trimmings and dust from transformation operations at the transformation plant.

EU Ecolabel points

Points shall be awarded for applicants that can demonstrate higher reuse rates of process scrap up a maximum of 100% reuse by mass (up to 10 points).

Points shall be awarded for applicants that can demonstrate any diversion of process sludge** up to a maximum of 100% (up to 10 points).

**settled solids recovered from the onsite treatment of waste water from cutting and polishing operations

Assessment and verification: *The applicant shall provide a waste inventory for the transformation plant for a period of at least 12 months prior to the date of award of the EU Ecolabel license and shall commit to maintaining such an inventory up to date during the validity of the EU Ecolabel license.*

The applicant shall provide a declaration of compliance with the mandatory requirement of this criterion, supported by a calculation of total production process scrap (in kg or t). Details about the destination of these process wastes shall also be provided with clarifications about whether it is external use in another process or sent to landfill. For any external use 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 80% = 0 points and 100% = 10 points; process sludge diversion from landfill of 0% = 0 points and 100% = 10 points).

3. AGGLOMERATED STONE CRITERIA

3.1. — Energy consumption

Mandatory requirement

The specific energy consumption for agglomerated stone production shall not exceed 1.1 MJ/kg.

EU Ecolabel points

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

- Installation of onsite CHP (10 points)
- Up to 15 points can be awarded in proportion to how much of the supplied electricity is from renewable sources (i.e. 0 points for 0% renewable electricity, 15 points for 20% renewable electricity).

Assessment and verification

The applicant shall provide a declaration of compliance with the mandatory requirement for energy consumption and any relevant declaration regarding the onsite CHP and renewable energy sources and use of electric vehicles.

For continuously operating, 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.

3.2. — Emissions to air

Mandatory requirement

The emissions to air in the following parameters for the entire manufacturing process shall not exceed the following values

Parameter	Limit (mg/m ³)
Particulate matter (dust)	300
Styrene	2000
Nitrogen oxides (as NO _x)	1200
Sulphur dioxide (SO ₂)	850

Assessment and verification: The applicant shall provide a declaration of compliance with the mandatory requirements of this criterion, supported by site data in mg/Nm³ and expressed as an annual average value calculated from daily average values. The

~~data shall have been generated via continuous monitoring according to EN 13284-1 for dust, EN 14792 for NO_x and EN 14791 for SO₂.~~

~~The air pollutant emission factors shall be calculated as follows:~~

- ~~— the concentration in the exhaust gas emitted to the environment of each parameter considered in the tables shall be calculated,~~
- ~~— the measurements used for the calculation must be made following the testing methods indicated in the tables,~~
- ~~— the samplings shall be representative of the considered production.~~

3.3. Recycled/secondary material content

~~The applicant shall assess and document the regional availability of recycled or secondary aggregates, including fillers.~~

EU Ecolabel points

~~Points shall be awarded for applicants that can demonstrate the incorporation of recycled/secondary materials into the agglomerated stone product up to 40% w/w content (Up to 40 points).~~

~~The incorporation of returned or rejected agglomerated stone product into new product shall not be considered as recycled content if it is going back into the same process that generated it.~~

Assessment and verification:

~~The applicant shall provide a declaration of compliance with the mandatory requirement of this criterion, supported by a copy of their company policy for the identification of potential sources of recycled materials.~~

~~An inventory of all sold or stored agglomerated stone production, existing raw materials in stock and raw material deliveries (virgin, secondary and recycled origin) to the manufacturing plant shall be provided, supported by production reports for a period of 12 months.~~

~~In cases of manufacturing plants that only produce one type of product and specification, results should be averaged across the entire production. Where the EU Ecolabel products are produced in specific batches only, any secondary or recycled materials should be allocated according to batch mix compositions used.~~

3.4. — Binder content

Mandatory requirement

The use of polyester, epoxy or other resins in the production shall be limited to 10% of the total weight of raw materials.

EU Ecolabel points

- ~~— Where the content of resin used is less than 10% by weight of the final product, towards a benchmark of 5% (up to 20 points).~~
- ~~— Where the resin used is at least 10% bio based or from recycled plastics (5 points).~~

Assessment and verification:

~~The applicant shall provide a declaration of compliance with the mandatory requirements of the criterion, supported by a calculation of the total use of resin binder(s) as a function of total raw material consumption.~~

~~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. a resin use rate of 10% = 0 points and a resin use rate of 5% = 15 points).~~

4. CERAMIC CRITERIA

4.1. — Specific fuel consumption

Option 1 (kiln fuel only)

Coal, petroleum coke, light fuel oil and heavy fuel oil shall not be used in kilns.

The specific fuel energy consumption for firing kilns during the production of any particular ceramic product (tiles) or fired clay product (brick, block, roof tile or masonry unit) shall not exceed the following relevant limit listed in the middle column of table below.

Up to 25 points shall be awarded in proportion to where the actual specific fuel consumption for firing kilns lies relative to the relevant values listed in the middle column and the right hand column.

Product type	Mandatory upper limit	Environmental excellence threshold
ceramic tiles ≥6mm thick	3.5 MJ/kg	2.2 MJ/kg
ceramic tiles <6mm thick	75 MJ/m ²	50 MJ/m ²
Fired clay brick, paving block and roof tile	3.0 MJ/kg	2.0 MJ/kg
Fired clay masonry unit	1.9 MJ/kg	1.0 MJ/kg

Assessment and verification: *The applicant shall provide a declaration of compliance with the mandatory requirement for specific kiln firing energy consumption, supported by calculations of fuel consumption and production over the defined production period.*

For continuous production campaigns, data should be representative of a 12 month period. For shorter production campaigns, the actual production period(s) shall be stated and site readings should represent at least 80% of the production campaign.

Volumetric or mass inputs of fuel to the kiln system shall be taken from site readings and converted into units of MJ by multiplying the volume/mass of fuel consumed over the defined production period (in kg, t, L or Nm³) by a specific or generic calorific value for the same fuel (in MJ/kg, MJ/t, MJ/L or MJ/Nm³).

The specific thermal energy consumption

Option 2 (kiln and dryer fuel)

Coal, petroleum coke, light fuel oil and heavy fuel oil shall not be used in dryers or kilns.

The specific fuel energy consumption score for firing and drying stages of the relevant ceramic or fired clay product shall not exceed 1.0, when calculated according to the relevant reference value(s) and equation(s) below.

Up to 25 points shall be awarded in proportion to how closely the score approximates 0.50.

Product type	Reference value
Spray-dried powder	1.8 MJ/kg powder*
ceramic tiles ≥6mm thick	4.0 MJ/kg
ceramic tiles <6mm thick	86 MJ/m ²
Fired clay brick, paving block and roof tile	3.5 MJ/kg
Fired clay masonry unit	2.2 MJ/kg

**includes any residual moisture content, which would typically be 5-7%*

For ceramic tile products where onsite produced or purchased spray-dried powder is used, the score shall be calculated as follows:

$$Fuel_{score} = 0.35(SDP) + 0.65(KD)$$

Where:

- Fuel_{score} is the overall score for specific fuel consumption in the production of ceramic tiles.
- SDP is the score for spray-dried powder production (actual value divided by the relevant reference value)
- KD is the score for fuel consumption in the kiln and green body dryer (actual value divided by reference value)

For all other products where spray dried powder is not used, the score shall be calculated as follows:

$$Fuel_{score} = KD$$

Where:

- Fuel_{score} is the overall score for specific fuel consumption in the production of ceramic tile or fired clay product.
- KD is the score for fuel consumption in the kiln and green body dryer (actual value divided by reference value)

Assessment and verification

<p><i>(MJ/t) shall be determined by dividing the total fuel input (MJ) by the total product output (in kg or m², as appropriate) during the same production period.</i></p> <p><i>The number of points awarded shall be calculated as zero in cases where the actual value is equal to the mandatory limit and as 25 in cases where the actual value is equal to or lower than the environmental excellence threshold.</i></p> <p><i>Actual values in-between the mandatory and environmental excellence thresholds shall be awarded points in proportion to where they lie to the two aforementioned reference points.</i></p>	<p><i>The applicant shall declare the Fuel_{score} value for the relevant product(s), supported by calculations according to the relevant equation above and by the underlying site data for fuel consumption and production over the defined production period.</i></p> <p><i>For continuous production campaigns, data should be representative of a 12 month period. For shorter production campaigns, the actual production period(s) shall be stated and site readings should represent at least 80% of the production campaign.</i></p> <p><i>Volumetric or mass inputs of fuel to the kiln and dryer systems shall be taken from site readings and converted into units of MJ by multiplying the volume/mass of fuel consumed over the defined production period (in kg, t, L or Nm³) by a specific or generic calorific value for the same fuel (in MJ/kg, MJ/t, MJ/L or MJ/Nm³).</i></p> <p><i>In cases where fuel used to generate heat for drying operations is fed to a cogeneration system, the electricity generated by the system during the defined production period (measured in kWh and converted into MJ) should be subtracted from the total dryer fuel consumption reading.</i></p> <p><i>The specific thermal energy consumption (MJ/t) shall be determined by dividing the total fuel input (MJ) by the total product output (in kg or m², as appropriate) during the same production period.</i></p> <p><i>The number of points awarded shall be calculated as zero in cases where the actual score is equal to the mandatory limit of 1.00, and 25 in cases where the actual score is equal to or lower than 0.60.</i></p> <p><i>Actual values in-between 1.00 and 0.60 shall be awarded points in proportion to where they lie to the two aforementioned reference points.</i></p>
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4.2. — Specific CO2 emissions

<p><u>Option 1 (kiln fuel only, with mandatory elements)</u></p> <p>The specific CO2 emission associated with fuel consumption for kiln firing during the production of the relevant ceramic or fired</p>	<p><u>Option 2 (kiln and dryer fuel plus process emissions)</u></p> <p>The CO2 emission score associated with fuel consumption and process emissions for firing and drying stages of the relevant ceramic or fired clay product shall not exceed 1.0, when calculated</p>
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clay product shall not exceed the following relevant limits listed in the middle column of table below.

Up to 15 points shall be awarded in proportion to where the actual specific fuel consumption for kiln firing lies relative to the relevant values listed in the middle column and the right hand column.

Product type	Mandatory upper limit	Environmental excellence threshold
ceramic tiles ≥6mm thick	196 kgCO ₂ /t	123 kgCO ₂ /t
ceramic tiles <6mm thick	4.2 kgCO ₂ /m ²	2.8 kgCO ₂ /m ²
Fired clay brick, paving block and roof tile	168 kgCO ₂ /t	112 kgCO ₂ /t
Fired clay masonry unit	107 kgCO ₂ /t	56 kgCO ₂ /t

Assessment and verification: The applicant shall provide a declaration of compliance with the mandatory requirement for specific kiln firing energy consumption.

Fuel CO₂ emissions shall be based on the specific fuel consumption values (MJ/t or MJ/m²) declared under criterion 4.1. Specific fuel consumption values shall be converted into specific CO₂ emission values (kgCO₂/t or kgCO₂/m²) by multiplying by the appropriate standard carbon emission factor(s) listed in Annex VI of Regulation (EC) No 601/2012 for the fuel(s) used. The applicant may use alternative calculation factors in accordance with Articles 30 to 39 of the same Regulation.

The number of points awarded shall be calculated as zero in cases where the actual value is equal to the mandatory limit and as 15 in cases where the actual value is equal to or lower than the environmental excellence threshold.

Actual values in-between the mandatory and environmental excellence thresholds shall be awarded points in proportion to where they lie between the two aforementioned reference points.

according to the relevant reference value(s) and equation(s) below.

Up to 25 points shall be awarded in proportion to how closely the score approximates 0.50.

Product type	Reference value
Spray-dried powder	101 kgCO ₂ /t powder*
ceramic tiles ≥6mm thick	274 kgCO ₂ /t product
ceramic tiles <6mm thick	5.8 kgCO ₂ /m ² product
Fired clay brick, paving block and roof tile	246 kgCO ₂ /t product
Fired clay masonry unit	173 kgCO ₂ /t product

*includes any residual moisture content, which would typically be 5-7%

For ceramic tile products where onsite produced or purchased spray-dried powder is used, the score shall be calculated as follows:

$$CO2_{score} = 0.35(SDP) + 0.65(KD)$$

Where:

- CO₂_{score} is the overall score for specific fuel and process emissions of CO₂ in the production of ceramic tiles.
- SDP is the score for specific fuel emissions of CO₂ from spray-dried powder production (actual value divided by the relevant reference value).
- KD is the score for specific fuel and process emissions of CO₂ from the kiln and specific fuel emissions of CO₂ from the green body dryer (actual value divided by reference value).

For all other products where spray dried powder is not used, the score shall be calculated as follows:

$$CO2_{score} = KD$$

Where:

- CO₂_{score} is the overall score for specific fuel and process emissions of CO₂ in the production of ceramic tile or fired clay product.
- KD is the score for specific fuel and process emissions of CO₂ from the kiln and specific fuel emissions from the green body dryer (actual value divided by reference value).

Assessment and verification: The applicant shall declare the CO₂_{score} value for the relevant product(s), supported by calculations according to the relevant equation above.

Fuel CO₂ emissions shall be based on the specific fuel consumption values (MJ/t or

	<p><i>MJ/m²) declared under criterion 4.1. Specific fuel consumption values shall be converted into specific CO₂ emission values (kgCO₂/t or kgCO₂/m²) by multiplying by the appropriate standard carbon emission factor(s) listed in Annex VI of Regulation (EC) No 601/2012 for the fuel(s) used. The applicant may use alternative calculation factors in accordance with Articles 30 to 39 of the same Regulation.</i></p> <p><i>Process CO₂ emissions shall be calculated based on the average carbonate (CO₃) content of the raw material mix used. The carbonate value (in kg/t) shall be converted to process CO₂ emissions by multiplying by a factor of 44/60.</i></p> <p><i>The number of points awarded shall be calculated as zero in cases where the actual score is equal to the mandatory limit of 1.00, and 25 in cases where the actual score is equal to or lower than 0.50.</i></p> <p><i>Actual values in-between 1.00 and 0.50 shall be awarded points in proportion to where they lie between the two aforementioned reference points.</i></p>
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4.3. — Process water

Mandatory requirement

The facility producing the ceramic tile or fired clay product shall either:

- Have a closed loop wastewater recycling system for process wastewater that facilitates zero liquid discharge.
- Be able to demonstrate that specific freshwater consumption that is less than or equal to the limits defined below.

Product type	Including spray drying?*	Consumption limit
Thin format ceramic tiles (≤ 6mm thickness)	Yes	20.0 L/m ²
	No	10.0 L/m ²
All other ceramic tile and fired clay products	Yes	1.0 L/kg
	No	0.5 L/kg

*Spray drying water consumption is only relevant to ceramic tile production and values should be included if the spray dryer is operated by the applicant or if the spray dried powder supplier provides this data.

Assessment and verification: The applicant shall provide a declaration of compliance with the mandatory requirement, stating by which means they comply.

In cases where a zero liquid discharge system is in place for recycling process wastewater, they shall provide a brief description of the system and its main operating parameters.

In cases where such a system is not in place, total process water consumption data (in L or m³) and the total ceramic tile or fired clay product output data (in kg or m²) shall be provided for the most recent calendar year or rolling 12 month 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 the production process should be metered separately and not be included in the calculation.

4.4. — Emissions of dust, HF, NOx and SOx to air

The specific dust, HF, NOx and SOx emissions to air associated with the production of ceramic tile and fired clay products shall not exceed the following relevant limits listed in the column titled mandatory limits in the table below.

A total of up to 40 points shall be awarded in proportion to where the actual specific emissions of dust, HF, NOx and SOx relative to the relevant mandatory limit and threshold of environmental excellence set out in the table below.

Product type	Emission parameter	Mandatory limit	Environmental excellence threshold	Test method	Points available
ceramic tiles <6mm thick	Dust (cold)	3000 mg/m ² or 150 mg/kg	1300 mg/m ²	EN 13284-1	Up to 5
	Dust (kiln)	200 mg/m ²	80 mg/m ²	EN 13284-1	Up to 5
	HF	200 mg/m ²	70 mg/m ²	ISO 15713	Up to 10
	NOx (as NO ₂)	2500 mg/m ²	1750 mg/m ²	EN 14792	Up to 10
	SOx (as SO ₂)	*1500 mg/m ² or **4000 mg/m ²	1150 mg/m ²	EN 14791	Up to 10
ceramic tiles ≥6mm thick and fired clay brick, block and roof	Dust (cold)	150 mg/kg	650 mg/kg	EN 13284-1	Up to 5
	Dust (kiln)	10 mg/kg	4 mg/kg	EN 13284-1	Up to 5
	HF	10 mg/kg	3.5 mg/kg	ISO 15713	Up to 10

tile products	NOx (as NO ₂)	125 mg/kg	85 mg/kg	EN 14792	Up to 10
		*75 mg/kg			
	SOx (as SO ₂)	or	55 mg/kg	EN 14791	Up to 10
		**200 mg/kg			

*when S content of raw material is $\leq 0.25\%$ by weight

**when S content of raw material is $> 0.25\%$ by weight

Assessment and verification: *The applicant shall provide a declaration of compliance with the mandatory requirements of this criterion, supported by site data in mg/Nm³ 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 NOx and EN 14791 for SO₂. In cases of periodic monitoring, at least three samples shall be taken during stable running of the kiln for production runs of the EU Ecolabel product(s).*

The higher mandatory threshold for SOx emissions can only be applied if the applicant submits a test report of the raw material mix demonstrating that the S content is higher than 0.25% by weight (as S).

To convert exhaust gas monitoring results from mg/Nm³ into mg/m² of ceramic tile of mg/kg of ceramic or fired clay product, it is necessary to multiply by the specific gas flow volume (Nm³/m² or kg product). One Nm³ refers to one m³ of dry gas under standard conditions of 273K, 101.3 kPa and 18% O₂ content.

For continuous production campaigns, data should be representative of a 12 month period. For shorter production campaigns, the actual production period(s) shall be stated and site data should represent at least 80% of the production campaign.

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.

The number of points awarded shall be calculated as zero in cases where the actual value is equal to the mandatory limit and as 15 in cases where the actual value is equal to or lower than the environmental excellence threshold.

Actual values in-between the mandatory and environmental excellence thresholds shall be awarded points in proportion to where they lie between the two aforementioned reference points.

4.5. — Waste water management

Process wastewater from the production of ceramic tiles or fired clay bricks, blocks and roof tiles shall either:

- Be treated onsite to remove suspended solids, with treated wastewater being returned to the production process as part of a zero liquid discharge system;
- Be treated onsite to remove suspended solids (or not treated at all) prior to wastewater being sent to a third-party operated treatment works;
- Be treated onsite to remove suspended solids prior to wastewater being discharged to local watercourses.

In cases where options 2 or 3 apply, the applicant or the third party wastewater treatment plant operator, as appropriate, must demonstrate compliance with the following limits for final treated effluent.

Parameter	Limit	Test methods
Suspended solids	40 mg/l	ISO 5667-17
Cadmium	0,015 mg/l	ISO 8288
Lead	0,15 mg/l	ISO 8288

Assessment and verification: *The applicant shall provide a declaration of compliance, specifying which option applies to the production site.*

In cases where a zero liquid discharge system is in place for recycling process wastewater, they shall provide a brief description of the system and its main operating parameters.

In cases where the treated or untreated wastewater is sent to a third party operated treatment plant, the operator of the plant shall declare the average concentrations of suspended solids, cadmium and lead in the final treated effluent 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.

In cases where process wastewater is treated onsite and effluent is discharged to the local watercourse, the applicant shall declare the average concentrations of suspended solids, cadmium and lead in the final treated effluent 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.

4.6. — Process waste reuse

Mandatory requirement

At least 90% 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.

Process waste shall be considered as sludge/dry solids 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 to a maximum of 100% 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 sludges, 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).

4.7. — Glazes

Mandatory requirement

In cases where ceramic tiles are glazed or decorated, the glaze formulation shall contain less than 0.10% wt. Pb and less than 0.10% wt. Cd.

Assessment and verification: The applicant shall provide a declaration of compliance with the mandatory requirement of this criterion, supported by a relevant declaration or safety data sheet from the glaze supplier.

5. CONCRETE CRITERIA

5.1 — Clinker factor of cement

Mandatory requirement

A clinker factor for the cement used shall be provided by the applicant that expresses the % weight of the cement, in decimal format, that is composed of cement clinker.

EU Ecolabel points

Up to 25 points can be awarded in proportion to where the clinker factor of the cement lies between 1.00 and the threshold for environmental excellence of 0.50 (0 points if the factor is equal to 1.00 and 25 points if the factor is 0.50 or lower).

Assessment and verification: The applicant shall provide a declaration of the cement clinker factor. The declaration shall be supported by relevant declarations or information from their cement supplier, which state either a specific clinker factor or at least define the EN 197-1 class of the cement(s) supplied.

In cases where no specific clinker factor is mentioned but the EN 197-1 class is defined, the following assumptions can be made for the cement clinker factor:

EN 197-1 Code	Factor assumed	EN 197-1 Code	Factor assumed
CEM I	0.96	CEM II/A-L	0.83
CEM II/A-S	0.83	CEM II/B-L	0.68
CEM II/B-S	0.68	CEM II/A-LL	0.83
CEM II/A-D	0.88	CEM II/B-LL	0.68
CEM II/A-P	0.83	CEM II/A-M	0.80
CEM II/B-P	0.68	CEM II/B-M	0.68
CEM II/A-Q	0.83	CEM III/A	0.47
CEM II/B-Q	0.68	CEM III/B	0.25
CEM II/A-V	0.83	CEM III/C	0.09
CEM II/B-V	0.68	CEM IV/A	0.73
CEM II/A-W	0.83	CEM IV/B	0.52
CEM II/B-W	0.68	CEM V/A	0.72
CEM II/A-T	0.83	CEM V/B	0.57
CEM II/B-T	0.68		

In cases where more than one cement is used in the concrete product(s) that are to be EU Ecolabelled (e.g. in dual layered terrazzo tile products) the applicant shall calculate the points that would apply to each cement as if it was the only cement used, then calculate a weighted average points total based on the relative use of each cement in the EU Ecolabel concrete production line

5.2 — Net CO₂ emissions from cement clinker/alternative cement production

Mandatory requirement

In accordance with the methodology defined by the Getting the Numbers Right (GNR) initiative, the net CO₂ emissions shall comply with the relevant limits defined below:

- Grey clinker: 795 kg CO₂/t grey clinker.
- White clinker: 1230 kg CO₂/t white clinker.
- Alternative cement: 795 kg CO₂/t alternative cement.

EU Ecolabel points

Up to 25 points can be awarded in proportion to where the specific net CO₂ emission lies between the relevant mandatory threshold listed above (0 points if equal to the mandatory level) and the relevant thresholds for environmental excellence defined below (25 points if equal to or less than the relevant threshold below):

- Reduction of CO₂ emissions from a grey clinker kiln towards an environmental excellence threshold of 659 kg CO₂/t grey clinker.
- Reduction of CO₂ emissions from a white clinker kiln towards an environmental excellence threshold of 835 kg CO₂/t white clinker.
- Reduction of CO₂ emissions from alternative cement constituents towards an environmental excellence threshold of 659 kg CO₂/t alternative cement.

Assessment and verification: *The applicant shall provide a declaration of compliance from their cement supplier(s) with the mandatory requirement of this criterion supported by a statement of the calculated net CO₂ emission in accordance with the latest GNR reporting methodology.*

Alternative cements shall be considered as cements that do not contain any Portland cement clinker phases (e.g. alkali-activated cements and geopolymers based entirely on materials such as coal fly ash, blast furnace slag or metakaolin). In lieu of net CO₂ emissions from the cement kiln, alternative cements should have a carbon footprint calculated using emission factors associated with the constituent ingredients such as sodium hydroxide, sodium silicate, sodium sulphate and metakaolin. In the absence of specific emission factors from material suppliers, the following generic emission factors from a life cycle inventory database should be used.

The total CO₂ associated with one tonne of the alternative cement will then be compared against the relevant mandatory limit and environmental excellence threshold.

In cases where more than one cement is used in the production of EU Ecolabel certified concrete products (e.g. dual layered terrazzo tiles), the applicant shall calculate the points that would apply to each cement as if it was the only cement used, then calculate a weighted average points total based on the relative use of each cement in the EU Ecolabel concrete production line.

5.3 — Non-CO₂ emissions from the cement kiln

Mandatory requirement

The following non-CO₂ emissions to air from the cement kiln shall be continuously monitored and comply with specific emission limits for the parameters defined below:

Parameter	Mandatory specific emission limit (indicative exhaust gas concentration)*
Dust	≤ 34.5 g/t clinker (15mg/Nm ³)*
NO _x	≤ 1472 g/t clinker (640 mg/Nm ³)*
SO _x (as SO ₂)	≤ 460 g/t clinker (200mg/Nm ³)*

* g/t clinker limits were translated from mg/Nm³ data by multiplying by a factor of 2.3 Nm³/t clinker

EU Ecolabel points

Up to 15 points (5 points for dust emissions, 5 points for NO_x emissions and 5 points for SO₂ emissions) can be awarded in proportion to where the specific emissions (expressed as g/t clinker) lie between the mandatory thresholds above (0 points if equal to the mandatory limit) and the relevant thresholds for environmental excellence defined below (5 points each if equal to or less than the relevant threshold below):

Parameter	Environmental excellence threshold (indicative exhaust gas conc.)*
Dust	≤ 11.5 g/t clinker (5mg/Nm ³)*
NO _x	≤ 920 g/t clinker (400 mg/Nm ³)*
SO _x (as SO ₂)	≤ 130 g/t clinker (50mg/Nm ³)*

* g/t clinker limits were translated from mg/Nm³ data by multiplying by a factor of 2.3 Nm³/t clinker

Assessment and verification: *The applicant shall provide a declaration of compliance with the mandatory requirements of this criterion from their cement supplier. Where a claim for EU Ecolabel points is made, site data for emissions from the cement kiln, in mg/Nm³ and expressed as an annual average value calculated from daily average values, shall be provided by the cement supplier. The site data shall have been generated via continuous monitoring according to EN 13284-1 for dust, EN 14792 for NO_x and EN 14791 for SO₂.*

To convert exhaust gas monitoring results from mg/Nm³ into g/t of clinker, it is necessary to multiply by the specific kiln gas flow volume (Nm³/t clinker) reported by the cement producer. Typical specific gas flow volumes for cement kilns range from 1700 to 2500 Nm³/t clinker. One Nm³ refers to one m³ of dry gas under standard conditions of 273K, 101.3 kPa and 10% O₂ content.

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

5.4 — Concrete recovery and responsible sourcing of raw materials

Mandatory requirements

The applicant shall have procedures in place for any batches of returned or rejected concrete in which all returned/rejected material is either:

- Recycled directly into new concrete batches which are cast prior to the returned/rejected concrete hardening;
- Recycled as aggregate in new batches after returned/rejected concrete hardening;
- Recycled offsite either prior to or after hardening as part of a contractual arrangement with a third party.

EU Ecolabel points

Points shall be awarded for applicants that can demonstrate the incorporation of recycled/secondary materials into the EU Ecolabel concrete product up to 30% w/w content (Up to 15 points).

Points shall be awarded for the proportion of aggregates (up to 5 points) and of cement (up to 5 points) used at the concrete production facility that is certified as responsibly sourced by an appropriate third party certification scheme.

***Assessment and verification:** Compliance with the mandatory aspects of this criterion can be demonstrated via a silver, gold or platinum certificate awarded by the Concrete Sustainability Council (CSC) to the concrete producer in accordance with version 2.0 of the CSC technical manual. Alternatively the applicant shall provide a declaration of compliance with the mandatory requirements of the criteria, supported by a copy of their company policy for the handling of returned or rejected concrete and, where relevant, any third party agreements relating to the recovery of returned/rejected concrete.*

For the award of EU Ecolabel points relating to secondary and/or recycled aggregate content, the applicant shall provide an inventory of raw material inputs (cement, aggregates, filler, supplementary cementitious materials and water) and concrete production output at the facility level, supported by delivery invoices and production reports. Inputs of aggregates shall be highlighted and identified as being from either virgin (CSC certified and non-certified), secondary or recycled material streams. If data is represented in volume (e.g. m³) instead of weight, it should be converted to weight by multiplying by an appropriate density factor (e.g. kg/m³).

The incorporation of returned or rejected concrete into new concrete shall not be considered as recycled content if it is going back into the same process that generated it.

From the facility level data, the applicant shall quantify how much concrete production is to be subject to the EU Ecolabel and the estimated allocation of virgin, secondary and recycled aggregates to that same concrete production. The % content of secondary/recycled aggregates for the EU Ecolabel concrete shall be calculated as:

$$= \frac{SA (kg) + RA (kg)}{VA (kg) + SA (kg) + RA (kg)}$$

Where: SA = Secondary Aggregate; RA = Recycled Aggregate and VA = Virgin Aggregate

Points shall be awarded in proportion to how closely the data reaches the maximum benchmark set (e.g. recycled/secondary material content of 0% = 0 points and $\geq 30\%$ = 15 points).

For the award of EU Ecolabel points relating to responsible sourcing of virgin aggregates and/or cement, the applicant shall provide an inventory of raw material inputs for a 12 month period, highlighting the incoming virgin aggregate and cement materials that are certified as bronze, silver, gold or platinum according to the CSC or equivalent certification systems. Points shall be awarded in proportion to the % of total cement and the % of total virgin aggregates that are certified as responsibly sourced (e.g. 80% of cement being CSC certified = 4 points, 30% of virgin aggregates being CSC certified = 1.5 points).

5.5 — Concrete plant energy management

Mandatory requirements

The applicant shall assess and document the electricity consumption (kWh) and fuel consumption (MJ) of the concrete process plant equipment (including forklifts and trucks used for onsite transport) for the full calendar year or a rolling 12 month period.

The total concrete production during the same 12 month period shall be expressed in terms of m³.

Both the specific electricity consumption (kWh/m³ concrete) and specific fuel consumption (MJ/m³ concrete) shall be reported. Conversion of kWh to MJ shall be carried out by multiplying the kWh value by 3.6 MJ/kWh.

EU Ecolabel points

Points shall be awarded to applicants that can demonstrate that the energy (fuel + electricity) used in the concrete plant is from renewable sources up to a maximum of 100% (up to 25 points).

Assessment and verification: *The applicant shall provide a declaration of compliance with the mandatory requirements of the criterion, supported by calculations of electricity and fuel consumption, as well as production volume during the same 12 month period.*

For electricity consumption, the applicant shall declare if any electricity is generated onsite and any relevant share of renewables that applies. The applicant shall also provide documentation from the grid electricity supplier that describes the average energy mix involved with the grid electricity supplied.

For fuel consumption, the applicant shall provide a breakdown of the different fuels used on the site, estimating the quantities consumed (e.g. L diesel, m³ natural gas, kg biomass) in the 12 month period and convert them into MJ by multiplying by the default net calorific values provided in Annex VI of Regulation (EU) 601/2012 or using specific net calorific values provided by fuel suppliers. Any fuels which are renewable or have a % renewable content shall be highlighted in the list and accounted for in the renewable energy calculation.

Points shall be awarded in proportion to how closely the energy data (i.e. fuel + electricity) reaches the maximum benchmark set (e.g. renewable energy share of 0% = 0 points; renewable energy share of 100% = 25 points).

5.6 — Environmentally innovative concrete product designs

This criterion is optional and recognises certain innovative design features of concrete hard covering products as specified below that bring direct or indirect environmental benefits.

EU Ecolabel points

1. Freely draining concrete paving – up to 10 points shall be awarded to precast concrete tiles and flagstones that are designed to be pervious to moisture or that are permeable via void spaces at joints when installed in accordance with producer specifications (infiltration rate of 400 to ≥ 2000 mm/h).
2. Material efficient precast concrete masonry units – up to 10 points shall be awarded to concrete masonry units with void space in the product form (from 20% to $\geq 80\%$ of total volume).

3. Grass/turf open pavers – 10 points shall be awarded to concrete paving units that are designed with void spaces to be filled with topsoil/sand/gravel and be seeded with grass that can fit into permeable paving designs.

Assessment and verification: *The applicant shall provide a declaration stating whether or not this criterion is relevant to their product(s) that will apply for the EU Ecolabel.*

1. *In cases where the freely draining concrete paving criterion is relevant, the applicant shall provide test reports according to BS 7533-13, BS DD 229:1996 or similar standards. Points shall be awarded in proportion to how the infiltration rate data lies between the lower level (0 points if rate = 400 mm/h) and the upper level (10 points if rate ≥ 2000 mm/h).*

2. *In cases where the material efficient precast concrete unit criterion is relevant, the applicant shall provide a declaration of the % void content of the form by providing the dimensions of the product form in such detail that the total volume and the void volume can be calculated. Points shall be awarded in proportion to how the void space data lies between the lower level (0 points if void space = 20% of total volume) and the upper level (10 points if void space $\geq 80\%$ of total volume).*

3. *In cases where the grass/turf open paver criterion is relevant, the applicant shall provide technical drawings of the concrete forms, images of real-life installations complete with vegetated surfaces and detailed installation instructions about how the products should be filled and seeded.*