



## NATURAL STONES FROM EU — DENOMINATION CRITERIA STANDARD — A REVIEW

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**Summary:** Harmonization is vital in the European Union. It is mainly applied to materials, processes, products and services. However, it is also crucial for other domains. An example of this is the denomination of natural stones. It is important that denomination meets strict criteria to promote natural stone Market, as well as their products in the imperative new “Construction Products Regulation (CPR)”. This was the purpose behind the development and recent revision of EN 12440. However, the important role that was intended for this standard in the natural stone sector was never fully achieved, due to the vague and unobjective way in which the denomination criteria were laid down. This review aims to analyse the standard, pointing out what needs to be harmonized, and to present concrete proposals for its improvement, so that the standard can fully perform its purpose.

**Key words:** Natural Stones, European Standard, EN 12440, Denomination Criteria, Digital Database.

### 1. Introduction and aim of the study

Aiming to gradually reduce the chaos that existed in the designation of natural stones within the European Union (EU) countries, in 1999 the Working Group on Terminology, Classification and Characteristics of the Technical Committee 246 — Natural Stones (CEN/TC 246) began to develop a standard on this issue. The standard should establish a comprehensive reference that would support the recognition of a given variety of natural stone among the multiple commercial names spread out for marketing reasons, or due to the speed at which fashion trends change. In addition to lay down a set of specific rules to be followed when assigning the denomination of an EU natural stone, the purpose of this standard was also to provide lists of natural stones for each EU member state, as complete as possible, with the designations already presented in accordance with the criteria specified previously by the standard. In 2000, the first version of EN 12440 “Natural Stones — Denomination criteria” was published. However, the criteria were laid down in a very synthetic and nonobjective manner, giving rise to different interpretations. As a result, the lists of natural stones for each EU member state, included in the standard’s annex, were not harmonized.

The standard has already undergone two revisions. A third revision is being considered, since there is a tie between the number of member states that want the standard to be revised and the number of member states that want the standard to be kept as it is.

This work presents the results of a detailed analysis of this standard, particularly the version currently in force, to point out that it needs to be revised. Significant improvement proposals will also be presented, regarding the denomination criteria, so that the standard can fulfil the initial purpose for which it was developed: to harmonize denomination criteria of natural stones at EU level.

### 2. Methods

A systematic analysis was carried out of all published versions of EN 12440, to evaluate the evolution of their contents. Attention was focused on the version of EN 12440 currently in force (2017), and more specifically to its Annex A, which contains the denomination proposals of each country (Fig. 1).

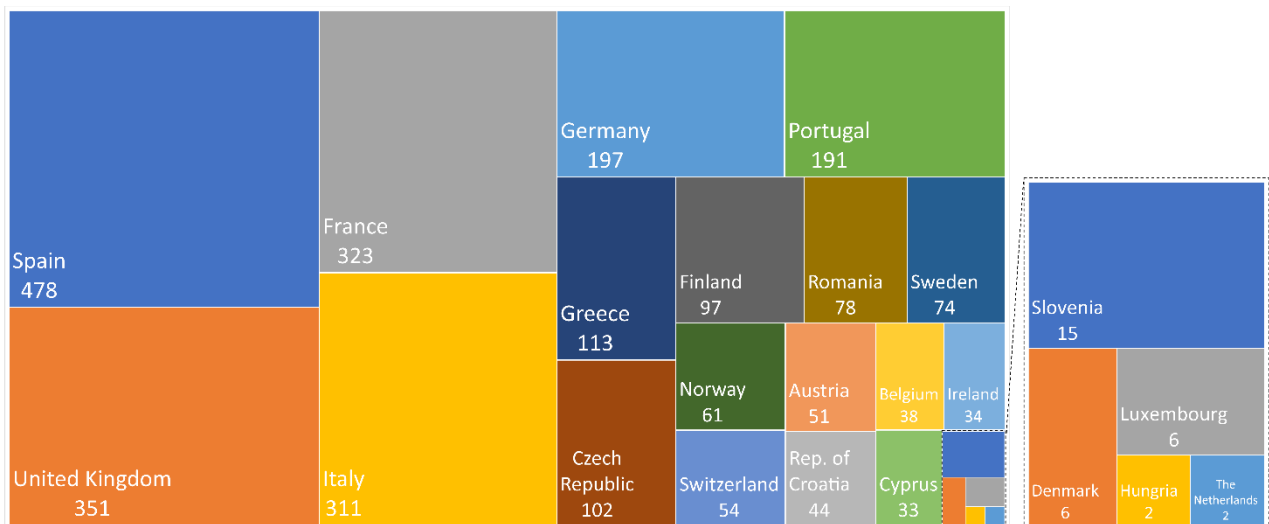


Fig. 1. Number of natural stone varieties/entries indicated by EU countries in their non-exhaustive lists, published in Annex A of the EN12440:2017.

It was checked whether all EU member states had submitted lists and how many varieties of natural stones make up each country's list. It was also analysed whether there were repeated varieties, or whether the same commercial name was attributed to different varieties. Finally, each variety in each list was checked to confirm that they all included all the denomination criteria laid down by the standard. All missing information has been recorded.

Considering that 11 of the 34 EU member states did not submit their lists of natural stones to be included in the standard, the list of each country was compared with other reference databases. This option aims to highlight the relevance in the current and global market of the EN12440 standard. The criteria considered for the selection of the digital databases were: 1) extensive content in commercial entries, 2) commercial relevance with regular updates for each EU country and 3) online presence under an open access regime. They are:

- Naturstein (naturalstone-online.com/stones), a German global archive, with up to 4500 natural stone entries and corresponding descriptions, quite equivalent to the criteria laid down in the standard.
- Stone Contact (stonecontact.com), a global e-commerce platform, with around 5800 quarries, and a catalogue/library with up to 23500 entries, classified by general petrographic groups (27), colours (20) and countries (up to 100 countries).

A statistic chart was created, in which the data from the lists contained in the EN12440 Annex A were projected for each EU member state, along with the data contained in those two online databases (Fig. 2). The histogram illustrates the European relevance of each country as a stone producer, as well as its presence in the global market, corroborated by various sectoral statistics. (Montani, 2023; ASSIMAGRA, 2025).

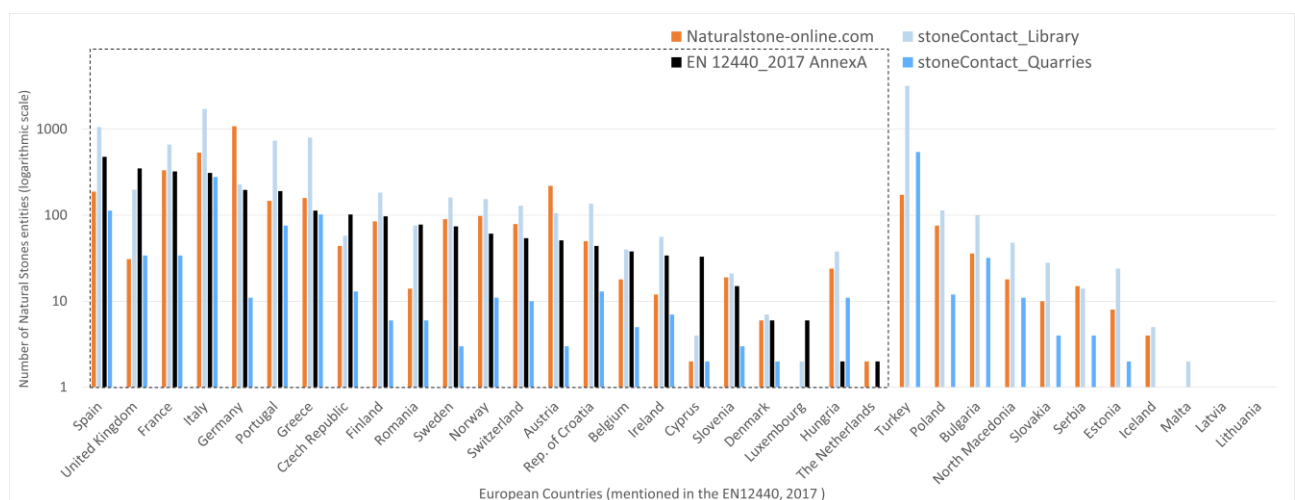


Fig. 2. Number of the different varieties/entries of natural stones from each EU country, listed in two different reference digital databases, compared with the lists included on Annex A of EN12440:2017 (the dotted frame underline the countries lists on Annex A).

### 3. Results and discussion

Revised versions, of EN 12440:2000, were published in 2008 and 2017. The first issue that deserved attention is the large time gap between each revision. With new natural stones constantly entering the Market, and others permanently leaving it, natural stone lists are quite dynamic and should therefore be reviewed regularly.

Furthermore, comparing the initial version, published in 2000, with the revised versions of 2008 and 2017, the only differences between them lie in the natural stones' lists. The way the criteria were laid down in EN 12440 first version has remained the same, without any type of change or improvement. This fact has led many companies, of different EU member states, to fail to comply with the provisions of this standard when presenting the denominations of their natural stones in various commercial documents, including in the declaration of performance. Thus, the relevance of this standard is beginning to be questioned, and some consider that it should be withdrawn.

From the detailed analysis of the list of each country, a disparity in the number of natural stones presented can be clearly seen in Fig.1, in addition to the absence of lists of EU member states that are quite relevant, at a global level, regarding the natural stone Market (according to Montani, 2022), as shown in Fig.2. Numerous non-conformities were identified and recorded, namely: repeated varieties, with or without the same commercial name (120 cases identified in all 23 lists); repeated commercial names for petrologically and/or chromatically distinct varieties (53 cases); absence, sometimes systematic, others casually, of denomination criteria, such as petrological family (8 cases), colour (141 cases) and place of origin (12 cases). These non-conformities could be avoided with a better definition of the denomination criteria.

### 4. Improvement proposals

Focusing on the standard contents, to avoid the identified non-conformities, there are the aspects that must be improved:

- 1- Some natural stone commercial names, included in this standard, are registered trademarks. Thus, both CEN and the National Standardisation Bodies of each EU member state must be safeguarded in relation to this matter in the *European foreword* of the standard.
- 2- There must be uniformity in the terminology used throughout the text of the standard, particularly in relation to the denomination criteria. This rule must

be applied from the *Introduction*, which must be much clearer and more objective, to the *Annex A*.

- 3- A new clause with *Terms and definitions* must be included. This clause should contain a definition for natural stone, and for all the denomination criteria laid down.
- 4- In addition to the traditional name, the *Name of the natural stone* subclause should provide alternative names — commercial names by which a natural stone is also known in the domestic and foreign Markets, related to different companies' marketing strategies.
- 5- In the *Family/petrological group* subclause, it must be laid down that natural stone family and group classification must both be in accordance with EN 12670 and its Annex A.
- 6- In the *Typical colour* subclause, observation conditions must be established, including surface finishing. It should also be laid down that the colours must be assigned within a normalized referential, like the one established in the Eurolithos project (Dedić, *et al*, 2020), thus avoiding the existence of dozens of fancy colour names.
- 7- In the *Place of origin* subclause, it should be laid down that it is the geographic name of the place where a single quarry, or a group of quarries are located, followed by up to three administrative territory divisions (the last one being the country), avoiding listing quarrying companies, or adjacent quarries where the same lithotype is being quarried, even if with predictable chromatic and textural variations. Geographic coordinates (EPSG 4326) of the quarrying site centre should also be included, limiting the inclusion of multiple quarrying sites to cases involving extensive massifs, with geographically quite dispersed explorations.
- 8- Regarding the natural stone lists in *Annex A*, they should have the structure of a table, where each row contains a variety, and each column contains a different denomination criterion, indicated in the first row. Also, the lists should have a digital version online, so that each EU member state could upload its list during the review period.
- 9- Ensuring the timeliness of national listings and useful and current information for the Market, the review of *Annex A* should be defined in cycles of 4 years (consistent with the timing of discovery/licensing of new natural stones and their commercial circulation in the Market).
- 10- Finally, if it is the standard English version, all terms (apart from the names of stones and places) must be presented in English. This includes family and petrological groups, as well as colours.

## 5. Conclusions

On the one hand, the main purpose of this work was to compare the different versions of the EN 12440 and the lists of stones provided in the informative Annex A from each EU member state. The results of the analysis show that the current denomination criteria are not clear. Annex A of the standard should provide a more exhaustive, albeit provisional, list of the traditional names under which most stones from each contributing EU member state are known, along with its alternative names. These lists should be subjected to periodic reviews, at least every 4 years. This period allows the standard to remain a reference, keeping pace with the commercial cycles of new products and reflecting those that persist in the Market.

On the other hand, other Technical Committees (e.g. ISO/TC 328 - Engineered stones and CEN/TC 246 WG 4 -

Agglomerated stones) whose scope corresponds to construction products comparable to natural stones, have been developing and reviewing their standards, regarding terminology and classification. This trend could be associated with some EU imperatives of sustainability declaration, taxonomy (Regulation (EU) 2020/852), and the New Construction Products Regulation (CPR) (Regulation (EU) 2024/3110). Furthermore, EN 12440 could be a feasibility source of information for CPR and decoding/tracking of Market confusion, supporting the elaboration of the Digital Product Passport, or even the environmental performance of construction products (CEN/TC 350, 2019; EN 15804). The revision here proposed aligns with a necessary solution for these challenges, ensuring a coherent and mutually recognised interpretation of the EU natural stone denomination.

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