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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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**Greenhouse gases - Quantification method and requirements
for the carbon footprint of products - Stone**

温室气体 产品碳足迹量化方法与要求 石材

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Foreword

4.1 Correlation The data and methods selected are suitable for evaluating the GHG emissions generated by the quantified system.

4.2 Integrity The carbon footprint quantification of stone products includes all direct and indirect emissions during the raw material production stage, the raw material transportation stage, and the product manufacturing stage. The total emissions should be calculated to avoid double counting or omissions.

4.3 Consistency Throughout the entire process of quantifying the carbon footprint of stone products, the same assumptions, methods, and data sources are used to obtain results consistent with the objectives and scope. in conclusion.

4.4 Uniformity Adopting internationally recognized methods, standards, and guidelines already applied to specific product categories to improve the compatibility of carbon footprints among stone products. Comparison of sexes.

4.5 Accuracy The quantification of the carbon footprint of stone products is accurate, verifiable, relevant, and non-misleading, minimizing bias and uncertainty. Qualitative analysis.

4.6 Transparency Document all relevant issues using an open, comprehensive, and understandable method of information presentation. Disclose all relevant assumptions and, appropriately, the methods used. The methods and data sources.

5.Quantification Objectives This document is used to quantify the carbon footprint of fossil products at selected stages of their life cycle, expressed in carbon dioxide equivalent

(CO₂e), based on this... The purpose of the document in quantifying carbon footprint includes, but is not limited to, the following.

- a) Used for communication of greenhouse gas emissions information between producers and upstream/downstream supply chains or consumers;
- b) Used for producers to design and improve products to reduce their carbon footprint and for comparison with similar products;
- c) Used for information exchange regarding product carbon footprint.

6 Quantification range

6.1 Product Description Describe the product system and its functions according to the product standards corresponding to the stone material, and clearly describe the product name, product definition, and product implementation standards. Information such as standards, component materials, and application directions.

6.2 System Boundary

6.2.1 The system boundary for quantifying the carbon footprint of stone products includes the raw material production stage, the raw material transportation stage, and the product production stage, see [link to relevant documentation]. Figure 1.

6.2.2 The raw material and auxiliary material production stage begins with the extraction of primary natural resources and ends when the raw materials and auxiliary materials arrive at the stone production plant, including natural... Raw material production for stone (such as stone block quarrying, slab production, adhesives, protective agents, etc.), and raw material production for composite stone (such as natural stone, ceramic tiles, etc.). Raw material production for artificial stone (such as unsaturated polyester resin, cement, calcite, dolomite, stone, etc.), including glass, aluminum honeycomb, aluminum composite panels, and insulation materials. Production processes of raw materials (such as sand, adhesives, protective agents), and auxiliary materials (such as the production process of packaging materials).

Note. Raw materials are materials that enter the product and are related to the product's function and performance; auxiliary materials are materials other than the main raw materials.

6.2.3 The raw material transportation stage begins when the raw materials and auxiliary materials are transported from the place of origin to the stone production plant and ends when they arrive.

6.2.4 The product manufacturing stage begins when raw materials and auxiliary materials arrive at the stone factory and ends when the product leaves the factory, including material preparation, cutting, edge grinding, and polishing. In-plant transportation.

6.3 Declaration of Unit The entity responsible for declaring the carbon footprint of stone products should include the following information.

---Measurement of unit quantity of product, 1m²;

---Key performance characteristics or specifications (such as dimensions, thickness, weight per unit area, main materials, etc.). Example. A 1m² granite sheet with dimensions of 600mm x 600mm and a thickness of 20mm.

6.4 Selection Criteria The material (energy) data involved should meet the following selection criteria.

- a) All energy inputs must be listed;
- b) All raw and auxiliary materials must be listed; if they meet requirements
- c) and d), they can be ignored.
- c) Neglected individual material (energy) flows or unit processes contribute no more than 1% to the product's carbon footprint;
- d) The total contribution of all neglected material (energy) flows and unit processes to the product's carbon footprint does not exceed 5%, and this contribution is not reflected in the product's carbon footprint report. This will be explained in the report;

7.1 Data Quality Requirements

7.1.1 The data and data quality shall meet the relevant requirements of 6.3.6, 6.3.8 in GB/T 24067-2024.

7.1.2 The activity data must meet the following requirements.

- a) Completeness. The system should be checked for any missing unit processes or input/output substances in accordance with the data scavenging criteria (see 6.4). Activity data should be collected from the company's production statistics for one calendar year or 12 consecutive months.
- b) Accuracy. Energy and raw material consumption data in the activity data should be derived from the company's actual production statistics records. All activity data should be accurate. It should be converted to be based on the declared unit, and relevant activity data, data sources, calculation processes, etc. should be recorded in detail.

7.1.3 The carbon footprint factor meets the following requirements.

- a) Representativeness. Field data or emission factor data provided by suppliers should be used first; secondly, the latest data published by the state should be used. And relevant database data that has been evaluated; finally, publicly published literature data and industry statistical recommendations are used.

b) Completeness. This should cover all unit processes defined at the system boundaries.

7.2 Data Collection and Verification

7.2.1 The following data should be collected during the raw material and auxiliary material production stage.

---The consumption of raw materials and auxiliary materials is uniformly converted into mass (t);

--- Carbon footprint factor of raw material and auxiliary material production process.

7.2.2 The following activity data should be collected during the raw material transportation phase.

---The transport weight and consumption of raw materials and auxiliary materials are uniformly converted into mass (t);

---Transportation distance and mode of transport for raw materials and auxiliary materials. If there are multiple suppliers of raw materials and auxiliary materials, a weighted average transportation distance can be used. The weight refers to the transport weight of raw materials and auxiliary materials;

---Carbon footprint factors for different modes of transportation.

7.2.3 The following activity data should be collected during the product manufacturing stage.

---For fuel transportation volume, distance, and mode of transport, if multiple suppliers exist, a weighted average transportation distance can be used, with the weight being the transportation distance. weight;

---Consumption of energy sources such as electricity, fuel, and heat;

---The lower heating value of the fuel;

---The carbon footprint of energy production, including electricity, fuel, and heat;

---Carbon footprint factor of fuel transportation;

---The carbon footprint factor of fuel combustion;

7.4 Allocation

7.4.1 During system boundary settings or data collection, if it is found that at least one unit process's inputs and outputs contain multiple products, then it is necessary to... Allocation needs to be carried out.

7.4.2 The allocation method is as follows: