

Hong Kong Green Label Scheme

Product Environmental Criteria for Ceramic Tile (GL-008-007)



BACKGROUND

The Hong Kong Green Label Scheme (HKGLS) is an independent and voluntary scheme, which aims to identify products that are, based on life cycle analysis consideration, more environmentally preferable than other similar products with the same function. The Scheme is organized by the Green Council (GC) with contributions from the HKGLS Advisory Committee and a number of supporting organizations.

The prime objectives of HKGLS are:

- For Consumers: assist in making purchases of products that are less harmful to the environment;
- For Industry: stimulate development and production of environmentally preferable alternatives.

This specification sets out the requirements that “Ceramic Tile” product will be required to meet in order to be licensed to use the HKGLS label. The requirements include environmental criteria and product performance (e.g. water absorption, abrasion resistance) characteristics. The specification also defines the testing and other means to be used to verify conformance with the requirements.

POTENTIAL ENVIRONMENTAL IMPACTS

Ceramic Tile is manufactured from a mixture of clays ground and blended to a fine powder, then pressed into shape and fired at high temperatures to give the tile its hardness. The body of ceramic tile may then be glazed (i.e. coated with a colored glaze similar to glass), or left unglazed depending on its intended use. Glazed tile is the most common style in floor and wall tiles with shiny or matte finishes. For unglazed tiles, their color is the same on the face of the tile as it is on the back. Porcelain tile is a higher grade of ceramic tile, made from a finer type of clays and are fired at a higher temperature.

The processes of pressing, glazing and spray drying during the production of ceramic tiles generate particulate emissions referred to as ‘cold emissions’ as compared with emissions arising from the firing stage.

The waste and residual products derived from the production can also give rise to a waste pollution problem, including possible pollution of water bodies.

While glazes that do not contain lead or other heavy metals are commonly available, heavy metals are known to be used in mixes and glazes for their engineering properties. As a result, during the use phase and at the end of the glazed tile’s life, dangerous substances including lead and cadmium may be released.

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LABEL OBJECTIVE

The aim of the product environmental criteria developed for “Ceramic Tile” is to:

- reduce the discharges of toxic or otherwise polluting substances into the environment during production and use of the product,
- prohibit or reduce the use of dangerous substances, including heavy metals and asbestos.

PRODUCT DEFINITION

This document and all product environmental criteria therein apply to all “Ceramic Tile”.

PRODUCT CRITERIA

The product performance and environmental criteria for the product category of “Ceramic Tile”(GL-008-007) under the Hong Kong Green Label Scheme (HKGLS) are set out in the ensuing table.

Criteria

Verification Method

PRODUCT PERFORMANCE CRITERIA

1. The product shall meet the performance requirements of acceptable standard for its intended application, especially in regard to Water Absorption and Abrasion Resistance.

Appropriate test results shall be provided on Water Absorption and Abrasion Resistance.

PRODUCT ENVIRONMENTAL CRITERIA

2. Raw materials used shall not contain known or suspected human carcinogens i.e. Carcinogenic substances in categories 1, 2A and 2B as classed by the International Agency for Research on Cancer (Lists of IARC Evaluations at <http://www-cie.iarc.fr/monoeval/crthall.html>)

The raw material formulation shall be provided by the applicant together with a *declaration* of compliance with the requirements.

3. If lead, cadmium and antimony (or any of their compounds) are used in the additives, their content shall not exceed the following limits:

The raw material formulation shall be provided by the applicant together with a *declaration* of compliance with the requirements.

Parameter Limit (% in weight of the glazes)

Lead 0.5

Cadmium 0.1

Antimony 0.25

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| 4. No asbestos shall be present in the raw materials used in the product. | The raw material formulation shall be provided by the applicant together with a <i>declaration</i> of compliance with the requirements. |
| 5. Production processes shall conform to relevant national or local environmental regulations on preventing air pollution and water contamination. | The applicant shall provide a <i>declaration</i> of conformity of the products with the requirements. |
| 6. Dangerous substances including lead and cadmium shall not be released in the use phase (glazed tiles only) | The applicant shall provide a <i>declaration</i> of conformity of the products with the requirements. |
| 7. Consumer information: The product shall be accompanied by relevant information concerning the product's proper use as well as its maintenance. | Supporting documentation shall be submitted for review. |

ASTM C373-88 (1999) Standard Test Method for Water Absorption, Bulk Density, Apparent Porosity, and Apparent Specific Gravity of Fired Whiteware Products, or equivalent standard.

ASTM C1027-99 (2004) Standard Test Method for Determining Visible Abrasion Resistance of Glazed Ceramic Tile, or equivalent standard.