CONSTRUCTION INDUSTRY COUNCIL
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CONSTRUCTION INDUSTRY COUNCIL

CIC GREEN PRODUCT CERTIFICATION

Assessment Standard

Artificial Stone

CIC GREEN
PRODUCT CERTIFICATION

(Version 2.0)

ARTIFICIAL STONE

Summary of Assessment Criteria

CORE CRITERIA

Criteria	Requirements	Verification	Points		Index
			Basic	+Bonus	
Product Information	Provide following information with delivered products or made accessible to public: • Country of Origin • Product composition • Information of product uses • Instructions on the installation and protection of the product • Recommendation on maintenance for the product	Documentation including but not limited to product catalogue, technical datasheet, webpages	**5**	-	4.1.1
RESOURCE					
Material Optimization	Raw Material: Raw materials or components of product (by weight) are made from combinations of recycled materials and /or waste materials: • ≥ 30% (10 basic) • ≥ 40% (+ 5 bonus) • ≥ 50% (+ 10 bonus)	Documentation on recycled content	**10**	+5/+10	4.3.1.1
ENVIRONMENT					
Environmental Management	Particulate Matters: Total particulate matters during the manufacturing process: < 30 mg/m^3.	Detailed report(s) of the air emission of particulate matters	**10**	-	4.4.1.2
	Water Pollutants: If wastewater is discharged from the manufacturer plant, wastewater shall not contain the following substances subjected to the maximum allowable limit: • Suspended solids: < 40 mg/L • Cadmium: < 0.015 mg/L • Chromium (VI): < 0.15 mg/L • Iron: < 1.5 mg/L • Lead: < 0.15 mg/L	Testing report(s) of pollutants concentration in wastewater	**20**	-	4.4.1.3

Criteria	Requirements	Verification	Points		Index
			Basic	+Bonus	
PERFORMANCE					
Product Life	Serviceability: A product's durability, safety, and suitability for use in building and interior applications must be demonstrated through at least FOUR relevant test items. Relevant tests include but not limited to: • Compressive Strength • Flexural Strength • Water Absorption • Abrasion Resistance • Chemical Resistance • Stain Resistance • Impact Resistance	Laboratory test report(s) for all relevant quality and performance tests	**5**	-	4.5.1.1
		Subtotal:	**50**	+10	

NON-CORE CRITERIA

Criteria	Requirements	Verification	Points +Bonus	Index
CARBON				
CFP quantification	Provide a life cycle assessment report with the carbon footprint of products (CFP), covering at least A1 to A3 endorsed by a third-party critical review OR provide an Environmental Product Declaration (EPD).	CFP quantification report **OR** Environmental Product Declaration (EPD)	+5/+10	4.2.1
RESOURCE				
Circularity	Recyclability: Developed a recycling plan for the product and declared options for reuse, recycling, recovery and disposal. The plan shall include the following and made available to public.	Recycling plan	+5	4.3.2.1
	Packaging Requirement: The packaging materials shall not contain halogenated plastics; *OR* Shall be comprised of 100% recycled materials, readily recyclable materials or decomposable materials; *OR* shall not be impregnated, labelled, coated or otherwise treated in a manner, which would prevent or significantly limit recycling.	Documentation on packaging materials used	+5	4.3.2.2
Waste Management	Waste Management Plan: Implement effective Waste Management Plan detailing the policies, procedures and/or a waste management program covering manufacturing operations.	Waste management programme	+5	4.3.3.1
Water Management	Option A: Water Consumption Reporting: Report both potable and non-potable water usage in the production process of the past year.	Water consumption report	+5/ +10	4.3.4.1
	Water Recycling Program: Develop and implement water recycling program during the manufacturing process.	Documentation on water recycling		4.3.4.2
	Option B: Water Management System: Process valid certificate under ISO 14046: Water Footprint Assessment	ISO 14046 Certificate issued by accredited certification body		4.3.4.3
Energy Management	Option A: Energy Management Plan: Implement effective energy management policies and procedures and/or an energy management programme.	Energy management plan	+5/ +10	4.3.5.1

Criteria	Requirements	Verification	Points +Bonus	Index
	Option B: Energy Management System: Possess valid certificate under ISO 50001: Energy management systems	ISO 50001 Certificate issued by accredited certification body		4.3.5.2
	Option C: Energy Consumption Limits: Unit product energy consumption shall meet the following requirements: Unit Product Energy Consumption ≤ 2.58 kgce/m^3	Energy consumption data report(s)		4.3.5.3
	Clean Energy: Procure or produce renewable electricity or carbon offsets to compensate 5% of total electricity used and greenhouse gas emissions from other energy sources	Calculation report	+5	4.3.5.4
ENVIRONMENT				
Environmental Management	Environmental Management System: Possess valid certificate under ISO 14001: Environmental management systems or EU Eco-Management and Audit Scheme (EMAS).	ISO 14001 or EMAS Certificate issued by accredited certification body	+5	4.4.1.1
Regional Product	Regional Product: Products that are manufactured within 800km radius of HKSAR by road transportation; within a 1,600km radius by rail transportation; or within a 4,000km radius by sea transportation.	Location map	+5	4.4.2.1

Criteria	Requirements	Verification	Points +Bonus	Index
Human Toxicity and Ecosystem Impact	Hazardous Substances: The following compounds, their functional derivatives or in-situ precursors shall not be contained in the product or be added to the products and their component parts and / or packaging or used at any stage of the manufacturing process, including as the preparatory agents, cleaners or degreasers in the production facility: • Materials that give rise to dioxins; • Halogenated organic flame retardants (e.g., decaBDE, chlorinated paraffins, etc); • Flaming additives for natural products; • Halogenated organic solvents; • Aniline-based amines; • Aziridine or polyuridines; • Alkylphenol ethoxylates (APEO) or derivatives (APDs) • 1,3 butadiene. **AND** For Carcinogenic Substances, the product shall be listed in IARC Group 1, 2A and 2B shall be < 0.1% by weight of the product.	Laboratory test report(s) or self-declaration letter	+10	4.4.3.1
	Radioactivity: External Hazard Index, Hex ≤ 1.2 Internal Hazard Index, Hin: ≤ 0.9	Laboratory test report(s)	+5	4.4.3.2
	Plasticisers: Concentration of phthalate in the product below 0.1% by weight of the product. The limited phthalates including the following types: • Bis(2-ethylhexyl)phthalate (DEHP) • Dibutyl phthalate (DBP) • benzylbutylphthalate (BBP) • Diisononylphthalate (DINP) • Diisodecylphthalate (DIDP) • Di-n-octylphthalate (DNOP)	Laboratory test report(s)	+5	4.4.3.3
Volatile Organic Compounds (VOC)	VOC Content: Total Volatile Organic Compounds: < 0.25 mg/m3	Laboratory test report(s)	+5	4.4.4.1

Criteria	Requirements	Verification	Points +Bonus	Index
INNOSMART				
Innovations & Additions	Adopt new practice, technology and strategy. *OR* Achieve exemplary performance	Narrative with supporting	+5	4.6.1
		Subtotal:	+90	

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1. INTRODUCTION

1.1 PURPOSE

The CIC Green Product Certification Scheme (the "Scheme") is a green product labelling scheme, owned by the Construction Industry Council (CIC) and implemented by the Hong Kong Green Building Council (HKGBC). The primary goal of the scheme is to support Hong Kong's transition to a low-carbon economy by encouraging the adoption of environmentally friendly construction practices.

With the Green Product Certification, various stakeholders, including consumers, building professionals, construction practitioners and policymakers, can easily and unequivocally identify environmentally preferable construction materials and building products. This certification serves as a reliable indicator of a product's sustainability, helping to drive market demand for greener options.

To ensure the credibility and effectiveness of the certification, the CIC and the HKGBC has jointly developed this Technical Assessment Standards (the "Standard"), which sets out the assessment criteria and their benchmarks to govern the application and award of a label under the Scheme. The comprehensive assessment evaluates the overall sustainability of construction materials and building products across multiple dimensions. These dimensions include environmental impact, resource efficiency, technical performance, and the use of smart manufacturing technologies.

The Standard is divided into two main parts:

- General Requirements (Refer to General Requirements provided in separate document). This part introduces Scheme's framework, outlines the application procedure, and details the grades.

- Technical Requirements (This document refers). This part defines the principles, requirements and guides for quantifying and reporting the products' carbon footprint (CFP), along with other sustainability assessment criteria and scoring standards.

This Standard neither modifies nor supersedes laws and regulations. Compliance with this Standard is not a substitute for, and does not assure, compliance with any applicable laws or regulations. Compliance with all applicable laws and regulations is a prerequisite for the manufacturing and marketing of the product.

1.2 BACKGROUND

Artificial stones are commonly applied as the decorative surface material of interior and exterior wall, such as wall cladding, non-load-bearing exterior veneer, and wall finishes etc. The product could also be used as the table and desktops, kitchen and bath countertops and backsplashes. The production cycle of artificial stones includes mixing of natural stones or aggregate, a resin (as a binder), pigments and additives. The mixture is compacted into slabs under pressure, vibration and controlled temperature. Major environmental impacts associated with the production of artificial stones include raw materials consumption, human toxicity and waste discharges.

The purposes of assessment criteria developed for both natural and artificial stone products are, therefore, to minimise the impacts to both the human health and environment throughout the product's life cycle.

2. SCOPE

The scope of this Standard includes all artificial stone products made from natural stones, aggregates and combining with other materials such as fibre, mineral, cement, ash and resin etc. The products could be in the form of blocks or slabs, which can be transformed in finished slabs, tiles, vanity tops or similar elements complementary to products for flooring and wall finishes. But the scope does not include the support structure or system of the product and the product serving any structural function.

The types and ratio (formulation) of raw materials shall be specified clearly in each application. **ONE** application is only for **ONE** product series with same raw materials and ratio (formulation). All the related products have to be listed on the submitted documents.

E.g. Composition of mixed quartz stone and glass fibre plus binding agent A and various colouring is regarded as one application.

Subsequent application is available for the similar products with the same raw materials i.e. quartz and fibre of a labelled product series with different ratio (formulation), which is only eligible for applying within the validity period of the label.

3. DEFINITIONS

Applicant:	Organisations which apply for the label of the CIC Green Product Certification of the Construction Industry Council
ASTM:	American Society for Testing and Materials
BS:	British Standards
CIC:	Construction Industry Council
CNAS:	China National Accreditation Service for Conformity Assessment

EMAS:	Eco-Management and Audit Scheme (EMAS) is an environmental management tool which enables organisations to assess, manage and continuously improve their environmental performance.
HKAS:	Hong Kong Accreditation Service
HKGBC:	The Hong Kong Green Building Council Limited
HOKLAS:	The Hong Kong Laboratory Accreditation Scheme
IARC:	International Agency for Research on Cancer
ISO:	International Organisation for Standardisation
MSDS:	Material Safety Data Sheets. To qualify as suitable, the MSDS and information therein must not be more than 5-year-old
Natural stones:	Naturally occurring rock, such as marble, granite, sandstone and limestone
Non-Steam Pressure:	Non-Steam pressure curing relies on ambient temperature or direct heat application without the use of steam. This method may involve using molds under pressure but does not utilize steam for the curing process.
Third-party:	An entity without any financial interest or stake in the sales of the product or service being evaluated or other conflict of interest
Usable Materials:	The materials or substances produced from natural resources. The usable materials are suitable for further processing and use; all materials destined for disposal are not defined as usable materials.

4. EVALUATION CRITERIA

A product to be assessed shall meet all the minimum requirements of the "Core Criteria" in order to be awarded a "Green" (i.e. a "pass" grade) Label under the Scheme. Bonus points may be awarded if the product meets the "Non-core Criteria". "Bronze", "Silver", "Gold" or "Platinum" Label will be awarded according to the total points accumulated, as shown in Table 1.

Table 1 Benchmarks for grading

Points achieved	Grade to be awarded
90 or above	Platinum
80 – 89	Gold
70 – 79	Silver
60 – 69	Bronze
50 – 59	Green
Below 50	No label

All submissions and documentations shall be endorsed by the Chief Executive Officer or other authorised persons of the Applicant to demonstrate conformance to the assessment criteria. All certification, laboratory report and documentation must be valid during the assessment process and labelling period. The validity of all laboratory report and documentation shall be within 5 years from the date of issue. The chemical tests should be conducted by either a third party or the manufacturer, providing that they have obtained ISO 17025 certification or relevant national accreditations, such as HOKLAS or CNAS.

4.1 BASIC INFORMATION

4.1.1 Product Information - Core Criteria

Requirements

5 Basic Points for providing following information with delivered products or made accessible to public:

- Country of Origin
- Product composition
- Information of product uses
- Instructions on the installation and protection of the product
- Recommendation on maintenance for the product

Verification

Documentation related to the product labels, instructions and other information provided with the product, material safety data sheets(MSDS), web pages and any other information shall be freely available to customers or the public.

4.2 CARBON

4.2.1 CFP Quantification – Non-core Criteria

The Applicant can achieve maximum 10 Bonus Points under this section.

Requirements

5 Bonus Points for providing life cycle assessment report for quantifying and reporting the carbon footprint of products (CFP), covering at least A1 (raw material supply), A2 (transport) and A3 (manufacturing process).

OR

10 Bonus Points for providing the product's CFP value from a product level EPD issued in accordance ISO 14025:2006, ISO 14067:2018, ISO 21930:2017, GB/T 24067-2024 or BS EN 15804:2012.

Verification

Either of the following documents shall be provided for verification.

CFP quantification report endorsed by a third-party critical review, in accordance with ISO 14067:2018 or equivalent

OR

Environmental Product Declaration fulfilling the above requirements

4.3 RESOURCE

4.3.1 Material Optimization

The Applicant is required to achieve 10 Basic Points under this section. Additionally, the Applicant can achieve maximum 10 Bonus Points under this section.

4.3.1.1 Raw Material – Core Criteria

Requirements

10 Basic Points for ⩾ 30% of the raw materials or components of product (by weight) are made from combinations of recycled materials and /or waste materials.

5 Bonus Points for ⩾ 40% of the raw materials or components of product (by weight) are made from combinations of recycled materials and /or waste materials.

10 Bonus Points for ⩾ 50% of the raw materials or components of product (by weight) are made from combinations of recycled materials and /or waste materials.

Verification

Documentation including but not limited to product catalogue, MSDS, test reports and written declaration.

4.3.2 Circularity

The Applicant can achieve maximum 10 Bonus Points under this section.

4.3.2.1 Recyclability – Non-core Criteria

Requirements

5 Bonus Points for demonstrating that the manufacturer has developed a recycling plan for the product and declared options for reuse, recycling, recovery and disposal. The plan shall include the following and made available to public.

- Designate all homogeneous materials in the product as being intended for technical and/or biological cycles and define the intended cycling pathway(s) for each material.
- Identify potential partners for product reuse, recycling, recovery in accordance with the intended cycling pathway(s).
- For products and materials intended for municipal recycling, the product and/or material must be compatible for municipal cycling systems (e.g., painted plastics and plastic laminated paper are not currently compatible for municipal recycling).
- Instructions for how to cycle the product shall be made publicly available.

Verification

Documentation of recycling plan, including, but not limited to product catalogue, MSDS and written declaration.

4.3.2.2 Packaging Requirement – Non-core Criteria

Requirements

5 Bonus Points for minimizing the wastage from all primary packaging materials. The packaging materials shall achieve either of the followings.

The packaging materials shall not contain halogenated plastics

OR

The packaging materials shall be comprised of 100% recycled materials, readily recyclable materials or decomposable materials

OR

The packaging shall not be impregnated, labelled, coated or otherwise treated in a manner, which would prevent or significantly limit recycling.

The packaging requirements are relevant to all primary packaging materials, i.e. those being used to envelop the product and hold it. The primary packaging materials are usually in direct contact with the contents and shall be in the minimal amount of distribution and /or use as they may eventually be disposed by the consumers.

Verification

Documentation describing the packaging materials used as well as their chemical composition (if any and where applicable), treatment process and recyclability.

4.3.3 Waste Management

The Applicant can achieve maximum 5 Bonus Points under this section.

4.3.3.1 Waste Management Plan – Non-core Criteria

Requirements

5 Bonus Points for implementing effective waste management plan detailing the policies, procedures and/or a waste management program covering manufacturing operations. The waste management plan should include but not limited to the following information:

- Initiatives taken to reduce waste generation and improve recovery/recycling of waste
- Initiatives implemented for recovery of post-consumer and/or pre-consumer waste that can be re-introduced into the manufacturing process and
- Other environmental benefits or constraints associated with waste minimisation objectives and processes.

Verification

Documentation of waste management programme.

4.3.4 Water Management

The Applicant can achieve maximum 10 Bonus Points under this section.

The Applicants can select one of the options below and comply with any or all the requirements under that option to achieve associated points. Each option is eligible for a maximum 10 Bonus Points.

Option A:

4.3.4.1 Water Consumption Reporting – Non-core Criteria

Requirements

5 Bonus Points for reporting both potable and non-potable water usage in the production process of the past year.

Verification

Water consumption report, support by water usage data acquired from water meter, water sub-meter, water bill or other equivalent documents.

4.3.4.2 Water Recycling Program – Non-core Criteria

Requirements

5 Bonus Points for developing and implementing water recycling program during the manufacturing process.

Verification

Documentation demonstrating the implementation of water recycling program, support by drawings, water usage data acquired from water sub-meter or other equivalent documents.

Option B:

4.3.4.3 Water Management System – Non-core Criteria

Requirements

10 Bonus Points for possessing valid certificate under ISO 14046: Environmental management – Water footprint – Principles, requirements and guidelines.

ISO 14046 is a framework for assessing the water footprint of products, processes, and organizations. It provides principles, requirements, and guidelines for conducting and reporting water footprint assessments. It helps organizations evaluate and improve their water management practices.

Verification

A valid ISO 14046 certificate issued by accredited certification body.

4.3.5 Energy Management

The Applicant can achieve maximum 10 Bonus Points under this section.

The Applicants can select one of the options below and comply with any or all the requirements under that option to achieve associated points.

Option A:

4.3.5.1 Energy Management Plan – Non-core Criteria

Requirements

5 Bonus Points for implementing effective energy management policies and procedures and/or an energy management programme, including but not limited to the following items:

- Energy efficiency initiatives: Manufacturer should undertake specific initiatives to reduce energy use and improve energy efficiency throughout their operations. This could include upgrading to more efficient equipment, optimizing production processes, or implementing energy-saving technologies
- Supplier requirements: Manufacturers should extend their energy management efforts to their supply chain by establishing requirements or initiatives for suppliers and contract manufacturers to improve their energy performance where possible

Verification

Documentation of energy management plan detailing the above, supported by organizational policy or other equivalent documents.

Option B:

4.3.5.2 Energy Management System – Non-core Criteria

Requirements

10 Bonus Points for possessing valid certificate under ISO 50001: Energy management systems — Requirements with guidance for use.

ISO 50001 provides a framework for organizations to establish, implement, maintain, and improve an Energy Management System. The goal is to help organizations improve their energy performance, increase energy efficiency, and reduce energy costs and greenhouse gas emissions. By achieving ISO 50001 certification, manufacturers can demonstrate their commitment to energy efficiency and sustainability

Verification

A valid ISO 50001 certificate issued by accredited certification body.

***Option C*:**

4.3.5.3 Energy Consumption Limits – Non-core Criteria

Requirements

10 Bonus Points for meeting the requirements for unit product energy consumption as follows:

Unit Product Energy Consumption: ≤ 2.58 kgce/m^3

Verification

Energy consumption data report(s) for all relevant manufacturing procedures and detailed plans of energy consumption and reduction programme.

4.3.5.4 Clean Energy – Non-core Criteria

Requirements

5 Bonus Points for procure or produce renewable electricity or carbon offsets to compensate 5% of total electricity used and greenhouse gas emissions from other energy sources.

The targets can be met via a variety of methods. One or more of the methods listed below may be applied toward achieving the targets.

i) For electricity

- Procure or produce renewable electricity to match 5% of the electricity used
- Purchase carbon offsets to compensate for 5% of the resulting greenhouse gas emissions (using grid average emissions factors)

ii) For greenhouse gas emissions from other energy sources

- Purchase carbon offsets to compensate for 5% of the resulting greenhouse gas emissions

Verification

Calculation report include at least the following information:

- Quantity of electricity consumed with the associated carbon emission factor, supported by electricity bill and grid emission factor
- Quantify of other energy source consumed with the associated carbon emission factor, support by purchase order, declaration letter or other equivalent documents
- Quantity of renewable electricity produced onsite, supported by drawings, submeter reading or other equivalent documents
- Quantity of renewable electricity or carbon offset purchased, support by purchase agreement, carbon offset program certification or other equivalent documents

4.4 ENVIRONMENT

4.4.1 Environmental Management

The Applicant is required to achieve 30 Basic Points under this section. Additionally, the Applicant can achieve maximum 5 Bonus Points under this section.

4.4.1.1 Environment Management System – Non-core Criteria

Requirements

5 Bonus Points for possessing valid certificate under ISO 14001: Environmental management systems — Requirements with guidance for use or EU Eco-Management and Audit Scheme (EMAS).

The target of the environmental management system shall be set to reduce the environmental impacts during the manufacturing process which include but not limited to the reduction of hazardous substance emissions, energy consumption, CO_2 emissions, secondary environmental load, waste management, water management, etc.

ISO 14001 is the international standard which provides an outline of how to meet the environmental policy and objectives for the business of the applicant.

Eco-Management and Audit Scheme (EMAS) is an environmental management tool which enables organisations to assess, manage and continuously improve their environmental performance.

Verification

A valid ISO 14001 or EMAS certificate issued by accredited certification body

4.4.1.2 Particulate Matters – Core Criteria

Requirements

10 Basic Points for demonstrating the total particulate matters during the manufacturing process is < 30 mg/m^3.

Verification

Detailed report(s) of the air emission of total particulate matters shall be compiled according to the National and International test methods including but not limited to EN 12341. Other related testing methods are also acceptable with justification provided by the applicant.

4.4.1.3 Water Pollutant – Core Criteria

Requirements

10 Basic Points for wastewater discharged to water not containing the following substances subjected to the maximum allowable limit below:

Table 2: Limits of specific emissions in wastewater

Emission	Limit (mg/L)
Suspended solids	< 40
Cadmium	< 0.015
Chromium (VI)	< 0.15
Iron	< 1.5
Lead	< 0.15

Verification

Detailed report(s) of the amount of pollutants in waste water discharged from the manufacturing plant. Test report(s) shall be compiled according to the National and International test methods including but not limited to ISO 5667-17 or APHA 2540D for suspended solids, ISO 8288 for lead and cadmium, ISO 11083 for hexavalent chromium and ISO 6332 for iron.

4.4.2 Regional Product

The Applicant can achieve maximum 5 Bonus Points under this section.

4.4.2.1 Regional Product – Non-core Criteria

Requirements

5 Bonus Points for products that are manufactured within 800km radius of HKSAR by road transportation; within a 1,600km radius by rail transportation; or within a 4,000km radius by sea transportation. The distance is measured by the direct distance, not by actual travel distance.

Verification

Documents demonstrating the location of the manufacturer and a map showing the distance between the manufacturer and HKSAR.

4.4.3 Human Toxicity and Ecosystem Impact

The Applicant can achieve maximum 20 Bonus Points under this section.

4.4.3.1 Hazardous Substances – Non-core Criteria

Requirements

10 Bonus Points for meeting the requirements as below:

The product shall not contain any carcinogenic substances or chemicals that are classified as Group 1, 2A or 2B according to International Agency for Research on

Cancer (IARC)[1]. Any such carcinogens which are known to be present as contaminants shall be less than 0.1% by weight of the product.

AND

The following compounds, their functional derivatives or in-situ precursors shall not be contained in the product or be added to the products and their component parts and / or packaging or used at any stage of the manufacturing process, including as the preparatory agents, cleaners or degreasers in the production facility:

- Materials that give rise to dioxins;
- Halogenated organic flame retardants (e.g., decaBDE, chlorinated paraffins, etc);
- Flaming additives for natural products;
- Halogenated organic solvents;
- Aniline-based amines;
- Aziridine or polyuridines;
- Alkylphenol ethoxylates (APEO) or derivatives (APDs)
- 1,3 butadiene.

Verification

Laboratory test report(s) or self-declaration letter

4.4.3.2 Radioactivity –Non-Core Criteria

Requirements

5 Bonus Points for for demonstrating the following:

The effective concentration of potassium isotope K_{40} (C_K), radium isotope Ra_{226} (C_{Ra}) and thorium isotope Th_{232} (C_{Th}) shall satisfy the following requirements:

External Hazard Index, H_{ex}:

$$H_{ex} = \frac{C_K}{4200} + \frac{C_{Ra}}{370} + \frac{C_{Th}}{260}$$

Internal Hazard Index, H_{in}:

$$H_{in} = \frac{C_{Ra}}{200}$$

where H_{ex} shall be ≤ 1.2 and H_{in} shall be ≤ 0.9

[1] Agents Classified by the IARC Monographs, Volumes 1–137 – IARC Monographs on the Identification of Carcinogenic Hazards to Humans

Products shall be tested based on the requirement as stated in GB 6566-2010 (or latest version); other related testing methods are also acceptable with justification provided by the applicant.

GB 6566-2010 specifies the limits and natural radionuclides in building materials radionuclide radium-226, thorium-232, potassium-40 Test Method for radioactivity.

Verification

A detailed laboratory report(s) shall be provided.

4.4.3.3 Plasticisers – Non-Core Criteria

Requirements

5 Bonus Points for concentration of phthalate in the product below 0.1% by weight of the product. The limited phthalates including the following types:

- Bis(2-ethylhexyl)phthalate (DEHP)
- Dibutyl phthalate (DBP)
- benzylbutylphthalate (BBP)
- Diisononylphthalate (DINP)
- Diisodecylphthalate (DIDP)
- Di-n-octylphthalate (DNOP)

Verification

Laboratory test report(s). Test report(s) shall be compiled according to the National and International test methods.

4.4.4 Volatile Organic Compounds (VOC)

The Applicant can achieve 5 Bonus Points under this section.

4.4.4.1 VOC Content – Non-core Criteria

Requirements

5 Bonus Points for meeting the limit of Total Volatile Organic Compounds (TVOC) of < 0.25 mg/m^3

Verification

Laboratory test report(s)

4.5 PERFORMANCE

4.5.1 Product Life

The Applicant is required to achieve 5 Basic Points under this section.

4.5.1.1 Serviceability

Requirements

5 Basic Points for demonstrating the product durability, safety, and suitability durability, safety, and suitability through at least **FOUR** testing items which may include but not limited to the followings:

- Compressive Strength
- Flexural Strength
- Water Absorption
- Abrasion Resistance
- Chemical Resistance
- Stain Resistance
- Impact Resistance

Table 3: Standards for Artificial Stone

Testing items	Standards
Compressive Strength	ASTM C170 , GB/T 9966, GB/T 44178, TCECS 10051-2019, GB/T 35160
Flexural Strength	ASTM C880 , GB/T 9966, GB/T 44178, TCECS 10051-2019, GB/T 35160
Water Absorption	ASTM C97 , GB/T 9966, GB/T 44178, TCECS 10051-2019, GB/T 35160
Abrasion Resistance	ASTM C1353 , GB/T 9966, GB/T 44178, TCECS 10051-2019, GB/T 35160
Chemical Resistance	ASTM C650, GB/T 9966, GB/T 44178, TCECS 10051-2019, GB/T 35160
Stain Resistance	ASTM C1378 , GB/T 9966, GB/T 44178, TCECS 10051-2019, GB/T 35160
Impact Resistance	ASTM D2794，GB/T 9966, GB/T 44178, TCECS 10051-2019, GB/T 35160

Verification

Documentation including but not limit to laboratory test report(s) for all relevant quality and performance tests that related to the label and relevant information.

4.6 INNOSMART

4.6.1 Innovations & Additions- Non-Core Criteria

The Applicant can achieve maximum 5 Bonus Points under this section.

Requirements

5 Bonus Points for achieving significant, measurable environmental performance using new practices, technology and strategy not addressed in this Standard.

OR

Demonstrating exemplary performance in any of the existing assessment criteria.

The benefits of environmental performance can be achieved throughout the lifecycle of the products, covering the product, construction process, use and end of life stage. Examples of innovative and smart technologies are shown below.

- Implementing technologies that significantly reduce resource consumption across various aspects.
- Adopting intelligent production methods that leverage automation, data analytics, and innovative design techniques.

Verification

Report with a maximum length of 1,000 words, outline the objectives, solution and evaluation of the performance achieved by proposed Smart and Innovative Technologies.

AND

Include attachments that provide evidence of implementation, along with relevant technical specification that support the claims made in the report.

5. SCORING

The points for meeting each criterion stated in this Standard are summarized below.

Table 4: Points to be awarded under the assessment criteria of this Standard

Label	Evaluation Criteria		Points		Related BEAM Plus Credits
			Basic	+Bonus	
	Product Information [CORE]		5	-	
Carbon	CFP Quantification		-	+5/+10	MW 10
Resource	Material Optimization	Raw Material [CORE]	10	+5/+10	MW 6
	Circularity	Recyclability	-	+5	
		Packaging Requirement	-	+5	
	Waste Management	Waste Management Plan	-	+5	
	Water Management	Water Consumption Reporting	-	+5/+10	
		Water Recycling Program			
		Water Management System			
	Energy Management	Energy Management Plan	-	+5/+10	
		Energy Management System			
		Energy Consumption Limits			
		Clean Energy	-	+5	
Environment	Environmental Management	Environmental Management System	-	+5	
		Particulate Matters [CORE]	10	-	
		Water Pollutant [CORE]	20	-	
	Regional Product	Regional Product	-	+5	MW 8
	Human Toxicity and Ecosystem Impact	Hazardous Substances	-	+10	
		Radioactivity	-	+5	
		Plasticisers	-	+5	
	Volatile Organic Compounds (VOC)	VOC Content	-	+5	HWB 8
Performance	Product Life	Serviceability [CORE]	5	-	MW 4
InnoSmart	Innovation & Additions		-	+5	IA
		Total:	**50**	**+100**	

Related BEAM Plus Credits refer to these relevant credits under BEAM Plus New Buildings Version 2.0, as listed below.

- MW 4: Design for Durability and Resilience
- MW 6: Recycled Materials
- MW 8: Regional Materials
- MW 9: Use of Green Products
- MW 10: Life Cycle Assessment
- HWB 8: Indoor Air Quality
- Innovations & Additions