CONSTRUCTION INDUSTRY COUNCIL

CIC GREEN PRODUCT CERTIFICATION

Assessment Standard

Sanitary Ware – Ceramic Product

(Version 2.0)

Sanitary Ware – Ceramic Product

Summary of Assessment Criteria

CORE CRITERIA

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<tr><th></th><th></th><th></th><th>Basic</th><th>+Bonus</th><th></th></tr>
<tr><td>Product Information</td><td>Provide following information with delivered products or made accessible to public:
• Basic product specifications
• Intended use of the product
• Instructions for correct use and storage to maximize the lifetime of the product
• Recommended maintenance instructions for the product
• Installation method
• Instructions for consumer product disposal
• Country of origin</td><td>Documentation including but not limited to product catalogue, technical datasheet, webpages</td><td>5</td><td>-</td><td>4.1.1</td></tr>
<tr><td colspan="6">RESOURCE</td></tr>
<tr><td>Material Optimization</td><td>Raw Material Utilization Rate:
The Mold Usage Rate (Ks) should not exceed 0.2. AND

The weight (in kg) of the product shall not exceed the limits specified in the table:

<table><tr><th colspan="2">Product Type</th><th>Weight Limits</th></tr><tr><td rowspan="2">Weight of a single toilet</td><td>One piece toilet</td><td>≤ 45</td></tr><tr><td>Split toilet (without water tank)</td><td>≤ 25</td></tr><tr><td colspan="2">Weight of a single squatty toilet (without accessories) production</td><td>≤ 20</td></tr><tr><td colspan="2">Weight of single wall mount (excluding water tank)</td><td>≤ 15</td></tr></table></td><td>Detailed report(s)
Material usage data</td><td>5</td><td>-</td><td>4.3.1.1</td></tr>
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<tr><td rowspan="2">Environmental Management</td><td>Acidification:
Air emissions of total particulate matters during the whole manufacturing process shall not exceed 30 mg per m^3; AND

Concentration of emission for SO_2 and NO_X for every sampling point shall not exceed the following

<table><tr><th>Parameter</th><th>Limit (mg/m^3)</th></tr><tr><td>Nitrogen oxides (NO_x)</td><td>180</td></tr><tr><td>Sulphur dioxide (SO_2)</td><td>50</td></tr></table></td><td>Testing report(s) of acidifying emissions</td><td>10</td><td>-</td><td>4.4.1.2</td></tr>
<tr><td>Water Pollutants:
If wastewater is discharged from the manufacturer plant, the limit the pollution level in wastewater is listed:

<table><tr><th>Emission</th><th>Limit (mg/L)</th></tr><tr><td>Suspended solids</td><td>< 40</td></tr><tr><td>Cadmium</td><td>< 0.07</td></tr><tr><td>Chromium (VI)</td><td>< 0.10</td></tr><tr><td>Lead</td><td>< 0.30</td></tr></table></td><td>Testing report(s) of pollutants concentration in wastewater</td><td>10</td><td>-</td><td>4.4.1.3</td></tr>
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External Hazard Index, $H_{ex} \leq 1.2$
Internal Hazard Index, H_{in}: ≤ 0.9</td><td>Laboratory test report(s) and production documentation</td><td>10</td><td>-</td><td>4.4.3.3</td></tr>
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<tr><td colspan="6">PERFORMANCE</td></tr>
<tr><td>Performance Property</td><td>Water Efficiency:
The performance of the product shall meet the following standards：

<table><tr><th colspan="4">Project Type</th><th>Water Consumption Limits</th></tr><tr><td rowspan="5">Toilet water consumption</td><td rowspan="3">Toilet</td><td rowspan="2">Double flush</td><td>Maximum water consumption for full flush</td><td>≤ 5.0 L</td></tr><tr><td>Average water consumption</td><td>≤ 4.0 L</td></tr><tr><td colspan="2">Average water consumption per flush</td><td>≤ 4.0 L</td></tr><tr><td>Squat toilet</td><td colspan="2">Average water consumption</td><td>≤ 5.0 L</td></tr><tr><td>Urinal</td><td colspan="2">Average water consumption</td><td>≤ 2.0 L</td></tr></table></td><td>Documentation including but not limited to product catalogue and test report.</td><td>5</td><td>-</td><td>4.5.1.1</td></tr>
<tr><td>Product Life</td><td>Durability:
Ensure the durability by demonstrate the maximum number of usage：

<table><tr><td rowspan="2">Gravity water flushing device</td><td>Fill valve</td><td>≥ 100 000 times</td></tr><tr><td>Flush valve</td><td>≥ 100 000 times</td></tr><tr><td>Pressure assistant water flushing device</td><td>Flushometer valve</td><td>≥ 200 000 times</td></tr><tr><td rowspan="3">Toilet seats and lids</td><td>Swinging Test</td><td>≥ 25 000 times</td></tr><tr><td>Soft close Functional Test</td><td>≥ 30 000 times</td></tr><tr><td>High Pressure Test</td><td>≥ 10 000 times</td></tr></table></td><td>Documentation including but not limited to product catalogue and test report.</td><td>5</td><td>-</td><td>4.5.2.1</td></tr>
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</table>

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; *O*R 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 program	+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

Criteria	Requirements	Verification	Points +Bonus	Index
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
	Option B: Energy Management System: Possess valid certificates under ISO 50001: Energy management systems.	ISO 50001 Certificate issued by accredited certification body		4.3.5.2
	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	4.3.5.3
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
Human Toxicity and Ecosystem Impact	Hazardous Substances: No carcinogenic substances; No fatal, harmful or toxic substances; Weight of Phthalates, Pesticides, Halogenated solvents, Aromatic solvents, PBBs and PBDEs shall be less than 0.1%.	Laboratory test report(s) or self-declaration letter	+5	4.4.3.1
	Heavy Metals: Concentration of the following toxic heavy metals (or their related compounds) in the product shall below 0.1% by weight of the product. • Arsenic • Barium • Cadmium • Chromium VI • Lead • Mercury.	Laboratory test report(s)	+5	4.4.3.1

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:	+75	

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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

The industrial and economic growth observed in more economically developed countries in recent years has brought a considerable increase in the generation of waste in sanitary ware industry. With the rapidly growth in the industry, sanitary ware becomes a significant burden on the environment, from raw material extraction to potential health hazards in the operational phase.

With increasing environmental claims of the pollutants generated in sanitary ware industry, a more comprehensive and systematic approach to assess the environmental impacts of the sanitary ware shall be developed. The aim of this Standard is to help designers and end-users choosing greener products by conserving resources, reducing the amount of waste disposal in landfills and reducing the impact to human health throughout the life cycle of sanitary ware. The development of the assessment criteria in this Standard has made references to worldwide relevant eco-labelling schemes and some existing life cycle assessment (LCA) studies.

2. SCOPE

This standard applies to ceramic sanitary ware products used in building applications, including but not limited to ceramic toilets, quat toilets, urinals.

ONE application is only eligible for **ONE** product series with same serial number.

Note:

Each application should specify the product code / serial number.

Subsequent application is available for similar products with the same product serial number of a labelled product series, 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.
GB:	Chinese National Standards

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 sheet. To qualify as suitable, MSDS and information therein must not be more than 5-years old
Post-consumer recycled content:	Consumer waste, generated by end-users and can no longer be used for its intended purpose. Examples include construction and demolition debris, materials collected through recycling programs, discarded products (e.g., furniture, cabinetry, decking), and landscaping waste (e.g., leaves, grass clippings, tree trimmings).
Pre-consumer recycled content:	Recycled content comes from process waste that is used to make a different product.
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
VOC:	Volatile organic compounds. Any organic compound (compound which contains carbon) with either a boiling point below 250°C measured at 101.3 kPa or a vapour pressure of more than 0.1 mm Hg measured at 25°C

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

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

Requirements

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

- Basic product specifications
- Intended use of the product
- Instructions for correct use and storage to maximize the lifetime of the product
- Recommended maintenance instructions for the product
- Installation method
- Instructions for consumer product disposal
- Country of origin

Verification

Documentation showing the product information and instructions, including but not limited to product catalogue, technical datasheet, webpages and/or any other information freely accessible by customers.

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 certified in accordance with 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 14025:2006, ISO 14067:2018, ISO 21930:2017, GB/T 24067-2024 or BS EN 15804:2012 or equivalent.

OR

Environmental Product Declaration fulfilling the above requirements

4.3 RESOURCE

4.3.1 Material Optimization

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

4.3.1.1 Raw Material Utilization Rate – Core Criteria

Requirements

5 Basic Points for demonstrating compliance to the following requirements on Mold Usage Rate and product Weight Limits.

Mold Usage Rate:

The Mold Usage Rate (K_s) should not exceed 0.2. The Mold Usage Rate (K_s) is defined as the ratio of mold used by the manufacture during the production process (usually take 1 year as evaluation period) to the qualified sanitary ware ceramic product weight. The calculation should follow the equation as below:

$$K_S = \frac{F_S}{M_S}$$

Where,

K_S is the Mold Usage Rate

F_S is the product mold used for manufacturing during 1 year reporting period (t)

M_S is the weight of qualified sanitary ware ceramic product (t)

AND

Weight Limits for Ceramic Sanitary Ware:

The weight (measured in kg) of the sanitary ware ceramic product shall not exceed the limits specified in Table 2. The weight of the product should be tested and reported according to GB/T 6952.

Table 2: Weight limits for sanitary ware ceramic product

Product Type		Weight Limits	Unit
Weight of a single toilet	One piece toilet	≤ 45	kg
	Split toilet (without water tank)	≤ 25	
Weight of a single squatty toilet (without accessories) production		≤ 20	

Weight of single wall mount (excluding water tank)	≤ 15	

Verification

Detailed report(s) on material usage data for all relevant materials and the weight of the product.

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.

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 15 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.

4.3.5.3 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 20 Basic Points under this section. Additionally, the Applicant can achieve maximum 5 Bonus Points under this section.

4.4.1.1 Environmental 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 Acidification – Core Criteria

Requirements

10 Basic Points for demonstrating the following:

Air emissions of total particulate matters during the whole manufacturing process shall not exceed 30 mg per m^3.

Products shall be tested based on the requirement as stated in BS EN 13284-1:2017 (or latest version); other related testing methods are also acceptable with justification provided by the applicant.

AND

Concentration of emission for SO_2 and NO_x for every sampling point shall not exceed the following requirement.

Parameter	Limit (mg/m^3)
Nitrogen oxides (NO_x)	180
Sulphur dioxide (SO_2)	50

Products shall be tested based on the requirement as stated in BS EN 14791:2017 and BS EN 14792:2017 (or latest version); other related testing methods are also acceptable with justification provided by the applicant.

BS EN 13284-1:2017 specifies a reference method for the measurement of low dust concentration in ducted gaseous streams in concentrations below 50 mg/m3 standard conditions. This method has been validated with special emphasis around 5 mg/m3 on an average half hour sampling time.

BS EN 14791:2017 specifies a manual method for sampling and determining SO_2 content in ducts and stacks emitting to the atmosphere.

BS EN 14792:2017 specifies a manual method for sampling and determining NO / NO_2 / NO_x content in ducts and stacks emitting to the atmosphere.

Verification

Testing report(s) of acidifying emission in accordance with, including but not limited to EN 13284-1 (particulate matters), EN 14791 (Sulphur dioxides), and EN 14792 (Nitrogen oxides) test methods.

4.4.1.3 Water Pollutants – Core Criteria

Requirements

10 Basic Points for demonstrating compliance of limits of the pollutants contained in wastewater below the listed threshold as shown in Table 3.

Table 3: Limits of specific emissions in wastewater

Emission	Limit (mg/L)
Suspended solids	< 40
Cadmium	< 0.07
Chromium (VI)	< 0.10
Lead	< 0.30

Waste water shall be tested based on the requirement as stated in GB 25464-2010 (or latest version); other related testing methods are also acceptable with justification provided by the applicant.

GB 25464-2010 specifies the ceramic industrial enterprise of water and atmospheric pollutants discharge limit, monitoring and control requirements.

Verification

Testing report(s) showing pollutants concentration in wastewater discharged from the manufacturing plant. Test report shall be complied according to National and International test methods.

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

4.4.3.1 Hazardous Substances – Non-core Criteria

Requirements

5 Bonus Points for demonstrating the following:

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.

The product shall also not contain any substances or chemicals that are classified as H300 - Fatal if swallowed, H301 - Toxic if swallowed, H302 - Harmful if swallowed, H310 - Fatal in contact with skin, H311 - Toxic in contact with skin, H312 - Harmful

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

in contact with skin, H330 - Fatal if inhaled, H331 - Toxic if inhaled ,H332 - Harmful if inhaled, in accordance with Regulation (EC) No 1272/2008 of the European Parliament and of the Council[2].

Verification

Laboratory test report(s), or self-declaration letter.

4.4.3.2 Heavy metals – Non-core Criteria

Requirements

5 Bonus Points for demonstrating the following:

Concentration of the following heavy metals (or their related compounds) in the product shall below 0.1% by weight of the product.

- Arsenic
- Barium
- Cadmium
- Chromium VI
- Lead
- Mercury

Verification

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

4.4.3.3 Radioactivity – Core Criteria

Requirements

10 Basic Points 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}:

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

[2] Regulation - 1272/2008 - EN - clp regulation - EUR-Lex

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

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.

4.5 PERFORMANCE

4.5.1 Performance Property

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

4.5.1.1 Water Efficiency – Core Criteria

Requirements

5 Basic Points for demonstrating the compliance of water consumption requirement as per Table 4.

Table 4: Water consumption requirement for sanitary ware

Product Type			**Water consumption requirement**
Toilet	Double flush	Maximum water consumption for full flush	≤ 5.0 L
		Average water consumption	≤ 4.0 L
	Average water consumption per flush		≤ 4.0 L
Squat toilet	Average water consumption		≤ 5.0 L
Urinal	Average water consumption		≤ 2.0 L

Verification

Documentation including but not limited to product catalogue and test report.

4.5.2 Product Life

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

4.5.2.1 Durability – Core Criteria

Requirements

5 Basic Points for demonstrating the durability of the product by meeting the service life requirements as per Table 5.

Table 5: Service life of Sanitary Ware – Ceramic Product

Product type	**Durability Test**	**Iteration requirement in service life**	**Testing standard**
Gravity water flushing devices	Fill valve	≥ 100, 000 times	GB/T 26730
	Flush valve	≥ 100, 000 times	
Pressure assistant water flushing device	Flushometer valve	≥ 200, 000 times	GB/T 26750
Toilet seat and Toilet lid	Swinging Test	≥ 25, 000 times	JC/T 764
	Soft close Functional Test	≥ 30, 000 times	
	High Pressure Test	≥ 10, 000 times	

Verification

Documentation including but not limited to product catalogue and test report(s).

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.

- Innovation including but not limited to water efficiency, self-cleaning, ease of maintenance and integration with building space.

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 6: 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 Utilization Rate [CORE]	5	-	
	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			
		Clean Energy	-	+5	
Environment	Environmental Management	Environmental Management System	-	+5	
		Acidification [CORE]	10	-	
		Water Pollutants [CORE]	10	-	
	Regional Product	Regional Product	-	+5	MW 8
	Human Toxicity and Ecosystem Impact	Hazardous Substances	-	+5	
		Heavy Metals	-	+5	
		Radioactivity [CORE]	10	-	
Performance	Performance Property	Water Efficiency [CORE]	5	-	
	Product Life	Durability [CORE]	5	-	MW 4
InnoSmart	Innovations & Additions		-	+5	IA
		Total:	**50**	**+75**	

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 8: Regional Materials
- MW 9: Use of Green Products.
- MW 10: Life Cycle Assessment
- Innovations & Additions