CONSTRUCTION INDUSTRY COUNCIL
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CIC GREEN PRODUCT CERTIFICATION

Assessment Standard

Adhesive & Sealant

CIC GREEN
PRODUCT CERTIFICATION

(Version 2.0)

ADHESIVE & SEALANT

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: • Chemical composition; • Possible toxicity or health hazards imposed by the chemical components; • Instructions for use; • Recommendation on the amount of product applied per unit area; • Instructions for cleaning equipment and waste proposal methods for the packaging and any remaining adhesive or sealant; and • Methods of cleaning application equipment.	Documentation including but not limited to product catalogue, technical datasheet, webpages	**5**	-	4.1.1
ENVIRONMENT					
Human Toxicity and Ecosystem Impact	Heavy Metals: The following heavy metals shall be less than 0.01% (by weight of product): • Lead • Cadmium • Mercury • Hexavalent chromium	Laboratory test report(s)	**10**	-	4.4.3.2
	Plasticisers: Concentration of phthalates in the product shall be less than 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)	**10**	-	4.4.3.3
	Ozone Depleting Substances: Ozone depleting substance shall be less than 0.1% by weight of the product.	Laboratory test report(s)	**5**	-	4.4.3.4

Criteria	Requirements	Verification	Points		Index
			Basic	+Bonus	
Volatile Organic Compounds (VOC)	Formaldehyde: The formaldehyde content in the product shall be less than 0.01% (by weight of product) **OR** Formaldehyde shall not exceed the emission limits of 0.1 mg per m^3 per hour at 24 hours	Laboratory test report(s)	**10**	-	4.4.4.1
	VOC Content: Lower than the limit of volatile organic compounds as shown in Table 2 or 3 in section 4.4.4.2 By ⩾1% (10 Basic Points) By ⩾5% (5 Bonus Points) **For concrete admixture:** Products shall not exceeding the following emission limits: ⩽ 0.1 mg per m^3 per hour at 24 hours (10 Basic Points) ⩽ 0.05 mg per m^3 per hour at 24 hours(5 Bonus Points)	Laboratory test report(s)	**10**	+5	4.4.4.2
		Subtotal:	**50**	+5	

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				
Material Optimization	Raw Material: **For Adhesive & Sealant:** Utilize recycled or bio-based materials constituting 10% of the total material weight is encouraged to support sustainable resource utilization. **For Concrete Admixtures:** Incorporate at least 20% Supplementary Cementitious Materials (SCM such as fly ash, slag, or silica fume) as a partial replacement for Portland cement is recommended to reduce the reliance on virgin cement materials.	Material summary report	+5	4.3.1.1
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

Criteria	Requirements	Verification	Points +Bonus	Index
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
	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
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: The following substances shall be less than 0.1% in the product: • Alkylphenolethoxylates; • Halogenated solvents; • Bioaccumulative preservatives; • Aromatic solvents, including benzene, toluene and their derivatives; • Substances 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	+5	4.4.3.1

Criteria	Requirements	Verification	Points +Bonus	Index
PERFORMANCE				
Product Life	Durability: The performance of product shall be maintained for at least 5 years (for interior use) or 10 years (for exterior use) to minimise the resource consumption and maintenance time.	Documentation and test report(s) related to the product warranty or guarantee performance	+5	4.5.1.1
	Serviceability: Quality, durability, performance and other functional requirements of the product shall be demonstrated through at least **FOUR** testing items (as applicable to material type)	Laboratory test report(s) for all relevant quality and performance tests	+5	4.5.1.2
INNOSMART				
Innovations & Additions	Adopt new practice, technology and strategy; OR Achieve exemplary performance	Narrative with supporting	+5	4.6.1
		Subtotal:	+80	

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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

Adhesives, sealants, and concrete admixtures are essential materials in the global construction industry. They are available in a wide range of formulations to meet diverse performance requirements – from bonding and sealing various substrates to enhancing the workability, durability, and overall performance of concrete. These products are widely utilized by manufacturers, contractors, and individual consumers in fabrication, installation, maintenance, and repair applications.

However, the use of these materials often comes with concerns. Adhesives and sealants are well known for emitting fumes and odors that can affect installers and building occupants, while concrete admixtures, despite their critical role in modifying concrete properties, may also release volatile compounds during production and application. Both categories typically contain a complex mix of chemicals formulated to deliver high performance, which can contribute significantly to toxic air emissions and other environmental impacts.

In response to these challenges, the industries involved have made strides in reducing toxic substance levels without compromising on performance. The green material certification standards developed for adhesives, sealants, and concrete admixtures are designed to further this progress by minimizing the use and subsequent release of harmful substances throughout the entire life cycle of these products. This proactive approach helps protect human health and the environment, ensuring safer and more sustainable practices in the construction sector.

2. SCOPE

This Standard applies to Adhesive & Sealant and Concrete Admixtures used in building applications, covering both indoor and outdoor uses.

1. Adhesive & Sealant

Application Areas: For bonding and sealing in construction, finishing, and installation within building interiors and exteriors.

Product Types: Includes structural adhesives, general-purpose adhesives, sealants, and specialty products for water-resistant and airtight applications.

2. Concrete Admixtures

Application Areas: For admixtures added to concrete mixtures in various construction applications, including structural, industrial, and architectural uses.

Product Types: Includes plasticizers, superplasticizers, accelerators, retarders, corrosion inhibitors, and supplementary cementitious materials (SCMs)."

Note:

The product category shall not be changed once the application is submitted.

The ingredient contains 1% or more (by weight) in the product shall be indicated in the documentation, such as product information or MSDS.

3. DEFINITIONS

Adhesives:	Any substance which is used to bond one surface to another surface by attachment. Adhesives include adhesive bonding primer, adhesive primers, adhesive primers for plastics and other any other primers.
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
Concrete Admixtures:	Any substance added to a concrete mix in addition to cement, water, and aggregates to modify and enhance its properties. Concrete admixtures include water-reducing agents, set accelerators, set retarders, plasticizers, superplasticizers, air-entraining agents, and other specialized additives designed to improve workability, durability, strength, and overall performance in concrete applications.
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 Organization for Standardization
MSDS:	Material safety data sheet. To qualify as suitable, the MSDS and information therein must not be more than 5 years old.
Ozone depleting substances:	The “scheduled substances” defined in Ozone Layer Protection Ordinance
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.
Sealants:	Any materials with adhesive properties which are formulated primarily to fill, seal, or waterproof gaps and joints between two surfaces.
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 INFORATION

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 the product or made available to the public to help the users to use the adhesive or sealant products in a sustainable manner:

- Chemical composition;
- Possible toxicity or health hazards imposed by the chemical components;
- Instructions for use;
- Recommendation on the amount of product applied per unit area;
- Instructions for cleaning equipment and waste proposal methods for the packaging and any remaining adhesive or sealant; and
- Methods of cleaning application equipment.

Verification

Documentation related to the product labels, care 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 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 14067:2018 or equivalent

OR

Environmental Product Declaration fulfilling the above requirements.

4.3 RESOURCE

4.3.1 Material Optimization

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

4.3.1.1 Raw Material – Non-core Criteria

Requirements

For Adhesive & Sealant:
5 Bonus Points for utilizing recycled or bio-based materials constituting 10% of the total material weight is encouraged to support sustainable resource utilization.

For Concrete Admixtures:
5 Bonus Points for incorporating at least 20% Supplementary Cementitious Materials (SCM such as fly ash, slag, or silica fume) as a partial replacement for Portland cement is recommended to reduce the reliance on virgin cement materials.

Where applicable, inclusion of recycled additives (e.g., recycled aggregates, industrial by-products) is encouraged to minimize the use of virgin raw materials.

Use of natural pozzolans (e.g., volcanic ash) as partial cement replacements is recommended to further lower the carbon footprint associated with concrete admixtures.

Verification

Material summary with detailed breakdown of the raw materials used in the manufacture process. The summary shall include at least the following information:

- Material type with quantity
- Source of recycled content, support by purchase order, declaration letter from suppliers or other equivalent documents
- Calculation of recycled materials percentage

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 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.

4.4 ENVIRONMENT

4.4.1 Environmental Management

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 ISO14001 or EMAS Certificate issued by accredited certification bodies

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

4.4.3.1 Hazardous Substances – Non-core Criteria

Requirements

5 Bonus Points for demonstrating that the following substances shall be less than 0.1% in the product:

- Alkylphenolethoxylates;
- Halogenated solvents;
- Bioaccumulative preservatives;
- Aromatic solvents, including benzene, toluene and their derivatives;
- Any carcinogenic substances or chemicals that are classified as Group 1, 2A or 2B according to International Agency for Research on Cancer (IARC)[1].

Verification

Laboratory test report(s) or self-declaration letter. The tests shall be performed in accordance with relevant international standards.

4.4.3.2 Heavy Metals – Core Criteria

Requirements

10 Basic Points for demonstrating that the following heavy metals shall be less than 0.01% (by weight of product):

- Lead
- Cadmium

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

- Mercury
- Hexavalent chromium

Verification

Laboratory test report(s). Test report(s) shall be compiled according to the National and International test methods including but not limited to ISO 3856-1 or ASTM D3335 for lead, ISO 3856-4 or ASTM D3335 for cadmium, ISO 3856-5 for hexavalent chromium, and ISO 3856-7 or ASTM D3624 for mercury.

4.4.3.3 Plasticisers – Core Criteria

Requirements

10 Basic Points for demonstrating that the concentration of phthalates in the product shall be less than 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, including but not limited to Standard Operating Procedure for Determination of Phthalates (CPSC-CH-C1001-09.3).

4.4.3.4 Ozone Depleting Substances – Core Criteria

Requirements

5 Basic Points for demonstrating that any ozone depleting substances regulated in "the Montreal Protocol on Substances that Deplete the Ozone Layer" shall not be contained in the product and not exceed 0.1% by weight of the product.

Verification

Laboratory test report(s). The test shall be performed by "Gas chromatography–mass spectrometry (GC-MS)" testing method in accordance with, but not limited to, ISO 17895 and ISO 11890 and ASTM 17895.

4.4.4 Volatile Organic Compounds (VOC)

The Applicant is required to achieve 20 Basic Points under this section. Additionally, the Applicant can achieve maximum 5 Bonus Points under this section.

4.4.4.1 Formaldehyde – Core Criteria

Requirements

10 Basic Points for demonstrating formaldehyde meet one of the following requirements:

- The formaldehyde content in the product shall be less than 0.01% (by weight of product). The chemical shall be analysed according to National or International standards including but not limited to ASTM D5910.

OR

- The formaldehyde emission shall not exceed 0.1 mg per m^3 per hour at 24 hours. The testing shall be conducted according to National or International standards including but not limited to GB 50325 Appendix B Measurement of content of formaldehyde and VOC emission using environmental test chamber.

Verification

Laboratory test report(s).

4.4.4.2 VOC Content – Core Criteria

Requirements

10 Basic Points for demonstrating that volatile organic compounds lower by $\geqslant$ 1 % as shown in Tables 2 or 3.

5 Bonus Points for demonstrating that volatile organic compounds lower by $\geqslant$ 5 %.

Table 2: Limits of VOCs in adhesives

Adhesive and application	***Maximum limits of VOC content (g/L less water)***
I. Architectural applications	
1. Carpet pad adhesives	50
2. Ceramic tile adhesives	65
3. Cove base adhesives	50
4. Dry wall and panel adhesives	50
5. Indoor carpet adhesives	50
6. Multi-purpose construction adhesives	70
7. Outdoor carpet adhesives	150
8. Rubber flooring adhesives	60
9. Single-ply roof membrane adhesives	250
10. Structural glazing adhesives	100
11. Subfloor adhesives	50
12. VCT and asphalt tile adhesives	50
13. Wood flooring adhesives	100
II. Specialty applications	
14. ABS welding adhesives	325
15. Adhesive primers for plastic	550
16. Contact adhesives	80
17. CPVC welding adhesives	490
18. Graphic arts adhesives	150
19. Paper, fabric and film coating adhesives	265

Adhesive and application	*Maximum limits of VOC content (g/L less water)*
20. Plastic cement welding adhesives	250
21. PVC welding adhesives	510
22. Sheet-applied rubber lining operation adhesives	850
23. Special purpose contact adhesives	250
24. Structural wood member adhesives	140
25. Wood flat stock adhesives	250
III. Adhesive substrate specific applications: For adhesives not listed in Category (I) and (II) above and applied to the following substrates, the following limits shall apply	
26. Adhesives for fibreglass	80
27. Adhesives for metal	30
28. Adhesives for plastic foams	50
29. Adhesives for porous material	50
30. Adhesives for wood	30
IV. Other adhesives: Any adhesives not falling within Category (I) to (III) above	
31. Other adhesives	250

Source: Environmental Protection Department (2012)

Table 3: Limits of VOCs in sealants

Sealant and application	*Maximum limits of VOC content (g/L less water)*
1. Portable sealants or caulking compounds	4%
Sealants that are not portable sealants or caulking compounds	
2. Architectural sealants (except sealant primers)	250
3. Architectural (non-porous) sealant primers	250
4. Architectural (porous) sealant primers	775
5. Modified bituminous sealant primers	500
6. Non-membrane roof sealants (except sealant primers)	300
7. Roadway sealants (except sealant primers)	250
8. Single-ply roof membrane sealants (except sealant primers)	450
9. Other sealants	420
10. Other sealant primers	750

Source: Environmental Protection Department (2012)

For concrete admixture:

The VOC emission shall not exceed 0.1 mg per m^3 per hour at 24 hours (10 Basic Points). 5 Bonus Points for VOC emission not exceed 0.05 mg per m^3 per hour at 24 hours.

Verification

- Laboratory test report(s), MSDS and relevant production documentation. The tests in laboratories shall be performed in accordance with relevant testing methods including but not limited to USEPA Test Methods; ASTM Methods; NIOSH Manual of Analytical Methods. The testing of emission rate shall be conducted according to National or International standards including but not limited to GB 50325 Appendix B Measurement of content of formaldehyde and VOC emission in decorations materials using environmental test chamber.

4.5 PERFORMANCE

4.5.1 Product Life

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

4.5.1.1 Durability – Non-core Criteria

Requirements

5 Bonus Points for demonstrating that the performance of product shall be maintained for at least 5 years (for interior use) or 10 years (for exterior use) to minimise the resource consumption and maintenance time.

Verification

Documentation related to the product warranty or guarantee performance shall be submitted, including but not limited to product catalogue, self-declaration.

4.5.1.2 Serviceability – Non-core Criteria

Requirements

For Adhesive & Sealant:

5 Bonus Points for demonstrating the product quality, durability, and performance through at least **FOUR** relevant testing items, selected based on material type and application, to comprehensively evaluate its effectiveness across various adhesive and sealant applications including, but not limited to the followings:

- Peel Strength
- Shear Strength
- Bond Durability
- Temperature Resistance
- UV Resistance
- Humidity Resistance
- Chemical Exposure Resistance
- Solvent Resistance
- Corrosion Resistance
- Viscosity
- Application Time (Open Time)
- Cure Time

For Concrete Admixtures:

5 Bonus Points for demonstrating product quality, durability, and performance through at least **FOUR** relevant testing items, selected based on material type and application,

to comprehensively evaluate its effectiveness across various adhesive and sealant applications including, but not limited to the followings:

- Compressive Strength
- Flexural Strength
- Shrinkage
- Freeze-Thaw Resistance
- Water Absorption
- Alkali-Silica Reaction Resistance
- Sulphate Resistance
- Chloride Penetration Resistance
- Initial Setting Time
- Slump Retention
- Flowability (for self-consolidating concrete admixtures)

Verification

Laboratory test report(s) for all relevant quality and performance tests

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	-	+5	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			
Environment	Environmental Management	Environmental Management System	-	+5	
	Regional Product	Regional Product	-	+5	MW 8
	Human Toxicity and Ecosystem Impact	Hazardous Substances	-	+5	
		Heavy Metals [CORE]	10	-	
		Plasticisers [CORE]	10	-	
		Ozone Depleting Substances [CORE]	5		MW 7
	Volatile Organic Compounds (VOC)	Formaldehyde [CORE]	10	-	
		VOC Content [CORE]	10	+5	HWB 8
Performance	Product Life	Durability	-	+5	MW 4
		Serviceability	-	+5	
InnoSmart	Innovations & Additions		-	+5	IA
		Total:	**50**	**+85**	

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 7 : Ozone Depleting Substances
- MW 8: Regional Materials
- MW 10: Life Cycle Assessment
- MW 9: Use of Green Products.
- HWB 8: Indoor Air Quality
- Innovations & Additions