

CONSTRUCTION INDUSTRY COUNCIL

CIC GREEN PRODUCT CERTIFICATION

Assessment Standard

Technical Requirements

Adhesive & Sealant



CIC GREEN
PRODUCT CERTIFICATION

(Version 2)

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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: <ul style="list-style-type: none"> • 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 • Methods of cleaning application equipment 	Documentation including, but not limited to, product catalogue, technical datasheet, and 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): <ul style="list-style-type: none"> • 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 include the following types: <ul style="list-style-type: none"> • 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: The VOC content of the product is below the limit of volatile organic compounds as shown in Table 2 or Table 3 in section 4.4.4.2 By ≥1% (10 Basic Points) By ≥5% (10 Basic + 5 Bonus Points) For concrete admixture: Products shall not exceed 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), MSDS and any relevant product document	10	+5	4.4.4.2
		Subtotal:	50	+5	

NON-CORE CRITERIA

Criteria	Requirements	Verification	Points	Index
			+Bonus	
CARBON				
CFP Quantification	Provide a 3 rd party endorsed life cycle assessment report with the carbon footprint of products (CFP), covering at least A1 to A3 OR provide an Environmental Product Declaration (EPD).	CFP quantification report OR Environmental Product Declaration (EPD)	+10	4.2.1
RESOURCE				
Material Optimization	Raw Materials: Utilization of recycled or bio-based materials constituting 10% of the total material weight is encouraged to support sustainable resource utilization.	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.	Documentation on recycling plan	+5	4.3.2.1
	Packaging Requirement: The packaging materials shall not contain halogenated plastics; <i>OR</i> Shall be comprised of 100% recycled materials, readily recyclable materials, or decomposable materials; <i>OR</i> 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 Plan: Implement effective Waste Management Plan detailing the policies, procedures, and/or a waste management program covering manufacturing operations.	Waste management plan	+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 a 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	Index
			+Bonus	
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 Manufactured 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 with distance between manufacturer and HKSAR	+5	4.4.2.1
Human Toxicity and Ecosystem Impact	Hazardous Substances: The following substances shall be less than 0.1% in the product: <ul style="list-style-type: none"> Alkylphenoethoxylates 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
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: Carry out at least FOUR testing items to demonstrate quality, durability and performance properties of the product. For Adhesive & Sealant: <ul style="list-style-type: none"> Peel Strength Shear Strength Bond Durability Temperature Resistance 	Laboratory test report(s) for all relevant quality and performance tests	+5	4.5.1.2

Criteria	Requirements	Verification	Points	Index
			+Bonus	
	<ul style="list-style-type: none"> • UV Resistance • Humidity Resistance • Chemical Exposure Resistance • Solvent Resistance • Corrosion Resistance • Viscosity • Application Time (Open Time) • Cure Time <p>For Concrete Admixtures:</p> <ul style="list-style-type: none"> • 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) 			
INNOSMART				
Innovations & Additions	Adopt new practice, technology, and strategy; OR Achieve exemplary performance.	Narrative with supporting documents	+5	4.6.1
		Subtotal:	+80	

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1. INTRODUCTION

1.1 PURPOSE

The CIC Green Product Certification (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 grade 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.

The Scheme is owned by the Construction Industry Council (CIC), 38/F, COS Centre, 56 Tsun Yip Street, Kwun Tong, Kowloon, Hong Kong; and operated by Hong Kong Green Building Council (HKGBC), 1/F, Jockey Club Environmental Building, 77 Tat Chee Avenue, Kowloon Tong, Hong Kong, Phone: +852 3994 8888, Email: cicgpc@hkgbc.org.hk

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.

2.1 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.

2.2 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 and corrosion inhibitors.

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

<i>Adhesives:</i>	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.
<i>Applicant:</i>	Organisation which applies for the label of the CIC Green Product Certification of the Construction Industry Council
<i>ASTM:</i>	American Society for Testing and Materials
<i>BS:</i>	British Standards
<i>CIC:</i>	Construction Industry Council
<i>CNAS:</i>	China National Accreditation Service for Conformity Assessment
<i>Concrete Admixtures:</i>	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
<i>EMAS:</i>	Eco-Management and Audit Scheme (EMAS) is an environmental management tool which enables organisations to assess, manage, and continuously improve their environmental performance
<i>GB:</i>	National Standards of China
<i>HKAS:</i>	Hong Kong Accreditation Service
<i>HKGBC:</i>	The Hong Kong Green Building Council Limited
<i>HOKLAS:</i>	The Hong Kong Laboratory Accreditation Scheme
<i>IARC:</i>	International Agency for Research on Cancer
<i>ISO:</i>	International Organization for Standardization
<i>MSDS:</i>	Material safety data sheet. To qualify as suitable, the MSDS and information therein must not be more than 5 years old
<i>Ozone depleting substances:</i>	The “scheduled substances” defined in Ozone Layer Protection Ordinance

<i>Sealants:</i>	Any materials with adhesive properties which are formulated primarily to fill, seal, or waterproof gaps and joints between two surfaces
<i>Third-party:</i>	An entity without any financial interest or stake in the sales of the product or service being evaluated or other conflict of interest
<i>VOC:</i>	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) grade under the Scheme. Bonus points may be awarded if the product meets the “Non-core Criteria”. “Bronze”, “Silver”, “Gold”, or “Platinum” grade 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 grade

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 reports, and documentation must be valid during the assessment process and labelling period. The date of issue of all laboratory reports and documentation shall be within 5 years from the first application submission date.

If the certification expires during the labelling period or upon renewal, the applicant is required to provide an updated and valid certification. Failure to resubmit the required certification will result in the revocation of CIC Green Product Certificate without compensation.

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 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
- Methods of cleaning application equipment

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

10 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). This can be achieved by either of the following:

Conduct CFP study report in accordance with ISO 14067:2018, GB/T 24067-2024 or equivalent.

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, BS EN 15804:2012, ISO 21930:2017, GB/T 24025-2009 or GB/T 24067-2024.

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, GB/T 24067-2024 or equivalent.

OR

Environmental Product Declaration fulfilling the above requirements.

4.3 RESOURCE

4.3.1 *Material Optimization*

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

4.3.1.1 *Raw Materials – Non-core Criteria*

Requirements

5 Bonus Points for utilizing recycled or bio-based materials constituting 10% of the total material weight.

Verification

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

- Material type with quantity; and
- Source of recycled content, supported by purchase order, declaration letter from suppliers, or other equivalent documents; and
- 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 be made available to the 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; and
- Identify potential partners for product reuse, recycling, and recovery in accordance with the intended cycling pathway(s); and
- 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);
and

- 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 following:

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 an 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 be limited to, the following information:

- Initiatives taken to reduce waste generation and improve recovery/recycling of waste; and
- 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 plan detailing the above, supported by organizational policy or other equivalent documents.

4.3.4 Water Management

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

The Applicant can select one of the options below and comply with any or all the requirements under that option to achieve the associated 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, supported 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, supported 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 Applicant can select one of the options below and comply with any or all the requirements under that option to achieve the 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; and
- 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 are not limited to, the reduction of hazardous substance emissions, energy consumption, CO₂ 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 body.

4.4.2 Regional Product

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

4.4.2.1 Regional Manufactured 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 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 30 Points under this section.

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:

- Alkylphenoethoxylates;
- 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
- 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.

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

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 include 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) 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 shall 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, ISO 11890, and ASTM 17895.

4.4.4 Volatile Organic Compounds (VOC)

The Applicant can achieve maximum 25 Points under this section.

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 that formaldehyde meets 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 m³ 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) meeting the above requirements.

4.4.4.2 VOC Content – Core Criteria

Requirements

10 Basic Points for demonstrating that the VOC contents are reduced by more than 1 % of the limits as shown in Tables 2 or 3.

5 Bonus Points for demonstrating that the VOC contents are reduced by more than 5 % of the limits as shown in Tables 2 or 3.

Table 2: Limits of VOCs in adhesives

<i>Adhesive and application</i>	<i>Maximum limits of VOC content (g/L less water)</i>
<i>I. Architectural applications</i>	
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
<i>II. Specialty applications</i>	
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
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
<i>III. Adhesive substrate specific applications: For adhesives not listed in Category (I) and (II) above</i>	

<i>Adhesive and application</i>	<i>Maximum limits of VOC content (g/L less water)</i>
<i>and applied to the following substrates, the following limits shall apply</i>	
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
<i>IV. Other adhesives: Any adhesives not falling within Category (I) to (III) above</i>	
31. Other adhesives	250

Source: Environmental Protection Department (2012)

Table 3: Limits of VOCs in sealants

<i>Sealant and application</i>	<i>Maximum limits of VOC content (g/L less water)</i>
1. Portable sealants or caulking compounds	4%
<i>Sealants that are not portable sealants or caulking compounds</i>	
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:

10 Basic Points for demonstrating the VOC emission does not exceed 0.1 mg per m³ per hour at 24 hours.

5 Bonus Points for demonstrating the VOC emission does not exceed 0.05 mg per m³ 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, and 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 the 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 and 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 following:

- 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 following:

- 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) and any production documentation 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 the proposed Smart and Innovative Technologies; and

Include attachments that provide evidence of implementation, along with relevant technical specifications 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		-	+10		
Resource	Material Optimization	Raw Materials	-	+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 Manufactured 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 9: Use of Green Products
- HWB 8: Indoor Air Quality
- Innovations and Additions