CONSTRUCTION INDUSTRY COUNCIL

CIC GREEN PRODUCT CERTIFICATION

PAINT & COATING

Assessment Standard

(Version 1.1)

Last updated: 1 April 2019

PAINT & COATING

Summary of Assessment Criteria

CORE CRITERIA

Criteria	*Requirements*	*Verification*	*Points*		*Index*
			Basic	*+Bonus*	
Serviceability	Product shall demonstrate the quality and durability including wet scrub resistance, water resistance, adhesion and abrasion	Laboratory test report(s) for all relevant quality and performance tests	**5**		*4.1.1 (page 5)*
Product Information	Provide the following product information on the packaging of the product and / or company website: ▪ Chemical composition ▪ Possible toxicity or health hazards imposed by the chemical components ▪ Instructions for use ▪ Recommendation on the amount of paint or coating per unit area ▪ Instructions for disposing the waste packaging as well as any remaining paint and coating ▪ Methods of cleaning application equipment.	Documentation related to the label and relevant information	**5**		*4.1.3 (page 6)*
Heavy Metals	Product shall not contain the following heavy metals or their compounds. If the product contains the following heavy metals or their compounds, the concentration shall be < 0.01% by weight of the product. • Cadmium • Lead • Chromium VI • Mercury If the product contains the barium (excluding barium sulfate) or its compounds, the concentration shall be < 0.1% by weight of the product	Laboratory test report(s) and any production documentation	**10**		*4.2.2 (page 7)*

Plasticisers	Concentration of phthalates in the product shall be < 0.1% by weight of the product. The limited phthalates including the following types: ▪ BBP ▪ DBP ▪ DEHP ▪ DINP ▪ DIDP ▪ DNOP	Laboratory test report(s) and any production documentation	**10**		*4.2.1 (page 7)*
Formaldehyde	Formaldehyde shall be less than 0.01% (by weight of product)	Laboratory test report(s), and any production documentation	**10**		*4.2.3 (page 8)*
Volatile Organic Compounds	o Achieve the limits of volatile organic compound as shown in Table 2 in Section 4.3.1 [10 basic] o Lower than the limit of volatile organic compounds as shown in Table 2 in Section 4.3.1 (+5 / +10 bonus)	Laboratory test report(s) and any production documentation	**10**	*+5 / +10*	*4.3.1 (page 10)*
		Subtotal:	**50**	**+10**	

NON-CORE CRITERIA

Criteria	***Requirements***	***Verification***	***Points +Bonus***	***Index***
Environmental Management System	Valid certification of ISO14001 or the EU Eco-Management and Audit Scheme (EMAS)	ISO14001 or EMAS certificate issued by accredited certification body	*+5*	*4.1.2 (page 6)*
Packaging Requirements	o Chlorinated or halogenated plastics shall not be used in packaging; or o Environmental friendly packaging shall be used; or o Plastic identification symbol shall be used on plastic containers.	Documentation on the packaging materials used	*+5*	*4.1.4 (page 6)*

Hazardous Substances	The following substances shall be contained < 0.1% by weight of product: ▪ Isoaliphates ▪ 1,3 butadiene ▪ Bisphenol A ▪ Toluene and toluene compounds ▪ Epichlorohydrin ▪ N-methyl pyrrolinone ▪ Glycol ethers ▪ Crystalline quartz silica ▪ Alkylphenolic compounds	Laboratory test report(s), MSDS, self-declaration letter and any production documentation	*+5*	*4.2.4 (page 8)*
Toxicity	Any substances classified as ▪ reproductive toxins / endocrine disruptors – R60, 61, 62, 63, or 64 ▪ harmful – R20, 21 or 22, ▪ toxic – R23, 24 or 25, ▪ very toxic – R26, 27 or 28 or ▪ causing sensitisation – R42 or 43, in accordance with 2001/59/EC and 1272/2008/EC, shall be contained < 0.1% by weight of product.	Laboratory test report(s), MSDS, self-declaration letter and any production documentation	*+5*	*4.2.5 (page 9)*
Carcinogenic Substances	Any substances listed in IARC Group 1, 2A and 2B shall be contained < 0.1% by weight of the product	Laboratory test report(s) , MSDS, self-declaration letter and production documentation	*+5*	*4.2.6 (page 9)*
Biocides	Biocides shall be avoided during the production process or to be present in the final product. o If the product contains biocides, the biocides shall be listed in Annex I or Ia of the European Commission's Biocidal Products Directive (98/8 EC) o If the product contains isothiazolones, the concentration of isothiazolones shall be: $\leqslant$ 500 ppm for interior paint and $\leqslant$ 750 ppm for exterior paint.	Laboratory test report(s), MSDS, self-declaration letter and any production documentation	*+5*	*4.2.7 (page 9)*
Environmentally Hazardous Substances	Any environmental hazardous substances carrying the risk phrases of R50, 51, 52, 53, 54, 55, 56, 57, 58 or 59 in accordance with 2001/59/EC and 1272/2008/EC shall be contained < 0.1% by weight of the product	Laboratory test report(s), MSDS, self-declaration letter and production documentation	*+5*	*4.3.2 (page 11)*

Ozone Depleting Substances	Any ozone depleting substances regulated in "the Montreal Protocol on Substances that Deplete the Ozone Layer" shall be contained ≤ 0.1% by weight of the product	Laboratory test report(s), MSDS and production documentation	*+5*	*4.3.3 (page 11)*
		Subtotal:	**+40**	

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1. INTRODUCTION

1.1 PURPOSE

The CIC Green Product Certification *(formerly known as HKGBC Green Product Accreditation and Standards [HK G-PASS])* (herein after referred as the "Scheme") is an environmental labelling scheme owned by the Construction Industry Council (CIC) and implemented by the Hong Kong Green Building Council (HKGBC) which aims to help consumers, building professionals and policy makers identify environmentally preferable building materials and products. This Assessment Standard (hereafter referred as the "Standard") sets out the assessment criteria and their benchmarks for paint and coating to govern the application and award of a label under the Scheme. The Standard also defines the verification methods to determine which labelling grade should be awarded to the product according to the assessment criteria.

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

Paint and coating products are extensively used for buildings. They not only serve for decorative purpose but also offer protection for a wide range of surfaces, which help to generate important environmental benefits by reducing resource demands associated with repair and maintenance. However, paint and coating have significant impacts on the environment and human health throughout their life cycle due to the use of hazardous substances such as heavy metals, solvents, volatile organic compounds (VOC) and other toxic substances. The manufacturing process may also produce considerable amount of hazardous wastes / discharges and consume significant energy and raw materials.

The purposes of the assessment criteria developed for paint and coating are, therefore, to minimise the use and subsequent release of harmful substances to the environment throughout the product's life cycle, to conserve resources and energy consumption, and to encourage reuse, recycling and responsible disposal of unwanted paint and coating, as well as packaging.

2. SCOPE

The scope of this Standard is applicable to water-based and solvent-based paint, coating and related products (see definitions in Section 3), applied for the interior and exterior of buildings. The paints and coatings product including but not limited to architectural paints, coatings, and primers, anticorrosive and antirust paints, water-based and solvent-based paints, coatings and related products as stated in Table 2.

Other environmentally innovative paints or coatings that are not covered in Table 2 may be considered for certification provided the product fulfils the requirements of relevant sections of this Standard.

This standard excludes clear finishes and specialty (e.g. industrial, marine, automotive or artist) paints and coatings. Face paint, finger paint, nail polish, body paint and any other product intended to be applied to a person or animal are also excluded.

Types and ratio (formulation) of the major raw materials shall be specified clearly in each application. ONE application is only for ONE product series with same raw materials and ratio (formulation). Products under the same series with different colour could be included in ONE application. Each application should also specify the product code / model number.

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.
CIC or an appointed third party would conduct a random check of the labelled product during the validity period of the label. One of the laboratory tests listed below will be selected and performed to verify the compliancy of the product with the criteria stated in the Assessment Standard. Applicant shall be responsible for the cost of the laboratory test.

- Serviceability
- Heavy metals
- VOC content

3. DEFINITIONS

Applicant: Organisations which apply for the label of the CIC Green Product Certification of the Construction Industry Council

CAS: Chemical Abstract Service. Unique CAS numbers are assigned to chemical compounds as a means of identification

CFC: Chlorofluorocarbons, refer to the class of organic compounds that contain only carbon, chlorine, and fluorine, produced as a volatile derivative of methane and ethane

CIC: Construction Industry Council

CNAS: China National Accreditation Service for Conformity Assessment

Coating: A pigmented resin that is converted to a solid adherent film after application to a substrate as a thin layer having protective, decorative or specific technical properties (e.g. modifying light and heat radiation characteristics of the substrate)

Halogenated solvent: Any volatile organic compound incorporating halogens including fluorine, chorine, bromine and iodine

HCFC: Hydrochlorofluorocarbons, refer to the class of organic compounds that contain only carbon, hydrogen, chlorine, and fluorine

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 (Chapter 403).

Paint: A pigmented liquid that is designed for application in single or multiple layers on surfaces to form a continuous film with protective, decorative or specific technical properties. It also includes varnishes and stains

Stain: A transparent, semitransparent or opaque mixture of colouring matter (dyes and/or pigments) designed to colour and/or protect a surface by penetration, leaving practically no surface film

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

Varnish: A liquid composition that is converted to a transparent or translucent, continuous film after application

VOC: Volatile organic compounds refer to any organic compound (compound which contains carbon) with either a boiling point below 250℃ measured at 101.3 kPa or a vapour pressure of more than 0.1 mm Hg measured at 25℃

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" and a "Bronze", "Silver", "Gold" or "Platinum" Label will be awarded according to the total points accumulated (see Section 5 for details). All submissions and documentation shall be endorsed by the Chief Executive Officer or other authorised persons of the Applicant to demonstrate conformance to the assessment criteria. All certifications, laboratory reports and documentations must be valid during the assessment process and labelling period. All laboratory reports 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 who has received the ISO17025 certification or relevant national accreditation systems, e.g. HOKLAS, CNAS, etc. CIC or an appointed third party would conduct a random check of the labelled product during the period of validity of the label, through laboratory test to verify the compliance with the criteria as stated in the Standard. Manufacturer shall bear the cost of the laboratory test.

4.1 GENERAL REQUIREMENTS

4.1.1 Serviceability

5 Points (Core Criterion)

The product shall demonstrate the quality and durability (including the wet scrub resistance, water resistance, adhesion and abrasion) according to the relevant British Standards (BS), American Society for Testing and Materials (ASTM), Chinese National Standard (GB), Japanese Industrial Standards (JIS) or other equivalent international standards.

Verification

Laboratory test report(s) for all relevant quality and performance tests shall be according to the relevant British Standards (BS), American Society for Testing and Materials (ASTM), Chinese National Standard (GB), Japanese Industrial Standards (JIS) or other equivalent international standards. Justification should be provided by the applicant to demonstrate the compliance of this criterion.

4.1.2 Environmental Management System

5 Points (Non-Core Criterion)

Manufacturer of the product shall possess valid certificate of ISO14001 or the EU Eco-Management and Audit Scheme (EMAS). Targets 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.

Verification

A valid ISO14001 or EMAS Certificate issued by local or overseas accredited certification bodies.

4.1.3 Product Information

5 Points (Core Criterion)

The following information shall be supplied with the product or made available to the public to help the users to use the paint or coating products in a sustainable manner:

- o Chemical composition;
- o Possible toxicity or health hazards imposed by the chemical components;
- o Instructions for use;
- o Recommendation on the amount of paint or coating per unit area;
- o Instructions for cleaning equipment and waste proposal methods for the packaging and any remaining paint or coating; and
- o 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.

4.1.4 Packaging Requirements

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

5 Points (Non-Core Criterion)

- o Chlorinated or halogenated plastics shall not be used in packaging; or
- o Environmental friendly packaging shall be used; or
- o Plastic identification symbol shall be used on plastic containers by each program to facilitate recycling activities and returnable can shall be provided by the manufacturer.

Verification

Documentation that describes the packaging and the materials used.

4.2 HUMAN TOXICITY

4.2.1 Plasticisers

10 Points (Core Criterion)
Concentration of phthalates in the product shall be less than 0.1% by weight of the product. The limited phthalates including the following types:

- Benzyl Butyl Phthalate (BBP)
- dibutyl phthalate (DBP)
- Di-(2-ethylhexyl) phthalate (DEHP)
- Diisononyl phthalate (DINP)
- Diisodecyl phthalate (DIDP)
- Di-n-octyl phthalate (DNOP)

Verification
Laboratory test report(s) and relevant production documentation. Test report(s) shall be compiled according to the National and International test methods including but not limited to CPSC-CH-C1001-09.3.

4.2.2 Heavy Metals

10 Points (Core Criterion)
Product shall not contain the following heavy metals or their compounds.

If the product contains the following heavy metals or their compounds, the concentration shall be less than 0.01% by weight of the product.

- Cadmium
- Lead
- Chromium VI
- Mercury

If the product contains the barium (excluding barium sulfate) or its compounds, the concentration shall be less than 0.1% by weight of the product.

Verification
Laboratory test report(s) and relevant production documentation. 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.

4.2.3 Formaldehyde

10 Points (Core Criterion)

Formaldehyde shall be less than 0.01% (by weight of product).

Verification

Laboratory test report(s), MSDS and relevant production documentation. Test report(s) shall be compiled according to the National and International test methods including but not limited to ASTM D5910 – 05 (2012).

4.2.4 Hazardous Substances

5 Points (Non-Core Criterion)

The product shall NOT contain the following hazardous substances which are equal to or higher than 0.1% by weight of product:

- Isoaliphates;
- 1,3 butadiene;
- Bisphenol A;
- Toluene and toluene compounds;
- Epichlorohydrin;
- N-methyl pyrrolinone;
- Glycol ethers;
- Crystalline quartz silica (CAS 14808-60-7);
- Alkylphenolic compounds

4.2.5 Toxicity

5 Points (Non-Core Criterion)

The product shall NOT contain any substances, which are equal to or higher than 0.1% by weight of product, classified as:

- reproductive toxins / endocrine disruptors – R60, 61, 62, 63, or 64.
- harmful – R20, 21 or 22,
- toxic – R23, 24 or 25,
- very toxic – R26, 27 or 28 or
- causing sensitisation – R42 or 43,

in accordance with *Commission Directive 2001/59/EC* [1] and *Regulation (EC) No 1272/2008 of the European Parliament and of the Council* [2].

[1] *Commission Directive 2001/59/EC:* http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2001:225:0001:0333:EN:PDF

[2] *Regulation (EC) No 1272/2008 of the European Parliament and of the Council:* http://eur-lex.europa.eu/eli/reg/2008/1272/oj

4.2.6 Carcinogenic Substances

5 Points (Non-Core Criterion)

Carcinogenic substances listed in the *International Agency for Research on Cancer's (IARC) Groups 1, 2A and 2B Classifications* [3] shall be avoided during the production process or to be present in the final product. Any such carcinogens which are known to be present as contaminants shall be less than 0.1% by weight of the product.

4.2.7 Biocides

5 Points (Non-Core Criterion)

Biocides shall be avoided during the production process or to be present in the final product.

- If the product contains biocides, the biocides shall be listed in the *European Commission's Biocidal Products Directive (98/8 EC)* [4].
- If the product contains isothiazolones, the concentration shall not exceed 500 ppm for interior paint and 750 ppm for exterior paint.

Verification (for Criteria 4.2.4 – 4.2.7)

Laboratory test report(s), MSDS, self-declaration letter and relevant production documentation.

4.3 ECOSYSTEM IMPACT

4.3.1 Volatile Organic Compounds

10 Basic + 5/10 Bonus Points (Core Criterion)

The total content of volatile organic compounds (VOC) in the product shall not exceed the levels stated in Table 2. These amounts include water and tints / colourants. Bonus points will be awarded if less VOC is recorded.

[3] *International Agency for Research on Cancer's (IARC) Groups 1, 2A and 2B Classifications:* http://monographs.iarc.fr/ENG/Classification

[4] *European Commission's Biocidal Products Directive 4 (98/8 EC):* http://echa.europa.eu/information-on-chemicals/biocidal-active-substances

Table 2: Limits of volatile organic compounds and associated points

	Points			***Points***		
	10 [basic]	+5 (bonus)	+10 (bonus)	**10** [basic]	+5 (bonus)	+10 (bonus)
Paint / coating type	*Interior*			*Exterior*		
	VOC limits (g/L) (include water and tints/colourants)					
Matt (≤ 10 gloss units)	50	25	10	50	30	15
Low sheen (10 – 15 gloss units)	60	30	10	60	30	15
Semi-gloss / gloss (≥ 15 gloss units)	80	40	10	100	50	20
Fillers / primers	80	40	15	80	40	15
Sealers / undercoats	90	60	30	100	60	30
Stains / varnishes	100	60	30	100	60	30

Note: (i) where a paint/coating may fit into more than one category (e.g. sealer-primer), it shall comply with the category with the lower VOC limit (e.g. primer); (ii) where a coating may be for interior or exterior use, it shall comply with the interior VOC limit.

Verification

Laboratory test report(s) and relevant production documentation. Products shall be tested in accordance including but not limited to ISO 11890-1. Other related testing methods are also acceptable with justification provided by the applicant. Calculation method of VOC content of paints and coating in a 'ready to use' condition shall be calculated by the following formula.

$$VOC = (100 - NV - Ww) \times \rho s \times 1\,0$$

where

VOC: is the VOC content, in grams per litre, of the product "ready for use"
NV: is the non-volatile-matter content, as a percentage by mass
Ww: is the water content, as a percentage by mass
ρs: is the density, in grams per millilitre, of the sample at 23 °C
10: is a conversion factor to convert to grams per litre

4.3.2 Environmentally Hazardous Substances

5 Points (Non-Core Criterion)

The product shall NOT contain any environmental hazardous substances, which are equal to or higher than 0.1% by weight, carrying the following risk phrases:

R50, 51, 52, 53, 54, 55, 56, 57, 58 or 59

in accordance with *Commission Directive 2001/59/EC* [1] and *Regulation (EC) No 1272/2008 of the European Parliament and of the Council* [2].

Verification

Laboratory test report(s), MSDS, self-declaration letter and relevant production documentation.

4.3.3 Ozone Depleting Substances

5 Points (Non-Core Criterion)

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) and relevant production documentation. 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.

[1] *Commission Directive 2001/59/EC:* http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2001:225:0001:0333:EN:PDF

[2] *Regulation (EC) No 1272/2008 of the European Parliament and of the Council:* http://eur-lex.europa.eu/eli/reg/2008/1272/oj

5. SCORING AND GRADING

The points for meeting each criterion stated in Section 4 are summarised in Table 3.

Table 3: Points to be awarded under the assessment criteria of this Standard

Evaluation criteria	***Points***	
	Basic	***+Bonus***
4.1.1 Serviceability [CORE]	**5**	
4.1.2 Environmental Management System		+5
4.1.3 Product Information [CORE]	**5**	
4.1.4 Packaging Requirements		+5
4.2.1 Plasticisers [CORE]	**10**	
4.2.2 Heavy Metals [CORE]	**10**	
4.2.3 Formaldehyde [CORE]	**10**	
4.2.4 Hazardous Substances		+5
4.2.5 Toxicity		+5
4.2.6 Carcinogenic Substances		+5
4.2.7 Biocides		+5
4.3.1 Volatile Organic Compounds [CORE]	**10**	+5 / +10
4.3.2 Environmentally Hazardous Substances		+5
4.3.3 Ozone Depleting Substances		+5
	50	**+50**
Total:	**100**	

The minimum requirement to be awarded a “Green” Label under this product category is to obtain 50 points by meeting all minimum requirements laid down in the “Core Criteria”.

Table 4: Benchmarks for grading paint and coating

Grade to be awarded	***Points required***
Platinum	90 or above
Gold	80 - 89
Silver	70 - 79
Bronze	60 - 69
Green	50 - 59
No Label	Below 50