CONSTRUCTION INDUSTRY COUNCIL

CIC GREEN PRODUCT CERTIFICATION

CABLE & WIRE
(Version 1.1)

Assessment Standard

Last updated: 25 Sep 2020

CABLE & WIRE

Summary of Assessment Criteria

CORE CRITERIA

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Instructions on the installation and protection of the product
Recommendation on storage and maintenance for the product
Details related to operation conditions and the end of service life of the product</td><td>Documentations related to the product label, care instructions and other information</td><td>5</td><td></td><td>4.1.3 (page 4)</td></tr>
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<tr><td>Cd</td><td>Pb, Hg, Cr(VI)</td><td>Points</td></tr>
<tr><td>100</td><td>1000</td><td>10 [basic]</td></tr>
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<tr><td>Flame Retardants</td><td>The amount of flame retardants of the insulation materials in the cable and wire shall be within the limit as below: polybrominated biphenyls (PBBs) and polybrominated diphenyl ether (PBDEs): < 1,000 mg/kg</td><td>Laboratory test report(s) and any production documentation</td><td>15</td><td></td><td>4.4.3 (page 7)</td></tr>
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NON-CORE CRITERIA

Criteria	***Requirements***	***Verification***	***Points*** ***+Bonus***	***Index***
Environmental Management System	o Valid certificate of ISO14001 or the EU Eco-Management and Audit Scheme (EMAS)	ISO14001 or EMAS certificate issued by accredited certification body	+10	*4.1.1 (page 3)*
Packaging Requirements	o Product packaging shall not contain halogenated plastics o All packaging materials shall be either comprised of 100% recycled material or readily recyclable	Documentation on the packaging material used	+5	*4.1.2 (page 4)*
Water Management	o The water consumption including the potable and non-potable water used for production shall be reported OR o A water recycling programme during manufacturing shall be developed.	Documentation of water management programme	+5	*4.2.3 (page 5)*
Halogen Input or pH and Conductivity of Combustion Gases	o Halogen input shall be limited as below: • Fluoride, Chloride input: ≤0.5% of the finished product, respectively OR o The combustion gas emitted in case of fire shall be limited as below: • pH of combustion gases: ≥ 4.3 • Conductivity of combustion gases: ≤10 μS/mm	Laboratory test report(s) of the halogen input OR Laboratory test report(s) of the pH and the conductibility of combustion gas	+5	*4.4.1 (page 7)* *4.3.2 (page 6)*
Sustainable Material for Insulation	o The materials used for insulation shall come from sustainable sources o The content of sustainable materials shall be at least 80% by weight of the total insulation	Detailed report(s) of the sources of renewable insulation materials and production documentation	+5	*4.2.1 (page 5)*
Low Smoke in Case of Fire	o Light transmittance in case of fire: > 60%	Laboratory test report(s) of the light transmittance in case of fire	+5	*4.3.1 (page 6)*
Recycling Programme of Drums	o The manufacturer shall develop a recycling programme to encourage and facilitate the recycling of wooden and/or metal drums	Documentation related to the recycling programme	+10	*4.4.4 (page 8)*
		Subtotal:	**+45**	

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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 cables and wires to govern the application and award of a label under the Scheme. The Standard also defines the verification methods to determine which labelling grade shall 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

Electrical cable and wire are mainly composed of copper cords and insulation. One major concern is that the production of copper cords should produce minimal amount of copper waste. Besides, the production, use and disposal of the materials for insulation may also lead to some critical environmental issues. The assessment should thus concentrates on these two aspects.

The purposes of the assessment criteria developed for cable and wire are, therefore, to minimise the use and subsequent release of harmful substances to the environment and to ensure human health throughout the product's life cycle.

2. SCOPE

The scope of this Standard is applicable to electrical and electronic flexible cords and cabtyre cords (hereafter referred to as cords) insulated with compound which are used in the buildings. This Standard is mainly concerned with materials used in the manufacturing electrical cables and wires for low voltage and extra low voltage (i.e. $\leq$ 1,000V) and other general requirements as to the environmental friendliness product. Other kind of electrical power distribution devices, such as busbars are excluded in this Standard. Cable and wire used in the utilities are also excluded in this Standard.

Each application shall specify the voltage range and the material used for insulation (Polyvinyl chloride (PVC), Fire resistant (FR), Low smoke zero halogen (LSZH). All the related products have to be listed on the submitted documents.

Types of LV cable Voltage (≤ 1,000V)	Material classification		
	PVC	FR	LSZH
	Armoured &/or non-armoured	Armoured &/or non-armoured	Armoured &/or non-armoured

3. DEFINITIONS

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

Cable and wire: Flexible cords and cabtyre cords with insulation materials

CIC: Construction Industry Council

CNAS: China National Accreditation Service for Conformity Assessment

Conductibility: The ability of a material to transmit energy

Halogen elements: A series of non-metal elements from group 7 of the periodic table

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

Light transmittance: The fraction of incident light at a specified wavelength that passes through a sample

MSDS: Material safety data sheet. To qualify as suitable, MSDS and information therein must not be more than 5-years old

Smoke density: The ratio of the smoke emitted by a burning material to the smoke emitted by a standard material

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

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 submission 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 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 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.

4.1 GENERAL REQUIREMENTS

4.1.1 Environmental Management System

10 Points (Non-Core Criterion)

Manufacturer of the products 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 body.

4.1.2 Packaging Requirements

5 Points (Non-Core Criterion)

Halogenated plastics shall be avoided for packaging the cable and wire products. In addition, all packaging material shall be either comprised of 100% recycled material or readily recyclable.

Verification

Documentation detailing the packaging material used and its recyclability.

4.1.3 Product Information

5 Points (Core Criterion)

The following information shall be supplied with the product or made available to the public on the packaging of the product and/ or company website to help users using the products in a sustainable manner:

- Instructions on the installation and protection of the product
- Recommendation on storage and maintenance for the product
- Details related to operation conditions and the end of service life of the product

Verification

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

4.1.4 Instructions on Disposal of Used Product

5 Points (Core Criterion)

Provide written information to the consumers on how to dispose used product(s), stating clearly:

- The intended use of the product;
- Instructions on disposal of used product (e.g. find responsible recyclers, provide a list of responsible recyclers, etc.)

Verification

Documentations and other information (e.g. web-based information, etc.) related to above requirements.

4.2 RESOURCE CONSUMPTION

4.2.1 Sustainable Material for Insulation

5 Points (Non-Core Criterion)
The materials used for insulation shall come from sustainable sources (e.g. derived from sugarcane). The content of sustainable materials shall be at least 80% by weight of the total insulation.

Verification
Detailed report(s) of the sources of renewable insulation materials with substantiations and relevant production documentation.

4.2.2 Recycling of Conductor Waste in Production

15 Points (Core Criterion)
Conductor waste generated in cable and wire production shall be 100% recovered for manufacturing.

Verification
Relevant documentation of the initiatives for recycling copper dusts or aluminium in the manufacturing site. The report shall include the descriptions of initiatives to minimise conductor waste in production. The amount of conductor materials purchased, consumed in production, recovered in the production site for recycling and amount of conductor materials sold to recyclers, etc. shall be documented in the report.

4.2.3 Water Management

5 Points (Non-Core Criterion)
The Applicant shall report the water consumption including the potable and non-potable water used for production, or a water management plan to facilitate water conservation during manufacturing.

Verification
Detailed report(s) of the water consumption and/or water management plan.

4.3 HUMAN TOXICITY

4.3.1 Low Smoke in Case of Fire

5 Points (Non-core Criterion)

For safety reason, neither electrical nor electronic cables are expected to emit large amount of smoke in case of fire. The less amount of the smoke emitted, the higher the light transmittance on the scene of fire is and hence a higher possibility of enabling building occupants to escape. The light transmittance shall not be less than 60%.

Verification

Laboratory test report(s) of the light transmittance in case of fire. The tests shall be in accordance with the methods stipulated in the IEC 61034-2 or equivalent international standards.

4.3.2 pH and Conductivity of Combustion Gas

5 Points (Non-Core criterion)

The combustion gas emitted by cables and wires in case of fire contains halogen hydride gas which is harmful to human beings and the environment. The pH value of the combustion gas emitted by the cable and wire products shall not be less than 4.3 in case of fire. Similarly, the conductivity of the combustion gas emitted by the cable and wire products shall not be more than 10 μS/mm when related to 1L of water.

Verification

Laboratory test report(s) showing the pH and conductivity of combustion gas in case of fire. The test shall be conducted in accordance with the methods stipulated in IEC 60754-2 or equivalent international standards.

(Notes: Criterion 4.3.2 pH and Conductibility of Combustion Gas and Criterion 4.4.1 Halogen Input are two alternative criteria. When the product fulfils Criterion 4.3.2, it does not fulfil the Criterion 4.4.1, vice versa.)

4.4 ECOSYSTEM IMPACT

4.4.1 Halogen Input

5 Points (Non-Core Criterion),

For the production of cables and wires, halogen input shall be limited as below:

- Chloride input shall not exceed 0.5% of the finished product measured by weight; and
- Fluoride input shall not exceed 0.5% of the finished product measured by weight.

Verification

Laboratory test report(s) showing the chloride and fluoride input as stated above. The assessment of the halogen input shall be conducted in accordance with the methods stipulated in IEC 60754-1 or equivalent international standards.

(Notes: Criterion 4.3.2 pH and Conductibility of Combustion Gas and Criterion 4.4.1 Halogen Input are two alternative criteria. When the product fulfils Criterion 4.3.2, it does not fulfil the Criterion 4.4.1, vice versa.)

4.4.2 Heavy Metal

10 Basic + 5 Bonus Points (Core Criterion)

The amount of heavy metal per kilogram of the insulation materials in the cable and wire shall be within the limit as below. Bonus points will be awarded with reference to Table 1.

Table 1: Requirements on heavy metal concentration and associated points

Metal concentration (mg/kg)		***Points***
Cadmium (Cd)	***Lead (Pb), Mercury (Hg), Chromium(VI) (Cr(VI))***	
100	1000	10 [basic]
20	100	+5 (bonus)

4.4.3 Flame Retardants

15 Points (Core Criterion)

The amount of hazardous substances of the insulation materials in the cable and wire shall be within the limit as below:

- Polybrominated biphenyls (PBBs) input: < 1,000 mg/kg
- Polybrominated diphenyl ethers (PBDEs) input: < 1,000 mg/kg

Verification for Criterion 4.4.2 and 4.4.3

Laboratory test report(s) and relevant production documentation.

4.4.4 Recycling Programme of Drums

10 Points (Non-core Criterion)

In order to encourage and facilitate the recycling of wooden iron drums, manufacturers shall have a recycling programme which shall include:

- Convenient drum collection options free of cost to users; and
- Information on the company website regarding the recycling programme particularly in relation to the drum collection options.

Verification

Documentation related to the recycling programme and relevant information as stated above.

5. SCORING AND GRADING

The points for meeting each criterion stated in Section 4 are summarised in the Table 2.

Table 2: Points to be awarded under the assessment criteria of this Standard

Evaluation criteria	***Points***	
	Basic	***+Bonus***
4.1.1 Environmental Management System		+10
4.1.2 Packaging Requirements		+5
4.1.3 Product Information [CORE]	**5**	
4.1.4 Instructions on disposal of used product [CORE]	**5**	
4.2.1 Sustainable Material for Insulation		+5
4.2.2 Recycling of Conductor Waste in Production [CORE]	**15**	
4.2.3 Water Management		+5
4.3.1 Low Smoke in Case of Fire		+5
4.3.2 pH and Conductivity of Combustion Gas		+5
4.4.1 Halogen Input		
Notes: Criterion 4.3.2 pH and Conductibility of Combustion Gas and Criterion 4.4.1 Halogen Input are two alternative criteria. When the product fulfils Criterion 4.3.2, it does not fulfil the Criterion 4.4.1, vice versa.		
4.4.2 Heavy Metal [CORE]	**10**	+5
4.4.3 Flame Retardants [CORE]	**15**	
4.4.4 Recycling Programme of Drums		+10
	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 3: Benchmarks for grading cable & wire

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