Eco Mark Product Category No.131 "Products for Civil Engineering Version 1.21" Certification Criteria Category G. Materials for temporary structures

Japan Environment Association Eco Mark Office

1. Purpose of Establishing Certification Criteria

In civil engineering/construction-related business that is implemented as part of social infrastructure development, ripple effects in the economy are expected, but at the same time a significant environmental load is imposed on the natural environment of the oceans, rivers and land as well as the living environment. New forms of civil engineering-/construction-related business based on the principles of the "Basic Environmental Law," such as through harmonization with the natural environment, formation of a good living environment, prevention of global warming by improving energy efficiency, etc., are therefore being explored.

In addition to these kinds of environmental conservation efforts, it was also determined that in the civil engineering/construction-related business it is necessary to promote the control of waste generation (reduction), secondary uses (reuse) and recovery for further use (recycling) in accordance with the "Waste Disposal and Public Cleansing Law," the "Basic Law for Establishing a Recycling-Based Society," the "Law Concerning Promotion of the Procurement of Eco-friendly Goods and Services by the State and Other Entities (Green Procurement Law)" and the "Law for Recycling Materials for Construction (Construction Recycling Law)." Furthermore, independent efforts by civil engineering/construction enterprises for reduction of the environmental load, the "Guidelines for Green Procurement in the Construction Industry" were formulated in 2002.

In Japan's material balance, the proportion attributable to civil engineering and construction-related business accounts for approximately 40% of new resources (2002 White Paper on a Recycling-Oriented Economic System; FY2001 Major Construction Materials Demand Forecast), approximately 20% of industrial wastes and approximately 40% of wastes collected at final landfill sites (2002 Environmental White Paper). It can therefore be expected that an environmentally-sound materials cycle to promote reduction, reuse and recycling will have a major impact on the structure of society.

The load placed on elements of the environment by the civil engineering and construction-related business varies according to many environmental factors such as the site of the business and the methods and types of materials used. As the environmental load may be reduced by applying Eco Mark Product Certification to construction materials, one of the factors affecting this, the Eco Mark Certification Criteria for newly applied products, shall be established to certify such materials as 'construction products' after organizing and integrating them with products that are already certified.

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The new certification criteria, in addition to minimizing the consumption of new materials and the generation of wastes on the basis of using recycled materials, as has been recommended, and taking into consideration the reduced use of hazardous substances, energy saving, the impact on the ecosystem, etc., that are intended to reduce the environmental load imposed by construction work and long-term use, both of which may be characteristic of construction products, aim at the same time to achieve a symbiotic relationship with nature by creating a secondary natural environment. The concept of the life cycle of materials and products will be introduced into the evaluation, taking into consideration the life stage when the construction work is commenced as a construction product, and as many concrete environmental load items as possible have been selected.

2. Applicable Scope

Scaffolding, landing bridges, etc.: Lining board, Temporary road mat, Road mat Molds: Round/rectangular molds, Decorative form

3. Terminology

Recycle	Materials recycling only; energy recovery (thermal recycling)			
	is not included.			
Recycling	Collecting used materials and putting them into recycling			
	processes for the purpose of reuse, recycle, energy recovery,			
	production of gas or oil, blast furnace reduction, or			
	production of chemical raw materials for coke-oven			
Recycled materials	Post-consumer materials or pre-consumer materials, or a			
	combination of these. However, this product category shall			
	include thinned wood, less useful wood, slag resulting from			
	industrial activities, etc., in recycled materials.			
Pre-consumer	Materials or rejected products generated from a disposal			
materials	route in a product manufacturing process, excluding tho			
	that are recycled within the same process (plant).			
Post-consumer	Material or product which was disposed of after being used			
material	as a product			
Standard mixture	The percentage of recycled materials of each material that is			
amount	used to manufacture products (as % by mass), and calculated			
	as follows and regulated on a material-by-material basis:			
	Standard mixture amount = recycled materials/each			
	material			
Disposable product	Products that are not intended for repeated use in a field in			
	which durable products exist for repeated use as proper			
	materials.			

Terms for the common standard

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Prescribed	Material components added for the intended purpose of						
constituents	giving certain characteristics to the products. Impurities						
	that are technically unavoidable in the manufacturing						
	process are not included.						
Waste rubber	Post-consumer materials and pre-consumer materials						
	obtained from used tires, tubes, etc.						
Construction sludge	Construction sludge prescribed in the "Appropriate Disposal						
	of Waste Produced from Construction Work" (Kansantasu						
	No. 26, June 11, 2001).						

Terms for paper

Waste paper	Collected post-consumer waste paper and pre-consumer					
	waste paper.					
Post-consumer waste	ste Used paper generated in shops, offices, or households.					
paper						
Pre-consumer waste	Paper diverted from the waste stream during the processing					
paper	stage at facilities which use paper for material such as paper					
	processing factories, paper products factories, printing and					
	bookbinding plants.					
	However, if waste paper resulting from the paper making					
	process in a plant or works of a party (hereinafter referred					
	to as "paper manufacturer") that conducts business related					
	to the paper manufacturing industry (hereinafter referred to					
	as "plants, etc.") or those resulting when processing, etc. is					
	performed in the plants, etc. of the paper manufacturer					
	(including the case in which the paper manufacturer has					
	other contractor to conduct processing through					
	commissioning of the product before its shipment) is not					
	shipped as a product, and used as raw material for papers by					
	the paper manufacturer, they shall not be treated as waste					
	paper (from "Regarding operation of ministry ordinances,					
	etc. defining matters that should be criteria for judgment on					
	use of waste paper of those who conduct business related to					
	the paper manufacturing industry" of the Ministry of					
	International Trade and Industry dated December 24, Heisei					
	3 (1991).					
Percentage of waste	Weight percentage of waste pulp in pulp contained in					
paper in the pulp	product. Expressed by (waste paper pulp) / (virgin pulp +					
mixture	waste paper pulp) x 100 (%). However, the weight of the pulp					
	is measured under the condition of containing 10% moisture.					
	In addition, waste sheets shall not be included in the					
	denominator and numerator, respectively, of the calculating					
	formula of waste paper pulp combination rate.					

Terms for wood

Reused/Unused wood	Indicates the following: forest thinnings, waste wood,							
	construction waste wood, and less useful wood.							
Thinned-out log	Wood produced from a reduction in the density of the tree							
	type that is the objective of management based on the							
	intensity of the forest stand							
Waste wood	Used wood (used packing materials, etc.), remainder							
	materials generated in wood processing plants (shavings							
	generated in plywood/lumber plants, etc., low quality chips							
	not used as raw materials for paper, etc.), and wood and							
	wooden materials such as trimmed branches, bark, etc.							
Construction waste	Wood and wooden materials disposed of as waste during							
wood	construction work such as from the dismantling of buildings,							
	construction of new buildings, building extensions,							
	renovations, and construction related to other work.							
Less useful wood Abandoned lumber in the forest, shrubs, tree roots,								
obtained from lumber damaged by disease, pests, o								
	bent or small diameter logs, etc. Also includes bamboo cut							
	down in bamboo groves for the purpose of maintenance an							
	management in environment preservation. Small diameter							
	logs measuring less than 14 cm in diameter correspondin							
	to "a" or "b" below must be certified as forests sustainably							
	managed by an independent third party or public							
	organization.							
	a. Small diameter logs from logs felled from natural							
	forests.							
	b. Small diameter logs from logs produced by clear cutting,							
	patch logging, and strip logging in plantation forests.							
Waste plant fiber	Agricultural residues generated during harvesting and the							
	manufacturing process such as rice hulls, and used							
	packaging materials such as jute bags, etc.							
Wooden part	Actual wood (including plant fibers)							

Terms for glass

Glass cullet			Waste glass used as materials for making new glass and
			given recycling treatment (sorting, removal of foreign
			matter, etc.).
Percentage	of	glass	The rate of the total amount of glass material used in a
cullet usage			product, which is calculated as follows and all materials
			shall be expressed by mass: Glass cullet/total amount of
			glass material (per product)

Terms for plastic

Plastics:	Materials composed of a single or multiple polymers, pl					
	additives, fillers, etc. that are added to the polymer(s) to give					
	it (them) specific characteristics.					
Recycled plastic:	Plastic materials composed of post-consumer materials and					
	pre-consumer materials.					
Biomass	Biomass is a term originally used in ecology to describe					
	the amount (mass) of living organisms (bio). In this					
	criteria, it refers to resources that are organic matter-					
	derived from plants and animals, excluding fossil fuels.					
Bio-based plastic	Plastics that are produced from bio-based synthetic polymer					
	derived from renewable organic resources such as plants. In					
	particular, plant-derived plastics are also called plant-based					
	plastics. For example, polyethylene (PE), polyethylene					
	terephthalate (PET), polylactic acid (PLA) and					
	polytrimethylene terephthalate (PTT) are offered in the form					
	of bio-based plastics.					
	*Bio-based plastic means plastic whose bio-based carbon					
	content can be determined by 14C content measurement					
	specified in ISO 16620-2 or ASTM D6866.					
Bio-based synthetic	"Biobased synthetic polymer" defined in ISO 16620-1 3.1.4					
polymer	(original: polymer obtained through chemical and/or					
	biological industrial process(es) wholly or partly from					
	biomass resources).					
Bio-based synthetic	Content rate of biomass resources in bio-based synthetic					
polymer content rate	polymer which is included in a product (or a designated					
	portion by certification criteria). Means bio-based synthetic					
	polymer content (Original sentence: bio-based synthetic					
	polymer content : amount of bio-based synthetic polymer					
	present in the product) defined by ISO 16620-1 3.1.5					

4. Certification Criteria and Certification Procedure

Any certification verifying conformity with the criteria shall be signed by the applicant and submitted.

4-1. Environmental Criteria and Certification Procedure

- 4-1-1. Common criteria and certification procedure
- (1) In manufacturing the applied product, related environmental laws and regulations and pollution control agreement (hereinafter referred to as the "Environmental Laws, etc.") must be followed with respect to air pollution, water contamination, noise, offensive odor, and emission of hazardous substances in the area where the plant performing the final manufacturing process is located.

In addition, the state of compliance with the Environmental Laws, etc. for the past

five years from the date of application (whether there is any violation) must be reported. If there is any violation, proper remedies and preventive measures shall have been already taken, and the related Environmental Laws, etc. must thereafter be followed appropriately.

[Certification Procedure]

With respect to the compliance with the Environmental Laws, etc. in the area where the plant performing the final manufacturing process is located, a certificate issued by the representative of the business of manufacturing the applied product or the relevant plant manager (entry or Attachment of a list of names of the Environmental Laws, etc.) must be submitted.

In addition, the applicants shall report whether there is any violation in the past five years, including a violation subject to administrative punishment or administrative guidance, and if there is, the following documents in a and b must be submitted:

- a. With respect to the fact of violation, guidance documents from administrative agencies (including order of correction and warning) and copies of written answers (including those reporting causes and results of correction) to such documents (clearly indicating a series of communication);
- b. Following materials (copies of recording documents, etc.) concerning the management system for compliance with the Environmental Laws, etc. in 1)-5):
 - 1) List of the Environmental Laws, etc. related to the area where the plant is located;
 - 2) Implementation system (organization chart with roles, etc.);
 - 3) Bylaws stipulating retention of recording documents;
 - 4) Recurrence prevention measures (future preventive measures)
 - 5) State of implementation based on the recurrence prevention measures (check results of on-site inspection, etc. as compliance condition).

4-1-2. Material criteria and certification procedure

The constituents of the products shall conform to the following criteria for the respective materials. In this regard, the relevant criteria for the materials shall not be applicable to minor attachments (minor parts necessary for the functioning of the product, such as screws, adhesives, etc.).

A. Wood

(2) For products using lumber from dismantled buildings (wood and wooden materials disposed in dismantling), materials subject to preservatives, termicides, and pesticides shall be differentiated and eliminated. The content of harmful substances in these products shall meet the requirements for hexavalent chromium and arsenic given in Attached Table 5, which is provide by the detailed enforcement regulations (December 26, 2002, Environment Ministry Ordinance No. 29) of the Soil Pollution Control Law.

[Certification Procedure]

Documents certifying that wood from dismantled buildings is sorted in use or not used (work manual, workflow, etc.) shall be submitted. If using such waste wood from dismantled buildings, results of tests performed by a third party testing centers or public institutions shall be submitted.

 (3) Wood preservatives shall be approved by the Japan Wood Preserving Association.
 [Certification Procedure] The use of wood preservatives shall be described in the Application Form for

Eco Mark Certification for details. A document stating the reasons for their use and certifying that the preservative agents have been approved by the Japan Wood Preserving Association shall be submitted.

(4) If paper (virgin pulp) and wood are used as the material, the raw wood shall be harvested in legally appropriate procedure consistent with the forest laws of timber producing countries or regions. However, this item is not applicable for waste wood, construction waste wood or less useful wood.

[Certification Procedure]

A certificate shall be submitted to prove that the timber whose legality has been verified* in accordance with "Guideline for Verification on Legality and Sustainability of Wood and Wood Products" of Forestry Agency has been in custody to be separated by the applicant or the paper manufacturer and is supplied to the applied products. At the same time, the applicant or the paper manufacturer who issues the above certificate shall submit any of the following certificates:

- 1) Certificate that the applicant or the paper manufacturer has been assessed and authenticated by the CoC (Chain of Custody) Certification System;
- 2) Certificate of the authorized company (that guarantees the association member's adequate way of supplying wood and wood products verified with legality, etc.); and
- 3) Code of management practice which stipulates the way of custody to manage wood and wood products verified with legality (the method in the case that the timber verified with legality only is handled. The same applies to hereunder), retention of certificates for a predetermined period, etc.

In the event that Item 2) or 3) above is chosen and the certificate is submitted, the applicant who issues the above-mentioned certificates or the material supplier shall publicly announce through its web site the code of management practice prescribed by the association concerned in the case of Item 2) and shall prescribe and publicly announce through its website the code of management practice concerning the scheme to assess and guarantee the system for separative management, document management for retention of certificates for a predetermined period, etc. in the case of Item 3).

*Confirm the certificate issued by the related company closest in commercial process, which at least verifies that wood and wood products they supply are

with legality and under separative custody management.

B. Plastics

(5) Plastic additives shall conform to the positive list system of food utensils, containers and packaging. As for the elution of harmful substances, the plastics shall conform to the standards concerning elution of harmful substances that are set forth in Attached Table 4 of the enforcement regulation of the Soil Contamination Countermeasures Law (2002 Ministerial Order No. 29 of the Ministry of the Environment) with respect to cadmium, lead, hexavalent chromium, arsenic, mercury, selenium, among the specified hazardous substances listed therein. In lieu of the requirements of the Enforcement Regulation of the Soil Contamination Countermeasures Law, conformance of the Product to the standards concerning hazardous substances set forth in ISO 8124-3 may be accepted. In the case of using flame retardant, the product shall have no flame retardant of Polybrominated biphenyl (PBB), Polybrominated diphenylether (PBDE) or short-chain chlorinated paraffin (the number of chained C is 10 to 13 and contained chloride concentration is 50% or over) added as formulated components. In addition, (Pb)-based chemical compounds, cadmium (Cd)-based chemical compounds, tributyl tin compound (TBT), triphenyl tin compound (TPT), dibutyl tin compound (DBT), diphenyl tin compound (DFT), and monophenyl tin compound (MFT) shall not be added as prescribed constituents.

[Certification Procedure]

To show that the plastic resin (including recycled plastics) and plastic additives meet the requirement on the harmful materials, a certificate issued by the raw materials supplier, or a certificate describing the results of tests carried out by an independent testing institution shall be submitted. In cases where no raw materials contain any of the corresponding chemical substances as a prescribed constituent, a document prepared by the raw materials supplier and the applicant that proves there is no content of the chemical substance shall be acceptable.

(6) For the products to use plastics containing halogen in polymer backbone, at least 70% of the plastic part of the Product after use shall be recovered. Furthermore, at least 70% of such recovered plastic parts shall be directed to material recycling. However, this item is not applicable to the product with 20 years or more of the average length of year to use, even if the product uses plastics containing halogen.

[Certification Procedure]

Whether this criteria applies to the Product or not shall be stated in the Attached Certificate, and, if affirmative, a document ensuring that proper recovery and recycling will be made at the time of Product disposal, or continuous use of 20 years and more shall be submitted.

Eco Mark Office reserves the right to ask the reports on the recovery ratio (or to conduct audit) after the conclusion of the license agreement, for which the Applicant assumes the obligation to cooperate.

C. Glass cullet

(7) As for the elution of harmful substances from glass cullet, the product shall conform to the standards concerning elusion of harmful substances that are set forth in Attached Table 4 of the enforcement regulation of the Soil Contamination Countermeasures Law (2002 Ministerial Order No. 29 of the Ministry of the Environment) with respect to cadmium, lead, hexavalent chromium, arsenic, mercury, selenium, boron and fluorine among the specified hazardous substances listed therein. In addition, if waste glass is used as a raw material, color of cullet to be used (solid color, brown, etc.) shall also be reported.

[Certification Procedure]

A certificate shall be submitted describing the results of tests carried out by an independent testing institution or a public institution. If waste glass is used as a raw material, usage of solid color cullets, brown cullets or those in any other color shall also be reported.

- D. Other materials
- (8) The Product that is made of gypsum board recycled from the waste generated in connection with building demolition shall be made free of products that are known to have contained asbestos, arsenic, or cadmium through the process of sorting and removal. On the subject of specific waste gypsum boards to be eliminated, the Applicant should refer to "On the Inclusion of Asbestos in Gypsum Boards) published by the Gypsum Board Industry Association, "Proper Handling of Hazardous Substances and the Like Associated with Building Demolition and the Like" published by the Construction By-products Recycling Promotion Conference, and other pertinent documents.

No analysis shall be required if the Product is made of gypsum board that is recycled from the waste coming out of the manufacturing process of gypsum board processing plants or generated at a new building construction site, because the recycled material does not contain asbestos.

[Certification Procedure].

Applicants shall enter the conforming condition to this item in the attached certificate. In the event that products which have turned out to have contained asbestos, arsenic, and/or cadmium are separated and removed, applicants must report the specific separation and removal methods. Incidentally, in the case of judgment by analytical examinations, applicants must determine that more than 0.1% of six types of asbestos including Tremolite are not contained by the methods that conform to "JIS A1481: Determination of asbestos in building material products" (2008) shown in the Instruction Letter No. 0821002 of the Labour Standards Bureau of the Ministry of Health, Labour and Welfare dated August 21, 2006 "On the Analysis Method of Asbestos Content in Building Materials."

(9) For a product using construction sludge as a raw material, the conditions for

discharging construction sludge and acceptance criteria for checking soil property shall be defined with reference to "Construction Sludge Recycling Manual" (Written and edited by Public Works Research Institute in December 2008), and only inorganic sludge that were subjected to appropriate treatment shall be used. Any construction sludge that does not conform to the environmental quality standards for soil based on the Environmental Basic Law and the content standard of specified toxic substances based on the Soil Contamination Countermeasures Law shall not be used unless it is subjected to proper processing so that it can conform to these standards.

[Certification Procedure]

Conformance to this item shall be stated in the attached certificate. A material describing conditions for receiving construction sludge, content and flow of treatment shall be submitted.

4-1-3. Individual product criteria and certification procedure

(10) As for products, the total mass of recycled materials given in Table 1 shall be 70% or more of the entire product mass. At the same time, each recycled material shall conform to the standard mixture rate given in Table 1.

However, as for products in which the total mass of concretes and plastics is 50% or more of the entire product mass, the total mass of recycled materials shall be 50% or more. At the same time, each product shall conform to the standard mixture rate given in Table 1.

The total mass of recycled plastic of plastic mold shall be 50% or more of the entire product mass and the standard mixture rate for each material in Table 1 is not applicable for it.

The total mass of recycled materials shall be 20% or more of the entire product mass for a temporary road mat and a road mat which contains recycled rubber as main material, and the standard mixture rate for each material in Table 1 is not applicable for it.

The product using bio-based plastic may satisfy 4-1-3.(11) instead of 4-1-3.(10).

Materials	Recycled material		Standard mixture rate (as % by mass)			
Concrete	Aggregates	Aggregates satisfy Category-C Certification Criteria 4-1-2.A.(2)The (1)t (1)t (1)Certification Category-C Certification Criteria 2.B.(6)and(7)(2)		oncrete parts shall satisfy one of t 3) Weight of recycled materials in concrete	the following $\times 100 \ge 50$	
	Cement			Weight of concrete Weight of recycled materials	$\times 100 \ge 50$	

 Table 1
 Recycled materials usable as materials for temporary structures

	Concrete admixture	Concrete admixture satisfy Category-C Certification Criteria 4-1- 2.C.(11)	in aggregates Weight of aggregates (3) Total weight of recycled materials in cement and concrete admixture Total weight of cement + concrete admixture			
Plastics	Recycled pla	stics	Recycled plastics/total plastics $\times 100 \ge 50[25]$			
Glass	Glass cullet		Glass cullet/total glass material $\times 100 = 100$			
Wood,	Reused/unused wood, waste plant fiber		(Forest thinnings and small-diameter logs + waste			
wooden			wood + less useful wood + waste plant fiber)/total			
materials			wooden materials \times 100 = 100			
	Waste paper pulp		Waste paper pulp/pulp×100=100			
Paper			[Waste paper pulp/pulp \times 100 \ge 95 (Mixture rate for			
			mold without using release agent)]			
Rubber	Recycled rul	ober	Recycled rubber/total rubber $\times 100 = 100[50]$			

Note 1: The percentage mass of wooden parts means the mass ratio of the product or each material in an air dried state^{*1} or at the point of constant weight^{*2} at a temperature of $20\pm2^{\circ}$ C and humidity of $65\pm5\%$.

*1: Indicates leaving in a well-ventilated room for seven days or more.

*2: Change is less than 0.1% when the weight is measured every 24 hours.

Note 2: As for recycled plastics, the combined use of recycled polymers and virgin polymers shall be permitted. Products using post-consumer materials as raw materials shall be permitted if the mass ratio of the plastics composed of post-consumer materials conforms to the requirement in [1] given in the table.

Note 3:As for recycled rubber, products using post-consumer materials as raw materials shall be permitted if the mass ratio of the recycled rubber composed of post-consumer materials conforms to the requirement in [1] given in the table.

[Certification Procedure].

A raw materials certificate issued by the supplier shall be attached. In addition, the types of recycled materials, the proportional content of recycled materials and materials other than recycled materials and control procedures shall be stated in the product weight certificate.

For thinned out wood and less useful wood, a certificate specified in Appendix 3 shall be submitted.

- (11) A product using bio-based plastic shall meet all the requirements in a) to c) below. However, when the criteria item 4-1-3.(10) is selected, this item shall not apply.
 - a) The bio-based synthetic polymer content in the entire product mass (plastic parts) shall be 10% or higher, and the mass ratio of the bio-based plastic shall be 25% or higher.
 - b) Sustainability of biomass mixed into plastic as raw material shall meet the requirements of Appendix 4(a) "Sustainability checklist of bio-based plastics (raw resin)" and the supply chains of the biomass shall be identified. If the biomass material has underwent third-party audit or certification for sustainability (an international sustainability certification for plastics, etc.), the result of audit or

certification may be submitted as evidence instead of Appendix 4(a).

c) It shall be confirmed through life cycle assessment (LCA) that the bio-based plastic (raw resin) does not cause an increase of GHG emissions (in terms of CO₂) throughout the product life cycle in comparison with a resin to replace with.

[Certification Procedure]

a) A certificate indicating the calculated content of biobased synthetic polymers in the product (plastic parts) shall be submitted. For the bio-based plastic (raw resin) thereof, measurement results of the biobased synthetic polymer content calculated with the method specified in ISO 16620-3, using measurement results of the biobased carbon content and element composition by the 14C method specified in ISO 16620-2 or ASTM D6866 shall be mentioned. Should there be any deviation of 10% or higher between the measurement results and the content of biobased synthetic polymer in the standard, a description of a reason(s) therefor shall also be included. The measurement results of the biobased carbon content shall be submitted as an attached document.

In addition, for appropriate maintenance of the content of biobased synthetic polymer after certification, any of the following certificates issued by a raw resin supplier (including a dealer) shall be submitted.

- An explanatory document stating that measurements of the content of biobased carbon will be regularly carried out, and that measurement results can be disclosed as per a request of the Eco Mark Office; and
- A certificate that the Applicant has been audited or certified by a third party for management of the content of the biobased synthetic polymer.
- b) An applicant shall submit documents on the source of biomass material (a cultivation area (country, state, city, etc.), a generation process of waste and residues, etc.), a manufacturing flowchart (of raw resin) (describe the name of manufacturers of fundamental chemicals (monomers), polymers, etc.), and checklists or an evidence of a third-party audit or certification.

To the application for Eco Mark certification of products containing biobased plastics or biomass materials that have never been certified for use, Eco Mark Office may request the applicant (or the plastic supplier) to provide information on the chemical composition of the products (see Appendix 4(b)).

- c) An applicant shall submit the result of LCA conducted by a third-party. (An applicant shall provide the LCA result and the calculation conditions. If the applicant has underwent LCA under an international sustainability certification scheme for plastics, it may submit the data instead. The applicant may submit an academic paper published on a journal as an evidence as long as the same materials and/or manufacturing processes (sites) are mentioned in the paper as those used for the product applied for certification.).
- (12) As for the elution of harmful substances, the product shall conform to the standards concerning elusion of harmful substances that are set forth in Attached Table 4 of

the enforcement regulation of the Soil Contamination Countermeasures Law (2002 Ministerial Order No. 29 of the Ministry of the Environment) with respect to cadmium, lead, hexavalent chromium, arsenic, mercury, selenium, boron and fluorine among the specified hazardous substances listed therein. However, this item shall not apply to metal portions such as steel products, etc. Slags may be tested by JIS K0058-1 "Test methods for chemicals in slags". The materials listed in the 4-1-2A-C and paper shall be in accordance with the 4-1-2 and can be omitted.

[Certification Procedure]. A certificate to indicate no addition of chromium, cadmium, and arsenic as the prescribed constituents shall be submitted.

(13) As for the content of harmful substances, the product shall conform to the standards concerning content of harmful substances that are set forth in Attached Table 5 of the enforcement regulation of the Soil Contamination Countermeasures Law (2002 Ministerial Order No. 29 of the Ministry of the Environment) with respect to cadmium, lead, hexavalent chromium, arsenic, mercury, selenium, boron and fluorine among the specified hazardous substances listed therein. However, metal portions such as steel products, etc. may be confirmed by other test methods, etc. Slags may be tested by JIS K0058-2 "Test methods for chemicals in slags. The materials listed in the 4-1-2A-C and paper shall be in accordance with the 4-1-2 and can be omitted.

[Certification Procedure].

A certificate shall be submitted describing the results of tests carried out by an independent testing institution or public institution. With respect to metals, the content of hazardous substances may be proved by test results, ingredient table, etc. by manufacturers, and others.

(14) The products shall not have chromium, cadmium or arsenic added as prescribed constituents.

[Certification Procedure].

A certificate to indicate no addition of chromium, cadmium, and arsenic as the prescribed constituents shall be submitted.

(15) The products shall not be of a disposable type.

However, if they are "disposable products" as defined above, in the cases where a collection and recycling system after disposal has been established and such products are actually recycled, this requirement is not applicable. For products with recycled pulp comprising magazines, corrugated boards, and mountings and book-cover paper referred to in the recycled paper standard quality specification list compounded as main recycled material, this item shall not apply in the event that a system for collecting and recycling the products after use is established and the products are actually recycled.

[Certification Procedure].

It shall be specifically explained and described as to whether the product

corresponds to a disposable product, as described in 2-1-9 E-1 Materials for Temporary Structures in the Application Form for Certification and Use of the Eco Mark. In cases that require verification that a system for collection and recycling after disposal has been established, materials including an explanatory document shall be submitted.

(16) Information regarding Certification Criteria 4-1-3. (12) and (13) shall be made available.

[Certification Procedure].

The document to be used at the time of information provision shall be submitted (a draft is acceptable).

4-2. Quality Criteria and Certification Procedure

(17) As for quality requirements for the products, safety shall be confirmed through inhouse standards based on official test methods.

[Certification Procedure].

A certificate shall be submitted verifying that based on in-house standards, safety has been confirmed.

5. Product Classification, Indication and Others

- (1) The products shall be classified according to each applicable product in "2. Applicable Scope" (Appendix 1) and brand of the product. The product is not classified by size or color; provided that products made of different materials shall be applied separately.
- (2) Regarding products which correspond to designated procurement items under the "Act on Promotion of Procurement of Eco-friendly Goods and Services by the State and Other Entities (Green Purchasing Law)", conformity status for evaluation criteria will be announced on the website of the Eco Mark Office.
- (3) In principle, Eco Mark shown as below shall be indicated on the product main body. The licensees of Eco Mark Utilization Contract who own the Eco Mark products shall also be allowed to use the indication and the certification number as before.



(Note for the indication)

- *For indicating the logo, Eco Mark certification number (eight-digit number) or the name of the licensee using the logo shall be appeared.
- * Such expression as "Eco Mark product" can be used following the 2.(2) of the Guide to Eco Mark Usage.

"Eco Mark product", "#Eco Mark", "www.ecomark.jp", "Eco Mark Certificate"

*In accordance with "Environmental Labeling Guidelines" of the Ministry of the Environment of Japan, etc., the environmental claims of certified products may be indicated in association with Eco Mark.

(https://www.env.go.jp/policy/hozen/green/ecolabel/guideline/)

* The Guide to Eco Mark Usage shall be followed for any cases not listed above. (https://www.ecomark.jp/office/guideline/guide/)

January 15, 2005	Established
February 23, 2005	Revised (4-1-3.L(75), (76))
May 13, 2005	Revised (4-1-3. (35), (94), 5-1-3.(73))
September 8, 2005	Revised (Terminology)
April 28, 2006	Revised
October 19, 2006	Revised
February 9, 2007	Revised
April 13, 2007	Revised
October 5, 2007	Extension of Expiration date
February 14, 2008	Extension of Expiration date
June 9, 2008	Revised
August 21, 2008	Revised
May 1, 2009	Revised
November 4, 2009	Revised
March 1, 2011	Revised (5.Indication, Version1.14)
June 15, 2012	Revised (4-1.(4), deletion of 5.(2)(3) Version1.15)
February 1, 2013	Revised (Version1.16)
February 1, 2014	Extension of Expiration date
December 1, 2014	Revised (Category F, Version1.17)
March 1, 2018	Revised (4-1-2.(4), Version1.18)
August 10, 2018	Revised (Category E-J, addition of 5.(2)(3) Version 1.19)
January 7, 2019	Extension of Expiration date
April 1, 2022	Revised (Category E, J: Version 1.20)
February 1, 2023	Revised (Version1.21)
March 15, 2024	Extension of Expiration date
January 31, 2031	Expiration date

The Certification Criteria for the Product Category will be revised when necessary.

Appendix 2 -- Omitted --Appendix 3 Criteria and certification for thinned out wood and less useful wood

If using thinned wood as the material, a certificate of origin that includes information on the place of production, type of tree, and year of planting shall be submitted with photographs of the forest concerned (showing clearly that the forest stand has been thinned). The thinning percentage and how many times the forest stand has been thinned, including the most recent thinning shall also be indicated if possible.

If using less useful wood, the following information shall be submitted. At the same time, official documents stating that the forest has been certified as sustainable by a third party shall be submitted.

- Type of forest (natural or man-made, etc.), place of production, type of tree, and year of tree planting if man-made forest.
- Under what conditions was the wood produced (damaged by disease/pests, damaged by disaster, bent or narrow trees, etc.). For small diameter log, indicate logging method and tip end diameter.

If small-diameter wood of less useful wood is used, and if it applies to a or b described below, a document certifying that forests were certified as sustainable by a third party as listed in the table below shall also be submitted.

- a. Small diameter logs from logs felled from natural forests.
- b. Small diameter logs from logs produced by clear cutting, patch logging, and strip logging in plantation forests.

Certification criteria	- While balancing economical, ecological, and social benefits,					
	the criteria shall comply with Agenda 21 and Statement o					
	Principles on Forests, and observe related international					
	agreements and conventions.					
	- Including solid requirements, the criteria shall promote					
	sustainable forests.					
	- Recognized both domestically and internationally, the					
	criteria shall be recommended as part of the process opened					
	to participation by ecological, economical, and social					
	stakeholders.					
Certification system	- Certification systems shall have high transparency, maintain					
	nation-wide or international reliability, and can verify					
	requirements.					
Certification body	- With fairness and high reliability, certification organizations					
	and groups shall be able to verify that requirements an					
	satisfied, convey the results, and able to execute					
	requirements effectively.					

Table Requirements for Forest Certification

If using bamboo as the raw material in less useful wood, certificates indicating the following information and photographs/maps of the surroundings of the bamboo grove shall be submitted.

- Type of bamboo, place of production, surrounding conditions, and description that logging is carried out for the purpose of appropriate maintenance and management in environment preservation, as well as management plans and quantity.

No	Purpose	Request (Item that must be realized)	Subject	Realized	Implementation Method (Check off all relevant items.)
1	Prevention of global warming, conservation of the natural ecosystem	Hasn't the farm land where plants are cultivated been converted from valuable land in biodiversity or land with high carbon storage (forests, peatland, etc.) since 2008?	Farm land	□Not converted □Converted □Not applicable due to residues or waste	 Confirmed the laws and regulations concerning the land conversion for the site. Gained the understanding of the actual condition of the site through on-site investigation or hearings. Defined and released the guideline for procurement of plants. Alternatively, conforming to the guideline of an independent third party. Name of the guideline: Location of release: Also using the certification system of an independent third party, regarding the procurement of plants. Name of certification system: Others (Describe specifically.):
2	Conservation of the ecosystem	If the Applicant uses the genetically modified crop as a raw material, has the Applicant assessed ensuring of safety?	Farm land	□Yes/ □No/ □Not applicable (GM crops Not used) □Not applicable due to residues or waste	 Confirmed the laws and regulations concerning genetically engineered crop on the site. Gained the understanding of the actual condition of the site through on-site investigation or hearings. Defined and released the guideline for procurement of plants. Alternatively, conforming to the guideline of an independent third party. Name of the guideline: Location of release: Also using the certification system of an independent third party, regarding the procurement of plants.

Appendix 4(a) Sustainability checklist of Bio-based Plastic (Raw Resin)

No	Purpose	Request (Item that must be realized)	Subject	Realized	Implementation Method (Check off all relevant items.)
					-Name of certification system: Dothers (Describe specifically.):
3	Prevention of land acidification/ nutrient enrichment/w ater contaminatio n	Has the Applicant gained the understanding of usage conditions of fertilizers/agricultural chemicals in the main cultivation area of plants? Isn't any agricultural chemical regulated under the "Stockholm Convention on Persistent Organic Pollutants" (POPs Treaty) used?	Farm land	□Yes/ □No □Not applicable due to residues or waste	 Confirmed the laws and regulations concerning fertilizers/agricultural chemicals on the site Gained the understanding of the actual condition of the site through on-site investigation or hearings. Defined and released the guideline for procurement of plants. Alternatively, conforming to the guideline of an independent third party. Name of the guideline: Location of release: Also using the certification system of an independent third party, regarding the procurement of plants. Name of certification system: Others (Describe specifically.):
4	Appropriate water usage	Has the Applicant gained the understanding of usage conditions of water in the main cultivation area of plants?	Farm land	□Yes/ □No □Not applicable due to residues or waste	 Confirmed the laws and regulations concerning usage of water (limits on the amount of water) on the site. Gained the understanding of the actual condition of the site through on-site investigation or hearings. Defined and released the guideline for procurement of plants. Alternatively, conforming to the guideline of an independent third party. Name of the guideline: Location of release: Also using the certification system of an independent

No	Purpose	Request (Item that must be realized)	Subject	Realized	Implementation Method (Check off all relevant items.)
					third party, regarding the procurement of plants. -Name of certification system: Dothers (Describe specifically.)
5	Use of recycled resources, avoidance of competition for food	If recycled resources are available as a part of crude raw materials of bio-based plastic (raw resin) on the site, did the Applicant preferentially use them?	Raw resin	□Yes/ □No/ □Not applicable (Not available)	Name of recycled resource in use [] Generated amount/percentage of recycled resources []
6	Prevention of global warming	Has the Applicant gained the understanding of the processing status of methane having a high global warming potential if it is generated by fermentation in the main manufacturing plant for the crude raw material?	Crude raw material manufactu ring plant	□Yes/ □No □Not applicable	□Gained the understanding of the actual condition of the site through on-site investigation or hearings. □Others (Describe specifically.) []
7	Utilization of non-fossil energy sources and renewable energy sources	In the course of cultivation to raw resin manufacturing, did the Applicant utilize as many non-fossil energy sources (for example, bagasse, biogas, off gas, etc.) or renewable energy sources as possible?	Manufactu ring plant	□Yes/ □No	Energy name and method of utilization []
8	Legal compliance	In manufacturing the bio-based plastic (raw resin), does the applicant follow related environmental laws and regulations	Resin manufactu ring plant	□Yes/ □No	Monomer manufacturer / plant name [] Resin manufacturer / plant name []

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No	Purpose	Request (Item that must be realized)	Subject	Realized	Implementation Method (Check off all relevant items.)
		and pollution control agreement with respect to air pollution, water contamination, noise, vibration, offensive odor, and emission of hazardous materials?			

* Residues or Waste defined in Renewable Energy Directive (RED) of EU

Appendix 4(b) Sheet for Providing Information for Application of Products Containing New types of Bio-based Plastics or Biomass Materials

Month/Day/Year

Submit to: Eco Mark Office, Japan Environment Association

Company name:	
Department:	
Name:	
E-mail:	

1. Information on bio-based plastic used in a product applied for Eco Mark certification

Item	Description
Type of plastic (PE, etc.)	
Chemical structural formula	
Major use (molded product, fiber)	
Launch onto the market and	□Already put on the market (□Japan ∕ □Overseas)
production volume of bio-	□Not yet (the scheduled time of launch Month/Year)
based plastic	Production volume (actual, planned or estimated) tons
	(Year)
Manufacturer of bio-based	
plastic (and the URL of website)	
(Describe the name of manufacturer	
of bio-based plastic proposed in the form in addition to the applicant)	
Fossil-based plastic to be	
replaced with the bio-based	
Manufacturing process chart	May be described in an attached sheet
from raw material to	May be described in an attached sheet
production of plastic	
(Description of processes from acceptance of raw material to	
production of monomer and	
plastic, with or without of	
100-percent bio-based/	100-percent hip-based (the hip-based synthetic polymer
Partially bio-based	content is 100 percent)
	Partially bio-based -> The maximum bio-based synthetic
	polymer content that can be mixed into the bio-based
	plastic [%]
Management under the mass	□Plastic directly mixed with biomass / □MB approach
balance (MB) approach	*Bio-based plastics managed under the MB approach are not
	covered by the guidelines.
Biodegradability	□Yes / □No
Disposal after use	
Issues in disposal and	

recycling in comparison with	
fossil-based plastics to replace	
with (possible disposal method,	
etc.)	

2. Information on biomass material

Item	Description
Type of biomass material (name of plant, etc.)	
Cultivation area (country, state,	
city, etc.) or the generation	
process of waste and residues,	
etc.	
Production or generation	
volume of biomass material	
Main use of biomass material	
(principal product or by-product)	
State of cultivation land (for	
plants, describe type of land such	
as peatland)	
Possible influences on	
biomass material if	
production of bio-based	
plastic increases in the future	
(Influences on other uses of the	
biomass, influences caused by	
the biomass etc.)	
Competing demand against	
foods	
Use of recycled material in	
production of bio-based	
plastic	
(If recycled material can be used,	
describe the source, collection	
methods, management under EU	
RED, etc.)	

3. Information on sustainability of biomass material

Item	Description
Sustainability certificates and	
initiatives of biomass material	
(RSPO, ISCC, etc.) and	
acquisition (If acquired,	
describe the name and	
detailed criteria)	
Any sustainability issues	
pointed out by NGOs or	
researchers regarding the	
cultivation of biomass	
material (If any, describe the	
details and the URL of website of	
NGOs or researchers)	
Any other concerns about the	
biomass material	

4. Others

Item	Description
Other bio-based plastics produced from the same biomass material (if any, describe the name of bio- based plastics)	
Others	

* Attach relevant documents such as company profile of manufacturer.

The information provided in this form will be used as reference for examination of Eco Mark certification by Eco Mark Office and relevant committees only. The Certification Committee will assess the sustainability of bio-based plastic based on the information provided in the form. The Certification Committee may conduct additional study or consult with the Evaluation Panel established under the Committee as necessary. In this case, a longer assessment period will be taken than usual.