Eco Mark Product Category No.131
"Products for Civil Engineering Version 1.21" Certification Criteria
Category F. Pavement/ Road materials

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.

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

Pavement materials		Rubber pavement materials, Rubber particle-containing antifreezing pavement materials Recycled sub-base materials and recycled asphalt mixture
Traffic sign/traffic lane lines	Traffic sign (reuse system)	Traffic signboards (reused product)
	Traffic sign materials	Traffic signboards (recycled product), Glare prevention plate, Road rivets, Delineators (snow poles), guide light, Delineators, Traffic signposts/road reflection mirrors, Traffic signboards/guardrail protection materials
	Traffic lane lines	Glass beads for road marking paint
Road materials	Road lighting	Low-grade insect-trap road lighting Balustrade lighting
	High-performance noise reduction equipment	High-performance noise reduction equipment
	Other road materials	Sound insulation walls, Crossing prevention fences for sidewalks, Fall prevention fences, Concrete road products for local road use, Side ditch lids of the former Ministry of Construction standards, Long U/new long U, Other concrete road products, Free inclination side ditches, JIS A5345 Ferroconcrete for road use, Other side ditch materials, Circular waterways, Exterior concrete, Water collection/rainwater/wastewater pits, Concrete boundary piles, Grating, High-performance translucent boards, Hump, Cone, Center divider blocks made of recycled plastic

3. Terminology

Terms for the common standard

Recycle	Materials recycling only; energy recovery (thermal recycling) is not included.

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	Materials or rejected products generated from a disposal route in a product manufacturing process, excluding those that are recycled within the same process (plant).
Post-consumer material	Material or product which was disposed of after being used as a product
Standard mixture amount	The percentage of recycled materials of each material that is 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
Prescribed constituents	Material components added for the intended purpose of 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 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	Wood and wooden materials disposed of as waste during 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, wood obtained from lumber damaged by disease, pests, disasters, bent or small diameter logs, etc. Also includes bamboo cut down in bamboo groves for the purpose of maintenance and management in environment preservation. Small diameter logs measuring less than 14 cm in diameter corresponding 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 cullet usage	The rate of the total amount of glass material used in a 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, plus 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 polymer	"Biobased synthetic polymer" defined in ISO 16620-1 3.1.4 (original: polymer obtained through chemical and/or biological industrial process(es) wholly or partly from biomass resources).
Bio-based synthetic polymer content rate	Content rate of biomass resources in bio-based synthetic 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

Terms for fibers

Recycled fibers:	Recovered fibers, recycled polymer fibers, or chemically recycled fibers
Recovered fibers:	Fiber consisting of recovered materials including lint from spinning plants, cut lint from clothing plants, and used clothing, etc. (Here, sakiori (split-woven fabric), etc. are included.)
Recycled polymer fiber:	Fibers made of recycled resins using recovered flakes, or pellets, etc. of post-consumer and pre-consumer materials.
Chemically recycled fiber:	Fibers consisting of polymers obtained through polymerization using monomers as raw materials that are obtained by depolymerizing used nylon or polyester products and pre-consumer materials.
Bio-based synthetic fiber	Synthetic fiber whose material is bio-based plastic

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. This item is not applicable for for reused parts of reused Traffic sign boards among “I-1. Traffic sign boards”.

[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. Fibers

(8) In the use of fibers, chemical materials given in Appendix 2 shall conform to the standard values.

[Certification Procedure]
Certificates shall be submitted according to Appendix 2.

E. Other materials

(9) 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."

(10) 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

A Rubber pavement material and anti-freezing pavement material containing rubber particles

(11) The mass ratio of recycled rubber to the total amount of rubber used in the product shall be 100%.

[Certification Procedure]
A raw material certificate issued by the supplier shall be submitted. 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.

(12) Anti-freezing pavement material containing rubber particles shall be adequately recyclable by a modification facility after disposal.

[Certification Procedure]
The possible recycling methods after disposal shall be indicated.

(13) Each stage from resource extraction to the recycling of the product shall give

consideration to the quantity of new resources used, energy consumption and CO_2 emissions.

[Certification Procedure]
The average CO_2 emissions per ton of the product from resource extraction to the recycling of the product shall be presented in comparison with cases in which recycled materials are not used (excluding emissions in the pretreatment process of the raw materials; the parts for comparison may be limited to those that are different from cases in which natural raw materials are used).

(14) As for the elution of harmful substances from rubber particles, 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 all specified hazardous substances listed therein.

[Certification Procedure]
A certificate shall be submitted describing the results of tests carried out by an independent testing institution or public institution.

(15) Information regarding 4-1-3.(14) shall be made available.

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

B. Recycled sub-base materials and recycled asphalt mixture

(16) The content of recycled materials in Table 1 to the total mass of the product shall be 50% and more. In case of using construction sludge, high-stability treatment, burning or melt-solidification shall be conducted in the stage of pre-treatment of raw materials or production process, based on the "Construction Sludge Recycling Manual" (Written and edited by Public Works Research Institute in December 2008).

Table 1 Recycled materials usable for sub-base materials and asphalt mixture

Recycled materials
Modified asphalt
Asphalt-concrete block, concrete block
Quarrying and ceramic industry waste soil
Micro-silica sand obtained during the water washing of silica sand (mica powder)
Steel slag
Foundry sand
Ceramic waste
Coal ash
Shells
Glass cullet
Gypsum (including desulfurized gypsum)

Construction sludge
Paper-manufacturing sludge

[Certification Procedure]
A raw materials certificate issued by the supplier shall be attached. The types of recycled materials and the proportional content of recycled materials and materials other than recycled materials shall be stated in the Application Form for Certification and Use of the Eco Mark.

(17) 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. Slags may be tested by JIS K0058-1 "Test methods for chemicals in slags".

[Certification Procedure]
A certificate shall be submitted describing the results of tests carried out by an independent testing institution or public institution

(18) 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. Slags may be tested by JIS K0058-2 "Test methods for chemicals in slags".

[Certification Procedure]
A certificate shall be submitted describing the results of tests carried out by an independent testing institution or public institution

C. Traffic signboards

(19) The board parts of traffic signs, which are composed of a board and a reflective sheet, shall be reused when traffic sign boards are removed. The Applicant shall have a system for collecting traffic signboards composed of a board and a reflective sheet and subjecting them to recycling such as scraping of the reflective sheet from the board, etc., so as to manufacture traffic signboards with reused board parts. The product shall reuse used traffic signboards by this system.

[Certification Procedure]
An explanatory document shall be submitted stating that a system has been established to enable used traffic signboards to be collected and that products for reusing them are being manufactured (including the collection system, processing capacity, processing details, etc.). In addition, a certificate explaining that the applying product utilizes used traffic signboards as raw materials shall be submitted.

(20) The materials of reused products shall be clearly known and designed to allow separation/sorting. Replacement of the parts shall be easily carried out.

[Certification Procedure]
A certificate shall be submitted regarding the parts that are separable/sortable and replaceable as well as the method of replacement.

D. Traffic sign materials

(21) As for products, the total mass of recycled materials given in Table 2 shall be 70% or more of the entire product mass (excluding assembling/functional parts for mounting or installation such as a clasp, bolt, etc.). At the same time, each recycled material shall conform to the standard content rate given in Table 2.
However, as for products in which the total mass of concrete and plastics is 50% or more of the entire product mass, the total mass of recycled materials shall be 50% or more (excluding assembling/functional parts for mounting or installation such as a clasp, bolt, etc.). At the same time, each product shall conform to the standard content rate given in Table 2.
The product using bio-based plastic or bio-based synthetic fiber may satisfy 4-1-3.(22) instead of 4-1-3.(21).

Table 2 Recycled materials usable as traffic sign materials

Materials	Recycled material		Standard content rate (as % by mass)	
Concrete	Aggregates	Aggregates satisfy Category-C Certification Criteria 4-1-2.A.(2)	The concrete parts shall satisfy one of the following (1) to (3). (1) $\frac{\text{Weight of recycled materials in concrete}}{\text{Weight of concrete}} \times 100 \geqq 50$ (2) $\frac{\text{Weight of recycled materials in aggregates}}{\text{Weight of aggregates}} \times 100 \geqq 50$ (3) $\frac{\text{Total weight of recycled materials in cement and concrete admixture}}{\text{Total weight of cement + concrete admixture}} \times 100 \geqq 50$	
	Cement	Cement satisfy Category-C Certification Criteria 4-1-2.B.(6)and(7)		
	Concrete admixture	Concrete admixture satisfy Category-C Certification Criteria 4-1-2.C.(11)		
Plastics	Recycled plastics		Road rivets	Recycled plastics/total plastics × 100 = 100
			Other traffic sign materials	Recycled plastics/total plastics × 100 ≥ 70 [60]
Fiber	Recycled fiber		Recycled fiber/total fiber materials × 100 ≧50	
Glass	Glass cullet		Glass cullet/total glass materials × 100 ＝100	
Wood, wooden materials	Reused/unused wood, waste plant fiber		(Forest thinnings and small-diameter logs + waste wood + less useful wood + waste plant fiber)/total wooden materials × 100 = 100	

Note 1: The mass percentage of the wooden portion 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±2°C and humidity of 65±5%.
*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, 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 plastic composed of post-consumer materials to the plastic part conforms to the requirement in [ ] 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 log and less useful wood, a certificate given in Appendix 3 shall be submitted.

(22) A product using bio-based plastic or bio-based synthetic fiber shall meet all the requirements in a) to c) below. However, when the criteria item 4-1-3.(21) or (38) is selected, this item shall not apply.

a) The bio-based synthetic polymer content in the entire product mass (excluding assembling/functional parts for mounting or installation such as a clasp, bolt, etc.) shall be 10% or higher, and the mass ratio of the bio-based plastic / synthetic fiber 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 CO_2) 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 entire product mass (excluding assembling/functional parts for mounting or installation such as a clasp, bolt, etc.) 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 bio-based 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.)

(23) 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-D 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.

(24) 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-D shall be in accordance with the 4-1-2 and can omit this item.

[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.

(25) Each stage from resource extraction to the recycling of the product shall give consideration to the quantity of new resources used, energy consumption and CO_2 emissions.

[Certification Procedure]
The average CO_2 emissions per product from resource extraction to the recycling of the product shall be presented in comparison with cases in which recycled materials are not used (excluding emissions in the pretreatment process of the raw materials; the parts for comparison may be limited to those that are different from cases in which natural raw materials are used).

(26) Materials shall be clearly known and designed to allow separation/sorting. Replacement of parts shall be easily carried out.

[Certification Procedure]
A certificate shall be submitted concerning the parts that are separable/sortable and replaceable as well as the method of replacement.

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

[Certification Procedure]
A list of the prescribed constituents of the product shall be submitted.

(28) An instruction manual shall accompany the product concerning its construction/ use/maintenance/management/disassembly/disposal/ recycling, and be given to the constructor and the owner of an architectural structure who use the relevant product. The instruction manual shall provide the following information:

a. Information regarding 4-1-3.(23)-(24) (the usage of recycled materials and harmful substances in the product) (clearly stating that details may be obtained upon inquiry)
b. Information on the product regarding construction / use / maintenance / management of the architectural structure
c. Information on the product regarding specifications and durability
d. Information on the product regarding disassembly/disposal of the architectural

structure

e. Information regarding the recycling of the product

f. The requirement to retain the instruction manual (The manual shall be kept until the architectural structure is disassembled, disposed of, and/or the recycling of the product.)

[Certification Procedure]
The instruction manual for the product shall be submitted (a draft is acceptable).

(29) The packaging of products shall give consideration to the ease of recycling. Plastic materials used for packaging shall not use plastics containing halogens in polymer backbone.

[Certification Procedure]
The packaging condition of the product and packaging materials shall be specifically described in the Application Form for Certification and Use of the Eco Mark (supplementary pictures, photographs, etc. are acceptable). In addition, for plastic material used for packaging, use or not of plastics containing halogens in the polymer backbone shall be stated in the Attached Certificate.

E. Traffic lane lines (Glass beads for road marking paint)

(30) As for products, the proportional use of glass cullet shall be 100%.

[Certification Procedure]
A raw materials certificate issued by the supplier shall be attached.

(31) The packaging of products shall give consideration to the ease of recycling. Plastic materials used for packaging shall not use plastics containing halogens in polymer backbone. When packaging materials include metals, they shall be designed to allow separation/sorting and facilitate recycling after disposal.

[Certification Procedure]
The packaging condition of the product and packaging materials shall be specifically described in the Application Form for Certification and Use of the Eco Mark (supplementary pictures, photographs, etc. are acceptable). In addition, for plastic material used for packaging, use or not of plastics containing halogens in the polymer backbone shall be stated in the Attached Certificate.

(32) Coloring agents used for products shall not have cadmium, lead, mercury, chromium, arsenic, or selenium added, or chemicals containing these, as prescribed constituents.

[Certification Procedure]
A list of the prescribed constituents of the product shall be submitted.

(33) An instruction manual accompanying the product shall indicate information

concerning 4-1-2.(7) and 4-1-3.(32) (harmful substances in the product).

[Certification Procedure]
The instruction manual indicating the information shall be submitted.

F. Road lighting

(34) For low-grade insect-attracting road lighting, high pressure sodium lamps or ceramic metal halide lamps shall be used as light sources and compared with lighting facilities using mercury lamps, and electricity consumption shall be reduced by 45% or more.

[Certification Procedure]
It shall be verified that electricity consumption has been reduced compared with the lamp efficiencies of the product for application and mercury lamps. Documents on low-grade insect-attracting shall be submitted.

(35) As for balustrade lighting, road lighting equipment shall be mounted in an elevated position on the wall balustrades of a bridge, or on sound insulation walls, to reduce light leakage to areas beyond the roadside.

[Certification Procedure]
It shall be confirmable that the product is designed to reduce light leakage beyond the roadside as a result of the configuration of the lighting fixture placement, the elevated structure and the sound insulation wall.

G. High-performance noise reduction equipment

(36) The products shall be capable of being installed on the body of the wall and the total height of sound insulation walls shall not be higher after installing the equipment.

[Certification Procedure]
A document shall be submitted specifically describing the product specifications, including the dimensions, shape and materials as well as the construction methods; if multiple methods are used, each of such methods shall be indicated. The height of the sound insulation wall before and after mounting shall be described in the Application Form for Certification and Use of the Eco Mark.

(37) It shall be confirmed that by installing the equipment noise has been reduced by 2.0 dB or more.

[Certification Procedure]
A document specifically stating the evidence for noise reduction shall be submitted; if multiple construction methods are used with different evidence, the evidence for each of such methods shall be indicated. In addition, a document that quantitatively confirms the noise reduction effect after mounting the equipment shall be submitted and the following test method shall be used as a reference.
<Reference>

Field acoustic test (the acoustic test used by the technology assessment system of the Ministry of Construction according to Ministry of Construction Notification No. 1324 in 1992)
- Method: Confirm that there is higher noise reduction effect compared with the existing type where both walls are the same height (3 m)
- Conditions: Compare the average values for all eight points, i.e., a point at a height of 0 m, 1.2 m, 3.5 m and 5 m above the ground and at a horizontal distance of 5 m and 10 m from the sound insulation wall for each height.
- Assessment: Noise reduction effect (average value of all eight points): 2.0 dB or higher

H. Other road materials

(38) As for products, the total mass of recycled materials given in Table 3 shall be 50% or more of the entire product mass. At the same time, each recycled material shall conform to the standard content rate given in Table 3.

However, the product which contains recycled rubber as main materials, the total mass of recycled rubber shall be 20% or more of the entire product mass and the standard content rate for each material in Table 3 is not applicable for it.

Regarding to sound insulation walls mainly made with plastic which is defined by the JIS K6735 "Type, size and property of plastic/poly-carbonate board", the plastic parts of the product excluding structures shall contain the recycled materials of the standard content rate or more described in Table 3. However, for sound insulation walls with use of transparent plastic which is defined by the JIS K7361-1 "Plastic – test method for the total light transmission rate of transparent materials – Part 1: Single beam method", the content rate of post-consumer materials in plastic parts of the product shall be 10% and more.

The standard content rate of every material category defined in Table 3 shall not apply to the center divider blocks made of recycled plastic, for which the total mass of recycled plastics shall be 70% or higher of the entire product mass.

The product using bio-based plastic or bio-based synthetic fiber may satisfy 4-1-3.(22) instead of 4-1-3.(38).

Table 3 Recycled materials usable as road materials

Materials	Recycled material		Standard content rate (as % by mass)
Concrete	Aggregates	Aggregates satisfy Category-C Certification Criteria 4-1-2.A.(2)	The concrete parts shall satisfy one of the following (1)to(3) (1) $\frac{\text{Weight of recycled materials in concrete}}{\text{Weight of concrete}} \times 100 \geqq 50$ (2) $\frac{\text{Weight of recycled materials in aggregates}}{\text{Weight of aggregates}} \times 100 \geqq 50$ (3) $\frac{\text{Total weight of recycled materials in cement and concrete admixture}}{\text{Total weight of cement + concrete admixture}} \times 100 \geqq 50$
	Cement	Cement satisfy Category-C Certification Criteria 4-1-2.B.(6)and(7)	
	Concrete admixture	Concrete admixture	

		satisfy Category-C Certification Criteria 4-1-2.C.(11)	
Plastics	Recycled plastics		Recycled plastic/total plastic×100≧70[60]
Glass	Glass cullet		Glass cullet/total glass material×100＝100
Wood, wooden materials	Reused/unused wood, waste plant fiber		(Forest thinnings and small-diameter logs + waste wood + less useful wood + waste plant fiber)/total wooden materials × 100 = 100
Rubber	Recycled rubber		Recycled rubber/total rubber×100=30

Note 1: The mass ratio of the 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±2°C and humidity of 65±5%.
[*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, 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 plastics composed of post-consumer materials conforms to the requirement in [ ] 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 log and less useful wood, a certificate given in Attached table 3 shall be submitted.

(39) 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 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.

(40) 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 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.

(41) Information regarding Certification Criteria 4-1-3. (39) and (40) shall be provided.

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

(42) As for concrete products, information regarding treatment methods after disposal shall be able to be provided.

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

(43) In cases where the wood used for wooden sound insulation walls has been treated with preservatives, when waste wood generated during to the repair of such sound insulation walls is incinerated, it shall be incinerated in a facility with measures to control the release or dispersal into the air of incinerator ash.

[Certification Procedure]
Structural drawings of the incineration facilities to be used shall be submitted.

4-2. Quality Criteria and Certification Procedure

A. Rubber pavement material and anti-freezing pavement material containing rubber particles

(44) The amount of used rubber added to anti-freezing pavement materials containing rubber particles shall conform to the traffic volume categories established by the Japan Automobile Tire Manufacturers Association, Inc. and the Japan Tire Recycle Association.

[Certification Procedure]
A certificate shall be submitted verifying that used rubber has been added in amounts in conformity with traffic volume categories.

B. Recycled sub-base materials and recycled asphalt mixture

(45) Quality of recycled sub-base materials and recycled asphalt mixture shall conform to the standards in the materials at the end of "Manual for Pavement Recycling (issued by the Japan Road Association, 2004").

[Certification Procedure]
A certificate shall be submitted verifying that it is in conformity with the standards of the guideline for plant recycled pavement technology.

C. Traffic signboards

(46) Quality requirements for signboards shall conform to JIS G 3131 "Hot Rolled Mild Steel Plates and Strips in Coil," JIS G 3141 "Cold Rolled Steel Plates and Strips in Coil," JIS K 6744 "Polyvinyl Chloride-Coated Metal Sheets," JIS H 4000 "Plates and Bars of Aluminum and Aluminum Alloy," JIS K 6718 "Methacrylic Resin Boards" or JIS K 7011 "Fiber-Glass Reinforced Plastics for Structures" (fiber-glass reinforced plastic boards).

[Certification Procedure]
A certificate shall be submitted verifying conformity with the relevant quality standards.

(47) Reflective sheets used for signboards shall be lens reflective sheets in which glass beads are enclosed in plastic, or capsular lens reflective sheets in which glass beads are covered in a layer of air within the plastic, and the performance shall conform to standards given in Table 4 or higher. Reflective sheets shall not be subject to significant color changes, cracks or splits if exposed outdoors.

Table 4 Reflective performance (Coefficients of retroreflection)

	Observa-tion angle	Angle of incidence	White	Yellow	Red	Green	Blue
Enclosed lens type	12'	5°	70	50	15	9.0	4.0
		30°	30	22	6.0	3.5	1.7
	20'	5°	50	35	10	7.0	2.0
		30°	24	16	4.0	3.0	1.0
	2"	5°	5.0	3.0	0.8	0.6	0.2
		30°	2.5	1.5	0.4	0.3	0.1
Capsular lens type	12'	5°	250	170	45	45	20
		30°	150	100	25	25	11
	20'	5°	180	122	25	21	14
		30°	100	67	14	12	8.0
	2"	5°	5.0	3.0	0.8	0.6	0.3
		30°	2.5	1.8	0.4	0.3	0.1

[Certification Procedure]
A certificate shall be submitted verifying conformity with the relevant quality standards.

D. Traffic sign materials

(48) As for glass-concrete mixtures, non-firing products, control measures for alkali-aggregate reactions shall be implemented in conformity with the "Alkali-Aggregate Reaction Control Measures" (Ministry of Land, Infrastructure and Transport, August 2002). As for products that were baked after being mixed with glass and detoxified by coating them, etc. for the purpose of using them for no-firing products, detoxification tests shall not be required.

[Certification Procedure]
Results of the detoxification test on measures to control and confirm the alkali-aggregate reaction and descriptions of control measures shall be submitted for glass-concrete mixed non-baked products according to the JIS A 1145 (chemical method), JIS A 1146 or JIS A 5308 (mortar-bar method). For products that were baked after being mixed with glass and detoxified by applying a coating, etc. for the purpose of using non-baked products, these facts shall be described in the Application for Certification and Use of the Eco Mark. For products other than the glass-concrete mixed type, a description to this effect shall also be given in the application.

(49) Traffic signs shall conform to the "Ordinance concerning Traffic Signs, Traffic Lane Lines and Road Signs" (Prime Minister's Office/Ministry of Construction Ordinance No. 3, 1960).

[Certification Procedure]
A certificate shall be submitted verifying that the product conforms to the "Ordinance concerning Traffic Signs, Traffic Lane Lines and Road Signs".

E. Traffic lane lines (Glass beads for road marking paint)

(50) Traffic lane lines shall conform to JIS K 5665 Class 1 (Traffic Paint: Ordinary Temperature), Class 2 (Traffic Paint: Heated) and Class 3, No. 1 (Traffic Paint: Vitrified)

[Certification Procedure]
A certificate shall be submitted verifying conformity with the relevant quality standards.

(51) Quality requirements for products shall conform to JIS R 3301 (Glass Beads for Road Marking Paint).

[Certification Procedure]
A certificate shall be submitted verifying conformity with the relevant quality standards.

F. Road lighting

(52) Quality requirements for products, for which JIS, Minister of Land, Infrastructure and Transport's certification, standards established by local government units, standards of industrial associations or other equivalent standards have been established, shall conform to the relevant standards. Other products, for which the JIS or the equivalent has established measuring methods for quality requirement

items, shall conform to the relevant similar JIS or its equivalent.

[Certification Procedure]
A certificate shall be submitted verifying conformity with the relevant quality standards.

G. High-performance noise reduction equipment

(53) The design strength of structures shall conform to the "Sound Insulation Wall Design Guideline" (Japan Highway Public Corporation).

[Certification Procedure]
A structural strength calculation in conformity with the "Sound Insulation Wall Design Guidelines" shall be submitted.

(54) Problems concerning the road structure due to a significant increase in weight shall not be created compared with the existing types.

[Certification Procedure]
Regarding the standard installation structure, a document including a structural strength calculation shall be submitted.

H. Other road materials

(55) Quality requirements for the products, for which the JIS, Minister of Land, Infrastructure and Transport's certification, standards established by local government units, standards of industrial associations or other equivalent standards have been established, shall conform to the relevant standards. Other products, for which the JIS or the equivalent has established measuring methods for quality requirement items, shall conform to the relevant similar JIS or its equivalent.

[Certification Procedure]
A certificate shall be submitted verifying conformity with the relevant quality standards.

(56) Wooden sound insulation walls shall have the strength of wood as regulated by the "Building Standard Law." (Products shall conform to admissible unit stress in the wooden fiber's direction regulated by the Enforcement Ordinance No. 89, and strength against compression, tension, bending and shearing stress regulated by the "JAS for Coniferous Lumber for Structural Use (JAS for Structural Lumber).")

[Certification Procedure]
A certificate shall be submitted verifying conformity with the relevant quality standards.

(57) Wooden sound insulation walls shall conform to the "Wooden Sound Insulation Wall Technique Guidelines (Draft)."

[Certification Procedure]
A certificate verifying conformity with the "Wooden Sound Insulation Wall Technique Guideline (Draft)" shall be submitted.

(58) As for wooden sound insulation walls, the long-term durability of the wooden parts shall be assured by drying, processing and preservative treatments.

[Certification Procedure]
Long-term durability performance test results shall be submitted.

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 (applicable scope, attachment4, 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

The following chemicals shall conform to certification criteria for the respective applicable products.

As for certification, for substances given in Ref. No. 1, the fact of whether mildew proof finishing is applied shall be stated; the fungicides shall be described for mildew proof finished products. For substances given for Ref. No. 2, the fact of whether the product is a wool product shall be stated; for a wool product, a certification shall be submitted verifying that the relevant product conforms with Ministry of Health and Welfare (MHW) Ordinance No. 34. For substances given in Ref. No. 3, the fact of whether flame proofing is applied shall be stated; for flame proof products, the agents used shall be stated, or a certification shall be submitted verifying that the products are flame retardant goods or flame retardant products.

Ref. No.	Name	Standard value	Test method	Applicable product
1	Organic mercury compounds Triphenyl tin compounds Tributyl tin compounds	Not to be detected	MHW Ordinance No. 34	All the products
2	Dieldrin DTTB	30 ppm or less	MHW Ordinance No. 34	All the products
3	APO TDBPP Bis (2,3-dibromopropyl) phosphate compound	Not to be detected	MHW Ordinance No. 34	All the products

Reference: Law for the Control of Household Products Containing Hazardous substances

It shall be stated whether the following manufacturing process was used or not.

Name of process	Items to be given consideration when processing
Fluorescent whitening	Limited to the required minimum processing and sufficient caution to be given concerning over-processing; application to be avoided for baby and infant products.
Flame proof finishing	Limited to the required minimum processing and sufficient caution to be given concerning over-processing
Softening	
Sanitary finishing	The use of agents whose safety for humans has been questioned is to be avoided.
Product bleaching	If planning to use these agents, apply to the product only after confirming its safety

Reference: 47, Senkyoku No. 569, Director-General, Fibers and General Merchandise Bureau, Ministry of International Trade and Industries
48, Seikyoku No. 289, Director-General, Consumer Goods Industries Bureau, Ministry of International Trade and Industries
63, Seikyoku No. 226, Director-General, Consumer Goods Industries Bureau, Ministry of International Trade and Industries

Dyes given in the following (1), (2) and (3) shall not have been added as prescribed constituents.

In fibers other than wool, chromic dyes shall not have been added as prescribed constituents.

As for certification, a certificate issued by the manager of the plant manufacturing the product shall be submitted.

(1) Azo dyes that may produce one or more of the carcinogenetic aromatic amines listed below
(Products in which one or more of the following amines are detected at 30 mg per kg of the product using analysis methods regulated by the official test method corpus based on the German Law on Foods and Sundries Article 35)

Carcinogenicity rank (A1)		
92-67-1	4-aminobiphenyl	C1(EU),1(NTP,IARC)
92-87-5	Benzedrine	C1(EU),1(NTP,IARC)
95-69-2	4-chloro-o-toluidine	2A(NTP,IARC)
91-59-8	2-naphthylamine	C1(EU),1(NTP,IARC)
Carcinogenicity rank (A2)		
97-56-3	o-aminoazotoluene	C2(EU), 2B(NTP,IARC)
99-55-8	2-amino-4-nitrotoluene	3(NTP,IARC)
106-47-8	4-chloroaniline	C2(EU), 2B(NTP,IARC)
615-05-4	2,4-diaminoanisole	2B(NTP,IARC)
101-77-9	4,4'-diaminodiphenylmethane	C2(EU), 2B(NTP,IARC)
91-94-1	3,3-dichlorbenzidine	C2(EU), 2B(NTP,IARC)
119-90-4	o-dianisidine; 3,3'-Dimethoxybenzidine	C2(EU), 2B(NTP,IARC)
119-93-7	o-tolidine; 3,3'-Dimethylbenzidine	C2(EU), 2B(NTP,IARC)
838-88-0	4,4'-diamino-3,3'-dimethyldiphenylmethane	C2(EU), 2B(NTP,IARC)
120-71-8	p-cresidine	2B(NTP,IARC)
101-14-4	4,4'-diamino-3,3'-dichlorodiphenylmethane	C2(EU), 2A(NTP,IARC)
101-80-4	4,4'-diaminodiphenylether	2B(NTP,IARC)
139-65-1	4,4'-diaminodiphenylsulfide	2B(NTP,IARC)
95-53-4	o-toluidine	C2(EU), 2B(NTP,IARC)
95-80-7	2,4-diaminotoluene	C2(EU), 2B(NTP,IARC)
137-17-7	2,4,5-trimethylaniline	
90-04-0	o-anisidine	C2(EU), 2B(NTP,IARC)
95-68-1	2,4-xylidine	3(NTP,IARC)
87-62-7	2,6-xylidine	2B(NTP,IARC)
60-09-3	4amino-azo-benzen	C2(EU)

(2) Carcinogenic dyes

569-61-9	C.I. BASIC RED 9	CI 42500	C2(EU), 2B(NTP,IARC), ECOTEX
2475-45-8	C.I. DISPERSE BLUE 1	CI 64500	C2(EU), 2B(NTP,IARC), ECOTEX
3761-53-3	C.I. ACID RED 26	CI 16150	2B(NTP,IARC),ECOTEX
6459-94-5	C.I. ACID RED 114	CI 23635	2B(NTP,IARC)
2602-46-2	C.I. DIRECT BLUE 6	CI 22610	C2,R3(EU),2A(NTP,IARC), ECOTEX
1937-37-7	C.I. DIRECT BLACK 38	CI 30235	C2,R3(EU), 2A(NTP,IARC),ECOTEX
573-58-0	C.I. DIRECT RED 28	CI 22120	C2,R3(EU) ,ECOTEX
	C.I. DISPERSE YELLOW 3	CI 11855	ECOTEX

(3) Skin sensitizing dyes

2475-46-9	C.I. DISPERSE BLUE 3	CI 61505	ETAD,ECOTEX
12222-75-2	C.I. DISPERSE BLUE 35		ETAD,ECOTEX
	C.I. DISPERSE BLUE 106		ETAD,ECOTEX
	C.I. DISPERSE BLUE 124		ETAD,ECOTEX
2832-40-8	C.I. DISPERSE YELLOW 3	CI 11855	ETAD,ECOTEX
730-40-5	C.I. DISPERSE ORANGE 3	CI 11005	ETAD,ECOTEX
	C.I. DISPERSE ORANGE 37		ETAD,ECOTEX
2872-52-8	C.I. DISPERSE RED 1	CI 11110	ETAD,ECOTEX
2475-45-8	C.I. DISPERSE BLUE 1	CI 64500	ECOTEX
3179-90-6	C.I. DISPERSE BLUE 7	CI 62500	ECOTEX
3860-63-7	C.I. DISPERSE BLUE 26	CI 63305	ECOTEX
	C.I. DISPERSE BLUE 102		ECOTEX
	C.I. DISPERSE ORANGE 1	CI 11080	ECOTEX
	C.I. DISPERSE ORANGE 76		ECOTEX
2872-48-2	C.I. DISPERSE RED 11	CI 62015	ECOTEX
	C.I. DISPERSE RED 17	CI 11210	ECOTEX
119-15-3	C.I. DISPERSE YELLOW 1	CI 10345	ECOTEX
	C.I. DISPERSE YELLOW 9	CI 10375	ECOTEX
	C.I. DISPERSE YELLOW 39		ECOTEX
	C.I. DISPERSE YELLOW 49		ECOTEX

Reference: International Agency for Research on Cancer (IARC)
National Toxology Program (NTP)
EU Directive 76/769/EC
EU Directive 2002/61/EC
The Ecological and Toxicological Association of Dyes and Organic Pigments Manufacturers (ETAicD) ECOTEX STANDARD 100

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.

Table Requirements for Forest Certification

Certification criteria	- While balancing economical, ecological, and social benefits, the criteria shall comply with Agenda 21 and Statement of 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 are satisfied, convey the results, and able to execute requirements effectively.

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.

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.)
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.

No	Purpose	Request (Item that must be realized)	Subject	Realized	Implementation Method (Check off all relevant items.)
					-Name of certification system: □Others (Describe specifically.):
3	Prevention of land acidification/ nutrient enrichment/water contamination	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: □Others (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 manufacturing 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?	Manufacturing 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 manufacturing plant	□Yes/ □No	Monomer manufacturer / plant name [ ] Resin manufacturer / plant name [ ]

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 production volume of bio-based plastic	□Already put on the market (□Japan／□Overseas) □Not yet (the scheduled time of launch Month/Year)
	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 plastic	
Manufacturing process chart from raw material to production of plastic (Description of processes from acceptance of raw material to production of monomer and plastic, with or without of fermentation process, etc.)	May be described in an attached sheet
100-percent bio-based/ Partially bio-based	□100-percent bio-based (the bio-based synthetic polymer 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 balance (MB) approach	□Plastic directly mixed with biomass／□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 rapid expansion of production of 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.