Eco Mark Product Category No. 155

"Imaging Equipment Such As Copiers, Printers, etc. Version1.3" Certification Criteria

- Applicable Scope-
Copiers, printers, fax (facsimile machines), scanners and multifunctional devices thereof

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Japan Environment Association
Eco Mark Office

NOTE: This document is a translation of the criteria written in Japanese. In the event of dispute, the original document should be taken as authoritative.

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1. Purpose of Establishing Criteria

Omitted.

2. Applicable Scope

Copiers, printers, fax (facsimile machines), scanners and multifunctional devices thereof

This product category is mainly intended for copiers, printers, fax (facsimile machines), and scanners that are used in offices or at home, and multifunctional devices having more than one of those functions.
For copiers, printers, fax (facsimile machines) and multifunctional devices, equipment is covered that adopts any of such printing methods as Electrophotographic, Ink Jet, High Performance IJ, Direct Thermal, Dye Sublimation, Impact, Solid Ink or Thermal Transfer, and that is mainly used for copying/printing on sheets whose size is A3+ or smaller.
For scanners, equipment to be used mainly for reading paper media smaller than A3+ is covered.
Note that notwithstanding of the above, application of any equipment capable of accommodating any paper size greater than A3+ shall also be acceptable, as far as it meets all corresponding criteria items of this product category.

3. Terminology

■Product Types

Copier	A product whose sole function is to produce paper duplicates from paper originals. This definition is intended to cover products that are marketed as copiers, and upgradeable digital copiers (UDCs).
Printer	A product whose primary function is to generate paper output from electronic input. A printer is capable of receiving information from single-user or networked computers, or other

	input devices (e.g., digital cameras). This definition is intended to cover products that are marketed as printers, and printers that can be field-upgraded to meet the definition of an MFD.
Facsimile (Fax) Machine	A product whose primary functions are (1) to scan paper originals for electronic transmission to remote units, and (2) to receive electronic transmissions for conversion to paper output. A fax machine may also be capable of producing paper duplicates. Electronic transmission is primarily over a public telephone system, but may also be via a computer network or the Internet. This definition is intended to cover products that are marketed as fax machines.
Scanner	A product whose primary function is to convert paper originals into electronic images that can be stored, edited, converted, or transmitted, primarily in a personal computing environment. This definition is intended to cover products that are marketed as scanners.
Multifunctional Device (MFD)	A product that performs two or more of the core functions of a Copier, Printer, Fax Machine, or Scanner. An MFD may have a physically integrated form factor, or it may consist of a combination of functionally integrated components. MFD copy functionality is considered to be distinct from single-sheet convenience copying functionality sometimes offered by fax machines. This definition is intended to cover products marketed as MFDs, and “multi-function products” (MFPs).

■Marking Technologies

Electro-photographic (EP):	A marking technology characterized by the illumination of a photoconductor in a pattern representing the desired output image via a light source, development of the image with particles of toner using the latent image on the photoconductor to define the presence or absence of toner at a given location, transfer of the toner to the final print media, and fusing to cause the output to become durable. This definition includes Laser, Light Emitting Diode (LED), and Liquid Crystal Display (LCD) illumination technologies.
Ink Jet (IJ)	A marking technology characterized by the deposition of colorant in small drops directly to the print media in a matrix manner. For purposes of this specification, Color IJ products offer two or more unique colorants at one time, while Monochrome IJ products offer one colorant at a time. This definition includes Piezo-electric (PE) IJ, IJ Sublimation, and Thermal IJ. This definition does not include High Performance IJ.
High Performance IJ	An IJ marking technology that includes nozzle arrays that span the width of a page and/or the ability to dry ink on the print media via supplemental media heating mechanisms. High-performance IJ products are used in business applications usually served by electro-photographic marking products.
Direct Thermal (DT)	A marking technology characterized by the burning of dots onto coated print media that is passed over a heated print head. DT products do not use ribbons.
Dye	A marking technology characterized by the deposition

Sublimation (DS)	(sublimation) of dye onto print media as energy is supplied to heating elements.
Impact	A marking technology characterized by the formation of the desired output image by transferring colorant from a “ribbon” to the print media via an impact process. This definition includes Dot Formed Impact and Fully Formed Impact.
Solid Ink (SI)	A marking technology characterized by ink that is solid at room temperature and liquid when heated to the jetting temperature. This definition includes both direct transfer and offset transfer via an intermediate drum or belt.
Thermal Transfer (TT)	A marking technology characterized by the deposition of small drops of solid colorant (usually colored waxes) in a melted/fluid state directly to print media in a matrix manner. TT is distinguished from IJ in that the ink is solid at room temperature and is made fluid by heat.

■General Requirements

A3+ or smaller	This refers to paper size whose width (shorter side) is less than 406 mm. In the ENERGY STAR® Program, it is defined as follows. Large Format: Products designed for A2 media and larger, including those accommodating continuous-form media greater than or equal to 406 mm wide. Large-format products may also be capable of printing on standard-size or small-format media. Small Format: Products designed for media sizes smaller than those defined as Standard (e.g., A6, 4”x6”, microfilm), including those designed to accommodate continuous-form media less than 210 mm wide. Standard Format: Products for standard-sized media (e.g., Letter, Legal, Ledger, A3, A4, B4), including those accommodating continuous-form media between 210 mm and 406 mm wide. Standard-size products may also be capable of printing on small-format media.
Copiers, etc. with consideration for reuse	Machines produced through a system which is established and maintained for a reuse during manufacturing, and it refers to “recycle type machine” and “partial reuse type machine”.
Recycle type machine	Products that are produced by disassembling, cleaning, and repairing used products, replacing those parts that are not of the same quality as a new one or do not meet a certain level of quality, and assembling them on a dedicated line.
Partial reuse type machine	Products that are produced by disassembling, cleaning, and repairing used products, and assembling those parts that can be guaranteed the same quality as a new one on an assembly line that is the equivalent of a new product.
Colourant	Mixture in which dyes, pigments and further additives are dissolved or dispersed in a carrier material such as a polymer matrix (e.g. toners), liquids (e.g. inks), gels or waxes (e.g. solid inks).
Module for Colourant	A complex module (of a printer, copier or a fax) which in addition to a container for colourants can include other

	components for transferring the colourant onto the media (e.g. toner module with toner container, photoconductor, charging unit, cleaning unit and excess toner reservoir or ink(jet) print head with nozzles and one or more integrated ink tanks).
Ink cartridge	A cartridge for printing, filled with ink to be used in ink jet type equipment and designed to integrally work with the main body when printing. The term refers to both cartridges with a head incorporated or those without a head.
Toner cartridge	Cartridge for printing composed of two or more of the following; drum, photo development unit, and toner container filled with toner.
Container for Colourant	Containers for colourants such as toners or inks etc.
Plastic	Material composed of single or multiple polymers, plus additives, fillers, etc. which are added to the polymer(s) to give specific characteristics.
Polymer	High molecular material which is the main constituent of plastic.
Casing parts	A part comprised of external covers that protect a device from environmental influences and that prevents users from contacting moving, light-emitting or high-voltage components
Recycled plastic	Plastic composed of post-consumer material and pre-consumer material
Pre-consumer material	Material or rejected product generated from a disposal route in a product manufacturing process, excluding those that are generated in a material manufacturing process and that are reused as raw materials within the same process (plant).
Post-consumer material	Materials or products disposed of after they have been used as goods.
Recycled plastic part	Plastic part which contains recycled plastics.
Reused parts	Parts that have previously been used.
Reuse/material recycling rate (Module for Colourant, Container for Colourant)	Among mass of toner/ink cartridges which have been used, disposed of, and collected, the mass rate of parts that are reused or material recycled. However, cartridges, which are published as being not subject to collection on the web site or in the catalog, etc., are excluded from those “collected toner/ink cartridges”.
Reuse/material recycling rate (equipment)	A mass ratio of parts that are reused or material recycled to equipment that has been used, disposed of, and collected.
Material recycling	Recycling of material, excluding the recovery of energy, conversion to oil, gasification, blast furnace reduction, conversion to chemical materials by coke oven.
Recovery rate (Module for Colourant, Container for Colourant, Photoconductor)	To toner/ink cartridges, toner containers or photoconductors that have been used, disposed of, and collected, a mass ratio of parts that are reused, material recycled, energy recovered, converted to oil, gasified, or subject to blast furnace reduction or conversion to chemical materials by coke oven. However, cartridges which are released as being not subject to collection

	on the web site or in the catalog, etc., are excluded from those covered by “collected toner/ink cartridges”.
Recovery rate (Equipment)	To equipment that has been used, disposed of, and collected, a mass ratio of parts that are reused, material recycled, energy recovered, converted to oil, gasified, or subject to blast furnace reduction or conversion to chemical materials by coke oven.
Automatic Duplexing	The capability of a copier, fax machine, MFD, or printer to produce images on both sides of an output sheet, without manual manipulation of output as an intermediate step. A product is considered to have automatic duplexing capability only if all accessories needed to produce duplex output are included with the product upon shipment.
Product speed(ipm)	The term refers to the product speed defined in “Product Specification for Imaging Equipment” of the ENERGY STAR® Program. For example, in the case of a printer for A4 size sheets, the product speed is 1 image-per minute (ipm) when a sheet is printed on one side in a minute.
Spare part	Part for maintenance and repair to keep the functions/performance of a product.
TEC: Typical Electricity Consumption	A TEC (Typical Energy Consumption) is a standard value to conform to “Product Specification for Imaging Equipment” of the ENERGY STAR® Program. It is a standard consumed power amount of a product in terms of kilowatt-hours (kWh) when the product normally operates for a week (5 days during which it repeatedly operates and sleeps off and 2 days during which it is in a sleep/off state).
Prescribed constituent	A material component added for the intended purpose of giving certain characteristics to a product. Impurities of 0.1wt% or less that are technically unavoidable in the manufacturing process are not included.
Biocidal product	Any substance consisting of, one or more active substances, with the intention of destroying, deterring, rendering harmless, preventing the action of, or otherwise exerting a controlling effect on any harmful organism by any means other than mere physical or mechanical action, and being synonymous with a biocidal product defined in (EU)No528/2012.
Rare metals	Thirty one kinds of minerals (for rare metals, 17 elements are considered as one mineral type) defined in the Special Subcommittee on Rare Metal General Strategy, Mining Industry Council, Ministry of Economy, Trade and Industry in August 1984. Rare metals covered by the criteria shall be “neodymium, dysprosium, cobalt, tungsten, and tantalum” that are listed as “mineral types that should be intensively recycled” in “Ideal of Reuse of Useful Metals in Used Products (Second Report) (October 2012) and that are likely to be used in equipment.

4. Certification Criteria and Certification Procedure

The corresponding boxes in the Attached Certificates shall be checked/filled in, stamped with the applicant company seal and submitted.

[General rule]

This general rule applies to criteria items of 4-1-2.(15)[Energy Efficient], 4-1-2.(19)-(21)[Emission of Hazardous Substances] and 4-1-2.(31)[Noise].

Analysis and testing bodies shall be run in accordance with ISO/IEC 17025 (not essential to be certified) (corresponding JIS Q17025). Applicants shall bear the expenses for preparing documents and for the analyses.

Special requirements, if performed at the laboratories of manufacturers: if competent authorities are monitoring the sampling and analysis process, if the analyses and tests are authorized, or if the manufacturer has developed a quality system for sampling and analysis and has received the ISO 9001 (corresponding JIS Q9001) certification, or if the manufacturer has ISO 9001-compliant internal regulations concerning its quality system for sampling and analysis and performs measurements in line with those internal regulations, the laboratory of the manufacturer is authorized to perform analysis and tests.

note) When overseas Ecolabelling is acquired by utilizing the Mutual Recognition Agreement (MRA), it is required that testing is conducted at a testing laboratory certified by ISO/IEC 17025 (this item does not apply when this is non-common criteria item for MRA). However, for energy saving measurements, satisfaction of the requirements defined by Appendix A: Requirements for the operation of a Witnessed Manufacturers' Testing Laboratory (WMTL) or Supervised Manufacturers' Testing Laboratory (SMTL) program" in the "Conditions and Criteria for Recognition of Laboratories for the ENERGY STAR® Program" may serve the purpose.

Noize mesurement shall be conducted according to a) or b) of 4-1-3.(31) depending on the applying overseas ecolabelling criteria.

[Copiers, etc. with consideration for reuse]

The equipment which falls under the category of "copiers, etc. with consideration for reuse" may be certified by satisfying a. and b. below, instead of "4. Certification Criteria and Certification Procedure" and "5. Considerations" of this Certification Criteria.

a. The system for reuse at the time of manufacturing is established and maintained and the products are manufactured through such a system
b. The product satisfies "4. Certification Criteria and Certification Procedure" of the Certification Criteria under which the new equipment has been certified,

and the description of the responses to the "5. Consideration" is submitted. Items on provision of information to users satisfy the requirements mentioned in 4-1-4 (32) of this Certification Criteria.

[Certification Procedure]
Correspondence to this item shall be indicated in the Attached Certificate and the documents mentioned below shall be submitted.
a-1. Description of the reuse production line (in describing the production line, it shall be clarified whether it is categorized as a "dedicated line" or a "production line equivalent to that for new equipment").
a-2. The mass ratio of reused parts
For the "Recycle type equipment," the rate shall be the average ratio of reuse for each one of the products.
For the "Reusable parts type machine," the rate shall be the ratio of all the reused parts used in the equivalent type of machine, relative to all the products manufactured on the equivalent production line for a certain period of time.
In case where such records are not available, the "Reuse Production Plan" at the time of production start, the rate of reused parts (actual rate) in other equivalent products, and the planned rate of reused parts (possible rate) shall be submitted.
In addition, inquiries about such matters as the record of recovering the products which are subject to the reuse, the amount of reusable parts out of the recovered products, as well as actual amount of reuse and the rate of parts reused shall responded when Eco Mark Office requests.
b. The name of product category under which the new machine of "Copiers, etc. with consideration for reuse" has been certified and its Version number shall be indicated in the Attached Certificates. In addition, attached certificates and provisional documents for the change from the new machine based on the relevant certification criteria shall be submitted.

4-1. Environmental Criteria and Certification Procedure

4-1-1 Resource Saving and Resource Recycling

(1) Equipment shall conform to Appendix1 "Product Design Checklist".

[Certification Procedure]
Compliance with this item shall be indicated in the attached certificate. The applicant shall enter requirements in Form 1 "Product Design Checklist" and submit it.

(2) Modules for Colourants or containers for colorants used for the equipment shall

conform to Appendix1 “Product Design Checklist”.

[Certification Procedure]
Compliance with this item shall be indicated in the attached certificate. The applicant shall enter requirements in Form 1 “Product Design Checklist” and submit it.

(3) Each individual plastic casing part of more than 25g shall be made of one single polymer or polymer blends. In addition, all plastic parts of more than 25g used for casing parts shall be made of four or fewer types of mutually separable polymers or polymer blends.

[Certification Procedure]
Compliance with this item shall be indicated in the attached certificate. The applicant shall submit a list (Form 2) of plastic materials and labels, etc. in use.

(4) For equipment that falls under the Designated Resources Reutilizing Industry of the Act on the Promotion of Effective Utilization of Resources, any one of parts weighing more than 25g shall be a recycled plastic part or reused plastic part at a minimum. However, for any equipment that does not fall under the Designated Resources Reutilizing Industry (equipment covered by the Act on Promotion of Recycling of Small Waste Electrical and Electronic Equipment and scanners), it may also be acceptable if any one of parts is a recycled plastic part or reused plastic part at a minimum.

[Certification Procedure]
Compliance with this item shall be indicated in the attached certificate. The applicant shall submit a list, etc. of the corresponding parts in use (percentage of recycled plastic parts to be used, type of recycled plastics (post-consumer materials collected from own products, open post-consumer materials, pre-consumer materials), etc.). Form 3

(5) Collection systems shall be available for toner cartridges, toner containers, ink cartridges or ink containers. Note that this shall not apply if toner containers or ink containers are covered by the Act on the Promotion of Sorted Collection and Recycling of Containers and Packaging.

[Certification Procedure]
Compliance with this item shall be indicated in the attached certificate. In addition, explanatory documents for the collection systems of toner/ink cartridges

or toner/ink containers shall be submitted.

(6) Systems shall be available for the material recycling of toner cartridges or ink cartridges. Reuse/material recycling rate of collected toner/ink cartridge parts shall be 50% or more for the toner cartridges, and 40% or more for the ink cartridges of the total weight of collected used products (excluding toner/ink).

[Certification Procedure]
Compliance with this item shall be indicated in the attached certificate and the applicant shall submit explanatory documents describing the total weight of toner/ink cartridges (excluding the toner/ink), reuse and material recycling rates of toner/ink cartridge parts, and the purposes of reuse and material recycling, etc.

(7) The recovery rate of collected toner cartridges, ink cartridges, toner containers or ink containers shall be 95% or more of the total weight of collected used products (excluding toner/ink). Parts of collected toner/ink cartridges or toner/ink containers which cannot be recovered shall not be simply landfilled but be appropriately processed after the weight reduction. Note that this shall not apply if toner containers or ink containers are covered by the Act on the Promotion of Sorted Garbage Collection and Recycling of Containers and Packaging.

[Certification Procedure]
Compliance with this item shall be indicated in the attached certificate, and the applicant shall submit explanatory documents explaining the recovery rate and demonstrating that the system for processing/disposing of any part that cannot be recovered has been established (capacity of processing, content of processing, etc.). Form 4

(8) If paper to be used falls under a. to c. listed below, based on the provisions on quality control of each company, use of at least one or more type of paper shall be possible:

a. Applicable scope “PPC paper, business forms and coated paper for color printers (paper for ink jet printing)” of Eco Mark Product Category No. 106 “Paper for Communication Version 3”

b. Applicable scope “Printing paper (Excluding drawing papers included in the “writing and art papers” category designated in the “Paper and Pulp Statistics Annual Report” by the Ministry of Economy, Trade and Industry.) of Eco Mark Product Category No. 107 “Printing Paper Version 3”

c. [Information Paper] “Copier paper, forms, coated inkjet color printer paper”, and [Printing Paper] “Non coated printing paper, coated printing paper” of “2. Paper” of the Law Concerning the Promotion of Procurement of Eco-Friendly Goods and Services by the State and Other Entities

However, this item is not applied to a scanner and an imaging equipment which uses only thermal paper, continuous forms, large format forms or photo / postcard paper.

[Certification Procedure]
Compliance with this item, and the name of the paper manufacturer and product brand shall be indicated in the Attached Certificate.

(9) The capability of reducing paper usage shall satisfy a) or b) below. This item does not apply to scanners and equipment intended to print on special single-sided media for the purpose of single sided printing (e.g., label paper, thermal paper, etc.).

a) Equipment to which TEC of ENERGY STAR® Product Specification for Imaging Equipment Version 2.0 is applied shall meet the requirements of the automatic duplexing function in Table 1.

b) Equipment shall have the capability of reducing paper usage (reduced printing, page layout printing, etc.) in a printer driver, etc.

[Certification Procedure]
Compliance with this item shall be indicated in the attached certificate. In addition, for each model, the applicant shall submit a certificate describing the automatic duplex function (e.g., a written notice on products using the ENERGY STAR® logo) and a document on the capability of reducing paper usage (e.g., a hard copy of the printer driver).

Table1. Automatic Duplexing Capability

Monochrome Product Speed as Calculated in the Test Method (ipm)		Automatic Duplexing Requirement
Monochrome	Color	
ipm ≤ 24	ipm ≤ 19	None
24 < ipm < 37	19 < ipm < 35	Integral to the base product or optional accessory
ipm ≥ 37	ipm ≥ 35	Integral to the base product

(10) Maintenance and repair subcontract systems shall be available, and repairs shall be carried out as requested by the users (repair system). The following items a to c shall be satisfied to improve the system:

a. Information that repair services are available shall be provided;
b. Information that the scope of repair (details of services), repair time, costs, how services are provided to users, etc. shall be provided.
c. The system shall be such that maintenance of equipment (referring to maintenance to be provided by an operator) is performed only by persons who have undergone training and persons with the required technical expertise.

[Certification Procedure]
Compliance with this item shall be indicated in the attached certificate. In addition, for a. and b, the applicant shall submit copies of product documentation showing that the proper system is available (processing ability, details of provided information specified in criteria, etc.).

(11) Supply of the spare parts shall be ensured for 5 years after the product stops..

[Certification Procedure]
Compliance with this item shall be indicated in the attached certificate, and the applicant shall submit copies of product documentation indicating the matters related to this item.

(12) Equipment that falls under the Designated Resources Reutilizing Industry of the Act on the Promotion of Effective Utilization of Resources shall have a system for equipment collection and part reuse, or a material recycling system for materials. For equipment that does not fall under the Designated Resources Reutilizing Industry (equipment covered by the Act on Promotion of Recycling of Small Waste Electrical and Electronic Equipment and scanners), efforts to establish a collection and recycling system and to increase the collection rate, reuse/material recycling rate and recovery rate are made.
The recovery rate of collected equipment shall be 75% or more. Parts that cannot be recovered shall not be simply landfilled but be appropriately processed after the weight reduction.

[Certification Procedure]
Compliance with this item shall be indicated in the attached certificate. The applicant shall submit explanatory documents indicating the collection, reuse, material recycling, recovery of the products and establishment of the system for processing/disposing of any part that cannot be recovered (details of the collection system, collection rate, reuse, material recycling, content of recovery, capacity of processing, content of processing, etc. Form 4) or those (printouts of the website,

etc.) on efforts to increase the collection rate, etc.

(13) Systems for collecting and material recycling of photoconductor drums shall be available. The recovery rate of collected photoconductor drums shall be 75% or more. Parts that cannot be recovered shall not be simply landfilled but be appropriately processed after the weight reduction.

[Certification Procedure]
Compliance with this item shall be indicated in the attached certificate. The applicant shall submit explanatory documents indicating the collection, material recycling, recovery of photoconductor drums and establishment of the system for processing/disposing of any part that cannot be recovered (details of the collection system, material recycling, content of recovery, capacity of processing, content of processing, etc.). Form 4

(14) Packaging or packing of equipment shall be as simple as possible and give consideration to ease of reuse and environmental burden when packaging or packing materials are disposed of. Specifically, the product shall comply with "Packaging Material Check List" of Appendix 2.

[Certification Procedure]
Compliance with this item shall be indicated in the Attached Certificate. In addition, "Packaging Material Check List" of Form5 shall be submitted.

4-1-2 Prevention of Global Warming

(15) A product shall conform to the ENERGY STAR® "Product Specification for Imaging Equipment: Eligibility Criteria" that is applied at the time of application.

[Certification Procedure]
Compliance with this item shall be indicated in the Attached Certificate (including requirements for testing laboratories). The applicant shall submit "a written notice on products using the ENERGY STAR® logo", etc. for each model.
If submission is difficult at the time of application, the applicant shall submit a signed consent form indicating that "a written notice should be submitted by the time the Eco Mark agreement on use is entered, and if criteria are not met, the agreement should not be entered".

4-1-3 Restriction and Control of Hazardous Substances

(16) Polymer containing halogen shall not be used for plastic casing parts. In addition, organohalogen compounds as flame retardants shall not be added as prescribed constituents.

However, this item shall not apply to a part that falls under one or more of the following a. to e.:

a. Fluoroorganic additives (for example, anti-dripping agents, etc.) used to improve the physical properties of plastics, provided that they do not exceed 0.5wt%.

b. Fluoroplastics, for example, PTFE, etc.

c. Plastic materials of 25g or less (this criterion applies to control panel keys even if it weighs 25g or less.)

d. Plastic parts installed adjacent to heating and fusing units.

e. Large-sized reused plastic parts which are marked in accordance with Appendix 1 “Product Design Checklist” B10.

[Certification Procedure]
Compliance with this item shall be indicated in the Attached Certificate. In addition, the list of plastic materials used (Form 2) shall be submitted. The manufacturer of the raw material and whether polymers containing halogens, and organohalogen compounds and the CAS number of the frame retardants used or the code number according to the ISO1043-4 (JIS6899-4) shall be indicated.
In addition, it is recommended that checking is performed based on JIS Z 7201 “Management of chemical substances in products - Principles and guidelines”

(17) Each substance listed in the following a. to e. shall not be added to plastic casing parts as prescribed constituents. Plastic casing parts shall not contain materials in Table 2 that are classified into CMS category 1A or 1B of Table 3.1 in Annex VI of Regulation (EC) No. 1272/2008as prescribed constituents.

Table 2. List of restricted materials

Hazard class	Category	
	Hazard category	CLP-regulation (EC) No. 1272/2008
Carcinogenicity	Carc. 1A, 1B	H350 May cause cancer
Carcinogenicity	Carc. 1A, 1B	H350i May cause cancer if inhaled
Germ cell mutagenicity	Muta. 1A, 1B	H340 May cause genetic damage
Reproductive toxicity	Repr. 1A, 1B	H360 May damage fertility or the unborn child
Substances of the so-called candidate list according to REACH Article 59. The version of the candidate list at the point of application applies.		

[Certification Procedure]
Compliance with this item shall be indicated in the Attached Certificate. Also, Form 2 shall be submitted. In addition, it is recommended that checking is performed based on JIS Z 7201 “Management of chemical substances in products - Principles and guidelines”

(18) The content rate of lead, mercury, cadmium, hexavalent chromium compounds, Polybrominated biphenyl (PBB), Polybrominated diphenylether (PBDE) or Phthalate esters in the product shall comply with Annex II (Table 3) of the Commission Delegated Directive (EU)2015/863 amending Annex II to RoHS(II) Directive. However, this does not apply to those substances specified in Annex III. In addition, the product shall have no flame retardant of short-chain chlorinated paraffin (the number of chained C is 10 to 13 and contained chloride concentration is 50% or over) added as prescribed constituents.

Table 3. Content rate

Material	Content rate[wt%]
Lead and its compounds	≤ 0.1
Mercury and its compounds	≤ 0.1
Cadmium and its compounds	≤ 0.01
Hexavalent chromium compounds	≤ 0.1
Polybrominated biphenyl (PBB)	≤ 0.1
Polybrominated diphenylether (PBDE)	≤ 0.1
Bis(2-ethylhexyl) phthalate(DEHP) *1	≤ 0.1
Butyl benzyl phthalate (BBP) *1	≤ 0.1
Dibutyl phthalate(DBP) *1	≤ 0.1
Diisobutyl phthalate(DIBP) *1	≤ 0.1

* The content rate refers to the content proportion in a homogeneous substance (minimum unit that can be separated by rule with totally uniform composition).

*1 Applicable to the applications submitted on or after July 22, 2019.

[Certification Procedure]
Compliance with this item shall be indicated in the Attached Certificate. In addition, it is recommended that checking is performed based on JIS Z 7201 “Management of chemical substances in products - Principles and guidelines”.

(19) For electrophotographic equipment, values obtained with the measuring method defined by RAL-UZ205 shall confirm to Table 4 for emission of hazardous substances during operation of monochrome equipment as well as during the monochrome and color operation phases of color equipment. The large format

equipment shall be measured in accordance with Table 4-1.

If the emission rate during the color operation phase of color equipment satisfies the monochrome criteria, measurements during the monochrome operation phase can be omitted. Note that for equipment on which measurements took place before December 2017, test results according to the Blue Angle RAL-UZ171 shall also be acceptable.

Table 4. Permissible Test Values for Emission Rates of TVOC, etc.

			Emission Rate (mg/h)			
			≤ A3+*		A2≤ and ≤ A0+*	>A0+*
			Monochrome Printing	Colour Printing	Monochrome / Colour Printing	Monochrome / Colour Printing
Pre-operating Phase	TVOC	Desktop Devices	≤ 1.0	≤ 1.0	≤ 2.0	≤ 2.8
		Floor-mounted Devices, Device Volume >250L	≤ 2.0	≤ 2.0		
Print Phase (= Pre-operating + Print Phase)	TVOC		≤ 10	≤ 18	≤ 39	≤ 55
	Benzene		< 0.05	< 0.05	< 0.2	< 0.3
	Styrene		≤ 1.0	≤ 1.8	≤ 4.7	≤ 6.6
	Unidentified Single Substances VOC		≤ 0.9	≤ 0.9	≤ 2.0	≤ 2.8
	Ozone		≤ 1.5	≤ 3.0	≤ 7.8	≤ 11
	Dust**		≤ 4.0	≤ 4.0	≤ 16	≤ 22

* Maximum Print Width

** Suspended particulate matters detected according to RAL-UZ205 Appendix S-M. Color printing equipment shall be measured in color mode and monochrome pringng equipment shall be measured in monochrome mode.

Table 4-1. Measurement conditions of emissions test

Type	Form	Test copy
Large format	A4 or full-size which can be printed with the product	A4 copy or A4 test enlarged to the full-size that can be printed with the product.

[Certification Procedure]

The applicant shall submit the Attached Certificate (including requirements for testing laboratories) Form 6. In addition, the applicant shall conform to RAL-UZ205 for a test classification.

If submission is difficult at the time of application, the applicant shall submit a signed consent form indicating that “a certificate indicating actual measurements should be submitted by the time the Eco Mark agreement on use is entered, and that if criteria are not met, the agreement should not be entered”.

(20) For electrophotographic equipment (250L or less), values obtained with the

measuring method defined by RAL-UZ205 shall meet the following for emission of fine particles (Fine particles, FP: particles having the diameter of 0.1 - 2.5μ) and particles in the size region of ultra-fine particles (Ultrafine particles, UFP: particles having the diameter of 0.1μm or smaller) during operation of monochrome equipment and during the color operation phase of color equipment. Note that for equipment on which measurements took place before December 2017, test results according to the Blue Angle RAL-UZ171 shall also be acceptable. The large format equipment shall be measured in accordance with Table 4-1.

In addition, for those whose equipment volume exceeds 250L, equipment with maximum print width of A3 or less does not apply the formula below as far as it's applied before December 31, 2019 (report the result measured according to the specification of RAL-UZ205). Those whose maximum print width of A2 or larger shall be measured and a result thereof shall be reported, according to the specification of RAL-UZ205.

Particle emission rate($PER_{10\ PW}$) $\leq 3.5 \times 10^{11}$ [Particles/10 min]

[Certification Procedure]
The applicant shall submit the Attached Certificate (including requirements of a laboratory) Form 6. In addition, the applicant shall conform to RAL-UZ205 for a test classification.
If submission is difficult at the time of application, the applicant shall submit a signed consent form indicating that "a certificate indicating actual measurements should be submitted by the time the Eco Mark agreement on use is entered, and that if criteria are not met, the agreement should not be entered".

(21) For equipment other than electrophotographic equipment (excluding scanners), values obtained with the measuring method defined by RAL-UZ205 shall conform to Table 5 for emission of hazardous substances during operation of monochrome equipment as well as during the monochrome and color operation phases of color equipment. The large format equipment shall be measured in accordance with Table 4-1.

If the emission rate during the color operation phase of color equipment satisfies the monochrome criteria, measurements during the monochrome operation phase can be omitted. Note that for equipment on which measurements took place before December 2017, test results according to the Blue Angle RAL-UZ171 shall also be acceptable.

Table 5. Permissible Test Values for Emission Rates of TVOC, etc.

			Emittion ratio(mg/h)			
			≤ A3+*		A2≤ and ≤ A0+*	>A0+*
			Monochrome Printing	Colour Printing	Monochrome / Colour Printing	Monochrome / Colour Printing
Pre-operating Phase	TVOC	Desktop Devices	≤ 1.0	≤ 1.0	≤ 2.0	≤ 2.8
		Floor-mounted Devices, Device Volume >250L	≤ 2.0	≤ 2.0		
Print Phase (= Pre-operating + Print Phase)	TVOC		≤ 10	≤ 18	≤ 39	≤ 55
	Benzene		< 0.05	< 0.05	< 0.2	< 0.3
	Styrene		≤ 1.0	≤ 1.8	≤ 4.7	≤ 6.6
	Unidentified Single Substances VOC		≤ 0.9	≤ 0.9	≤ 2.0	≤ 2.8

* Maximum Print Width

[Certification Procedure]
The applicant shall submit the Attached Certificate (including requirements for testing laboratories) Form 6. In addition, the applicant shall conform to RAL-UZ205 for a test classification.
However, if special black ink is used or when it is expected or assumed that when a special mechanism for the black ink is provided, emission of hazardous substances during the monochrome operation will exceed a value during the color operation, the applicant shall submit test results during the monochrome operation and color operation. In addition, if the equipment cannot use the print pattern specified in RAL UZ205 for the testing, the patterns adjusted to the applying equipment may be used. In that case, additional explanation is required in Form 6 and the print patterns used for the testing shall also be submitted.
If submission is difficult at the time of application, the applicant shall submit a signed consent form indicating that "a certificate indicating actual measurements should be submitted by the time the Eco Mark agreement on use is entered, and that if criteria are not met, the agreement should not be entered".

(22) Cadmium, lead, mercury Selenium and their compounds shall not be added as prescribed constituents to photoconductor drums used in the product.

[Certification Procedure]
Compliance with this item shall be indicated in the Attached Certificate. In addition, it is recommended that checking is performed based on JIS Z 7201 "Management of chemical substances in products - Principles and guidelines"

(23) Toner cartridges or toner containers shall be sealed to prevent toners from leaking during storage, transport, and handling.

[Certification Procedure]
Compliance with this item shall be indicated in the attached certificate.

(24) Toners, inks or solid inks, etc. (colourants) shall not contain each substance listed in Table 6 that are classified into CMS category 1A, 1B or 2 of Table 3.1 in Annex VI of Regulation (EC) No. 1272/2008 as prescribed constituents.

Table 6. Restricted matarials

Hazard class	Category	
	Hazard category	CLP-regulation (EC) No. 1272/2008
Carcinogenicity	Carc. 1A, 1B	H350 May cause cancer
Carcinogenicity	Carc. 1A, 1B	H350i May cause cancer if inhaled
Carcinogenicity	Carc. 2	H351 Suspected of causing cancer
Germ cell mutagenicity	Muta. 1A, 1B	H340 May cause genetic damage
Germ cell mutagenicity	Muta. 2	H341Suspected of causing genetic defects
Reproductive toxicity	Repr. 1A, 1B	H360 May damage fertility or the unborn child
Reproductive toxicity	Repr. 2	H361 Suspected of damaging fertility or the unborn child
Substances of the so-called candidate list according to REACH Article 59. The version of the candidate list at the point of application applies.		

Toners, inks or solid inks, etc. (colourants) shall not contain substances which require labelling of the mixtures with the following H phrases defined in Annex I of Regulation (EC) No. 1272/2008 or those which meet the requirements for homogeneous mixture classification (Table 7) as prescribed constituents.

Table 7. Restricted materials

Hazard class	Category	
	Hazard category	CLP-regulation (EC) No. 1272/2008
Specific target organ toxicity Single exposure	STOT SE 1	H370 Causes damage to organs
Specific target organ toxicity Single exposure	STOT SE 2	H371 May cause damage to organs
Specific target organ toxicity Repeated exposure	STOT RE 1	H372 Causes damage to organs through prolonged or repeated exposure
Specific target organ toxicity Repeated exposure	STOT RE 2	H373 May cause damage to organs through prolonged or repeated exposure

[Certification Procedure]
Compliance with this item shall be indicated in the attached certificate. The applicant shall submit a certificate, etc. issued by a toner/ink manufacturer (Form 7) and Safety Data Sheet (SDS) of colourants. If the SDS does not contain

any description of the Ames test result, the applicant shall submit a test report. The test report shall include at least a name of the testing institute, name of the tested substances, testing period, used strain (5 strains) and test result.

(25) Cadmium, lead, mercury, hexavalent chromium, nickel or compounds thereof shall not be added as prescribed constituents in toners, inks or solid inks (colourants), etc. (excluding complex compounds of high molecular weight nickel as a colouring agent). For example, production-related contaminations of heavy metals caused by production, such as cobalt, nickel oxides or organotin compounds, are to be kept as low as technically and economically possible (request for minimization).

[Certification Procedure]
Compliance with this item shall be indicated in the attached certificate. The applicant shall submit a list (Form 7) issued by a toner/ink manufacturer indicating whether the corresponding substance is added or not.

(26) Toners, inks or solid inks, etc. (colourants) shall not use azo colouring agents (dyes and pigments) that generate carcinogenic aromatic amines listed in Appendix 8, Annex XVII of REACH Regulation ((EC) (1907/2006)) (Table 8.).

Table 8. Amines that must not be generated due to the reduction of azo groups

	Substances	CAS No.
1	4-aminobiphenyl	92-67-1
2	Benzedrine	92-87-5
3	4-chloro-*o*-toluidine	95-69-2
4	2-naphthylamine	91-59-8
5	*o*-aminoazotoluene	97-56-3
6	2-amino-4-nitrotoluene	99-55-8
7	*p*-chloroaniline	106-47-8
8	2,4-diaminoanisole	615-05-4
9	4,4'-diaminodiphenylmethane	101-77-9
10	3,3'-dichlorbenzidine	91-94-1
11	3,3'-dimethoxybenzidine	119-90-4
12	3,3'-dimethylbenzidine	119-93-7
13	4,4'-diamino-3,3' –dimethyldiphenylmethane	838-88-0
14	*p*-cresidine	120-71-8
15	4,4'-Methylene-bis – (2-Chloroaniline)	101-14-4
16	4,4'-oxydianiline	101-80-4
17	4,4'-4-Aminophenyl Sulfide Bis	139-65-1
18	*o*-toluidine	95-53-4
19	2,4-diaminotoluene	95-80-7
20	2,4,5-trimethylaniline	137-17-7
21	*o*-anisidine	90-04-0

22	4-amino- azo- benzen	60-09-3

[Certification Procedure]
Compliance with this item shall be indicated in the attached certificate. The applicant shall submit a list (Form 7) issued by a toner/ink manufacturer indicating whether the corresponding substance is added or not.

(27) If any insecticidal or bactericidal substance is used in toners, inks or solid inks, etc. (colourants), only constituents listed in Annex I of "REGULATION (EU) No 528/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 22 May 2012 concerning the making available on the market and use of biocidal products" and classified in product type 6 shall be added as prescribed constituents. If use of a substance not listed in the Annex is planned, addition thereof will be permitted provided that an application for approval is submitted based on said directive. However, the addition will not be permitted if it is determined that the application should be rejected.

[Certification Procedure]
Compliance with this item shall be indicated in the attached certificate. The applicant shall submit a list (Form 7) issued by a toner/ink manufacturer indicating whether the corresponding substance is added or not.

(28) In manufacturing the applying 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 last five years from the date of application (whether there is any violation) must be reported. If there is any violation, it is necessary that proper remedies and preventive measures 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 manufacturer of the applying product or the manager of the relevant plant (entry or attachment of the list of names of the Environmental Laws, etc.) must be submitted. Form 8

In addition, it is necessary to report whether there is any violation during the last 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 (making a series of progress clear);

b. Following materials (copies of recording documents, and so on) 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 (organizational chart with entry of roles, etc.);

3) Document stipulating retention of recording documents;

4) Recurrence prevention measures (future preventive measures);

5) State of implementation based on recurrence prevention measures (result of checking of the state of compliance, including the result of onsite inspection).

(29) Mercury, Cadmium and Lead in a battery built in the product shall be less than the content rate in Table 9.

Table 9. criteria for heavy metals in batteries

	mercury[wt%]*	cadmium[wt%]*	mercury [wt%]**
Content rate	≤0.0005	≤ 0.002	≤ 0.004

* values specified in EU Directive 2013/56/EU
** values specified in indication requirement of EU Directive 2006/66/EC

[Certification Procedure]
Compliance with this item shall be indicated in the Attached Certificate. In addition, it is recommended that checking is performed based on JIS Z 7201 “Management of chemical substances in products - Principles and guidelines”

(30) Mercury or compounds thereof shall not be added to light sources (light sources for scanner units and control panel backlight) used in the product as prescribed constituents.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. In addition, it is recommended that checking is performed based on JIS Z 7201 “Management of chemical substances in products - Principles and guidelines”

(31) The noise emitted from the equipment shall satisfy a) or b) below.

a) Based on actual measurements obtained with the measuring method specified in the Blue Angel RAL-UZ205 (or ISO7779 [corresponding to JIS X7779]), “the declared A-weighted sound power level LWad” specified in ISO 9296:1998 (corresponding to JIS X 7778) shall satisfy the criteria during the monochrome operation and color operation of color equipment, respectively, which are listed in Table 10.

Note that for equipment on which measurements took place before December 2017, test results according to the Blue Angle RAL-UZ171 (3.5.2) shall also be acceptable.

Table 10. Criteria on noise

Marking technology	equipment	Declared A-weighted sound power level “LWad” (B)	
		Monochrome	Color
Electrophotographic, Ink jet, or high-performance IJ	Copiers, printers, facsimile machines, and multifunctional devices thereof	$\leq 47+15\times\log(S_M+10)$	$\leq 47+15\times\log(S_F+10)$

S_M: paper feed speed at monochdome pringing (sheet/minute), S_F: paper feed speed at color printing (sheet/minutes)

b) Based on actual measurements obtained with the measuring method specified in the Blue Angel RAL-UZ171 (or ISO 7779 [corresponding to JIS X7779]), “the declared A-weighted sound power level *L*Wad” specified in ISO 9296:1998 (corresponding to JIS X 7778) shall satisfy the criteria during the monochrome copying and color copying phases of color equipment, respectively, which are listed in Table 11.

Note that for equipment on which measurements took place before April 2014, test results according to the Blue Angle RAL-UZ122 shall also be acceptable.

Table 11. Criteria for noise

Marking technology	equipment	Declared A-weighted sound power level “LWad” (B)	
		Monochrome	Color
Electrophotographic	Copiers, printers, facsimile machines, and multifunctional devices thereof	$\leq 0.35\times Smo+59$ and ≤ 75	$\leq 0.3\times Sco+61$ and ≤ 75
Impact	Printers, facsimile machines, and	≤ 72	—

	multifunctional devices thereof		
Ink jet(other than large-format), high-performance IJ, direct thermal, dye sublimation, solid ink or thermal transfer	Printers, facsimile machines, and multifunctional devices thereof	≤0.35×Smo+59 and ≤75	≦0.3×Sco+61 and ≤75
Ink jet (large-format),	Printers and multifunctional devices thereof	≤75	≤75
–	Scanners	≤0.35×Smo+59 and ≤75	≤0.3×Sco+61 and ≤75

Smo : Copying/printing/scanning speed during monochrome copying/printing phase (sheets/min)

Sco : Copying/printing/scanning speed during color copying/printing/scanning phases (sheets/min)

[Requirements for each of equipment]

Large format	The number of printed sheets (monochrome and color) may be converted into A4 size sheets (according to ENERGY STAR® Program). Large format equipment of the ink jet method shall follow the measuring method specified in JBMS-74-2(Japan Business Machine and Information System Industries Association Standard).
Small format	The number of printed sheets (monochrome and color) may be converted into A4size sheets.
Scanner	Measurements shall be carried out in accordance with the measuring method specified in ISO7779. Note that for any matter not specified above, measurements shall be carried out with factory defaults and in single-side mode.
Facsimile	Measurements shall be made in a transmission mode and reception mode, respectively, in accordance with the measuring method specified in ISO7779. In measurements, a device, which is of same model as the applying model, shall be used as a device on the other end of communications, and measurements shall be made with factory default settings. In addition, if there is any difference in the noise level between the facsimile transmission mode and reception mode, measurements may be made only in the mode which has larger LWAd. In the transmission mode, the scanning speed is assigned to Smo and Sco, while in the reception mode, the printing speed is assigned to Smo and Sco.

[Certification Procedure]

The applicant shall submit a certificate (including requirements for testing laboratories) indicating the declared A-weighted sound power level specified in ISO 9296:1998 (corresponding to JIS X 7778) based on the actual measurements (Form 9). Note that for scanners and small format equipment, the certificate shall also indicate the measurement conditions.

If submission is difficult at the time of application, the applicant shall submit a signed consent form indicating that “a certificate indicating the declared

A-weighted sound power level specified in ISO9296:1998 based on the actual measurements should be submitted by the time the Eco Mark agreement on use is entered, and that if criteria are not met, the agreement should not be entered".

4-1-4 Information Provision to users

(32) Information on the matters (table 12) related to collection/recycling, resource saving, energy saving, and impact on human health shall be provided to users.
Basically, information shall be provided in instruction manuals in an easy-to-understand manner, and attempts shall be made to widely distribute information by utilizing websites, leaflets, etc.
However, for the items 1), 2), and 3) a, if up-to-date or detailed information is provided through websites, leaflets, etc., it shall be accepted as being equivalent to that described in the instruction manuals.

Table 12. Items on which information is provided to users

Items	Target
1) Information on collection/recycling and appropriate disposal a. Specific information on collection of used equipment (method of collection, contact address for collection, etc.)	Equipment having a collection/recycling system
b. Information on disposal of equipment.	Equipment having no collection/recycling system
c. Information on collection, reuse, material recycling, recovery, or waste disposal (including method of collection, contact address for collection, etc.) of used consumables (modules/containers for colourants, photoconductor drums, etc.) and information on waste disposal of ink ribbon cartridges, etc.	Case in which consumables that fall under the item to the left are used
d. Information on collection/recycling of used secondary batteries.	Case in which secondary batteries are used
2) Information on resource saving a. Provision of information on paper that can be used	Excluding scanners
b. Description on the automatic duplexing function. For equipment without the automatic duplexing function, information on capabilities of reducing usage of printing paper.	Excluding scanners
3) Information on energy saving a. Description on consumed power (amount) based on the ENERGY STAR® Program. However, for equipment that is required by the law, etc. to indicate the consumed power (amount) (energy efficiency, rated consumed power, etc.), indication of consumed power during downtime (during standby phase, etc.) together with the consumed power (amount) shall be able to replace the above description.	All equipment
b. Method of using or setting, which results in energy saving	All equipment
4) Information on effect on human health **A. Cautions when using products** a. Information for air ventilation when using equipment (e.g., should ventilate when using products, should avoid extended use in poorly ventilated rooms, or should encourage appropriate ventilation at the time of mass copying/printing) b. Indication of conformance with the test based on Eco Mark certification criteria (or RAL-UZ205, RAL-UZ171, etc.) for emission of hazardous substances. c. Information on exchange of an ozone or powder dust filter.	a to c. Excluding scanners c. Only equipment with an ozone or powder dust filter is covered

Items	Target
B. Module/container for colourant a. Proper use (method of replacement). b. The toner cartridge/container should not be forced to open. c. If toner dust leaks out as a result of inappropriate handling, inhalation of and skin contact with dust should be avoided (toner cartridge/container). d. Measures to take in case the toner/ink adheres to clothing or hand, or should it enter eyes or mouth e. The toner modules must be kept out of the reach of children. Measures in case a child swallows the toner/ink accidentally.	Excluding equipment that does not use a target module/container for colourant

[Certification Procedure]
Compliance with this item shall be indicated in the attached certificate. In addition, copies of a corresponding part in an instruction manual, leaflet, web site, etc. that indicates the matters related to this item shall be submitted.

(33) If the number of printed sheets with a module for colourants/container to be supplied with the equipment at the time of purchase is extremely smaller than that with a normal module for colourants/container, the fact shall be indicated in a leaflet, etc.

[Certification Procedure]
Compliance with this item shall be indicated in the attached certificate. In addition, copies of a corresponding part in a leaflet, etc. to this item shall be submitted.

4-2 Quality criteria and certification procedures

None

5. Considerations

In manufacturing products, it is desirable to consider the following, although they are not requirements for certification. The conformance to the individual criteria item shall be indicated in Attached Certificates.

(1) Instruction manuals (user manuals) provided to users shall conform to the following “a.” to “c.” However, for the manuals printed overseas, “a” and either “b” or “d” below shall be considered.

a. The binding method shall not impede waste paper recycling. However, use of hot melt adhesive is approved.
b. Chlorine gas shall not be used in the bleaching process of waste paper pulp.
c. The percentage of waste paper in the pulp mixture shall be over 70%.
d. The percentage of waste paper in the pulp mixture shall be over 30%.

(2) To facilitate recycling of rare metals (neodymium, dysprosium, cobalt, tungsten, and tantalum) contained in equipment, it is desirable that a system (provision of information, ease of part identification, etc.) is available that can identify parts containing many rare metals and provide the information to recycling operators (recyclers). Specifically, Table 13 below shall be checked for parts that especially contain many rare metals.

Table 13. Parts that should be checked for rare metal and example of efforts to improve ease of recycling

Rare metals	Parts to be checked	Example of efforts to improve ease of recycling
Neodymium, dysprosium	Whether or not HDD is used Whether or not a neodymium magnet is used Whether or not it is used in a motor	- Providing information on whether or not there is a corresponding part, as per a request from a recycling operator - Ease of separation of the corresponding part
Cobalt	Use of cobalt in a positive electrode of a lithium ion battery	- Providing information on whether or not there is a corresponding part, as per a request from a recycling operator - Ease of identification of parts: Indication of "Maximum amount of metal contained in the positive electrode" based on "Guideline for Recycling Marking (5th Edition)"
Tungsten	Whether or not it is used in a wire section of a printer of the wire dot method	- Providing information on whether or not there is a corresponding part, as per a request from a recycling operator - Ease of separation of the corresponding part
Tantalum	Whether or not a tantalum capacitor is used	- Providing information on whether or not there is a corresponding part, as per a request from a recycling operator - Identification by color of a capacitor to be used - Ease of separation of the corresponding part

6. Product Classification, Indication and Others

Omitted.

May 1, 2014	Established (Version1.0)
April 1, 2016	Revised (3, 4-1-1(5), (7), 4-1-3(19), (21)and (31) Version1.1)
July 1, 2016	Revised (4, 6 Version1.2)
January 1, 2018	Revised (conforming to revision of RAL-UZ205 in Germany)Version1.3)
April 30, 2021	Expiration date

The certification criteria of this product category will be revised as necessary.

Appendix 1 Product Design Check List

■Intention of Product Design Checklist

Equipment must be easily recyclable. The "Product Design Checklist" includes indices for improving ease of recycling by reference to the Blue Angel RAL-UZ205 in Germany. The indices are based on the following design concepts:

[Structural Design and Joining Techniques]

- Non-use of any joint (e.g. glued or welded) that does not allow release of the joint between different materials unless it is technically required
- Use of easily detachable mechanical joints in equipment
- Easy disassembly of equipment which can be carried out by hand or by machine

[Material Selection]

- Casing parts: In order to limit the variety of materials, individual plastic casing parts (>25g) have to consist of one single polymer or a polymer blend. All plastic parts used in the plastic casings shall consist of up to four separable polymers or polymer blends.
- Large-sized plastic casing parts must be designed in a way that the contained plastics can be reused for the production of high-quality durable products by applying available re-cycling techniques.
- The use of coatings for parts is to be reduced to a minimum. If applied, an appropriate reason for this use is to be given. Galvanic coatings are not permissible.
- Devices shall use, or shall be permitted to use, recycled plastics.

[Utilization of used equipment]

- Parts and materials that may contain any hazardous substances shall be easily identifiable or removable (e.g., modules for colourants, mercury lamp for backlighting of liquid crystal displays, and liquid crystal display panels).
- Operators shall gather information on reutilization of parts used in equipment and take advantage of it in product designing (e.g., information on a disassembly method, reuse of parts, and recycling).

[Module for colourant/container for colourant]

For modules for colourants that the applicant includes as original supplies or use of which the applicant recommends for each of equipment in product documentation as well as containers for colourants such as toners, inks, gels, waxes, etc., the "Product Design Checklist" includes the indices that enable them to be reused or utilized as materials. The indices are based on the following design concept:

・ Equipment that does not allow reuse of a module for colourant must not be attached to the module.

■Items

1) Equipment must be configured to be suitable for recycling, and must satisfy all Must (M) items of the requirements in the following groups. In addition, it is desirable to satisfy the Should (S) items, although they are not requirements for certification.

A: Design and Joining Technique
B: Selection and Marking of Materials
C: Longevity
D: Resource Saving

2) Each requirement applies to specific assemblies listed in the column "Target": Casing, mechanical parts, electronic assemblies, modules for colourants, or containers for colourants

3) Terminology

Casing parts	Parts comprising external covers that protect equipment from environmental influences and that prevents users from contacting moving, light-emitting or high-voltage components.
Chassis	Parts with functions serving as a frame to support the main parts of machines.
Assembly	Unit composed of at least two components linked by power or design.
Electric/electronic assemblies and parts	Assemblies (parts) which include at least one electric or electronic component.
Colourant	Mixture in which dyes, pigments and other additives are dissolved or dispersed in a carrier material such as a polymer matrix (e.g. for toners), liquids (e.g. for inks), gels or waxes (e.g. for solid inks).
Module for Colourant	A complex module (of a printer, copier or a fax)which in addition to a container for colourants can include other components for transferring the colourant onto the print media (e.g. toner container, photoconductor, charging unit, cleaning unit and toner cartridge having waste toner container or ink print head with nozzle system and one or more integrated ink tanks).
Container for Colourant	Containers for colourants such as toners or inks etc.
Recycling	In this checklist, the term refers to utilization as materials for used (plastic) parts.
Mechanical parts	Parts not contained in an electric/electronic assembly with either mechanical or optical function (except for casing and chassis).
Reused parts	Parts that have previously been used, and reused.

4) Category classification

Any requirements are classified as either "M" or "S".

Must-Requirement (**M**)	Requirements which must be met
Should-Requirement (**S**)	Requirements which should be met

Requirement		Applicable scope	Category	Compliance	Remarks
A: Design and Joining Technique					
A1	Are assemblies made of mutually incompatible materials separable or connected by separation aids?	Casing parts, chassis, electric/electronic assemblies, modules for colourants	**M**	☐Yes/ ☐No	Connections between casing and chassis as well as between chassis and electric/electronic assemblies are important. Their separability is a prerequisite for separate reuse/recycling of assemblies and materials and for a quick and reliable separation of components containing hazardous substances. Glued nameplates (i.e. company logos and stickers) are also included. The term "separation aids" refers to predetermined breaking points, for example.
A2	Are electric/electronic assemblies easy to find and remove?	Entire unit, including lamps	**M**	☐Yes/ ☐No	The minimal strategy for recycling is to remove hazardous substances. For example, electric/electronic assemblies and components listed in Annex VII of the revised WEEE Directive (2012/19/EU Directive), such as batteries and condensers which have a risk of containing constituents having hazardous substances, as well as fluorescent lamps containing mercury, must be easy to find and separate.
A3	Are connections that must be detached easy to find?	Casing parts, chassis, modules for colourants	**S**	☐Yes/ ☐No	Connections that have to be detached during disassembly must be easy and quick to find. If they are hidden, this should be stated on the product (e.g. by laser labeling or injection moulding).
A4	Can disassembly be done exclusively with general-purpose tools?	Casing, chassis, electric/electronic assemblies	**M**	☐Yes/ ☐No	The term 'general-purpose tools' refers to widely used, commercially available tools. This requirement does not apply to connections where legal regulations have limited the choice of joining technique.
A5	Has consideration been given to the point of application and the work space required for disassembly?	Casing parts, chassis, electric/electronic assemblies	**M**	☐Yes/ ☐No	The point of application is where the force of the tool is to be transmitted to the connecting element. Then, in order to enable disassembly operation to be performed with the tool, there must be adequate work space. This requirement especially covers snap-on connections, which, in contrast to the assembly process, can often be loosened with the tool.
A6	Are all connecting elements that have to be disassembled for recycling axially accessible?	Casing parts, chassis, electric/electronic assemblies	**S**	☐Yes/ ☐No	If connections to be disassembled are difficult to access or not directly accessible, disassembly requires extra man-hours. For example, it takes time to release screw connections if they can be only accessible radially.
A7	Can screw connections for fastening assemblies be released with no more than three tools?	Casing parts, chassis, electric/electronic assemblies	**M**	☐Yes/ ☐No	Standardised and uniform connecting elements facilitate disassembly. The fewer tools needed are, the simpler assembly and disassembly are. A tool is

					characterised by its type of drive (e.g. Phillips-head screwdriver) and size of drive (wrench size).
A8	Are at least half of connections that have to be detached between plastic parts click/snap-on connections?	Casing parts	**S**	☐Yes/ ☐No	Based on the proportion of click and snap-on connections, determine whether joining techniques have been selected by considering ease of disassembly.
A9	Can the disassembly be performed by one person?	Entire unit	**M**	☐Yes/ ☐No	If the undercut angle is more than 90º, any number of snap-on connections in the same joining direction can be assembled simultaneously, whereas this may not hold for disassembly. It is considered that this requirement is not met if more than three snap-on connections have to be loosened at the same time.
A10	Can the supporting surface be maintained during the entire disassembly process?	Unit to be handled	**S**	☐Yes/ ☐No	The 'supporting surface' refers to the product surface for wrecking workers to work on. This requirement is to indirectly check whether or not the unit has a hierarchical structure. 'The unit to be handled' refers to the unit which exceeds 5 kg, or can be turned over in case of less than 5kg.
A11	Are casing parts free of electric/electronic assemblies?	Casing parts	**M**	☐Yes/ ☐No	To facilitate the clean and fast removal and separation of hazardous substances from the electronic components, all electric/electronic assemblies must be fastened to the chassis. The casing must not contain any electric/electronic assemblies. A control element fastened to the casing and casing parts at the same time fulfilling the function of the chassis are not considered as casing parts here.
A12	Has the manufacturer carried out a trial disassembly (e.g. in accordance with A1 to A11) and recorded it with a focus on weak spots?	Entire unit	**M**	☐Yes/ ☐No	
B: Selection and Marking of Materials					
B1	If labels, etc. to be attached to plastic casing parts are difficult to separate, they must be made of the same material as the plastic parts, or any material that does not prevent recycling.	Casing parts of 25g or more	**M**	☐Yes/ ☐No	In order to recycle as high-quality materials, labels, etc. must be easily separable from plastic parts to which they are attached, or it is desirable that they are made of same materials (compatibilization).
B2	Is the variety of materials used for plastic parts having similar functions limited to one kind?	Casing parts, chassis, and mechanical parts of 25 g or more	**M**	☐Yes/ ☐No	For instance, "similar functions" refer to functionality such as "impact resistance" and "abrasion resistance". The smaller the varieties of materials are, the more efficient the separation and recycling processes are. This requirement does not apply to parts that are demonstrably reused.

B3	Are parts made of the same plastic material colored uniformly or compatibly?	Casing parts, modules for colourants	**S**	☐Yes/ ☐No	Adoption of uniform colours for parts made of the same plastic material improves possibilities to introduce material cycles for recycling. 'Compatible colouring' refers to a same colour with different degrees of brightness (e.g. grey and anthracite). In addition, if different types of plastic materials have different colours, this "colour code" facilitates reliable type-specific sorting of the plastic materials. This requirement does not apply to control elements on the equipment.
B4	Has the coating of plastic parts been limited to a minimum?	Casing parts, modules for colourants	**M**	☐Yes/ ☐No	'Coating' refers to a layer of coating material, vapor-deposited layer, and print. Galvanic coatings are not permissible. Large-area coating layer, vapour-deposited layer and print on plastic parts require additional treatment for removal if the materials are to be recycled subsequently. Reasons must be given for coatings of special parts. Laser markings are not considered as prints referred to herein. This requirement does not apply to demonstrably reused parts. It is considered, however, that the product conforms to this item if the coating materials that do not prevent recycling are used, or coating works are conducted with consideration for occupational safety and health of coating workers and reduction of environmental burden. "Coating materials that do not prevent recycling" refers to the coating materials that have compatibility with materials of parts to be coated, and do not prevent high-level material recycling (horizontal recycling for in-house products). 'Considerations for occupational safety and health of coating workers' means that a coating workshop is ventilated/vented and workers wear protective gear. 'Considerations for reduction of environmental burden' includes the measures to control VOC emission into the air, such as the removal equipment, the devices in coating process, or replacement by low-VOC coating materials.
B5	Are recyclable materials and material composites used?	Casing parts, chassis, modules for colourants	**M**	☐Yes/ ☐No	'Recyclable material' means that recycled material identical to the original material (recycling at the original level) can be manufactured. This item asks the intention and goals upon designing and does

					not ask whether recycling is actually conducted.
B6	Is partial use of recycled plastic material permitted?	Casing parts, chassis, modules for colourants	**M**	☐Yes/ ☐No	'Permitted' means that a material that meets the requirements provided in the specifications may be used if it is available. 'Partial' means some available plastic components are appropriate. (This does not require all available components.) A closed cycle is realized only if the manufacturer has already used recycled materials, or if they announce the commitment to do so in the product specifications.
B7	Is the percentage of recycled material to the total plastic weight constantly 5% at a minimum?	Casing parts, casing parts of modules for colourants	**S**	☐Yes/ ☐No	'Total plastic weight' means the total weight of all applicable plastic parts. 'Recycled material' means recycled plastic pellets themselves, and not plastic parts that contain recycled plastics. The source of recycled pellets does not matter. In other words, the recycled plastic does not have to be recycled pellets obtained from parts in used printers or copiers; it may include recycled plastic from other product families on the market. Using appropriate recycled materials considerably contributes to resource saving and the use within the scope of availability is strongly desirable.
B8	Are parts and materials that fall under Appendix 1 of the EU WEEE Directive easy to remove?	Entire unit	**M**	☐Yes/ ☐No	
B9	selected according to B1 to B6 and has this been documented?	Casing parts, chassis, modules for colourants	**M**	☐Yes/ ☐No	
B10	Are plastic parts weighing 25 g or more and having a flat surface larger than 200 mm^2 marked in accordance with ISO 11469, taking ISO 1043 into consideration?	Entire unit (Plastic parts contained in reused complex assemblies are not included.)	**M**	☐Yes/ ☐No	The marking of plastics shall enable all recycling companies to sort plastics by type.
B11	Do secondary batteries have identifications indicating a type?	Internal battery	**M**	☐Yes/ ☐No ☐ No applicable battery [y]	Secondary batteries need to be identified in order to promote collection and recycling thereof.
B12	Is the percentage of post-consumer recycled plastics used in entire plastic (wt%) stated in the product information or data sheet, (indicated in intervals of 0-1%, 1-5%, 5-10%, 10-15%, 15-20%, and so on (in 5% intervals)?	All assemblies	**M**	☐Yes/ ☐No	The following parts may be excluded from the calculation of the recyclate share: printed circuit boards, cables, connectors, electronic components, optical components, electrostatic discharge (ESD) components, electromagnetic interference (EMI) components, and biobased plastic materials. Stating in Form 3 and submitting

					it to Eco Mark Office is acceptable.
C: Longevity					
C1	Are at least 50% or more of components of equipment, excluding standard parts, used as common parts to other models of the same generation and the same performance category of the same manufacturer?	Entire unit	**M**	☐Yes/ ☐No	
C2	Is use of recycled assemblies or parts scheduled or permitted?	Entire unit	**M**	☐Yes/ ☐No	This means that the manufacturer should be willing to reuse assemblies and components as spare parts or ETN (Equivalent To New) parts under his responsibility.
C3	Can modules or containers for colourants be replaced separately for each colour?	Modules for colourants, containers for colourants Not applied to portable equipment	**M**	☐Yes/ ☐No ☐Not covered. (No use of modules for colourants, containers for colourants, single-color machine, poetable equipment)	The separate replacement by color contributes to saving of materials. Portable devices means small and light-weight printers, etc. which include mobile printers.
C4	The design (structure, software or other) has not prevented the use of recycled colourant cartridges or colourant containers	Entire unit	**M**	☐Yes/ ☐No ☐Not covered. (No use of modules for colourants, containers for colourant)	This item is not to guarantee the use of all recycled coulorant cartridges and colourant containers sald by other companies, but to clarify that the design of equipment does not prevent the use of such by the special measures.
C5	Can modules for colourants be reused?	Modules for colourants	**M**	☐Yes/ ☐No ☐Not covered. (No use of modules for colourants)	Constructive measures shall not prevent reuse.
C6	When batteries installed in equipment reach the end of their life or are repaired, replacement or removal thereof shall be possible, without removing an entire printed circuit board, etc. on which the batteries are mounted.	Printed circuit board, etc.	**M**	☐Yes/ ☐No ☐ No applicable battery	A structure that allows easy replacement of batteries at the end of their life leads to avoidance of disposal of the equipment and to a longer life.
D. Resource Saving					
D1	Equipment shall be designed in consideration of weight reduction/volume reduction. Specifically, is a comparison with a conventional machine of a same type (or standard machine) made in terms of weight reduction or volume reduction rate, etc.? However, if no conventional machine having equivalent functionality is present, a comparison with a conventional machine does not apply. The equivalent functionality refers to an equipment configuration in	Products	**M**	☐Yes/ ☐No ☐No conventional machine having equivalent functionality is present. Comparison with equipment used in conventional machines Name of conventional machine: Rate of weight reduction: Rate of volume reduction: Either the rate of weight reduction or rate of	This results in weight reduction/volume reduction of equipment.

	which the printing method, PIM, corresponding paper size, etc. are identical.			volume reduction may serve the purpose.	
Are all "M" requirements satisfied and "Yes" answers given to them?			**M**	☐Yes/ ☐No	

<For Your Reference> B8 Appendix 1

As a minimum, the following substances, mixtures, and components have to be removed from any separately collected waste electrical/electronic equipment.

(Annex VII of Revised WEEE Directive (2012/19/EU Directive))

- polychlorinated biphenyls (PCB) containing capacitors in accordance with Council Directive 96/59/EC of 16 September 1996 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT),
- mercury containing components, such as switches or backlighting lamps,
- batteries,
- printed circuit boards of mobile phones generally, and of other devices if the surface of the printed circuit board is greater than 10 square centimetres,
- toner cartridges, liquid and paste, as well as colour toner,
- plastic containing brominated flame retardants,
- asbestos waste and components which contain asbestos,
- cathode ray tubes,
- chlorofluorocarbons (CFC), hydrochlorofluorocarbons (HCFC) or hydrofluorocarbons (HFC), hydrocarbons (HC),
- gas discharge lamps,
- liquid crystal displays (together with their casing where appropriate) of a surface greater than 100 square centimetres and all those back-lighted with gas discharge lamps,
- external electric cables,
- components containing refractory ceramic fibres as described in Commission Directive 97/69/EC of 5 December 1997 adapting to technical progress for the 23rd time Council Directive 67/548/EEC on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances,
- components containing radioactive substances with the exception of components that are below the exemption thresholds set in Article 3 of and Annex I to Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation,
- electrolyte capacitors containing substances of concern (height > 25 mm, diameter > 25 mm or proportionately similar volume).

These substances, mixtures and parts shall be disposed of or recovered in compliance with Directive 2008/98/EC.

Appendix 2 Packaging material checklist

■List of packaging material used for the product.
Indicate a name, weight, ratio of recycled materials in use of packaging materials that are used per product.

No.	Packaging material used for the product	weight[g]	Ratio of recycled material in product
1			%
2			%
3			%
	Total		

Entry examples of the packaging materials in use: cardboard, polyethylene, foamed polystyrene, pulp mold.

■Packaging material checklist
It is determined that the product conforms to the criteria if it implements ("Yes") all requirements (excluding Should items).

No.	Requirement	Compliance	Remarks
1	Is the product designed giving consideration to weight reduction/volume reduction? Specifically, whether a comparison of weight reduction or volume reduction for, etc. However, if no conventional machine having equivalent functionality is present, a comparison with a conventional machine does not apply. The equivalent functionality refers to an equipment configuration in which the printing method, IPM, corresponding paper size, etc. are identical.	☐Yes/☐No Comparison with packaging materials used for conventional machine Name of conventional machine: Rate of weight reduction: Rate of volume reduction: You may enter any of the weight reduction rate or volume reduction rate. ☐No conventional machine having equivalent functionality is present.	
2	Is the product designed giving consideration to use of recycled materials? (Waste paper, recycled plastic, etc.)	☐Yes/☐No	If any recycled material is used, indicate it in the above list.
3	Is the product designed giving consideration so that the amount of ink to be used in printing on a surface of packaging materials is reduced?	☐Yes/☐No	Usage of ink, etc. can be reduced by adoption of a design that reduces a printing area.
4	Is the product such designed that sharing of materials is promoted?	☐Yes/☐No	It is desirable to share materials by products of a same company or standardize packaging materials used for a same product.
5	Is the product designed giving consideration to selection of a material that is easy to recycle or reuse?	☐Yes/☐No	It is desirable to select a material that consumers can easily send to recycling, etc.
6	If dissimilar materials are used in combination, is the product such designed that separation of parts is easy?	☐Yes/☐No ☐No combined use of dissimilar materials	Dissimilar materials herein stated refer to metals and plastics, paper and plastics, etc., and do not mean a difference by a type of plastic.
7	Whether materials are indicated according to the regulations or JIS standard, etc., so that the product can be easily recycled or reused.	☐Yes/☐No	It is necessary to provide an appropriate indication so that consumers can send the product to recycling, etc.
8	Are materials to be used in packaging selected so that use of any chemical substances which affect the environment is avoided or reduced? (Non-use of polymers containing halogens, CFC, HCFC, etc. (Appendix 3))	☐Yes/☐No	If any chemical substance that affects the environment is used, it will be a problem when the product is recycled or disposed of.
9	Is there a system for collection and reuse or recycling of packaging materials?	[Should] ☐Yes/☐No	As stated in the considerations of Act for Promoting Green Purchasing, it is desirable that the product has a collection/recycling system.

Appendix 3 Substances Specified in "Packaging material checklist" No.8

CFC5s	Group I, Annex A of Montreal Protocol	Trichlorofluoromethane	Dichlorotetrafluoroethane
		Dichlorodifluoromethane	Chloropentafluoroethane
		Trichlorotrifluoroethane	
Other CFCs	Group I, Annex B of the same Protocol	Chlorotrifluoromethane	Pentachlorotrifluoropropane
		Pentachlorofluoromethane	Tetrachlorotetrafluoropropane
		Tetrachlorodifluoroethane	Trichloropentafluoropropane
		Heptachlorofluoropropane	Dichlorohexafluoropropane
		Hexachlorodifluorpropane	Chloroheptafluoropropane
	Group II, Annex B of the same Protocol	Carbon Tetrachloride	
	Group III, Annex B of the same Protocol	1,1,1-Trichloroethane	
HCFC	Group I, Annex C of the same Protocol	Dichlorofluoromethane	Dichloropentafluoropropane
		Chlorodifluoromethane	Chlorohexafluoropropane
		Chlorofluoromethane	Pentachlorofluoropropane
		Tetrachlorofluoroethane	Tetrachlorodifluoropropane
		Trichlorodifluoroethane	Trichlorotrifluoropropane
		Dichlorotrifluoroethane	Dichlorotetrafluoropropane
		Chlorotetrafluoroethane	Chloropentafluoropropane
		Trichlorofluoroethane	Tetrachlorofluoropropane
		Dichlorodifluoroethane	Trichlorodifluoropropane
		Chlorotrifluoroethane	Dichlorotrifluoropropane
		Dichlorofluoroethane	Chlorotetrafluoropropane
		Chlorodifluoroethane	Trichlorofluoropropane
		Chlorofluoroethane	Dichlorodifluoropropane
		Hexachlorofluoropropane	Chlorotrifluoropropane
		Pentachlorodifluoropropane	Dichlorofluoropropane
		Tetrachlorotrifluoropropane	Chlorodifluoropropane
		Trichlorotetrafluoropropane	Chlorofluoropropane