

Draft of Enlarged Scope of Applicable Products for Eco Mark Product Category “Digital Printer Version1.0(Draft)”

1. Background, Review Procedure and Results, and Future Plans

1.1 Background

During the “Copier/Digital Printer” Working Group (WG) meeting held from March 2004, the inclusion of “reused printers” in “Digital Printer Version1.0” (Draft) was reviewed.

At this time, the “Eco Mark Reused Printer Review Committee” was separately installed. As the first step, the committee developed and announced draft criteria excluding reused printers to promote consistency with the review results of the WG meeting. With the recent submission of the Reused Printer Review Committee review results, proposals including reused printers in “Digital Printers Version 1.0” as an expansion on the scope of application (draft) will be announced and comments invited.

1.2 Review Procedure and Results

(1)	Verification by LCA specialists • Organization of specialists: “Reused Printer Review Committee” Chairperson (1) “Copier/Digital Printer WG” chairperson + independent committee member (2) • Verification results: As a result of conducting comparative verifications of “non-leased printers” and “reused printers” using simplified LCA data prepared by the Digital Printer Manufacturers Committee, “reused printers” can be recommended from the standpoint of reducing global warming impact if they achieve energy consumption efficiency of about 2.7 times that of “non-leased printers”.
(2)	Review and approval of verification results at Copier/Digital Printer WG. • Approved (1) review results from the viewpoint of global warming impact. • Also reviewed VOCs and aromatics in the ink of reused printers, and set down draft criteria that are lenient to a certain extent.
(3)	Submission of “Draft Expansion of Applicable Products Scope” to the 33rd Committee for Establishing Category and Criteria (EMCECC).

1.3 Future Plans

	Jan	Feb	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.
Current release draft	← Public comment →				● to be established				
				▲ Scheduled submission of established draft to EMCECC					
Expansion draft			← Public comment →				● to be revised		
Reused printers		▲ Scheduled submission of scope expansion draft to Categorization Committee				▲ Scheduled submission of revision draft to Categorization Committee			

*Certain plans may not be ready by May according to public comments, etc.
Likewise, some revisions also may not be ready by July.

■“Digital Printer Version 1.0 (Draft) can be downloaded between Jan. 15 and March 15 at: <http://www.ecomark.jp/english/index.html> (Eco Mark News No.54 Attachment 4)

2. Proposed revisions for Certification Criteria (Draft)

Proposed revisions are indicated for the following items when including “reused printer” in the scope.

2.1 Draft expansion of applicable products

- “2. Applicable Products”

2.2 Draft definition of reused printers

- “3. Terminology”

2.3 Certification criteria and procedure of reused printers

- “4-1 Certification Criteria”
- “5. Certification Procedure”

2.4 Draft statement below the Eco Mark for reused printers

- ”6. Other Requirements” (2) Statement appearing below the Eco Mark

2.1 Draft expansion of applicable products “2. Applicable Products”

Digital printers and their reused equipment

2.2 Draft definition of reused printers “3. Terminology”

The following text is added after the “Should item” at the end of “3. Terminology” in Certification Criteria (Draft).

<u>Reused printer</u>	<u>Products meeting the following requirements a.) and b.)</u> <u>a.) Products more than one year old after “discontinuation of manufacture” used as “mother equipment”.</u> <u>b. More than 80% of the parts of the original products are reused in terms of weight percentage.</u> <u>“Discontinuation of manufacture” here means the final date of manufacture after which the product will not be manufactured again.</u>
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“Mother equipment” here means the first generation product. “Original product” means products of the generation just before the concerned reused printer. It is not only limited to the mother equipment; and can also include the products already being reused (multiple reuses). Products not meeting requirements a.) and b.) above are not considered a “reused printer” in this Product Category even if parts are reused.

■When “original product” = “mother equipment”

• Can apply if the following are met:

(a) One year or more after discontinuation of manufacture of [mother equipment]

(b) Not less than 80% of “original product (= mother equipment) parts are reused.

Example 1) **Mother equipment** ⇒ **1st reused printer** One year or more after discontinuation of manufacture of mother equipment.

Example 2) **Mother equipment** ⇒ **1st reused printer** Less than one year after discontinuation of manufacture of mother equipment ⇒ **Does not apply to reused printer.**

Example 3) **Mother equipment** ⇒ **1st reused printer** ⇒ **2nd reused printer**

Cannot apply as “reused printer” if 1st reuse is less than one year from discontinuation of manufacture of mother equipment .

■When “original product” ≠ “mother equipment”

• Can apply if the following are met:

(a) One year or more after discontinuation of manufacture of [mother equipment] at the second reuse.

(b) “Original products” are reused for the first time.

Not less than 80% of the “original product (= mother equipment) parts are reused.

*In either case, the “number of reuses” is not questioned.

2.3 Certification criteria and procedure of reused printers

Revision proposals shall be indicated for the following items:

2.3.1 Addition of “4-1-14 Requirements for Reused Printers”

“4-1-14 Requirements for Reused Printers” is added to “4-1 Environmental Criteria” of “4. Certification Criteria”

2.3.2 Addition of “■When applied as reused printer”

“■When applied as reused printer” is added to “4-1 Environmental Criteria” of “4. Certification Criteria” and “5. Certification Procedure”

“■When applied as reused printer” is added to “5. Certification Procedure”

2.3.3 Draft criteria and certification procedure for reused printers

The following revisions are added to “4-1-14 Requirements for Reused Printers” and “5. Certification Procedure”

- (1) Exemptions related to recycled plastic parts and reused plastic parts
- (2) Increased leniency in criteria for aromatics in ink
- (3) Increased leniency in criteria for VOC components in ink
- (4) Increased leniency in criteria for energy consumption efficiency

2.3.1 Addition of “4-1-14 Requirements for Reused Printers”

“4-1-14 Requirements for Reused Printers” is added to “4-1 Environmental Criteria” of “4. Certification Criteria”

4. Certification Criteria
4-1 Environmental Criteria
4-1-1 3R Design of Equipment
4-1-2 Requirements for plastic materials
⋮
4-1-13 Manufacturing criteria
<u>4-1-14 Requirements for reused printers</u>

2.3.2 Addition of “■When applied as reused printer”

“■When applied as reused printer” is added to “4-1 Environmental Criteria” and “5. Certification Procedure” of “4. Certification Criteria”

4-1 Environmental Criteria
<u>■When applied as reused printer</u>
<u>Definition of “reused printer” set down in “2. Terminology” and 4-1(1) to (38) shall be met, excluding (4). Items (32), (39) to (41) shall be met instead of (13), (14), and (32).</u>
4-1-1 3R Design of Equipment
(1) Equipment shall conform ...(hereafter omitted)
5. Certification Procedure
<u>■When applied as reused printer</u>
<u>Conformance to the definition of reused printer, mother equipment serial number, date of discontinuation of manufacture, and serial number of the original product shall be indicated in the attached certificates.</u>
Required areas in the attached certificates shall be checked or filled in...(hereafter omitted)

2.3.3 Draft criteria and certification procedure for reused printers

(1) Exemptions related to recycled plastic parts and reused plastics parts

Since more than 80% of reused printers are made of reused parts, 4-1-2(4) was excluded as it need not be applied to reused printers.

4-1-2(4)	Any one of parts weighing more than 25 g shall be recycled or reused plastic parts at the least.
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(2) Increased leniency in criteria for aromatics in ink

As reused printers are based on products with old designs, and most are therefore only able to use ink with more aromatics than the latest inks, criteria were made more

lenient (less than 1.0 % -> less than 3.0%, and 4-1-4(39) replaces 4-1-4(13). For the certification procedure, 5(34) shall replace 5(10).

Criterion 4-1-4(13)	Aromatics detected from petroleum solvents by the JIS K2536 method shall be less than 1% of the total volume for ink.
Certification Procedure 5(10)	For certification criterion 4-1 (13), documents based on results of tests on solvent components and analysis method, or certificates of tests results issued by solvent suppliers shall be submitted.
Criterion 4-1-14(39)	<u>Aromatics detected from petroleum solvents described in JIS K2536 shall be less than 3.0% of the ink volume.</u>
Certification Procedure 5(34)	<u>For Certification Criterion 4-1(39), documents including test results on solvent composition and analysis method, or documents based on test result certificates of the solvent suppliers shall be submitted.</u>

(3) Increased leniency in criteria for VOC components in ink

As reused printers are based on products with old designs, and most are therefore only able to use ink with more VOC components than the latest inks, criteria were relaxed (less than 5 %->less than 6%), and 4-1-4(40) shall replace 4-1-4(14). For the certification procedure, 5(35) shall replace 5(11).

Criterion 4-1-2(14)	The content of petroleum solvents in ink shall not exceed 30%, and that of VOC components shall be less than 5%.
Certification Procedure 5(11)	For certification criterion 4-1 (14), the MSDS (Material Safety Data Sheet) indicating weight percentage of petroleum solvents in the ink (can be the one submitted in (7)) shall be submitted. Test results used for VOC calculation, analysis method, or certificates issued by the ink manufacturer shall also be submitted. For certification criterion 4-2. (14), the MSDS (Material Safety Data Sheet) indicating weight percentage of petroleum solvents in the ink (can be the one submitted in (7)) shall be submitted. Test results used for VOC calculation, analysis method, or certificates issued by the ink manufacturer shall also be submitted.
Criterion 4-1-14(40)	<u>Petroleum solvents in the ink shall be below 30% and VOC components less than 6%.</u>
Certification Procedure 5(35)	<u>For Certification Criterion 4-1(40), MSDS indicating the weight percentage of petroleum solvents in the ink (can be the same as that submitted in (7)) shall be submitted. In addition, test results used for VOC calculation and analysis method or certificates issued by the ink manufacturer shall be submitted.</u>

(4) Increased leniency in criteria for energy consumption efficiency

For reused printers, standard energy consumption efficiency values have been made more lenient by 2.5 times the current certification criteria (draft) based on LCA evaluation, and 4-1-14(41) shall replace 4-1-10(32). For the certification procedure, 5(36) shall replace 5(27).

Criterion 4-1-10(32)	Energy consumption shall conform to criteria prescribed in Attachment 4, “Basic Guidelines for Promoting the Procurement of Eco Products, etc. “. See 3. OA Equipment, (8) Digital Printer “Attachment 4(4-1-10(32)) Criteria on Energy Consumption Efficiency of Digital Printers”.
Procedure 5(27)	For certification criterion 4-1(32), compliance with this item shall be indicated in attached certificates. A certificate of compliance with Attachment 4 (Example 7) shall be submitted with each machine type. Attached certificates shall include the name and address of testing laboratory as well as facts that the examination was conducted after the quality assurance system was built or those that ISO/IEC17025 (corresponding JIS Q17025:2000) is met.
Criterion 4-1-14(41)	<u>Energy consumption shall conform to the standards shown in Attachment 5 “Criteria on Energy Consumption Efficiency of Reused Digital Printers”.</u>
<u>Certification Procedure</u> 5(36)	<u>For Certification Criteria 4-1(41), conformance to this item shall be indicated in the attached certificate. In addition, certificates indicating conformance to Attachment 5 (Example X) shall be submitted for each model applied. Attached certificates shall also indicate the name and address of testing laboratory, that quality assurance systems are available, and information on conformance to ISO/IEC17025 (corresponding JIS Q17025:2000).</u>

Attachment 5 Criteria on Energy Consumption Efficiency of Reused Digital Printers

		<u>A3 model</u>		<u>B4 and A4 models</u>	
		<u>Printer function</u>		<u>Printer function</u>	
		<u>When operating</u>	<u>When not operating</u>	<u>When operating</u>	<u>When not operating</u>
<u>Model equipped with printer function as standard</u>		≤ 88.75	≤ 70	≤ 55	≤ 50
<u>Model not equipped with printer function as standard</u>	<u>With printer function</u>	≤ 88.75	NA	≤ 55	NA
	<u>Without printer function</u>		≤ 60		≤ 47.5

(Unit: Wh/h)

2.4 Draft statement below the Eco Mark for reused printers.

“6. Other Requirements”/Reused Printer Environmental Information Indication

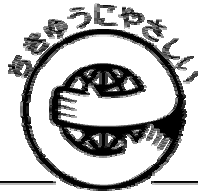
Environmental information indication for reused printers is added to “6. Other Requirements”..

6. Other Requirements

(1) Product category shall be...(hereafter omitted)

(2) The statement appearing below the Eco Mark shall be following environmental information. The location and details of the Eco Mark to be indicated shall be submitted when applying for Eco Mark product certification and use. The environmental information indicated shall be enclosed in a rectangular box, and “ リサイクル・省エネ設計 (Recycled and Energy Conservation Design)” and “ インクの VOC成分 5%未満 (VOC<5% in ink)” shall be indicated on the first and second lines, respectively. For reused equipment, “Reused printer” shall be indicated on the first line and “ Reused parts more than 80%” on the second line.

However, for only stocks... (hereafter omitted)



XXXX Ltd. (Authorized Eco Mark Holder)



Reused printer
Reused parts more than 80%

Eco Mark Certification Number

No. XXXX (Indication of numbers only is allowed)

3. Proposed Revisions for Interpretation (Draft)

Proposed revisions are indicated for the following items when including “reused printer” in the scope.

3.1 Description on expansion of applicable products

- A-1 “Resource Extraction Stage/Resource consumption” of “4-1. Details of Establishing Environmental Criteria”

3.2 Description on definition of reused printers

- “3.Terminology”

3.3 Description on leniency in criteria for reused printer ink

- D-8 “Use/discharge of hazardous materials” of “4-1. Details of Establishing Environmental Criteria”

3.4 Description on draft statement below the Eco Mark for reused printers

- “6 Other Requirements” (1) Indication below mark

3.1 Description on expansion of applicable products/A-1 “Resource Extraction

Stage/Resource consumption” of “4-1. Details of Establishing Environmental Criteria”

Description that reused printers have been included in the scope of applicable products and verification details are added to item A-1(2).

A-1 Resource consumption

The following points were reviewed under this item:

- (1) Use of recycled plastics or reused parts.
- (2) Reused printers

For (1), Eco Mark product category... (hereafter omitted)

For (2), although the commercial life of digital printers is about 10 million sheets, the contract term of leased and loaned printers usually terminate before this lifespan. Reduced resource consumption and wastes is anticipated by the replacing and repair of malfunctioned or worn parts followed by distribution to the market again for reuse.

Reused digital printers have already enjoyed about 10% market share in Japan, and this number continues to increase. Coupled with the fact that the industry is promoting use of reused digital printers, it was decided that these printers will be taken up in the Eco Mark Category. (deleted the following line...)

With reused printers, reusing 80% of the parts of the original product sharply reduces global warming impact related to the manufacturing of raw materials, but on the other hand, as the recycled volume decreases, global warming impact reduction effects of recycling also decrease. In addition, as reused printers are based on products with old designs, energy consumption efficiency is poorer than new products, and global warming load in terms of electric energy consumed during machine use increases. To obtain energy consumption efficiency that would give reused printers an advantage in terms of global warming impact in the entire lifecycle, reviews based on life cycle assessment (LCA) data were carried out.

LCA is implemented by manufacturers, based on specialist verification. Comparisons were carried out on digital printers that are manufactured as new products and are recycled into resources or disposed without being reused after use (non-leased products) as well as on reused printers that are reused for the first time. Global warming impact (CO₂ equivalent) of reused printers was taken as the average of two generations. In reality, although many products are second- or third-generation reused products, they were conservatively evaluated as first-generation for safety. From LCA assessment results based on this assumption, if global warming impact related to power (CO₂ equivalent) of reused printers is less than 2.7 times that of non-leased products, reused printers will have the advantage. For this reason, the standard energy consumption efficiency of reused printers was set at 2.5 times that of what has been set in the Green Procurement Law shown in Attachment 4.

Currently, the energy consumption efficiency of reused printers on the market is in the range of 1 to 2.5 times, but as the generation progresses, the efficiency rate is

expected to further decrease. Therefore, during criteria review for Version 2.0, it is expected that there will be a need for re-evaluation and review after verifying the market effects of Version 1.0.

The LCA results used for this review focused only on global warming impact (CO₂ equivalent); no effects of VOC and aromatics in the ink are taken into consideration. With the present LCA results, as it is difficult to evaluate the effects of greenhouse gases such as CO₂, etc., on global warming and health damages by VOC, etc., VOCs and aromatics contained in reused printer ink were reviewed independently from energy, as described in D-8(2).

3.2 Description on Definition of Reused Printers

The following text is added at the end of “3. Terminology”, following “3R design checklist”, “M (Must) requirement”, and “S (Should) requirement” in the Draft Interpretation.

<u><Reused equipment></u>	<u>Setting a period of more than one year from the final date of manufacturing of the products prevents application of equipment currently on the market as reused printer by applicants with malicious intent. New product standards on energy consumption efficiency and ink components are made lenient to a certain level for reused printer. Malicious use is assumed to be applying products that are difficult to determine if the period of use and number of printed sheets has reached a certain level compared to the designed lifespan of the product as reused products with relaxed regulations. Definitions of reused printer considered include products whose period of use has exceeded a certain amount of time, and the number of printed sheets exceeded more than a certain volume. However, since the period of use and number of printed sheets also depend on the state of use by users and contract details such as lease or rental, it is difficult to set down certain sets of conditions. For such reasons, it was decided that the period of more than one year from the final date of manufacturing will be set down to ensure against such applications with malicious intent.</u>
	<u>Products reusing parts and products not satisfying this definition are subject to the certification criteria of normal digital printers; in other words, criteria which have not been made more lenient to some extent for reused printers. For products reused multiple times, products from which reused printers are made are not necessarily the mother equipment, and in some cases, they may already be products which have already been reused.</u>

3.3 Description on leniency in criteria for reused printer ink

D-8 “Use/discharge of hazardous materials” of “4-1. Details of Establishing Environmental Criteria”.

Description on aromatics and VOC components in reused printer ink is added to item D-8 (2).

D-8 Use/discharge of hazardous materials

The following points were reviewed under this item:

- (1) The discharge of ozone, dust, and VOCs should be low.
- (2) Hazardous substances in the ink
- (3) Hazardous substances in master

For (1), Eco Mark... (hereafter omitted)

For (2), based on items related to offset lithographic ink and news ink specified in Eco Mark Product Category No.102 "Printing Ink", which are similar to digital printer ink, the advisability of including digital printer ink in the scope of application was reviewed. Requirements deemed applicable to digital printers were adopted: submission of MSDS, prohibited use of substances provided by the voluntary restrictions on printing ink for packaging material (negative list restrictions) issued by the Japan Printing Ink Makers Association, and prohibited use of resins including halogenides. These substances were picked considering their safety in human health, and were therefore adopted by the Eco Mark as well to ensure the safety of users during use and workers involved in the ink manufacturing process. The VOC components and aromatics used in ink contain numerous substances said to have adverse effects on the human body such as headache, nausea, as well as carcinogenic effects, reproductive toxicity, and effects on nervous system. They also cause photochemical oxidants in air, and are often given as substances causing hypersensitivity to chemicals. Based on Product Category No.102 criteria and current ink used for digital printers, the restrictive values were set as less than 5% for VOC components and less than 1% for aromatics. Petroleum solvents were also included as their reduction would contribute to reduced use of aromatics as well as saving of petroleum resources. Their restrictive value was set as less than 30% in accordance with Product Category No.102.

As reused printers are based on products with old designs, and most are therefore only able to use ink with more VOC components and aromatics than the latest inks, standards were relaxed; VOC components were set at less than 6%, and aromatics less than 30%. However, with more and more Eco Mark certified products distributed on the market, and these becoming the mother equipment of reused printers, even reused printers should be able to use ink with less VOC components and aromatics. This issue shall be evaluated and reviewed again in re-evaluations for Version2.0.

It should be noted that the restricted values for VOC components, aromatics, and petroleum solvents were set based on the judgment that they are relatively environmentally friendly among components of ink used for digital printers currently on the market, and they have not been confirmed to pose no risks to humans or to the environment.

For (3), in the current situation... (hereafter omitted)

3.4 Description on draft statement below the Eco Mark for reused printers

The following description on the environmental information indication on reused printers is added to “6. Other Requirements (1) Indication below Eco Mark”.

Those implementing 3R design instead of recycling design shall... (hereafter omitted)

Given that the greatest feature of reused printers is reduced environmental impact via reuse, “Reused printer” shall be indicated on the first line and “Over 80% reused parts” on the second line to provide specific information. As with non-reused printers, though there were comments that ink VOC components should be indicated, it was decided not to be implemented due to concerns that the difference and priority level between the standard value “less than 5%” and “less than 6%” cannot be determined, as well as comments that VOC need not be indicated as it is not the greatest feature of reused printers.

Information provided to the consumer shall be...(hereafter omitted)