

Eco Mark Product Category No.120

“Paper Printed Matter Version2.0” Certification Criteria (Draft)

Applicable Scope

The new category includes paper printed matter (refer to “Japan Standard Commodity Classification” issued by Ministry of Public Management, Home Affairs, Posts and Telecommunications: the category named “Printed matter, film, record and other recorded matter” is applied, but the non-paper recorded matter such as magnetic card and film is excluded), except for the products covered by the Eco Mark Product Category No.112 “Stationery/Office Supplies”.

Established: March 1, 2007 (scheduled)
Term of validity: February 28, 2012 (scheduled)

Japan Environment Association
Eco Mark Office

Eco Mark Product Category No.120 “Paper Printed Matter Version2.0” (Draft)

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1. Purpose of Establishing Certification Criteria

The purpose of the Eco Mark program is to provide our society with the wide range of environmental information of products and to promote the environmentally-friendly choice of consumers by certifying the eco-friendly products with the “Eco Mark”. Specializing in the first purpose (to provide the environmental information), the Product Category “Paper Printed Matter” is characteristically different from the other Product Categories.

In establishing the new Certification Criteria for the “Paper Printed Matter Version 2”, we reviewed this Product Category to maximize the effect of its characteristics. We also set the promotion/enlightenment of environmental issues as priority purpose of the project; including our recommending to use environmentally-friendly materials and providing environmental information for the materials which are fit for waste paper recycling.

2. Applicable Scope

The new category includes paper printed matter (refer to “Japan Standard Commodity Classification” issued by Ministry of Public Management, Home Affairs, Posts and Telecommunications: the category named “Printed matter, film, record and other recorded matter” is applied, but the non-paper recorded matter such as magnetic card and film is excluded [see Table 1].) except for the products covered by the Eco Mark Product Category No.112 “Stationery/Office Supplies”.

3. Terminology

Printed matter	Printed material made by printing methods with the following purposes; (1) visual communication, (2) decorative or artistic expression, and (3) providing special functions.
Print ink	Refer to the ink classified by the Chemical Industry Statistical Yearbook by Ministry of Economy, Trade and Industry. The main materials are solute (pigment, dye) and solvent (oil, resin, thinner) with supplemental materials mixed whenever necessary. They are

	blended or kneaded together. Print ink is used to transform images on the script or the plate made from the script to the surface (paper and others) by forming and fixing the images.
Waste paper pulp	Pulp obtained by deflaking or deflaking/deinking waste paper, paper board, or cutting scraps of paper or paper board.
Percentage of waste paper in the pulp mixture	Weight percentage of waste paper pulp in pulp contained in product. Expressed by (waste paper pulp) / (virgin pulp + waste paper pulp) ×100 (%). However, the weight of the pulp is measured under the condition of containing 10% moisture.
Deflaking	It refers to the processes to ravel out fibers of waste paper, pulp, etc. and disperse them into water.
Coating	Painting on base paper by coater to give properties to paper according to utilization such as printing.
Cover	Outer cover to protect published matter and printed matter, and to display the contents and decorate.
Frontispiece	Drawings and pictures placed on the opening or in the front of the text of published matter and printed matter.
Text	Refer to the main contents of published matter and printed matter, as contrasted with cover/frontispiece/supplement.
Supplement	Papers accompanied by the text of published matter and printed matter.

4. Certification Criteria and Certification Procedure

4-1 . Environmental Criteria and Certification Procedure

(1) The paper used for printing matter shall conform to the standard, a. or b. below. In addition, it shall not correspond to the “processed paper” shown in Table 2.

- a . The paper used for printing matter (cover, frontispiece, text, supplement, etc.) shall meet the requirements for the items (1), (2), (3), (5), (8) and (9) of the Eco Mark Certification Criteria No.107 “Printing Paper Version 2”. When the Certification Criteria No.107 “Printing Paper Version2” is revised, the paper already certified as an Eco Mark product shall be treated as confirming to this item until the contract expires.
- b. The paper used for the text shall meet the requirement for the items (1), (2), (3), (5), (8) and (9) of the Eco Mark Certification Criteria No.107 “Printing Paper Version 2”, and the paper used for other than the text shall meet the requirement for the items (5), (8) and (9) of the Eco Mark Certification Criteria No.107

“Printing Paper Version 2”. In addition, regarding the total weight of all papers used for the printed matter, the percentage of waste paper in the pulp mixture shall be 70% or more of the total weight, and the average amount of coating (for single side) shall be 17g/m² or less.

【 Certification Procedure 】

For the certification of paper, observe the “Certification Procedure of Conformity to Certification Criteria” for the Eco Mark Product Category No.107 “Printing Paper Version 2”. When using the Eco Mark-certified paper, however, entry of the “product name (brand name)” and the “certification number” to the Attached Certificates can substitute for certification of conformity. The fact that there is no use of processed paper shown in Table 2 shall be indicated in the Attached Certificates.

For the percentage of waste paper in the pulp mixture mentioned in “b.”, the total weight of used waste paper pulp to the total weight of cover, frontispiece, text and supplement shall be calculated. For the average amount of coating, the coating amount per 1 m² shall be calculated from the used amount of coating divided by the total area of the cover, frontispiece, text and supplement. For the calculation, the Attached Certificates shall be used and the result shall be submitted. In case that the total page number varies by the issue (number) of the publication, the calculated value for the issue which has the lowest percentage of waste paper in the pulp mixture and the calculated value for the issue which has the highest average amount of coating shall be indicated.

- (2) The ink used for printing matter shall conform to the standard, a. or b. below. In addition, it shall not correspond to the “ink” shown in Table 2.
- a . The ink which is applied for the Eco Mark Certification Criteria No.102 “Printing Ink Version 2” shall meet the requirements for the Certification Criteria of this Product Category (excluding items (3), (4), (5), (7) and (21) of “4. Certification Criteria”) (It shall not be the Eco Mark certified ink). When the Certification Criteria No.102 “Printing Ink” is revised, the ink already certified as an Eco Mark product shall be treated as confirming to this item until the contract expires.
 - b . The ink other than “a.” on the above shall meet the all requirements for the items (1), (2) and (6) of the “4-1. Common Environmental Criteria” and item (10) of the “4-2. Individual Environmental Criteria” of the Eco Mark Certification Criteria No. 102 “Printing Ink Version 2”.

【 Certification Procedure 】

For the certification of ink, observe the “5. Certification Procedure of Conformity to Certification Criteria” for the Eco Mark Product Category No.102 “Printing Ink Version 2”. To certificate the item (10) of the “4-2. Individual Environmental Criteria”, a test result which shows that the product has no problem with de-inking for recycling shall be submitted. When using the Eco Mark-certified ink, however, entry of the “product name (brand name)” and the “certification number” to the Attached Certificates can substitute for certification of conformity. The fact that there is no use of materials of printed matter shown in Table 2 shall be indicated in the Attached Certificates.

In case the brand name of the printing ink can not be specified as of the Eco Mark application, the following documents shall be submitted; (1) list of scheduled printing inks issued by an applicant, and (2) various certificates to show the conformity to the above requirements.

- (3) In manufacturing processes, the environmental laws and agreements related to prevention of air pollution, water pollution, noises, vibrations, offensive odors or release of harmful substances shall be observed. In addition, the manufacturer shall conduct the “Efforts with environmental considerations in manufacturing (items)” shown in Table 3-A/B.

【 Certification Procedure 】

The self-certificate issued by the factory manager shall be submitted. The self-certificate shall demonstrate that the factory (printing/bindery) has been observing the local environmental laws/regulations for at least five years. For the environmentally-friendly efforts in manufacturing (items), the check list of Attached Certificates shall be submitted.

- (4) Printed matter shall not include the processed materials which do not correspond to the Table 4 “Processed materials fit for waste paper recycling”.

【 Certification Procedure 】

The fact that there is no use of “Processed materials fit for waste paper recycling” shown in Table 4 shall be indicated in the Attached Certificates. In case of using non-lacerable ethylene vinyl acetate copolymer (EVA) hot melt adhesive and/or recycling-responsive seal adhesive/release paper among the materials in Table 4, test results or certificates made by the third party or printing materials manufacturer which show the conformity to the standards evaluated by the test methods shown in Table 5 shall be submitted.

4-2 . Quality Criteria and Certification Procedure

- (1) The quality standard of printed matter for each application shall be observed. The quality control in manufacturing process shall be implemented sufficiently.

【 Certification Procedure 】

Certificates stating that the product complies with appropriate quality criteria shall be submitted. Or, the self-certificate issued by the factory manager shall be submitted, demonstrating that the manufacturing process has sufficient quality control without violation of laws/regulations.

5 . Product Category, Indication and Others

- (1) The contents on the printed matter shall have no violation of “Copyright Law”, “Criminal Law”, self-imposed restrictions of the book publishing industry, etc.
- (2) The publisher of the printed matter shall apply for the Certification.
- (3) Division of application (unit of application) shall be made for each company and it shall conform to the classification of Japan Standard Commodity Classification (Medium division 92: Printed matter, film, record and other recorded matter; indicated by a four-digit number; refer to Table 1). If more than one types of paper (different percentage of waste paper in the pulp mixture, etc.), ink and materials are used, they can be included in one application form.
- (4) The brand name indicated in the application form of the Eco Mark Product Certification/Use shall be “Printed matter by XX Company (refer to Table 1, four-digit class number)”, and the actual name of the printed matter shall be registered as a model type. (Example; Brand name: “Printed matter by XX Company for advertising”, Model type: “XX Company XX News”, etc.)
- (5) The indication in the lower part of the mark shall be the environmental information as shown below. On the side of the Eco Mark, indication that “This printed matter uses environmental-friendly and recyclable raw materials. Recover and recycle after use.” shall be put on. (Free format for size of letters, character spacing, number of lines and line space)

Only for the certified product for the Eco Mark Product Category No.120 “Paper Printed Matter”, the indication in the lower part of the Eco Mark and the certification number in the former Product Category can be displayed.

Friendly to the earth



This printed matter uses environmentally-friendly and recyclable raw materials. Recover and recycle after use.

Eco Mark certified printed matter

Eco Mark Certification Number
No. XXXXXXXX (Indication of numbers only is allowed)

- (6) In principle, the products to be applied shall be free of “flame retardant”, “antibacterial agent” materials and “biodegradable plastic” indication. When using these materials for special reasons, however, the products shall satisfy the provisions in the “Guidelines for Eco Mark Program Implementation” concerning “flame retardant”, “antibacterial agent” and “indication of biodegradable plastic”. In concrete terms, whether these materials are used shall be described in the form “Application for Eco Mark Product Certification/Use.” If they contain any of them, stipulated documents shall be attached with the form.

Established: March 1, 2007 (scheduled)

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

Table 1 Japan Standard Commodity Classification

Class No.	Title
92 1	Published Matter
92 11	Newspaper (Main contents are news, commentary and critique, containing advertisement. However, those whose contents are only commercial advertisement should be excluded. For the printing method, both typographic printing and other special printings are applicable. They should not be bound, but so-called correspondence that is distributed to newspaper publishers and others is included here even if it is temporarily bound.)
92 111	Daily newspaper, general
92 112	Non-daily newspaper, general
92 113	Daily newspaper, special
92 114	Non-daily newspaper, special
92 12	Periodical publication except for magazines and newspapers (It should have a certain title and be published continuously. However, those which are published once a year or less frequently should be excluded. For the printing method, both typographic printing and other special printings are applicable.
92 121	General cultural magazines, General interesting magazines
92 122	Academic journals
92 123	Literary magazines, Art magazines
92 124	Entertainment, amusement and sport magazines
92 125	Management, industry and business magazines
92 126	Magazines for children
92 127	Magazines for women/housewives
92 128	Magazines for students (including entrance exam related)
92 129	Other periodicals
92 13	Books and Pamphlets
92 131	Books (49 pages or more)
92 132	Pamphlets (48 pages or less)
92 14	Maps and Diagrams (not included in books and pamphlets)
92 141	Maps (excluding statistical charts)
92 144	Photo-maps (including survey photos)
92 145	Diagrams
92 146	Charts/tables

Table 1 Japan Standard Commodity Classification (continued)

92 15	Calligraphic works and paintings and musical scores (those excluded from books and pamphlets)
92 151	Replicas of calligraphic works and paintings (excluding postcards)
92 152	Print arts (only replicas)
92 153	Musical scores
92 154	Programs for events
92 155	Calendars (not for advertisement) However, desk calendars are classified in ECO Mark Product Category No. 112 "Paper Stationery".
92 156	Telephone books
92 159	Other calligraphic works and paintings, and musical scores
92 19	Other published matter
92 2	Published printed matter
92 21	Periodical published printed matter
92 211	Printed matter for newspapers
92 212	Printed matter for magazines
92 219	Other Periodical published printed matter
92 22	Nonscheduled published printed matter
92 221	Printed matter for books
92 222	Pamphlets (48 pages or less)
92 223	Printed matter for maps
92 224	Printed matter for musical scores
92 225	Printed matter for study-aid books
92 226	Printed matter for drills
92 229	Other nonscheduled published printed matter
92 3	Commercial printed matter
92 31	Printed matter for advertisement
92 311	Posters
92 312	Pamphlets
92 313	Catalogs
92 315	Calendars
92 319	Other printed matter for advertisement (Postcards with illustrations and greeting cards are classified under Eco Mark Product Category No. 112 "Paper Stationery".)
92 32	Printed matter for other business
92 321	Commemorative papers/magazines

Table 1 Japan Standard Commodity Classification (continued)

92 322	Report papers
92 323	Registers (name lists)
92 324	Specifications
92 325	Company magazines
92 329	Other printed matter for other business (including manuals)
92 39	Other printed matter for commercial use
92 4	Printed Certificates
92 41	General Printed Certificates
92 411	Financial certificates
92 412	Gift certificates (coupon)
92 413	Stamps and official postcards (Unofficial postcards are classified under Eco Mark Product Category No. 112 “Paper Stationery”.)
92 414	Lottery tickets
92 415	Pass (safe-conduct)
92 419	Other general printed certificates
92 521	Paper photos

Table 2 Processed paper and ink unfit for paper recycling

Classification	Materials of printed matter
Processed paper	Colored paper, fancy paper, resin coated paper (polyethylene resin, etc.)/laminated paper, resin impregnated paper (excluding water-soluble paper), glassine paper, India paper, parchment paper, tarpaulin paper, waxed paper, cellophane, synthetic paper, carbon paper, non-carbon paper, thermal paper, crimp paper, printed paper, sublimation transfer paper, thermo-sensitive forming paper, aromatic paper
Ink	Fluorescent ink, thermo-sensitive ink, desensitizing ink , magnetic ink, sublimation ink, forming ink, aromatic ink

Table 3-A. Environmentally-friendly efforts in manufacturing (items)**Check item A “Printing”**

1) Plate making (pre-press) Plate making
<p>* Choose either “(1)-A” or “(1)-B”.</p> <p>(1) A. The process, with 50% or more digitalization (DTP) rate, promotes resource saving and controls waste generation.</p> <div style="border: 1px solid black; padding: 5px;"> <p>* Evaluation formula = [Number of plate making jobs with DTP operation] / [Total number of plate making jobs]</p> <p>* Definition of the plate making job with DTP operation: It refers to the job that 50% or more of the total number or total area of the plate making is operated with DTP.</p> </div> <p>(1) B. The process using plate-making film takes positive actions toward energy/resource saving, such as completely removing silvers from waste liquid and plate-making film.</p> <div style="border: 1px solid black; padding: 5px;"> <p>* Evaluation formula = [Total amount of waste liquid + plate making film from which silvers, etc. were collected] / [Total amount of waste liquid + plate making film generated]</p> <p>* In principle, it shall be 100% implementation, but a few % is considered as the margin of error.</p> </div>
2) Plate making (pre-press) Printing plate [Applicable only to use aluminum-base material for printing plate]
<p>(2) Conducting 100% recycling of printing plate (aluminum-base material) as positive actions toward energy/resource saving.</p> <p>* This criterion is not applicable in case there is no use of printing plate (aluminum-base material).</p> <div style="border: 1px solid black; padding: 5px;"> <p>* Evaluation formula = [Number of recycled printing plates(aluminum-base material)] / [Total number of used printing plates(aluminum-base material)]</p> <p>In principle, it shall be 100% implementation, but a few % is considered as the margin of error.</p> </div>
3) Printing (press) Sheet-fed printing [Applicable only to use sheet-fed printing]
<p>(3) Taking VOC emission control measures, such as closing the lids of waste cloth containers and cleaning agent containers.</p> <p>(4) As waste-control/recycling measures, 80% or more waste sheets, etc. is recycled to raw materials in paper manufacturing.</p> <div style="border: 1px solid black; padding: 5px;"> <p>* Evaluation formula = [Recycled amount to raw materials for paper manufacturing] / [Generated amount of waste sheets, etc. from printing process]</p> <p>* Definition of the waste sheets, etc.: It refers to the waste sheets and remaining sheets generated from printing process. It does not include waste sheets, etc. from the other processes.</p> <p>* Recycled amount to raw materials for paper manufacturing: The amount of recycling other than that to raw materials for paper manufacturing (RPF, heat recovery, etc.) shall not be included.</p> </div>
4) Printing (press) Rotary printing [Applicable only to use rotary printing]
<p>(5) In case of using hot air drying printing method, as VOC emission control measures, VOC emission treatment equipment (deodorization equipment) shall be 100% installed and it shall be operated/managed appropriately, or UV printing shall be conducted.</p> <p>(6) Taking VOC emission control measures, such as closing the lids of waste cloth containers and cleaning agent containers.</p>

- (7) As waste-control/recycling measures, 80% or more waste sheets, etc. is recycled to raw materials in paper manufacturing.

- * Evaluation formula = [Recycled amount to raw materials for paper manufacturing] / [Generated amount of waste sheets, etc. from printing process]
- * Definition of the waste sheets, etc.: It refers to the waste sheets and remaining sheets generated from printing process. It does not include waste sheets, etc. from the other processes.
- * Recycled amount to raw materials for paper manufacturing: The amount of recycling other than that to raw materials for paper manufacturing (RPF, heat recovery, etc.) shall not be included.

Table 3-B. Environmentally-friendly efforts in manufacturing (items)

Check item B “Book binding process”

5) Processing Surface coating	
(8) As VOC emission control measures, using alcohol with less than 30% concentration.	
(9) As recycling measures, 80% or more waste sheets, etc. is recycled to waste paper.	
<ul style="list-style-type: none"> * Evaluation formula = [Recycled amount to raw materials for paper manufacturing, etc.] / [Generated amount of waste sheets, etc. from coating process] * Definition of the waste sheets, etc.; It refers to the waste sheets, remaining sheets and remaining films generated from surface coating process. It does not include waste sheets, etc. from the other processes. * Recycled amount to raw materials for paper manufacturing: It refers to all recycling to waste paper, RPF, resin, and heat recovery, etc. 	
6) Processing Book binding	
(10) Making an effort to control noise and vibration in book binding processing, such as prohibiting opening windows/doors.	
(11) As recycling measures, recycling rate to waste paper is 70% or more.	
<ul style="list-style-type: none"> * Evaluation formula = [Recycled amount to raw materials for paper manufacturing, etc.] / [Generated amount of waste sheets, etc. from book binding process] * Definition of the waste sheets, etc.; It refers to the waste sheets generated from book binding process. * Recycled amount to raw materials for paper manufacturing: The amount of recycling other than that to raw materials for paper manufacturing (RPF, heat recovery, etc.) shall not be included. 	

Table 4 Processed materials fit for waste paper recycling

Large classification	Small classification	Materials of printed matter
Processed materials	Book binding	Bookbinder's staple, wire, etc., non-lacerable ethylene vinyl acetate copolymer (EVA) hot melt, polyurethane (PUR) hot melt, water-soluble adhesive
	Surface coating	Gloss coating (varnishing, press coating)
	Others	Recycling-responsive seal adhesive/release paper

Table 5-A. Evaluation test method and evaluation criteria for “non-lacerable ethylene vinyl acetate copolymer (EVA) hot melt adhesive”

<p>(1) Evaluation test method</p> <p>1 . Test sample</p> <p>(1) Waste news paper (no leaflet): AD 50g (Size: square 3cm × 3cm)</p> <p>(2) Hot melt adhesive: film</p> <p style="padding-left: 40px;">Number: 3 pieces</p> <p style="padding-left: 40px;">Thickness: 0.8mm ± 0.02mm</p> <p style="padding-left: 40px;">Size: square 3cm × 3cm</p> <p style="padding-left: 40px;">* The thickness of the hot melt adhesive is determined by 2-hour application at 23 .</p> <p style="padding-left: 40px;">* Burrs generated at cutting films shall be removed.</p> <p>2 . Used device/equipment/chemicals, etc.</p> <p>(1) Used device</p> <p style="padding-left: 20px;">1) TAPPI standard dissociation machine (JIS P-8209 / TAPPI T205)</p> <p style="padding-left: 20px;">2) Flat screen (oscillating screen), pulp-support wire</p> <p style="padding-left: 40px;">* Screen plate shall be 6-cut (0.15mm) and 10-cut (0.25mm), and the effective area is 30 × 25cm.</p> <p style="padding-left: 40px;">In case the liquid level is adjustable, for example, the water depth shall be about 11cm.</p> <p style="padding-left: 20px;">3) Rotary drier (use at 120)</p> <p>(2) Used device, chemicals, etc.</p> <p style="padding-left: 20px;">1) Sodium hydroxide (use aqueous sodium hydroxide adjusted to 50g/L)</p> <p style="padding-left: 20px;">2) Bucket (for 5 L)</p> <p style="padding-left: 20px;">3) Razor</p> <p style="padding-left: 20px;">4) Glass beaker</p> <p style="padding-left: 20px;">5) Buchner funnel (150mm), aspiration bottle</p> <p style="padding-left: 20px;">6) Filter paper (No.2, 150mm)</p> <p style="padding-left: 20px;">7) Dye (for example, the one equivalent to 3% solution of CI Direct Blue 264)</p> <p style="padding-left: 20px;">8) PPC paper (Liquid pool does not arise at dye coating: for example, size degree around 20 ± 5 seconds, basis weight 64g/m², A4 size)</p> <p style="padding-left: 20px;">9) Brush (for uniform coating)</p> <p style="padding-left: 20px;">10) Foreign substances measurement chart (Printing Bureau, Ministry of Finance)</p> <p>3 . Evaluation procedure</p> <p>(1) Dissociation</p> <p style="padding-left: 20px;">1) Set up the dissociation machine with 2 L of water (30 ± 3), 10 ml of sodium hydroxide liquid (50g/L concentration), then put waste news paper AD 50g and hot melt adhesive film (evaluation object) in it.</p> <p style="padding-left: 20px;">2) Dissociation treatment is conducted for the above sample for 30minutes with 3000rpm rotation speed.</p> <p style="padding-left: 20px;">3) Then the dissociated slurry is tilted to a bucket with cleansing water, and make the total amount as about 5 L.</p> <p>(2) Flat screen treatment I (10-cut screen)</p> <p style="padding-left: 20px;">1) Set a 10-cut flat screen, and adjust water flow for 10L/minute.</p> <p style="padding-left: 20px;">2) Pour the dissociation-treated slurry in the 10-cut flat screen, and conduct screen treatment for 5 minutes (need appropriate cleansing for the attachment on the wall.)</p> <p style="padding-left: 20px;">3) For accepting slurry, collect them by the 100 μ m or less opening of wire (150 mesh or more) (Dispose rejecting slurry).</p> <p style="padding-left: 20px;">4) The accepting slurry is tilted to a bucket, and dilute with water to be about 5 L in total.</p> <p>(3) Flat screen treatment II (6-cut screen)</p> <p style="padding-left: 20px;">1) Set a 6-cut flat screen, and adjust water flow for 10L/minute.</p> <p style="padding-left: 20px;">2) Pour the accepting slurry treated by the 10-cut flat screen into the 6-cut flat screen, and conduct</p>
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screen treatment for 6 minutes.

4 . Evaluation method

(1) Residue collection

- 1) Scratch rejecting matter by a razor, etc. and collect them in a glass beaker (Dispose accepting matters).
- 2) Dilute the residue collected in the beaker with water, and conduct suction filtration by a Buchner funnel to disperse the residue uniformly on a paper filter.

(2) Hot melt adhesive melting/transfer

- 1) Conduct pre-drying but not to dry completely (example: for about 30 seconds with a 105 dryer)
- 2) Put a PPC paper as sandwiching the residue, and treat it for 2 minutes with 120 rotary dryer to dry the filter paper and melt the hot melt adhesive, and transfer to the PPC paper. Release the filter paper right after transferring.

(3) Dye

Apply aqueous dye to the bonding sides of a PPC paper by a brush.

(4) Count of hot melt adhesive

Count white dots (0.1mm² or more by the Foreign substances measurement chart)repelled by the dye using visual observation.

(2) Evaluation criteria

1 . Quantity

For the number of residue on the 6-cut flat screen, 1) it is specified that N (number of test sample) = 3; 2) the average value shall be 20 or less; and 3) the maximum value shall be 30 or less.

2 . Cutting method

The test sample devoting to the standard dissociation machine shall be cut by a paper cutter.

* This evaluation test method and evaluation method is reprinted from the "Study report for magazine binding fit for recycling" [March 2001, Paper Recycling Promotion Center/ commissioned to The Japan Federation of Printing Industries (JFPI)], conducted by the Project to promote developing recycling-responsive paper products of the FY 2000 government subsidy project.

Table 5-B. Evaluation test method and evaluation criteria for "recycling-responsive seal"

(1) Standard test method

1 . Applicable scope

This test method specifies the evaluation for recycling-responsive seal.

Note: 1 . A seal refers to the whole of paper seal base materials including adhesive and release paper, and each of them is not tested separately.

- 2 . It is considered that dissociation occurs mainly due to the adhesive, however, base materials and release papers shall be treated in the same way.

2 . Test sample

Cut a seal for the size of 30mm × 30mm ± 3mm with a release paper, and weigh the cut seal as 5.00g ± 0.05g. Cut a bond paper (64g weigh) for the size of 30mm × 30mm ± 3mm, and weigh the cut bond paper as 45.00g ± 0.05g. Both are the sample for one test.

Note: 1 . The sample shall be prepared in the standard condition described in JIS P 8111 (temperature: 23 ± 1 , humidity: 50% ± 2%). Seals and bond papers to be used for the test sample shall be in the standard condition for 12 hours or more.

- 2 . The bond paper with barely having residue on a screen plate when the same operation is conducted with the 50.00g ± 0.05g test sample shall be used.

3 . Testing device, etc.

- 3.1 Standard dissociation machine: Use the one specified in JIS P 8220 Attachment A.
- 3.2 Flat screen: Use a flat screen and a screen plate for testing available in the market. Several types of oscillating screens are available in the market in Japan with the following specifications: A size of a screen box is 254mm × 304mm × 220mm, the screen box has the structure to control/maintain the water level in the box as 100mm by adjusting a gate, and there is a diaphragm which vibrates with 690-700 frequency/minutes and 3.2mm up-and-down under a screen plate.
Note: 1 . Attached table shows the specifications of flat screens available in the market.
- 3.3 Screen plate: Use a 6-cut screen plate attached to the test machine.
Note: 1 . Regarding the open slits on the screen plate, there are two types available in the market; the one has three rows of slits with 3.18mm in pitch and 70mm in length, and the other has four rows of slits with 47mm in length.
- 3.4 Water: Use clean water such as well water, tap water, etc.
- 3.5 NaOH: Aqueous sodium hydroxide of 50g/L

4 . Testing operation

- (1) Add 10ml ± 1ml of NaOH to 2,000ml ± 10ml / 30 ± 2 water, and pour into a dissociation bath of a standard dissociation machine.
- (2) Add sample immediately, close the lid of the dissociation bath, and start to rotate the dissociation machine.
- (3) Start to rotate the dissociation machine for 20 minutes ± 5 seconds, then stop the rotation.
- (4) Set the specified screen plate to the flat screen, adjust for the specified water level and water flow as 10 L/minutes.
- (5) Start to operate the screen, put the dissociated test slurry obtained by the step (3) into the screen. Cleanse the dissociation bath well, and add the cleansing liquid into the screen.
- (6) Vibrate the screen and flow water continuously for 7 minutes ± 10 seconds from the first input of the test slurry, then stop water flow and vibration.
- (7) Open the waste water tap of the screen, and collect residues from the screen bath on the screen plate. For residues remaining on the bath wall, it is desirable to collect them on the screen by using water flow of a cleansing bottle, not desirable to use great amount of water such as tap water.
- (8) Collect residues on the screen plate by using a safety-razor blade, and put them into the aluminum cup which was pre-dried and measured.
Note: 1 . Safety razor with a single blade is easy to use.
- (9) Dry the aluminum cup in the dryer (105 ± 5) until it becomes the constant weight, and then measure it.
Note: 1 . In case of using a hot-air-circulation type constant-temperature bath, the time for drying is for about 2 hours.
- (10) After drying, measure the aluminum cup to the 1mg.
- (11) Repeat the above operation procedures for three test samples.

5 . Calculation

The amount of residue refers to (total weight of the aluminum cup with test sample – pre-measured drying weight of the aluminum cup), and it is indicated by 1mg unit.

Attached table Specifications of flat screens by company

Specifications		Unit	Company A	Company B	Company C	Company D
Screen box	Length	mm	254	254	254	254
	Width	mm	304	304	304.8	304
	Height	mm	220	220	222.25	220
Gate	Height	mm	100	100	101.6	100
Diaphragm	Vibration frequency	cpm	700	690-700	690-700	690-700
	Vibration amplitude	mm	3.2	3.2		
Slit	Length	mm	47	70	69.85	70
	Pitch	mm	3.18		3.175	3

(2) Evaluation criteria

A recycle-responsive seal refers to the one that the amount of residue is less than 50mg in three tests conducted by the standard test method.

* This evaluation test method and evaluation criteria is reprinted from the "Study report for establishing standard test method and evaluation criteria for waste paper recycling-responsive seal/UV ink" [March 2006, Paper Recycling Promotion Center/ commissioned to The Japan Federation of Printing Industries (JFPI)], conducted by the Project to promote developing recycling-responsive paper products of the FY 2005 government subsidy project.