

Eco Mark Product Category No.120

“Paper Printed Matter Version2.3”

Certification Criteria

—Applicable Scope—

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].) The products covered by the Eco Mark Product Category No.112 “Stationery/Office Supplies” are excluded.

Established: August 27, 2007

Last revised: March 20, 2010

Term of validity: August 31, 2017

Japan Environment Association

Eco Mark Office

Eco Mark Product Category No.120

**“Paper Printed Matter Version2.3”
Certification Criteria**Japan Environment Association
Eco Mark Office**1. Purpose of establishing criteria**

Omitted

2. Applicable Scope

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].) The products covered by the Eco Mark Product Category No.112 “Stationery/Office Supplies” are excluded.

3. Terminology

Omitted

4. Certification Criteria and Certification Procedure

4-1. Environmental Criteria and Certification Procedure

(1) The paper used for printed matter shall conform to the standard, a. or b. below. In addition, it shall not correspond to the “processed paper” shown in Table 2. In addition, when cover paper or color paper is used, it shall conform to A-rank of the Exhibit “Judging Standards of Cover Paper/Color Paper” (Annex Table 6) of the printed matter materials defined by “Waste Paper Recycling Fitness Rank List” standard of the Used Paper Recycles Committee.

- a. The paper used for printed matter (cover, frontispiece, text, supplement, etc.) shall meet the requirements for the items (1) (3) (4) (5) and (6) of the Eco Mark Certification Criteria No.107 “Printing Paper Version 3”. When the Certification Criteria No.107 “Printing Paper Version3” 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) (3) (4) (5) and (6) of the Eco Mark Certification Criteria No.107 “Printing Paper Version 3”, and the paper used for other than the text shall meet the requirement for the items (4), (5) and (6) of the Eco Mark Certification Criteria No.107 “Printing Paper Version 3”. 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, the “Certification Procedure of Conformity to Certification Criteria” for the Eco Mark Product Category No.107 “Printing Paper Version 3” shall be observed. When using the Eco Mark-certified paper, however, entry of the “product 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.

When a cover paper or color paper is used, test results or certificates made by a third party institute or paper manufacturer shall be submitted, indicating that it conforms to A-rank of the Exhibit “Judging Standards of Cover Paper/Color Paper” of the printed matter materials defined by “Waste Paper Recycling Fitness Rank List” standard of the Used Paper Recycles Committee.

- (2) The ink used for printed 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. Inks which are not included in the Applicable scope of the Eco Mark Certification Criteria “No.102 Printing Inks Version2” 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, the “5. Certification Procedure of Conformity to Certification Criteria” for the Eco Mark Product Category No.102 “Printing Ink Version 2” shall be observed. 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 the applied product, related environmental laws and regulations and pollution control agreement (hereinafter referred to as the “Environmental Laws, etc.”) must be followed with respect to air pollution, water contamination, noise, offensive odor, and emission of hazardous substances in the area where the plant performing the final manufacturing process is located.

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

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.

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

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

- a. With respect to the fact of violation, guidance documents from administrative agencies (including order of correction and warning) and copies of written answers (including those reporting causes and results of correction) to such documents (clearly indicating a series of communication);
- b. Following materials (copies of recording documents, etc.) concerning the management system for compliance with the Environmental Laws, etc. in 1)-5):
 - 1) List of the Environmental Laws, etc. related to the area where the plant is located;
 - 2) Implementation system (organizational chart with roles, etc.);
 - 3) Bylaws 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).

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 suitable for waste paper recycling” shown in Table 4 shall be indicated in the Attached Certificates. In case of using non-dispersive ethylene vinyl acetate copolymer (EVA) hot melt adhesive and/or recycling-responsive seal (fully disintegrable adhesive paper) 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.

Established: August 27, 2007

Revised: August 21, 2008 (Version2.1)

Revised: May 1, 2009 (Version2.2)

Revised: March 15, 2010 (Version2.3)

Term of Validity: August 31, 2012

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

Attached 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

Attached 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

Attached Table 2. Processed paper and inks which are not suited for paper recycling

Classification	Printed-matter resources
Processed paper	Colored paper, fancy paper Polyethylene and other resin coated paper, laminated paper Resin-impregnated paper (excluding water-soluble type), glassine, India paper, parchment paper, tarpaulin paper, waxed paper, Cellophane, synthetic paper, carbon paper, carbonless paper, thermal paper, pressured paper (pressured postal cards), printed paper, sublimation transfer paper, heat-sensitive foam paper, aromatic paper
Inks	EB ink, fluorescent ink, heat-sensitive ink, desensitized printing ink, magnetic ink, sublimation ink, foam printing ink, aromatic ink

Attached Table: 3-A. Approaches with consideration given to environment in manufacturing process (items)

Check item A “Printing process”

1) Prepress - plate making
<p>*Choose either “[1]-A” or “[1]-B.”</p> <p>[1]-A The process digitization ratio (adoption of DTP) is 50% or more and resources saving and generation of wastes are suppressed.</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>* Evaluation formula = [number of cases of plate making services in which DTP is adopted] / [number of all cases of plate making services]</p> <p>* Definition of plate making services in which DTP is adopted: When of plate making service in one order-receiving service, 50% or more of total plates or plate area are formed by DTP, such service shall be regarded as plate making services in which DTP is adopted.</p> </div> <p>[1]-B In a process to use B plate-making film, silver is 100% recovered, etc. from waste liquid and plate-making film.</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>* Evaluation formula = [Amount of plate-making waste liquid + plate-making film for which silver is recovered, etc.] / [generation amount of total plate-making waste liquid + plate-making film]</p> <p>* In principle, silver shall be 100% recovered, but several percents may be regarded as errors.</p> </div>
2) Prepress - machine plate: [applicable only to the case in which the printing plate of aluminum base material is used]
<p>[2] As an approach of energy saving and resources saving, printing plates (of aluminum base material) are 100% recycled.</p> <p>*This criterion is not applicable when no printing plate of aluminum base material is used.</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>* Evaluation formula = [Number of printing plates (aluminum base material) recycled] / [total number of printing plates (aluminum base material) used]</p> <p>*In principle, printing plates shall be 100% recycled but several percents may be regarded as errors.</p> </div>
3) Printing (press) - sheet-feed press: [applicable only to the case in which a sheet-feed press is used]
<p>[3] As an approach of suppressing VOC emission, VOC emission suppressing measures such as placing covers to discarded waste-cloths containers and detergent containers are taken.</p>
<p>[4] As an approach of suppressing generation of wastes as well as recycling, the recycling ratio of spoilage to papermaking stock shall be 80% or more.</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>* Evaluation formula = [recycled amount to papermaking stock] / [spoilage, etc. generation amount from printing process]</p> <p>* Definition of spoilage, etc.: means waste sheets and residual paper generated from printing process. Spoilage generated from other processes is not included.</p> <p>* Recycled amount to papermaking stock: Do not include the recycled amount (RPF, heat recovery, etc.) other than recycling to papermaking stock.</p> </div>
4) Printing (press) - rotary press: [applicable only to the case in which a rotary

press is used]
[5] As an approach of suppressing VOC emission, in the case of hot air drying printing, VOC emission treatment equipment (deodorizing equipment) is 100% installed and properly operated and managed. Or UV printing is carried out.
[6] VOC emission suppressing measures such as placing covers to discarded waste-cloths containers and detergent containers are taken.
[7] As an approach of suppressing generation of wastes as well as recycling, the recycling ratio of spoilage to papermaking stock shall be 80% or more.
<ul style="list-style-type: none"> * Evaluation formula = [recycled amount to papermaking stock] / [spoilage, etc. generation amount from printing process] * Definition of spoilage, etc.: means waste sheets and residual paper generated from printing process. Spoilage generated from other processes is not included. * Recycled amount to papermaking stock: Do not include the recycled amount (RPF, heat recovery, etc.) other than recycling to papermaking stock.

Annex 3-B. Approaches with consideration given to environment in manufacturing process (items)

Check item B “Bookbinding process”

5) Processing - Surface treatment
[8] As an approach of suppressing VOC emission, alcohols are used at the concentration less than 30%.
[9] As an approach for promoting recycling, the recycle ratio of waste sheets, etc. to recycled paper, etc. is 80% or more
<ul style="list-style-type: none"> * Evaluation formula = [recycled amount to waste paper, etc.] / [waste sheet, etc. generation amount from printing process] * Definition of waste sheet, etc.: means waste sheet, residual paper, and residual film generated from the gloss-treatment process. Spoilage generated from other processes is not included. * Recycled amount to waste paper, etc.: Recycling to waste paper, etc. means all kinds of recycle including recycle to waste paper, RPF, and resin, heat recovery, and others.
6) Processing - Bookbinding
[10] In the bookbinding process, approaches are made to suppress noise and vibrations such as prohibiting windows and doors from being kept open, etc.

[11] As an approach for promoting recycling, the recycle ratio of spoilage, etc. to papermaking stock shall be 70% or more.

- * Evaluation formula = [recycled amount to papermaking stock] / [spoilage, etc. generation amount from the process]
- * Definition of spoilage, etc.: means waste sheets, etc. generated from bookbinding process.
- * Recycled amount to papermaking stock: Do not include the recycled amount (RPF, heat recovery, etc.) other than recycling to papermaking stock.

Attached Table 4 “Processed resources suitable for waste paper recycle”

Major classification	Minor classification	Printed-matter resources
Processed resources	Bookbinding	Wire for bookbinding, stapler, etc., non-dispersive EVA hot melt, PUR based hot melt, water-soluble paste
	Surface treatment	Gloss coating (varnishing, press coating)
	Other treatments	Recycle-friendly seal (fully disintegrable adhesive paper)

Annex 5-A “Evaluation test method and evaluation criteria of difficult-to-shred EVA-based hot melt”

[1] Evaluation Test Method

1. Test sample

(1) Used newspaper (no handbills): AD 50 g (size: 3 cm by 3 cm square)

(2) Hot melt adhesives: to be film.

Number of films: 3 sheets

Thickness: 0.8 mm \pm 0.02 mm

Size: 3 cm by 3 cm square

*Thickness of hot melt adhesives shall be the one obtained 2 hours after the application at 23°C.

*Remove burrs generated when film is cut.

2. Apparatus, instruments, chemicals, etc. used

(1) Apparatus

1) TAPPI standard pulp disintegrator (JIS P-8209/TAPPI T205)

2) Flat screen (oscillating screen), pulp receiving woven wire

*Use screen plates with 6-cut (0.15 mm) and 10-cut (0.25 mm) and effective area of 30x25 cm.

For those with the controllable liquid level, for example, achieve about 11 cm water depth.

3) Rotary dryer (used at 120°C).

(2) Instruments, chemicals, etc.

1) Sodium hydroxide (use aqueous sodium hydroxide solution adjusted to the concentration of 50 g/L).

2) Bucket (for 5L)

3) Razor

4) Glass beaker

5) Buchner funnel (150 mm in diameter)/suction bottle

6) Filter paper (No. 2, 150 mm in diameter)

7) Dyestuff (for example, the one corresponding to 3% aqueous solution of Cl Direct Blue 264)

8) PPC paper (those that do not generate liquid pool at the time of applying dyestuff: for example, sizing: about 20 \pm 5 seconds; basis weight: 64 g/m², A4 paper size)

9) Brush (those that can apply dyestuff uniformly)

10) Dirt Comparison Chart (Printing Bureau of the Ministry of Finance)

3. Evaluation procedure

(1) Disintegration

1) Set a pulp disintegrator containing 2 L of 30°C \pm 3°C water and 10 mL of caustic soda solution (concentration: 50 g/L); then, charge in AD 50 g of used newspaper and hot melt adhesive film to be evaluated.

2) Carry out disintegration treatment on the sample for 30 minutes at the rotating speed of 3000 rpm.

3) Then, receive the disintegrated slurry into a bucket together with washing water to give a total volume of about 5L.

(2) Flat screen treatment I (10-cut screen)

1) Set a 10-cut flat screen and adjust the water flow rate to 10 L/min.

2) Charge in the disintegrated slurry into a 10-cut flat screen and conduct screening treatment for 5 minutes (wash out stuck material on the apparatus wall appropriately).

3) Recover accepted slurry by woven wire with a 100- μ m aperture (150-mesh slurry or more)(discard rejected slurry).

4) Receive the accepted slurry into a bucket and add enough diluting water to give a total volume of about 5 L.

(3) Flat screen treatment II (6-cut screen)

1) Set 6-cut flat screen and adjust the water flow rate to 10 L/min.

2) Charge the accepted slurry treated by the 10-cut flat screen into the 6-cut flat screen and

conduct screening treatment for 6 minutes.
<p>4. Evaluation method</p> <p>(1) Residue recovery</p> <ol style="list-style-type: none"> 1) Scrape off the rejected slurry by razor, etc. and recover into a glass beaker (discard the accepted slurry). 2) While diluting the residue recovered into the beaker appropriately, suction-filter the residue by the use of a Buchner funnel so that the residue is uniformly dispersed on a filter paper. <p>(2) Melting and transferring of hot-melt adhesives</p> <ol style="list-style-type: none"> 1) Pre-dry hot-melt adhesives with care to prevent moisture from being lost (Ex. for about 30 seconds by a 105°C dryer). 2) Place one sheet of PPC paper over the residue as if it sandwiches the residue with the filter paper, dry for 2 minutes by a rotary dryer set to 210°C to dry the filter paper and melt the hot-melt adhesives and transfer them to the PPC paper. After transferring, immediately peel off the filter paper. <p>(3) Dyeing Apply water-based dyestuff to the bonded surface side of the PPC paper by brush.</p> <p>(4) Counting of hot-melt adhesives Visually count the number of whit spots (0.1 mm² or more by the Dirt Comparison Chart) which the dyestuff repelled.</p>
<p>[2] Evaluation Criteria</p> <p>1. Quantity For the number of residues on the 6-cut flat screen, [1] N (number of test samples) = 3 is prescribed, and [2] the average is 20 pieces or less, and [3] the maximum is 30 pieces or less.</p> <p>2. Cutting method Test samples to be subject to the standard disintegrator shall be cut by a paper cutter.</p>
<p>*The present evaluation test method and evaluation method are reprinted from “Survey Report on the bookbinding method for magazine that is suitable for recycling,” March 2001 (Paper Recycling Promotion Center/commissioned to: the Japan Federation of Printing Industries), conducted by the project of recycle-friendly paper products development promotion measures under the 2000 government subsidy project.</p>

Annex 5-B: Standard test method and evaluation criteria of recycle-friendly seals”

<p>[1] Standard test method</p> <p>1. Scope This test method prescribes the evaluation of recycle-friendly seals. Remarks 1. The seal formed by integrating paper seal base material including adhesives with release paper is tested as it is and not tested with the base material, adhesives, and release paper separated. 2. Disintegration is assumed to be primarily attributed to adhesives but the base material and release paper shall be handled in the same manner.</p> <p>2. Samples Cut seals into 30 mm x 30 mm ±3 mm with the release paper affixed. Weigh the cut seals to 5.00 g ±0.05 g and combine them with 45.00 g ±0.05 g of bond paper cut into 30 mm x 30 mm ±3 mm to make a test sample for one test. Remarks 1. Adjust samples in the standard state (temperature: 23°C ±1°C; humidity: 50%±2%) of JIS P 8111, and use both seals and bond paper which have been kept to the standard state for at least 12 hours. 2. Use bond paper which scarcely develops residue on the screen plate when the same operation is performed with 50.00 g±0.05 g used as sample.</p>
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3. Test devices, etc.**3.1 Standard pulp disintegrator**

Use the one prescribed in Annex-A of JIS P 8220.

3.2 Flat screen

Use commercially available flat screens for testing and screen plates. Several types of oscillating screens equipped with a screen box having dimensions of 254 mm by 304 mm and 220 mm in height and a mechanism that adjusts and maintains the level of water in the screen box to 100 mm by adjusting a gate and a diaphragm that oscillates 690 to 700 times per minutes and 3.2 mm vertically below the screen plate are marketed for testing in Japan.

Remarks 1. Specifications of commercially available flat screens are shown in Separate table.

3.3 Screen plate

Use a 6-cut screen plate attached to the testing machine.

Remarks 1. To the screen plate, slits of predetermined openings are engraved. Screen plates with slits 3.18 mm in pitch and 70 mm in length arranged in three rows and slits 47 mm long arranged in four rows are commercially available.

3.4 Service water

Use well water, tap water, and other clean water.

3.5 NaOH

Dissolve 50.0 g of sodium hydroxide to give a total volume of 1,000 mL.

4. Testing procedure

- (1) Add 10 mL \pm 1 mL of NaOH to 2,000 mL of 30°C \pm 2°C service water, and place in a disintegration tank of the standard disintegrator.
- (2) Immediately add sample, cover the disintegration tank and start rotation of the disintegrator.
- (3) After continuing the disintegration tank rotation for 20 minutes \pm 5 seconds, stop rotation.
- (4) Set a predetermined screen plate to the flat screen, fill to the predetermined water level, and adjust the water flow rate to achieve 10 L/min.
- (5) Start the screen and charge in the sample slurry disintegrated in Paragraph (3) into the screen. Thoroughly clean the disintegration tank and add washings to the screen inside.
- (6) After continuing screen oscillation and flow for 7 minutes \pm 10 seconds from the initial charge-in of sample slurry, stop flow and oscillation.
- (7) Open a waste plug of the screen and collect residue remaining in the screen tank onto the screen plate. It is recommended to collect residues remaining on the tank wall by the use of a water stream of a washing bottle onto the screen, and it is not preferable to use a large quantity of water such as tap water, etc.
- (8) Collect residues on the screen plate by the use of a safety razor blade and recover them into an aluminum foil cup which has been pre-dried and weighed.
Remarks 1. A single edged razor is easier to use for the safety razor.
- (9) Dry aluminum foil cup in a dryer whose temperature is controlled to 105°C \pm 5°C until a constant weight is reached.
Remarks 1. Two hours are usually enough for drying time if a hot air circulating thermostat bath is used.
- (10) After drying, weigh the aluminum foil cup to the nearest 1 mg.
- (11) Repeat the above procedures for 3 sets of samples.

5. Calculation

The amount of residue is found by subtracting the dry weight of aluminum foil cup which is weighed in advance from the weight of aluminum foil cup containing the sample and is expressed in increments of 1 mg.

Attached table: Specifications of flat screen of various companies

Specifications		unit	Company A	Company B	Company C	Company D
Screen box	Breadth	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	Oscillation frequency	cpm	700	690-700	690-700	690-700
	Amplitude	mm	3.2	3.2		
Slit	Length	mm	47	70	69.85	70
	Pitch	mm	3.18		3.175	3
<p>[2] Evaluation criteria</p> <p>Seals whose residue amount is all less than 50 mg in three tests by the standard test method are designated as recycle-friendly seals.</p>						
<p>* The present standard test method and evaluation criteria are reprinted from “Survey report on establishment of standard test method and establishment of evaluation criteria of used paper recycle-friendly seals and UV ink,” March 2006 (Paper Recycling Promotion Center/commissioned to: the Japan Federation of Printing Industries), conducted by the project of recycle-friendly paper products development promotion measures under the 2005 government subsidy project.</p>						

Annex Table 6 “Judging Standards of Cover Paper/Color Paper” (Excerpted only parts related to A-Rank)

1. Target of Judgment

Targets to be judged by the standard shall be printing paper/paper for communication that do not fall under the plain paper in the rank list.

2. Judging Recycle Fitness of Cover Paper/Color Paper

2.1. Judging Procedure

Judgment on recycle fitness of the cover paper/color paper shall be made, following the judgment chart of Fig. 1.

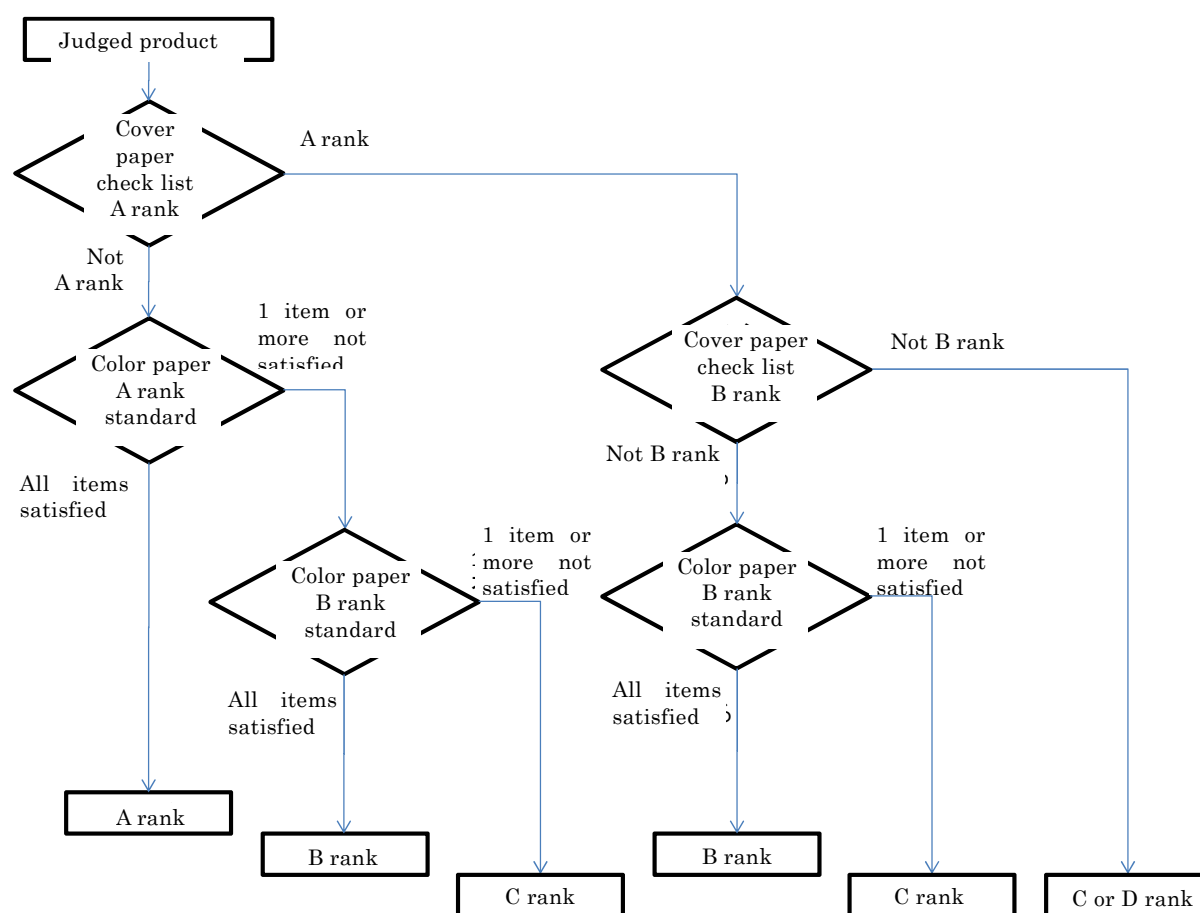


Fig. 1 Chart for Judging Recycle Fitness of Cover Paper/Color Paper

2.2. Pertinent Regulations

The following 4 types of regulations shall be used to make this judgment:

- (1) Cover Paper Checklist
- (2) Color Paper Judging Standards
- (3) Disintegration/Bleaching Methods
- (4) Method for Measuring Brightness, etc.

3. Cover Paper Checklist

The cover paper checklist shall be as shown in Table 1 below.

Table 1 Cover Paper Checklist

Classification	Item Name	Rank
Items listed in the Rank List	Laminated paper	B
	Tack paper (Seal)	B
	Resin-impregnated paper	C
	Parchment paper	C
	Synthetic paper	C
	Nonwoven fabric	C
Items not listed in the Rank List	Paper	Rank
	Pasted items (Only those using water soluble glue)	A
	Pasted items (Those using glues other than water soluble ones)	B
	Tracing paper	B
	Those being board	B
	Surface Treatment	Rank
	Pearl pigment coating	A
	Embossing (Including laid feltmark, etc.)	A
	Calendering	A
	Aluminum evaporation coating	C
	Water-resistance processing	C
	Dye/pigment-included base design	(Evaluated as a Color Paper.)
	Surface dyeing	(Evaluated as a Color Paper.)
	Use of Different Materials	Rank
	Staple fiber hair	C
	Film	C
	Wool	C
	Acrylic fiber	C
	Rag (Cotton waste cloth)	C
	Sludge	C
	Nonwood Pulp Used	Rank
	Cotton linter	A
	Deccan hemp	A
Bagasse	A	
Bamboo	A	
Straw	A	
Linen (Hemp)	A	
Others	Others	Rank
	Falling under materials evaluated as Rank List A	A
	Falling under materials evaluated as Rank List B	B
	Falling under materials evaluated as Rank List C	C
	Falling under materials evaluated as Rank List D	D
	Using raw material/processing not listed in Rank List	C
	Used material unknown	C
Processing unknown	C	

4. Color Paper Judging Standard

4.1. Reference Value

The judging standard of color paper shall be as shown in Table 2:

Table 2 Color Paper Judging Standard

Rank	Brightness	Value L*	Value a*	Value b*
Rank A Reference	65 or higher	85 or higher	Absolute value less than 10	Absolute value less than 10
Rank B Reference	30 or higher	75 or higher	-20 to 15	-15 to 35

4.2. Judgment as Rank A

A sheet produced by a disintegration/bleaching test of a product or a sample is measured for brightness, value L*, value a*, and value b*. When mean values of all samples satisfy the A-Rank standard, the sheet shall be judged as A-Rank.

5. Disintegration/Bleaching Test Method

5.1. Samples

Samples conditioned for 12 hours or longer in standard atmosphere of JIS P 8111 (temperature of $23^{\circ}\text{C} \pm 1^{\circ}\text{C}$ and $(50 \pm 2)\%$ r.h.) shall be used. Those cut to $30 \times 30 \pm 3\text{mm}$ shall be weighed to be $50.00 \pm 0.05\text{g}$ and offered to testing.

The breakdown of samples shall be 90wt% of base paper to be specified below and 10wt% of color paper to be offered to testing.

※Specification of base paper : Paper that satisfies “2. Paper, etc. (1) Item and Judging Standard, etc. [Paper for Communication], Copying Paper, Judging Standard” in “Basic Policy on Promotion of Procurement of Eco-Friendly Goods”

5.2. Disintegration and Bleaching

Disintegration/bleaching or disintegration shall be implemented according to J.Tappi No.39 3., 4., 6.1.1. A test shall be performed 3 times. Conditions shall be as follows:

- Standard disintegrator (that specified in JIS P 8220, Appendix A), disintegration time of 20 minutes \pm 5 seconds
- $2000 \pm 10\text{mL}$ of warm water at $50^{\circ}\text{C} \pm 2^{\circ}\text{C}$ (When samples are charged)
- Chemicals to be added: To a sample, NaOH water solution of 2%, sodium silicate solution No.3 of 4%, hydrogen peroxide solution of 2%, and deinking chemical water solution of 0.18%

5.3. Sheet Production

Four measurement sheets of approximately $200\text{g}/\text{m}^2$ shall be produced from a sample slurry after disintegration/bleaching, by the absorption/filtration method and

according to JIS P 8212 7.2.

6. Method for Measuring Brightness, etc.

Products or sheets produced by the disintegration/bleaching method shall be measured for brightness, etc. with the following method:

6.1. Measurement of Products

According to JIS P 8148 7., 8. and JIS P 8150 8., 10., and by using a reflectometer specified in JIS P 8148 5., 10 or more test pieces sampled from products shall be stacked so that a front surface faces up. Then, ISO brightness of the surface shall be measured in increments of 0.05% and CIELAB coordinates (L^* , a^* , b^*) shall be measured in increments of 0.05.

For the ISO brightness, mean values shall be rounded in 0.05% unit, and for L^* , a^* , b^* , mean values of each of them shall be rounded to 3-digit significant figures, which shall be measurement results.

6.2. Measurement of Sheets Produced by the Disintegration/Bleaching Test

According to JIS P 8148 7., 8. and JIS P 8150 8., 10., and by using a reflectometer specified in JIS P 8148 5., 4 sheets shall be stacked as a set with the top face during filtration as a front side. Then, ISO brightness of the sheet surface shall be measured in increments of 0.05% and CIELAB coordinates (L^* , a^* , b^*) shall be measured in increments of 0.05.

For the ISO brightness, mean values shall be rounded in 0.05% unit, and for L^* , a^* , b^* , mean values of each of them shall be rounded to 3-digit significant figures, which shall be measurement results.

7. Reference Standards

J.Tappi No.39	Deinking test method for waste paper
JIS P 8111	Paper, board and pulps – Standard atmosphere for conditioning and testing
JIS P 8148	Paper, board and pulps – Measurement of diffuse blue reflectance factor (ISO brightness)
JIS P 8150	Paper and board – Determination of colour (C/2 degree) – Diffuse reflectance method
JIS P 8212	Pulps – Measurement of diffuse blue reflectance factor (ISO brightness)
JIS P 8220	Pulps – Laboratory wet disintegration

※The judging standard was a revision of the standard established based on “2008 Investigative Report on Production and Dissemination of Recyclable Printing

Materials” (Paper Recycling Promotion Center/ Japan Federation of Printing Industries, March, 2009). The revision was made in the Used Paper Recycles Committee meeting held on February 15, 2010.