

## Product Certification Criteria for “Paper Packaging Materials Version2.0”

Established: July 1, 2004

### 1. Environmental Background

Worldwide paper consumption amounted to 3.18 tons in 2001. In Japan, the annual production of paper and paperboard typically totals approx. 30.7 million tons. This means that the volume of paper and paperboard consumed per capita in Japan is 243 kg. Meanwhile, the worldwide average of annual paper consumption is 52.0 kg per capita, indicating that Japan consumes 4.7 times this volume

On the other hand, the volume of waste paper recovered in Japan amounted to about 20 million tons in 2002, and the waste paper recovery rate was about 65.4% [(waste paper supply - waste paper import + waste paper export) /paperboard domestic consumption + paper and paperboard import - paper and paperboard export]. The waste paper recycle rate for paper and paperboard in general was about 60% (waste paper consumption + waste paper pulp consumption/total pulp material used for domestically produced paper and paperboard). For packaging paper, the percentage of waste paper used remained at a very low rate of about 6%.

### 2. Applicable Products

The applicable products of this Product Category are the same as No. 114 “Paper Packaging Materials” (hereafter referred to as Version1.0). Paper boxes are deemed as an applicable product in No. 113 “Packaging Paper”, since the products of this product category were classified as the base paper of packaging paper, packaging bags, and envelopes in Version2.0. Therefore the incorporation of paper boxes in this product category was considered. However, since paper boxes consist of the waste paper generally used for the paper board to make them, the item was not included in this product category. “Paper tray” in this section refers to a shallow paper container without a lid (JIS Z 0108), a plate with rim in all around, and to be used in distribution system. In addition, paper plate and paper cup were exempt from the “Applicable Product” of Eco Mark as per usual, since they were regarded as disposable products.

### 3. Terminology

“Post-consumer waste paper” and “pre-consumer waste paper” were defined based on the definitions of post-consumer material and pre-consumer material in JIS Q14021 and the definition of waste paper by the Japan Paper Association and Paper Recycling Promotion Center. According to the definition of these two associations, paper that is not shipped as a product and reused as raw material for other paper

products by the manufacturer or a subcontractor of the manufacturer is not considered “waste paper”. As the Eco Mark Program’s definition of pre-consumer waste paper excludes waste paper generated and reused in the same process or plant, there may be some cases which pose conflicting definitions between the two associations.

(Reference)

Definition of post-consumer material in JIS Q 14021

Defined as materials generated as products which cannot be used for their intended purpose by commercial, industrial, and other facilities as end users of materials and products disposed of by households. This includes materials returned from the distribution channel.

Definition of pre-consumer material in JIS Q 14021

Defined as materials removed from waste disposed of during the manufacturing process. Excludes products unsuitable for processing or polishing that can be reused in the process which generated these materials, scraps, etc.

Recycling law for reuse of waste paper

Japan Paper Association and Paper Recycling Promotion Center.

The “waste paper” specified by Article 1 of the detailed enforcement regulations of the Law for Promotion of Effective Utilization of Resources (1991 Cabinet Order No. 327, hereafter referred to as “the Cabinet Order”) to promote the use of recycled resources considered particularly necessary for the effective use of recycled resources in Article 2.1 of the recycling law for reuse of waste paper indicates paper, paper products, and products which are wholly or partially made of paper such as books, etc. which have been collected or disposed of after use or unused and can or may be usable as the raw material for paper (includes types imported after collection).

It refers to paper generated at the plant or workshop of the paper manufacturer (hereafter referred to as “plant, etc.”) during the paper manufacturing process as well as paper generated during processing at the plant, etc. of the paper manufacturer (including processing by other subcontractors commissioned by the paper manufacturer before shipment of product). Waste paper used as raw material for paper by paper manufacturers without being shipped as products is not regarded as waste paper.

For the percentage of waste paper in the pulp mixture, in the previous version of this Product Category (hereafter referred to as Version1.0), it was set as “[(waste paper (before cutting) + purchased waste paper pulp)/(virgin pulp + waste paper (before cutting)+purchased waste paper pulp]”, according to the actual control method of paper manufacturers. In Product Category No. 112 “Packaging Paper Version2.0” (hereafter referred to as Version2.0), the waste paper percentage calculated by “waste paper pulp/(virgin pulp + waste paper pulp)” which complies with ISO standards was adopted. The weight of pulp should be measured under the condition of 10% water content. For cushioning material, pulp mold, etc., it was decided that if waste paper is used as-is without being converted to pulp, and only waste paper is used as the raw material, then the content of waste paper in the pulp mixture would be 100%.

#### 4. Certification Criteria

##### 4-1. Environmental criteria

Chart for selecting environmental impact items at each stage of product life cycle was utilized in establishing these criteria, and after considering, from the standpoint of the environment, the environmental impact for the product lifecycle as a whole, impact items were selected which were thought to be important when establishing the certification criteria, and qualitative and quantitative criteria were set for those items.

Environmental impact items which were considered candidates for the product type No.114 “Paper Packaging Materials Version2.0” are as shown in the Chart for selecting environmental impact items at each stage of product life cycle (denoted by X and XX in the chart). The items finally selected as the environmental criteria are A-1, B-5, B-6, B-8, C-1, C-7, D-8, D-9, E-7, and F-7 (items marked by XX in the chart).

The blank columns are either not subject to the review or were reviewed in conjunction with other items. A detailed description of how the environmental criteria were prepared is provided below.

Table 1: Chart for Selecting Environmental Impact Items at Each Stage of Product Life Cycle

Environmental impact Item	Life stage					
	A. Resource Extraction	B. Manufacturing	C. Distribution	D. Use/Consumption	E. Disposal	F. Recycling
1. Resource consumption	XX		XX			
2. Emission of substances that affect global warming		X	X			
3. Emission of ozone-layer-depleting substances						
4. Impacts on ecosystem	X					
5. Emission of air pollutants		XX	X			
6. Emission of water pollutants		XX				
7. Generation/disposal of Waste			XX		XX	XX
8. Use and emission of hazardous substances		XX		XX	X	
9. Other environmental impacts		X		XX		

## A Resource Extraction Stage

### A-1 Resource consumption

The following points were reviewed under this item:

- (1) The content of waste paper in raw materials shall be 100%.  
(More than 40% for the supports of kraft paper adhesive tape and paper gummed tape)  
(More than 90% for paper trays)
- (2) Certification system of sustainable forests

For (1), some members in the working group expressed the opinion that the use of 100% waste paper in the product is desirable for the sake of protecting forests and reducing paper wastes by promoting utilization of waste paper.

As for fillers for packaging, the material and for paper banding (including paper string), should be 100% in terms of the content of waste paper in the pulp mixture as in Version1.0. Also, for paper trays, the use of wood pulp at the lowest possible level was approved as in Version1.0, and because the Food Sanitation Law restricts direct contact of materials containing fluorescent whitening agents with foods.

For the support of kraft paper adhesive tapes and paper gummed tapes, in Version1.0, the waste paper content was set at 40%, but there was the opinion that a higher content rate should be set in Version2.0. However, in the current market, only products with a content of 40% are produced. Furthermore, the paper manufacturing industry and adhesive tape industry voiced comments that in order to increase waste paper pulp content rate while maintaining the required strength to realize product functions, it shall be necessary to limit the types of waste paper used as well as to use paper strengthener, and this will definitely not reduce impact on the environment, and will also lead to increased waste paper procurement costs. For these reasons, the current content rate of more than 40% was retained. However, by changing the content rate calculation method from waste paper content rate to percentage of waste paper in the pulp mixture, the actual content of waste paper may be higher by about five percentage points if the content is the same figure.

Considering that the share of products whose support is made of waste paper is low, it is hoped that the kraft paper adhesive tape and paper gummed tape industries would promote the spread of products containing waste paper.

Regarding the winding cores of kraft paper adhesive tapes and paper gummed tapes, though the use of waste paper is fairly common, waste paper pulp content rate was set at 100%, as the rate can technically be raised easily.

For (2), regarding materials other than waste paper, there were comments that wood produced from forests that can be sustainably managed should be used, and it is necessary to select this item as a criterion to clarify the source of the raw material.

However, at this point, adjustments of domestic and international agreements on the criteria and certification systems of sustainably manageable forests that can be incorporated in Eco Mark criteria have not yet been carried out. Though criteria on wood from sustainably manageable forests are incorporated in eco labels for packaging paper, this applies only to the packaging paper of Nordic Swan

(Scandinavia) and the office paper of Stichting Milieukeur (Netherlands). Considering that such criteria have yet to be established internationally, that there is no certification system in Japan, and that this criterion was not adopted during the review of the certification criteria for Eco Mark paper product categories No.106 “Paper for Communication Version 2.0”, No.107 “Printing Paper Version2.0”, and No.108 “Sanitary Paper Version2.0”, it was concluded that it is still early to incorporate the criteria.

However, based on the consensus acquired to approve wood produced from sustainably manageable forests as raw material of pulp, it was decided to select this item as a certification condition in the Eco Mark Program; at this point, it was not selected as a criterion. However, members voiced the need to further review this item.

**A-4 Impacts on ecosystems**

The following point was reviewed under this item:

(1) Protection of ecosystems during logging

This subject will not be described here because it was dealt with collectively in A-1 (2).

**B Manufacturing Stage**

B-2 Emission of greenhouse gases

(1) Energy-saving and CO2 emissions in the manufacturing stage

For (1), energy-saving related item was reviewed for Version1.0. It was again reviewed for Version2.0, and there were comments that criteria should be established considering that some international eco labels have criteria on the energy-saving amount and reduction of CO2 emissions during the manufacturing stage.

However, for reasons that manufacturers are already implementing efforts to reduce energy consumption as part of cost reduction strategies, and reduction efforts are also already being made for CO2 emissions since Japan signed the Framework Convention on Climate Change, this item was not selected as a criterion.

**B-5 Exhaust of air pollutants**

The following point was reviewed under this item:

(1) Air pollution shall be appropriately managed.

In Version1.0 the environmental impact of air pollutants discharged during

production processes was expected to decrease through strict compliance with related environmental regulations and agreement of environmental pollution control. As a result of a similar review carried out for Version2.0, this item was selected as a criterion.

#### B-6 Discharge of water contaminants

The following point were reviewed under this item:

(1) Appropriate management of water pollution.

For (1), in Version1.0, it was concluded that the impact of water pollutants discharged from the manufacturing process into the environment will be reduced by the observance of related environmental laws and pollution prevention agreements. Similar reviews were carried out for Version2.0, and as a result, this item was selected as a criterion.

#### B-8 Use and discharge of hazardous materials

The following points were reviewed under this item:

(1) Use of organic solvents in kraft paper adhesive tape and paper gummed tape at the time of applying adhesive  
(2) Hazardous materials  
(3) Azo dye  
(4) Chlorine gas bleaching

For (1), since kraft paper adhesive tape contains large quantities of organic solvents at the time of applying adhesives, 100% collection is difficult although plants are equipped with collection facilities. Considering that organic solvents are emitted into the atmosphere, reviews to reduce the use of these solvents were conducted. In recent years, hot melt-type adhesive and emulsion-type adhesive, which do not contain organic solvents are being developed. By promoting a switch to these adhesives, it should be possible to reduce the use and discharge of these solvents. Consequently, this item was selected as a criterion. Since it was necessary to set the time for preparations, a moratorium of one year was set from the date of enforcement of the criteria. For kraft paper adhesive tapes, as organic solvents are used on the back side, it would not be possible to totally eliminate the use of organic solvents even if non-solvent adhesives are used. In addition, this item was not applicable for paper gummed tapes which did not use organic solvents on the back side and at the time of applying adhesives.

For (2), Version 1.0 incorporated the observance of treaties, laws, and local agreements of manufacturing plants, as well as the prohibition of use of restricted substances for kraft paper adhesive tape, paper gummed tape, and paper trays. Additionally, in Version2.0, the establishment of the Law Concerning Reporting, etc. of Release to the Environment of Specific Chemical Substances and Promoting

Improvements in Their Management (PRTR law) allowed setting down rules on the report of chemical substance release. The criteria on the report level based on this law have been incorporated in paper product categories No.106 "Paper for Communication Version 2.0", No.107 "Printing Paper Version2.0", and No.108 "Sanitary Paper Version2.0", and also prescribed into this Product Category with the aim of promoting a reduction of use. Specifically, it is now necessary to report the overuse of Class 1 chemical substance regulated by PRTR law in the overall manufacturing process of products.

Item (3) shall be omitted here since it was studied with item D-8(1) and the details are the same.

For (4), despite the fact that dioxin measures are being addressed by switching chlorine gas bleaching to the use of chlorinated compounds in the current paper manufacturing process, considering that this item has been selected as a criterion in international eco labels, efforts are being made by the paper manufacturing industry to realize ECF (non-chlorine bleaching) by the end of 2004, and that it is important to establish consistency with other paper product categories such as No.106 "Paper for Communication Version 2.0", No.107 "Printing Paper Version2.0", this item was selected as a criterion. However, enforcement was postponed for one year because ECF efforts are apparently carried out on a small scale and are behind schedule for certain packaging paper manufacturers.

#### B-9 Other environmental impacts

The following point was reviewed under this item:

(1) Reuse of waste water
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The promotion of waste water reuse to promote the effective use of water resources was proposed. Considering that the paper manufacturing industry uses massive quantities of water in nature and has already been promoting effective use of water resources for a long time now, this item was not selected as a criterion.

#### C Distribution Stage

##### C-1 Resource consumption

The following points were reviewed under this item:

(1) Packaging forms which enable the product to be reused or recycled (single-material construction, Degradability)
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For (1), in Version1.0, the importance of considering resource saving, ease of recycling, and reduction of environmental impact was recognized, although the packaging is essentially simple for this product. This item was therefore selected as a criterion. Similar reviews were carried out for Version2.0, and as a result, this item was selected as a criterion.

## C-2 Emission of greenhouse gases

The following point was reviewed under this item:

(1) Reduction of energy consumption and environmental impact in the transportation stage
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In Version1.0, considering it difficult to set down criteria on alternative distribution methods with fewer CO2 emissions, this item was not selected as a criterion. In Version2.0, there were comments on the need to reduce energy consumption and environmental impact by transportation using vehicles running on green energy.

However, considering that green energy is not defined in the Eco Mark Program, that quantification is required in order to establish this item as a criterion, and in inventory analysis using the general quantification method LCA (life cycle assessment), an accurate forecast is difficult due to the need to make many assumptions, such as that this item is not only an issue related to product category and thus necessary to review it for the entire Eco Mark program, and that adequate efforts are already being made by the paper manufacturing industry such as consideration to packaging and packing, modal shift, and joint delivery, etc., this item was not selected as a criterion.

Since this item holds considerable significance for such problems as exhaust gas created by truck transportation, it was selected as an item to be further considered.

## C-5 Exhaust of air pollutants

The following point was reviewed under this item:

(1) Reduction of environmental impact in the transportation stage
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(1) shall be omitted here since it was studied with item C-2(1) and the details are the same.

## C-7 Generation/disposal of waste

The following points were reviewed under this item:

(1) Packaging forms which enable the product to be reused or recycled (single-material construction, degradability)
(2) Impact of incineration

(1) shall be omitted here since it was studied with item C-1(2) and the details are the same.

For (2), though the Law for Promoting Sorted Collection and Recycling of Containers and Packaging mandates recycling of paper and plastic packaging, most



are actually disposed of as general waste and incinerated. Consequently, this item was selected as a criterion due to the importance of giving consideration to reduction of impact during incineration.

#### **D Use and Consumption Stage**

##### **D-8 Use and discharge of hazardous materials**

The following points were reviewed under this item:

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| <ul style="list-style-type: none"><li>(1) Use of organic solvents</li><li>(2) Use of hazardous materials in the product</li><li>(3) Azo dye</li><li>(4) Chlorine gas bleaching</li></ul> |
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(1) shall be omitted here since it was studied with item B-8(1) and the details are the same.

(2) shall be omitted here since it was studied with item B-8(2) and the details are the same.

(3) was not reviewed for Version 1.0. In Version2.0, this item was reviewed for reasons that it may be used in products in this product category, and that it has been selected as a criterion in other paper product categories such as No.106 "Paper for Communication Version 2.0", No.107 "Printing Paper Version2.0", and No.108 "Sanitary Paper Version2.0", etc. Therefore, this item was selected as a criterion.

Considering the need to establish consistency with other product category criteria, it was decided that restrictions will be imposed on the azoic pigments generating the amines listed in Table 2. In the German regulations on sundries which applies to this item, "detection of amines exceeding 30 mg per 1 kg of material" serves as the criteria for determining generation of amines. This item was therefore accordingly selected as a criterion.

(4) shall be omitted here since it was studied with item B-8(4) and the details are the same.

##### **D-9 Other environmental impacts**

The following point was reviewed under this item:

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| <ul style="list-style-type: none"><li>(1) Fluorescent whitening agent</li></ul> |
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For (1), in Version1.0, it was decided that florescent whitening agents shall be listed as chemicals not required in terms of the functions of packaging materials and use shall be prohibited. In Version2.0, though the view of this substance as unnecessary has not changed, it was decided that prohibiting use will impede the use of waste paper. In addition, there were comments that rigid regulations are unnecessary considering that no carcinogenic chemical substances are used, and consistency with other paper product categories such as No.106 "Paper for

Communication Version 2.0” and No.107 “Printing Paper Version2.0” should be established. Thus, its use was not approved only in case in which it is considered prescribed component elements.

## **E Disposal Stage**

### **E-7 Generation/disposal of waste**

The following point was reviewed under this item:

(1) Reduction of environmental impacts upon disposal
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Regarding this subject, the life span of products in this category is rather short compared to those of other product categories because of the nature of their application. Some of the buffer materials and paper trays are subject to the Law for Promotion of Sorted Collection and Recycling of Containers and Packaging, although most other products are not recovered or recycled. Therefore, reduction of impact during disposal was included in the items for preparing the criteria.

### **E-8 Use/Discharge of hazardous materials**

The following point was reviewed under this item:

(1) Azo colorant (2) Chlorine gas bleaching
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(1) shall be omitted here since it was studied with item B-8(3) and the details are the same.

(2) shall be omitted here since it was studied with item B-8(4) and the details are the same.

## **F Recycling Stage**

### **F-7 Generation/disposal of waste**

The following point was reviewed under this item:

(1) Consideration to facilitate recycling by not implementing processes that may impede it
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For (1), in Version 1.0, considering that the idea of product recycling is important although no products in this Product Category are recycled, it was decided that materials impeding the collection and reuse of plastic coating shall not be used. In Version2.0, considering that the Law for Promotion of Sorted Collection and Recycling of Containers and Packaging seeks the recovery or recycling of products in this

Product Category, this item was again selected as a criterion. Coating has been approved for paper trays to avoid food contact with recycled paper as required in the Food Sanitation Law. In this case, however, the necessity to meet “codes and standards for food, additives and the others” in the Food Sanitation Law was added to the quality standards. In addition, for kraft paper adhesive tape, there were assuredly many products with polyethylene laminate on the surface in the market, and a one-year moratorium was set including the preparation period to apply this item.