

## Product Certification Criteria for "Garbage Disposer "

Revised: February 12, 2004

### 1. Applicable Products

The Eco Mark Product Category No. 6 "Composting Containers" included the large equipment mostly for commercial use in applicable products. However in this review, it was decided that large equipment for commercial use should be excluded from the applicable products according to product life-cycle assessment results and due to insufficient findings and evaluation methods for establishing certification criteria.

The Eco Mark Product Category No. 6 "Composting Containers" prescribed composting systems based on anaerobic fermentation as "Devices likely to generate unpleasant odors, including devices using anaerobic bacteria, that shall have airtight enclosures," and certified products generally called airtight enclosures. In this review, it was confirmed that the objective of disposal in composting systems lies in reducing the volume of wastes, and that the disposed products may serve not as compost but as the raw material for composts. One home composting method is the decomposing of organic wastes using microorganisms under aerobic conditions, which most effectively reduces volume. Anaerobic fermentation has little volume reduction effect, and often fails in home composting, disabling appropriate waste disposal. As a result of the review, it was decided that the biological composting method of decomposing organic wastes using microorganisms under aerobic conditions to reduce volume in disposal be recommended as an Eco Mark product, and that composting by anaerobic fermentation shall not.

Since environmental loads of home garbage disposers with different treatment methods are almost the same, the same criteria were introduced. Different criteria were established for compost containers and home garbage disposers due to different structures of the two systems.

Since criteria are qualitative, certification shall not be determined only based on the examination of base material.

### 2. Environmental Criteria

#### 2-1. Details of establishing environmental criteria

For setting up the criteria, environmental impacts over the whole life cycle of a product was considered, using a table of Environmental impacts at each

stage of product life cycle. As a result, impact items that are considered to be important to establish criteria for Eco Mark certification were selected. For these items, qualitative or quantitative criteria were established.

Environmental impact items considered for the product category “Garbage Disposer Version 1.0” are as shown in the table of Environmental impacts at each stage of product life cycle (X and XX in the table). Out of these items were finally selected as the environmental criteria: A-8, B-3, B-5, B-6, B-8, B-9, D-1, D-2, D-9, E-8, and F-1 (indicated with XX in the table). The blank columns in the table show items that were out of the scope of review or which were reviewed in combination with other items. Following is the details of establishing environmental criteria.

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

| Environmental Impact Item                           | Product Life Stage     |                  |                 |                    |             |              |
|---|------------------------|------------------|-----------------|--------------------|-------------|--------------|
|   | A. Resource Extraction | B. Manufacturing | C. Distribution | D. Use/Consumption | E. Disposal | F. Recycling |
| 1.Resource consumption                              | X                      | X                |                 | XX                 |             | XX           |
| 2.Discharge of greenhouse gases                     |                        | X                |                 | XX                 |             |              |
| 3.Discharge of the ozone layer depleting substances |                        | XX               |                 |                    |             |              |
| 4.Destruction of eco systems                        | X                      |                  |                 |                    |             |              |
| 5.Discharge of atmospheric pollutants               |                        | XX               |                 |                    |             |              |
| 6.Discharge of water pollutants                     | X                      | XX               |                 |                    |             |              |
| 7.Discharge/disposal of wastes                      |                        |                  |                 |                    |             |              |
| 8.Use/discharge of hazardous materials              | XX                     | XX               |                 |                    | XX          |              |
| 9.Other environmental impacts                       |                        | XX               |                 | XX                 |             |              |

**A. Resource Extraction Stage**

A-1 Resource consumption

The following point was reviewed under this item:

- |   |
|---|
| (1) Effective use of resources related to base material |
|---|

Resources specified by issue (1) may include wood from disassembled buildings that has been subject to treatment with preservatives and pesticides such as CCA. The base material may become raw materials of composts together with organic wastes as a result of volume reduction. To prevent the emission of CCA and other harmful chemical substances into the environment, this issue has been included as a provision in the criteria, referring to Eco Mark Product Category No. 115 "Wooden Products Using Waste Wood, Thinned-out Wood, Small-diameter Logs, etc." Since materials other than wood are used as base material, it was concluded that it is inappropriate to recommend only thinned-out wood and unused wood for the base material at this point. Therefore, identification of raw materials of the base material and preventing CCA and other harmful chemicals from being contained in the base material are required.

**A-4 Destruction of eco systems**

The following point was reviewed under this item:

(1) Effective use of resources related to base material

This issue was omitted because it has already been reviewed in item A-1.

**B. Manufacturing Stage**

**B-1 Resource consumption**

The following point was reviewed under this item:

(1) Use of sub-materials in the manufacturing of base material

Since wooden material, pulp, and other vegetable resources are used predominantly as base material, it was decided that there was no need to include this issue as a provision in the criteria. Consequently, it was not selected.

**B-2 Discharge of greenhouse gases**

The following point was reviewed under this item:

(1) Energy consumed during manufacturing of base material

This issue is discussed in item B-1, and has not been included as a specific provision in the criteria.

### B-3 Discharge of ozone layer depleting substances

The following point was reviewed under this item:

(1) Foam parts such as thermal insulators in Home Garbage Disposers

#### **Home Garbage Disposer**

Though thermal insulators are not used in current composting systems, they may be used in the future to reduce the power consumed. Especially for specific CFCs and HCFCs, measures are being taken on manufacturing restriction, emission control, and rationalized use according to international agreements. In this Product Certification Category, Attachment 2 is compiled referring to the Law concerning the Protection of the Ozone Layer through the Control of Specific Substances and Other Measures to prohibit use of specified chlorofluorocarbons (five CFCs), other CFCs, carbon tetrachloride, 1,1,1-trichloroethane, and CFC substitutes (HCFCs). This issue has been included as a provision in the criteria.

### B-5 Discharge of atmospheric pollutants

The following point was reviewed under this item:

(1) No generation and emission of hazardous materials during manufacturing

#### **Composting Container and Home Garbage Disposer**

The minimization of generation and emission of hazardous materials during the manufacturing stage was deemed necessary where possible. A criterion was therefore established regarding this issue: hazardous materials shall be appropriately managed without violating the agreements, ordinances, and laws of the area in which the plant is located.

Based on this idea, the local compliance criterion shall be applied to air pollutants, as well as to the generation of other hazardous materials like water pollutants, vibration, noise, foul odor, etc.

### B-6 Discharge of water pollutants

The following point was reviewed under this item:

(1) No generation and emission of hazardous materials during manufacturing

#### **Composting Container and Home Garbage Disposer**

The above (1) was omitted because it has already been reviewed in item B-5.

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

The following points were reviewed under this item:

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|---|
| (1) Emission of hazardous materials<br>(2) Preservatives used in wooden composting containers shall have received certification by the Japan Wood Preserving Association. |
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### **Composting Container and Home Garbage Disposer**

Issue (1) was omitted because it has already been reviewed in item B-5.

### **Composting Container**

For issue (2), as wooden composting containers are decomposed together with organic wastes during the process, these containers are treated with preservatives to maintain product functions. However, some preservatives have been pointed out as chemicals that are harmful due to the use of heavy metals, and wood preservatives such as CCA shall not be added during manufacturing. Consequently, this issue has been included as a provision in the criteria.

### **B-9 Other environmental impact**

The following point was reviewed under this item:

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|--|
| (1) There should be no noise and vibration during manufacturing. |
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### **Composting Container and Home Garbage Disposer**

It was determined that environmental load can be decreased by appropriately handling complaints from the neighborhood and observing related environment laws and pollution control agreements. Consequently, this issue has been included as a provision in the criteria.

## **D. Use / Consumption Stage**

### **D-1 Resource consumption**

The following point was reviewed under this item:

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|----------------------|
| (1) Disposing wastes |
|----------------------|

### **Composting Container and Home Garbage Disposer**

It is essential to reduce the volume of organic wastes using composting containers and home garbage disposer that fall under this Product Certification Category to minimize wastes and to serve as an interim process for the effective use of wastes. The volume reduction may also help reduce

energy consumed during the waste incineration. Therefore, this issue has been included as a provision in the criteria. Specific details of the composting process are provided in "Environmental Background," "Applicable Products," "Terminology," and Attachments 1 and 3 in this criteria. Some consumers misunderstand that products after volume reduction (hereafter referred to as "reduced wastes") by the composting container and system are fertilizers or compost. It was confirmed that it is necessary to explain correctly to consumers that wastes may serve as the raw material of compost, and they are not fertilizers or compost.

#### D-2 Discharge of greenhouse gases

The following point was reviewed under this item:

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| (1) Power consumption of home garbage disposer |
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#### **Home Garbage Disposer**

After investigating CO<sub>2</sub> emissions during composting using the LCA method, it was confirmed that most of the CO<sub>2</sub> generated by the composting system is attributable to power consumption. According to the calculation of the working group, it was found that compared to general incineration of organic wastes, the composting system has low CO<sub>2</sub> emissions when its power consumption is below 1.0kWh/kg. Currently, home garbage disposers below 1.5kWh/kg are the product group with least power consumption. In the next review, the possibility of changing the energy use target to 1.0kWh/kg will be considered. However, this Product Criteria is applicable to home garbage disposers with power consumption below 1.5kWh/kg.

#### D-9 Other environmental impacts

The following points were reviewed under this item:

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| (1) Providing information on composting.<br>(2) Indicating that manufacturers will recollect used composting containers upon request of users. |
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(3) Providing information on power consumption of home garbage disposer.

#### **Composting Container and Home Garbage Disposer**

Composting may fail in certain conditions. To support appropriate composting by users, it is necessary to provide more sufficient instruction (users' manual). Some review members gave the opinion that the addition of a notice indicating products that can be recycled has helped deepen the users' understanding of recycling, and that cooperation can be expected. Consequently,

this issue has been included as a provision in the criteria.

### **Home Garbage Disposer**

The user's guide of home garbage disposers shall include information on their power consumption to meet the target of 1.0 kWh/kg and to enable consumers to make purchasing decisions. Considering public opinions given to the draft criteria, the power consumption information is added to the lower indication of the Eco Mark label to help customers identify systems that meet the requirement of not greater than 1.0 kWh/kg.

### **E. Disposal Stage**

#### **E-8. Use/discharge of hazardous materials**

The following points were reviewed under this item:

- (1) Containers should not use halogen resin and halogen plastic additives.
- (2) Containers should not use hazardous heavy metal pigments (mercury, arsenic, cadmium, and lead).
- (3) Use of unleaded solder

### **Composting Container**

Opinions were given on issue (1) assuming that hazardous gas is produced during incineration. Generally, containers are incinerated after use if not recycled. This issue has therefore been included as a provision in the criteria to eliminate resin made up of halogens that may cause dioxin in certain combustion conditions.

Issue (2) has been included as a provision in the criteria to disapprove addition of hazardous heavy metal pigment as prescribed ingredients during manufacturing.

### **Home Garbage Disposer**

Based on public opinions given on issue (3), the inclusion of the issue as a provision in the criteria will be considered depending on the use of the solder because it is not used to make home garbage disposers available now.

### **F. Recycling Stage**

#### **F-1 Resource consumption**

The following points were reviewed under this item:

- (1) Composting systems shall be designed taking recycling into consideration.
- (2) Used composting containers shall be collected by the manufacturer upon request of the user.

## **Composting Container and Home Garbage Disposer**

Regarding issue (1), it is desirable to recycle collected composting systems. Supposing collection by the manufacturer, it is the most rational for the applicant to implement their own recycling efforts instead of uniform regulations. Consequently, this issue has been included as a qualitative provision in the criteria. During assessment, the manufacturer shall be asked to specifically indicate the reasons for complying to this criterion in the Eco Mark Product Certification application form to verify that the product design takes recycling into consideration.

Regarding issue (2), there is no mechanisms or schemes to collect home garbage disposers now. Therefore reviews were restricted to composting containers. Composting containers are made up mainly of resin, and are therefore relatively easy to reuse. Some manufacturers have already started collection of used containers upon request of users. Consequently, this issue has been included as a provision in the criteria. Regarding home systems, it is also recommended that mechanisms or schemes to ensure collection and recycling of used products should be developed soon. The inclusion of the issue in the criteria will be considered once such mechanisms are established.

Compliance to this criterion includes the collection by subcontractors other than the applicant. No provisions shall be set for collection fees. No provisions shall be established for the development of a collection system either, since there is no need to limit the method of collection to dropping off by user at the collection center, and the method should be set according to local situations.

### **2-2. Quality criteria**

The garbage disposer performance assessment criteria and performance guidelines for home garbage disposers were developed based on the materials of the Japan Electrical Manufacturers' Association.