



Eco Mark Product Category No.125

“Garbage Disposer Version 1.2”

Japan Environment Association
Eco Mark Office

1. Environmental Background

The Certification Criteria of Eco Mark Product Category “Composting Containers,” established in 1989, was intended to disseminate the use of systems to compost organic wastes, mainly with the functions of microorganisms. In 1994, electric systems were added to this product category to further spread these systems.

In the certification criteria of this product category, composting systems are defined, "(1) The product shall be a device for composting garbage mainly through the action of microorganism," and therefore have eliminating systems intended for drying or reducing organic wastes from the scope of applicable products. However, due to an increasing need for the reduction of household wastes in recent years, it was decided in the Eco Mark Committee for Product Certification meeting held in May 2000 that the scope of applicable products and certification criteria would be reviewed, and submitted to the Eco Mark Committee for Establishing Category and Criteria.

Organic wastes are referred to as food waste in documents released by the Ministry of Agriculture, Forestry and Fisheries, disposed by food manufacturers, food distributors, restaurant industry, and households. According to estimates by the Ministry of Agriculture, Forestry and Fisheries in documents released by the former Ministry of Health and Welfare in 1996, of the 19,400,000 tons of food waste that were disposed of, 91% or 17,720,000 tons were incinerated and buried. Because it is important to control the generation of a massive volume of food waste and to reuse it, the Law Concerning Promoting to Recover and Utilize Food Resources was enforced. In this product category, the environmental load resulting from organic wastes against this background was reviewed. The results confirmed that organic wastes disposed of by general composting systems are able to serve as the raw material of composting, etc. instead of fertilizers and compost. To reuse as compost, it needs to be processed an additional time. Consequently, in order to reduce the volume of organic wastes, it is important to reduce wastes as well as perform interim process for effective reuse. In addition, since the composting system may reduce energy

NOTE: This document is a translation of the criteria written in Japanese. In the event of dispute, the original document should be taken as authoritative.

consumption during garbage incineration, it was decided that the scope of application of composting systems would be reset, the reduction and reuse of organic wastes promoted, and the supply of information on organic waste volume reduction enhanced. To evaluate the product life cycle, the environment load resulting in the manufacture and usage of the composting system was reviewed and the appropriate certification criteria were established.

2. Applicable Products

Applicable products shall be compost containers and home garbage disposers.

3. Terminology

- Biological method: Method of decomposing organic wastes using microorganisms in aerobic conditions to reduce volume.
- Dry method: Method of drying organic wastes using energy such as electricity to reduce volume.
- Composting container: Container designed to decompose organic wastes at home using microorganisms. These do not use energy such as electricity and exclude collective compost containers found in housing complexes.
- Home garbage disposer: Biological and dry disposing systems designed for home disposal of organic wastes. These use energy like electricity and exclude collective garbage disposers found in housing complexes.
- Base material: Made of multi-porous wood, pulp, or other similar materials. Used for the purpose of maintaining aerobic decomposition conditions.

4. Certification Criteria

4-1. Environmental criteria

A. Compost containers

- (1) Compost containers shall not use halogen resin and halogen plastic additives.
- (2) The content and elution of heavy metals in plastic color agents shall conform to the "Color Material Criteria" of the Hygiene Council of Polyolefin, etc.
- (3) Preservatives used in wooden containers must be certified by the Japan Wood Preserving Association. However, chemicals containing chromium, arsenic, and pyrethroid agents must not be used.
- (4) Compost containers must be designed with consideration to facilitating the recycling of wastes.
- (5) Compost containers should be picked up by the manufacturer after use, upon request by the user.
- (6) The User's Manual shall provide information pertaining to the above that used compost containers will be picked up by the manufacturer upon request by the user.
- (7) The User's Manual shall provide the information listed in table 1.
- (8) In the manufacturing of compost containers, air pollution, water pollution, noise, vibration, odor, and discharge of hazardous substances shall conform to related environment laws and regulations, pollution prevention agreement, etc.

B. Home garbage disposers

- (9) The standard power consumption of systems shall be established below 1.5 kWh/kg at this time, to be evaluated and/or revised in the future.
- (10) Foamed plastic shall not use the specific CFCs (5 CFCs) listed in Attachment 2, other CFCs, and HCFCs.
- (11) Home garbage disposers must be designed with consideration to facilitating the recycling of wastes.
- (12) The User's Manual shall provide the information listed in Attachment 3.
- (13) The User's Manual and product labeling or brochure shall specify the maximum power consumption in the operating state.
- (14) In the manufacturing of home garbage disposers, air pollution, water pollution, noise, vibration, odor, and discharge of hazardous substances shall conform to related environment laws and regulations, pollution prevention agreement, etc.
- (15) Polybrominated biphenyl (PBB), polybrominated diphenyl ether (PBDE), or chlorinated paraffin (chain carbon number of 10 to 13, with chlorine concentration above 50%) shall not be added to plastic or printed-circuit boards as prescription constituents. Printed-circuit boards are printed boards that do not incorporate semiconductors.

C. Base material

- (16) Base materials shall be carefully kept from containing hazardous chemicals.

4-2. Quality criteria

A. Compost containers

- (17) Product quality shall conform to any criteria prescribed per purpose. Quality control should also be implemented adequately in the manufacturing stage.

B. Home garbage disposers

- (18) Performance shall be verified in accordance with the "Home garbage disposer Performance Evaluation Criteria and Performance Guidelines" at the end of this Criteria or quality standards conforming to this. Quality control should also be implemented adequately in the manufacturing stage.

5. Certification Procedure

- (1) Documents certifying compliance with respective criterion shall be attached to the application form.
- (2) For Criterion 4-1.(1), it should be stated clearly in the Eco Mark Product Certification Application Form whether polymers containing halogen and organic halogen composites are contained, and submitted.
- (3) For Criteria 4-1.(2) and (3), the reasons for conformity to this criteria shall be described specifically in the Eco Mark Product Certification Application Form. If antiseptic agents are used, a document describing the reasons for using the chemicals and that these chemicals have been certified by the Japan Wood

Preserving Association shall be submitted.

(4) For Criteria 4-1.(4) and (11), the reasons for conformity to this item shall be described specifically in the Eco Mark Product Certification Application Form.

(5) For Criterion 4-1.(5), the reasons for conformity to this item shall be described specifically in the Eco Mark Product Certification Application Form.

(6) For Criterion 4-1.(6), the corresponding sections of the User's Manual shall be submitted.

(7) For Criteria 4-1.(7) and (12), the corresponding sections of the User's Manual shall be submitted.

(8) For Criteria 4-1.(8) and (14), a certificate issued by the manager of the plant manufacturing the product, stating that the plant has observed and not violated the environment laws and regulations of the region it is located in for the past five years since the date of application, shall be submitted.

(9) For Criterion 4-1.(9), the power consumption of the concerned systems shall be indicated in the Eco Mark Certification Application Form. Power consumption measurement shall conform to Composting System Performance Evaluation Criteria and Performance Guidelines.

(10) For Criterion 4-1.(10), the reasons for conformity to this item shall be described specifically in the Eco Mark Product Certification Application Form.

(11) For Criterion 4-1.(13), the corresponding sections of the User's Manual and product labeling or brochure shall be submitted.

(12) For Criterion 4-1.(15), parts procurement contracts, etc. shall be submitted to certify that PBB, PBDE, and chlorinated paraffin have not been added.

(13) For Criterion 4-1.(16), raw materials of the base material shall be included specifically in the Eco Mark Certification Application Form.

(14) For Criteria 4-2.(17) and (18), a certificate indicating conformity to the corresponding quality criteria shall be submitted. At the same time, a certificate issued by the manager of the plant manufacturing the product, stating that quality control is being implemented adequately and no laws have been violated in the manufacturing stage, shall be submitted.

Established: December 18, 2002

Revised: Dec. 26, 2003 (Eco Mark Usage)

Revised: February 12, 2004 (addition of criteria regarding to flame retardants)

Revised: July 1, 2004 (statements below Eco Mark Version 1.1)

Revised: November 1, 2004

Revised: August 3, 2006

Revised: October 19, 2006 (Version 1.1: Deletion of 6. Other requirements)

Revised: December 21, 2006

Validity Period: Sept. 31, 2009

These certification criteria for the product category will be reviewed in five years from the date of enactment, and the certification criteria and/or the product category will be revised or abolished if necessary.

Attachment 1 Particulars Required in User's Manual on Compost Containers

1) Compost containers

The following shall be taken into consideration when writing descriptions in the User's Manual.

- Disposed wastes that have been reduced in volume (hereafter referred to as disposed wastes) can serve as the raw material of compost, instead of compost itself.
- Each user should be individually responsible for the disposal of wastes.

The User's Manual shall provide the following information for the compost container to achieve sufficient performance.

1. Assembly

Drawings shall be used to describe how containers are assembled.

2. Purpose of use

The type of container (for example, outdoor or indoor.), volume of treatment (designed for how many families and days) shall be specified.

3. Scope of application

A list of organic wastes that can be disposed of in the containers shall be provided.

4. Reduction process

The reduction process shall be indicated in the User's Manual. The following information shall be included.

- Description of regulations, ordinances, and laws on the volume reduction of organic wastes
- General principles on volume reduction
- Site suitable for installing containers or systems in terms of hygiene
- Start of volume reduction
- Addition of organic wastes and base material
- Stirring
- Temperature range and humidity suitable for volume reduction (decomposing speeds in summer and winter)
- Average number of days for normal volume reduction
- Appraisal on whether volume reduction is achieved or not
- Total weight of container
- Height when container cover is moved (include this item only for containers with removable covers)

- What actions should be taken when volume reduction activity drops?
- General troubleshooting
 - Prevention of sanitary insects (flies, horseflies (*Pteticus tenebrifer*), *drosophilae*, etc.), rats
 - Odor of disposed wastes
 - Overflow of contents

5. List of Spare Parts

A list of consumables shall be provided.

6. Other Precautions

The following shall be specified.

- Precautions taken when filling container (recommended)
 - Remove moisture (roll in newspaper, dry in windy place, dry in the sun)
 - Better to cut up large wastes into smaller parts
- Be cautious about what to include (avoid including liquids (water), oil (do not include oil), fish/meat (protein), etc. in large amounts, because these cause odor)
- Handling microorganisms
 - Aim not at rotting but volume reduction.
 - For biological composting, precautions on possibility of contamination by microorganisms and population fluctuations in indoor use (sealed off space) shall be added.

Attachment 2

Substances prescribed in 4-1. (10)

Specified CFCs (5 CFCs)	trichlorofluoromethane
	dichlorodifluoromethane
	trichlorotrifluoroethane
	dichlorotetrafluoroethane
	Chloropentafluoroethane
Other CFCs	Chlorotrifluoromethane
	Pentachlorofluoroethane
	Tetrachlorodifluoroethane
	Pentachlorofluoropropane
	Hexachlorodifluoropropane
	Pentachlorotrifluoropropane
	Tetrachlorotetrafluoropropane
	Trichloropentafluoropropane
	Dichlorohexafluoropropane
	Chloroheptafluoropropane
	1,1,1-trichloroethane
CFCs substitute (HCFC)	Dichlorofluoromethane
	Chlorodifluoromethane
	Chlorofluoromethane
	Tetrachlorofluoroethane
	Trichlorodifluoroethane
	Dichlorotrifluoroethane
	Chlorotetrafluoroethane
	Trichlorofluoroethane
	Dichlorodifluoroethane
	Chlorotrifluoroethane
	Dichlorofluoroethane
	Chlorodifluoroethane
	Chlorofluoroethane
	Hexachlorofluoropropane
	Pentachlorodifluoropropane
	Tetrachlorotrifluoropropane
	Trichlorotetrafluoropropane
	Dichloropentafluoropropane
	Chlorohexafluoropropane
	Pentachlorofluoropropane
	Tetrachlorodifluoropropane
	Trichlorotrifluoropropane
	Dichlorotetrafluoropropane
	Chloropentafluoropropane
	Tetrachlorofluoropropane
	Trichlorodifluoropropane
	Dichlorotrifluoropropane
	Chlorotetrafluoropropane
	Trichlorofluoropropane
	Dichlorodifluoropropane
	Chlorotrifluoropropane
	Dichlorofluoropropane
	Chlorodifluoropropane
Chlorofluoropropane	

Attachment 3 Particulars Required in User's Manual on Home Composting Containers

2) Home garbage disposers

The following shall be taken into consideration when writing descriptions in the User's Manual

- Disposed wastes that have been reduced in volume (hereafter referred to as disposed wastes) can serve as the raw material of compost, instead of compost itself.
- Each user should be individually responsible for the disposal of wastes.

The User's Manual shall provide the following information for the compost container to achieve sufficient performance.

1. Manufacturer (logo if possible), product name and number shall be indicated.

2. Indications to ensure safety (Safety precautions)

Warning and cautions to ensure safe use and prevent injuries and damage to assets in use of the product shall be provided (They are not applicable in the case of malfunction or insufficient performance due to defect of the product.)

3. Name and function of main parts

Drawings and photographs shall be used to describe the names and functions of main parts requiring sufficient understanding of users prior to use.

4. Installation (Installing method)

The site and method of installation shall be indicated. Units to be installed outdoors shall describe potential risks if the disposer is used indoors.

5. Preparations (Prior to use)

The procedure for preparing to use the system such as checking and connecting components and accessories shall be described specifically.

6. Precautions on use

Handling precautions on causes of malfunctions and damage to the product, acts which disable the product from achieving the required functions and performance shall be indicated.

Examples

- Waste etc. that can be disposed and what cannot
- General troubleshooting

7. Using the system (How to use the system)

The method of using the system shall be explained clearly from the standpoint of the user.

Examples

- General principle on volume reduction
- Start of volume reduction

- Addition of organic wastes and base material
- Stirring
- Temperature and humidity appropriate for volume reduction
- Appraisal on whether volume reduction was successful

8. Handling of disposed waste

The following information shall be included.

(1) Precautions on use for gardening

(a) Use for home gardening shall be carried out at the user's own responsibility.

(b) In the case of (a), the method of use recommended by the manufacturer (in the User's Manual) shall be followed.

(c) Precautions for (a)

- When using as fertilizer, the compost shall be matured for a certain period of time as recommended. If dispersed without doing so, it may have adverse effects on plants.

-In particular, dispersing disposed waste which has been treated only for a short period of time will increase the risk of adverse effects on plants.

(2) Precautions on storage over a long period of time

(3) To throw away disposed waste, it can be treated as burnable garbage since its volume has been reduced.

9. Ideal way of using disposed waste

Any know-how and tips for effective use that will be more likely to produce the expected function and performance shall be indicated.

10. Replacement of parts (addition and replacement of base material)

For consumable parts (base material) that need to be added (replenished) or replaced, how to determine the time of addition and replacement, and replacement method, etc. shall be described.

11. Inspection

If any daily or periodic inspections are required to ensure ideal and safe use, why they are necessary and how they are carried out shall be provided.

12. Maintenance

To maintain product performance, the need for cleaning and maintenance and method shall be described.

13. Determining malfunctions (what to do when malfunction is suspected)

Guidelines (table) to determine if the system has malfunctioned when it stops operating normally in use and how to cope with the problem shall be provided.

14. Specifications

Product specifications such as power supply, electric power consumption, maximum power consumption, dimensions, and weight shall be described.

15. Options

Options sold separately (materials) for replacing or replenishing parts (materials), and expanding functions in the use of the product shall be described.

16. Guarantee and after-sales service

The following information shall be included.

- Guarantee
- Request for repair
- Period of time while repair parts are available shall be 6 years after the cease of manufacturing of the product
- Customer desk for inquires and repairs
- Precautions on safety inspection and safe use of products used over a long period of time

17. Manufacture information

The following items shall be included to clarify the responsibility for issuing the User's Manual.

- Company name
- Head office address and telephone number
- Name, address, and telephone number of product planning division

18. Others

The following shall be specified.

- Precautions taken when filling container (recommended)
- Remove moisture (roll in newspaper, dry in windy place, dry in the sun)
- Better to cut up large wastes into smaller parts
- Be cautious about what to include (avoid including liquids (water), oil (do not include oil), fish/meat (protein), etc. in large amounts, because these cause odor)
- Handling microorganisms
- Aim not at rotting but volume reduction.
- For biological composting, precautions on possibility of contamination by microorganisms and population fluctuations in indoor use (sealed off space) shall be added.

Home Garbage Disposer Performance Evaluation Criteria and Performance
Guidelines

1. Product definition

(1) System

A system that reduces the volume of organic waste efficiently using electric energy.

A secondary advantage of the system is that it can convert the disposed waste into reusable resources such as raw materials for composts. There are biological and dry systems.

(2) What is treated?

Organic wastes disposed from households.

The approximate volume of wastes disposed per day is 300-3,000 grams.

(3) Rated voltage

The commercial AC power is 100 V or 200 V.

(4) Site

For installation in general households (apartments and houses). Indoor and outdoor types are available.

2. Test conditions

The test conditions are as follows (the same for all items):

Temperature:	20±2 °C
Humidity:	60±10%
Voltage:	100V or 200V (based on rated voltage)
Frequency:	50H z , 60H z

Applicable wastes: Standard test organic wastes of the standard quantity are filled into the system. In addition, 700 grams (average weight of organic wastes per day for a family of four.) can be measured separately for reference. Note that "standard quantity " is the rated weight (g or kg) of organic wastes that can be treated smoothly every day in the standard operating conditions of the system for the designated nominal term.

For the biological system using aerobic fermentation, "can be treated smoothly" requires the condition that the moisture content of the base material should be below 75% to control the anaerobic fermentation state that occurs in high moisture levels. When the high moisture level continues, the aerobic fermentation state usually shifts to anaerobic fermentation state, and the emission from the base material changes from the normal ammonia gas to malodorous acetic gas. For the dry method, the rated quantity of organic wastes shall be filled in the system to ensure sufficient dryness.

3. Power load and power consumption

3-1. Power load

The maximum power load is the watt measured in operating conditions with maximum load imposed. (Operating condition with the maximum load imposed is the condition in which the system can demonstrate maximum performance within the operating temperature range. In other words, it is the operating mode in which the system is filled with the maximum possible quantity of organic wastes, and where it can demonstrate other added functions the most <deodorize function, etc.>.)

3-2. Power consumption

- (1) The power consumption is the electric energy consumed from start to end of treatment of the standard test organic wastes (standard quantity) filled into the system in the standard operation conditions of the system.
- (2) The power consumption of the biological type is affected by the treatment state of the base material and atmospheric temperature. Therefore, the standard test organic materials of the standard quantity are filled into the system every day based on "2. Test conditions" above to stabilize the treatment state. A watt-hour meter is used to measure the integral power for one week in the stable processing state. Electric energy used daily, or power consumption, is calculated using the measurement.

The "stable processing state" for the biological system is nearly equivalent to the state two weeks after continuous supply of organic wastes.

4. Reduced mass rate

- (1) The percentage that indicates how much the organic wastes filled into the system (g or kg) has been reduced after treating standard test organic wastes of standard quantity.
- (2) The reduced mass rate is measured for the nominal time with the dry type and for 2 months with the biological type.
- (3) With the biological type, measurement is done at two months when the reduced mass rate stabilizes.
- (4) Calculation equation
Reduced mass rate (%) = [total quantity of organic waste (kg) - {total mass at end of test (kg) - total mass before test (kg)}] / total quantity of organic wastes (kg) x 100
- (5) As the performance of the biological system varies according to the measuring conditions such as region, season, and temperature and humidity of the operating environment, the note "performance varies according to measuring conditions such as region, season, and temperature and humidity of the operating environment" shall be added.
- (6) The reduced mass rate should be at least 70% in the above tests.

5. Treatment time

This is the index on the treatment speed of organic wastes. It is the time from the start of processing after standard test organic wastes are filled into the system to the end of the process.

With the dry type, it is the time until the designed dry rate is achieved or the operating time that can be preset using a timer.

With the biological type, it is the operating time until the "state in which the form of the standard test organic waste is no longer identifiable" is achieved.

However, the treatment time of the biological composting varies diversely according to the type of organic waste, composition, size, and freshness. In actual use, as the organic waste can be filled into the system over a long period of time until the time of replacement of the base material, the length of the treatment time is insignificant. Consequently, the treatment time for standard test organic wastes is merely a reference for processing speed and should be treated carefully.

If the length of the treatment time is at issue in the biological system, the type, composition, size, and freshness of the organic waste shall be clearly indicated: for instance, "Treatment time of boiled cabbage center measuring 3 cm in size is three days."

From these reasons, it is appropriate to indicate the processing speed per time for the dry type and the standard processing quantity per day for the biological type.

6. Noise

- (1) Noise generated during the operation of the composting system.
- (2) Measuring conditions are based on characteristics A of JIS Z 8731 noise level measuring method.
- (3) Supposing the system is operated in the standard state, noise levels are measured 1 m away from the system at the front, right, and left sides, and the average value is calculated. The height is the center of the system.
- (4) Noise is measured for every operation when it changes due to operating states such as stirring and ventilation. It is measured for every frequency when it changes due to power frequency, and the maximum value is indicated.

7. Measures taken for odor

The product shall be deodorized and left open to the extent that it does not affect the peripheral environment and residents. To deal with the issue of odor, the following methods can be used; catalytic deodorizing system, aerobic microorganism treatment, microorganism deodorizing method using specified bacteria, dilution, duct emission, adsorption, electric discharge deodorization.

8. Safety

The system shall be designed with a safety structure conforming to the electric

equipment safety law, and appropriate warning notes and precautions shall be labeled on the system or provided in the User's Manual to ensure safe use of the product. (Equivalent to JEMA Anzen Hyoji Jissi Yoryosho (guidelines on safety signs and indications))

**Types, Contents, and Processing methods of
Foods Used for Standard Test Organic Wastes**

Waste Composition		Actual organic waste ratio (weight ratio)		Method of cutting
Vegetable	Vegetable skin/scrap/ center (leftover)	Cabbage	25	Cut into pieces of less than 10 mm in width (including center)
		Potato	5	Cut into quarters and then into small pieces of 5 mm (with skin)
		Onion	5	Cut into halves and then into small pieces of 5 mm (including skin)
		Radish	5	Cut into quarters and then into small pieces of 5 mm
	Fruit skin/center	Apple	15	Cut into eight pieces vertically (including center)
		Orange or tangerine	15	Cut into eight pieces vertically (with skin)
	Sub Total		70	
Meat	Meat	Raw meat	3	Chopped into irregular pieces around 3 cm
	Fish	Raw fish (sardine, etc.)	8	Cut into quarters
	Egg shell	Chicken egg shell	2	
	Sub Total		13	
Vegetable and meat total			83	
Other	Leftover food	Rice or <i>udon</i> noodle	11	
	Tea dregs	Tea dregs	6	Used tea leaves
	Sub Total		17	
Total			100	

*The composition of the organic wastes above is based on the following survey results, but may be revised with lifestyle changes.

<References>

1. Survey Report of Sewerage and Sewage Purification Department, Ministry of Land, Infrastructure and Transport
2. Survey Report of Bureau of Sewerage, Tokyo Metropolitan Government
3. Kyoto City Household Waste Disposal Survey Report
4. Nara Women's University Household Waste Survey
5. Survey by Composting System Monitors

Scheduled to be establishment in October 20, 2002 (Version1.0)

These certification criteria for the product category will be reviewed in five years after the date of enactment, and the certification criteria and/or the product category will be revised or abolished.