



Eco Mark Product Category No.127

“Fire Extinguisher Version 1.0 ”Japan Environment Association
Eco Mark Office**1. Environmental Background**

With the growing awareness of the limits in our environment and resources, the construction of a recycling-oriented economic society for the sustainable growth of the economy comes as an urgent task. One sphere in which recycling must be promoted is fire extinguishers, as they consist of mainly a metallic container and fire extinguishing agent.

The Fire and Disaster Management Agency has been providing guidance on the recovery of fire extinguishers through fire extinguisher disposal businesses with the aim of preventing accidents resulting from aged fire extinguishers. The manufacturers of these products have also been carrying out voluntary recovery. However present recovery and recycling systems are inadequate, as indicated by a 2002 survey by the Agency, which revealed that the number of recovered fire extinguishers which could be traced was merely 1.65 million compared to the 3.5 to 4.5 million sold annually. The Agency conducted another sample survey to grasp how many years have passed since general consumers bought powder fire extinguishers or since manufactures made them. While most manufacturers provide an 8-year warranty, it has been found that more than 50% of households own fire extinguishers that are less than 5 years old. More than 20% have fire extinguishers that were made or purchased over ten years ago or those whose age is unknown. Surprisingly, more than 20% of households still own powder extinguishers that they wish to dispose of. Of this 70% responded that they did not know how to go about disposing them. For these reasons, a recovery system must be established to prevent accidents concerning fire extinguishers.

In December 1999, the Japanese government set up the Millennium Project, which is undertaken jointly by industry, academia, and government, targeting bold technical innovation that can create new industries at the start of this new millennium. Focusing on environmental efforts as an important theme as well as actions to cope with an information-driven society and growing aged population, the Project aims at the rapid establishment of a recycling-oriented society. Based on the policy, the Fire and Disaster Management Agency has also set goals to raise the reuse and recycle rate to 60% for fire extinguishers.

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

Based on this situation, a proposal on the “Use of Recycled Fire Extinguishing Agents” as a new Eco Mark category was made in 1999. This was selected by The 6th Eco Mark Category and Standard Criteria Committee and will be reviewed together with the criteria of Eco Mark category No.67, “Inert-Gas Smothering Systems and Apparatuses Using Non- Ozone Layer Depleting Gases”. This product category focuses on fire extinguishers that are eco-friendly throughout the entire life cycle in terms of effective use of recyclable materials for fire extinguishing agents, content/discharge of harmful substances, product manufacturing and disposal, recycling stage, etc.

2. Applicable Products

Of products corresponding to the ministerial ordinance prescribing technical standards of fire extinguishers issued by the Director General of Management and Coordination Agency (established in 1964), those that fall into powder (ABC) fire extinguishing devices are applicable. Aerosol type simple extinguishing devices and fire extinguishers used on ships and aircraft are excluded.

3. Terminology

- Recycled materials: Post- or pre-consumer materials, or the combination of both.
- Post-consumer materials: materials that have undergone the required pre-treatment.
- Pre-consumer materials: Materials or rejected products generated from a disposal route in a product manufacturing process, excluding those which are recycled within the same process (plant).
- Prescription constituents: Material components added for intended purpose to give any characteristics to the products. Impurities that are technically unavoidable in the manufacturing process are not included.
- Recycling: Refers to material recycling. Energy recovery (thermal recycling) is excluded.

4. Certification Criteria

4-1. Environmental criteria

- (1) The recycled material used in the fire extinguishing agent shall be 40% or more of the total of the agent by weight.
- (2) In manufacturing, related environmental laws and pollution control agreements shall be observed for atmospheric and water pollution, noise, vibration, offensive odor, discharge of hazardous substances, etc.
- (3) Products shall not contain polymers consisting of halogens and/or organic halogenides.
- (4) Packaging shall give consideration to resource saving, ease of recycling, and load reduction in incineration. The plastic materials used for packaging shall not

contain polymers consisting of halogens and/or organic halogenides.

- (5) Fire extinguishing agents shall not contain heavy metals such as lead, cadmium, copper, nickel, mercury, and zinc.
- (6) Products shall have recovery systems. Related information shall also be provided.
- (7) Fire extinguishers recovered shall be disassembled by the appropriate method, and metal parts and fire extinguishing agents shall be recycled appropriately. However, parts that cannot be recycled shall be disposed of appropriately.

4-2. Quality criteria

- (8) Quality shall conform to the ministerial ordinance prescribing technical standards of fire extinguishers issued by the Director General of Management and Coordination Agency, and this shall be labeled.

5. Certification Procedure

5-1. Certification of "4-1. Environmental Criteria"

Attached certificates and certificates indicating compliance to each criterion shall be submitted.

- (1) For Criterion 4-1.(1), the content of recycled materials in the fire extinguishing agent shall be indicated in the attached certificate. Also the raw material certificate issued by the recycled material supplier shall be attached.
- (2) For Criterion 4-1.(2), certificates issued by the manager of the plant manufacturing the product certifying that no environmental laws and regulations of the plant location have been violated for the past five years shall be submitted.

If the manufacturing plant is subject to the PRTR law, and substances (Class 1 designated chemical substance) are used at levels above that specified by law, certificates issued by the manager indicating the amount of discharge and movement for each substance shall be submitted.

- (3) For Criterion 4-1.(3), a list of materials used for the product issued by the manufacturer shall be attached.
- (4) For Criterion 4-1.(4), packaging materials shall be indicated in attached certificates.
- (5) For Criterion 4-1.(5), certificates issued by the fire extinguishing agent supplier shall be attached.
- (6) For Criterion 4-1.(6), documents describing the recovery system shall be submitted. Instruction manual (user's manual) indicating that the user can use this system easily (e.g.: recovery method at dealers, etc.) shall be submitted.
- (7) For Criterion 4-1.(7), documents describing disassembly methods, recycling systems of each material (recycling method and rate, etc.), and disposal methods for non-recyclable parts shall be submitted.

5-2. Certification of "4-2. Quality Criteria"

- (8) For Criterion 4-2.(1), attach a copy of certificate issued by the Director General of the Management and Coordination Agency.

6. Other Requirements

- (1) Product categorization shall basically be by brand name (series name): pressurized, accumulated, fire extinguishers other than those for automobiles (household, large, etc.) and automobile fire extinguisher.
- (2) The following environmental information shall be indicated in the box below the Eco Mark label. The planned location and details of such information shall also be indicated when applying for Eco Mark product certification. The environmental information indicated shall consist of two lines aligned to the left and enclosed in a rectangular box. The first line shall indicate “再生薬劑を〇〇%使用 (“Recycled chemicals XX%)” or “再生薬劑を〇〇%以上使用 (“Recycled chemicals above XX%)”. The second line shall indicate “回収およびリサイクルシステムを持つ (“With recovery and recycling systems)”. XX% shall indicate the percentage of the actual recycled material used respectively (Rounded to the nearest whole number).

Be sure to indicate the certification number the Eco Mark.

The following shows an example:



Eco Mark Certification No.XXXXXXXXXX

Indication of numbers only is valid



Eco Mark Certification No.XXXXXXXXXX

Indication of numbers only is valid



Eco Mark Certification Number No.XXXXXXXXXX

Indication of numbers only is valid

- (3) The name and address of the Eco Mark user shall be indicated on the Eco Mark product or packaging/container. (Eco Mark Use Regulations Article 7).
- (4) In principle, products to be applied shall be free of “flame retardant”, “antibacterial agent” materials and “biodegradable plastic” indication. When using these materials under special circumstances, however, the products shall satisfy the provisions contained in the “Eco Mark Business Execution Guideline” concerning “flame retardant”, “antibacterial agent” and “indication of biodegradable plastic”. Specifically, the use of these materials shall be described in the form “Application for Eco Mark Certification/Use” with documents stipulated in the form to be attached. (Quoted from “A Guide to Eco Mark”: exclusion clause corresponding to Article 3.7 of “Guidelines for Eco Mark Program Implementation ”)

Established: November 1, 2003 (Version 1.0)

Validity Period: October 31, 2008

These certification criteria for the product category will be revised or abolished when deemed necessary.

*The term of validity of the current certification criteria for Eco Mark Product Category No. 67 “Inert-Gas Smothering Systems and Apparatuses Using No Ozone-Layer Depleting Gases” shall be extended to the day before the day this draft (“Fire Extinguishers Version 1.0”) is established.

Product Certification Criteria for “Fire Extinguishers Version 1.0”

Established: November 1, 2003

1.Environmental Background

A survey by the Fire and Disaster Management Agency in 2000 clarified to what extent the fire extinguisher recovery system has been developed in Japan. The following diagram illustrates the structure. The survey also investigated the recycling and reuse of the recovered powder fire extinguishing agents, and confirmed that the potential is high.

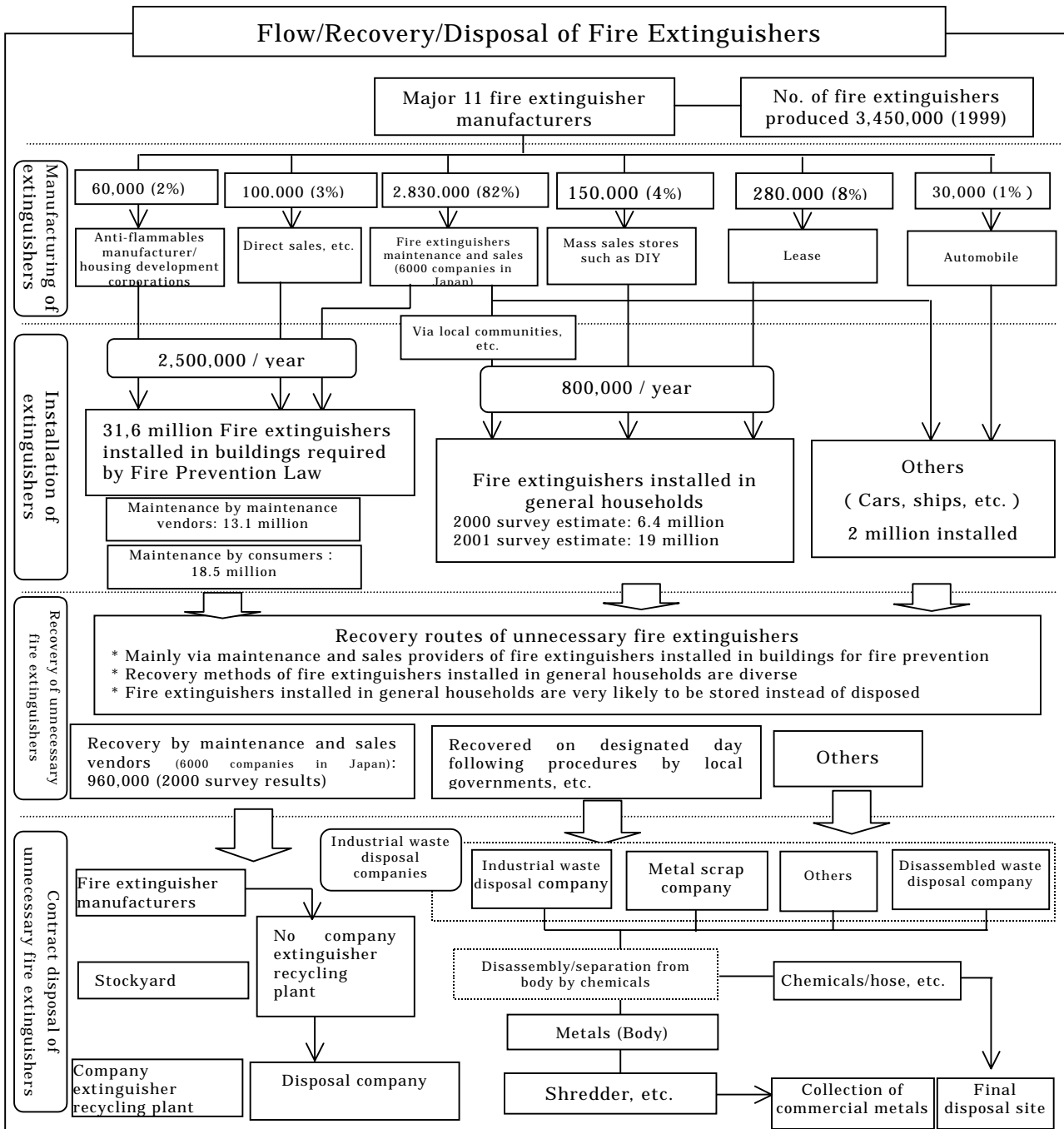


Figure Distribution and Recycling of Fire Extinguishers¹⁾

2. Applicable Products

The establishment of product certification criteria for each fire extinguishing agent and fire extinguisher container material was studied. As it was found that ABC powder fire extinguishers dominate more than 90% of fire extinguisher sales and that their recycling methods are gradually being established, the ABC fire extinguisher was taken up.

Other fire extinguishing devices were also reviewed. Spray type fire extinguishing devices are collected as nonflammable waste if the used spray can is punctured with holes. Because the recovery and recycling methods for them differ considerably from fire extinguishers which can only be disassembled by professionals, they were omitted from the scope of this product category. Fire extinguishers for ships and aircraft fall under the jurisdiction of the Land, Infrastructure and Transport Ministry, and they are managed under a system that is different from that of the Fire and Disaster Management Agency, which means the ministerial ordinance prescribing technical standards of fire extinguishers issued by the Director General of Management and Coordination Agency is not applicable to them. Therefore they were also excluded from this product category. In addition, the current Eco Mark Product Category No.67 "Inert-Gas Smothering Systems and Apparatuses Using No Ozone-Layer Depleting Gases" was reviewed, and was discontinued due to the existence of numerous types of fire extinguishing systems and machines other than gas types, and it is difficult to set criteria for each type.

4.Environmental Criteria

4-1.Details of Establishing Environmental Criteria

For setting up the criteria, environmental impacts over the whole life cycle of a product was considered, using the "Chart for Selecting Environmental Impact Items at Each Stage of Product Lifecycle." 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.

The focus of environmental impact items for a category of "Fire Extinguishers Version 1.0" is as shown in the "Chart for Selecting Environmental Impact Items at Each Stage of Product Lifecycle" (X in the Chart). Out of these items the following were finally selected as the environmental criteria: A-1, B-5, B-6, B-7, B-8, B-9, C-1, C-7, E-7, F-1 and F-7 (XX in the Chart). 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.

It is also discussed that additional environmental performance of products should be accepted as certification criteria.

Following are 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. Re-source extrac-tion	B. Manu-fac-turing	C. Distri-bution	D. Use/Con-Sump-tion	E. Dis-posal	F. Re-cycling
1. Resource consumption	XX		XX	X		XX
2. Discharge of green house gases		X	X	X		
3. Discharge of the ozone layer depleting substances		X				
4. Destruction of eco systems						
5. Discharge of atmospheric pollutants		XX				
6. Discharge of water pollutants		XX				
7. Discharge/disposal of wastes		XX	XX			XX
8. Use/discharge of hazardous materials		XX		X	XX	
9. Other environmental impacts		XX				

A. Resource Extraction Stage

A-1 Resource consumption

The following point was reviewed under this item:

(1) Reuse of recycled resources

Containers, filling agents, hoses, etc. were considered as fire extinguisher parts and materials for which recycled resources can be used. Although the use of recycled materials in fire extinguisher itself and accessory parts is considered, this item was not selected as a criterion due to securance of safety and durability in addition to fire extinguishing function. Currently, as the reuse of fire extinguishing agents can only be applied to ABS powder fire extinguishers, only ABS powder fire extinguishers were selected for this product category. The feasible recycled material use of fire extinguishing agents was set at 40%, but this value will be reviewed according to future improvements of recycling technology, and recovery rates of unused and used fire extinguishers.

B. Manufacturing Stage

B-2 Discharge of greenhouse gases

The following points were reviewed under this item:

- (1) Minimum energy consumption
 (2) Reduction of consumed heat by adopting non-painting methods

(1) Attempts were made to compare the energy consumed in the manufacturing stage of iron and aluminum (materials of containers), or energy consumption in the forming of fire extinguisher containers, but due to difficulties met in calculating exact energy consumption amount, this item was not selected as a criterion.

(2) As a means of promoting non-painting, labeling is currently adopted as an alternative. However due to the difficulty in comparing the environmental burden of painting and the use of labels, this item was not selected as a criterion.

B-3 Discharge of ozone layer depleting substances

The following point was reviewed under this item:

(1) No generation and discharge of specific and alternative chlorofluorocarbons

As specific and alternative chlorofluorocarbons are not discharged during the manufacture of fire extinguishers, this item was not selected as a criterion.

B-5 Discharge of atmospheric pollutants

The following point was reviewed under this item:

(1) No generation and discharge of atmospheric pollutants

As it was deemed that environmental burden can be reduced by observance of related environmental laws and pollution control agreements, this item was selected as a criterion.

B-6 Discharge of water pollutants

The following point was reviewed under this item:

(1) No generation and discharge of water pollutants

As it was deemed that environmental burden can be reduced by observance of related environmental laws and pollution control agreements, this item was selected as a criterion.

B-7 Discharge/disposal of wastes

The following point was reviewed under this item:

(1) Control of waste generation

As it was deemed that environmental burden can be reduced by observance of related environmental laws and pollution control agreements, this item was selected as a criterion.

B-8 Use/discharge of hazardous materials

The following point was reviewed under this item:

(1) No use and discharge of hazardous materials

As it was deemed that environmental burden can be reduced by observance of related environmental laws and pollution control agreements, this item was selected as a criterion.

B-9 Other environmental impacts

The following point was reviewed under this item:

(1) No generation of noise, foul odor, and vibrations

As it was deemed that environmental burden can be reduced by observance of related environmental laws and pollution control agreements, this item was selected as a criterion.

C. Distribution Stage

C-1 Resource consumption and C-7 Discharge/disposal of wastes

(1) Containers for packaging and distribution can be repeatedly used or recycled

As it was determined that environmental criteria are necessary for the reduction of packaging from the perspective of resource consumption and the discharge and disposal of waste, this item was selected as a criterion. However as a result of reviewing the repeated use of packaging and distribution containers, these were deemed difficult at this stage. Therefore, for packaging, only the need for consideration of resource saving, recycling, and environmental burden in incineration was prescribed in the criteria.

C-2 Discharge of greenhouse gases

The following point was reviewed under this item:

(1) Efforts in reducing fossil fuel by improving stacking efficiency

Regarding the improvement of stacking efficiency during distribution, the measures taken differ by transportation company, and are difficult to control by the manufacturing side. This item was therefore not selected as a criterion.

D. Use/Consumption Stage

D-2 Discharge of greenhouse gases

The following point was reviewed under this item:

(1) No use or discharge of carbon dioxide

Carbon dioxide is discharged in the use of CO₂ fire extinguishers. At the

beginning, fire extinguishers other than powder types were reviewed, but it was decided that CO₂ types would not be included in the Criteria.

Discussions were also carried out on the gas used in pressure gas cylinders. Generally, carbon dioxide is used, but due to the difficulty in quantitatively comparing the energy used for employing these cylinders and environmental burden, and, taking into consideration the recovery and reuse of carbon dioxide are difficult cost-wise, this item was not selected as a criterion.

E. Disposal

E-8 Use/discharge of hazardous materials

The following points were reviewed under this item:

- (1) No generation of harmful gases in incineration
- (2) No environmental impact on surrounding when landfilling

As Item (1) is an important factor in the reduction of environmental burden, it was decided that environmental criteria need to be set, and this item was included in the Criteria. It was also clarified in these criteria on environment that halogens such as chlorine which become toxic during incineration, etc. shall not be added as components.

As Item (2) is an important factor in the reduction of environmental burden, it was decided that environmental criteria need to be set, and this item included in the Criteria. The application of the specified value for content of heavy metals in powder fire extinguishers was studied based on the criteria for fire extinguishers with low content of hazardous materials that were developed by the German eco-labeling body, Blue Angel. Some fire extinguishers on the current market, however, have values higher than the Blue Angel requirement, and these components are very difficult to remove. Thus, in this criterion, it was decided that heavy metals such as lead, cadmium, and copper, etc. shall not be added in recycled agents.

F. Recycling Stage

F-1 Resource consumption and F-7 Discharge/disposal of wastes

The following points were reviewed under this item:

- (1) High recycling rate
- (2) Recovery route is established
- (3) System which facilitates recycling for consumers

As Item (1) promotes recycling, it was selected as a criterion. When reviewing the recycling rate to be set, it was recognized that further recycling of Eco Mark products using recycled fire extinguishing agents means repeating the multiple recycling of these agents. Because the safety of multiple recycled agents has yet to be confirmed, the recycling rate was not set this time. Reviews with future improvement of recycling technology may be carried out as necessary.

For Items (2) and (3), the 2002 Fire and Disaster Management Agency survey found that only about 1.65 million fire extinguishers were recovered while 3.5 to 4.5

million fire extinguishers are sold annually, which means the recovery rate is about one third. As the establishment of recovery and recycling systems is important for the promotion of recycling, these items were selected as criteria. Cost sharing and recovery methods were also reviewed. The current recovery system for fire extinguishers allows the recovery of other manufacturers' products if requested by the consumer. However, when the manufacturer and recovery service provider are not the same, if the price of recovery costs is to be added to the price of the product, the recovery costs added will not be returned. Recovery costs were thus omitted from screening for Eco Mark, and left to the discretion of manufacturers.

Reference

1) Report on Review of Promoting Recycling of Fire Extinguishers and Non-Flammables (Fire Extinguishers), March 2002, Fire and Disaster Management Agency.

Attached Certificates

No. 127 ver1.0

Date

(Company name) Company seal

<Preparing Attached Certificates>

1. Indicate details of the product under application for certification in " Fill in this Column." Shaded areas in "Fill in this Column" do not require entry.
2. Prepare yourself or have other interests prepare the certificates specified in "Documents to be Submitted." Submit these certificates with this document when applying for Eco Mark Product certification or use.
Shaded areas in "Documents to be Submitted" do not require submission of the certificates.
3. Prepare certificates referring to the examples provided.
4. The issuer(s) in the "Issued by" column must prepare "Documents to be Submitted."

Item	Fill in this Column	Documents to be submitted	Issued by
Use and type	<input type="checkbox"/> Accumulated <input type="checkbox"/> Pressurized <input type="checkbox"/> For other than automobiles <input type="checkbox"/> For automobiles (Please check)	Product brochures and other materials	Applicant
Entity which developed the product	<input type="checkbox"/> Other than applicant <input type="checkbox"/> Applicant (Please check)	If "Other than applicant," permission to apply from developer	Fire extinguisher manufacture
6.(2) Planned location of Eco Mark on product, environment information and certification number to be indicated below the mark		Submission of drawing indicating planned location (in any format, text)	Applicant
6.(3) Indication of Eco Mark users and address (Article 7 of Regulations on Use)			

Attached Certificates

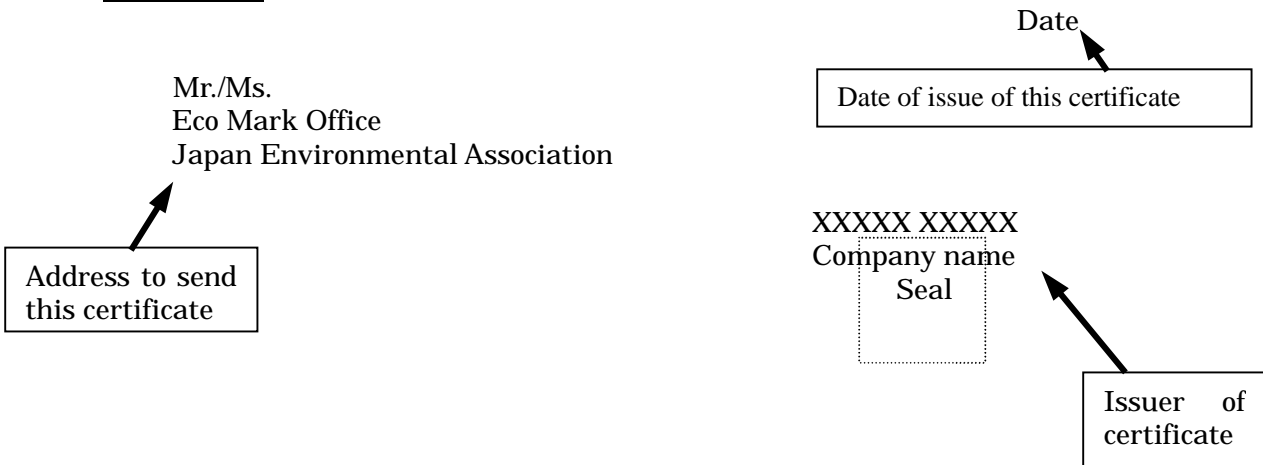
4-1.(7) Recycling of products		Documents describing disassembling method, recycling system (process, recycling rate, etc) and the disposal method for parts that are hardly be recycled	Applicant
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4-2. Quality criteria

Item	Fill in this Column	Documents to be submitted	Issued by
4-2.(1) Product Quality		A copy of permission	

Attached Certificates

Example 1



Raw Material Certification

This is to certify that recovered materials such as fire extinguishing agent extracted for reuse from such agent of aged commercial fire extinguishers on the market are shipped to (name of manufacturer of the Eco Mark product).

Specifically indicate which they are classified as “Post-consumer materials” or “Pre-consumer materials” defined in “3. Terminology” of the Certification Criteria.

Attached Certificates

Example 2

Mr./Ms.
Eco Mark Office
Japan Environmental Association

Address to send
this certificate

Date

Date of issue of this certificate

XXXXX XXXXX
Company name
Seal

Issuer of
certificate

*Issuer: Manager of finished products
manufacturing plant or quality control supervisor

Environment Laws and Regulations Compliance Certificate

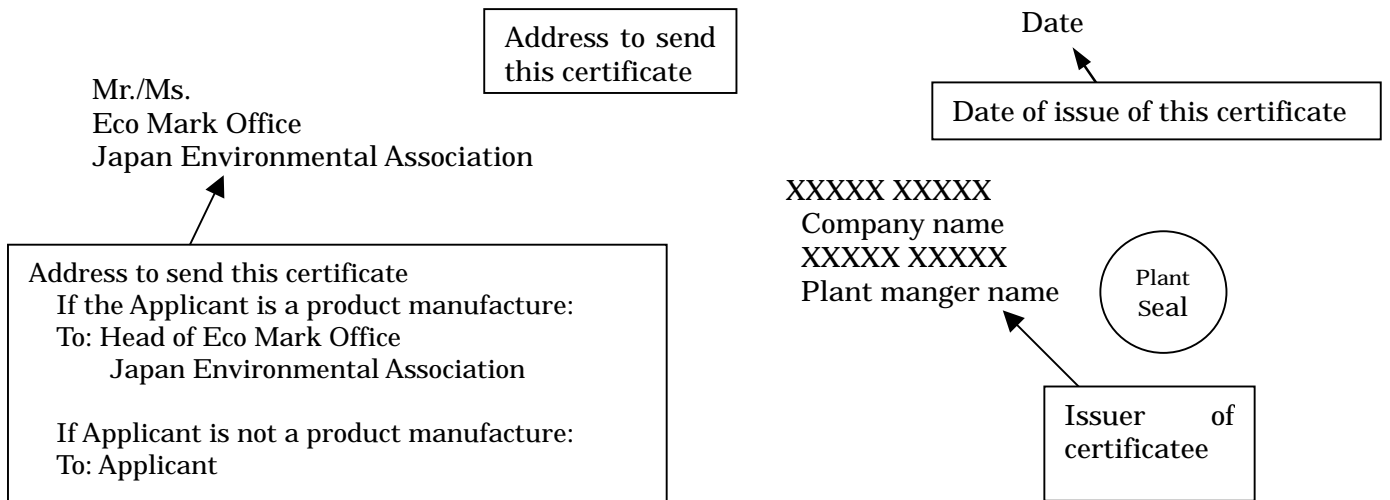
This is to certify that XXX <The company handling the final manufacturing process of the product> has observed YYY <indicate all relevant laws such as environment laws and regulations pertaining to the product under application and local pollution control > in the manufacturing process of ZZZ <name of product under application > for a period of XX years.

(*) Otherwise, provide a statement indicating no laws and regulations have been violated since establishment of company.

Indicate that the issuer is the plant manager or someone in an executive position equivalent to plant manager.

Example 3

Attached Certificates



Report of Discharge and Transfer Amount of Chemicals Based on PRTR Law

This is to report the discharge and transfer amount of the following chemicals used in (*brand name of the product under application*) since they are Class 1 substances specified by the Law Concerning Reporting, etc. of Release to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management (PRTR law) and are used at levels above that specified the law.

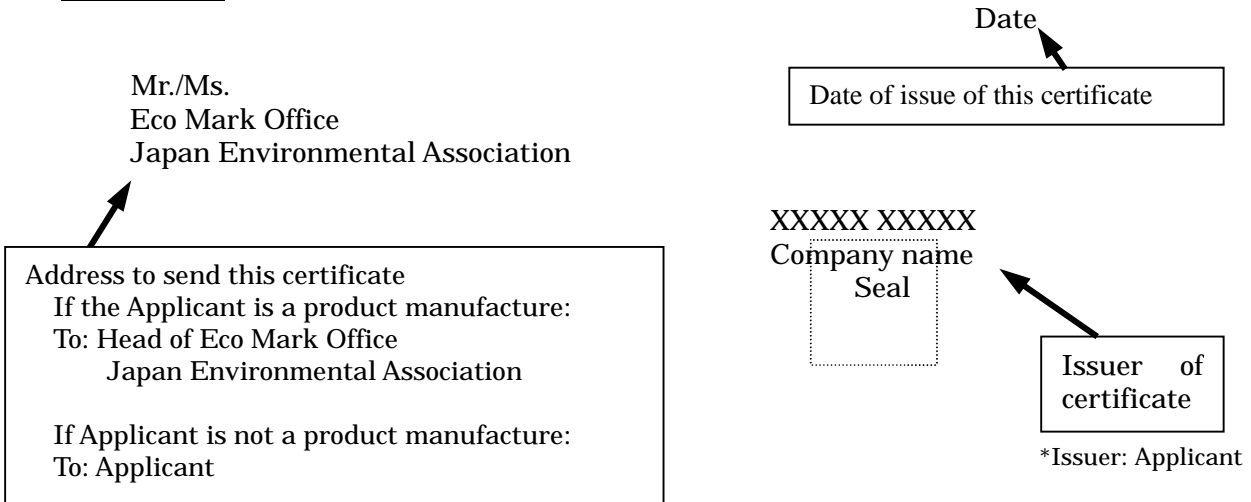
Unit: t/year

Ordinance No. (Substance No.)	CAS No.	Substance	Discharge to air	Discharge to public water regions	Discharge to soil	Total amount discharged	Total amount transferred
Total							

Indicate that the issuer is the plant manager or someone in an executive position equivalent to plant manager.

Attached Certificates

Example 4



Certificate of Materials Used in the Product

This is to certify that the following materials are used in the products.

Part		Material
Container	Upper mirror board	
	Body	
	Lower mirror board	
Bulb		
Cap		
Connector		
Nozzle		
Hose		
Horn		
Gas inductor		
Fire extinguishing agent		
Describe others below, if any.		

Example of material description: aluminum, natural rubber, polyethylene, etc

Attached Certificates

Example 5

Mr./Ms.
Eco Mark Office
Japan Environmental Association

Date
Date of issue of this certificate

XXXXX XXXXX
Company name
Seal

Issuer of
certificate

*Issuer: Applicant

Certificate of Chemicals Used in Fire Extinguishing Agents

This is to certify that fire extinguishing agents (recycled chemicals XX%) shipped to you do not contain heavy metals such as lead, cadmium, copper, nickel, mercury, and zinc as essential components.