

Eco Mark Product Category No.161

“Shredders Version1.0” Certification Criteria

—Applicable Scope—

Electric shredders for shredding confidential documents (paper / recording media), etc.

Established	November 1, 2017
Last revised	April 1, 2019
Expiration date	October 31, 2029

Japan Environment Association
Eco Mark Office

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.

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1. Purpose of Establishing Certification Criteria

Omitted

2. Applicable Scope

Electric shredders for shredding confidential documents (paper / recording media), etc.

3. Terminology

Omitted

4. Certification Criteria and Certification Procedure

The corresponding boxes in the Attached Certificates shall be checked/filled in, stamped with the applicant company seal and submitted. When overseas Ecolabelling is acquired by utilizing the Mutual Recognition Agreement (MRA), for certifying 4-1-2.(6) and (7), the testing shall be conducted at a testing laboratory certified by ISO/IEC 17025 (corresponding JIS Q17025 “General requirements for the competence of testing and calibration laboratories”).

4-1. Environmental Criteria and Certification Procedure

4-1-1. Resource Saving and Resource Recycling

(1) The product shall conform to Appendix1 “Product Design Checklist”.

[Certification Procedure]

Compliance with this item shall be indicated in the attached certificate. In addition, Form 1 “Product Design Checklist” shall be submitted.

(2) For the shredders that can shred both paper and recording media, they shall be structured to accommodate shredded paper and other media separately

[Certification Procedure]

Compliance with this item shall be indicated in the attached certificate. In addition, a photo or the applicable part of the brochure shall be submitted that verifies the structure to accommodate shredded paper and other media separately, such as separate dust boxes.

(3) Repair subcontract systems shall be available, and repairs shall be carried out as requested by the users (repair system). The following a. and b. on the repair system shall be provided:

a. information on repair subcontract system is available;

b. information on the scope of repair (details of services), contact address, etc. are provided to users.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. In addition, copies of the instruction manual, leaflet and website indicating the matters related to this item shall be submitted.

- (4) Supply of the spare parts shall be continued for five years after suspension of the product manufacturing.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. In addition, copies of the instruction manual, leaflet and website indicating the matters related to this item shall be submitted.

- (5) Packaging or packing of a product shall be as simple as possible and give consideration to ease of reuse and environmental burden when packaging or packing materials are disposed of. Specifically, the product shall conform to Appendix 2 "Packaging Material Check List".

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. In addition, Form 2 "Packaging Material Check List" shall be submitted.

4-1-2. Prevention of Global Warming

- (6) The rated power consumption of the product shall conform to the following standard.

$$\text{Rated power consumption [W]} \leq 30 \times x \text{ [pieces]} + 120 \text{ [W]}$$

For x, insert the rated number of shreddable pieces. However, x shall be 15 for the shredders dedicated to recording media. Note that for the rated number of shreddable pieces and the rated power consumption, those measured at the frequency of 50 Hz shall be used.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate, and the test result of the rated power consumption shall be submitted.

The name and address of the analysis test center and the conformance to ISO/IEC17025 (corresponding JIS Q17025) shall also be indicated in the Attached Certificate.

- (7) Standby power consumption of the product shall be 0.5W or less.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate, and the test result of the standby power consumption shall be submitted

The name and address of the analysis test center and the conformance to ISO/IEC17025 (corresponding JIS Q17025) shall also be indicated in the Attached Certificate.

- (8) The product shall be provided with a power switch. For the product with a low power mode or off-mode, the time to transfer to such mode shall be set to 10 minutes or less at the time of shipping.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. In addition, a copy of a corresponding page of an instruction manual, leaflet, website, etc. shall be submitted.

4-1-3. Restriction and Control of Hazardous Substances

- (9) Polymer containing halogen shall not be used for plastic casing parts weighing over 25g. However, fluoroplastics, for example, PTFE, etc. are allowed to be used. In addition, the product shall have no flame retardant of short-chain chlorinated paraffin (SCCPs) (the number of chained C is 10 to 13 and contained chloride concentration is 50% or over), Hexabromocyclododecane (HBCD) added as prescribed constituents.

[Certification Procedure]

Compliance with this item and the confirmation method shall be indicated in the Attached Certificate. In addition, Form 3 “plastic material list used” shall be submitted. The manufacturer of the raw material, whether polymers containing halogens are added, and the name and CAS number of the flame retardants used or the code number according to the ISO1043-4 (JIS6899-4) shall be indicated. In addition, it is recommended that confirmation is performed based on JIS Z 7201 “Management of chemical substances in products - Principles and guidelines”.

- (10) The content rate of lead, mercury, cadmium and those compounds, hexavalent chromium compounds, polybrominated biphenyl(PBB) and polybrominated diphenyl ether(PBDE) in the product shall comply with ANNEX II of the [Commission Delegated Directive (EU)2015/863 amending Annex II of RoHS (II) Directive] (Table 1). However, this does not apply to those substances specified in ANNEX III.

[Certification Procedure]

Compliance with this item and the confirmation method shall be indicated in the Attached Certificate. In addition, it is recommended that checking is performed based on JIS Z 7201 “Management of chemical substances in products - Principles and guidelines”.

Table 1. Content rate of heavy metal in the product

Material	Content rate [wt%]*
Lead and its compounds	≤ 0.1
Mercury and its compounds	≤ 0.1
Cadmium and its compounds	≤ 0.01
Hexavalent chromium and its compounds	≤ 0.1
Polybrominated biphenyl(PBB),	≤ 0.1
Polybrominated diphenyl ether(PBDE)	≤ 0.1

* The content rate refers to the content proportion in a homogeneous substance (Minimum unit that can be separated by rule with totally uniform composition).

- (11) Mercury, Cadmium and Lead in a battery built in the product shall comply with Table 2.

[Certification Procedure]

Compliance with this item and the confirmation method shall be indicated in the Attached Certificate. In addition, it is recommended that confirmation is performed based on JIS Z 7201 “Management of chemical substances in products - Principles and guidelines”.

Table 2. Content rate of heavy metal in a battery

	EU Directive 2013/56/EU		Indication requirement in EU Directive 2006/66/EC
	Mercury [wt%]	Cadmium [wt%]	Lead [wt%]
Content rate	≤ 0.0005	≤ 0.002	≤ 0.004

- (12) In manufacturing the applied product, related environmental laws and regulations and pollution control agreement (hereinafter referred to as the “Environmental Laws, etc.”) must be followed with respect to air pollution, water contamination, noise, offensive odor, and emission of hazardous materials in the area where the plant performing the final manufacturing process is located.

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

[Certification Procedure]

With respect to the compliance with the Environmental Laws, etc. in the area where the plant performing the final manufacturing process is located, a certificate issued by the representative of the business of manufacturing the applied product or the manager of the relevant plant (entry or attachment of the list of names of the Environmental Laws, etc.) must be submitted. (Example 4)

In addition, it is necessary to report whether there is any violation during the last five years, including a violation subject to administrative punishment or administrative guidance, and if there is, the following documents in a and b must

be submitted:

- a. With respect to the fact of violation, guidance documents from administrative agencies (including order of correction and warning) and copies of written answers (including those reporting causes and results of correction) to such documents (making a series of progress clear);
- b. Following materials (copies of recording documents, and so on) concerning the management system for compliance with the Environmental Laws, etc. in 1)-5):
 - 1) List of the Environmental Laws, etc. related to the area where the plant is located;
 - 2) Implementation system (organizational chart with entry of roles, etc.);
 - 3) Document stipulating retention of recording documents;
 - 4) Recurrence prevention measures (future preventive measures);
 - 5) State of implementation based on recurrence prevention measures (result of checking of the state of compliance, including the result of onsite inspection).

4-1-4. Information provision to users

- (13) Information for users shown in a. to f. below shall be provided in an instruction manual, leaflet, website, etc.:
- a. Shredded paper and recording media shall be discharged separately (for the products that can shred both).
 - b. Indication that encourages shredded paper to be recycled as office waste paper.
 - c. Information on the collection, recycling, or disposal of used product.
 - d. Appropriate way of use the product (way of daily care, etc.)
 - e. Way of use leading to energy saving
 - f. Information on the power consumption of the product (rated power consumption, standby power consumption, etc.)
 - g. Indication of cautions on the product in accordance with the Electrical Appliances and Materials Safety Act.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. In addition, copies of the applicable part of the instruction manual, leaflet and website indicating information provided to users shall be submitted.

4-2. Quality criteria and certification procedure

- (14) The product shall have the overload cutoff and reverse functions, etc. to prevent fault and paper jam.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. In addition, a copy of the applicable part of the instruction manual, leaflet, website, etc.

describing the product being provided with the overload cutoff and reverse functions, etc. shall be submitted.

(15) The product shall comply with the Electrical Appliances and Materials Safety Act.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate.

5. Considerations

In manufacturing products, it is desirable to consider the following, although they are not requirements for certification. The conformance to the individual criteria item shall be indicated in Attached Certificates.

- (1) The volume reduction and easy recycling of shredded paper have been considered.
- (2) A collection and recycling system of products has been established.
- (3) Noise of the product shall be measured subject to "Test Method for Paper Shredder JBMS-62:2010" issued by Japan Business Machine and Information System Industries Association, and the sound pressure level shall not exceed 70 dB.

6. Product Classification, Indication and Others

- (1) Product classification shall be made by product number. The products under the same product brand (series) and having the same slot width can be treated as the same product classification.
- (2) For the products corresponding to the designated procurement items under the Act on Promotion of Procurement of Eco-Friendly Goods and Services by the State and Other Entities (Green Purchasing Law), their conformity to the evaluation criteria will be published on the website of Eco Mark Office.
- (3) In principle, Eco Mark shown as below shall be indicated on the product. The licensees of Eco Mark Utilization Contract who own Eco Mark products shall also be allowed to use the indication of the logo and certification number as before.



(Note for the indication)

*For indicating the logo, Eco Mark certification number (eight-digit number) or the name of the licensee using the logo shall be appeared.

* Such expression as “Eco Mark product” can be used following the 2.(2) of the Guide to Eco Mark Usage.

“Eco Mark product”, “#Eco Mark”, “www.ecomark.jp”, “Eco Mark Certificate”

* In accordance with “Environmental Labeling Guidelines” of the Ministry of the Environment of Japan, etc., the environmental claims of certified products may be indicated in association with Eco Mark.

(<https://www.env.go.jp/policy/hozen/green/ecolabel/guideline/>)

* The Guide to Eco Mark Usage shall be followed for any cases not listed above.

(<https://www.ecomark.jp/office/guideline/guide/>)

November 1, 2017	Established (Version 1.0)
April 1, 2019	Revised (Eco Mark Usage)
March 15, 2023	Extension of Expiration date
October 31, 2029	Expiration

Certification Criteria of this Product Category shall be revised as needed.

Appendix 1 Product Design Checklist

Applicable Scope

The requirements apply to certain sub-assemblies of basic unit of equipment and consumables

Casing part	Part which protects the machine from environmental effects and user from getting into contact with moving, radiating, or current-carrying components.
Chassis	Parts with functions serving as a frame to support the main parts of machines
Assembly	Unit composed of at least two components linked by power or design.
Electrical/ electronic assembly	Assembly which includes at least one electric or electronic component.
Reused plastic part	Plastic part that has been used in the past and are reused
Recycled plastic part	Plastic part which contains recycled plastics
Recycled plastic	Plastic composed of post-consumer material and pre-consumer material
Pre-consumer material	Material or rejected product generated from a disposal route in a product manufacturing process, excluding those that are generated in a material manufacturing process and that are reused as raw materials within the same process (plant).
Post-consumer material	Materials or products disposed of after they have been used as goods.
Polymer alloy (Polymer blend)	General name of multi component polymers obtained by the chemical binding of the polymers of more than two components. Polymer blend is the physical blending of different types of polymers.

Category classification

Any requirements are classified as either “Must-Requirement” or “Should-Requirement”.

Must-Requirement	Requirements which must be met
Should-Requirement	Requirements which should be met

Reference specification

ECMA341(Environmental Design Considerations for ICT&CE Products) 4th edition
December 2010, European Computer Manufacturer Association

Must- requirement (items which must be met)

group	No	Requirement	Applicable scope	Compliance?	Remarks	Purpose
Structure and Connection Technology	1	Components made of materials incompatible with each other are connected separably or via separation aids.	Casing parts, chassis, Electrical/ electronic assembly	<input type="checkbox"/> Yes <input type="checkbox"/> No	Compatibility of materials can be checked with reference to Appendix C of ECMA 341 "Polymers Compatibility Guide", etc.	Promoting reuse and recycling
	2	Electrical/ electronic assembly and electrical/ electronic parts are easily traceable and removal. Can parts replacement of which is substantially needed in maintenance/repair be easily removed?	Entire unit, including lamps	<input type="checkbox"/> Yes <input type="checkbox"/> No		Facilitating parts search
	3	Disassembly for recycling can be done with universal tools exclusively	Housing, chassis, Electrical/ electronic assembly	<input type="checkbox"/> Yes <input type="checkbox"/> No	"Universal tools" refers to widely used, commercially available tools. This requirement does not apply to connections where legal regulations have influenced the choice of joining technique.	Facilitating disconnection
	4	Necessary points of application and working space for disassembly tools have been taken into consideration?	Casing parts, chassis, Electrical/ electronic assembly	<input type="checkbox"/> Yes <input type="checkbox"/> No		Facilitating disconnection
	5	Screwed connections between sub assemblies and a casing part or chassis can be separated with no more than 4 tools.	Casing parts, chassis, Electrical/ electronic assembly	<input type="checkbox"/> Yes <input type="checkbox"/> No	Tools can be distinguished by drive type (e.g., Phillips screw driver, flathead screw driver) and drive size (e.g., tool size)	Facilitating disconnection
	6	Batteries attached to the appliance (internal batteries) can be replaced or removed without the need of replacing the entire printed circuit board incorporated when the batteries reach the end of their usefulness or when they are repaired.	Internal battery	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No internal batteries used	If the structure allows easy replacement of batteries when the batteries run out, the lives of the appliances may become longer as disposal of the devices or the printed circuit boards can be avoided. The case where repairing experts can replace batteries when repairing devices shall be considered to be application of the provision of this section.	Facilitating dismantling
	7	The manufacturer did a trial disassembly according to 1-8 above.	Entire unit	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Material Selection and Marking	8	Materials of plastic housing components with similar functions are limited to one material. This requirement shall not apply to parts that have been proved as reused parts or parts which require special functions "heat resistance", "impact resistance" and "abrasion resistance".	Casing parts weighing over 25g	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No applicable part used	For instance, "functions" refer to "heat resistance", "impact resistance" and "abrasion resistance". Polymer blend (polymer alloy) may be used.	Promoting reuse and recycling
	9	Plastic parts weighing over 25g and larger than 200mm ² are marked in accordance with ISO11469.	Entire unit (excluding plastic parts in reused composite assembly)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No applicable part used	The material identification of plastics shall enable all recycling companies to sort plastics by type.	Promoting reuse and recycling
	10	For major metal parts, a combination of metal alloy is identified. Or material containing general-use components in Japan is used assuming recycling to similar material after use.	Entire unit (excluding motor)	<input type="checkbox"/> Yes <input type="checkbox"/> No	If any metal other than general-use ones is used, any element that hinders recycling to similar material may be included.	Facilitating dismantling
	11	If labels, etc. to be attached to plastic casing parts are used as little as possible and separated easily. If difficult to separate, they must be made of the same material as the plastic parts, or any material that does not prevent recycling.	Casing parts weighing over 25g	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No applicable part used	In order to recycle the product as high-quality material, if the product has no indication of material, it is disposed by punching the corresponding part or is recycled as low-quality material. Label peeling requires much time and effort. Therefore, the "Guidelines for Indication of Plastic and Other Parts of Household Electrical Appliances and Recycle Marks" state that it is desirable to indicate the material of labels etc. or to use the same material as the plastic part to which labels etc. are attached (i.e., compatibilize the material).	Facilitating dismantling/ Promoting reuse and recycling

Should-requirement (items which should be met)

group	No	Requirement	Applicable scope	Compliance?	Remarks	Purpose
Structure and Connection Technology	1	Separable connections are easily traceable.	Casing parts, chassis	<input type="checkbox"/> Yes <input type="checkbox"/> No		Facilitating parts search
	2	For products weighing over 10kg, the supporting surface can be maintained during the entire disassembly work.	Unit to be handled	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not covered	When the supporting surface can be maintained during the disassembly work without turning over the product, disassembly / dismantling will be facilitated.	Facilitating dismantling
Material Selection and Marking	3	Parts made of the same sort of plastics are dyed uniformly or compatibly. Integrated control elements shall be exempt from this requirement.	Casing parts	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No applicable part used	"Compatible dyeing" stands for different shades of one colour.	Promoting reuse and recycling
	4	Metallic painting which may require treatment for removal (metal plating and conductive coating) is avoided for the plastic parts. Direct printing on plastic parts is limited to the minimum required level (example: manufacturer's name).	Casing parts weighing over 25g	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No applicable part used	Large-area coating layer on the surface of plastic parts require treatment for removal. Laser markings are not considered as "prints" referred to herein. This item does not apply to the coating using the same materials with the plastic parts. .	Promoting reuse and recycling
	5	For the material of metal parts, a combination of metal alloys that are difficult to separate / sort (e.g., SUS430 and SUS304, etc.) shall not be used.	Entire unit	<input type="checkbox"/> Yes <input type="checkbox"/> No	Considering recycling after use, in the case of stainless steel, for example, it is desirable that there is no combination of magnetic and nonmagnetic types or no use (mixture) of impurity elements that cannot be removed in the present refinement process (copper, tin, etc.).	Facilitating dismantling Promoting reuse and recycling
	6	Reused plastic part, recycled plastic part or plant-based plastic part with which the environmental load reduction effect is confirmed is used. (If yes,) <input type="checkbox"/> reused plastic part <input type="checkbox"/> recycled plastic part <input type="checkbox"/> plant-based plastic	Entire unit	<input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, fill in the left column)	At least one such part shall be used. The ratio of combination does not matter.	Promoting reuse and recycling

Appendix 2 “Packaging material checklist”

■List of packaging material used for the product.

Indicate a name, mass, ratio of recycled materials in use of packaging materials that are used per product.

No.	Packaging material used for the product	mass[g]	Ratio of recycled material in product
1			%
2			%
3			%
Total			

Entry examples of the packaging materials in use: cardboard, polyethylene, foamed polystyrene, pulp mold.

■Packaging material checklist

It is determined that the product complies with the criteria when it meets all of the mandatory requirements:

No.	Requirement	Compliance	Remarks
1	Is the product designed giving consideration to weight reduction/volume reduction?	[Mandatory] <input type="checkbox"/> Yes/ <input type="checkbox"/> No	
2	Is the product designed giving consideration to use of recycled materials? (Waste paper, recycled plastic, etc.)	[Mandatory] <input type="checkbox"/> Yes/ <input type="checkbox"/> No	“Consideration” shall mean examination of the possibility of use of recycled materials at the stage of selection of materials for packaging or the designing.
3	Is the recycled waste paper used 70% or more, or the recycled plastic used 40% or more?	[Optional] <input type="checkbox"/> Yes/ <input type="checkbox"/> No	If any recycled material is used, indicate it in the above list.
4	Is the product designed giving consideration so that the amount of ink to be used in printing on a surface of packaging materials is reduced?	[Optional] <input type="checkbox"/> Yes/ <input type="checkbox"/> No	It is desirable to share materials by products of a same company or standardize packaging materials used for a same product.
5	Is the product such designed that sharing of materials is promoted?	[Mandatory] <input type="checkbox"/> Yes/ <input type="checkbox"/> No	It is desirable to share materials by products of a same company or standardize packaging materials used for a same product.
6	Is the product designed giving consideration to selection of a material that is easy to recycle or reuse?	[Mandatory] <input type="checkbox"/> Yes/ <input type="checkbox"/> No	It is desirable to select a material that consumers can easily send to recycling, etc.
7	If dissimilar materials are used in combination, is the product such designed that separation of parts is easy?	[Mandatory] <input type="checkbox"/> Yes/ <input type="checkbox"/> No <input type="checkbox"/> No combined use of dissimilar materials	Dissimilar materials herein stated refer to metals and plastics, paper and plastics, etc., and do not mean a difference by a type of plastic.
8	Whether materials are indicated according to the regulations or JIS standard, etc., so that the product can be easily recycled or reused.	[Mandatory] <input type="checkbox"/> Yes/ <input type="checkbox"/> No	It is necessary to provide an appropriate indication so that consumers can send the product to recycling, etc. In Japan, the Law for Promotion of Sorted Collection and Recycling of Containers and Packaging is in effect, according to which the Report of the Committee for Considering Identification of Container and Packaging, etc. provides for the identification marks and method of displaying materials. As to products supplied to corporations, too, display of material shall be indispensable; however, indication of materials may be omitted based on such provisions concerning the identification marks as “For the case of solid-color container and packaging” and “For the container and packaging on which

			the display cannot be attached.”
9	Are materials to be used in packaging selected so that use of any chemical substances which affect the environment is avoided or reduced? (Non-use of polymers containing halogens, HCFC, etc. (Appendix 3))	[Optional] <input type="checkbox"/> Yes/ <input type="checkbox"/> No	If any chemical substance that affects the environment is used, it will be a problem when the product is recycled or disposed of.
10	Is there a system for collection and reuse or recycling of packaging materials?	[Optional] <input type="checkbox"/> Yes/ <input type="checkbox"/> No	As stated in the considerations of Act for Promoting Green Purchasing, it is desirable that the product has a collection/recycling system. For usage for individual use, compliance to the Law for Promotion of Sorted Collection and Recycling of Containers and Packaging shall be regarded as the satisfaction of this item.

Appendix 3 HCFC Specified in “Packaging material checklist” No.9

Name of substance	Name of substance
Dichlorofluoromethane (HCFC-21)	Trichlorotetrafluoropropane (HCFC-224)
Chlorodifluoromethane(HCFC-22)	Dichloropentafluoropropane (HCFC-225)
Chlorofluoromethane (HCFC-31)	3,3-Dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca)
Tetrachlorofluoroethane (HCFC-121)	1,3- Dichloro -1,1,2,2,3-pentafluoropropane (HCFC-225cb)
Trichlorodifluoroethane (HCFC-122)	Chlorohexafluoropropane (HCFC-226)
Dichlorotrifluoroethane (HCFC-123)	Pentachlorofluoropropane (HCFC-231)
2,2-Dichloro-1,1,1-trifluoroethane (HCFC-123)	Tetrachlorodifluoropropane (HCFC-232)
Chlorotetrafluoroethane (HCFC-124)	Trichlorotrifluoropropane (HCFC-233)
2-Chloro-1,1,1,2-tetrafluoroethane (HCFC-124)	Dichlorotetrafluoropropane (HCFC-234)
Trichlorofluoroethane (HCFC-131)	Chloropentafluoropropane (HCFC-235)
Dichlorodifluoromethane (HCFC-132)	Tetrachlorofluoropropane (HCFC-241)
Chlorotrifluoroethane (HCFC-133)	Trichlorodifluoropropane (HCFC-242)
Dichlorofluoroethane (HCFC-141)	Dichlorotrifluoropropane (HCFC-243)
1-Dichloro-1-Fluoroethane (HCFC-141b)	Chlorotetrafluoropropane (HCFC-244)
Chlorodifluoroethane (HCFC-142)	Trichlorofluoropropane (HCFC-251)
1-Chloro-1,1-difluoroethane (HCFC-142b)	Dichlorodifluoropropane (HCFC-252)
Chlorofluoroethane (HCFC-151)	Chlorotrifluoropropane (HCFC-253)
Hexachlorofluoropropane (HCFC-221)	Dichlorofluoropropane (HCFC-261)
Pentachlorodifluoropropane (HCFC-222)	Chlorodifluoropropane (HCFC-262)
Tetrachlorotrifluoropropane (HCFC-223)	Chlorofluoropropane (HCFC-271)

Group I, Annex C of Montreal Protocol