

## Interpretation

### “Watches and Clocks Version 1.0”

Established: June 1, 2005

#### **1. Applicable Products**

Eco Mark Product category No.71 “Solar-Powered Clock or Watch” did not specify the applicable product which is clock or watch, however, the certified products of Eco Mark were only watches. This certification criteria describes clearly that the applicable products are both watch and clock, and the power system for running system is not necessary to be “solar-power”.

Some functions, for instance electronic desktop calculator, memo pad, etc. come with clock or watch. There are opinions on the multifunctionality of clock or watch, that the multifunctionality will lead to the reduce of products (materials) to be manufactured for the functions other than clock or watch. However, this certification criteria does not examine for the functions other than clock or watch, since there are many issues for the examination of them, for example, it is difficult to judge that the clock or watch function is principal or accessory, and it can complicate the evaluation for the certification criteria. For the clock or watch function comes with a video cassette recorder or telephone should be examined in the Product Categories for their main functions such as video recording and playback, communication, etc. Consequently, the function on the above has not included this Product Category.

#### **2. Terminology**

For the terminology of natural energy, this Product Category shall adopt the energy which is gained from solar light, body temperature or list movements, which were already turned into actual utilization at the establishment of Certification Criteria for the Product Category “Clock or Watch”. Because the other power generating methods will be unvalued, working group or review committee shall discuss the concrete products using the other power generating method. It is considered that natural energy includes spring running.

#### **3. Certification Criteria**

##### 3-1. Details of establishing environmental criteria

When setting up the criteria, the environmental impact over the whole life cycle of a product is considered using a Chart for Selecting Environmental Impact at Each Stage

of Product Life Cycle. As a result, impact items that are considered to be important for establishing the criteria for Eco Mark certification were selected in view of the environmental impacts over the whole life cycle of the product. For these items, quantitative criteria was considered.

Environmental impact items considered for the category of “Clock or Watch” are as shown in the following Table: Chart for Selecting Environmental Impact at Each Stage of Product Life Cycle (X in the table). Out of these items were finally selected as the environmental criteria: B-3, B-4, B-5, B-6, C-3, C-8, D-1, D-9 and E-8 (items marked by XX in the table).

The blank columns in the table show items that were beyond the scope of the review or that were reviewed in combination with other items. The following chart shows the details of establishing environmental criteria.

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

Environmental impact items	Stage of product life cycle					
	A. Resource extraction	B. Manu- facturing	C. Distri- bution	D. Use/Con- sumption	E. Disposal	F. Recycling
1. Resource consumption	X		X	XX		
2. Discharge of greenhouse gases	X	X		XX		
3. Discharge of the ozone layer depleting substances		XX	XX			
4. Impact on eco system		XX				
5. Discharge of atmospheric pollutants		XX				
6. Discharge of water pollutants		XX				
7. Generation/disposal of wastes					X	X
8. Use/discharge of hazardous materials, etc.			XX		XX	
9. Other environmental impacts	X			XX		

## **A. Resource Extraction Stage**

### **A-1 Resource consumption**

The following point was reviewed under this item:

(1) Use recycled materials for raw materials

For (1), clock or watch is considered to be inadequate for recycling because of the following characteristics of the product: It is a precision instrument; it is manufactured with few materials; it has long operating life; and each consumer owns several pieces and he/she does not dispose them so often. Based on the above, “longer operating life”, the high-order concept of 3R, shall be considered, and this item was not selected for the list of items that require the establishment of criteria.

### **A-2 Discharge of greenhouse gases**

The following point was reviewed under this item:

(1) Less energy consumption and discharge of carbon dioxide in the resource extraction stage

This product uses plastic or metal as main materials, and there were opinions that these used materials should be compared. However the Eco Mark Project has not differentiated the products by comparing different materials, and this item was not selected for the list of items that require the establishment of criteria.

### **A-9 Other environmental impact**

The following point was reviewed under this item:

(1) Use waste paper for attached documents of the product

For (1), most of the attached documents of this product are only a piece of A3 paper description and guarantee certificates, and it is considered few papers are used for clock or watch. In addition, many clocks or watches are overseas production, and some of these countries can not obtain recycled papers. For other Product Categories of Eco Mark, there are some cases that the use of waste paper for overseas products is standardized. For example, recycled papers are transported from Japan, or overseas products are opened after importing to Japan and re-packed with attached documents made from recycled papers in Japan. In this Product Category, we examined the effect of using recycled papers for attached documents from the viewpoints of environmental conservation and workload/cost. It is judged that putting emphasis on the other environmental impact will be more effective and efficient rather than waste papers, and this item was not selected for the list of items that require the establishment of criteria.

## B-2 Discharge of greenhouse gases

The following point was reviewed under this item:

### (1) Less use of fossile resources in the manufacturing stage

To reduce energy consumption in the manufacturing stage leads to reduce the discharge amount of greenhouse gases. However, it is difficult to establish certification criteria for Eco mark, since it is not easy to make technological differentiation. Therefore, this item was not selected for the list of items that require the establishment of criteria.

## B-3 Discharge of ozone layer depleting substances

The following point was reviewed under this item:

### (1) No use of hazardous materials including CFCs, etc. in the manufacturing stage

For the ozone layer depleting substances in the manufacturing stage, CFC's substitutes are used for certain boards. However, it is difficult to make total abolition immediately. No discharge of CFC's substitute and no use of specific CFCs, etc. are considered at this time, and this item was selected for the list of items that require the establishment of criteria.

## B-4 Impact on eco ssystem

The following points were reviewed under this item:

(1) The production process shall conform to relevant environmental regulations and agreements on environmental pollution control regarding air pollution, water contamination, noise, odor, emission of hazardous materials, etc.

(2) It shall conform to relevant regulations and agreements on handling of chemical substances, including "Poisonous and Deleterious Substances Control Law" and "Chemical Substances Control Law".

For items on the above, soil contamination, etc. are pointed out, and they were totally examined in B-5.

#### B-5 Discharge of atmospheric pollutants

The following points were reviewed under this item:

- (1) The production process shall conform to relevant environmental regulations and agreements on environmental pollution control regarding air pollution, water contamination, noise, odor, emission of hazardous materials, etc.
- (2) It shall conform to relevant regulations and agreements on handling of chemical substances, including “Poisonous and Deleterious Substances Control Law” and “Chemical Substances Control Law”.

For items on the above, it is judged that generation and discharge of atmospheric pollutants in the manufacturing stage should be limited as much as possible. Therefore, these items were selected for the list of items that require the establishment of criteria.

In addition, based on the above understanding, these items are applied to conform the criteria of the relevant areas including agreements, ordinances and laws, for discharge of water contamination substances, vibration, noise, odor and the other hazardous materials.

#### B-6 Discharge of water pollutants

The following points were reviewed under this item:

- (1) The production process shall conform to relevant environmental regulations and agreements on environmental pollution control regarding air pollution, water contamination, noise, odor, emission of hazardous materials, etc.
- (2) It shall conform to relevant regulations and agreements on handling of chemical substances, including “Poisonous and Deleterious Substances Control Law” and “Chemical Substances Control Law”.

These items are omitted since they were totally examined in B-5.

#### C-1 Resource consumption

The following point was reviewed under this item:

- (1) Simple packaging

For (1), the guidelines of the industry have already promoted the environmental consideration for packaging of popular-price products. On the other hand, for high-class products, storage box, etc. are included as a part of the products, and it is not considered as package in the “Package Recycle Law”. Therefore, this item was not selected for the list of items that require the establishment of criteria.

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

The following point was reviewed under this item:

(1) Prohibiting use of the specific chlorofluorocarbons (5 CFCs), etc. for packaging materials

For (1), expanded polystyrene, etc. are used for packaging materials for certain clocks. Currently, it is considered that there is very few use of CFC as expanding agent. However, this item was selected for the list of items that require the establishment of criteria.

### C-8 Use/discharge of hazardous materials, etc.

The following point was reviewed under this item:

(1) Environmental consideration for packaging (hazardous materials)

For (1), from the viewpoint of reducing discharge of hazardous materials in the disposal stage, plastic materials used for packaging shall not be added together with polymers that contain halogens and organic halogenides as prescribed constituents. Therefore, this item was selected for the list of items that require the establishment of criteria.

### D-1 Resource consumption

The following points were reviewed under this item:

(1) Natural energy system or primary batteries are used for the running system (no use of primary batteries).  
(2) Life of energy source of running system  
(3) Less energy consumption in use, for the product with primary battery  
(4) Taking into consideration the prevention of battery drain (for the product with primary battery) in case of no use, since each consumer owns several clocks or watches  
(5) Product with longer life

For (1), the clock or watch with solar cells as power source of its running system has already examined in the Eco Mark Product Category No. 71 “Solar-Powered Watch”. Based on the above, popular clock or watch with primary battery was reviewed from the following points of view; continuation of adopting solar cells as Eco Mark product, natural energy sources other than solar cell to be produced, adoption or no adoption of the measures to reduce environmental burden in the production with primary battery. In addition, life cycle assessment for clock or watch has almost never analyzed, and the basic structures of movement of both products running by natural energy or primary battery are the same. Therefore, the power source of running system

and battery exchange system in which marked differences are found among the target products were also reviewed. For battery exchange, the cost analysis of quantitative comparison was conducted, and it was judged that battery exchange produce the large percentage of environmental burdens regarding this Product Category. For the power source of the running system, we examined the sustainability of main raw materials for batteries, and the amount of energy consumption and discharge amount of waste in the manufacturing stage of batteries. As a result, we found the significance for the solar cell in Eco Mark based on the following reasons; solar cell can reduce environmental burdens by its technological development and spread in the future even though the production of solar cell requires much energy, solar cell does not require battery exchange, and silicon as the raw material for solar cell is abundant. On the other hand, primary battery requires lower energy for its production, however, more batteries are used compared with solar cell, and environmental burdens will increase by battery exchange. Based on the above understandings, we judged that clock or watch with primary battery should be discussed in this Product Category to promote longer life of primary battery.

Regarding natural energy to be used for products other than solar cell, generation-type and spring running type are discussed. For energy source of both type, body temperature and wrist movement are considered. In addition, for hand-wound type and spring running type, there are some skeptical opinions, but the technology used for the electronic speed control clock or watch with spring running system is new, and auto-wound type will be increasing in the future with technological progress (almost all are hand-wound type at this time). Based on the above, with expecting the promotion effect of technological progress as Eco Mark products, we decided to include hand-wound type and spring running type as natural energy in this Product Category.

For (2) and (5), the presumption of reducing environmental burdens is “long life” of generation type clock or watch, and regarding maintenance of life, these items were selected for the list of items that require the establishment of criteria.

For (3), (4) and (5), since less frequency of battery exchange will contribute to reduce environmental burdens, regarding life of battery, not for electric power consumption, these items were selected for the list of items that require the establishment of criteria. In addition, the technical leading-runner value at the time of establishing this Product Category shall be the standard value.

## D-2 Discharge of greenhouse gases

The following points were reviewed under this item:

- (1) No use of primary battery
- (2) Use solar system for running system

These items are omitted since they were examined in D-1.

#### D-9 Other environmental impact

The following points were reviewed under this item:

- (1) Developing repair system
- (2) Having functions other than timepiece, and no need of use the other portable information device

For (1), it is very important item for longer-term of use, and it is effective to reduce environmental burdens in various life cycles such as reducing resource consumption. Therefore, this item was selected for the list of items that require the establishment of criteria. In addition, the regulations for developing “inspection” system were established for longer-term of use. Furthermore, for the available period of parts supply after discontinuing to manufacturing the products, we set concrete period in regulation, 7 years, to refer to efforts done by the Japan Clock and Watch Association. We will also approve the following case if the applicant for the Eco Mark Certification and Use relegates the repair work to the other business bodies. The concrete assessment for the examination of application, we refer to the information service system to consumers, etc. in the other Product Categories. However, in this Product Category, there are third parties other than manufacturers to conduct repair business in general. Therefore, we will judge based on the repair work system developed by the applicant for the Eco Mark Certification and Use. We also give consideration to the fairness toward the third parties who conduct repair work, by not to bring the information service to consumers positively.

For (2), as already mentioned in “1. Applicable products”, this item was not selected for the list of items that require the establishment of criteria.

#### E-7 Generation/disposal of wastes

The following point was reviewed under this item:

- (1) Establishing the disposal system for popular-price disposable products

For (1), we judged that it can be substituted by establishing items for certification criteria regarding energy source of running system and repair system. Therefore, this item was not selected for the list of items that require the establishment of criteria.

#### E-8 Use/discharge of hazardous materials, etc.

The following points were reviewed under this item:

- (1) No use of 6 hazardous substances, including mercury, lead, hexavalent chromium, cadmium, PBBs and PBDEs, which are prohibited to use in the “RoHS Directives”, the regulations for chemical substances in Europe.
- (2) The content of hazardous substance is less than the certain value.
- (3) No use of hazardous substances including mercury and cadmium for secondary battery
- (4) No discharge of hazardous substances, including leak of heavy metals
- (5) Less amount of hazardous substances discharge in the disposal stage, for the products with no use of primary batteries
- (6) No use of persistent chemical substances for lubricant of wheels

For (1), (2) and (3), there are some opinions that hazardous substances should be controlled in accordance with the RoHS Directives, the regulations for chemical substances in Europe. Therefore, we selected the target substances. For the content of hazardous substances in the products, they should not be added as prescribed constituents, and this item was selected for the list of items that require the establishment of criteria. We decided not to approve the use of polymers that contain halogens and organic halogenides in general, however, they may be used in coating of printed circuit board and codes. Because there are no replacement parts with versatility, the use of polymers that contain halogens and organic halogenides has been approved in some Product Categories, such as “Personal Computer. To avoid to complicate the certifications for the products with many parts, polymers that contain halogens and organic halogenides (only for the part less than 25g, as exclusion items) are approved in this Product Category.

For (4) and (5), these items are omitted since they were already examined from the viewpoint of the use for products.

For (6), since the used amount of lubricant is very small and it is used for long term, it was judged that its impact on environment is not significant. Therefore, this item was not selected for the list of items that require the establishment of criteria. We note that the clock or watch industry shall make further consideration for impacts on eco system, including the use of substances with low possibility of cancer-causing and accumulation, as industry’s own efforts.

#### F-7 Generation/disposal of wastes

The following points were reviewed under this item:

- (1) Establishing collection and recycling system for primary batteries
- (2) Establishing collection and recycling system for middle or higher class products

For (1), regarding the treatment of batteries collected by local governments as general waste, the manufacturers can not control them, and this is the issue of the social system. Therefore, this item was not selected for the list of items that require the establishment of criteria.

For (2), it is not suitable for recycling because of the following reasons: the parts of clock or watch are very small and separating them for recycling cause burdens rather than the advantage of recycling; there is no compatibility between the parts of new products and old products, because consumers use clock or watch for long period, and new technology has been applied for manufacturing the new products during the aforementioned time period. Therefore, this item was not selected for the list of items that require the establishment of criteria.