

(Provisional Translation)

The original text is Japanese

Draft of 2nd Edition of Japanese Technical Specification

“General principles for the assessment and labeling of

Carbon Footprint of Products”

(TS Q0010)

(Extract)

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Foreword

The Carbon Footprint Program enables the quantification and communication of life-cycle greenhouse gas (GHG) emissions to CO₂-equivalent values by applying life-cycle assessment (LCA) where the environmental impact of products are assessed from the stage of raw material acquisition through to product disposal and recycling. Displaying this information on product labels is an important means of “visualization” of GHG emissions. It provides consumers with accurate information oriented towards the reduction of GHG emissions and enables organizations to effectively reduce GHG emissions at the most appropriate life-cycle stage. At the same time, organizations will be in a position to announce their GHG emission reduction efforts to consumers.

Visualization of GHG emissions through carbon footprint labels is expected to prompt organizations to make greater emission-reduction efforts and inspire consumers to adopt a low-emission lifestyle. To this end, organizations and citizens are asked to be responsible for reducing and controlling their GHG emissions to achieve a low-GHG society. To realize the optimum carbon footprint program, the following two approaches shall be considered:

- An approach that encourages every organization to strive to reduce emissions, with CFP communication taken as a way of announcing their efforts;
- An approach that provides consumers with information on the amount of GHG emissions resulting from their activities, and information for help in the selection of relatively low-emission products, and that encourages consumers to reduce emissions by raising their awareness of GHG emitted during the use and disposal stages.

Both approaches require the creation of a fair program so that organizations and consumers taking part in GHG reduction are able to quantitatively grasp their respective GHG reduction efforts subject to a specific standard.

This technical specification provides the general principles for CFP quantification and communication in order to ensure fairness of the CFP program.

To ensure reliability of the CFP program, it is essential that organizations assess and label CFP in accordance with the relevant rules and that consideration be given to an appropriate mechanism for verifying such quantification and communication.

Basically, the core of the verification mechanism should be independent of third-party verification. To this end, however, it is important to establish a balance between securing program reliability and increasing program efficiency at the organization's expense. In

addition, consideration must be given to international harmonization. A study shall be made, taking into account international standards and overseas trends in relation to verification.

To ensure that the CFP program does not generate any adverse effects, such as a trade barrier, but instead serves as a basis for fair competition, full consideration should be given to international harmonization with ISO14020 and 14040 series and other ISO standards, with due consideration to international treaties of the World Trade Organization.

1. Scope

This technical specification provides general principles for the quantification and communication of CFP. The CFP program is inherently applicable to any type of product.

NOTE: Organizations should be encouraged to take part in the CFP program on an autonomous and voluntary basis. To achieve this objective, it is considered necessary to establish the appropriate mechanisms that not only give priority to program preciseness but also allow for a wide diversity of approaches tailored for the various business categories and product lines. Some products, for example, may present a level of quantification difficulty that varies according to the number of parts/components, diversity of acquisition routes, and complexity of production processes. Accordingly, due consideration to those characteristics is required.

This technical specification is to be reviewed in a timely and proper manner, taking into account the variety of activities being tackled by consumers, companies and governmental authorities and so on, all of whom are supporting the CFP program.

2. Normative References

International standard ISO 14040 (Environmental management – Life cycle assessment – Principles and framework) is the normative reference for this technical specification.

3. Terms and Definitions

3.1 | greenhouse gas (GHG)

gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere, and clouds.

[ISO 14064-1:2006, 2.1]

NOTE: GHG is defined in this technical specification as the six types of gas covered by the Kyoto Protocol: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF₆).

3.2 | global warming potential (GWP)

factor describing the radiative forcing impact of one mass-based unit of a given GHG relative to an equivalent unit of carbon dioxide over a given period of time.

[ISO 14064-1:2006, 2.18]

3.3 | product

any goods or service.

[ISO 14025:2006, 3.11]

3.4 | life cycle

consecutive and interlinked stages of a product system, from raw material acquisition or generation from natural resources to final disposal.

[ISO 14040:2006, 3.1]

3.5 | life cycle assessment (LCA)

compilation and evaluation of the inputs, outputs and the potential environmental impacts of a product system throughout its life cycle.

[ISO 14040:2006, 3.2]

3.6 | carbon footprint program

program used to intelligibly indicate on products, using a simple method, the CO₂ equivalent of GHG emissions throughout the life cycle of such products from the time of raw material acquisition through to product disposal/recycling.

3.7 | product category

group of products (3.3) that can fulfill equivalent functions

[ISO 14025:2006, 3.12]

3.8 | product category rules (PCR)

set of specific rules, requirements and guidelines for implementing a CFP program for one or more product categories.

[Modified from ISO 14025:2006, 3.5]

3.9 | system boundary

set of criteria specifying which unit processes are part of a product system.

[ISO 14040:2006, 3.32]

3.10 | product system

collection of unit processes with elementary and product flows, performing one or more defined functions, and which models the life cycle of a product.

[ISO 14040:2006, 3.28]

3.11 | unit process

smallest element considered in the life cycle inventory analysis for which input and output data are quantified.

[ISO 14040:2006, 3.34]

3.12 | emission factor / GHG intensity of the product (pending)

factor relating activity data to GHG emissions.

3.13 | scenario

hypothetical reference case that best represents the conditions most likely to occur.

3.14 | (primary data)(pending)

data collected by the organization taking responsibility for calculating their CFP (including data based on an established scenario).

3.15 | (secondary data)(pending)

common data, reference data and other LCA data used for quantifying and communicating CFP by an organization having difficulty collecting primary data.

3.16 | (approximate data)

data from similar cases used as a substitute when it is difficult to obtain (correspondence) data.

3.17 | (estimated data)

data based on projected or designed values, used in cases where it is difficult to obtain (correspondence) data.

3.18 | allocation

partitioning of the input or output flow of a process or product system between the product system under study and one or more other product systems.

[ISO 14040:2006, 3.17]

3.19 | direct impact

LCA of products having a direct impact on processes within the system boundary.

3.20 | indirect impact

LCA of products not having a direct impact on processes within the system boundary.

3.21 | recycling effect

reduction in GHG emissions from manufacturing virgin materials, by using recycled materials.

3.22 | reuse effect

reduction in GHG emissions from manufacturing parts, etc., by using reused parts, etc.

3.23 | direct section (production facilities)

section that is directly related to production within production facilities.

3.24 | indirect section (production facilities)

section that is not directly related to production, including administration and R&D within production facilities

3.25 | cut-off criteria

specification of the amount of material or energy flow or the level of environmental significance associated with unit processes or product system to be excluded from a study.

[ISO 14040:2006, 3.18]

4. Quantification Method for CFP

4.1 Subject of Quantification

The following six types of GHG, covered by the Kyoto Protocol, are to be calculated: CO₂, CH₄, N₂O, HFCs, PFCs and SF₆

In this technical specification, the CO₂ equivalent is obtained by multiplying the emission from each GHG type by the GWP. The GWP is based on a 100-year time horizon from the Second Assessment Report (SAR) of the Intergovernmental Panel on Climate Change (IPCC), which is used for quantifying the emissions of each nation under the Kyoto Protocol.

In this case, emission sources include those from nature (livestock and other agricultural processes).

NOTE: Subject GHG shall be reviewed periodically, giving due consideration to future international studies, etc. For example, the types of gas specified in the IPCC SAR may eventually be adopted as subject GHG in this specification.

Regarding GWP, it is necessary to establish relevant rules to ensure that a periodic review is conducted, with the updated IPCC report data reflected.

Whether or not nature-derived GHG (discharged by livestock and from other agricultural processes) is to be calculated shall continue to be studied, taking into account international opinions.

4.2 Quantification Coverage

Quantification coverage shall be set so as to include processes that might fall within the range of a functional unit of a product but that cannot be ignored from the viewpoint of the contribution to total GHG emissions. Quantification shall basically be made on the entire life cycle, which shall consist of the following stages:

- a) Raw material acquisition
- b) Production
- c) Distribution/sales
- d) Use/maintenance control
- e) Disposal/recycling

Organizations should define the quantification coverage for each stage, using the system boundary concept.

NOTE: It can be assumed that some stages will involve cases where it is extremely difficult to either execute quantification or gather data from other companies. Therefore, it is necessary to take a flexible approach according to the characteristics of individual products. In this sense, the quantification coverage for each of the abovementioned stages shall be defined in the "Product Category Rules" together with the reason/grounds for why a certain stage or part of a stage should be approved for omission, while taking into consideration the trend in international discussions.

To proceed with such an approach, and at the same time avoid any confusion on the part of the consumer, communication should be implemented so that the boundary of quantification coverage can be easily identified. However, constant efforts should be made to ensure that the excluded calculation coverage would be eventually included in the future.

In principle, quantification for each stage is the responsibility of the organizations involved in each stage.

4.3 Quantification Method

4.3.1 Basic quantification rules

GHG emissions are calculated in each process as referred to in **Section 4.2** and summed up according to the expression given below. Examples of activity and emission factors are shown in the following *Table 1*:

$$\text{GHG emissions} = \sum (\text{activity}_i \times \text{GHG emission factor}_i)$$

where i stands for a process.

Table 1 Examples of activity and emission factors for each quantification stage

Quantification Stage	Example Activity	Example Emission Factor
Raw material acquisition	Quantity of material	GHG emission factor for producing material, per kilogram
Production	Weight as assembled	GHG emission factor for assembling material, per kilogram
	Consumption of electricity	GHG emission factor for generating electricity, per kilowatt hour (kWh)
Distribution/sales	Car loads (kg•km) = transport distance × load ratio × loading capacity	GHG emission factor for product transport, per kilogram•kilometer (kg•km)
Use/maintenance control	Electricity consumption for usage	GHG emission factor for generating electricity, per kilowatt hour (kWh)
Disposal/recycling	Reclaimed mass/	GHG emission factor for reclamation, per kilogram

	recycled mass	GHG emission factor for recycling, per kilogram
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“Activity,” which is to be multiplied by the GHG emission factor, is determined by the organization calculating the GHG emissions (material consumption, electricity consumption for production, etc.) or determined for an assumed scenario (electricity consumption for usage, reclaimed mass, etc.)

Ideally, common data should be used for the emission factors. In the case of using an emission factor other than that from common data for any quantification, the organization must verify that such emission factor is reasonable.

4.3.2 Criteria relating to data collection

For calculating GHG emissions, rules should be established whereby each organization calculates the GHG emissions of its products using primary data, in principle. Use of secondary data should be limited only to cases where it is difficult to obtain primary data.

With regard to the collection of primary data, the following items have to be identified. When secondary data is used, the source has to be clarified.

- a) Stages and coverage of data to be collected
- b) Place of collection (e.g., domestically, abroad, factories)
- c) Collection period (e.g., year, season, month)

NOTE: Immediately after placing a new or improved product on the market, or during repeated remodeling of a product within a short time, the companies involved are not likely to be in a position to collect a sufficient amount of primary data if they intend to calculate and indicate CFP simultaneously with the release of the product. In the case of a slight design change, however, quantification almost completely free from error could possibly be made based on past product data. It is also possible to envisage those mechanisms that would allow tentative quantification and communication, based on the data available at the prototype/design stages and reassessment within a certain timeframe, based on accumulated primary data.

In cases where it is difficult to obtain primary and secondary data as referred to above, it is necessary to consider a flexible approach for adopting approximate or estimated data, with its reasonableness carefully assessed in advance based on product characteristics.

4.3.3 Criteria relating to data on equipment/facilities used during each life-cycle stage

Data relating to non-use periods of equipment and facilities (e.g., heavy mining equipment,

plant production facilities, transport trucks) used during individual life cycles do not have to be considered, in principle, as it is difficult to collect such data and the contribution to GHG emissions is generally low.

However, if it is clear that the contribution to GHG emissions is high, such data shall be taken into account.

4.3.4 Allocation criteria

For a process flow involving products from two or more categories at the production or distribution/sales stage, organizations are supposed to allocate the emissions of an individual product from among the total emissions.

The allocation method is to be established when preparing the PCR according to the product and process characteristics.

NOTE: In LCA, allocation is often taken in terms of weight ratio. However, in cases where a mixture of lightweight high-value-added products flows in the same process, such as with precious metals, it would be reasonable to allocate emissions expressed as a percentage of monetary value. In other cases, such as with factory lighting, it would be reasonable to allocate emissions based on the floor area used for the production line of each product.

In the distribution/sales stage where a huge number of product categories and items are simultaneously handled at stores and warehouses, allocation of emissions would naturally be complicated. It would be reasonable, therefore, to use a percentage of the monetary value (sales ratio) rather than a weight or area ratio. Deliveries and sales, however, vary greatly in emissions depending on thermal conditions such as room temperature, refrigeration, freezing, etc. In this case, emissions should be calculated separately.

4.3.5 Criteria relating to acquisition from two or more suppliers

When collecting primary data on a specific raw material procured from two or more suppliers, data shall be collected from all suppliers. The use of secondary data shall be limited to cases where it is difficult to obtain primary data.

When the primary data collected from a principal supplier (or the total when there are multiple principal suppliers) exceeds a certain ratio, the primary data may be used as another supplier's secondary data (weighted average when there are multiple principal suppliers). The ratio shall be at least 50% to ensure true representation.

4.3.6 Criteria relating to operation of production facilities

When collecting data relating to the operation of production facilities, only the direct section should be covered. However, where a direct section and an indirect section exist at the same site and it is difficult to isolate the applicable data, the direct section data may be "allocated" based on the data for the entire site.

4.3.7 Criteria relating to regional differences/seasonal variations

Where there are regional differences or seasonal variations, it is preferable to calculate the weighted average of GHG emissions based on the primary data from individual regions and seasons, taking into consideration the differences. However, in cases where it is difficult to do this, data other than the primary data may be used.

4.3.8 Criteria relating to biomass

CO₂ emissions from the combustion of wood biomass or others are not to be taken into account. However, quantifications shall include GHG emissions produced through activities that are input in biomass production, transport, etc.

4.3.9 Recycling criteria

All GHG emissions from the recycling process (e.g., collection, pretreatment, regeneration) have to be categorized under recycling materials at the raw material acquisition stage.

With regard to the recycling effect, the indirect impact of recycling must not be taken into account so as to avoid emissions being counted twice. However, the indirect impact at the disposal/recycling stage (downstream process) may be provided as additional information (attached information).

4.3.10 Reuse criteria

All GHG emissions from the reuse process (e.g., collection, cleaning) are categorized under reuse products at the raw material acquisition stage or production stage.

With regard to the reuse effect, the indirect impact of reuse of materials must not be taken into account so as to avoid emissions being counted twice. However, indirect impact at the disposal/recycling stage (downstream process) may be provided as additional information (attached information).

4.3.11 Cut-off criteria

If the cut-off is considered, the cut-off level shall be lower than 5% against the total GHG emissions at each life-cycle stage of the product. The scope of the cut-off must be specified.

The specific contents and scope of cut-off are established in the PCRs, with due consideration given to fair and impartial discussions.

NOTE; When the contents and scope of cut-off criteria are established, due consideration should be paid so that companies would not arbitrary choose materials to be cut-off trying to show a lower GHG emission level.

4.4 Product Category Rules (PCR)

The process of drawing up PCRs includes a series of fair proceedings participated in by companies, industry groups, and other relevant parties working on CFP communication. It is also necessary to secure fairness and transparency of PCRs, which, once drawn up, are to

be made available to the public such as by posting on the Internet.

Annex B contains provisions common to all PCRs under development.

NOTE: To prevent overlapping of different PCRs in identical categories, it is necessary to develop a mechanism enabling the control of PCRs under conditions of public involvement. It is also important to incorporate a mechanism for securing international harmonization.

Once drawn up, PCRs shall be constantly reviewed and improved from the viewpoint of quantification accuracy, simplicity and others.

4.5 Quantifications at Each Stage

4.5.1 Raw material acquisition stage

In the raw material acquisition stage, recycled and reused products may effectively be utilized as raw materials, while used products may be recycled at the disposal/recycling stage. GHG is emitted in this series of recycling processes for collecting and regenerating used products. Consideration should be given so that these GHG emissions should be calculated at the raw material acquisition stage according to product characteristics and recycling processes so that emissions are not counted twice in the quantification coverage.

NOTE: Quantification does not have to include GHG emissions that discharge with new factory construction/new facility introduction and land use change, except when their contribution to total GHG emissions is clearly high. However consideration must be given to this issue according to international study. Issues regarding the carbon storage in wood material should be discussed according to the international trends.

4.5.2 Production stage

Where private power generation is applied in the production stage, the GHG emissions from input electricity are not to be calculated for the emission factor applicable to commercial power rates available in general. Instead, an emission factor applicable to private power generation is to be adopted.

NOTE: When collecting data related to production equipment, there may be some cases where it is difficult to separate a section involved in direct production (direct section) from the indirect sections, such as an office, R&D department, at the same site. In view of such cases, therefore, the direct section data may be allocated based on the data for the entire site.

4.5.3 Distribution/sales stage

Some products may have GHG emissions that vary according to the retailer and sales mode (Examples: canned juice sold at automatic vending machines vs. over the counter; refrigeration vs. room temperature in an identical shop). Quantifying such varied emissions would be too cumbersome and costly for companies to label by type of distribution routing or by sales mode. In such cases, therefore, certain scenarios may also be set up.

NOTE: As far as the distribution stage is concerned, however, an actually measured value should be taken in cases where the route from the production site to the primary distribution base can be identified or in cases where the transport mode presents large GHG emissions, such as ocean or air freight. As far as the sales stage is concerned, any scenario to be set up should be envisaged as furnishing consumers with appropriate information to allow for proper product selection, in accordance with the purpose of the CFP program.

To set up a scenario, the organizations involved should be allowed to participate in fair and impartial discussions. In addition, it is necessary to allow for a review of the scenario, such as for expansion or contraction of the quantification coverage.

4.5.4 Use/maintenance control stage

GHG emissions at the use/maintenance control stage may be assumed to fall in a variety of cases that differ widely from user to user, similarly to the distribution/sales stage. When preparing PCRs, therefore, a standard scenario is to be set up for calculating the GHG emissions at this stage.

NOTE: Setting up a standard scenario in the PCR presents a challenge in terms of establishing the quantification coverage, which should be included as a CFP from its use. The electricity consumed by lighting, for example, is considered to be entirely measured as the bulb's CFP. Nevertheless, this raises the question, that is, to calculate the consumption of water and electricity for doing laundry, it is not clear whether the washing machine or the detergent, or both, or neither should be counted for the CFP in the range of measurements.

To set up the scenario, therefore, the organizations involved shall be allowed to participate in fair and impartial discussions. In addition, it is necessary to allow for a review of the scenario, such as for expansion or contraction of the quantification coverage.

4.5.5 Disposal/recycling stage

CO₂ emissions produced upon the combustion of wood biomass and others at the

disposal/recycling stage is not to be taken into consideration. The reason for this is that biomass fixes CO₂ in the atmosphere through production (growth) and such CO₂ is equivalent to that emitted upon combustion. (It is necessary, however, to add to the quantification GHG emissions from the activities that are input in biomass production, transport, etc.)

NOTE: Although wood is a circulating resource, excessive consumption might well raise the risk of preventing growth from catching up with deforestation. In view of this possibility, biomass combustion should be carefully handled in calculating the emissions. In this sense, some restrictive conditions should be imposed on the handling of CO₂ emissions from biomass combustion. For example, if a disposed wooden material is to be reused, the product should be marked to that effect and the exception of CO₂ emissions from biomass combustion should be allowed by imposing a restrictive condition, such as authorizing the combustion of biomass procured from planted/controlled wood only. To apply such a condition, it is necessary to ensure that it is not so restrictive as to impair the expansion of biomass energy utilization.

5. Communication Method for CFP

5.1 Basic Communication Rules

5.1.1 Basic conditions for communication

Organizations displaying the CFP on their products shall observe the following rules:

- a) Each product has to be marked with the value of CO₂-equivalent emissions throughout its life cycle, in principle.
- b) Units of emission shall be “g CO₂-equivalent,” “kg CO₂-equivalent” and “t CO₂-equivalent.”

Actual markings, however, shall be “g (grams),” “kg (kilograms)” and “t (tons).” It is necessary to describe fractions of numerical values, taking into consideration the effective number of digits used in the quantifications.

- c) Companies displaying the CFP on their products should make continuous efforts to reduce GHG emissions.

Products of an identical type is to be marked with the CFP of the mean value, with consideration given to differences from region to region (or between two or more production sites) and to variations from season to season. This is intended to avoid an increase in new costs for subdivided markings of GHG emissions and confusion on the part of consumers.

NOTE: As a prerequisite for participation in the CFP program, continuous efforts are

called for to reduce GHG emissions. However, a specific numerical target should not be given as a mandatory requirement. To declare a numerical target value, additional and optional marking is authorized for application so that companies may convey their intentions to consumers. Further additional and optional marking to show achievement of a target shall be considered. In addition, a study shall be made on mechanisms that would furnish companies with an incentive to reduce GHG emissions.

Existing laws and regulations have already imposed a variety of mandatory marking obligations. Consumers have a significantly high level of reliability requirements for such marking and the available space on products is limited. In view of these facts, the utmost care must be taken in establishing the communication rules.

For product communication, a common specified label is to be used to operate the CFP program.

5.1.2 Contents of label

Carbon footprints are marked using the absolute value of CO₂-equivalent emissions.

NOTE: To make labels more intelligible to consumers, consideration may be given to jointly furnishing information for assisting comparison with another product and a standard that is valid in the industrial sector. To ensure that consumers understand the actual meaning of CFP, awareness-raising activities are desirable, such as the publication and distribution of guidebooks.

Detailed information on CFP by life-cycle stage should be made available to the public, such as by posting on the Internet.

5.1.3 Placement and size of label

Organizations shall, in principle, affix the CFP label onto the product body or the packing material.

For labels displayed by means other than directly on the product, Organizations can make a selection from among a variety of options, such as website, leaflet, environmental report, price tag, over-the-counter, QR code and other means under development.

NOTE: For label placement and size, certain rules shall be established from the viewpoint of compatibility between effectiveness of consumer appeal and convenience for companies. Respective rules may be established according to the product size (such as surface area).

5.2 Selective/Optional Actions

CFP communication shall be clearly implemented for consumers based on the principles. In some cases, however, a communication that deviates from the basic rules may allow for more effective reduction of GHG emissions. In such a case, a study shall be made on the feasibility of authorizing such an exception of communication. The contents of such a label, however, should be limited to information relating to GHG emissions, with no other information relating to the product's other functions, performance, features, etc. Specific cases and principles are given below.

5.2.1 Provision of additional information (reduction ratios, breakdown by process and by part)

From the viewpoint of properly advising consumers of the efforts made to reduce GHG emissions, companies can mark a reduction ratio near the CFP labeling.

It is expected that if emissions by process and by part are "visualized," every company will be encouraged to make efforts to reduce GHG emissions. Therefore, companies can mark a breakdown of such reduction by process or by part.

NOTE: Examples of additional information:

- a) Reduction ratio compared to the conventional product,
- b) Reduction ratio compared to the standard in the industrial sector,
- c) Breakdown by process (quantification stage) / by part
- d) Markings relating to usage (e.g., "Use of this product as indicated will reduce GHG emissions by an amount exceeding the indicated CFP.")
- e) Markings relating to the recycling of containers (e.g., "This container once 100% recycled would reduce GHG emissions by an amount exceeding the indicated CFP.") and
- f) CO₂-equivalent emissions per cycle of use.

5.2.2 Estimated life span (number of service years) for durable consumer goods

In the case of a household electric appliance emitting a large volume of GHG emissions during use, an indication of GHG emissions per product life cycle would not always effectively reflect the efforts to reduce GHG emissions.

For durable consumer goods, therefore, the estimated life span (number of service years) can be communicated in addition to the GHG emissions throughout the life cycle.

On an as-required basis, the additional marking of emissions per unit consumption (e.g., "CO₂-equivalent emissions per annual consumption") can be authorized.

NOTE: A bulb-shaped fluorescent light, for example, is not always more advantageous than an incandescent bulb when comparing their GHG emissions because the former has a longer life than the latter. In addition, an attempt to prolong the service life raises a risk of increased GHG emissions per product.

5.2.3 Regional differences, seasonal variations and supplier differences

Where a reduction of GHG emissions may be expected according to the CFP by region and season, consideration should be given to authorizing the comprehensive indication of such regional and seasonal differences. It is also necessary to consider that primary production, such as for perishables, has input materials and GHG emission/absorption varies greatly according to weather conditions. Furthermore, the number of items is huge and the categories are highly diversified based on the architecture of farm operations and regional characteristics. Thus, the data necessary for “visualization” shall be obtained from agricultural logs kept by individual farmers.

Even for products of an identical type or produced at an identical base, the same raw material may be procured from two or more different suppliers and their respective CO₂ emissions may differ from one supplier to another. In such cases, the final products must be distinguished by supplier so that the CFP can be labeled separately. Labels should be expected to promote the reduction of CO₂ emissions by suppliers, with their efforts directly “visualized.”

Annex B (normative)

Provisions to Product Category Rules (PCR)

This annex prescribes provisions common to all PCRs to ensure fairness and transparency of PCRs in establishing quantification criteria for the same product category. This annex is not intended to prescribe standards or criteria based on laws or ordinances; it is to be reviewed in a timely and appropriate manner through various commitments by consumers, companies and government entities responsible for the Carbon Footprint Program.

B.1 Definition and Coverage of Products

B.1.1 Definition of products

The products to be assessed are defined. Definitions should be as extensive as possible, considering at least the following items:

- a) Function/features
- b) Use (e.g., professional, public)
- c) Legislation (e.g., Energy Saving Act criteria)
- d) Other related standards (e.g., industry standards)

B.1.2 Identification of quantification coverage

Aspects of products for GHG emissions quantification are identified (e.g., main body, accessories, containers, packaging). Unit of products shall be established (e.g., number of pieces, weight and area).

B.1.3 Establishment of life-cycle stages

In principle, GHG emissions for all of the following life-cycle stages shall be calculated:

- a) Raw material acquisition stage
- b) Production stage
- c) Distribution/sales stage
- d) Use/maintenance control stage
- e) Disposal/recycling stage

If a specific life-cycle stage or a specific process of a life-cycle stage is not included, the reason and justification are to be clearly provided.

B.2. Data Collection at Each Life-Cycle Stage

B.2.1 Raw material acquisition stage

The coverage of data to be collected concerning the raw material acquisition stage of the product are to be specified.

Collection items and collection methods for data on raw material shall be specified, considering the following:

- a) The type of data to be collected have to be clarified (e.g., primary, secondary, approximate, estimated);
- b) In cases where raw material is acquired from two or more suppliers and only limited data is collected from a principal supplier, the supplier is to be identified;
- c) The method of transport and the means for collecting energy consumption data relating to the transport of raw materials (e.g., how to directly measure fuel costs (Fuel Cost-based calculation method), how to measure fuel costs from transportation distance/loading ratio (ton-kilometers));
- d) Where a common scenario is set up for the transportation of raw materials, the method of transport or transportation distance, etc., by transport leg, is to be clarified;
- e) Where regional differences and seasonal variations are taken into account, the regions or periods from which the data is to be collected, as well as the quantification method, is to be clarified;
- f) Where recycled materials or reused goods are used, they should be distinguished from virgin materials or new goods, and the scope of specific recycle/reuse processes is to be clarified;
- g) In the case of cut-off, a cut-off level shall be lower than 5% of the total GHG emissions at the raw material acquisition stage and the scope is to be clarified;

B.2.2 Production stage

The range of data to be collected for the production stage of the product is to be specified.

Collection items and collection methods for data on energy consumption or input and discharged matter, etc. is to be specified, considering the following:

- a) The type of data to be collected is to be clarified (e.g., primary, secondary, approximate, estimated);
- b) Where the emissions of a production process are allocated based on the production processes of the entire site, the allocation method is to be clarified (e.g., site area, number of man-hours);
- c) Where products are produced at two or more sites and only limited data is to be collected from the principal site, this site is to be identified;

- d) The method of transport and the means for collecting data on energy consumption relating to the transport of intermediate products, etc. (e.g., how to directly measure fuel costs (Fuel Cost-based calculation method), how to measure fuel costs from transportation distance/loading ratio (ton-kilometer)) is to be clarified;
- e) Where a common scenario is set up for the transportation of intermediate products, etc., the method of transport or transportation distance, etc., by transport leg, is to be clarified;
- f) When regional differences and seasonal variations are taken into account, the regions or periods from which the data is to be collected, as well as the quantification method, is to be clarified;
- g) In the case of private power generation, the amount of fuel used for power generation (e.g., heavy fuel oil, natural gas, coal) is to be collected as primary data.
- h) Where reused goods are used, they are to be distinguished from new goods, and the scope of specific reuse processes is to be clarified;
- i) In the case of cut-off, a cut-off level shall be lower than 5% of the total GHG emissions at the production stage and the scope shall be clarified;

B.2.3 Distribution/sales stage

The range of data to be collected concerning the distribution/sales stage of the product is to be specified.

Collection items and collection methods for data on energy consumption, etc. are to be specified, considering the following:

- a) The type of data to be collected is to be clarified (e.g., primary, secondary, approximate, estimated);
- b) The method of transport and the means for collecting data on energy consumption relating to the transport of products, etc. (e.g., how to directly measure fuel costs (Fuel Cost-based calculation method), how to measure fuel costs from transportation distance/loading ratio (ton-kilometer)) is to be clarified;
- c) The sales mode and the method for collecting data on energy consumption at the time of sale (e.g., how to directly measure energy consumption from the location of the display or vending machine in the store, how to allocate energy consumption of individual products based on energy consumption of the entire store) is to be clarified;
- d) Where a common scenario is set up for the transportation of products, the method of transport and transportation distance, etc., by transport leg, is to be clarified. In this case, it is preferable to consider the cooling/heating load by method of transport (e.g., at ordinary temperatures, in cold storage, in freezer storage, in thermal insulation);
- e) Where a common scenario is set up for product sales, the sales mode, sales hours,

turnover ratio (number of days products are in the store or vending machine), etc. is to be clarified. In this case, it is preferable to consider the local cooling/heating load by sales mode;

f) Where energy consumption at the time of sale of an individual product is allocated from multiple products in the same store or same vending machine, the allocation method (e.g., site area (lighting, ventilation), capacity (local cooling/heating)) are to be specified;

g) When regional differences and seasonal variations are taken into account, the regions or periods from which the data is to be collected, as well as the quantification method, is to be clarified;

h) In the case of private power generation, the amount of fuel used for power generation (e.g., heavy fuel oil, natural gas, coal) is to be collected as primary data;

i) Where unsold goods (disposal) are taken into account at the time of sale, the disposal quantities and method are to be clarified;

j) In the case of cut-off, a cut-off level shall be lower than 5% of the total GHG emissions in the distribution/sales stage and the scope is to be clarified;

B.2.4 Use/maintenance control stage

The range of data to be collected concerning the use/maintenance control stage of the product is to be specified.

Collection items and collection methods for data on energy consumption, consumable goods, changing parts, etc. are to be specified, considering the following:

a) The type of data to be collected is to be clarified (e.g., primary, secondary, approximate, estimated);

b) The form of use/maintenance control and method for collecting data on use/maintenance control energy consumption, etc. (e.g., how to directly measure energy consumption from machinery used or maintenance control facilities, how to allocate maintenance control of an individual product based on maintenance control of the entire building) are to be clarified;

c) Where a common scenario is set up for use/maintenance control, etc., the form of use/maintenance control, time of use, age of service, maintenance control period, etc. are to be clarified. In this case, industry standards (e.g., time of use, standby time of electrical appliances) or how to display information on products (e.g., cooking method) are to be considered;

d) Where energy consumption, etc., of an individual product at the time of use/maintenance control is allocated based on multiple products in the same building or the same cooking stage, its allocation method (e.g., site area (lighting, ventilation), usage quantities (heating at the time of cooking)) are to be specified;

- e) The method of transport and means of collecting data on energy consumption relating to the transport of intermediate products, etc. (e.g., how to directly measure fuel costs (Fuel Cost-based calculation method), how to measure fuel costs from transportation distance/loading ratio (ton-kilometer)) is to be clarified;
- f) Where a common scenario is set up for the transportation of intermediate products, etc., the method of transport or transportation distance, etc., by transport leg, is to be clarified;
- g) When regional differences and seasonal variations are taken into account, the regions or periods from which the data is to be collected, as well as the quantification method, is to be clarified;
- h) In the case of cut-off, a cut-off level shall be lower than 5% of the total GHG emissions in the use/maintenance control stage and the scope is to be clarified;

B.2.5 Disposal/recycling stage

The range of data to be collected concerning the disposal/recycling stage of a product is to be specified.

Collection items and collection methods for data on energy consumption, disposal of waste, etc. are to be specified, considering the following:

- a) The type of data to be collected is to be clarified (e.g., primary, secondary, approximate, estimated);
- b) Where the indirect impact of recycling is taken into account at the disposal/recycling stage (downstream process), such data is to be provided as supplementary information and be distinguished from the main data.
- c) Data collection methods relating to disposal/recycling/reuse processes and energy consumption or disposal/recycling volume, etc. (e.g., how to directly measure energy consumption from machinery or facilities, how to allocate waste disposal of an individual product based on that of the entire building) are to be clarified;
- d) Where a common scenario is set up for the disposal/recycle/reuse of products, the processes, disposal/recycle ratio, etc. are to be clarified. In this case, laws and ordinances / industry standards (e.g., disposal methods, data records) and methods for displaying information on products are to be considered;
- e) Where energy consumption at the time of disposal/recycle/reuse, etc. of individual goods is allocated based on multiple goods in the same building, the allocation method (e.g., site area (lighting, ventilation), volume/weight (disposal process)) are to be specified;
- f) The method of transport and means of collecting data on energy consumption relating to the transport of wastes, recycled material, reused products, etc. (e.g., how to directly measure fuel costs (Fuel Cost-based calculation method), how to measure fuel costs from

transportation distance/loading ratio (ton-kilometer)) are to be clarified;

g) Where a common scenario is set up for the transportation of wastes, recycled material, reused products, etc., the method of transport or transportation distance, etc., by transport leg, is to be clarified;

h) In the case of cut-off, a cut-off level shall be lower than 5% of the total GHG emissions in the disposal/recycling stage and the scope is to be clarified.

DRAFT

Annex A (informative)

Background and Challenge of Carbon Footprint Program

(This part is omitted from translation)

Annex C (informative)

Greenhouse Gas Global Warming Potentials

GWPs are quoted from ISO 14064-1 Annex C (Table C.1).

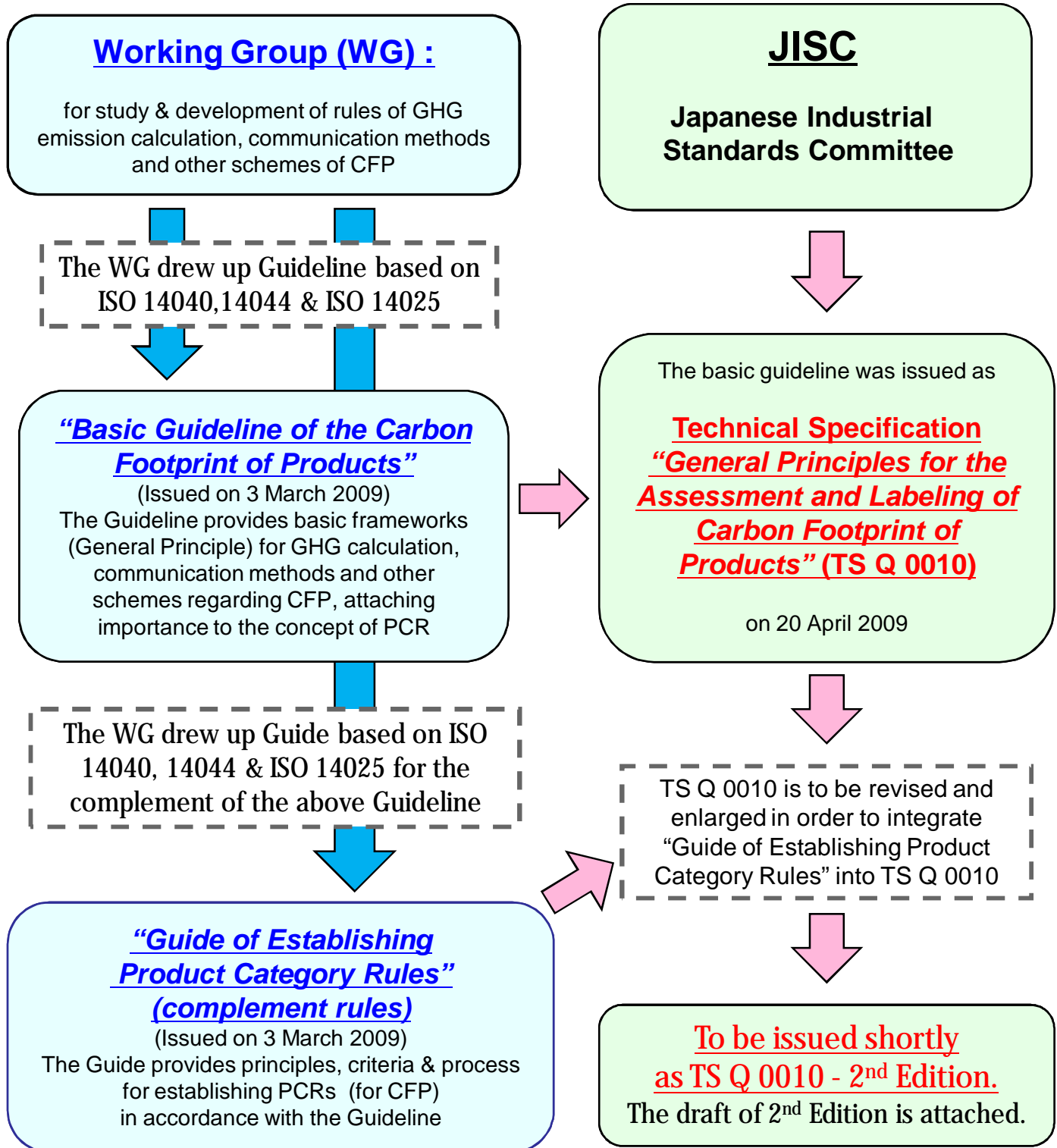
Annex D (informative)

Bibliography

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- [2] ISO 14044:2006 Environmental management — Life cycle assessment — Requirements and guidelines
- [3] ISO 14025:2006 Environmental labels and declarations - Type III environmental declarations - Principles and procedures
- [4] ISO 14064-1:2006 Greenhouse gases - Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals
- [5] Kyoto Protocol to the United Nations Framework Convention on Climate Change: 1997
- [6] Intergovernmental Panel on Climate Change. Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories Reporting Instructions, 1997

**Japanese Technical Specification (TS) issued by JISC
“ General Principles for the Assessment and Labeling of
Carbon Footprint of Products ”**

~ Supplementary explanation of the progress of revise and enlargement of TS ~



Japanese CFP Pilot Project based on TS Q 0010

Project Period - 2009 to 2011

- Improvement of TS Q0010 based of outcomes/findings from pilot programme -

TS Q 0010 2nd Edition (issued by JISC) provides:

- basic frameworks (General Principle) for calculation, communication and verification
- principles, criteria & process for establishing Product Category Rules (PCRs)

Based on
 ISO 14040 & 14044; "LCA"
 ISO14025; "PCR / Programme", and
 Other international standards related to CFP

**Proposal for improvement
 (revise & enlargement) of TS Q0010
 to JISC**

Working Group (WG) :

Study & Improvement of rules for CFP

Interested Parties

Currently, various sectors participate in PCRs development.

Development of Product category rules (PCR) for CFP

Programme Operator

PCR for CFP

Reviewed by **PCR review committee**
 composed of neutral, independent members

Quantified by **organization**

CFP

CFP independent verification

Put products labeled CFP on the market by way of trial

Survey on corporate awareness and consumers' acceptability of CFP

Outcomes/Findings from Pilot Project

