

CFP Communication Program

Requirements for
CFP quantification and declaration

Revised on October 2, 2012

Document ID: C-09-03

Japan Environmental Management Association for Industry

Contents

1.	Terms and definitions	4
2.	Principles of CFP quantification method.....	6
2.1.	Greenhouse gases (GHGs) covered by quantification	6
2.2.	Product system (data collection range)	6
2.2.1.	Refining of a product system	6
2.2.2.	Cut-off items.....	6
2.2.3.	Cut-off criteria.....	6
2.3.	Life cycle flow chart.....	7
2.4.	Equation of quantification of CO ₂ emissions.....	7
2.5.	Criteria on data quality, and data collection method	8
2.5.1.	Primary data collection range	9
2.5.2.	Criteria on primary data quality.....	9
2.5.3.	Principles of primary data collection method	10
2.5.3.1.	Activity data, and factor to calculate activity data	10
2.5.3.2.	Emission factor.....	12
2.5.4.	Criteria on secondary data quality	12
2.5.5.	Secondary data collection method	13
2.5.5.1.	Activity data, and factor to calculate activity data	13
2.5.5.2.	Emission factor.....	13
2.6.	Transport	13
2.7.	Principles of allocation	13
2.7.1.	Criteria on allocation for reuse and recycling	14
2.8.	Credit that alternative system carries	16
2.9.	Biomass.....	16
2.10.	Delayed emissions of CO ₂ , and carbon storage in a product.....	16
2.11.	Land use change.....	16
2.12.	Organizing of evidence used for CFP quantification	17
2.13.	The way of inclusion of CO ₂ emissions arising from each life cycle stage.....	17
3.	Principles of CFP declaration method	18
3.1.	Basic requirements of the businesses that wish to make a CFP declaration.....	18
3.2.	Contents of CFP declaration	18
3.2.1.	Definitions of CFP declaration	18
3.2.2.	Basic rules of CFP declaration	19
3.2.3.	CFP mark	19

3.2.4.	Value in a CFP mark	19
3.2.5.	Additional information	20
3.2.6.	Registration information	21
3.3.	Comparisons between products	22
3.3.1.	Display of CFP quantification results which were compared between products by the same business	22
3.3.2.	Comparisons of the target product versus other businesses' product	22
3.3.3.	Avoidance of comparisons of numerical values in the market	22
3.3.4.	Comparisons of CFPs between the product of this CFP program and the product of another CFP program	23
4.	Other requirements for CFP quantification and declaration	24
4.1.	Interpretation	24
4.2.	Series product	24
	Annex A (normative): Global Warming Potential	25
	Annex B (normative): Quantification method for GHG emissions associated with fuel consumption during transport	26
	Annex C (normative): Display of comparisons of CFP quantification results by the same business.....	28
	Annex D (normative): Series product	31
	D1. Type A series product: a type to set the same CFP quantification value for one series product.....	31
	D2. Type B series product: a type to estimate CFP quantification value from relational equation, for one series product.....	32

This document prescribes requirements for quantification and declaration of CFP (Carbon Footprint of Products) under the CFP Communication Program (hereinafter called “the CFP Program”) operated and managed by JEMAI (Japan Environmental Management Association for Industry). The businesses that wish to conduct “CFP quantification and declaration” (hereinafter called “the businesses”) shall make CFP quantification and declaration based on the requirements of this document and applicable CFP-PCR.

** Italic types in the following document do not show requirements, but show examples and explanations of requirements.*

1. Terms and definitions

This document shall apply the following terms and definitions.

1.1. Final goods

Final form of product (product itself and accessories) reached to consumer.

1.2. Intermediate goods

Form of product (product itself and accessories) reached to middleman, which will be processed and then will be provided to consumer.

1.3. Ancillary input

Material input that is used only in a specific site or a specific process, but which does not constitute part of the product. It includes chemicals and cleaning agent, etc., to be used in a production site.

1.4. Wastes

Items to be disposed of, to be recycled, or to be reused.

1.5. Treatment of wastes

Treatment (incineration, landfill, etc.) of items to be disposed of, and recycling preparation of items to be recycled.

1.6. Recycling preparation

Treatment processes to prepare recycling of materials/parts constituting end-of-life product. The covered range of each material is up to and including; baling processes for plastics, packing processes for paper, manufacturing cullet processes for glass, and pressed processing processes for metals.

When crushing and sorting are needed as recycling preparation, the crushing and sorting processes shall be included in the covered range.

1.7. Co-products

Of products coming from process or product system, the items covered by allocation.

1.8. Transport volume

Volume of ton-kilometer to be multiplied by emission factor, when quantifying CO₂ emissions associated with fuel consumption during transport.

1.9. Standard weight

Prescribed weight of product contents, or averaged weight of product contents at shipping, in sales unit of the product.

1.10. Activity data

An indicator which represents the amount of activity in correlation with CO₂ emissions. It includes, for example, use amount of materials, consumption amount of electricity, and volume of items landfilled, etc., though the amount depends on activity.

1.11. Emission factor

An indicator which shows CO₂ emissions per activity data. The unit is “kg-CO₂e/unit of activity data”. It includes, for example, CO₂ emissions per kg of certain material, which were emitted from natural resource extraction to material production, though the amount depends on activity.

2. Principles of CFP quantification method

2.1. Greenhouse gases (GHGs) covered by quantification

“GHGs” listed in Table 1 shall be covered by quantification.

Table 1: “GHGs” covered by quantification

Items	Contents
Types of GHGs	Six types of GHGs: CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, and SF ₆ (i.e. GHGs covered by the Kyoto Protocol)
Emission source covered	Anthropogenic process (including emissions from livestock and from other farming process)
GWP (Global Warming Potential)	The 100-year GWP of GHGs in the IPCC 2 nd assessment report, provided in Annex A (normative) (Quantification criteria on GHG emissions by country prescribed by the Kyoto Protocol)

Hereinafter, CO₂ equivalent emissions, which are calculated by converting from GHG emissions, are simply described as “CO₂ emissions” in this document.

2.2. Product system (data collection range)

2.2.1. Refining of a product system

CFP quantification shall be conducted based on the product system (data collection range) described in applicable CFP-PCR. If a certain process which exists in the product system of CFP-PCR, however, is not included in the actual product system of the covered product, the process may not be quantified.

2.2.2. Cut-off items

It is considered that comprehensive investigation of a product system could impose an excessive work burdens on the businesses. Therefore, generally in CFP quantification, insignificant life cycle stage, process, or flow in a life cycle of applicable product, may be conducted cut-off from the product system (namely, excluding from the data collection range), provided that it meets a given criteria. Cut-off item can be set for each cut-off criteria in No.2.2.3.

Cut-off can be conducted for the cut-off items prescribed in applicable CFP-PCR. Moreover, cut-off items may be added for target product in CFP quantification pursuant to the cut-off criteria in No.2.2.3.

2.2.3. Cut-off criteria

(1) Parts, materials, containers/packaging, and ancillary inputs can be conducted cut-off within cumulative 5% of the mass of the reference flow. However, if the item has small mass but its

CO₂ emissions are assumed to be large, it shall be included in the product system (e.g.: *printed board in electronics*).

- (2) Wastes can be conducted cut-off within cumulative 5 % of the mass of the reference flow. However, even if the item has small mass but its CO₂ emissions are assumed to be large, it shall be included in the product system (e.g., *refrigerant leakage from air-conditioning, release of N₂O arising from nitrogen fertilizer, etc.*).
- (3) For a flow or a process which cannot be collected its data in mass, the sum of CO₂ emissions which are conducted cut-off shall be within 5 % of the total CFP trial quantification results (e.g., *transport process within a site*).
- (4) The field which can be conducted cut-off shall meet the conditions where it is difficult to model a validate scenario for the field due to lack of sufficient reliable information (e.g.: *construction of production plant, capital goods, indirect department, etc.*).

2.3. Life cycle flow chart

Life cycle flow chart shall be created for each target product, by referring to a life cycle flow chart of applicable CFP-PCR.

2.4. Equation for quantification of CO₂ emissions

In general, CO₂ emissions are quantified for each process within a product system by using the following equation, and then the calculation results are added up.

$$\text{CO}_2 \text{ emissions} = \sum (\text{Activity data}_i \times \text{Emission factor}_i)$$

“*i*” in the equation above refers to a process.

Note: Examples of activity data and CO₂ emission factor (hereinafter called “emission factor”) are described in Table 2 below.

Table 2: Examples of activity and emission factor

<i>Life cycle stage</i>	<i>Examples of activity</i>	<i>Examples of emission factor</i>
<i>Raw material acquisition</i>	<i>Use amount of materials</i>	<i>CO₂ emissions per kg of the materials</i>
<i>Production</i>	<i>Weight of items assembled</i>	<i>CO₂ emissions per kg of the items during assembling</i>
	<i>Electricity consumption amount during production</i>	<i>CO₂ emissions per kWh of the electricity</i>
<i>Distribution</i>	<i>Transport volume (kg-km) = Transport distance x Loading ratio x Loading weight of truck</i>	<i>CO₂ emissions per kg-km (transport volume) of the products</i>

<i>Use and maintenance</i>	<i>Electricity consumption amount during usage</i>	<i>CO₂ emissions per kWh of the electricity</i>
<i>Disposal and recycling</i>	<i>Weight of items landfilled Weight of items recycled</i>	<i>CO₂ emissions per kg of the wastes when landfilled. CO₂ emissions per kg of the items when treating for recycling preparation.</i>

2.5. Criteria on data quality, and data collection method

“Primary data” refers to the data obtained from a direct measurement or a calculation based on direct measurements at its original source within the product system.

Note: It includes fuel consumption record measured by fuel gauge, bills/receipts, or number of products and yield ratio listed in the table of product production control, etc.

“Secondary data” refers to the data obtained from sources other than a direct measurement or a calculation based on direct measurements at the original source within the product system.

Note: It includes basic secondary data and available secondary data, provided by JEMAI.

The relation between “activity data and emission factor” and “primary data and secondary data” are described in Table 3.

Table 3: Relation between “activity data and emission factor” and “primary data and secondary data”

-	Primary data	Secondary data
<i>Examples of activity data, and examples of factors to calculate activity data</i>	<ul style="list-style-type: none"> - Activity data collected by the business (use amount of materials, weight of items assembled, electricity consumption amount during production) - Planned value or designed value which is collected by the business, estimated value obtained from similar product - Yield ratio of similar product, which is collected from the business 	<ul style="list-style-type: none"> - Transport distance between sites, provided by JEMAI - Unit heat value of fuels, provided by JEMAI - Values described in a scenario of CFP-PCR - IPCC Guidelines for National Greenhouse Gas Inventories (by IPCC) - The National GHGs Inventory Report of JAPAN (by National Institute for Environmental Studies) - Data from other published references
<i>Examples of emission factor</i>	<ul style="list-style-type: none"> - Emission factor obtained from <u>“registration information approved by verification”</u> of the product actually used by the business - Emission factor calculated based on 	<ul style="list-style-type: none"> - Basic secondary data - Available secondary data - Values described in CFP-PCR - Emission factor obtained from <u>“registration information approved by</u>

	<i>primary data which were collected by the business or the suppliers in a supply chain</i>	<u>verification</u>
--	---	---------------------

2.5.1. Primary data collection range

Primary data shall be collected by following primary data collection range prescribed in applicable CFP-PCR. However, it shall not apply to the case where a process or a flow, which is prescribed in primary data collection range, is conducted cut-off.

2.5.2. Criteria on primary data quality

The criteria on data quality required when collecting primary data shall prescribe as follows. When there are concrete criteria in applicable CFP-PCR, it shall follow them.

[Criteria on time-related coverage]

- It shall be the term of the most recent one year, or the term which can be justified as equivalent to the most recent one year.

[Criteria on geographical coverage]

- Locality shall be taken into account in CFP quantification. Based on the data of each region, CFP shall be appropriately quantified. However, in the case that locality does not exist or is significantly small, it may not be taken into account.
- When multiple sites are included in primary data collection range, primary data shall be collected from the sites accumulating more than 50% of the total production or procurement volume of all sites by using less biased method. Or, it shall be the range which can ensure equivalent validity.

[Criteria on technology coverage]

- It shall be the production technology of applicable product, or shall be the production technology of similar product which can ensure equivalent validity to the production technology of the applicable product.

[Criteria on reproducibility]

- The basis of data shall be clear.

[Exceptions of criteria on primary data quality of raw materials when collecting primary data from suppliers]

- Criteria on time-related coverage shall be arbitrary one year within the most recent three years, or shall be the coverage which can ensure equivalent validity to the arbitrary one year within the most recent three years.

[Exceptions of criteria on primary data quality in the case of primary industries]

When there are many farmers who cultivating or breeding the product to be quantified, the averaged data of primary data which were collected from the part of the farmers can be applied for the rest of farmers. When this method is used, it shall be ensured that the farmers whose primary data were collected are unbiased. The ensuring method can use classification such as by farming scale, by farming efficiency of all farmers. In that case, it should show that the classified sample data fits the distribution of each classification.

2.5.3. Principles of primary data collection method

2.5.3.1. Activity data, and factor to calculate activity data

When collecting primary data, the following method shall be used. When concrete criteria on the method are described in applicable CFP-PCR, it shall follow them.

[Data collection by the process based method]

Measurement shall be conducted by using the method A described below. When measurement by the method A is difficult, the method B may be used or the method A and B may be combined.

(A): the method to add up each input amount and discharge amount of each item, by collecting data of “per operation unit” or “per equipment/facility operation (e.g., “operating hours,” “operating area size,” “operating distance,” etc.).

Note: an example of equation:

$$\begin{aligned} & \text{Operating time of machine} \times \text{Fuel consumption of machine by hour} \\ & = \text{Fuel consumption} \end{aligned}$$

Equipments and facilities which greatly contribute to the results shall be checked whether they are added up without omission.

In addition, the same process based method is applied to the output other than the products produced in the same site, then consistency shall be checked whether the sum total of all products calculated by the method does not greatly differ from actual site-total values.

The operation unit of equipment/facility (e.g., operating hours, operating area size, operating distance, etc.) may be adopted from such information sources as farming diaries, farming management software, and other farming records.

(B): the method to allocate actual results of business unit, building unit, floor unit, or line unit, etc., for a certain period among output

Note: for example, annual total input amount of fuels is allocated between the products produced.

Allocation method shall follow the requirements in No.2.7. Co-products shall be allocated.

[Other considerations when collecting data]

- Designed value, planned value, and estimated value

Though data collection of input/output flows of each process shall prioritize actual measurement, “designed value” and “planned value” obtained from product brief, specifications, or mixing standards, etc., and “estimated value” obtained from process of similar product, may be used. However, when using such designed value, planned value, and estimated value, criteria on primary data quality shall be fulfilled.

- Considerations of loss rate of input amount

The amount of each input to each process shall be calculated by considering the loss rate of each process. However, it shall not apply to the case where considerations of such loss rates are not viable due to various inputs or processes.

- Wastes

The data on wastes volume shall be collected based on material balance of each process. However, when data collection based on material balance is not viable because of so many inputs and processes, it may be allocated by using wastes volume discharged from an entire plant.

Note: for example, volume of wastes discharged from an entire plant can be collected from its control manifest for industrial waste.

- Waste water

When waste water is discharged after treated in treatment facility (sewage treatment tank) within the operation range of the businesses, the data in the treatment process of the treatment facility shall be collected. Sludge from treatment facility shall follow the requirements in the previous paragraph, “Wastes”.

- Internally generated electricity

When using the electricity internally generated within the operation range of the businesses, the consumption amount of the fuels for generating the electricity shall be collected by type of the fuels.

- Steam

When steams are internally supplied and used within the operational range of the businesses, the consumption amount of the fuels for generating the steams shall be collected by type of the fuels.

- Ground water

If ground water is used within the operation range of the businesses, the consumption amount of the energy used for pumping up and clearing the water shall be included.

2.5.3.2. Emission factor

When creating emission factor by using primary data, it shall add up not only the impacts associated with inputs, but also the impacts associated with transport of “wastes” and “waste water” discharged from production to treatment facility, and the impacts associated with the treatment of them.

Moreover, when there is a CFP-PCR in a supply chain of the product covered by CFP quantification, emission factor should be created by collecting primary data, after quoted from applicable part of the CFP-PCR.

Note: for example, when primary data is collected to be used as emission factor of containers/packaging, the data collection should be conducted based on the CFP-PCR related to the containers/packaging.

- Emission factor obtained from released “CFP data approved by verification”

When CFP verified product or its similar product is used in a life cycle of applicable product, the emission factor obtained from the declaration of the CFP verified product may be used as primary data. In the case that a product which is used in a life cycle of applicable product is not the same but the similar product, and does not meet the criteria on primary data quality (No.2.5.2), it cannot be used as primary data, but can be used as secondary data.

- Emission factor collected by the businesses or by the data suppliers in a supply chain

The emission factor which is calculated based on primary data, collected by the businesses or by the data suppliers in the supply chain, may be used as primary data. However, the primary data collected by the businesses or by the data suppliers in a supply chain shall meet the criteria on primary data quality (No.2.5.2).

2.5.4. Criteria on secondary data quality

Data quality required when collecting secondary data shall be prescribed as below.

[Criteria on technology coverage]

- It shall have high similarity to production technology of applicable product. Or, it shall be the production technology of applicable product.

[Criteria on reproducibility]

- Source of data shall be disclosed. “Disclosed” here includes not only “open to the public,” but also “published in a book or journal,” “disclosed exclusive to members,” and “release on the software,” and so forth.

Data collection items which exceed more than 20% of the CFP quantification results shall meet the criteria on secondary data quality. When they are described in applicable CFP-PCR, it shall follow the rules.

2.5.5. Secondary data collection method

When secondary data collection method is described in applicable CFP-PCR, it shall follow the rules.

Quantification of GHGs other than the CO₂ from livestock, manures, or soil (e.g., the quantification of *N₂O emissions arising from fertilizer*) shall follow the methods described in the National GHGs Inventory Report of JAPAN (by National Institute for Environmental Studies) or internationally approved literatures such as the IPCC Guidelines for National Greenhouse Gas Inventories (by IPCC).

2.5.5.1. Activity data, and factor to calculate activity data

The following data may be used.

- Transport distance between the sites, provided by JEMAI
- Unit heat value of fuels, provided by JEMAI
- Values in the scenario of applicable CFP-PCR
- National GHGs Inventory Report of JAPAN (by National Institute for Environmental Studies)
- IPCC Guidelines for National Greenhouse Gas Inventories (by IPCC)
- The database provided by JLCA (by Life Cycle Assessment Society of Japan)
- Other data from published literatures and materials

2.5.5.2. Emission factor

Businesses can use the basic secondary data, the available secondary data, and the “registration information approved by CFP verification,” provided by JEMAI.

For establishing coherence of data to be used and consistency of CFP quantification methods, the businesses shall represent their high prioritized database to be used, and they shall select emission factor data by following the order of the prioritized database.

Note: for example, when the basic database is put on the top of the priority for CFP quantification, the businesses cannot use available secondary data despite the data of a certain material is included in the basic database.

2.6. Transport

- The method of quantifying the CO₂ emissions associated with fuel consumption during transport is provided in Annex B (normative).

2.7. Principles of allocation

When multiple products are produced from a process, input and output flows are required to be

allocated between the multiple products. The allocation shall be conducted based on the following steps.

- a) Step 1: Wherever possible, allocation should be avoided by
- 1) dividing the unit process to be allocated into two or more sub-processes and collecting the input and output data related to these sub-processes, or
 - 2) expanding the product system to include the additional functions related to the co-products.

b) Step 2: Where allocation cannot be avoided, the input flows and output flows of the system should be partitioned between its different products or functions in a way that reflects the underlying physical relationships between them; i.e. they should reflect the way in which the input flows and output flows are changed by quantitative changes in the products or functions delivered by the system.

Note: for example, it may be allocated in proportion to mass, heat quantity, numerical quantity of product, and operational area, etc., between co-products.

c) Step 3: Where physical relationship alone cannot be established or used as the basis for allocation, the input flows and output flows should be allocated between the products and functions in a way that reflects other relationships between them.

Note: for example, input and output flows data might be allocated between co-products in proportion to the economic value of the products. In other case, allocation based on monetary value can be considered as valid, when lightweight and high value-added product (e.g., precious metal) is output from the same process.

Some output flows may be partly co-products and partly waste. In such cases, the input flows and output flows shall be allocated to the co-products part only. The judgment whether it is co-product or not shall be decided by comprehensive judgment in social aspects.

Note: for example, byproduct which has significantly small economic value comparing to main product, is not allocated by including in co-products and treating as wastes.

Allocation procedures shall be uniformly applied to similar input flows and output flows of the product system.

Note: for example, when allocation is conducted for usable products which leave the product system (e.g., intermediate product or discarded product), the allocation procedures shall apply to the similar allocation procedures to be used for the products entering the product system.

2.7.1. Criteria on allocation for reuse and recycling

The allocation principles shall also apply to the case of reuse and recycling.

When allocation cannot be avoided, the following procedures should be used for the allocation.

- In the case of open-loop

Of wastes, for the items to be recycled, the boundary of its product system shall be the range from the transport process for recycling preparation site to the recycling preparation process (refer to Chart 1). Items leaving from the product system and already available for recycling treatment shall not be allocated (allocation factor is treated as zero). However, when the allocation by this method is not appropriate, it shall consider appropriate methods by using the Step 2 and the Step 3 described in No.2.7.

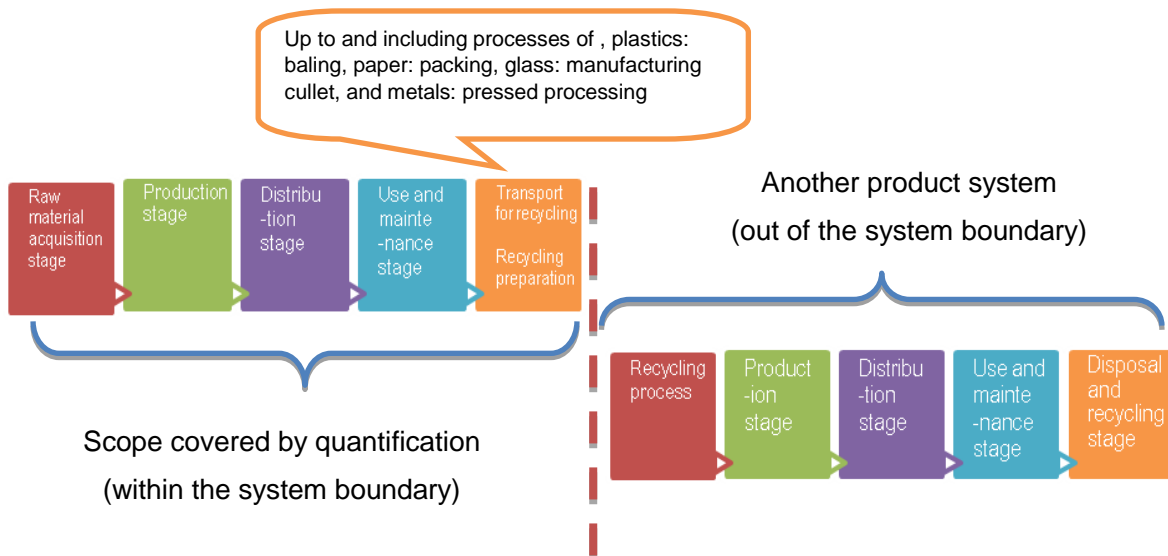


Chart 1: An example of setting a system boundary for open-loop recycling

Of wastes, for items to be reused, the processes up to the point of disposal shall be included in the product system (refer to Chart 2). The items to be reused shall not be allocated (allocation factor is treated as zero).

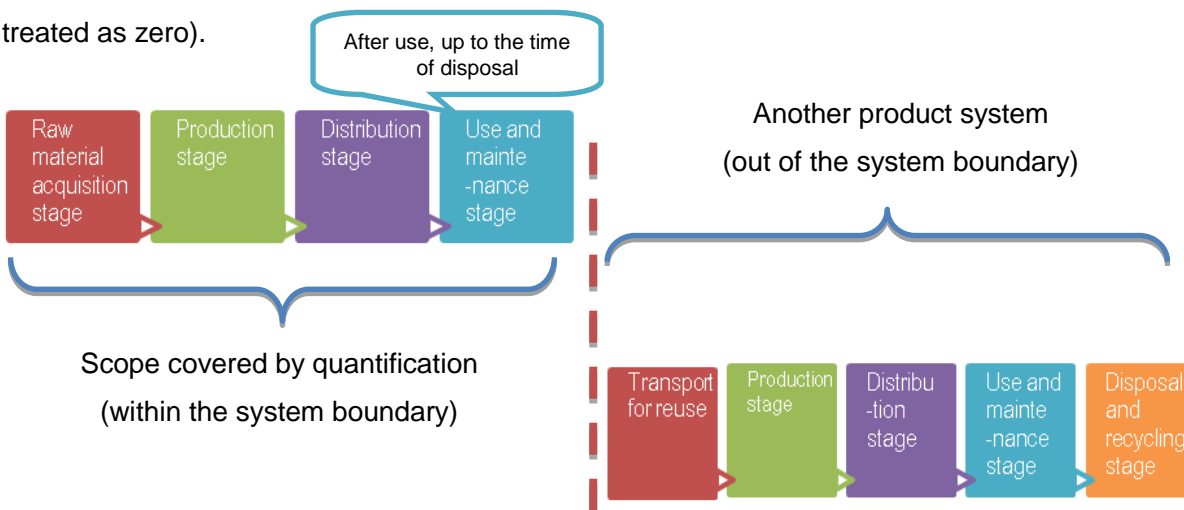


Chart 2: Example of setting a system boundary for open-loop reuse

- In the case of closed-loop

The items to be reused or recycled shall not be allocated.

2.8. Credit that alternative system carries

When the product system is expanded to include additional functions related to the co-products for avoiding allocation, a carried credit of the alternative product system which has equivalent functions to the co-products can be displayed as additional information. In this case, however, the assessment shall be conducted carefully by considering equivalence of the functions between the alternative system and the co-product, and its appropriateness. In addition, care shall also be taken to consistency of the product system. Therefore, display of the carried credit attributable to the alternative system can be conducted only when they meet the scope and requirements prescribed in the CFP-PCR. It also applied to the case where indirect impacts by reuse or by open-loop recycling are excluded.

2.9. Biomass

CFP quantification shall not include any CO₂ arising from burning or biodegrading of the biomass which is managed in a sustainable way or which is made by reusing waste woods. This is because that biomass fixes CO₂ from the air during its production (i.e. during growth of woods), and the amount of the CO₂ arising from its incineration or biodegradation is equal to the amount of the CO₂ fixed.

Note: for example, though woods are circulative resources, if they are overused, the problem is expected that growing of trees cannot keep up with logging of woods. Therefore, CO₂ emissions may not be included in CFP quantification only when the biomass is the wood which was procured from forests appropriately afforested and preserved, or is the reused item such as waste wood.

The CO₂ emissions associated with activity for producing and transporting biomass, and the GHG emissions (methane, etc.) arising from biodegradation, shall be included in the product system.

2.10. Delayed emissions of CO₂, and carbon storage in a product

For durable goods, there is a case that estimated use period is more than several decades. In this case, the CO₂ emissions of use, disposal, or recycling of the product, are emitted delaying from the time of production of the product. However, CFP shall be quantified not by considering any impacts due to such delayed emissions and carbon storage in the product.

2.11. Land use change

For direct land use change, when the emissions due to such change highly contributes to the life cycle, it shall be included in the product system, and it shall be quantified based on internationally recognized method such as IPCC guidelines.

2.12. Organizing of evidence used for CFP quantification

To make CFP quantification processes easily confirmed, evidence shall be organized with clear relations of correspondence between evidence and data collection item.

2.13. The way of inclusion of CO₂ emissions arising from each life cycle stage

Wastes from each life cycle stage (e.g., mill ends in the production stage, packing materials for transport in the distribution stage, etc.), transport from emission source of wastes to treatment facility (final disposal site or recycling preparation facility), and CO₂ emissions associated with treatment of wastes shall be included in each life cycle stage where the wastes discharged from, and not included in the disposal and recycling stage.

For the yield rate loss of raw materials in each life cycle stage (e.g., mill ends in the production stage, etc.), the CO₂ emissions from raw materials procurement to production shall be included in the life cycle stage related to the raw materials procurement, and not included in the life cycle stage in which the loss is occurred.

In CFP-PCR, each process within the product system is categorized into each life cycle stage. However, there is a case that a certain process does not fit such categorization of the life cycle stage, such as due to actual conditions of production process of the businesses. In the case, applicable process may be categorized as and included into another life cycle stage other than the stage categorized in the CFP-PCR.

3. Principles of CFP declaration method

3.1. Basic requirements of the businesses that wish to make a CFP declaration

Businesses that can decide a brand of applicable product can make a CFP declaration. The one who will make a CFP declaration may be a group of the businesses (e.g., industrial association), and not limited to individual company.

Businesses that wish to make a CFP declaration shall comply with the rules described below.

- The businesses shall make efforts to continuously reduce their own CO₂ emissions. However, setting concrete value target is not mandatory.
- The businesses shall conform to various laws and regulations related to labeling of product (e.g., the Act against Unjustifiable Premiums and Misleading Representations, the Measurement Act, etc.). Approval by verification in this CFP program does not mean the conformance to such laws and regulations.
- For CFP declaration, the common CFP mark and the several formats for display, prescribed in the operation of this CFP program, shall be used.
- In the communication using this CFP program, particular care shall be taken in order not to use expressions which can lead to consumer misleading, and not to compare with other company's product.

3.2. Contents of CFP declaration

3.2.1. Definitions of CFP declaration

"CFP declaration" refers to the following information to be disclosed based on CFP quantification results.

- CFP mark
- Values in a CFP mark
- Additional information
- Registration information

CFP declaration is used for communication to achieve the purpose of this CFP program described below.

- To "visualize" the CO₂ emissions emitted from a life cycle of a product (good or service).
- To share "awareness" related to actions for reducing CO₂ emissions among businesses and consumers.
- By using "visualized" information, businesses promote further reduction of CO₂ emissions by cooperating between companies constituting a supply chain.
- By using "visualized" information, consumers voluntarily change their consumption styles to lower carbon lifestyles.

3.2.2. Basic rules of CFP declaration

The target for which CFP declaration will be interested parties such as consumers and businesses who use such released information.

The CFP declaration shall be easily understandable for the receivers of the information and shall avoid the expressions which lead to misleading of the receivers. For concrete contents, refer to "Guidelines for Environmental Representations (the Ministry of the Environment: 2009)".

3.2.3. CFP mark

CFP mark can be used after the applicant developed drafts of CFP quantification and declaration, and was approved by verification.

The CFP mark is attached on the product itself or on the package of the product in principle. In addition, the businesses may select the means of releasing the CFP mark, for example, on the website, in a pamphlet, in an environmental report, in a price tag, at shop, via a QR cord, or via any other means to be considered. However, the businesses shall not select the means to give misleading to interested parties.

Note: for example, for the CFP quantification and declaration which are made for printed matter, if the contents of the printed matter are provided with another form (e.g., electronic form), the CFP mark shall be removed from the contents, or shall be described in a way to make clear that it is the CFP value of printed matter.

Intermediate goods can also be displayed a CFP mark. However, to avoid consumer misleading, coverage part of the CFP quantification (e.g., "Only containers are assessed," etc.) shall be displayed in the additional information. When the businesses wish to display "a mark of intermediate goods" on final goods (e.g., on product containers), they shall maturely consider the displaying method for avoiding consumer misleading and shall take measures for such avoidance.

3.2.4. Value in a CFP mark

"Value in a CFP mark" refers to the value to be displayed in a CFP mark based on CFP quantification results. The businesses shall select whether they display numerical values in the CFP mark or not.

The followings are examples of the unit used for the display of numerical values. The businesses shall select according to not only quantification unit, but also their purpose of CFP communications.

Note: Examples of units of the value in a CFP mark

- *Per use of 1,000 hours of 100 watts light*
- *Per product*
- *Per set of 5 products*

- Per 100g of contents
- Per m³ of timber volume
- Reduction ratio (e.g.: reduction ratio of emissions compared to the base year, etc.)
- Without value (only a CFP mark is displayed)

Displayed digits of the value in a CFP mark shall be rounded off to the nearest ten in principle. It shall also be applied to the case of comparative display of reduction ratio.

Note: for example, when CFP quantification result is “123g,” it is rounded off to “120g”. When conducting comparative display, the difference value between comparative products is firstly calculated in 3 digit numbers before rounded off, and then the resulted difference value is rounded off to the nearest ten.

Value in a CFP mark can be displayed only within a range that the CFP quantification results, quantified based on its CFP quantification requirements, are assumed to have representativeness.

Note: for example, for the disposal method of end-of-use product, numerical values can be displayed when it is assessed based on the actual disposal conditions of the applicable end-of-use product. Numerical values cannot be displayed in a CFP mark, however, when CFP is quantified by using assumptions such as “100% of these items were recycled,” because such case has not representativeness.

3.2.5. Additional information

“Additional information” refers to the information relating to CFP quantification results to be displayed near the CFP mark. Additional information is used for communications between businesses and consumers. The type of additional information can be categorized as follows; the one which shall be displayed for avoiding consumer misleading, the one which should be displayed to promote communications, and the one which can be displayed.

Additional information which will be approved shall be the information which meets the following.

- The information relating to CFP quantification results
- The information approved in this document, or the information approved in applicable CFP-PCR.

Note: This provision shall not preclude any information which is not covered by this CFP program (e.g., information related to carbon offsetting credits) to be displayed near the CFP mark.

[Additional information which shall be displayed]

- The unit of values to be displayed (e.g.: per product, per 100g of contents, or per serving, etc.).
- If a certain life cycle stage is excluded from the assessment, the life cycle stage (process, flow) included in the assessment, or the life cycle stage (process, flow) excluded from the assessment.

Explanations may be expressed not only with texts, but also with chart, or pie chart describing constitution ratio of each life cycle stage.

- If comparisons (e.g., reduction ratio) are displayed, the requirements for displaying comparisons, prescribed in Annex C (normative).
- For durable consumer goods, the estimated use period related to the value in the CFP mark (*e.g.: the estimated use period of a LED bulb is 10 years*).
- If CO₂ emissions of the alternative system are excluded, “the alternative system” and “the applicable excluded CO₂ emissions of the alternative system”.
- If there are overlaps between target product and the other CFP-PCR previously approved, and if the differences between those CFP-PCRs could lead consumer misleading, the information on the differences described in the other approved CFP-PCR (*e.g., the process covered by the assessment*).
- Other information prescribed in CFP-PCR.

When no value is displayed in the CFP mark, the items described above need not be additionally displayed.

[Additional information which should be displayed]

- Graph of the ratio of CO₂ emissions by life cycle stage, by process, or by flow, etc.

[Additional information which can be displayed]

- The contents disclosed as registration information.
- If the product system does not include an alternative system, the excluded CO₂ emissions of the alternative system (which includes indirect impacts by reuse and recycling).
- In the case of a product which uses woods, the information related to delayed emissions of CO₂ and the information related to carbon fixation in the product.
- The target value of CO₂ emission reductions by the businesses, and its degree of attainment.
- Simplified life cycle flow chart.
- The display related to the use method (*e.g.: “By adopting this use method, the CO₂ emissions become less than the value displayed.”*)
- The display related to recycling of containers (*e.g.: for promoting recycling of empty containers, displayed as follows: “If this container is 100% recycled, the CO₂ emissions become less than the value displayed.”*)
- If the product system is expanded, the functions to be added.
- Display of value in a CFP mark in another unit which can be easily understood.

3.2.6. Registration information

“Registration information” refers to the information related to CFP quantification and declaration, which is released on the JEMAI website. Registration information is used for ensuring

transparency of CFP quantification results, and for communication between businesses and consumers. Contents of the registration information shall follow the form which is separately specified.

From a viewpoint of transparency, registration information to be released should be easily understandable information. However, it is also important to ensure to maintain secret of confidential information of businesses. Therefore confidential information may not be disclosed.

Note: for example, it is approved to display the combined value of CO₂ emissions of the raw material acquisition stage and the production stage, and to display CO₂ emissions for each process by subdividing a stage.

When quantifying CFP based on provisions of “series product” (refer to No.4.2 and Annex D), it shall be stated.

3.3. Comparisons between products

For display of comparisons between products based on CFP quantification results in this CFP program, two or more different CFP quantification results are displayed in one CFP declaration, with either written form of “ratio,” “difference value,” or “side by side”. Reduction ratio is included in “ratio”.

This CFP program aims to promote communications between interested parties and to reduce CO₂ emissions, by using the information “visualized” by CFP quantification. The CFP value is just an informative value for the purposes, and this CFP program will not take into account comparisons of CFP values for the time being.

In general, from a standpoint of limitations of LCA method (refer to “Note” described below), a given requirements shall be fulfilled for comparing CFP values between different products.

Note: examples of limitation of LCA method include “data quality of available emission factor” and “coherence of quantification rules,” etc.

3.3.1. Display of CFP quantification results which were compared between products by the same business

When displaying comparison results of CFP quantification by the same business, it shall follow Annex C (normative).

3.3.2. Comparisons of the target product versus other businesses’ product

Comparisons of target product versus other businesses’ product will not be taken into account for the time being.

3.3.3. Avoidance of comparisons of numerical values in the market

JEMAI will take some measures to avoid misleading related to the comparisons of CFP values,

being displayed on the product in the market.

3.3.4. Comparisons of CFPs between the product of this CFP program and the product of another CFP program

CFP of this program cannot be compared with the CFP created by following the requirements of another CFP program.

4. Other requirements for CFP quantification and declaration

4.1. Interpretation

The businesses shall interpret CFP quantification results. The interpretation shall include the descriptions relating to limitations of CFP quantification results and the descriptions relating to uncertainty. The contents of the interpretation will be released as registration information.

4.2. Series product

For the product group which has common characteristics in the relations between product specifications and CO₂ emissions, if its CFP declarations are released systematically in terms of such characteristics, it can be expected that CFP quantification/declaration process can become more simplified, while expanding the opportunities to enable the receivers of such CFP declarations to obtain a broad range of information. For such reasons, in this document, the product group which has common characteristics in the relations between product specifications and CO₂ emissions is called as “series product,” and CFP declaration in the unit of this series product can be registered and released.

The requirements for series product shall be prescribed in Annex D (normative).

Annex A (normative): Global Warming Potential

100-year GWP of GHGs listed in the IPCC 2nd assessment report, which is the quantification criteria on GHG emissions by country prescribed by the Kyoto Protocol, shall be used for GWP.

GHG		GWP
Carbon dioxide	CO ₂	1
Methane	CH ₄	21
Dinitrogen monoxide (nitrous oxide)	N ₂ O	310
Hydrofluorocarbon	HFC	-
Trifluoromethane	HFC-23	11700
Difluoromethane	HFC-32	650
Fluoromethane	HFC-41	150
1,1,1,2,2-pentafluoroethane	HFC-125	2800
1,1,2,2-tetrafluoroethane	HFC-134	1000
1,1,1,2-tetrafluoroethane	HFC-134a	1300
1,1,2-trifluoroethane	HFC-143	300
1,1,1-trifluoroethane	HFC-143a	3800
1,1-difluoroethane	HFC-152a	140
1,1,1,2,3,3,3-heptafluoropropane	HFC-227ea	2900
1,1,1,3,3,3-hexafluoropropane	HFC-236fa	6300
1,1,2,2,3-pentafluoropropane	HFC-245ca	560
1,1,1,2,3,4,4,5,5,5-decafluoropentane	HFC-43-10mee	1300
Perfluorocarbon	PFC	-
Perfluoromethane	PFC-14	6500
Perfluoroethane	PFC-116	9200
Perfluoropropane	PFC-218	7000
Perfluorobutane	PFC-31-10	7000
Perfluorocyclobutane	PFC-c318	8700
Perfluoropentane	PFC-41-12	7500
Perfluorohexane	PFC-51-14	7400
Sulphur hexafluoride	SF ₆	23900

Annex B (normative): Quantification method for GHG emissions associated with fuel consumption during transport

[Rules on domestic transport]

- When the impact of transport process between the sites is significantly large to the life cycle, it shall be included in the quantification.
- Each of the following method; the fuel consumption method (B.1), the fuel cost method (B.2), or the ton-kilometer method (B.3), shall be used for quantification. (The details of B.1, B.2, and B.3 are described below.)
- The data of transport distance shall be actually measured, but it may be obtained from navigation software to be used as primary data.
- For primary data when there are multiple transport routes, data on all transport routes shall be collected and then they shall be weight-averaged by the amount of product transported. However, if there are many routes, primary data shall be collected for 50% or more of the total amount of the product transported in unbiased way. That way, regarding a route whose primary data cannot be collected, the average value of the primary data which collected from data suppliers shall be used as primary data.
- When items are transported by truck with frozen, refrigerated, or chilled status, the impacts associated with maintenance of temperature shall be taken into account.
- Transport scenario shall be used the one described in applicable CFP-PCR. Of the three parameters; “transport distance,” “loading ratio,” and “automobile rank,” one or two parameters can be replaced to primary data.

[Rules on international transport]

- It conforms to the case of domestic transport. However, when there is national/private rules related to transport in the target country, data collection may be conducted pursuant to the rules.

B.1 Fuel consumption method

- 1) Collect data on “fuel consumption [L]” for each mean of transport.
- 2) Calculate GHG emissions [kg-CO_{2e}] by multiplying fuel consumption [L] by “life cycle GHG emissions related to supply and use of fuel” [kg-CO_{2e}/kg] (emission factor) for each type of fuel.

B.2 Fuel cost method

- 1) Collect data on “fuel cost [km/L]” and “transport distance [km]” for each mean of transport, and calculate fuel consumption [L] by using the following equation.

$$\text{Fuel consumption [L]} = \text{Transport distance [km]} / \text{Fuel cost [km/L]}$$

- 2) Calculate GHG emissions [kg-CO₂e] by multiplying fuel consumption [L] by “life cycle GHG emissions related to supply and use of fuel” [kg-CO₂e/kg] (emission factor) for each type of fuel.

B.3 Ton-kilometer method

- 1) Collect data on loading ratio [%] and transport load (ton-kilometer) [t-km] for each mean of transport.
- 2) Calculate life cycle GHG emissions [kg-CO₂e] by multiplying the transport load (ton-kilometer) [t-km] by the “life cycle GHG emissions related to fuel consumption per ton-kilometer” [kg-CO₂e/t-km] (emission factor) for different loading ratio for each mean of transport.

Annex C (normative): Display of comparisons of CFP quantification results by the same business

For display of comparisons of CFP quantification results in this CFP program, two or more different CFP quantification results are displayed in one CFP declaration, with either written form of “ratio,” “difference value,” or “side by side”. Reduction ratio is included in “ratio”.

When displaying comparisons of CFP quantification results by the same business, it shall follow the rules of this Annex C. The comparison information is located not only in “the value in the CFP mark,” but also in “additional information” and “registration information”.

<Assumptions of display of comparisons on CFP quantification results>

1. Basic requirements for target product to “display comparison information”

“Display of comparison information” in this CFP program shall meet the followings. Display of comparison information shall in principle use a functional unit, and can use the reference flow.

- (1) It shall be quantified by using the same CFP-PCR.
- (2) It shall be the comparisons between products of the same business.
- (3) The functional units shall be identical. (In the case of a claim of reductions, the comparison with the equivalent or lower functional unit may be conducted.)
- (4) The functions are the same or equivalent. (In the case of a claim of reductions, the comparison with the equivalent or lower function may be conducted.)
- (5) The data collection methods shall be equivalent.
- (6) It shall be comparisons between values which were verified.
- (7) Comparative conditions and functions which were set shall be described in additional information.
- (8) Differences of target product with comparative product (not only reduction point but also increase point) shall be described in additional information.

2. Requirements for display of comparison information

(1) Assumptions of the same or equivalent functions

- It shall describe that functions are the same or equivalent, and the validity shall be represented.
 - > The equivalence may be represented by using JIS standards, etc.

(2) Setting of functional unit

- Multiple functional units can be set for one product. The businesses shall set the most appropriate functional unit on their own responsibility to avoid stakeholders’ misleading.

Note: for example, when comparing a new type of 5GB USB memory with an older type of 1 GB USB memory, the storage capacity of the new type is 5 times as large as the older one. However, in the case of assuming that there is a user who thinks that 1GB USB memory is enough for him, it is needed to consider whether displaying of emissions per GB of storage capacity is appropriate or not. Refer to the following table.

Table: Image of display of CFP for USB memory (the values listed below are temporary)

		New product	Older product
1	Product specifications (memory capacity)	5GB	1GB
2	CFP value per product	10kg-CO ₂ /product	5kg-CO ₂ /product
3	CFP value per storage capacity	2kg-CO ₂ /GB	5kg-CO ₂ /GB

(3) Primary data and secondary data

- For CFP quantification, the same emission factor database shall be used for the both products to be compared. (In other words, when another emission factor database is used for the past CFP verification result, it shall be verified again.)

(4) Comparisons with the past data

- It may be compared with the past product within the verifiable range.
 - > If the data on the product to be compared is 10 years ago, and if it can be verified, comparison information can be displayed.

(5) The minimum reduction ratio

- There is an opinion that display of reduction ratio shall not be approved if the reduction ratio does not exceed a certain level. However, when the data collection methods are equivalent, even if the ratio is small, the reduction ratio may be displayed.

(6) Partial reduction ratio

- In addition to the display of comparison information (e.g., reduction ratio, etc.) of the entire life cycle, "partial reduction ratio" or "reduction point," etc., which is restricted to some part of life cycle stages, may be displayed in additional information. However, when such additional information is displayed, particular consideration is required (e.g., avoiding of consumer misleading).

(7) Setting of comparison target

- It cannot be compared with target based on unrealistic scenario.

- It cannot be compared with target based on designed data which is worse than the actual data.
- Differences between target product and comparative product (not only reduction point but also increase point) can be clearly described.
- When target product is compared with a product to be sold around the same, the comparison product should select the one which is objectively considered as the most standard product.

Note: examples of assumptions of displaying comparisons.

- *Changes of CFPs over time (performance tracking)*
- *Comparison of CFPs in terms of different raw materials to be used.*
- *Comparison of CFPs in terms of different production methods.*
- *Comparison of CFPs in terms of different methods of distribution and sales.*
- *Comparisons of CFPs in terms of different methods of use and maintenance.*
- *Comparisons of CFPs in terms of different methods of disposal and recycling.*

Annex D (normative): Series product

D1. Type A series product: a type to set the same CFP quantification value for one series product.

For CFP of series product, as shown in Chart 3 shown below, there is a case that differences of product specifications do not have much influence on CFP value. In this case, the CFP of representative product may be used as the CFP of multiple products in the same series product, provided that it can be explained that each CFP value of the series product is about within plus or minus 5%.

When a definition method of series product is described in the CFP-PCR, it shall follow the method.

Note: Examples of Type A series product

- *The same markers in different colors (red, blue, yellow, green, and black); CFP per marker*
- *Printing matters in different number of copies (10,000, 20,000, and 30,000 copies; CFP per printing matter*

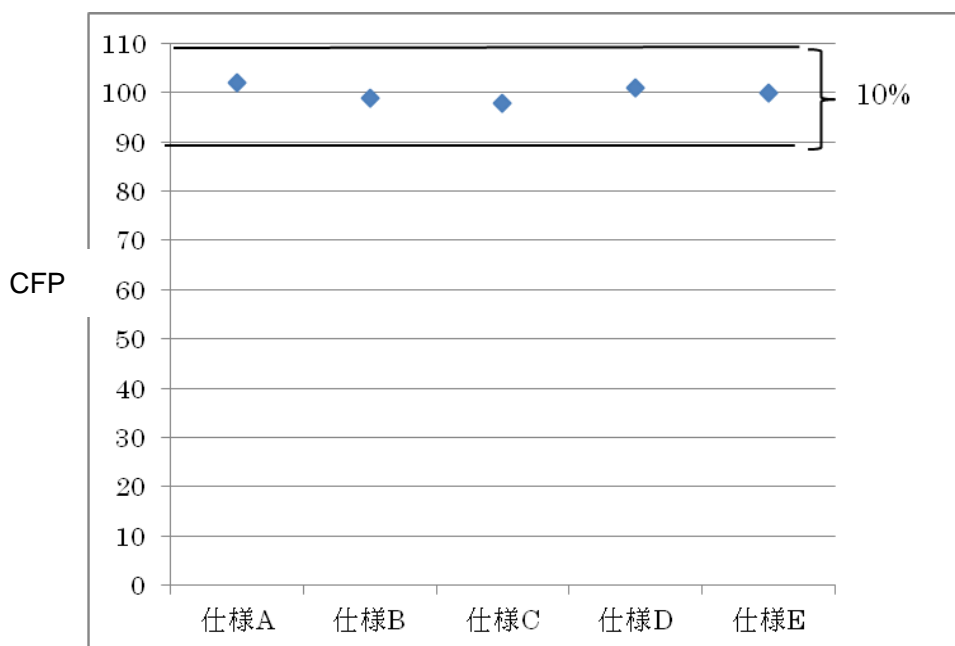


Chart 3: Image of type A series product

D2. Type B series product: a type to estimate CFP quantification value from relational equation, for one series product

For CFP of series product, when a specified relational equation is true, CFP of other product can be estimated from the CFP of representative product by using the relational equation.

For CFP declaration of series product, CO₂ emissions by life cycle stage may be released only for the representative product.

In that case, the following requirements shall be fulfilled.

- (1) Main functions and main production conditions, which are other than the parameter used for the relational equation, shall be the same.
- (2) “Definitions of the relational equation” and “CFP quantification method by using the relational equation” shall be defined in the CFP-PCR.
- (3) The reason that the relational equation is true shall be qualitatively described in the CFP-PCR.
- (4) For the same product, it shall be described in the CFP-PCR that the differences of the values between “CO₂ emissions quantified by the relational equation” and “CO₂ emissions quantified by the process based method” are about within plus or minus 5%. However, it does not apply to the case where there is a possibility that the CFP value could exceed the 5% due to changes of data collection method (for example, allocation method has been changed, etc.).

Note: example of type B of series product

- *Examples of the case when product weight is set as a parameter: sugar in different product weights, the same storage furniture in different sizes, the same clothes in different sizes.*
- *Example of the case when product thickness is set as a parameter: pre-sensitized plates for lithographic printing in different thicknesses.*

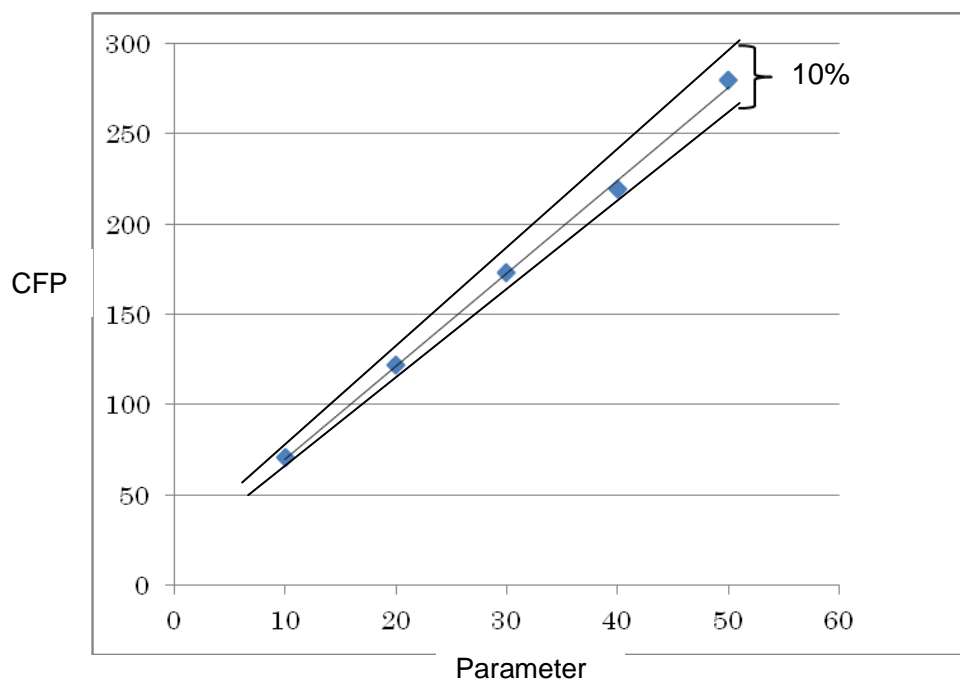


Chart 4: Image of type B series product

Supplementary provisions

This document shall come to effect as from July 2, 2012.

Date of release: July 2, 2012 (C-09-01)

Date of revision: August 1, 2012 (C-09-02)

Date of revision: October 2, 2012 (C-09-03)