Product Category Rules (PCR)

(Approved PCR ID: PA-BE-02)

Glass Container (intermediate goods)

Release date: September 8, 2010

The Carbon Footprint of Products Calculation and Labeling Pilot Program

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(Provisional Translation)

Product Category Rule of "Glass Container (intermediate goods)" (Approved PCR ID: PA-BE-02)

Foreword

- The contents provided in this PCR may be changed and revised as needed for further refinement, through PCR revision procedures, as a result of continued discussions with relevant stakeholders during the period of the Japanese CFP Pilot Project.
- This PCR will expire at the end of the Project (scheduled until March 31, 2012).

- This English translation of the original Japanese PCR is provided for information purpose.

No.	Items	Contents
1	Scope	- This PCR provides the rules, requirements and instructions regarding glass containers (hereinafter referred to as "Glass Bottles") categorized under the Carbon Footprint (herein after referred to as "CFP") Pilot Project. - This PCR treats Glass Bottles as intermediate goods within the extent of the raw material acquisition stage in which glass bottle manufactures are directly involved.
2	Definitions of products	
2-1	Descriptions of product category	Glass containers (Glass Bottles). However, this PCR covers soda-lime glass bottles in this edition. Other glass bottles such as lead glass and borosilicate glass bottles will be added as necessary.
2-2	Components of products	All components composing Glass Bottles are covered. - Glass bottle - Indirect materials - Accessories - Materials for transporting Glass Bottles (packing materials) "Promotional materials" (giveaways) are not covered in this PCR even if they are made of glass. Attachments (such as seal) are not covered, either.
3	Referenced Standards and PCRs	No PCR referenced as of March 2010.
4	Terms and Definitions	(1) Soda-lime glass A type of glass that is made from silica sand (SiO_2 source), soda ash (Na_2O source: Na_2CO_3) and limestone (CaO source: $CaCO_3$). It is used for plate glass, Glass Bottles and glass tableware. (2) Cullet Pieces of glass made by crushing non-reusable Glass Bottles. Cullet is in high demand by glass manufactures because it consumes less energy than raw materials when melted to make glass. (3) Foreign cullet Pieces of glass made by crushing single-use Glass Bottles and other used glass products recovered as resource waste, returnable Glass Bottles non-reusable due to breakage or scratches, Glass Bottles collected from filling sites, etc. (4) Factory cullet It refers to cullet generated at production sites of Glass Bottles as opposed to foreign cullet. Pieces of glass made by crushing bottles scrapped as defective during production process, and unprocessed glass having outlowed during changeover of products to be manufactured. (5) Decoration A type of secondary processing performed on Glass Bottles such as printing, frosting, and resin coating. (6) Packing materials for transporting Glass Bottles

		Pallets, films (stretch and shrink films), crates, etc. used for delivering Glass Bottles to filling sites. (7) Indirect materials Materials used for decoration such as ink, coating resin, and surface treatment agent. (8) Accessories Components those are attached to Glass Bottle and detachable there from, such as stopper, lid, cap, label and the like. (9) Label An accessory attached to Glass Bottle per se on which product name, details of contents thereof, and other necessary information are printed. (10) Single-use bottles Glass Bottles that are disposed of after single use without being collected and reused, and recycled as part of foreign cullet. They are also called "one-way bottles". (11) Returnable bottles Glass Bottles that are collected after use from the market or other sources, and reused after being cleaned. (12) Other-purpose use Use of foreign cullet for any other purpose than production of Glass Bottles such as production of roadbed, heat insulating materials, and fiber glass. (13) Glass Bottle Glass Bottle before decorated with printing, etc. It is also called "naked bottle". (14) Sales promotional materials Articles other than product itself and container and packaging thereof that are attached to the product for sales promotional purposes when it is sold. (15) Attachments Stickers or the like pasted on glass bottle products for sales promotional purposes when they are sold. (16) Bottle uncaser Apparatus for automatically taking out Glass Bottles from plastic boxes for such purposes as cleaning.
5	Range of assessment	
5-1	Calculation unit	Sales unit.
5-2	Life cycle stages	”Raw material acquisition stage (No.7)” and ”disposal and recycling stage (No.11)” shall be covered since this PCR is developed for intermediate goods (B-to-B products). However, the raw material acquisition stage (No.7) are divided into the following three stages: - (1) Glass Bottle raw material acquisition stage - (2) Glass Bottle production stage - (3) Glass Bottle transport stage
6	General requirements applied to all stages	
6-1	Life cycle flow chart	- Life cycle flow chart is provided in Annex A (normative). It is a conceptual chart intended to make it easy to identify the "processes covered by each life cycle stage. - When calculating GHG emissions, a detailed life cycle flow chart for each type of Glass Bottle shall be created. It is recommended that the chart in Annex A is used as the basis for such detailed chart, but it is not limited to this chart only.

6-2	Range of data collection	- Indirect departments (e.g., clerical department, research departments, etc.) shall be excluded. If it is difficult to exclude indirect departments, indirect departments may be included.
6-3	Data collection period	- Activity data shall be collected from the most recent and consecutive one-year period. - If the data is not collected on the above condition, its reason shall be specified. - For newly constructed plant or established manufacturing process, calculation may be based on the designing or planning conditions. When the data from the most recent and consecutive one-year period becomes available, such calculation results shall be updated.
6-4	Allocation	- Weight ratio shall be used. - If any other allocation method is used due to the characteristics of the product, the allocation method used and its validity shall be verified.
6-5	Cut-off criteria	- Cut-off shall not be conducted unless data collection is difficult. - When conducting cut-off, the range of cut-off shall be within 5% of the total life cycle GHG emissions, and the range shall be clearly reported. Cut-off shall, however, be conducted, provided that it is difficult to use any scenarios, similar data, and estimated data. - Special exceptions on cut-off are provided in No.7-6.
6-6	Others	[Rules related to transport] (1) Domestic transport: - Primary data shall be collected either by the fuel consumption method, the fuel cost method, or the ton-kilometer method. - If there are several transport routes, weighted average may be used. - Refer to "Annex B: Collection of fuel consumption data and calculation of GHG emissions for truck transport". (2) International transport: Primary data shall be collected conforming to rules described in (1) domestic transport. If any rules on transport are prescribed by the authorities or private sectors in a country, data on the overland transport within the country may be collected according to the rules. [Rules related to waste treatment] GHG emissions associated with treatment of waste shall cover the following processes: (1) GHG emissions associated with transport of waste (2) GHG emissions associated with treatment of waste Secondary data may be used for “(2)” above. If data of "incineration of non-industrial waste (other than the CO_2 from garbage)" which is specified in "Tentative Database of GHG Emission Common Factors for the CFP Pilot Project" (hereinafter "GHG Emission Common Factor Database") is used as the secondary data, CO_2 emissions derived from the carbon contained in the waste shall be calculated respectively. [Rules related to recycling] - In the case of products to be recycled, the GHG emissions associated with the processes from transport to recycling preparation (pretreatment) shall be included. - Indirect GHG emission impact shall not be included.
7	Requirements for raw material acquisition stage	
7-1	Range of the processes	The following processes shall be included: (1) Glass Bottle raw material acquisition stage a) Processes related to raw material acquisition and manufacture of raw materials composing Glass Bottle. b) Processes related to raw material acquisition and manufacture of indirect materials. c) Processes related to raw material acquisition and manufacture of accessories.

		d) Processes related to raw material acquisition and manufacture of packing materials used for transport of Glass Bottles. e) Processes related to domestic and international transport required for acquisition described in "a)" to "d)" above. (2) Glass Bottle production stage a) Processes related to manufacture of Glass Bottles (including transport among production sites). 1) Mixing of raw materials 2) Melting 3) Forming 4) Annealing 5) Decorating 6) Inspection 7) Packing materials for transport of Glass Bottles 8) Factory cullet 9) Treatment of waste 10) Other processes b) Processes related to transport and proper treatment of waste from production processes. (3) Glass Bottle transport stage Processes related to domestic and international transport of Glass Bottles from shipment site to delivery destination.
7-2	Data collection items	Data on the following items shall be collected: (1) Glass Bottle raw material acquisition stage a) Raw materials composing Glass Bottle 1) Raw materials of glass GHG emissions (kg-CO_2e) and input amounts per unit associated with processes i) from resource mining to production for main raw materials of Glass Bottles (e.g., silica sand, limestone, and soda ash, etc.). ii) of transport and subsequent processes (transport from municipal recycling center, recycling processing by cullet manufacturer, etc.) of raw materials of cullet (used Glass Bottles, etc.) ready for recycling. iii) from resource mining to production for other raw materials than the raw materials described in “ii)” and “iii)” above. b) Indirect materials GHG emissions (kg-CO_2e) and input amounts per unit associated with processes from resource mining to production for 1) Resin used for decoration and/or protection of Glass Bottles 2) Ink for decoration 3) Diluent solvent used to dilute the resin or ink mentioned in "1)" and "2)" above, respectively. 4) Chemicals used for surface treatment of Glass Bottles and processing of wastewater 5) Printing plates used for printing on Glass Bottles. 6) Other indirect materials than described in "1)" to "5)" above that are used during production of Glass Bottles. c) Accessories GHG emissions (kg-CO_2e) and input amounts per unit associated with processes from resource mining to production for 1) Stopper, lid, cap or the like 2) Labels 3) Accessories other than "1)" and "2)" above d) Packing materials used for transport of Glass Bottles GHG emissions (kg-CO_2e) and input amounts per unit associated with

		processes from resource mining to production for 1) Plastic packing materials (e.g., pallets, films, etc.). 2) Paper packing materials (e.g., separate sheets, corrugated cardboard, etc.). 3) Other packing materials than described in "1)" and "2)" above that are used for transport of Glass Bottles. e) GHG emissions (kg-CO_2e) and input amounts per unit associated with processes from resource mining to production for all the packing materials used for acquisition of materials from "a)" to "d)" above. f) GHG emissions (kg-CO_2e) per unit associated with transport for acquisition of materials from "a)" to "d)" above. (2) Glass Bottle production stage a) Energy input GHG emissions (kg-CO_2e) and input amounts per unit associated with energy and water, etc. consumed in all the production processes. b) Discharged items 1) GHG emissions from incineration of solvents and alcohol, etc. When solvents and alcohol used in coating and printing processes are incinerated by exhaust gas processor and exhausted out into the air, GHG emissions (kg-CO_2e) generated shall be calculated based on the amount of carbon contained in the solvents. 2) Wastes. Generation amount of wastes from the Glass Bottle production stage and GHG emissions (kg-CO_2e) associated with transport and waste treatment shall be collected. In the case where wastes are recycled, GHG emissions associated with processes from transport for recycling up to and including recycling preparation shall be calculated. (3) Glass Bottle transport stage a) Weight of Glass Bottles and packing materials transported b) GHG emissions associated with fuel consumption
7-3	Primary data collection items	Primary data shall be collected on the items in No.7-2.
7-4	Primary data Collection method and Requirements	In the case where self-produced electricity is used, data on consumption of each of the types of fuel used for producing electricity shall be collected.
7-5	Scenario	[Transport scenario] If the transport primary data collection is difficult, the following scenarios may be used. (1) Transport for raw material acquisition a) In the case of domestic transport: 1) Bulk transport (silica sand, limestone, soda ash, salt cake, etc.) i) Domestic marine transport (from port to port) - Means: "other bulk carrier," etc. (80,000 DWT or less) - Distance: 1,000 km one way ii) Domestic land transport (from port to glass bottle production site) - Means: 10-ton truck (light oil) - Distance: 100 km one way - Loading ratio: 50% 2) Transport in other than bulk form (domestic land transport) - Means: 10-ton truck (light oil) - Distance: 500 km one way - Loading ratio: 25% Note: For details of transport scenario, refer to "Annex C".

		b) When international transport is involved: 1) Land transport within raw material production country (from raw material production site to port of raw material production country) - Means: 10-ton truck (light oil) - Distance: 1,000 km one way - Loading ratio: 50% (in bulk) 2) Marine transport from raw material production country to glass bottle production country (from port of raw material production country to port of glass bottle production country) - Means: "other bulk carrier", etc. (80,000 DWT or less) - Distance: sailing distance between ports - The "reference data" provided by the CFP Pilot Project Secretariat shall be used as the transport distance of the international marine transport 3) Land transport within glass bottle production country (from port of glass bottle production country to glass bottle production site) - Means: 10-ton truck (light oil) - Distance: 500 km one way - Loading ratio: 50% (in bulk) and 25% (in other than bulk form) (2) Transport of waste generated from the Glass Bottle production stage - Means: 4-ton truck (light oil), - Distance: 100 km one way, - Loading ratio: 25% (3) Transport of Glass Bottles a) In the case of domestic transport (domestic land transport): - Means: 10-ton truck (light oil) - Distance: 1,000 km one way - Loading ratio: 50% b) When international transport is involved: 1) Land transport within glass bottle production country (from glass bottle production site to port of glass bottle production country) - Means: 10-ton truck (light oil) - Distance: 1,000 km one way - Loading ratio: 50% 2) Marine transport from glass bottle production country to delivery destination country (from port of glass bottle production country to port of delivery destination country) - Means: container ship (4,000 TEU or less) - Distance: sailing distance between ports - The "reference data" provided by the CFP Pilot Project Secretariat shall be used as the transport distance of the international marine transport 3) Land transport within delivery destination country (from port of delivery destination country and thereafter) - Means: 10-ton truck (light oil) - Distance: 1,000 km one way - Loading ratio: 50% [Scenario for treatment of waste from Glass Bottle production stage] When primary data is difficult, the following scenario may be used:

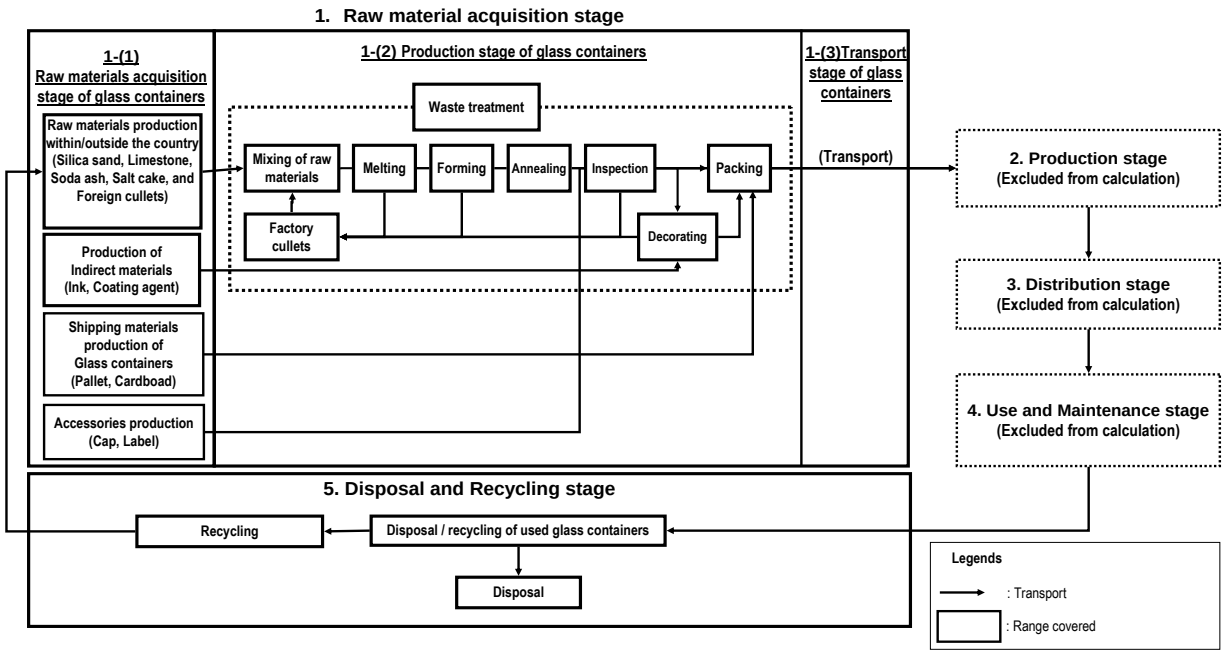
		- Waste paper: 100% is incinerated. - Waste metal and waste silica sand: 100% are landfilled. - Waste plastics, waste ink and waste solvents: 100% are incinerated.
7-6	Other	[Recycled materials acquisition (cullet, etc.)] When recycled materials are used, GHG emissions associated with transport of materials ready to be recycled and the subsequent processes (transport from pretreatment site, recycling processing, etc.) shall be calculated. [When primary data collection is difficult] - Calculation may be made using secondary data, provided that the reason for the use of such data shall be clearly stated. - In the case of recycled materials, however, the scenarios specified in "Annex D" may also be used as the basis for calculation. [Data collection of outsourcing] Primary data shall be collected for all the data collection items. If primary data collection from the outsourcing is difficult, the primary data collected at the calculating organization may be used as secondary data. [Data collection from multiple suppliers] Primary data shall be collected from all the suppliers. If this is difficult, however, more than 50% of the primary data shall be collected and used as the secondary data of other suppliers. [International raw material acquisition] Primary data associated with processes from resource mining to manufacture shall be collected using the same method as used for domestic raw material acquisition. [Special exceptions on cut-off] (1) Glass Bottle raw material acquisition stage No cut-off shall be conducted regarding 7-2, a), (1), i). (2) Glass Bottle production stage No cut-off shall be conducted.
8	Requirements for the production stage	
8-1	Range of the processes	Excluded from the assessment.
8-2	Data collection items	Excluded from the assessment.
8-3	Primary data collection items	Excluded from the assessment.
8-4	Primary data Collection method and Requirements	Excluded from the assessment.
8-5	Scenario	Excluded from the assessment.
8-6	Other	Excluded from the assessment.
9	Requirements for the distribution stage	
9-1	Range of the processes	Excluded from the assessment.
9-2	Data collection items	Excluded from the assessment.
9-3	Primary data collection items	Excluded from the assessment.
9-4	Primary data Collection method and Requirements	Excluded from the assessment.
9-5	Scenario	Excluded from the assessment.
9-6	Other	Excluded from the assessment.
10	Requirements for the use and maintenance stage	
10-1	Range of the processes	Excluded from the assessment.
10-2	Data collection items	Excluded from the assessment.

10-3	Primary data collection items	Excluded from the assessment.
10-4	Primary data Collection method and Requirements	Excluded from the assessment.
10-5	Scenario	Excluded from the assessment.
10-6	Other	Excluded from the assessment.
11	Requirements for the disposal and recycling stage	
11-1	Range of the processes	The following process shall be covered. - Processes related to transport and proper treatment of used Glass Bottles.
11-2	Data collection items	Data on the following items shall be collected. a) Weight of "used Glass Bottles". b) Ratios of "used Glass Bottles" of recycled and landfilled, respectively. c) GHG emissions (kg-CO_2e) associated with incineration of "plastic accessories" and "paper accessories" at treatment facility, and GHG emissions (kg-CO_2e) generated when "plastic accessories" are incinerated. d) GHG emissions (kg-CO_2e) associated with landfill of "metallic accessories" at treatment facility. e) GHG emissions (kg-CO_2e) associated with transport of "used Glass Bottles" to treatment facility. f) GHG emissions (kg-CO_2e) associated with treatment of "used Glass Bottles" at treatment facility. g) GHG emissions (kg-CO_2e) associated with landfill of "used Glass Bottles" at treatment facility. h) GHG emissions (kg-CO_2e) associated with processes from transport for recycling up to and including recycling preparation process (preprocessing).
11-3	Primary data collection items	Primary data shall be collected on the items provided in No.11-2.
11-4	Primary data Collection method and Requirements	Not stipulated.
11-5	Scenario	[Scenario for accessories] a) Crown cap and other metallic caps may be assumed to be 100% landfilled, and "plastic accessories" and "paper accessories" may be assumed to be 100% incinerated to avoid underestimate. b) GHG emissions associated with transport to each disposal site may be calculated according to the following scenario: - Means: 2-ton truck (light oil) - Distance: 50 km one way - Loading ratio: 25% [When primary data collection is difficult] If it is difficult to collect primary data, calculation may be made according to "Annex D".
11-6	Other	Not stipulated.
12	Items applied secondary data	- For emission factor, use the data provided in the “Tentative Database of GHG Emission Factors for the CFP Pilot Project”. - Of secondary data which is not included in the Database, the data will be prepared as “reference data” by the CFP Pilot Project Secretariat. - For foreign country data, use its country emission factor. If it does not exist, domestic secondary data may be used with its reason.
13	Communication requirements	
13-1	Unit to be displayed on the label	- Calculation unit shall be used. - The communication methods described in the “Basic Guideline of the Carbon Footprint of Products (CFP)” and the “Guide of Establishing Product Category Rules (PCR)” can be used. However, in this case, its appropriateness shall be

		examined at the CFP verification panel. [Details of labeling method] In the case of intermediate goods, labeling may be made on packaging (shipping cartons) in addition to invoices and delivery notes. To avoid confusion with CFP labeling for "final goods," GHG emissions of intermediate goods may not be printed on glass bottle itself. However, it is permitted that manufactures calculating GHG emissions post such information in their catalogues or on their websites. [Information Disclosure Sheet] - Regardless of whether labeling is made or not, "Information Disclosure Sheet" specified in Annex E shall be made to provide information on GHG emissions to manufactures involved in the production stage. "Information Disclosure Sheet" shall include such information as product information, life cycle stages covered, GHG emissions, and additional information. - The total GHG emissions shall be disclosed in principle, but disclosure of such values as obtained process-by-process is also acceptable.
13-2	Label position and Size	Follow the “Specifications of CFP Label and Displaying Other Information”. Labeling shall be accordance with the indication of "Intermediate Goods" in the specification.
13-3	Contents of additional information	The following items may be included as additional information, to communicate the GHG reduction efforts made by manufacturers calculating GHG emissions properly to consumers. For the contents of additional information, only the contents approved as proper by the CFP Verification Panel can be displayed. a) Reduction in GHG emissions over years. b) Process-by-process GHG emissions. c) GHG emissions per reuse, and assumed number of times reused. Calculation shall be made according to "Annex F".

Annex A (normative): Glass bottle life cycle flow chart

(This flow chart illustrates the life cycle of the containers and packaging classified as final goods.)



Annex B (informative): Collection of fuel consumption data and calculation of GHG emissions for truck transport

B.1 Fuel consumption method

B.1.1 Collect data on fuel consumption for each transport mean, and convert the unit of fuel consumption from “L” to “kg”.

Fuel consumption x (kg) = Fuel consumption (L) x Fuel density γ (kg/L)

Fuel density of gasoline: γ = 0.75kg/L

Fuel density of light oil: γ = 0.83kg/L

B.1.2 Calculate GHG emissions by multiplying fuel consumption (kg) by secondary data for each type of fuel.

B.2 Fuel cost method

B.2.1 Collect data on fuel cost (km/L) and transport distance (km) for each transport mean, and calculate fuel consumption by using the following equation.

Fuel consumption x (kg) = [Transport distance (km) / Fuel cost (km/L)] x γ (kg/L)

B.2.2 Calculate GHG emissions by multiplying fuel consumption (kg) by secondary data for each type of fuel.

B.3 Ton-kilometer method

B.3.1 Calculate fuel consumption per freight transport amount following the formula "a)" or "b)"below.

a) In the case of truck using gasoline as fuel:

$\ln x = 2.67 - 0.927 \ln (y/100) - 0.648 \ln z$

x: Fuel consumption per freight transport amount (1/t-km)
y: Loading ratio (%)
z: Maximum loading capacity of truck (kg)

b) In the case of truck using light oil as fuel:

$\ln x = 2.71 - 0.812 \ln (y/100) - 0.654 \ln z$

x: Fuel consumption per freight transport amount (L/t-km)
y: Loading ratio (%)
z: Maximum loading capacity of truck (kg)

B.3.2 Calculate GHG emissions by multiplying fuel consumption (kg) by secondary data for each type of fuel.

Annex C (informative): Assumptions made in creating transport scenario

C.1 Assumptions made in creating transport scenario

This PCR provides transport scenarios for the Glass Bottle raw material acquisition stage, the Glass Bottle production stage, the Glass Bottle transport stage, and the disposal and recycling stage in case primary data cannot be obtained in any of those stages. The following assumptions were made in creating the scenarios.

C.2 Transport Distance

C.2.1 Domestic transport

For an incentive to provide primary data collection, transport distance is set to a little longer than the average at possible.

a) Transport within a city or not across adjacent cities: 50 km
[Assumption] The distance from a prefectural center to a prefectural border is assumed.
b) Transport within a prefecture: 100km
[Assumption] The distance from a prefectural border to another side of the border is assumed.
c) Transport possibly across prefectural border to another side of the border is assumed: 500 km
[Assumption] The distance from Tokyo to Osaka is assumed.
d) Transport to a destination unable to be specified: 1,000 km
[Assumption] The distance a little longer than half Honshu (the main island of Japan: 1,600 km) is assumed.

C.2.2 Transport within an overseas country

a) Transport from production site to port: 1000 km
Assumption: Transport distance corresponds to the distance from the middle of the state to the state border.

C.2.3 International transport

International sailing distance between the departure and arrival ports assumed shall be used.
For international sailing distance, refer to the "reference data" provided by the CFP Pilot Project Secretariat.

C.3 Transport means

C.3.1 Transport within Japan

To provide motivation to take CO_2 reduction measures such as modal shift, truck transport was chosen as the transport means.
a) Transport of raw materials (silica sand, foreign cullet, etc.): 10-ton truck (light oil)
b) Transport from town glass bottle collection site to municipal recovery site: 2-ton truck (light oil)
c) Transport from glass bottle production site to content filling site: 10-ton truck (light oil)

C.3.2 Transport within an overseas production country

Less than 2,000 km: "10-ton truck (light oil)"
2,000 km or more: "Railroad"

C.3.3 International transport

It is assumed that marine transport is used in all transport cases.
a) Raw materials, etc.
- Means: "other bulk carrier" (80,000 DWT or less)

b) Other than "a)"
- Means: container ship (4,000 TEU or less)

C.4 Loading ratio

Loading ratio of 50% shall be applied to the transport of raw materials, Glass Bottles, etc.
Loading ratio of 25% shall be applied to the transport of packaging materials for transport, etc.

Annex D (normative): Scenarios for disposal/recycling of Glass Bottles

The basic concepts used in creating the scenarios for disposal/recycling of Glass Bottles provided in this PCR are as follows.

D.1 Disposal/recycling flow chart

The following chart shows the disposal/recycling flow of used Glass Bottles:

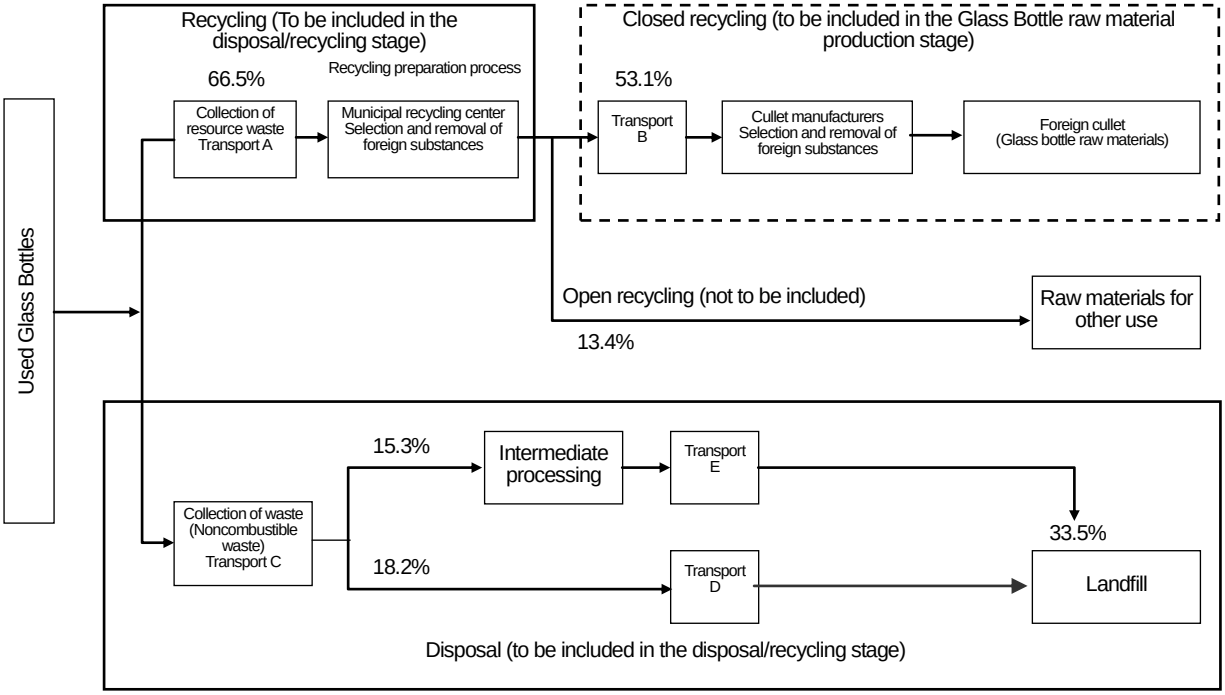


Fig. D.1: Disposal/recycling flow of used Glass Bottles

D.1.1 Ratio between disposal and recycling, etc.

For the ratio of recycling of used Glass Bottles as foreign cullet, corresponding data included in “Glass Bottle Recycling as Evidenced by New Indices" (pamphlet released by Glass Bottle Recycling Promoter Association) shall be used, and for the ratio between disposal and recycling, corresponding data included in "Research Project Report on Life Cycle Assessment of Containers and Packaging 2004" (Institute for Policy Sciences; March 2005) shall be used.

D.1.2 Basic concept of direct impact

GHG emissions associated with used Glass Bottles which are recycled as foreign cullet for production of new Glass Bottles shall be calculated according to the provision of "[Handling of recycled materials (cullet, etc.)]" in "No.7-6 Others," and shall be included in the Glass Bottle raw material acquisition stage.

D.1.3 Basic concept of indirect impact

Indirect impact shall not be included in the total GHG emissions.

D.1.4 Transport scenario

GHG emissions associated with transport shall be calculated according to the fuel consumption (light oil) shown in Table D.1.

Table D.1: Transport scenario for used Glass Bottles

	Transport means	(1) Transport distance (km/t)	(2) Truck fuel efficiency (km/L)	(1)/(2) Light oil consumption (L/t)
Transport A	2-ton packer	20.84	7.0 (Light oil)	2.977
Transport B	10-ton truck	1.67	3.5 (Light oil)	0.477
Transport C	2-ton packer	9.62	7.0 (Light oil)	1.374
Transport D	10-ton truck	1.07	3.5 (Light oil)	0.306
Transport E	10-ton truck	1.07	3.5 (Light oil)	0.306
Source	Source 1		Source 2	

Source 1: Quantitative Analysis of Recycling of Container and Packaging Waste;
Nomura Research Institute, Ltd. (published in March 1995)
Source 2: Research Project Report on Life Cycle Assessment of Containers and Packaging 2004; Institute for Policy Sciences (published in March 2005)

D.1.5 Scenario for intermediate processing and final disposal

GHG emissions associated with intermediate processing and final disposal shall be calculated according to the table below.

Table D.2: Scenario for intermediate processing and final disposal

	Electricity consumption (kWh/t)	Light oil (L/t)	LSC heavy oil (L/t)	Source
Municipal recycling center	0.58	-	-	Source 1
Intermediate processing	60.49	-	-	Source 1
Cullet manufacturer	5.92	0.85		
Final disposal	Landfill (management type)			GHG Emission Factor Database

Source 1: Quantitative Analysis of Recycling of Container and Packaging Waste;
Nomura Research Institute, Ltd. (published in March 1995)

Annex E (informative): Information disclosure sheet

Date of disclosure:

Information Disclosure Sheet

1. Product information				
1.1	Verification ID		Registration date	
1.2	Product name			
1.3	Product specifications			

2. Company information			
2.1	Company name	Name	
		Dept.	
2.2	Contact information	Address	
		Phone number	

3. Information on CO_2e emissions				
3.1	Unit to be labeled			
3.2	Subtotal of each stage (subtotal of each stage viewed from user of container/packaging)			
	Raw material acquisition stage (Raw material acquisition, production and transport of Glass Bottles)			kg-CO_2e
	Disposal/recycling stage (Disposal and recycling of Glass Bottles)			kg-CO_2e
3.3	Total value			kg-CO_2e
3.4	Accessories included in calculation (label, cap, etc.)			
3.5	Life cycle stage included in calculation (check if included)			
	Glass Bottle raw material acquisition stage		Glass Bottle production stage	
	Glass Bottle transport stage		Disposal/recycling stage	
3.6	Additional information to be labeled			
3.7	Remarks			

4. Approved PCR, GHG Emission Factor Database		
4.1	Approved PCR name	
4.2	Approved PCR ID	
4.3	Name of GHG Emission Factor Database	

Annex F (informative): Basic concept of recovery and reuse of Glass Bottles

To calculate GHG emissions per use of reused Glass Bottles, primary data shall be collected in principle. In the case where data collection is difficult, the following scenarios may be used instead.

F.1 Recovery/reuse flow

The chart below shows the flow of recovery and reuse of Glass Bottles.

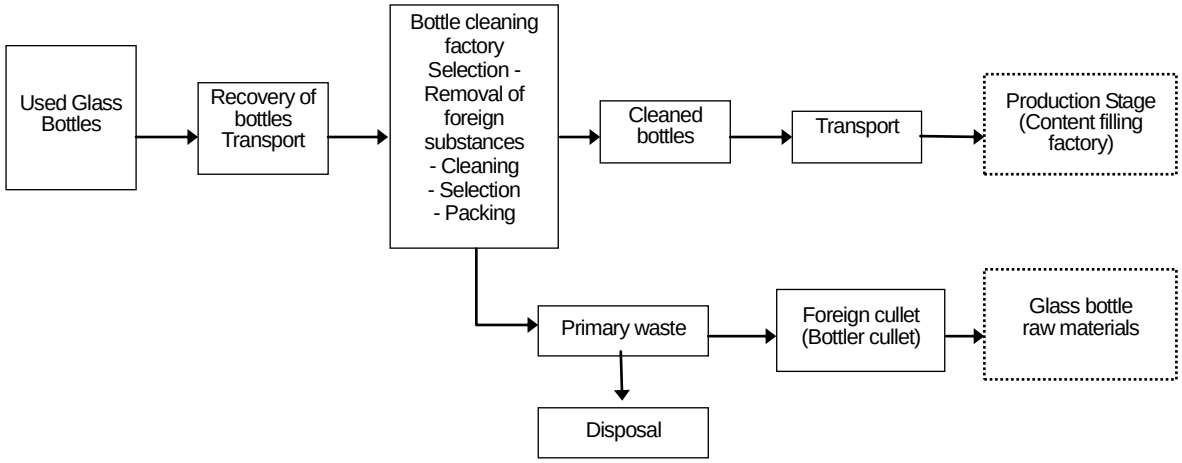


Fig. F.1: Recovery/reuse flow of used Glass Bottles

F.2 Calculation of GHG emissions of returnable bottles

Calculation shall be made by following the formula below:

GHG emissions of returnable bottles
= ((GHG emissions in the Glass Bottle raw material acquisition stage
+ GHG emissions in the Glass Bottle production stage
+ GHG emissions in the Glass Bottle transport stage
+ A)
+ (GHG emission load in the Glass Bottle reuse stage x (Number of times used – 1)))
/ Number of times used + B

A: GHG emissions associated with "Glass Bottles per se" included in GHG emissions in the disposal and recycling stage
B: GHG emissions associated with "Accessories" included in GHG emissions in the disposal and recycling stage

F.3 Bottle cleaning processes

Bottle cleaning processes include the following processes.

1) Process related to recovering used Glass Bottles
2) Process related to cleaning bottles
3) Process related to cleaning crates
4) Process related to transporting bottles recovered for reuse to content filling factory
5) Process related to proper treatment of waste (excluding Glass Bottles per se and accessories such as labels and caps)

F.4 Scenario for bottle cleaning process

If data on energy or water consumption is not available, the values given in Table F.1 below may be used instead.

Table F.1: Scenario for consumption of electric power, etc. in bottle cleaning process

Item	Utility consumption
Electricity consumption for recovery	0.030866 (kWh/kg of recovered bottle)
C-heavy oil consumption	0.019105438 (kg/kg of recovered bottle)
Water consumption	4.0596 (kg/kg of recovered bottle)
Amount of wastewater	4.0596 (kg/kg of recovered bottle)

Source: "Report on Comparison among Containers through LCA Method"

F.5 Number of times recovered/reusable (returnable) bottles are used

The values given in Table F.2 below may be used as the number of times returnable bottles are used.

Table F.2: Number of times various types of returnable bottles are used

Type of returnable bottle	Number of times used
Beer bottles	18 times
Milk bottles	16 times
Other reusable bottles	5 times

Remark: The data above was cited from "Various Types of Eco-Friendly Glass Bottle Containers: Efforts of Reducing Glass Bottle Container Waste Practicable in Our Daily Lives": a pamphlet created by the Japan Food Industry Center based on its "Survey on Status of Returnable Glass Bottles by Use Type 2004".

F.6 Waste generated from recycling

After Glass Bottles are used the assumed number of times given in "F.5," they are recycled or disposed. The GHG emissions associated with recycling has already been included in the CFP value of single-use Glass Bottles.

F.7 Transport scenario for recovery of used Glass Bottles, etc.

a) Transport scenario for recovery of used Glass Bottles
- Transport means: 10-ton truck
- Transport distance: 500km
- Loading ration: 50%

b) Transport scenario for cleaned bottles
- Transport means: 10-ton truck
- Transport distance: 500km
- Loading ration: 50%

Crates, pallets, etc. used for transport of Glass Bottles are used repeatedly, and have only a slight impact on GHG emission. Therefore, their production and transport processes shall be excluded from the range of the assessment.

Annex G (reference): Bibliography

G.1 Guidelines of CFP (Carbon Footprint of Products) system (revised edition):

The CFP rules study committee (July 16, 2010)

G.2 Standards of PCR (Product Category Rules) development (revised edition):

The CFP rules study committee (July 16, 2010)

G.3 Specifications of CFP Label and Displaying Other Information:

The Ministry of Agriculture, Forestry and Fisheries, the Ministry of Economy, Trade and Industry, the Ministry of Land, Infrastructure, Transport and Tourism, and the Ministry of the Environment (August 3, 2009)

G.4 Tentative Database of GHG Emission Factors for the CFP Pilot Project:

The CFP Pilot Project Secretariat (Japan Environmental Management Association for Industry) (August 18, 2009)

G.5 Research Project Report on Life Cycle Assessment of Containers and Packaging 2004:

Institute for Policy Sciences (March 2005)

G.6 Report on Comparison among Containers through LCA Method:

Container Comparison Study Group (August 2001)

G.7 Quantitative Analysis of Recycling of Container and Packaging Waste:

Nomura Research Institute, Ltd. (March 1995)

G.8 Glass Bottle Recycling as Evidenced by New Indices:

Pamphlet released by Glass Bottle Recycling Promoter Association (January 2010)

G.9 Various Types of Eco-Friendly Glass Bottle Containers: Efforts of Reducing Glass Bottle Container Waste Practicable in Our Daily Lives:

Pamphlet created by the Japan Food Industry Center based on its "Survey on Status of Returnable Glass Bottles by Use Type 2004"

[PCR revision histories]

Approved PCR ID	Release date	Contents revised
PA-BE-02	September 8, 2010	(1) Changed corresponding to the revisions of the basic rules. (2) Adapting the contents to the new PCR draft template. (3) For handling of recycling of the wastes discharged from each stage (other than the disposal and recycling stage), up to and including recycling preparation process shall be calculated. (It applies to "No.2-(7): Handling of recycling standards" provided in the "Guide of Establishing Product Category Rules (PCR)".) (4) For handling of the wastes collected for value, up to and including the recycling preparation process shall be calculated. (It applies mutatis mutandis to "No.2-(7): Handling of recycling standards" provided in the "Guide of Establishing Product Category Rules (PCR)".)