Japan EPD Program by SuMPO

Emission Factor Data Evaluation and Operation Rules

(General Rules, Requirements, and Procedures)

Document ID: JR-05-05

Sustainable Management Promotion Organization

Revision history

Version	Date	Page	Details
05	April 1, 2022	-	Modifications due to changes in the program name.
04	October 1, 2019	-	Modifications due to changes in the program operator.
03	July 17, 2019		Delete Appendix 1 and move Appendix 2 forward.
02	February 16, 2018		Review accompanying revisions to emission factor classification.
01	April 28, 2017	-	Document created. Newly published following integration of EcoLeaf Program and CFP Program.

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These rules specify the evaluation and use of emission factor data used in the Japan EPD Program by SuMPO (the “Program”) implemented by the Sustainable Management Promotion Organization (“SuMPO”).

Section 1 General Rules

1.1 Types of Emission Factor Data

The two following types of emission factor data are covered in these rules.

(1) Designated database

The emission factor database IDEA v2 shall be used as a rule as the basis for quantification. The number of viewable values differs between licensed users of IDEA (those who have purchased the program) and unlicensed users. The use of IDEA is stipulated below. The use of emission factor databases other than IDEA is separately determined.

(a) Basic data: The emission factor data available to all businesses who have applied for verification is called basic data; the data selected by SuMPO from IDEA fall under this category.

(b) Available data: Emission factor data selected additionally from IDEA with limits to complement the basic data is referred to as available data.

The total of (a) and (b) shall be within 1000 items of data. However, this limit shall not apply to those with the right to use IDEA.

(c) Unavailable data: Data that are inappropriate for use in the Program set forth by SuMPO are referred to as unavailable data.

(2) Registered data

If appropriate emission factors are not available in IDEA, the applicant shall generate emission factors to supplement the database, and the emission factor data approved by a review panel is called registered data. Data used exclusively for a specific PCR are called PCR emission factors.

1.2 Requirements for Emission Factor

Emission factor requirements are set forth in the “Requirements for Emission Factor” in Section 2 of these rules.

1.3 Assessment Criteria for Emission Factor

Criteria for evaluating and using emission factors are specified in “JR-05S Emission Factor Assessment Criteria”.

1.4 Procedures for Emission Factor Assessment

Procedures for evaluating and using emission factors are specified in “Procedures for Emission Factor Assessment” in Section 3 of these rules.

1.5 Period of Validity and Review of Emission Factors

The validity period of the emission factors used in this Program shall be five years.

The designated database shall be reviewed by the technical working group once every five years to ensure data quality.

SuMPO shall also review the classification of basic data and available data about once a year based on emission factor data usage in the Program.

Registered data shall also be reviewed by the creator of the emission factor every five years in time for the review. Records of these reviews are managed by SuMPO as the emission factor list revision history.

1.6 Provision of Emission Factor

SuMPO shall, as a rule, provide emission factor data to applicant businesses through quantification tools.

1.7 Request for Revision to Registered Data by SuMPO

If SuMPO judges that changes to the registered data are required, it will prepare a proposal and issue a request for changes to the applicant business with the registered data.

1.8 Revocation of Registered Data

SuMPO may revoke registration of registered data when facts that do not suit the purpose of the Program are discovered.

1.9 Establishment of a Review Panel

SuMPO shall establish a review panel to refer the final decision on the evaluation of registered data. The review panel's paperwork shall follow the "JR-03 Review Panel Establishment and Operation Rules", prescribed separately.

1.10 Appointment of Emission Factor Evaluators

To refer evaluation of the registered data, SuMPO shall appoint an emission factor evaluator who possesses knowledge of SuMPO's emission factors, is an expert in LCA methodology, or an external expert if necessary.

Section 2 Requirements for Emission Factor

The designated database must meet the "Requirements for Emission Factor Data - A".

Registered data must meet the following "Requirements for Emission Factor Data - B" or "Requirements for Emission Factor Data - A" if necessary.

Requirements for Emission Factor Data - A

Emission factor data shall comply with all of the following requirements.
Conformity to recommendations is not a criterion for passing but is preferred.

	Items	Details	Supplementary remarks	Requirement or recommendation
(1) Basic Requirements for Data				
1	・Author	The author (organization) of the data and their contact information are written	The author (organization) of the data and their contact information are written on the report (the “Report”) describing registered data submitted by the applicant for evaluation and how the data was created.	Mandatory
2	・Description of purpose and application of data collection	The data is available for use in the Japan EPD Program by SuMPO	There is nothing written in the Report that prevents the use of this data in the Japan EPD Program by SuMPO.	Mandatory
3	・Naming of processes and flows	Generic names are used in description	The names of data written in the Report are not specific product names or other proper nouns, but generic names.	Mandatory
4	・Setting functional unit (reference flow)	The functional unit is clear, and there is input and output for each functional unit	The input/output per functional unit can be verified in the Report using a list of all item names and quantities for input/output flows used in the data quantification (the “Input/Output Chart”). (Example: The functional unit is clearly set, such as “per kg for product XX,” and input/output per functional unit can be verified using the Input/Output Chart.)	Mandatory
5	・Representativeness	The input/output data represents the appropriate target region, time period, and technology	“...represents the target region, time period, and technology appropriately” means that, unless otherwise specified, the target region is Japan, the target time period does not significantly deviate from the present, and target technology is technology that exists in reality. When specifying a different target region, time period, or technology when creating data, the basis for doing so can be verified in the Report. However, specific coverage ratios are not required.	Mandatory
6	・System boundary	System boundaries are written	The Report includes an outline of the applicable system boundaries in a chart or in the text.	Mandatory
7		Process charts are available	If the process in question covers multiple single operations (Example: cutting, finishing, washing, etc.), the main procedures and contents of these operations can be verified in the Report.	Recommended
8	・Types of impact evaluation	Elementary flow input/output is written in a flowchart of each substance prior to characterization results	Numerical values for elementary flow are described in the Report not by CO_2 equivalent (CO_2e), but by each emission, such as CO_2, CH_4, N_2O, etc. However, COD can be used as an indicator for emissions to the hydrosphere.	Recommended
		An input/output flow in which the global warming impact category can be evaluated is written	For climate change, CO_2 and CH_4 emissions are listed. However, when there are no direct emissions from chemical reactions, etc., listing the fuel/electric usage amount is considered equivalent.	Mandatory
9	・Elementary flow for subjects of investigation	Data covering the important elementary flow for the presumed impact categories are collected	There are no omissions in major elementary flow usage volume/emissions volume. For example, in climate change, the Report includes the data or a comment (including “unknown”) for all GHGs described in the IPCC Fifth Assessment Report. In particular, for greenhouse gases other than CO_2, it clearly states that all of them are excluded from evaluation, or that some have been cut off.	Mandatory
10		Other impact categories, including important elementary flows, are written	Elementary flow is listed for impact categories other than those subject to evaluation.	Recommended
11	・Handling of infrastructure and equipment	Whether data includes the flow of infrastructure and equipment is written	The Report describes the flow of infrastructure and equipment installation. (“Unknown” is an option.) Those are included can be verified in the Input/Output Chart.	Mandatory
12	・Definition and handling of direct department and indirect department	Whether data includes the flow of the company's activities and services (personnel, financial, public relations, management, research and development, environmental departments, business trips, etc.) is written	The Report describes the flow of the company's activities and services (personnel, financial, public relations, management, research and development, environmental departments, business trips, etc.). (“Unknown” is an option.) Those are included can be verified in the Input/Output Chart.	Mandatory
13	・Cut-off	How cut-offs are handled is written	The Report clearly states criteria for cut-off.	Mandatory
14	・Modeling method	An average value or representative value is used	It can be verified that “average values or representative values from general manufacturing methods are used in modeling” in the Report.	Mandatory
15	・Sensitivity check	Sensitivity checks are conducted for the elements that contribute significantly to calculation results	It can be verified that “an investigation was conducted on the extent to which highly variable elements, such as estimated values, affect the quantification of emission factors” in the Report.	Recommended
16	・Limitations	Limitations are explained	The Report describes precautions for using data. (Example: This data is an annual average; note that there may be large differences due to seasonal fluctuation.)	Recommended
19	・Scope	The scope of the processes is within the scope of the data creator’s responsibility	The Report describes “the scope of responsibility of data registrant”.	Mandatory
20		Public electricity is quantified separately from the processes	When public electricity is entered, the amount of electricity (kWh, etc.) is described and can be verified in the Input/Output Chart.	Mandatory
21	・Input/Output flow	The balance between input/output can be verified	The balance between input/output can be verified using the Input/Output Chart. If there are flows where input/output is not habitually described due to the difficulties of data collection (e.g., input of oxygen (O_2), water evaporation, dissolution in wastewater, etc.), write that in the Report.	Mandatory
22		Input/output flows that significantly impact results are not missing	The Input/Output Chart can be used to verify whether main materials or other input/output flows are missing.	Mandatory
23		The flows for auxiliary materials, indirect input, etc. are quantified as well as the flow of main materials	Auxiliary material and indirect input flows assumed to occupy more than 10% of total input/output can be verified for mass and energy in the Input/Output Chart. When 20% is unknown, it is regarded as nonconformity, and the reason should be written in the comment column of the evaluation report.	Mandatory
24	・General data quality	Quality is evaluated in the data quality chart (Appendix 1)	Self-checks using the data quality chart and the validity of those results is written in the Report.	Recommended
25	・Collection method	The data collection method is written	The Report provides a concise outline of data collection methods.	Mandatory
26		Quantification is performed based on actual operation data	The fact that calculations are made using actual annual performance data can be verified in the Report. (No need to check actual operation data.)	Recommended
27	・Information on time	The data collection period or base year is written	The Report describes the data collection period or base year.	Mandatory
28		Data collection period	The fact that the main data were collected during any one year of the most recent five-year period, or within a range with an equivalent level of validity, can be verified in the Report.	Mandatory
29	・Geographic information	The region for data collection is written	The Report states that the target region is “all of Japan”. However, when specifying a target region in Japan, the basis for doing so can be verified in the Report.	Mandatory
30	・Accuracy	Accuracy is written	The Report describes data errors, etc. (Example: standard deviation, probability density distribution graph, etc.)	Recommended
31	・Integrity	Integrity is written	The Report describes the scope of assessment on the integrity of input/output flows that should be collected. This should also be consistent with the actual status of input/output checked in sections 22 and 23.	Recommended
32	・Methods of estimating insufficient data	When input/output flows that are considered important are unknown, they are complemented using some method of estimation which is written	If the missing data is supplemented using some form of estimation for confirmation items 22, 23, and 31, then the method of estimation used is written in the Report and can be verified. The validity of the estimation can be verified for items 22, 23, and 31.	Recommended
33	・Handling of carbon offsetting	Reduction by carbon offsetting is not included	The fact that reduction by carbon offsetting is not included can be verified in the Report.	Mandatory
34	・Handling of green electricity	Reduction based on a green electricity certificate is not included	The fact that reduction based on a green electricity certificate is not included can be verified in the Report.	Mandatory
35	・The effects of carbon fixation within products	The effects of carbon fixation within products are not included in quantification, regardless of the carbon fixation period	The fact that the effects of carbon fixation within products are not included in quantification, regardless of the carbon fixation period, can be verified in the Report.	Mandatory
36	・Handling of GHG from biomass	**Renewable bio-derived CO_2** is a separate elementary flow as biomass-derived CO_2	The fact that renewable bio-derived CO_2 is a separate elementary flow as biomass-derived basic flow can be verified in the Report.	Recommended
37	・Allocation (multifunctional processes)	The balance of input/output quantities can be verified in the process before allocation	If there is an allocation, the balance of input/output quantities can be verified in the pre-allocation process using the Input/Output Chart. However, when it is difficult to obtain pre-allocation data, such as with data created from statistics, the balance of the post-allocation process data input/output flow and the data processing method can be verified in the Report.	Mandatory
38		The following order of priority is used in consideration: avoid allocation (subdivision of a process), physical criteria, introduce substitute system, and other criteria (social/economic criteria)	The fact that the order of allocation on the left is used when performing allocation can be verified in the Report.	Mandatory
39		Allocation procedures are written	The fact that the method of section 38 is used when performing allocation can be verified in the Report.	Mandatory
40	・Handling of land use (modifications)	When including land use (modifications) in the scope of assessment, evaluation methods established by IPCC or other public organizations are used	When including land use (modifications) in the scope of assessment, the Report states that evaluation methods established by IPCC or other public organizations are used.	Recommended
(2) Handling of Upstream Processes and Emissions Treatment Processes				
41	・Data source	Key secondary data are consistent with the basic data and available data of the Japan EPD Program by SuMPO	The fact that key secondary data are consistent with the basic data and available data of the Japan EPD Program by SuMPO can be verified in the Report.	Mandatory
42		The source or the quantification procedures are written	The name of the database used, the order of priority when using data, and a list of data sources can be verified in the Report.	Mandatory
43		Data other than the basic data and available data of the Japan EPD Program by SuMPO is of sufficient quality to comply with the verification criteria	The Report clearly states that information such as the methods for creating major secondary data other than the basic data and available data of the Japan EPD Program by SuMPO and all items meet the criteria.	Recommended
44	・Time-related evaluation range	Processes that emit GHGs over a long period of time (e.g., landfill process, etc.), are considered to have persistent emissions	The report clearly states that processes that emit GHGs over a long period of time (e.g., landfill process, etc.), are considered to have persistent emissions.	Recommended

*1 These verification criteria will be revised as needed.
*2 The items listed in (2) are to be verified only when aggregated process data (such as emission factors) are provided.

Conformity to Recommendations:_____items

Appendix 1

Data Quality Chart

Score	1	2	3	4	5
Reliability evaluation	**Data generated based on actual measurements**	**Data modeled and generated based on physical and chemical theories, or, data that considers the input of secondary raw materials using statistics, etc.**	**Data modeled and generated based on hypotheses**	**Hypothetical data (Example: inferences by industry experts); data obtained from theoretical information (stoichiometry, enthalpy, etc.)**	**Estimated data**
	・Data obtained through actual measurement ・Data generated from statistics only, with sufficient data collection	・Data obtained through process simulator ・Data generated from statistics that have been supplemented (with validation) ・Data from interindustry relations analysis	Data created based on chemical reactions and patent information. Yield, energy loss, etc. are set based on hypotheses	・Data created statistically or individually based only on theoretical calculations in which yield, energy loss, etc. cannot be set sufficiently	・Data inferred from similar processes, etc., with minimal supplementation ・Example: data created from main materials and energy input in manufacturing designs in handbooks, etc.
Representativeness evaluation	**Data that is representative of almost all production volume for the target products**	**Data that is representative of at least 50% or more of production volume the target products**	**Data representing less than 50%, or data that represents more than 50% but seasonal fluctuations, etc., have not been equalized**	**Data representative of one site, or data several sites but over a short period of time**	**Data that is unclear as to what site it represents, or data from very few sites over a short period of time**
	・Almost 100% of the data on production volume of target products is collected	・More than 50% of the data on production volume of target products is collected	・Data created from environmental reports of several major companies and other sources ・Individual data and the average of several facilities when manufacturers of the target product are limited	・Individual data of several facilities when manufacturers of the target product are limited ・Data with a short survey period that has not been equalized and cannot be called an annual average	
Time-based evaluation	**Data newer than the base year or data from the past 3 years**	**Data from within 6 years of the base year**	**Data from within 10 years of the base year**	**Data from within 15 years of the base year**	**Data 15 years or older than the base year or from an unknown year**
	* For multi-year averages, the final base year is used in evaluation * Base year is defined as two years prior to the year of application				
Region-based evaluation	**Data from the target region**	**Average data for a region that includes the target region, but is larger than the target region**	**Data for a range smaller than the target region**		**Data for an unknown region or data from a different region**
	・Data generated from statistics of the target region ・Data created where the valid range is defined as the entire target region	・Data for the entire world (global average), data for Asia	・High volume of individually created data		
Technology-based evaluation	**Created using data from all production technologies for the target product**		**Data was created from the main production technologies for the target product, but some technologies were not considered**	**Data was created from some of the production technologies for the target product, but the main production technologies were not considered, or it was the same technology but at the laboratory level**	**The production technology of the target product is based on different technologies at the laboratory level**
	・Data with marketability (mass production, actual equipment) and versatility ・Data on factories in commercial operation that already have marketability and versatility		・The technologies have marketability and versatility, but data are created in part by substituting other similar technologies (Example: substituting the processing technology)	・Data without marketability or versatility	

Upper row: quality criteria by pedigree matrix
Lower row: examples to clarify the criteria

Requirements for Emission Factor Data - B

PCR emission factor data must conform to the following two requirements.
<Requirements>
（1）More than 35 points scored in Table 1.
（2）Meets all requirements in Table 2.

Table 1. Data Source Scoring Table

No	Items	Selection	Score
1	Data source that serves as evidence	Process analysis method (volume)	18
		Statistics (volume)	15
		Input/Output Chart (monetary value, including hybrid methods)	10
		Unknown	0
2	Explanations on emission factor data processing methods	Academic paper (peer-reviewed)	20
		Public reports (not peer-reviewed, mass balance can be viewed)	15
		・Public reports (not peer-reviewed, mass balance cannot be viewed)	10
		・Private reports (with third party checks)	
		Other/unknown	0
3	Creator of emission factor data	National research institutes or other public organization or industry association	20
		Organizations with expertise in the LCA of the applicable product area	15
		Others	10
		Unknown	0

Table 2. Validity Verification Items

No	Verification items	Details
1	Source validity	・The data source, creator, geographical region, and publishing methods are clear.
2	Quantification method validity	・There are no major discrepancies between input and output of substances in processes related to the target product when mass balance is viewable using the process analysis method (verification not required when mass balance is not viewable).
		・For agricultural products, N_2O and CH_4 emissions are handled properly.
		・There are no other obvious mistakes or miscalculations in the quantification process.
3	Validity of values	・There are no significant deviations found by comparison with the values of the related basic data (if unavailable, then other similar data). If there are deviations, validity of the reasons.

Section 3 Procedures for Emission Factor Assessment

3.1 Procedures for Evaluating Registered Data

3.1.1 Evaluation policy

As a rule, the results of the applicant's self-check on conformity with “Requirements for Emission Factor Data - B” (and “Requirements for Emission Factor Data - A” if necessary) and the consistency of substantiating documents will undergo evaluation by an emission factor evaluator and the review panel.

3.1.2 Documents used in evaluations

The following documents will be used for the evaluation. Additional materials may be requested from the data provider when the content of the substantiating documents is insufficient.

(1) Items to be prepared by SuMPO

- Requirements for Emission Factor
- Confirmation result report form

(2) Items to be prepared by the applicant

The following documents are collectively referred to as the “Registered data application form”:

- Registered data application
- Registered data checklist (self-check results report)
- Registered data information sheet
- Reports on registered data creation methods (substantiating documents)
- Revised PCR draft (when using registered data as PCR emission factor)

  Includes the name, unit, emission factor data value (displays number of digits, etc.) (not required), information source, and scope of registered data

3.1.3 Conducting evaluations

An emission factor evaluator appointed by SuMPO will evaluate documents based on the documents submitted by the applicant. Additional documents may be obtained and verified, and in-person evaluation with the data provider may be conducted as needed.

(1) Conformity to requirements for registered data

<Step 1>

Conformity to Requirements for Emission Factor Data - B

Confirm that the items listed in the checklist meet the following requirements.

- All required items are “Conforming”, and their basis (citation of substantiating documents) is appropriate.

＜Step 2>

Conformity to Requirements for Emission Factor Data - A

If deemed inappropriate in Step 1 above, conformity to the Requirements for Emission Factor Data - A will be checked.

3.1.4 Evaluation results report

The emission factor evaluator will prepare and submit an emission factor evaluation report to SuMPO.

If there are any issues like those below that may require discussion by the review panel, the explanation and rationale for this shall be included in the emission factor evaluation report.

・When substantiating documents are deemed inappropriate, or it is unclear whether they are appropriate

・When the value of the data under evaluation is deemed inappropriate in comparison with other data under evaluation, or it is unclear whether it is appropriate

・When there are other matters that may require discussion

3.1.5 Confirmation and final decision by the review panel

The review panel shall check and make a final decision based on the emission factor results report. The applicant shall not, as a rule, participate in the review panel.

SuMPO shall notify the representative of the application of the review panel's decision.

3.1.6 Confidentiality

The substantiated data checked by the review panel shall not, as a rule, be made public.

3.2 Updating and Modifying Registered Data

Should it become necessary to update or revise the content of the registered data, such as to revise or add a supplementary note to the name, value, unit of the emission factor data, or range of emission factor due to reporting or suggestion from businesses, SuMPO shall, at its discretion, make a request to the applicant for change or revoke registered data as needed.

End of document.