Product Category Rules (PCR)

(Approved PCR: PA-111000-AL-03)

“Tires”
Product Category Rules for “Tires”

This document stipulates rules pertaining to quantification and declaration of the EcoLeaf/Carbon Footprint of Products (CFP) that apply to “Tires” under the “Japan EPD Program by SuMPO”, administered and managed by the Sustainable Management Promotion Organization (SuMPO).

Business operators that intend to perform quantifications and make declarations for relevant products must quantify and declare according to stipulations of this document as well as the “Requirements for Quantification and Declaration”.

This approved PCR shall be valid for 5 years from the approved date.

The contents provided in this PCR can be changed and revised as needed, through PCR revision procedures, as a result of discussions with relevant stakeholders under the Japan EPD Program by SuMPO.

<table>
<tr><td rowspan="3">PCR Review Implementation</td><td>Approved date</td><td colspan="2">1 April 2022</td></tr>
<tr><td>PCR Review Panel Committee Chairperson</td><td colspan="2">Name of Committee Chair: Norihiro Itsubo
Affiliation : Tokyo City University</td></tr>
<tr><td>Conformity Standards</td><td>■ ISO14040：2006
■ ISO14044：2006
■ ISO14025：2008
■ ISO/TS14067：2013</td><td>■ ISO/TS14027：2017
□ ISO21930：2007</td></tr>
</table>

Revision History

Document number.	Publication date	Description
PA-111000-AL-03	2022/4/1	Revision Program name
PA-111000-AL-02	2019/10/1	Revision Program operator and Program name.
PA-111000-AL-01	2017/12/1	Approved

Program information

Program name	Japan EPD Program by SuMPO
Web site	https://ecoleaf-label.jp/
Program operator	Sustainable Management Promotion Organization (SuMPO)
Address	2-1,kajicho 2-chome,Chiyoda-Ku,Tokyo 101-0044

No.	Item	Requirement
1	Scope of Application	
1-1	Purpose and scope of application	This Product Category Rules (PCR) has been prepared by the World Business Council for Sustainable Development (WBSCD) with the intention of identifying rules, requirements and instructions that are globally universal for publishing Environmental Product Declarations (EPDs) intended for tires. The requirements that form the basis for these are stipulated by the “Tires” PCR (hereinafter referred to as the “Core PCR”) established by the UL Environment. This PCR has been developed as an addendum that provides stipulations regarding quantifications and declarations relating to the EcoLeaf/CFP under the Japan EPD Program by SuMPO. The Core PCR is featured in the PCR as an appendix and is applied as an integrated component of the PCR. Rights pertaining to the Core PCR, however, are attributed to the UL Environment.
2	Definition of Product Classification	
2-1	Product classification	The PCR applies to “Tires”. The “Tires” to which the PCR applies consist of following products as stipulated according to provisions under Tire Sub-Categories, Section 2.1 of the Core PCR. • Passenger car tire (2.1.1.) • Light truck tire (2.1.2.) • Pick-up and delivery truck tire (2.1.3.) • Long haul truck tire (2.1.4.) • Regional/city truck tire (2.1.5.) • Mixed service truck tire (2.1.6.) • Pick-up bus tire (2.1.7.) • City bus tire (2.1.8.) • School bus tire (2.1.9.) • Regional/inter-city coach bus tire (2.1.10) • Long-haul coach bus tire (2.1.11.) • Motorcycle tire (2.1.12.) • Off-the-road tire (2.1.13.) • Aircraft tire (2.1.14.)
2-2	Functions	As stipulated according to provisions under System Function, Section 2.2 of the Core PCR.
2-3	Units of quantification (functional units)	As stipulated according to provisions under Functional and Declared Units, Section 3.1 of the Core PCR.
2-4	Applicable constituent elements	As stipulated according to provisions under Identification of Tire Product, Section 1.3 of the Core PCR.
3	Referenced Standards and Referenced CFP-PCR	
3-1	Referenced standards and referenced PCR	Following PCR is referenced: UL Environment 10006J - Product Category Rules (PCR) for preparing an Environmental Product Declaration (EPD) for the Product Category: Tires Version 3.04 (November 2017) Japanese：https://www.shopulstandards.com/ProductDetail.aspx?UniqueKey=34120 English： https://www.shopulstandards.com/ProductDetail.aspx?UniqueKey=33672
4	Terminology and Definitions	
4-1	Terminology and definitions	As stipulated according to provisions under Definitions and Acronyms, Section 2.3 of the Core PCR.
5	Product System (Scope of Data Collection)	
5-1	Product system (Scope of data collection)	As stipulated according to provisions under System Boundaries, Section 3.2 of the Core PCR. The Raw Material Supply (A1) and the Transport (A2) are considered to constitute the Raw Material Procurement Stage, while Manufacturing (A3) is considered to constitute the Production Stage for EcoLeaf.
5-2	Cutoff criteria and aspects subject to cutoffs	As stipulated according to provisions under Cut-off Rules, Section 3.4 of the Core PCR. The cumulative total mass ratio, in terms of reference flow, for parts, components, materials, containers and packaging as well as secondary materials implemented shall be up to 5%. Items that are implemented in small quantities but are presumed to present significant impact assessment results must be included in the product system. Flows and processes for which quantitative understanding cannot be gained shall be up to a

		cumulative total of 5% in terms of carbon dioxide emissions ratios derived based on trial calculation results.
5-3	Life cycle flow diagrams	The scope of a typical product system is described under System Boundaries, Section 3.2 of the Core PCR. A life cycle flow diagram must be prepared for individually quantified products, within the range that remains in the boundaries of this diagram, to perform quantifications for purposes of EcoLeaf/CFP.
6	Quantification Methods That Apply to All Stages in Common	
6-1	Criteria for setting scope of primary data collection	The scope of primary data collection shall be described under Sections (7-2), (8-2), (9-2), (10-2) and (11-2).
6-2	Quality of primary data	As stipulated according to provisions under Data Sources, Section 4.1 of the Core PCR. [Criteria for Scope of Time] • The scope of time shall be the period of most immediate year. The scope may also be a valid range that is equivalent to the period of most immediate year. •
6-3	Collection methods for primary data	As stipulated according to provisions under Data Sources, Section 4.1 of the Core PCR. Design values may be used for purpose of collecting primary data.
6-4	Quality of secondary data	As stipulated according to provisions under Data Sources, Section 4.1 of the Core PCR.
6-5	Collection methods of secondary data	As stipulated according to provisions under Data Sources, Section 4.1 of the Core PCR.
6-6	Allocations	As stipulated according to provisions under Allocation Rules, Section 3.5 of the Core PCR. A sensitivity analysis on the allocation methods is not required, but the validity of such methods must be demonstrated by verification.
6-7	Scenarios	[Collection of Data Pertaining to Transportation] As stipulated according to provisions under Transportation, Section 3.6 of the Core PCR.
6-8	Others	Tertiary data described in the Core PCR shall be treated in the same manner as secondary data. Quantities of biogenic carbon captured in tires are not assessed as direct impact.
7	Items That Apply to Raw Materials Procurement Stage	
7-1	Processes included in scope of data collection	As stipulated according to provisions under Raw Material Supply (A1), Section 3.2.1.1, as well as Transport (A2), Section 3.2.1.2 of the Core PCR. The concept applied to instances where recycled materials are used as raw materials shall be as stipulated according to provisions under Recycled Waste Streams, Section 4.3 of the Core PCR.
7-2	Data Collection Items	As stipulated according to provisions under Raw Material Supply (A1), Section 3.2.1.1, as well as Transport (A2), Section 3.2.1.2 of the Core PCR. The concept applied to instances where recycled materials are used as raw materials shall be as stipulated according to provisions under Recycled Waste Streams, Section 4.3 of the Core PCR.
7-3	Collection methods and collection conditions for primary data	As stipulated according to provisions under Raw Material Supply (A1), Section 3.2.1.1, as well as Transport (A2), Section 3.2.1.2 of the Core PCR. The concept applied to instances where recycled materials are used as raw materials shall be as stipulated according to provisions under Recycled Waste Streams, Section 4.3 of the Core PCR.
7-4	Scenarios	As stipulated according to provisions under Raw Material Supply (A1), Section 3.2.1.1, as well as Transport (A2), Section 3.2.1.2 of the Core PCR. The concept applied to instances where recycled materials are used as raw materials shall be as stipulated according to provisions under Recycled Waste Streams, Section 4.3 of the Core PCR.
7-5	Others	As stipulated according to provisions under Raw Material Supply (A1), Section 3.2.1.1, as well as Transport (A2), Section 3.2.1.2 of the Core PCR. The concept applied to instances where recycled materials are used as raw materials shall be as stipulated according to provisions under Recycled Waste Streams, Section 4.3 of the Core PCR.
8	Items That Apply to Production Stage	

8-1	Processes Included in Scope of Data Collection	As stipulated according to provisions under Manufacturing (A3), Section 3.2.1.3 of the Core PCR.
8-2	Data collection items	As stipulated according to provisions under Manufacturing (A3), Section 3.2.1.3 of the Core PCR.
8-3	Collection methods and collection conditions for primary data	As stipulated according to provisions under Manufacturing (A3), Section 3.2.1.3 of the Core PCR.
8-4	Scenarios	As stipulated according to provisions under Manufacturing (A3), Section 3.2.1.3 of the Core PCR.
8-5	Others	As stipulated according to provisions under Manufacturing (A3), Section 3.2.1.3 of the Core PCR.
9	Items that Apply to the Transport Stage	
9-1	Processes included in Scope of Data Collection	As stipulated according to provisions under Transport (A4), Section 3.2.2.1 of the Core PCR.
9-2	Data collection items	As stipulated according to provisions under Transport (A4), Section 3.2.2.1 of the Core PCR.
9-3	Collection methods and collection conditions for primary data	As stipulated according to provisions under Transport (A4), Section 3.2.2.1 of the Core PCR.
9-4	Scenarios	As stipulated according to provisions under Transport (A4), Section 3.2.2.1 of the Core PCR.
9-5	Others	As stipulated according to provisions under Transport (A4), Section 3.2.2.1 of the Core PCR.
10	Items that Apply to the Use and Maintenance Stage	
10-1	Processes included in Scope of Data Collection	As stipulated according to provisions under Use (B1), Section 3.2.3.1 of the Core PCR and the Use Stage Calculation, Section 5 of the Core PCR.
10-2	Data collection items	As stipulated according to provisions under Use (B1), Section 3.2.3.1 of the Core PCR and the Use Stage Calculation, Section 5 of the Core PCR.
10-3	Collection methods and collection conditions for primary data	As stipulated according to provisions under Use (B1), Section 3.2.3.1 of the Core PCR and the Use Stage Calculation, Section 5 of the Core PCR.
10-4	Scenarios	As stipulated according to provisions under Use (B1), Section 3.2.3.1 of the Core PCR and the Use Stage Calculation, Section 5 of the Core PCR.
10-5	Others	As stipulated according to provisions under Use (B1), Section 3.2.3.1 of the Core PCR and the Use Stage Calculation, Section 5 of the Core PCR.
11	Items That Apply to Waste Disposal and Recycling Stages	
11-1	Processes included in Scope of Data Collection	As stipulated according to provisions under End of Life Stage (C1, C2, C3a and C3b), Section 3.2.4 of the Core PCR.
11-2	Data collection items	As stipulated according to provisions under End of Life Stage (C1, C2, C3a and C3b), Section 3.2.4 of the Core PCR.
11-3	Collection methods and collection conditions for primary data	As stipulated according to provisions under End of Life Stage (C1, C2, C3a and C3b), Section 3.2.4 of the Core PCR.
11-4	Scenarios	As stipulated according to provisions under End of Life Stage (C1, C2, C3a and C3b), Section 3.2.4 of the Core PCR.
11-5	Others	As stipulated according to provisions under End of Life Stage (C1, C2, C3a and C3b), Section 3.2.4 of the Core PCR.

12	Items That Are Relevant to LCI Analysis and Impact Assessments (Items That Apply Only to EcoLeaf Declaration)	
12-1	Concept of LCI analysis (relevant only for EcoLeaf)	As stipulated according to provisions under Impact and Inventory Results, Section 4.7 of the Core PCR. The inventory database used, however, shall be IDEA version 2.
12-2	Impact categories and characterization factors (Relevant Only for EcoLeaf)	As stipulated according to provisions under Impact and Inventory Results, Section 4.7 of the Core PCR. The life cycle impact assessment method used, however, shall be LIME2.
13	Declaration Methods	
13-1	Registration information	As stipulated according to provisions under General Information to Be Declared, Section 6.1 of the Core PCR. [Stipulations Pertaining to Description Details] Following items shall be described. Required description items for the Declaration Format of the Japan EPD Program by SuMPO are not described in this section. • Location of the manufacturer (described together with contact details). • Applicable regions for the EPD (described in the Remarks column). • Specifications of the product (as stipulated according to provisions under Specifications of Product, Section 13-2). • Descriptions pertaining to material compositions (as stipulated according to provisions under Notation of Material and Constituent Materials, Section 13-5). • Descriptions pertaining to software used (as stipulated according to provisions under Notations Pertaining to LCA Software, Section 13-10). • Descriptions pertaining to additional information (as stipulated according to provisions under Additional information, Section 13-8). • (Only when applicable) Descriptions pertaining to products of the product series (as stipulated according to provisions under Others, Section 13-10). [Arbitrary description items] • Graphical representations may be adopted arbitrarily in instances where label markings are present on a tire. • Diagrams that represent recycling stage or flows, as well as graphs that represent contribution by environmental impact may also be added. •
13-2	Specifications of products	Following contents shall be described as specifications of products. [Required description items] • Contents as stipulated according to provisions under Specifications, Section 2.4.4 of the Core PCR. - Tire size. - Tire mass. - Intended use (refer to Tire Sub-Categories, Section 2.1 of the Core PCR). - Nominal section width. - Aspect ratio. - Casing construction (e.g. 1ply, 2 ply, polyester, nylon, etc. including steel ply/belts for commercial tires) - Rim diameter. - Load index. - Speed rating. - Applicable mandatory regional labeling. • Feasibility of retreading (applicable only for commercial tires). • Rolling resistance coefficient (average value for grouping of representative products). [Arbitrary description items] • Description of reference service life (RSL) for tires is desirable, if possible. [Others] • Describe types of all tires that are included in a declaration when products are grouped and disclosed as series products. •
13-3	Ecoleaf Indicator results of life cycle impact	Following categories shall be disclosed in EcoLeaf. • Global warming. • Acidification.

<table>
<tr><td></td><td>assessment (LCIA)</td><td>• Eutrophication.
• Ozone destruction.
• Photochemical ozone
• Resource consumption</td></tr>
<tr><td>13-4</td><td>EcoLeaf
Data from life cycle inventory analysis (LCI)</td><td>［Information pertaining to energy consumption and water consumption］
Following items shall be described.
<table>
<tr><th>IDEA Elementary flow code</th><th>Substance name</th><th>Unit</th><th>Notes</th></tr>
<tr><td>001172001</td><td>Uranium, U3O8</td><td>MJ</td><td rowspan="7">Display IDEA v2 weight-based inventories converted to MJ.

May also be displayed as a total of non-renewable energy.</td></tr>
<tr><td>001201001</td><td>Metallurgical coal, 29.0 MJ/kg *1</td><td>MJ</td></tr>
<tr><td>001202</td><td>Hard coal, 25.7 MJ/kg *1</td><td>MJ</td></tr>
<tr><td>001203001</td><td>Brown coal, 17.2MJ/kg *1</td><td>MJ</td></tr>
<tr><td>001205001</td><td>Crude oil, 44.7 MJ/kg *1</td><td>MJ</td></tr>
<tr><td>001206001</td><td>Natural gas, 54.6 MJ/kg *1</td><td>MJ</td></tr>
<tr><td>001207002</td><td>Natural gas liquids, 46.5 MJ/kg *1</td><td>MJ</td></tr>
<tr><td>001211</td><td>Geothermal energy</td><td>MJ</td><td rowspan="4">Display IDEA v2 weight-based inventories converted to MJ.

May also be displayed as a total of renewable energy.</td></tr>
<tr><td>001421</td><td>Primary energy from solar energy</td><td>MJ</td></tr>
<tr><td>001422</td><td>Primary energy from wind power</td><td>MJ</td></tr>
<tr><td>001521</td><td>Primary energy from hydro power</td><td>MJ</td></tr>
<tr><td>—</td><td>Water resource consumption</td><td>MJ</td><td>Display inventory using LIME2.</td></tr>
</table>
*1: Descriptions represent substance names used in IDEA v 2. The notation of caloric conversion (in MJ/kg) may be omitted when describing in registration information.

［Information pertaining to air pollution］
Following items shall be described.
• The quantification method for amount of direct emissions for PM10 and PM2.5 during the use stage shall be as stipulated according to provisions under Use Stage Energy Calculation guideline, Section 5.1 of the Core PCR, as well as under Tire Abrasion Calculation Guideline, Section 5.2 of the Core PCR.
<table>
<tr><th>IDEA Elementary flow code</th><th>Substance name</th><th>Unit</th><th>Notes</th></tr>
<tr><td>—</td><td>Direct emission of PM10 during use stage</td><td>kg</td><td rowspan="2">Calculation of Sections 5.1 and 5.2 of the Core PCR</td></tr>
<tr><td>—</td><td>Direct emission of PM2.5 during use stage</td><td>kg</td></tr>
</table></td></tr>
<tr><td>13-5</td><td>EcoLeaf
Description of raw materials and constituent materials</td><td>As stipulated according to provisions under General Information to Be Declared, Section 6.1 of the Core PCR.
Weights of following items shall be described. Concurrent description of ratios is desirable.
• Synthetic rubber.
• Natural rubber.
• Steel.
• Textiles.
• Silica.
• Carbon black.
• Other materials, substances, chemical substances and the like.</td></tr>
<tr><td>13-6</td><td>EcoLeaf
Information Pertaining to Waste Materials</td><td>Quantification methods for waste materials shall be as stipulated according to provisions under End of Life Stage, Section 3.2.4 of the Core PCR.
<table>
<tr><th>Item</th><th>Unit</th><th>Notes</th></tr>
<tr><td>Waste: Amount of tire waste disposal</td><td>kg</td><td></td></tr>
<tr><td>Waste: Materials for reuse</td><td>kg</td><td></td></tr>
</table></td></tr>
</table>

		Waste: Materials for recycling	kg	
		Waste: Materials for energy recovery	kg	
		Waste: Power utilization	MJ	
		Waste: Heat utilization	MJ	
13-7	CFP quantification results	Global warming potential shall be disclosed in the CFP.		
13-8	Additional information.	[Stipulations pertaining to green certificates and offsets, etc.] In cases where green certificates and offset and other certifications are described, the valid term of such certificates shall also be described. [Required description items] Following contents shall be described. • The quantified impact is relevant to tires and cannot be used for purpose of comparison with vehicle performance. • (Only when applicable) This declaration represents average performance. [Arbitrary description items] Quantities of biogenic carbon captured in tires may be additionally notated as indirect impact.		
13-9	Additional environmental information	No particular stipulations provided.		
13-10	Others	[Stipulations pertaining to notations by individual information modules] With regards to the life cycle impact assessment results, a numerical value may be disclosed for each stage and information module as needed in addition to the total life cycle values. [Stipulations pertaining to quantifications of aspects relating to series products] • All types and relevant information pertaining to tires that belong to any series products must be described when quantifying aspects of series products.		
14	Other			
14-1	Other supplementary items	The compliance with stipulations for ISO14001 and ISO9001 shall be excluded from verifications for purpose of Japan EPD Program by SuMPO.		