PRODUCT CATEGORY RULES (PCR)
for Preparing an Environmental Product Declaration (EPD) for Product Group:

North American Pressure-treated Wood Products
UN CPC 313

June 29, 2016

Reference PCR:
PCR North American Structural and Architectural Wood Products (2015 v2)
FPInnovations
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1 Background information

These product category rules (PCR) have been reviewed and renewed in compliance with the general program instructions for ASTM International (ASTM), Environmental Product Declaration (EPD) Program, and are intended for use by organizations preparing EPDs for North American pressure-treated wood products and by other interested parties. These PCR cover technical aspects specified for North American pressure-treated wood products and should be used in conjunction with the PCR for North American Structural and Architectural Wood Products (2015 v2).

These PCR comply with the mandatory requirements contained in the following standards:


The original PCR were developed under the ICC-Evaluation Service LLC (ICC-ES) Environmental Product Declaration (EPD) Program in 2013. Under agreement, the 2016 renewal of the PCR were performed by both ASTM and ICC-ES as Program Operators, using ASTM’s general program instructions. These revised PCR were developed and renewed with assistance from AquAeTer, Inc. and Members of the Treated Wood Council.

The original PCR review was conducted by:

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In developing the original PCR, material from the Swedish Environmental Research Institute PCR U2053, Building Product – Quality Controlled Treated Timber (February 2007, revised April 2009) was carefully examined. However, that PCR document has been withdrawn and has not been replaced with a product-specific PCR that would be appropriate for direct adaptation to the North American situation and its use as a reference PCR. Consequently, the PCR for North American Structural and Architectural Wood Products are the reference PCR.

The Environmental Protection Agency’s (EPA) Tools for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI) system shall be used, as appropriate, for impact measure characterization factors.

2 Scope

This PCR document specifies rules, requirements, and guidelines for developing environmental product declarations for North American pressure-treated wood products and underlying requirements of related Life Cycle Assessments (LCAs). These PCR are valid for and provides requirements for both Business-to-Business (BtoB) EPDs and Business-to-Consumer (BtoC) EPDs.

3 Terms and definitions

3.1 Referenced definitions

For the purposes of this document, the definitions given in ISO 6707-1, ISO 14025, ISO 14044, ISO 14050, ISO 15686-1, and ISO 21930 apply.

3.2 Pressure-treated wood products

Pressure-treated wood products covered by these PCR generally are wood products that have had preservative chemicals added through a pressure treatment process to enhance or
extend the product’s service life, particularly to improve resistance to decay, insect attack, or to improve fire resistance. This PCR document covers pressure-treated wood products manufactured in accordance with current American Wood Protection Association (AWPA) standards; Canadian Standards Association (CSA) standards; Standards of Wood Preservation Canada (WPC); or an ICC Evaluation Service, LLC (ICC-ES) Evaluation Report (ESR).

4 Period of validity of the document

This document is valid until June 29, 2021 (5 years).

5 Informed comparison

EPDs may enable comparison between products but do not themselves compare products, as stated in ISO 14025, Sections 4 and 6.7.2. It shall be stated in EPDs created using these PCR that EPDs can only be used to assist purchasers and users in making informed comparisons between products if they:

- are prepared from cradle-to-grave life-cycle results,
- are based on the same function,
- are quantified by the same functional unit,
- account for replacement based on each product’s reference service life (RSL) relative to the same assumed building service life when the product is used in buildings, and
- comply with ISO 14025, Section 6.7.2, and ISO 21930 Section 5.6 when the product is used in buildings.

6 Product and product category

These PCR are valid for North American pressure-treated wood products as defined in AWPA standards; CSA standards; Standards from WPC; or in ICC-ES ESRs. Table 1 provides a list of currently available pressure-treated wood products and related reference documents and standards. Also, the PCR addresses treatment chemicals and treatment processes that may one day be standardized by AWPA, ICC-ES, CSA, or WPC.

The description of the product in an EPD shall enable the user to identify the product unambiguously. The characterization includes:

- product identification by name and other relevant identifiers as appropriate;
- a simple visual representation of the treated wood product for which the EPD is developed;
- intended use of the product;
- flow diagram of main production processes according to the scope of the EPD; and
- wood species and product, preservative ingredients and carrier materials, and other materials and resources incorporated into or used to produce the treated wood product.
### Table 1 Products covered by this PCR

<table>
<thead>
<tr>
<th>Treated wood product</th>
<th>AWPA/ICC-ES reference documents for definition</th>
<th>CSA/WPC reference standards for definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sawn Products</td>
<td>AWPA U1 Commodity Specification A, ICC-ES ESRs, including 1081, 1477, 1690, 1721, 1851, 2067, 2240, 2500, 2644, 2667, and 3038</td>
<td>CSA 080.1-15, section 8.2, intended to be used with CSA 080.2. WPC Residential Treated Wood Standard, April 27, 2010 (or current revision).</td>
</tr>
<tr>
<td>Posts</td>
<td>AWPA U1 Commodity Specification B</td>
<td>CSA 080.1-15, section 8.3, intended to be used with CSA 080.2.</td>
</tr>
<tr>
<td>Crossies and Switchties</td>
<td>AWPA U1 Commodity Specification C</td>
<td>CSA 080.1-15, section 8.4, intended to be used with CSA 080.2. WPC Residential Treated Wood Standard, April 27, 2010 (or current revision).</td>
</tr>
<tr>
<td>Poles</td>
<td>AWPA U1 Commodity Specification D</td>
<td>CSA 080.1-15, section 8.5, intended to be used with CSA 080.2.</td>
</tr>
<tr>
<td>Round Timber Piling</td>
<td>AWPA U1 Commodity Specification E</td>
<td>CSA 080.1-15, section 8.6, intended to be used with CSA 080.2.</td>
</tr>
<tr>
<td>Marine (Salt Water) Applications</td>
<td>AWPA U1 Commodity Specification G</td>
<td>CSA 080.1-15, section 8.8, intended to be used with CSA 080.2.</td>
</tr>
<tr>
<td>Fire Retardant Treated Products</td>
<td>AWPA U1 Commodity Specification H, ICC-ES ESRs including 1159, 1626, 1791, and 2645</td>
<td>CSA 080.1-15, section 8.9, intended to be used with CSA 080.2.</td>
</tr>
</tbody>
</table>

Material contents of the finished treated wood product, including packaging, shall be declared in terms of the main components. Substances officially classified with restricted use according to national and international regulations, such as Restricted Use Pesticides regulated under the U.S. Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) or Pest Management Regulatory Agency (PMRA), Health Canada, shall be identified. Product specific data as well as life cycle inventory (LCI) data that are confidential, because of competitive business environment, intellectual property rights, or similar legal restrictions, need not be declared.

Treated wood is pressure-treated with preservatives to improve durability, and such products can be used in applications where untreated wood will not meet the requirements, or in applications that require a prolonged service life. Therefore, a statement shall be included in the pressure-treated wood product EPD that pressure-treated wood products shall not be compared to untreated wood (except naturally durable woods known to provide similar service lives), but rather to other materials or material combinations.

Wood treatment ensures a longer in-use life of the treated wood product and, as such, certain properties like half-life, carbon stored in product during use, carbon stored through disposition, etc. are increased, and it is proper to document such long term carbon storage. The referenced PCR for North American Structural and Architectural Wood Products include these components (in Section 9.2).

These PCR also make it possible to cover the use of pressure-treated wood products in different applications. The LCA results reported in the EPD shall reflect, as mandatory, an information module covering a “cradle-to-gate” perspective, and a cradle-to-grave life-cycle perspective if the EPD is to be used for comparisons to alternative products.
7 Requirements for the underlying life cycle assessment

The underlying life cycle assessment (LCA) shall be conducted in accordance with Sections 7, 8, and 9 of the PCR for North American Structural and Architectural Wood Products, with boundaries extended to cover wood preservative manufacture and wood treatment processes including inputs from the technosphere, as shown in Figure 1. This reference PCR document specifies use of only those TRACI impact categories and other measures required by ISO 21930: 2007, Sections 8.2.2.1, 8.2.2.2, and 8.2.2.3. In addition to the requirements of the PCR for North American Structural and Architectural Wood Products, the rules detailed in the following shall apply.

7.1 System boundaries to nature

In addition to the generic system boundary to nature, the boundary setting shall recognize that carbon is sequestered from the air as the wood grows, maintained in the wood product, and released through the remaining life stages. Biogenic carbon in pressure-treated wood products shall be considered in accordance with Section 9.2 of the PCR for North American Structural and Architectural Wood Products.

7.2 Allocation of chemicals at a wood treatment plant

As a generic approach, it is acceptable to distribute the environmental impact from the uptake of the preservative in the wood treatment process to all products equally if no better physical relationship can be established. Where drying at the wood treatment plant is relevant, the allocation shall take the initial and final moisture content into account.

7.3 Estimation of VOC emissions

If preservatives containing volatile organic compounds (VOCs) are used, estimates of the emission of VOCs from the treating and use stages shall be included in the LCI.

7.4 Representativeness

Certified information modules for basic wood production as inputs to a treatment plant can be used provided the information modules have been developed in accordance with the PCR for North American Structural and Architectural Wood Products.

7.5 Uptake of wood preservatives

Industrial wood preservation is performed under controlled conditions. The uptake or retention of wood preservative chemicals is specified for specific use categories, commodities, wood species, and preservatives by AWPA, CSA, or WPC standards or applicable ICC-ES criteria. The specified gauge or assay retentions shall be adjusted to reflect untreated heartwood as appropriate to obtain the overall “average retention” for the product volume (i.e., total chemical use divided by total product wood volume). Average retention, in addition to the applicable standard, shall be declared.
Figure 1  Life cycle stages for pressure-treated wood products

Source: Modified from PCR for North American Structural and Architectural Wood Products: UN CPC 31, NAICS 321, Figure 1.
7.6 Active substances

Preservative retentions and active ingredients are specified by independent standards developed and set forth by AWPA, CSA, WPC, or an applicable ICC-ES ESR. These independent standards aim to ensure adequate performance of products pressure-treated for a given commodity and Use Category. These PCR are intended to be applicable to products manufactured in accordance with AWPA, CSA or WPC standards, or ICC-ES criteria. However, these PCR make no claim as to the comparability of these standards.

7.7 Service Life

An RSL shall be stated for an EPD if a use phase scenario is included in the EPD. Service life performance claims within individual EPDs must be supported by the product proponent.

7.8 Material recycling and technosphere system boundaries

ISO 14044 states that “Several allocation procedures are applicable for reuse and recycling”. A pragmatic interpretation of this statement is that the selected allocation procedure for material recycling shall reflect the goal and scope of the study that includes, for instance, the functional unit.

From a practical point of view, the allocation of shared processes between different products systems can be divided into two categories:

- material recycling where the material function is intact; or
- material recycling where the initial function is lost.

The LCI of recycled materials defines an input or output to the technosphere, i.e., when a material leaves or enters the specific product system and shall therefore be accounted for and reported in the LCA results for the EPD. Those parts of the initial product system that are utilized in a new product will be accounted for as material recycling in the LCI (as a flow to technosphere). The secondary user of recycled material will account for the use of recycled material (as a flow from technosphere).

In the case where the pressure-treated wood product, or a portion thereof, may be recovered for energy by the manufacturer following primary service, it is appropriate to include offsets of fossil fuel use and associated outputs to the environment, based on the energy value of the recycled material.

Varying maintenance will lead to diverse LCA results for the usage phase, in which case a number of environmental profiles shall be reported in the EPD to illustrate the range of different usage phase scenarios.
7.9 End-of-life scenarios

Product EPDs that include an end-of-life stage shall be based on a scenario reflecting best estimated current end-of-life management. Alternative scenarios may explore other cases (e.g., more or less: recycling, energy recovery via combustion, and landfilling).

8 Additional environmental information

A Type III environmental declaration (i.e., an EPD) shall include, where relevant, additional information related to environmental issues, other than the environmental information derived from LCA, LCI, or information modules. This information shall be separated from the information described in ISO 14025, 7.2.2. Identification of the significant environmental aspects should, as a minimum, take into consideration the following:

- information on environmental issues, such as
  - impact(s) and potential impact(s) on biodiversity,
  - toxicity related to human health and/or the environment, and
  - geographical aspects relating to any stages of the life cycle (e.g., a discussion on the relation between the potential environmental impact(s) and the location of the product system);
- data on product performance, if environmentally significant;
- the organization's adherence to any environmental management system, with a statement on where an interested party may find details of the system;
- any other environmental certification program applied to the product and a statement on where an interested party may find details of the certification program;
- other environmental activities of the organization, such as participation in recycling or recovery programs, provided details of these programs are readily available to the purchaser or user and contact information is provided;
- information that is derived from an LCA but not communicated in the typical LCI or LCIA based formats;
- instructions and limits for efficient use;
- hazard and risk assessment on human health and the environment;
- information on absence or level of presence of a material in the product that is considered of environmental significance in certain areas [see ISO 14021:2016, 5.4 and 5.7 r]);
- preferred end of service life management option for used pressure-treated wood;
- potential for incidents that can have impact(s) on the environment; and
- categorization of sources of wood fiber according to their forest management or certification systems, in accordance with ASTM D7612-10.

Additional environmental information shall only be related to environmental issues. Information and instructions on product safety unrelated to the environmental performance of the product shall not be part of a Type III environmental declaration.

Recent treated wood LCA studies listed in the Annex did not identify additional environmental information that is not already covered by the above points.
9 Environmental product declaration supporting data

Information shall be made available to the verifier in order to demonstrate that the requirements of ISO 21930 “Environmental declaration of building products” have been met. This includes documentation on:

- the input and output environmental data of the unit processes that are used for the LCA calculations;
- the documentation (measurements, calculations, estimates, sources, correspondence, traceable references to origin, etc) that provides the basis from which the process data for the LCA are formulated;
- the place(s) of production;
- the specification used to create the manufacturer's products;
- energy consumption figures;
- emission or release data to air, water and soil;
- waste production;
- data that demonstrate that the information is complete (e.g., reference can be made in specific cases to standards or quality regulations);
- referenced literature and databases from which data have been extracted;
- documentation that demonstrates that the products can fulfill the desired function(s) and performance;
- documentation that demonstrates that the chosen processes and scenarios in the flow chart satisfy the requirements set in ISO 21930;
- documentation that substantiates the chosen life cycle of the products;
- documentation and substantiation of the percentages or figures used for the calculations in the waste scenario;
- documentation and substantiation of the percentages and figures (number of cycles, prices, etc.) used for the calculations in the allocation procedure;
- information showing how averages of different reporting locations have been calculated in order to obtain generic data;
- documentation used to substantiate any qualitative information in the additional environmental information;
- procedures used to carry out the data collection (questionnaires, instructions, informative material, confidentiality agreements, etc.);
- the characterization and normalization factors used;
- the criteria and substantiation used to determine the system limits and the selection of input and output flows; and
- documentation used to substantiate other choices and assumptions.

General information about the company/organization can be included in the EPD, i.e., the existence of quality or environmental management systems according to ISO 14001 or any other environmental management system in place.
10 Content of the EPD

All Type III environmental declarations in a product category shall follow the format and include the parameters as identified in this PCR. The following general information shall be declared in the EPD:

- the name and address of the manufacturer(s);
- product identification by name (including e.g. production code) and a simple visual representation of the pressure-treated wood product;
- the description of the pressure-treated wood product’s use and the functional or declared unit of the product to which the data relate;
- the description of the application (installation) of the pressure-treated wood product where relevant;
- a detailed list of the substances, by weight, that make up the pressure-treated wood product;
- additional environmental information;
- a statement of whether the EPD is cradle-to-gate or cradle-to-grave;
- a statement that EPDs from different programs may not be comparable;
- a statement that the EPD represents an average performance in cases where an EPD declares an average performance for a number of products, in which case the deviation of the products’ performance with respect to the average shall be stated;
- information on where explanatory material may be obtained;
- a diagram of the life cycle stages included in the LCA subdivided into production, construction, use and end-of-life stages, and system boundaries;
- where the EPD includes the use stage, a description of the nature of the processes and ancillary materials that are required for installing the pressure-treated wood product in the building or other type of construction works, and their replacement and maintenance according to the cut-off criteria;
- name of the program and the program operator’s address and, if relevant, the logo and website URL;
- identification of the PCR document on which the EPD is based;
- the date the EPD was issued and period of validity;
- the site(s), manufacturer or group of manufacturers or those representing them for whom the results of the LCA are representative;
- name of PCR review panel Chair;
- whether the independent review of the EPD and data was conducted by an internal or external verifier (3rd party verification is mandatory for BtoC EPDs);
- name, address, phone number, fax number, e-mail of the third party verifier and logo of the verification body, if applicable; and
- the statement per ISO 14025:2006, 9.2.2: “Type III environmental product declarations intended for business-to-consumer communication shall be available to the consumer at the point of purchase.”
The following Demonstration of Verification shall be completed and included with the EPD. Note that third-party verification is optional for BtoB EPDs, but mandatory for BtoC EPDs.

<table>
<thead>
<tr>
<th>PCR Review was conducted by:</th>
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<tr>
<th>Independent verification of the declaration and data, according to ISO 14025 (please circle or check):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal</td>
</tr>
</tbody>
</table>

If required, third party verifier:
ANNEX: RECENT LCA REPORTS FOR TREATED WOOD PRODUCTS

Procedures and Findings for Creosote-Treated Railroad Ties, AquaTer, February 2011

Procedures and Findings for Pentachlorophenol-Treated Utility Poles, AquaTer, March 2011

Procedures and Findings for ACQ-Treated Lumber, AquaTer, March 2011

Procedures and Findings for Borated-Treated Lumber, AquaTer, March 2011

Procedures and Findings for CCA-Treated Guard Rail Posts, AquaTer, October 2011

Procedures and Findings for CCA-Treated Marine Pilings, AquaTer, November 2011