

Addendum for Adapting the IBU PCR Part B for use in North America

Guidance to the IBU Part B: *Requirements on the EPD for Technical Textiles*

Prepared by:
SCS Global Services

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1.0 Introduction

This PCR Addendum was developed following ISO 14025, Section 6.7.1, and provides guidance for EPDs in North America, based on the existing PCR from the Institut Bauen und Umwelt e.V. - PCR Part B: Requirements on the EPD for Technical Textiles (henceforth referred to as “IBU Part B PCR for Technical Textiles”)¹. This PCR Addendum is a ‘living document’, and is subject to periodic updates. Please note, this PCR Addendum may be superseded, once a North American-specific Product Category Rule for technical textiles is developed.

This PCR Addendum provides the requirements to adapt the IBU Part B PCR for Technical Textiles for use in North America, and includes guidance for:

- conducting the Life Cycle Assessment (LCA), and
- creating the Environmental Product Declaration (EPD).

This PCR Addendum was reviewed by LCA expert, Tom Gloria, of Industrial Ecology Consultants, prior to initial publication.

Scope of Validity of this PCR Addendum

The PCR applies to technical textiles, which are textile products manufactured for numerous functional performance reasons and non-aesthetic purposes. Further applicable reporting requirements are given in Product Category Rules for Building-Related Products and Services. Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report². Adaptions listed in this Addendum make the PCR applicable to North America and include, but are not limited to: units, functional unit, impact assessment methods, testing methods and requirements, use phase options, references, datasets, and standards. The intent is to follow ISO 14025, Section 6.7.1, and utilize the existing PCR from the Institut Bauen und Umwelt e.V. Part B: Requirements on the EPD for Technical Textiles, justifying differences based on region, rather than origin. Ultimately, the revisions are not modifications to the overall methodology or structure of the IBU PCR Part A³, but are intended to reflect practices, methods and requirements that are specific to North America.

¹ Institut Bauen und Umwelt e.V., (IBU). PCR Guidance-Texts for Building-Related Products and Services. Part B: Requirements on the EPD for Technical Textiles. Version 1.0, 2012.

² Institut Bauen und Umwelt eV (IBU). Product Category Rules for Building-Related Products and Services. Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report according to EN 15804+A2:2019, Version 2.2. 2023.

³ ibid

2.0 Specific Adaptions to the IBU Part B PCR for Technical Textiles

Product-group-specific LCA calculation rules from PCR part B

The following provides North American specific guidance to the IBU Part B for Technical textiles. Where noted, the guidance of the PCR Addendum supersedes the IBU PCR Part B. For ease of use, *the section numbering below follows the same section number in the Part B.*

2.1 Product description / Product definition: The following guidance supersedes IBU Part B. The declared products shall be described. For the use and application of the product in North America, the respective national provisions at the place of use apply.

2.3 Technical Data: The following guidance supersedes IBU Part B. The product specifications shall be demonstrated using product standards, as applicable. Tests for which there is no standard North American procedure may demonstrate technical data using those listed in the existing PCR from the Institut Bauen und Umwelt e.V. Part B: Requirements on the EPD for Technical Textiles (also listed here in italics in lieu of North American equivalent).

- Yarn count:
 - ASTM D1059: Standard Test Method for Yarn Number Based on Short-Length Specimens
- Linear density of yarns:
 - ASTM D1907: Standard Test Method for Linear Density of Yarn (Yarn Number) by the Skein Method
- Grammage:
 - ASTM 3776: Standard Test Methods for Mass Per Unit Area (Weight) of Fabric
 - ASTM D5261-10(2018) Standard Test Method for Measuring Mass per Unit Area of Geotextiles
 - ASTM D6566 Standard Test Method for Measuring Mass Per Unit Area of Turf Reinforcement Mats
- Tensile strength (warp/weft)
 - ASTM D6818: Standard Test Method for Tensile Properties of Rolled Erosion Control Products
- Elongation
 - ASTM D6818: Standard Test Method for Tensile Properties of Rolled Erosion Control Products
- Resiliency
 - ASTM D6524- Standard Test Method for Measuring the Resiliency of Turf Reinforcement Mats (TRMs)
- UV Resistance
 - ASTM D4355- Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture, and Heat in a Xenon Arc-Type Apparatus
- Tearing strength:
 - ASTM D6818/EN ISO 10139: Standard Test Method for Tensile Properties of Rolled Erosion Control Products
- *Temperature resistance cold, hot: ISO 5085, DIN EN 1876-1*
- *Thermal resistance: DIN EN ISO 6946*

- *Light fastness: DIN EN ISO 105 B02*
- *Crack resistance: DIN 53359*
 - D1693-21: Standard Test Method for Environmental Stress-Cracking of Ethylene Plastics
 - ASTM D5397: Standard Test Method for Evaluation of Stress Crack Resistance of Polyolefin Geomembranes Using Notched Constant Tensile Load Test
- Heat transfer coefficient:
 - ASTM D1518-85 Standard Test Method for Thermal Transmittance of Textile Materials
- Light transmittance:
 - ASTM E424: Standard Test Methods for Solar Energy Transmittance and Reflectance (Terrestrial) of Sheet Materials
 - ASTM D-6567: Standard Test Method for Measuring the Light Penetration of a Rolled Erosion Control Product (RECP)
- Reflection ratio
 - ASTM E424: Standard Test Methods for Solar Energy Transmittance and Reflectance (Terrestrial) of Sheet Materials
- Absorption rate infrared spectrum, visual spectrum, UV spectrum
 - ASTM E424: Standard Test Methods for Solar Energy Transmittance and Reflectance (Terrestrial) of Sheet Materials
- Biaxial test
 - ASTM D5617-04(2015) Standard Test Method for Multi-Axial Tension Test for Geosynthetics
- Poisson's ratio
 - ASTM E132-17: Standard Test Method for Poisson's Ratio at Room Temperature
- *E-Module: CEN TC 248 WG 4 Draft*
- *Shading coefficient: DIN EN 13363-1*
- *Tearing strength according to EN 1875-3*
- *Dimensional stability after exposure to heat: EN 12280-1*
- *Water vapor permeability –*
- *Migration of heavy metals: EN 12149*
- *Dimensional stability after humid exposure- EN 14716 Annex C*
- *Growth of microorganisms: ISO 846*
- *Gen appraisal certificate the building material class: DIN 4102-B1*

If no information is given for properties, an explanation must be given in the background report to the EPD as to why the property is not relevant to the product.

2.5 Base materials / Ancillary materials: The following guidance supersedes IBU Part B. Materials and substances according to government regulations adversely affecting human health and the environment, in all stages of the life cycle shall be included in the LCA, independent of the cut-off rules. The use of raw materials in manufacture of the technical textile based on the criteria below shall be disclosed, regardless of their amounts:

- Any material or chemical agent that is required to be disclosed on a product safety data sheet (SDS) as required by OSHA Hazardous Communication Standard⁴, or other applicable national regulation.
- Any material or chemical agent emitted to the atmosphere subject to the requirements of US EPA regulation⁵ including Criteria Air Pollutants and Hazardous Air Pollutants⁶ emitted at levels requiring an Air Operating Permit.
- For products manufactured in the US, any material or chemical agent required to be reported by the US EPA toxic release inventory (TRI)⁷.
- Any material or chemical agent which requires disclosure according to the US EPA including: EPCRA Section 302 Extremely Hazardous Substances (EHSs)⁸, CERCLA Hazardous Substances⁹, EPCRA Section 313 Toxic Chemicals, CAA 112(r) Regulated Chemicals For Accidental Release Prevention¹⁰.
- Any waste material or agent meeting the requirements of a RCRA¹¹ waste (including chemicals listed as a P-listed; K-listed; and U-listed).
- Any material or chemical agent which requires disclosure according to California State Proposition 65: Safe Drinking Water and Toxic Enforcement Act of 1986¹².
- Any material or chemical agent which has been identified by the Stockholm Convention as a Persistent Organic Pollutant¹³.
- For products manufactured in Canada, any material or chemical agent required to be reported by Canada's National Pollutant Release Inventory (NPRI)¹⁴.

⁴ 29 CFR Part 1910, Occupational Safety and Health Standards, Toxic and Hazardous Substances, 1910: 1200, Hazard Communication. www.gpo.gov

⁵ US EPA Clean Air Act 1990 <http://www.epa.gov/airquality>

⁶ US EPA criteria and hazardous air pollutants, <http://www.epa.gov/airquality>

⁷ US EPA Toxics Release Inventory (TRI) Program <https://www.epa.gov/toxics-release-inventory-tri-program/tri-listed-chemicals>

⁸ US EPA Emergency Planning and Community Right-to-Know Act 1986. <http://www.epa.gov/epcra>

⁹ US EPA Comprehensive Environmental Response, Compensation and Liability Act 1980.

<https://www.epa.gov/laws-regulations/summary-comprehensive-environmental-response-compensation-and-liability-act>

¹⁰ US EPA Clean Air Act Section 112(r): Accidental Release Prevention / Risk Management Plan Rule.

<https://www.epa.gov/rmp/fact-sheet-clean-air-act-section-112r-accidental-release-prevention-risk-management-plan-rule>

¹¹ US EPA Resource Conservation and Recovery Act 1986 <http://www.epa.gov/rcra>

¹² <https://oehha.ca.gov/proposition-65/proposition-65-list>

¹³ Secretariat of the Stockholm Convention, 11-13 Chemin des Anémones – 1219 Châtelaine, Switzerland.

<http://chm.pops.int/TheConvention/ThePOPs/ListingofPOPs/tabid/2509/Default.aspx>

¹⁴ Environment Canada. National Pollutant release Inventory (NPRI).

<https://www.canada.ca/en/services/environment/pollution-waste-management/national-pollutant-release-inventory.html>

- For products manufactured in Mexico, any material or chemical agent required to be reported by Mexico's Ministry of Environment and Natural Resources' (SEMARNAT) Pollutant Release and Transfer Register (Registro de Emisiones y Transferencia de Contaminantes)¹⁵.

2.12 Reference service life: The following guidance supersedes IBU Part B. The RSL must refer to the declared technical and functional quality of the product. It must be established in line with all of the specific rules in the US product standards and must also take into consideration the ISO 15686-1, -2, -7 and -8 standards. Where information is available for deriving the RSL from North American product standards, such data has priority. If North America and/or U.S. product standards are unavailable, the relevant ISO standards should be used. If ISO standards are also unavailable, use European standard from IBU PCR Part B.

2.13 Extraordinary effects:

The following guidance for fire effects supersedes IBU Part B. If relevant, information on fire performance according to the International Code Council (ICC) and National Fire Protection Association (NFPA) should be provided. Fire resistance and combustibility of a technical textile system should be assessed and reported in accordance with the ASTM E-84¹⁶ and ASTM E-136¹⁷ test methods, respectively.

Water and mechanical destruction guidance are as stated in PCR Part B.

2.15 Disposal: The following guidance supersedes IBU Part B. The possible disposal channels shall be indicated even if the end-of-life stage is not included in the scope of the LCA. If end-of-life is included, assumptions used for the LCA modeling shall be stated. For disposal of products in the U.S., the US EPA Waste disposal statistics¹⁸ should be used to inform the scenario.

3.5 Background Data: For modeling the electricity use at a manufacturing facility in the United States, the U.S. EPA eGRID electricity supply mixes should be used, accounting for losses due to transmission and distribution. For regions outside the US, comparable sub-national electricity supply mixes should be used. If this information is not available at a sub-national basis, then an electricity supply mix representative of the country should be used. Any deviations from this guidance shall be justified.

3.10 Comparability: The following information supersedes IBU Part B. Environmental declarations from different programs (ISO 14025) may not be comparable. Comparison of the environmental performance of technical textiles should use EPD information and shall consider the building context, such as the product's use and impacts at the building level, as well as its technical performance.

¹⁵ SEMARNAT *Registro de Emisiones y Transferencia de Contaminantes*. <https://www.gob.mx/semarnat/acciones-y-programas/registro-de-emisiones-y-transferencia-de-contaminantes-retc>

¹⁶ <https://www.astm.org/e0084-23.html>

¹⁷ <https://www.astm.org/e0136-22.html>

¹⁸ <https://www.epa.gov/smm/advancing-sustainable-materials-management-facts-and-figures-report>

5. LCA: Results: The following information on environmental impacts is expressed by the impact category indicator results using characterization factors based on the current version of U.S. Environmental Protection Agency’s Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI)¹⁹. These predetermined parameters are required and shall be included in the EPD, at a minimum, as follows:

Global Warming Potential (IPCC 2013 AR5,GWP 100 years) (Fossil)	kg CO ₂ equiv.
Ozone Depletion Potential (stratospheric)	kg CFC 11 equiv.
Acidification Potential (land and water)	kg SO ₂ equiv.
Eutrophication Potential (land and water)	kg N equiv.
Smog Formation Potential	kg O ₃ equiv.
Abiotic Resource Depletion Potential of Non-renewable (fossil) energy resources	MJ, LHV

The inclusion of TRACI impact indicator results is in addition to required reporting by the Part B PCR, not a substitute for the EN 15804+A2 reporting requirements.

Number reporting format shall use decimals instead of commas.

US conventional spelling shall be used in inventory names.

7 Requisite Evidence: The following information supersedes IBU Part B. If relevant to the scope of the declared product, or due to the product material composition, it is recommended to provide sufficient supporting documentation in the EPD and LCA Report. When providing documentation, testing protocols and other relevant information shall be indicated. If supporting documentation is not provided, the reasons shall be indicated in the EPD and LCA Report.

As a general rule, all statements shall be documented and supported as established by the Federal Trade Commission’s Green Guides, 16 CFR Part 260. For Canadian manufacturers, all statements shall also be documented and supported as established by Competition Bureau Canada’s Environmental Claims: A Guide for Industry and Advertisers. In the case of non-verifiable substances, the limit of detection shall be included in the declaration. Interpreting statements such as “...free of...” or “...are entirely harmless...” are not permissible.

7.1 VOC emissions: For products used in indoor applications, the measurement method shall be indicated. Measurement in accordance with the following or its equivalent:

- California Department of Public Health (CDPH)/Environmental Health Laboratory Branch (EHLB) Standard Method v.1.2-2017 (CA 01350), using the applicable exposure scenario²⁰

¹⁹ <https://www.epa.gov/chemical-research/tool-reduction-and-assessment-chemicals-and-other-environmental-impacts-traci>

²⁰ https://www.cdph.ca.gov/programs/ccdphp/deodc/ehlb/iaq/cdph%20document%20library/cdph-iaq_standardmethod_v1_2_2017_ada.pdf

7.2 Leaching Measuring the leaching performance with reference to the measuring procedure using “EN 14415:2004 Geosynthetic barriers. Test method for determining the resistance to leaching.” or equivalent.

3.0 Reporting Requirements

The information below shall be reported when creating an EPD using this Addendum.

The following general information shall be declared:

- Reference to General Program Instruction and version number
- Declaration number
- The site(s), manufacturer or group of manufacturers or those representing them for whom the results of the LCA are representative.
- Designation as Industry Wide or Company Specific EPD
- Reference PCR and version number
- Market(s) of applicability
- EPD scope: cradle to gate, cradle to gate with options (specify options), or cradle to grave
- Range of dataset variability (industry-wide EPDs only; mean, median, and standard deviation)
- Year(s) of reported manufacturer primary data (Manufacturer specific data shall be no more than five years old)
- LCA software used and version number
- LCI database(s) used and version number
- LCIA methodology and version number
- Green Building Certification Schema, if applicable
- The following statements or equivalent statements:
 - Environmental declarations from different programs (ISO 14025) may not be comparable.
 - “Comparison of the environmental performance of technical textiles using EPD information shall be based on the product’s use and impacts at the building level, and therefore EPDs may not be used for comparability purposes when not considering the building context”.
 - “Full conformance with the PCR for technical textiles allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible”. Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.
- Any comparability limitations

The following technical information shall be declared:

- Product image
- Description of the product's use and the functional or declared unit of the product
- A general specification for the composition of the products
- Description of product reference service life (RSL), if applicable
- A diagram of the life cycle stages and information modules included in the LCA
- Cut-off criteria statement
- Declaration of environmental parameters derived from LCA, specified in "5. LCA: Results" of this Addendum

4.0 References

- EN 15804+A2:2019– Sustainability of Construction works – Environmental Product Declarations – Core rules for the product category of construction products.
- ISO 14025: 2006 – Environmental labels and declarations – Type III environmental declarations – Principles and procedures
- PCR Guidance-Texts for Building-Related Products and Services, From the range of Environmental Product Declarations of Institute Construction and Environment e.V. (IBU), "Part B: Requirements on the EPD for Technical Textiles." V 2. 2023.
- Product Category Rules for Building-Related Products and Services, Institute Construction and Environment e.V. (IBU), "Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report according to EN 15804+A2:2019," v2.2, 2023
- SCS Type III Environmental Declaration Program: Program Operator Manual v11. November 2021. SCS Global Services.