

Global GreenTag^{Cert™}

INTERNATIONAL EPD PROGRAM

PCR TIN:2021 - Thermal Insulation

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ENVIRONMENTAL PRODUCT DECLARATION (EPD) PROGRAM

Type III EPDs

Compliant to

EN 15804 +A2, ISO 14025 and ISO 21930

For construction products

Sub Product Category Rules (PCR) based on Life Cycle Analysis

Thermal Insulation sub PCR 2021 TIN V1

I. Application

While CEN standard EN 15804 serves as the core Product Category Rules (PCR)s pertaining to all product categories, this document contains sub PCRs that apply to a particular product category. The former is called the PCR master document and the latter is called the sub PCR. When new product assessments are needed, a sub PCR is developed and new rules defined for that category. As environmental health legislation is enacted, rules in the master document shall be revised with file name and revisions clearly marked so all such PCRs are identifiable for those points in time.

II. Authors

These product category rules, compiled by Delwyn Jones, Director Sustainability, The Evah Institute a Division of Ecuate Pty Ltd have been customised for this product class by Dr Nana Bortsie-Aryee, Senior Product Assessor, Global GreenTag. Rules were approved for Global GreenTag adoption by David Baggs, Program Director, Global GreenTag International Pty Ltd.

III. Terms of Validity

- Product Category Rules Thermal Insulation sub PCR 2021 TIN V1
- PCR issue date 10/10/2021 and Period of validity to 10/10/2024

IV. Goal

The intended goal of this sub PCR is a guide for developing EPDs for sets of defined product with specified functionality. Users include specifiers, manufacturers and stakeholders. It is valid for all such defined products and related components according to standards and technical approvals herein.

V. Product Set Definition

The declared product set includes thermal insulation used for interior applications of all kinds having:

- Cladding, decorating, ceiling, interior walls, flooring functionality including fabrications of:
- Textile, polymer, foam material types formed as
- Fabric, panels, 3D tiles, ceiling tiles, underfloor physical forms etc.

Where relevant specifications must conform to International and Australian Standards including:

- ISO 12576:2001 Insulating material for buildings Conformity;
- AS/NZS 4859.1:2002 Materials for the thermal insulation of buildings, Part 1: General criteria and technical provisions
- AS 3999-2015 – Thermal insulation of dwellings – Bulk insulation – Installation requirements.
- AS 4426-1997 – Thermal insulation of pipework, ductwork and equipment – Selection, installation and finish
- ISO 13787:2003 building and industrial equipment Determining declared thermal conductivity;
- ISO/WD 17738-1 Exterior insulation and finish systems;
- ISO/AWI 17749 Sheep wool board and mat;
- ISO 12574-2:2008 Cellulose-fibre loose-fill for horizontal applications in ventilated roof spaces;
- ISO 8144:1995 Mineral wool mats for ventilated roof spaces;
- ISO 4898:2010 Rigid cellular plastics -- buildings – Specifications;
- ISO 9076-2:2008 Mineral-wool loose-fill for horizontal applications in ventilated roof spaces.

System outcomes and results are declared per R-value/m² metric unit and reflect product performance at reference conditions of exposure, strength, wear, temperature and humidity defined by 14025:2006, 6.7.

The functional unit for cradle to grave EPDs e.g. reflects reference conditions for service of:

- 20 years function in commercial and residential sector fitout e.g for sets of mm thick sheets;
- 20 years function in commercial and industrial sector built fabric for sets of kg/m² sheet.

VI. Declared Unit

The declared unit is thermal insulation use /R-value building nett lettable area cradle to gate with options LCA where applicable.

VII. Functional Unit

Here the functional unit is 20 years of thermal insulation use, in commercial, industrial or residential sector buildings/R-value nett lettable area, cradle to grave .

Normative References

- AS/NZS 4859.1:2002 Materials for the thermal insulation of buildings, Part 1: General criteria and technical provisions
- AS 4426-1997 – Thermal insulation of pipework, ductwork and equipment – Selection, installation and finish
- AS 3999-2015 – Thermal insulation of dwellings – Bulk insulation – Installation requirements.
- BCA Spec C1.10 Reaction to Fire and BCA section C1.10a Fire Hazard Properties – Floors, Walls and Ceilings;
- CENT/TR 15941 - 2010: Sustainability of construction works – Environmental Product Declarations-Methodology for the selection of generic data, CEN
- CENT/TR 15942 - 2014: Sustainability of construction works - Environmental Product Declarations-Communication formats: business to business, CEN
- CML LCA methodology, Institute of Environmental Sciences (CML), Faculty of Science, University of Leiden, Netherlands
- EN 15643-1: 2011: Sustainability of construction works - Sustainability assessment of buildings – Part 1 general framework, CEN
- EN 15643-2: 2011: Sustainability of construction works - Sustainability assessment of buildings – Part 2 framework for assessment of environmental performance, CEN
- EN 15804: 2012: Sustainability of construction works, Environmental product declarations, European Committee for Standardisation (CEN)
- EN15978 - 2011: Sustainability of construction works - Assessment of environmental performance of buildings - Calculation method, European Committee for Standardisation, CEN
- ISO 6707-1:2004 Building and civil engineering: Vocabulary Part 1: General terms
- ISO 9001:2008 Quality Management Systems Requirements
- ISO 14001:2004 Environmental management systems: Requirements with guidance for use
- ISO 14004:2004 EMS: General guidelines on principles, systems & support techniques
- ISO 14015:2001 EMS: Environmental assessment of sites & organizations (EASO)
- ISO 14020:2000 Environmental labels & declarations — General principles
- ISO 14024:2009 Environmental labels & declarations -- Type I Principles & procedures
- ISO 14025:2006 Environmental labelling & declarations Type III EPDs Principles & procedures
- ISO 14031:1999 EM: Environmental performance evaluation: Guidelines
- ISO 14040:2006 EM: Life cycle assessment (LCA): Principles & framework, London, BSI, 2006.
- ISO 14044:2006 EM: LCA: Requirement & guideline LCI; LCIA Interpretation, London, BSI, 2006.
- ISO 14050:2009 Environmental management: Vocabulary
- ISO 14064:2006 EM: Greenhouse Gases: Organisation & Project reporting, Validation & verification
- ISO 15392:2008 Sustainability in building construction General principles
- ISO 15686-1:2011 Buildings & constructed assets Service life planning Part 1: General principles
- ISO 15686-2:2012 Buildings & constructed assets Service life (SL) planning Part 2: prediction
- ISO 15686-8:2008 Buildings & constructed assets SL planning Part 8: Reference & estimation
- ISO 21929-1:2011 Sustainability in building construction Sustainability indicators Part 1 Framework
- ISO 21930:2007 Building construction: Sustainability, Environmental declaration of building products
- ISO 21931-1:2010 Sustainability in building construction Framework for methods of assessment for environmental performance of construction works Part 1: Buildings
- ISO 21932:2013 Sustainability in buildings and civil engineering works -- A review of terminology

General References

- Australian & New Zealand ([ANZECC](http://www.environment.gov.au/water/quality/national-water-quality-management-strategy)) Guidelines For Fresh & Marine Water Quality (2000) <http://www.environment.gov.au/water/quality/national-water-quality-management-strategy>
- Basel Convention (2011) Control of Transboundary Movement of Hazardous Waste & Disposal <http://www.basel.int/portals/4/basel%20convention/docs/text/baselconvention-text-e.pdf>
- BRE Global, BRE Environmental Profiles 2013: Product Category Rules for Type III EPD of construction products to EN 15804:2012+A1:2013, PN 514. Watford, BRE, 2014
- Boustead (2014) Model 6 LCI database <http://www.boustead-consulting.co.uk/publicat.htm> USA & UK
- EcolInvent (2014) LCI Model 3 database <http://www.ecoinvent.ch/> EcolInvent, Switzerland
- Evah (2019) LCA Tools, Databases & Methodology at <http://www.evah.com.au/tools.html>
- Franklin Associates (2014) US LCI Database <http://www.fal.com/index.html> Eastern Research Group US
- GreenTag™ Certification (2019) http://www2.ecospecifier.org/services_offered/greentag_certification
- GreenTag™ (2019) Product Category Rules <http://www.globalgreentag.com/greentag-epd-program>
- Jones D., Mitchell. P. & Watson P. (2004) LCI Database for Australian Commercial Building Material: Report 2001-006-B-15, Sustainable Built Assets, CRC for Construction Innovation
- Jones D.G et al. (2009) Chapter 3: Material Environmental LCA in Newton P et al., (eds) [Technology, Design & Process Innovation in the Built Environment](#), Taylor & Francis, UK
- IBISWorld (2019) Market Research, <http://www.ibisworld.com.au/> IBISWorld Australia
- International Energy Agency, Energy Statistics 2018 <http://www.iea.org/countries/>
- Plastics Europe (2019) Portal <http://www.plasticseurope.org/plastics-sustainability/eco-profiles.aspx>
- Pre (2017) SimaPro 8 Software, Netherlands <http://www.pre-sustainability.com/simapro-manuals>
- Myhre et al, 2013, Anthropogenic and Natural Radiative Forcing Chapter 8 in Stocker et al (eds.) Climate Change 2013, AR5 of the IPCC, Cambridge U Press UK. <http://www.ipcc.ch/report/ar5/wg1/>
- Roache S. K. (2012) IMF Report WP/12/115 China's Impact on World Commodity Markets <http://www.imf.org/external/pubs/ft/wp/2012/wp12115.pdf> International Monetary Fund
- UNEP (2014) Persistent Organic Pollutants <http://www.chem.unep.ch/pops/> The UN
- USLCI (2019) Life-Cycle Inventory Database <https://www.lcacommons.gov/nrel/search>, USA
- U.S. Geological Survey National Minerals (2019) <http://minerals.usgs.gov/minerals/pubs/> USA
- US EPA (2014) Database of Sources of Environmental Releases of Dioxin like Compounds in U.S <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=20797> p 1-38, 6-9, USA.

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