



Environmental Product Declaration

In accordance with ISO 14025:2006, EN 15804:2012+A2:2019/AC:2021, and ISO 21930:2017

Formica Aria® 12mm

Formica Group Europe

By Nemho, centre of excellence for innovation and technology for Broadview Holding B.V.

Programme	The International EPD® System
Programme operator	www.environdec.com EPD International AB
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An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



THE INTERNATIONAL EPD® SYSTEM





FORMICA GROUP EUROPE

The first and original Formica Group invented high pressure laminates in 1913. Pioneers by definition, our iconic Formica® brand represents the quintessence of laminates.

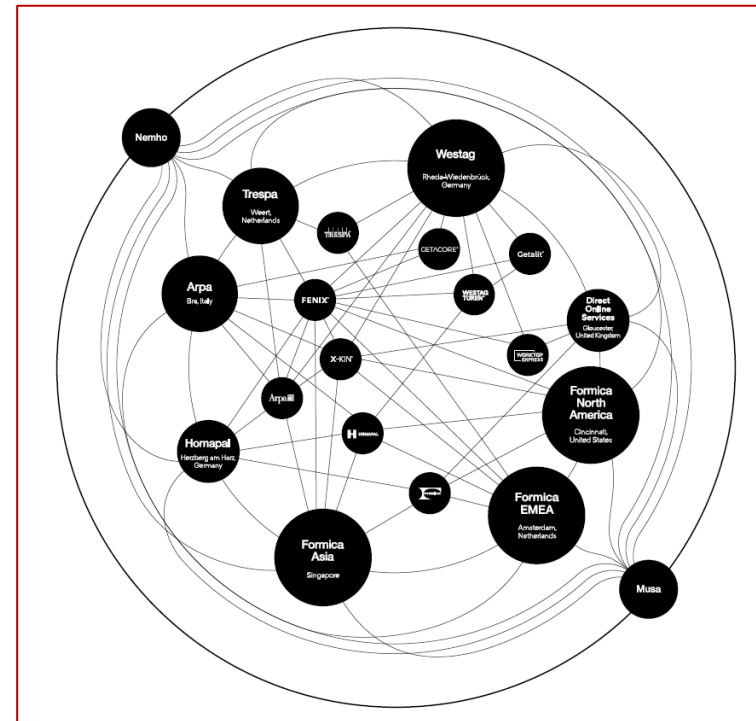
Formica Limited (UK), Formica IKI Oy (Finland) and Formica S.A (Spain) are part of the Formica Group of companies, a leading provider of branded, designed surfacing solutions for commercial and residential customers. Formica Group Europe work closely with architects, designers, fabricators, specifiers and developers, to meet their demands for attractive, multifunctional, practical and durable surfaces.

Formica® laminate is a contemporary, versatile and high performance material. It is easy to machine, to design with, to clean and maintain and it combines effortlessly with other materials. Typical applications include wall paneling, doors, cubicles, furniture, worktops and more.

Formica Group have a global network of factories, distribution centers, showrooms and customers. In Europe, Formica Group manufacturing plants are located in Finland, Spain and the United Kingdom. The Formica Aria® product range considered in this EPD is produced at our Formica Limited (UK) manufacturing plant.

CERTIFICATIONS

Formica Limited is amongst other certification schemes, certified according to ISO 14001 and FSC.





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NEMHO

Nemho is located in Weert in the Netherlands and it is the Innovation Centre of the material companies of the Broadview Holding, namely Arpa Industriale, Trespa International, Formica, Homapal, Westag and DOS. Nemho carries out all sustainability-related activities, including LCA studies, for the above-mentioned companies.

Nemho is the owner of this EPD.

Contact Person: Sara Corrado (s.corrado@nemho.com).



FORMICA ARIA® 12MM

PRODUCT DESCRIPTION

Formica Aria® 12mm surfaces are high-pressure compact laminates designed for kitchen worktops, breakfast bars, splashbacks and upstands. These laminates consist of layers of natural fibers treated with thermosetting resins and feature surface layers on both sides. The materials are bonded using heat and high pressure, creating a homogeneous, non-porous material with increased density and integral decorative surface.

PRODUCT IDENTIFICATION

High-pressure decorative solid panels are tested in accordance with the European standard EN 438 part 4 (for Black core) and part 9 (for White and Grey).

UN CPC CODE

Not applicable.



METHODOLOGY

This EPD has been developed based on the PCR for construction products 2019:14, Version 1.3.4.

DECLARED UNIT

The declared unit is 1 square meter of finished panel, 12mm thick, weighing 16,5 kg, plus primary packaging. All the possible product décor layers, different for the color and for the finishing, are covered by this EPD.

Formica Aria® 12mm corresponds to a weighted average of panels produced in the plant of Formica Limited in North Shields, UK.

REFERENCE SERVICE LIFE

Not applicable.

TIME REPRESENTATIVENESS

Data used for the LCA calculation refer to the production year 2023.

DATA, DATABASE(S) AND LCA SOFTWARE

Activities under the direct control of the company are modelled using specific data.

The LCA study was performed with the support of the Simapro LCA software (version 9.5).

Generic data are taken from Ecoinvent 3.9.1 and Carbon Minds database.

ELECTRICITY MODELLING

The electricity mix for the North Shields plant is modelled based on Carbon Trust certified energy labels provided by the supplier, for the reporting period 2022/23. The electricity mix consist of wind (58,20%), solar PV (14,61%), hydro (9,53%), thermal (8,22%), waste (4,98%), biomass (4,08%), and anaerobic digestion (0,38%). The emission factor of electricity, calculated using the GWP-GHG indicator, is 0,054 kgCO_{2eq}/kWh.

MAIN ASSUMPTIONS

A default distance of 50km is considered for the transport of manufacturing waste to the waste facility.

ALLOCATION APPROACH

Environmental impacts of multi-output processes at the plant level are allocated to the outputs based on their mass.

INFRASTRUCTURES AND CAPITAL GOODS

Infrastructures and capital goods in our production sites are excluded from the analysis. Other infrastructures and capital goods are included in the analysis, as reported in Ecoinvent database, with the exception of chemicals taken from Carbon Minds database.



ENVIRONMENTAL PERFORMANCE ASSESSMENT

Mandatory potential impact indicators are calculated using the EN 15804 reference package based on EF 3.1.

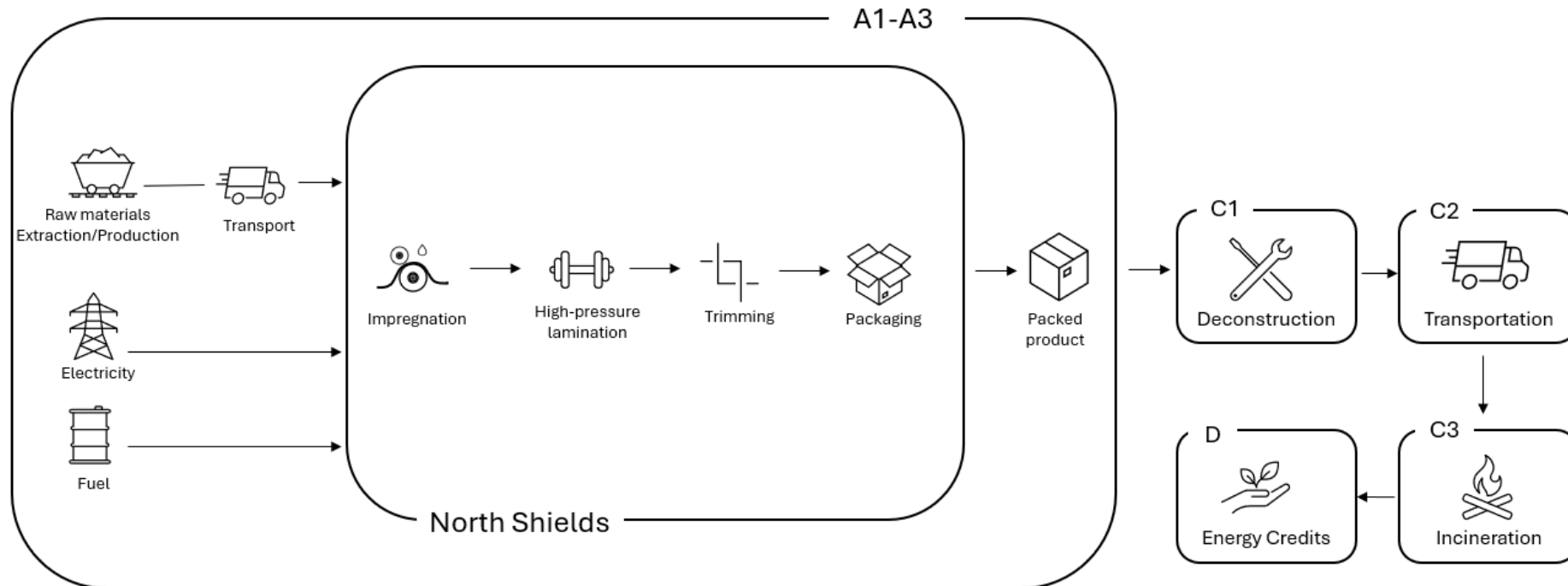


SYSTEM BOUNDARIES

The system boundary of this EPD is from cradle to gate with modules C1–C4 and module D (A1–A3 + C + D). The results of modules A1–A3 shouldn't be used without considering the results of module C.

The product stage (modules A1–A3) includes the manufacturing process of Formica Aria® 12mm, carried out in the plant of Formica North Shields, the production of raw materials, electricity, and natural gas.

The deconstruction of Formica Aria® 12mm (module C1) is modelled according to Gervasio et al. (2018). The transport of HPLs at the end of life (module C2) assumed an average transport distance equal to 100km. HPLs are commonly used as secondary material for energy recovery, therefore it is assumed that 100% of the HPL at the end of life is sent to incineration with thermal efficiency higher than 60% (module C3). Loads from material incineration and resulting energy credits (module D) are declared. Energy credits are calculated considering a lower heating value (LHV) of panels equal to 19 MJ/kg as reported by ICDLI (2015).





MODULES DECLARED, GEOGRAPHICAL SCOPE, SHARE OF SPECIFIC DATA (IN GWP-GHG INDICATOR) AND DATA VARIATION

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	GLO	UK	-	-	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
Specific data used	>90%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	n.a.			-	-	-	-	-	-	-	-	-	-	-	-	-	-

X: module declared, ND: module not declared, n.a.: not applicable, GLO: Global, UK: United Kingdom



CONTENT INFORMATION

Product components	Weight kg	Post-consumer material Weight %	Biogenic material Weight-% of product	Biogenic material kg C/m ²
Paper/woodchips	10,942 ± 0,219	0%	66,3% ± 1,3%	5,084 ± 0,102
Core resin	5,41 ± 0,108	0%	0% ± 0%	0 ± 0
Décor resin	0,148 ± 0,003	0%	0% ± 0%	0 ± 0
TOTAL	16,5 ± 0,33	0%	66,3% ± 1,3%	5,084 ± 0,102

Packaging materials	Weight kg	Weight % (versus the product)	Weight biogenic carbon kg C/m ²
Edge Protection	0,033	0%	1,5%
Pallet Strapping	0,009	0%	0,4%
Core Roll Formers	0,027	0%	1,3%
Coating films	0,169	1%	7,8%
TOTAL	0,237	1%	0,110

The biogenic carbon content of the product and packaging is respectively 18,66 kgCO₂eq/m² and 0,40 kgCO₂eq/m².

Formica Aria® 12mm does not contain substances listed on the candidate list of Substances of Very High Concern, as published on the ECHA website, in concentrations exceeding 0,1 percentage by mass.



ENVIRONMENTAL PERFORMANCE

POTENTIAL ENVIRONMENTAL IMPACT – MANDATORY INDICATORS ACCORDING TO EN 15804

Results for 1 m ² Formica Aria® 12mm							
Indicator	Unit	Tot.A1-A3	C1	C2	C3	C4	D
Climate change – total	kg CO ₂ eq.	4,51E+01	1,05E+00	1,73E-01	3,27E+01	0,00E+00	-2,22E+01
Climate change - fossil	kg CO ₂ eq.	6,17E+01	1,04E+00	1,73E-01	1,40E+01	0,00E+00	-2,22E+01
Climate change – biogenic	kg CO ₂ eq.	-1,67E+01	2,18E-03	5,26E-05	1,87E+01	0,00E+00	-2,76E-02
Climate change – land use and land use change	kg CO ₂ eq.	8,12E-02	2,17E-03	8,60E-05	1,58E-04	0,00E+00	-2,74E-02
Ozone depletion	kg CFC 11 eq.	3,74E-06	6,77E-09	2,84E-09	1,27E-08	0,00E+00	-2,66E-07
Acidification	mol H ⁺ eq.	2,38E-01	5,06E-03	7,51E-04	5,75E-03	0,00E+00	-6,86E-02
Eutrophication aquatic freshwater	kg P eq.	1,95E-03	5,26E-05	1,62E-06	6,37E-06	0,00E+00	-6,60E-04
Eutrophication aquatic marine	kg N eq.	6,11E-02	9,18E-04	2,75E-04	2,87E-03	0,00E+00	-1,33E-02
Eutrophication terrestrial	mol N eq.	7,22E-01	1,02E-02	2,96E-03	2,91E-02	0,00E+00	-1,48E-01
Photochemical ozone formation	kg NMVOC eq.	2,23E-01	3,03E-03	1,07E-03	7,32E-03	0,00E+00	-5,43E-02
Depletion of abiotic resources - minerals and metals*	kg Sb eq.	2,65E-04	9,50E-07	4,70E-07	9,10E-07	0,00E+00	-2,09E-05
Depletion of abiotic resources - fossil fuels*	MJ	1,01E+03	1,35E+01	2,53E+00	4,40E+00	0,00E+00	-2,99E+02
Water use*	m ³ eq.	4,24E+01	1,75E-01	1,29E-02	1,61E-02	0,00E+00	-2,29E+00

* The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator. The results of the impact categories abiotic depletion of minerals and metals may be highly uncertain in LCAs that include capital goods/infrastructure in generic datasets, in case infrastructure/capital goods contribute greatly to the total results. This is because the LCI data of infrastructure/capital goods used to quantify these indicators in currently available generic datasets sometimes lack temporal, technological and geographical representativeness. Caution should be exercised when using the results of these indicators for decision-making purposes.



POTENTIAL ENVIRONMENTAL IMPACT – ADDITIONAL MANDATORY AND VOLUNTARY INDICATORS

Results per for 1 m ² Formica Aria® 12mm							
Indicator	Unit	Tot.A1-A3	C1	C2	C3	C4	D
GWP-GHG**	kg CO ₂ eq.	6,64E+01	1,05E+00	1,73E-01	1,41E+01	0,00E+00	-2,22E+01

POTENTIAL ENVIRONMENTAL IMPACT – ADDITIONAL VOLUNTARY INDICATORS. RESULTS FOR NORTH AMERICA CALCULATED ACCORDING TO ISO 21930

Results per for 1 m ² Formica Aria® 12mm							
Indicator	Unit	Tot.A1-A3	C1	C2	C3	C4	D
Climate change – GWP 100 (ISO 21930)	kg CO ₂ eq.	6,64E+01	1,05E+00	1,73E-01	1,41E+01	0,00E+00	-2,22E+01
Ozone depletion - ODP (ISO 21930)	kg CFC-11 eq.	4,01E-06	1,20E-08	3,12E-09	1,36E-08	0,00E+00	-3,40E-07
Eutrophication potential - EP (ISO 21930)	kg N eq	4,23E-02	5,01E-04	6,24E-05	1,51E-03	0,00E+00	-6,58E-03
Acidification potential - AP (ISO 21930)	kg SO ₂ eq	2,19E-01	4,38E-03	6,77E-04	5,36E-03	0,00E+00	-5,94E-02
Photochemical ozone formation potential – POCP (ISO 21930)	kg O ₃ eq.	3,35E+00	5,79E-02	1,71E-02	1,67E-01	0,00E+00	-8,40E-01

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

. ** The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product.



USE OF RESOURCES

Results for 1 m ² Formica Aria® 12mm							
Indicator	Unit	Tot.A1-A3	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials (PERE)***	MJ	6,23E+02	1,65E+00	3,20E-02	0,00E+00	0,00E+00	-2,04E+01
Use of renewable primary energy resources used as raw materials (PERM)***	MJ	1,54E+02	0,00E+00	0,00E+00	-9,27E+01	0,00E+00	0,00E+00
Total use of renewable primary energy resources (PERT)***	MJ	7,78E+02	1,65E+00	3,20E-02	-9,27E+01	0,00E+00	-2,04E+01
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (PENRE)***	MJ	8,49E+02	1,35E+01	2,53E+00	9,48E+01	0,00E+00	-2,99E+02
Use of non-renewable primary energy resources used as raw materials (PENRM)***	MJ	1,58E+02	0,00E+00	0,00E+00	-9,48E+01	0,00E+00	0,00E+00
Total use of non-renewable primary energy re-sources (PENRT)***	MJ	1,01E+03	1,35E+01	2,53E+00	0,00E+00	0,00E+00	-2,99E+02
Use of secondary material (SM)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels (RSF)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable secondary fuels (NRSF)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water (FW)	m ³	1,10E+00	7,23E-03	4,04E-04	2,48E-03	0,00E+00	-9,21E-02

*** Primary energy use indicators are calculated following option B described in Annex 3 of PCR for Construction products v 1.3.1.



WASTE PRODUCTION

Results for 1 m ² Formica Aria® 12mm							
Indicator	Unit	Tot.A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	6,29E-02	4,25E-04	7,11E-05	1,05E+00	0,00E+00	-6,04E-03
Non-hazardous waste disposed	kg	1,01E+01	6,19E-02	2,20E-01	5,52E-01	0,00E+00	-9,46E-01
Radioactive waste disposed	kg	1,43E-03	3,65E-05	5,52E-07	1,40E-06	0,00E+00	-4,46E-04

OUTPUT FLOWS

Results for 1 m ² Formica Aria® 12mm							
Indicator	Unit	Tot.A1-A3	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	2,42E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,21E+01
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,26E+02



ADDITIONAL INFORMATION

Reducing the carbon footprint is key for our overall sustainability policy and it is based on our core belief that it is the right thing to do. We are also convinced that reducing our overall environmental footprint is essential to the long-term success of our business and the environment around us. That is why sustainability is embedded in our business philosophy with the credo 'do no harm, do good, do better.'

At the core of our sustainability strategy is the principle that we should start with ourselves when we seek to improve the world: 'do no harm.' Our approach is straightforward: we measure our impact, select targets to reduce this impact and monitor and report on progress. To measure our impact, we use the Life Cycle Assessment (LCA) methodology.

The second element of our strategy is to look for opportunities that support the environment beyond the direct scope of our own manufacturing footprint: 'do good.' This includes creating highly durable products that have a long lifespan that limit the need for replacement. Additionally, we will develop projects that absorb or reduce carbon emissions that are not directly linked to our factories or product portfolio.

We believe that addressing sustainability challenges will allow our company to continue to grow and 'do better' in the future. Investing in sustainability should – in the end – ensure that these efforts go beyond established regulatory requirements and the net effect of our efforts will positively impact the environment in which we operate.

Further details on our philosophy, approach and goals can be found in our position paper available online. (<https://www.formica.com/en-gb/campaigns/sustainability>).





PROGRAM INFORMATION

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): PCR 2019:14 CONSTRUCTION PRODUCTS VERSION 1.3.4
PCR review was conducted by: the Technical Committee of the International EPD® System. Chair of the review is Claudia A. Peña. The review panel may be contacted via info@environdec.com
Life Cycle Assessment (LCA)
LCA accountability: Marius Bakken Støle, Nemho
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006 via: <input checked="" type="checkbox"/> EPD verification by EPD Process Certification* Internal auditor: Lara Naested, Nemho Third-party verification: SGS Italia S.p.A. Via Caldera 21, 20153 Milano.(www.it.sgs.com) is an approved certification body accountable for third-party verification Third-party verifier is accredited by: Accredia, certificate n.0005VV *For EPD Process Certification, an accredited certification body certifies and reviews the management process and verifies EPDs published on a regular basis. For details about third-party verification procedure of the EPDs, see GPI v.4, Section 7.5.
Procedure for follow-up of data during EPD validity involves third party verifier: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No



The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

REFERENCES

- General Programme instructions of the International EPD® System. Version 4.0.
- Gervasio, Dimova, Pinto (2018). Benchmarking the Life-Cycle Environmental Performance of Buildings. Sustainability.
- ICDLI (2015). Technical characteristics and physical properties of HPL (Technical leaflet).
- LCA background report for Formica Aria® 12mm.
- PCR 2019:14 Construction products, Version 1.3.4.