



Environmental Product Declaration

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

Meteon® EDF grade 8mm

Trespa International B.V.

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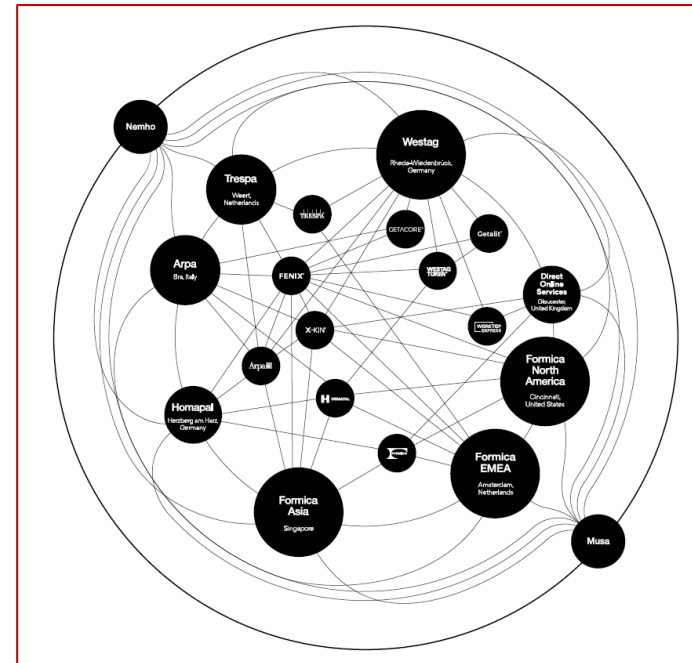
An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

NEMHO

Nemho is located in Weert in the Netherlands and it is the Innovation Centre of the material companies of the Broadview Holding. Nemho carries sustainability-related activities, including LCA studies, for Trespa International B.V.

Nemho is the owner of this EPD.

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TRESPA

Trespa International B.V. is located in Weert in the Netherlands, and is a leading innovator in the field of architectural materials, recognised internationally as a premier developer of high quality panels for exterior cladding, decorative façades, and scientific surface solutions. Since its founding in 1960, Trespa has worked closely with architects, designers, installers, distributors, raw material suppliers and end users globally. Trespa's focus is on product development, combining quality-manufacturing technologies with intelligent solutions for architectural and scientific surface applications. With unique insights into key market challenges, trends and demands, Trespa passionately delivers innovative aesthetically pleasing and high performance solutions for a wide range of needs.

Trespa International B.V. holds, amongst others, certifications based on ISO 9001, ISO 14001, PEFC and FSC certification. For a full overview of certificates please visit www.trespa.info.

METEON® EDF GRADE 8MM

HPLs are decorative high-pressure panels. These products, in all their build-ups, are comprised of individual layers of natural fibres, treated with thermosetting resins and pressed under high pressure. The panels are attributed with an integrated decorative layer on one or both sides of the panels.

PRODUCT DESCRIPTION

Trespa Meteon® EDF grade, 8mm thick panels comprise sheets consisting of layers of natural fibre, impregnated with thermosetting resins and pressed under high pressure. The panels are attributed a decorative on one or both sides of the panels. In case of one-sided décor layer, the back side is plain black showing production batch information. The panels are available in a number of colors and décors with different finishes. Trespa Meteon® EDF grade panel in 8mm is a versatile exterior cladding for innovative and functional ventilated façades and other exterior vertical applications like sunblind solutions.

The abbreviation EDF is an abbreviation standardized in the norm EN 438 - High pressure decorative laminate (HPL) - Sheets based on thermosetting resins - commonly called laminates - Part 1: Introduction and general information.

Explanation on meaning of EDF:

Main classification: E - denotes Exterior grade

Sub classification: D - denotes Heavy duty or severe use

F - denotes Flame-retardant grade

For detailed information on product performance in relation to type EDF see our material property datasheets published on the website www.trespa.info.

PRODUCT IDENTIFICATION

Decorative high-pressure compact laminates (high-pressure laminates, HPL) tested according to EN 438-4:2016. Information on the product performance can be found on www.trespa.info

UN CPC CODE

Not applicable.

METHODOLOGY

This EPD has been developed based on the PCR for construction products 2019:14, Version 1.2.4.

DECLARED UNIT

The declared unit is 1 square meter of finished panel, 8 mm thick, weighing 11,2 kg, plus primary packaging. All the possible product décor layers, different for the color and for the finishing, are covered by this EPD.

Meteon® EDF Grade 8mm corresponds to a weighted average of panels produced in the plant of Weert (The Netherlands).

REFERENCE SERVICE LIFE

50 years provided to appropriate design of the solution, installation, use and maintenance under normal conditions.

TIME REPRESENTATIVENESS

Data used for the LCA calculation refer to the production year 2021.

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 9.3).

Generic data are taken from ecoinvent 3.8 ad Carbon Minds database.

ELECTRICITY MODELLING

Electricity is modelled according to the guarantees of origin for the specific electricity mix purchased by Trespa for the production location in Weert, which corresponds to 100% renewable energy, specifically from wind. The climate impact of electricity is 0,0267 kg CO2 eq./kWh (using GWP-GHG indicator).

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 are excluded for core processes (module A3). They are instead included in upstream and downstream processes taken from ecoinvent database (modules A1-A2, C1, C2, and C3).

ENVIRONMENTAL PERFORMANCE ASSESSMENT

Mandatory potential impact indicators are calculated using the EN 15804 reference package based on EF 3.0.

SYSTEM BOUNDARIES

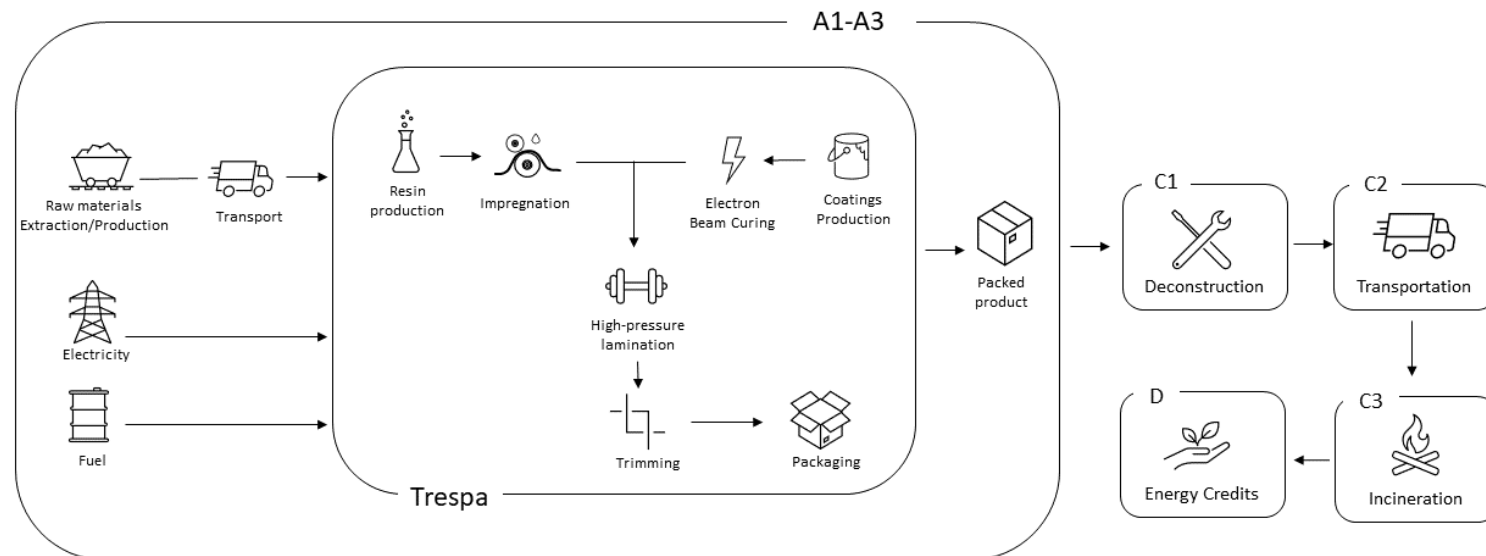
The system boundary of this EPD is from cradle to gate with modules C1–C4 and module D (A1–A3 + C + D).

The product stage (modules A1-A3) includes the manufacturing process of Meteon® EDF grade 8mm, carried out in the plant of Weert (NL), the production of raw materials, electricity, and natural gas.

The deconstruction of Meteon® EDF grade 8mm (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 shown from a test run by BioMassaKraftcentrale (Germany, Luhnien) that incinerates Trespa products.

Trespa launched Trespa Second Life, a take-back program to facilitate the reuse of Trespa panels. The reduced impact of the end-of-life of Meteon® EDF grade 8mm allowed by Trespa Second Life, is reported in the additional information section. For more information on Trespa Second Life, go to https://www.trespa.com/nl_NL/second-life.



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	NL	-	-	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
Specific data used	>90%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	n.a.			-	-	-	-	-	-	-	-	-	-	-	-	-	-

X: module declared, ND: module not declared, n.a: not applicable

CONTENT INFORMATION

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Kraft paper	6,640-6,912	0	61% ± 1,21% 0,292 ± 0,006
Phenolic Resin	4,084-4,250	0	0%
Coating Chemicals	0,252-0,262	0	0%
TOTAL	11,2	0	61% ± 1,21% 0,292 ± 0,006

Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
PP Coversheets	0,113	1,01%	0
PE film	0,011	0,10%	0
Steelbands	0,020	0,18%	0
TOTAL	0,143	1,28%	0

The build-up is calculated based on production values in 2021 by dividing the total amount of used raw materials by the total amount of panels produced.

Meteon® EDF grade 8mm 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 of Meteon® EDF grade 8mm							
Indicator	Unit	Tot.A1-A3	C1	C2	C3	C4	D
Climate change – total	kg CO ₂ eq.	1,45E+01	7,09E-01	1,04E-01	2,16E+01	0,00E+00	-1,51E+01
Climate change - fossil	kg CO ₂ eq.	2,65E+01	7,08E-01	1,04E-01	9,55E+00	0,00E+00	-1,51E+01
Climate change – biogenic	kg CO ₂ eq.	-1,20E+01	0,00E+00	0,00E+00	1,20E+01	0,00E+00	0,00E+00
Climate change – land use and land use change	kg CO ₂ eq.	4,36E-02	1,30E-03	3,91E-05	9,66E-05	0,00E+00	-1,61E-02
Ozone depletion	kg CFC 11 eq.	6,17E-06	2,34E-08	2,37E-08	2,76E-08	0,00E+00	-1,27E-06
Acidification	mol H ⁺ eq.	1,13E-01	3,49E-03	5,30E-04	3,99E-03	0,00E+00	-4,80E-02
Eutrophication aquatic freshwater	kg P eq.	1,09E-02	3,32E-04	7,59E-06	7,88E-05	0,00E+00	-4,07E-03
Eutrophication aquatic marine	kg N eq.	2,44E-02	6,67E-04	1,80E-04	2,42E-03	0,00E+00	-9,45E-03
Eutrophication terrestrial	mol N eq.	2,49E-01	6,67E-03	1,96E-03	1,97E-02	0,00E+00	-9,58E-02
Photochemical ozone formation	kg NMVOC eq.	7,88E-02	1,80E-03	5,85E-04	4,79E-03	0,00E+00	-2,79E-02
Depletion of abiotic resources - minerals and metals*	kg Sb eq.	1,76E-04	9,20E-07	2,39E-07	8,94E-07	0,00E+00	-1,90E-05
Depletion of abiotic resources - fossil fuels*	MJ	5,03E+02	9,22E+00	1,60E+00	3,00E+00	0,00E+00	-2,14E+02
Water use*	m ³ eq.	9,39E+00	1,13E-01	6,16E-03	2,18E-02	0,00E+00	-1,40E+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 of Meteon® EDF grade 8mm							
Indicator	Unit	Tot.A1-A3	C1	C2	C3	C4	D
GWP-GHG**	kg CO2 eq.	2,62E+01	6,96E-01	1,03E-01	9,54E+00	0,00E+00	-1,48E+01

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

Results per for 1 m ² of Meteon® EDF grade 8mm							
Indicator	Unit	Tot.A1-A3	C1	C2	C3	C4	D
Climate change – GWP 100 (ISO 21930)	kg CO2 eq.	2,59E+01	6,87E-01	1,03E-01	9,54E+00	0,00E+00	-1,46E+01
Ozone depletion - ODP (ISO 21930)	kg CFC-11 eq.	6,32E-06	2,79E-08	2,50E-08	2,91E-08	0,00E+00	-1,36E-06
Eutrophication potential - EP (ISO 21930)	kg N eq	1,61E-01	2,58E-03	1,11E-04	4,67E-03	0,00E+00	-3,18E-02
Acidification potential - AP (ISO 21930)	kg SO2 eq	9,35E-02	2,98E-03	4,71E-04	3,68E-03	0,00E+00	-4,11E-02
Photochemical ozone formation potential – POCP (ISO 21930)	kg O3 eq.	1,26E+00	3,76E-02	1,13E-02	1,13E-01	0,00E+00	-5,43E-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 of Meteon® EDF grade 8mm							
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	2,65E+01	9,16E-01	1,33E-02	4,81E-02	0,00E+00	-1,12E+01
Use of renewable primary energy resources used as raw materials (PERM)	MJ	2,67E+02	1,42E-01	4,44E-03	2,38E-02	0,00E+00	-1,76E+00
Total use of renewable primary energy resources (PERT)	MJ	2,94E+02	1,06E+00	1,78E-02	7,19E-02	0,00E+00	-1,30E+01
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (PENRE)	MJ	3,81E+02	9,22E+00	1,60E+00	3,00E+00	0,00E+00	-2,14E+02
Use of non-renewable primary energy resources used as raw materials (PENRM)	MJ	1,23E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy re-sources (PENRT)	MJ	5,03E+02	9,22E+00	1,60E+00	3,00E+00	0,00E+00	-2,14E+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	2,99E-01	5,14E-03	2,01E-04	1,93E-03	0,00E+00	-6,35E-02

WASTE PRODUCTION

Results for 1 m ² of Meteon® EDF grade 8mm							
Indicator	Unit	Tot.A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	6,56E-02	3,38E-03	1,23E-04	7,14E-01	0,00E+00	-4,17E-02
Non-hazardous waste disposed	kg	4,70E+00	4,47E-02	1,49E-01	3,72E-01	0,00E+00	-5,98E-01
Radioactive waste disposed	kg	1,66E-03	2,86E-05	1,06E-05	6,03E-06	0,00E+00	-3,53E-04

OUTPUT FLOWS

Results for 1 m ² of Meteon® EDF grade 8mm							
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	2,64E-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	1,12E+01	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	4,21E+01	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	8,55E+01	0,00E+00	0,00E+00

ADDITIONAL INFORMATION

Reducing the carbon footprint is key for Trespa's overall sustainability policy and it is based on the 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 at <https://www.trespa.com/documentation>

Information on the product, its performance, testing and certification evidence can be found at www.trespa.info.



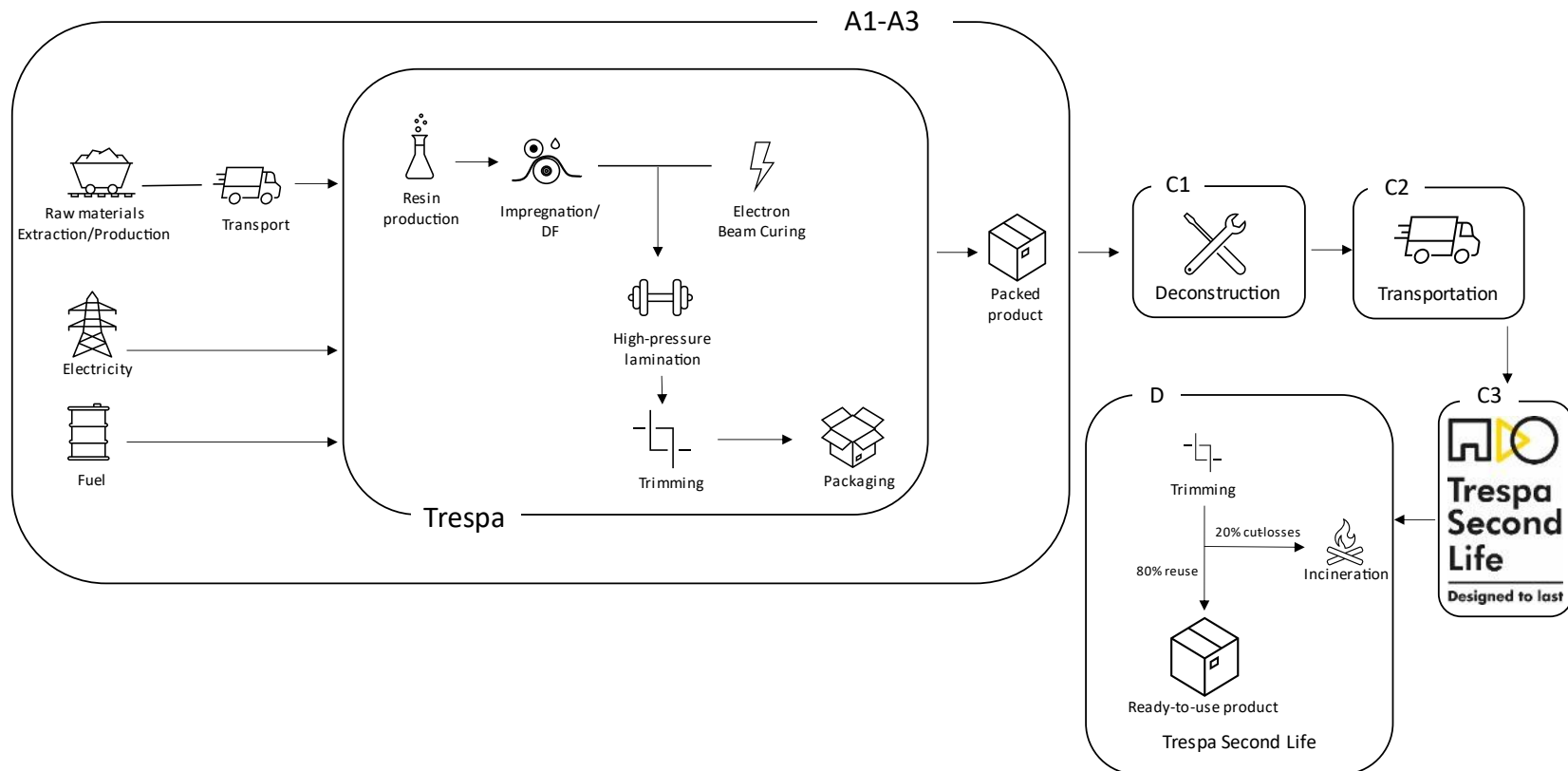
Trespa Second Life

Trespa Second Life is a take-back system that facilitates the reuse of HPLs after their use stage. The HPLs that are taken back after dismantling get trimmed and cleaned as preparation for a second life in another application that appreciates the properties of HPLs. Trespa Second Life is currently available in the Benelux, Germany and France.

The system boundaries are represented below.

The transport of HPLs at the end of life (module C2) assumed an average transport distance equal to 500km. It is assumed that 100% of the HPL at the end of life is headed for Trespa Second Life (module C3). Module C accounts for the biogenic emissions of the reusable HPL, to balance out the carbon uptake in module A1-A3 as prescribed by the EN15804:2012+A2:2019. Loads and benefits from the reuse of HPL are declared (module D). It accounts for trimming of the material, incineration of cutting-losses (20% of the HPL) and avoided production of new HPL. The impact of cleaning is assumed to be negligible.

Please see in the table below the impact reduction on Climate Change indicators.



POTENTIAL ENVIRONMENTAL IMPACT – MANDATORY INDICATORS ACCORDING TO EN 15804

End-of-life Scenario	Results for 1 m ² of Meteon® EDF grade 8mm							
Trespa Second Life	Indicator	Unit	Tot.A1-A3	C1	C2	C3	C4	D
	Climate change – total	kg CO ₂ eq.	1,45E+01	7,09E-01	5,20E-01	1,20E+01	0,00E+00	-1,98E+01
	Climate change - fossil	kg CO ₂ eq.	2,65E+01	7,08E-01	5,20E-01	0,00E+00	0,00E+00	-1,98E+01
	Climate change – biogenic	kg CO ₂ eq.	-1,20E+01	0,00E+00	0,00E+00	1,20E+01	0,00E+00	0,00E+00
	Climate change – land use and land use change	kg CO ₂ eq.	4,36E-02	1,30E-03	1,96E-04	0,00E+00	0,00E+00	-3,10E-02

End-of-life Scenario	Results for 1 m ² of Meteon® EDF grade 8mm							
Incineration	Indicator	Unit	Tot.A1-A3	C1	C2	C3	C4	D
	Climate change – total	kg CO ₂ eq.	1,45E+01	7,09E-01	1,04E-01	2,16E+01	0,00E+00	-1,51E+01
	Climate change - fossil	kg CO ₂ eq.	2,65E+01	7,08E-01	1,04E-01	9,55E+00	0,00E+00	-1,51E+01
	Climate change – biogenic	kg CO ₂ eq.	-1,20E+01	0,00E+00	0,00E+00	1,20E+01	0,00E+00	0,00E+00
	Climate change – land use and land use change	kg CO ₂ eq.	4,36E-02	1,30E-03	3,91E-05	9,66E-05	0,00E+00	-1,61E-02

	Trespa Second Life	Incineration
Climate Change – total A1-A3 + C1-C4	27,7 kg CO ₂ eq.	36,8 kg CO ₂ eq.
Impact Reduction	- 25%	-

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 1.2.4.
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: Irmak Akal, Andrea Scandroglio, Nemho
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006 via: ☒ EPD verification by EPD Process Certification* Internal auditor: Sara Corrado, 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: <i>Accredia, certificate n.006H</i> *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: ☐ Yes ☒ 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

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