



COMPACT PANEL

ENVIRONMENTAL PRODUCT DECLARATION

accordance with ISO 14025 and EN 15804:2012+A2:2019

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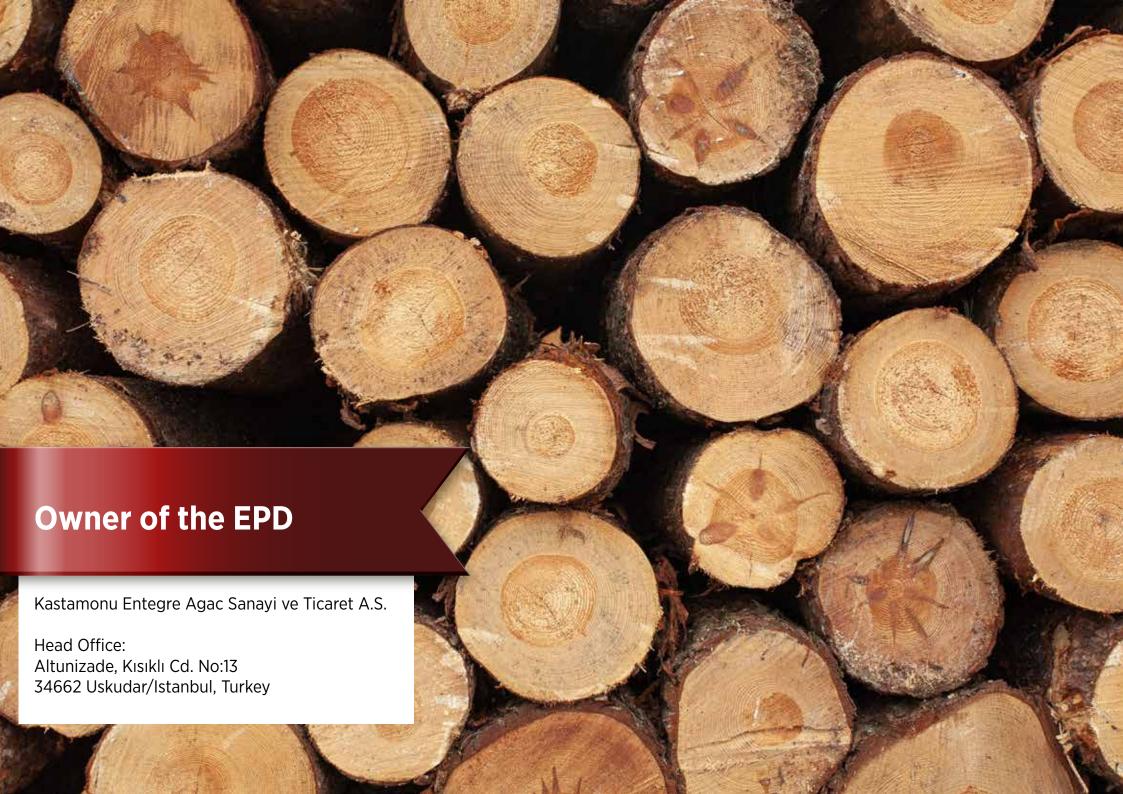
An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

The EPD owner has the sole ownership. liability. and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804.











Program Information

Programme

EPD Turkey, managed and run by:

SÜRATAM A.Ş., www.suratam.org Nef 09 B Blok No:7/15 34415 Kağıthane/Istanbul, Turkey

> www.epdturkey.org info@epdturkey.org

The International EPD® System

EPD International AB Box 210 60 SE-100 31 Stockholm, Sweden

www.environdec.com info@environdec.com

PCR 2019:14 Construction products, version 1.3.3., Construction EN 15804:2012+A2:2019/AC:2021 Sustainability of Construction Works, c-PCR-006 Wood and wood-based products for use in construction (EN 16485)

Independent third-party verification of the declaration and data, according to ISO 14025:2006:

EPD process certification

FPD verification X

Third party verifier: prof. Ing. Vladimír Kočí, Ph.D., MBA

Approved by: The International EPD System LCA Accountability: Metsims Sustainability Consulting

Procedure for follow-up of data during EPD validity involves third party verifier:

Yes No X

EPDs within the same product category but registered in different EPD programmes 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.



About Company

Maintaining its uninterrupted production for half a century in the wood-based panel industry, Kastamonu Entegre is a global-scale company engaged in production in 6 countries, with investments in Romania, Bulgaria, Bosnia and Herzegovina, Russia, Italy and Turkey. In the USA, it has a company that carries out wood chip supply and logistics processes.

Kastamonu Entegre has become the world's sixth largest company in the wood-based panel industry with its overseas investments extending more than 20 years, and has been among the top four manufacturers in Europe. It is one of the four largest manufacturers in the world with each of its main product groups; namely MDF, chipboard, laminate flooring, and door skin. It undertakes 6% of the world laminate flooring production alone. Not only the Turkey's industry leader with its 30% market share, Kastamonu Entegre, at the same time is by far the leader of the industry with its imports each year to 100 countries in six continents extending from China to America and Australia to Canada.

With its turnover of 1.3 billion dollars and its strength, knowledge and experience in production, it provides employment to more than 6 thousand people in its domestic and foreign production facilities as well as its offices. In its production facilities with a total of 6 million m³/year wood-based panel production capacity, where it caters the requirements of furniture, decoration and construction industries with its MDF and particle board, laminate flooring, worktop and door skin products, it produces a volume that contributes to the formation of living spaces of 4 500 homes

every day. Proud bearer of "The Biggest Turkish Investor of Italy" title, Kastamonu Entegre also happens to be the largest MDF producer and exporter of Russia.

Responding to the demands of its customers, Kastamonu Entegre can produce FSC, CARB2 / EPA Certified products and at E1, E0.5 (1/2), E0, F4Start quality by obtaining wood raw materials from 100% sustainable and renewable sources. In addition, E1 quality production is carried out in all its facilities. "Floorpan" and "Artfloor" are the first Turkish laminate flooring brands that have "Blue Angel" certificate. which shows that environmentally friendly materials are used in production and that the products do not contain any hazardous substances for human health. Acting with the mission of preserving natural balance and contributing to the society, the company is one of the three companies that prepared the sustainability report in the industry. It carries out studies on product and process development, efficiency increase, efficient resource utilization and advanced material technologies in its R&D center in Istanbul, which it has set up to develop technologies of the future.

The company has certifications such as ISO 9001 Quality Management, ISO 45001 Occupational Health and Safety Management, ISO 14001 Environmental Management, ISO 50001 Energy Management, and also the Turquality Certificate. Production is made in conformity with the TSE and European Norms (EN).



Compact Panel is a flagship ≥1,000 kg/m³ high-density compact panel that pioneers the wood panel industry and takes the conventional MDF a step further.

The homogeneous black fiber content of Compact Pane lenables easy application in woodworking machines including routers and CNCs.

Compact Panel is highly resistant to physical and mechanical elements

It is manufactured at EO (Zero Emission) standards. Compact Panel production uses sustainable forest resources.

It is suitable for decorative use in crowded shared spaces, such as schools, hospitals, cubicles, and shopping malls.

The average density of Kastamonu Entegre COMPACTLAM with a thickness of 12 mm is approx. 1000 kg/m³

The UN CPC code of the product is 3143.

Wood chips type can be varied and mainly sourced from pine, beech, and oak trees.



Material Composition, 1 m³

Product Component	Weight, %	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Wood Chips	80-85	0	0,494
Resin	10-20	0	0
Other Chemicals	0-5	0	0

Technical Specifications

Technical Data	Unit	Value	Test Standard	
Density	kg/m³	spesific to plant	EN 323	
Internal Bond	N/mm²	≥1,80	EN 319	
Option 1-Internal Bond After Wear Resistance Test	N/mm²	0,25	EN 319	
Option 1-Internal Bond After Wear Boiling Test	N/mm²	0,15	EN 319	
Bending Strength	N/mm²	≥50	EN 310	
Modules of Elasticity	N/mm²	≥5000	EN 310	
Swelling 24 h	%	≤ 5	EN 317	
Option 1-Swelling 24 h After Wear Resistance Test	%	≤ 16	EN 317	
Sand Content	%	< 0,05	EN 3340	
Moisture Content	%	4-11	EN 322	
5 111 2 2 1	mg/100 gr	≤ 8 (E1)	EN 12460-5	
Formaldehyde Release	mg/m³ air	≤ 0,062 (E0) / ≤ 0,124 (E1)	EN 460-1	

As Kastamonu Entegre, we adopt an ethical, transparent, equitable and accountable management approach in the awareness of our environmental, economic and social contributions and impacts.

We engage in activities that strengthen our corporate structure, and we take sustainable development-based growth as the basis, in line with our target of becoming a global brand.

In determining our strategies, we always consider the expectations and opinions of our stakeholders and create a strong bond by ensuring their satisfaction. We conduct practices with an employee-oriented perspective that takes into account their expectations and needs, thereby creating an efficient and peaceful working environment.

Besides ensuring the health and safety of all our employees, we also contribute to their training and development activities.

Pursuant to our responsible purchasing approach, we perform our raw material supply processes based on sustainable forest management. We support initiatives related to this model and contribute positively to their development.

Our innovation and R&D processes enable us to develop and manufacture products that create high quality, environmentally friendly and healthy living spaces using state-of-the-art technology.

We respect human rights and encourage equal opportunity.

We pay regard to energy and water efficiency; we implement renewable and innovative energy projects accordingly.

We contribute to the welfare of the local community by creating employment and economic value in our geographic locations.

KASTAMONU ENTEGRE Sustainability Policy



Declared Unit 1 m³ of Compact Panel

Time Representativeness 2022

presentativeness 20

Database(s) and LCA Software Used

Ecoinvent 3.9.1, SimaPro 9.5

The inventory for the LCA study is based on the 2022 production figures for flooring products by Kastamonu Entegre production plants in Kastamonu.

This EPD's system boundary is cradle to gate. The system boundary covers A1 - A3 product stages, A4-A5 services, C1 - C4 end of life and D stages.

		Product Constrcution Use Stage Stage									End of Life Stage				Benefits and Loads		
	Raw Material Supply	Transport	Manufacturing	Transport	Construction Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Deconstruction, demolition	Transport	Waste Processing	Disposal	Future reuse, recycling or energy recovery potentials
Module	A1	A2	А3	A4	A5	B1	B2	В3	B4	B5	В6	В7	C1	C2	C3	C4	D
Declared	Х	Х	Х	Х	Х	ND	ND	ND	ND	ND	ND	ND	Х	Х	Х	Х	Х
Geography	GLO	GLO	TR	-	-	-	-	-	-	-	-	-			GLO		
Spesific Data		>14%			•	•	•			•	•						
Variation- Products	0%																
Variation- Sites		0%															



System Boundary



A1: Raw Material Supply

Kastamonu Entegre's productions start from wood. The company supplies its raw materials necessary from suitable forests. Raw material supply includes raw material extraction/preparation and pre-treatment processes before production.



A2: Transportation

Transport is relevant for delivery of raw materials and other materials to the plant and the transport of materials within the plant. Transport of raw materials to production sites is taken as the weight average values for transport from raw materials supplier in 2022.



A3: Manufacturing

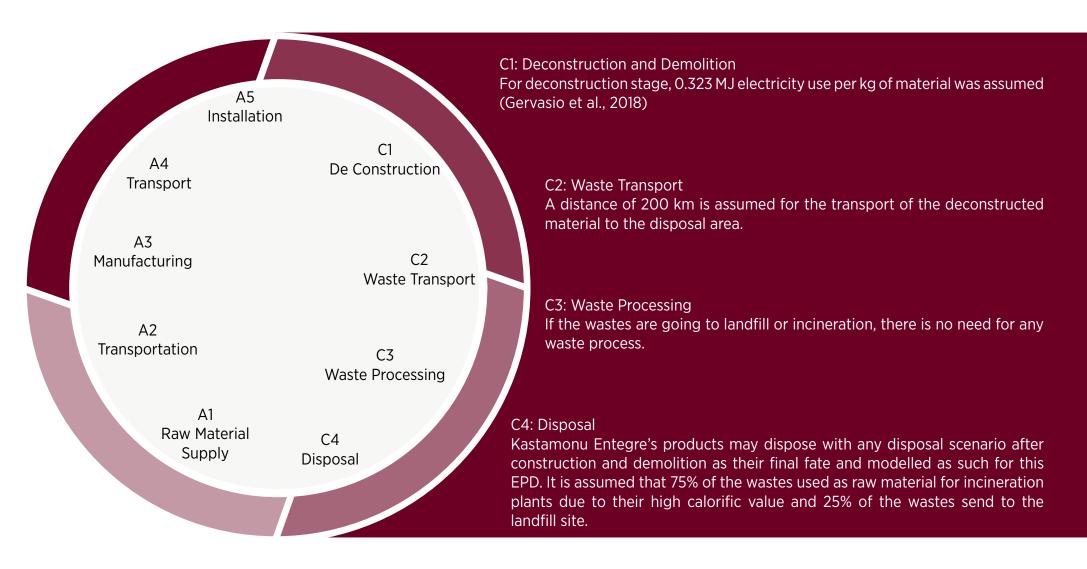
Kastamonu Entegre's manufacturing flows are given as below respectively. Some process can be vary according to production plant.

- 1 MDF and Impregnated paper
- 2 Chipping
- 3 Refining wood fibres
- 4 Gluing fibres
- 5 Drying fibres
- 6 Mat formation

- 7 Pressing
- 8 Cutting & trimming
- 9 Cooling
- 10 Sanding
- 11 Quality control
- 12 Storage

A4 Transport: Product transport from manufacturer to customer is considered in product material supply stage. The distances and routes are assumed as 500 km by truck.

A5 Installation: It is assumed that no additional materials are used during the installation phase.



D Stage (Benefits and Load)

For benefits and loads beyond, a calorific value of 18.6 MJ per kg of flooring products was assumed (Günther et al., 2012) to calculate the amount of avoided electricity production from heat. In this stage, the production efficiency of the plant which electricity generation from incineration is assumed as %20.



More Information

Production Plants and Allocations

Kastamonu Entegre has production facilitie for wood-based products in Türkiye. Raw material contents are modeled for reference product. Water consumption, energy consumption and raw material transportation were weighted according to 2022 production figures.

In addition, hazardous and non-hazardous waste amounts were also allocated from the 2022 total waste generation.

Packaging

No packaging product is used in this product.

Cut-Off Criteria

%1 cut-off applied. Data for elementary flows to and from the product system contributing to a minimum of 99% of the declared environmental impacts have been included.

REACH

The product contains formaldehyde which is a substance of very high concern (SVHC) and is subject to authorization under the REACH Regulation. For details, test results are provided in the additional information section and table of technical spesifications.

Electricity

The electricity source used for modelling at the manufacturing (A3) stage is taken from the Ecoinvent 3.9.1 dataset, representing the medium voltage impact for Türkiye. The use dataset has carbon impact of 0.578 kg CO_2 eq. / kWh

LCA Modelling, Calculation and Data Quality

The results of the LCA with the indicators as per EPD requirement are given in the LCA result tables. All energy calculations were obtained using Cumulative Energy Demand (LHV) methodology, while fresh water use is calculated with selected inventory flows in SimaPro according to the PCR.

There are no co-product allocations within the LCA study underlying this EPD.

The SimaPro 9.5 LCA software and the Ecoinvent 3.9.1 LCA database were used to calculate the environmental impacts. The regional energy datasets were used for all energy calculations.

Raw materials, energy and water consumption, waste and material and product transport data is collected from Kastamonu Entegre. All primary data collected from Kastamonu Entegre is for the period year of 2022.

Geographical Scope

The geographical scope of this EPD is global. The assumptions of the end of life (C modules) and benefit (D module) stages can be referred to as the global.



It is discouraging the use of the results of modules A1-A3 (A1-A5 for services) without considering the results of module C. 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.

				CORE E	NVIRONMENTAL	IMPACTS PER DE	CLARED UNIT					
Mandatory indi	cators	Unit	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D	
Global	Fossil	kg CO ₂ eq.	7,36E+02	5,19E+01	0,00E+00	0,00E+00	5,19E+01	2,08E+01	6,92E+00	2,99E+00	-5,42E+02	
	Biogenic	kg CO ₂ eq.	-1,50E+03	1,74E-02	0,00E+00	0,00E+00	1,99E-01	6,71E-03	1,13E+03	3,93E+02	-1,14E+00	
Varming Potential	Luluc	kg CO ₂ eq.	4,84E+01	2,44E-02	0,00E+00	0,00E+00	6,16E-01	9,77E-03	2,35E-03	2,26E-03	-1,13E+00	
	Total	kg CO ₂ eq.	-7,18E+02	5,20E+01	0,00E+00	0,00E+00	5,27E+01	2,08E+01	1,13E+03	3,96E+02	-5,45E+02	
DDP		kg CFC-11 eq.	17,4E-6	1,14E-6	000E+0	000E+0	348E-9	454E-9	340E-9	69,6E-9	-3,24E-6	
AP.		mol H+ eq.	4,36E+0	175E-3	000E+0	000E+0	371E-3	69,9E-3	231E-3	21,3E-3	-2,64E+0	
EP - Freshwate	r	kg P eq.	263E-3	3,69E-3	000E+0	000E+0	59,6E-3	1,48E-3	4,50E-3	592E-6	-245E-3	
EP - Marine		kg N eq.	931E-3	60,5E-3	000E+0	000E+0	62,2E-3	24,2E-3	116E-3	94,3E-3	-531E-3	
EP - Terrestrial		mol N eq.	9,6E+0	639E-3	000E+0	000E+0	559E-3	256E-3	1,25E+0	84,6E-3	-5,32E+0	
POCP		kg NMVOC	3,20E+0	272E-3	000E+0	000E+0	163E-3	109E-3	331E-3	34,3E-3	-1,57E+0	
ADPE		kg Sb eq.	5,88E-3	140E-6	000E+0	000E+0	55,7E-6	56,0E-6	16,6E-6	6,23E-6	-187E-6	
*ADPF	- 0	MJ	10,9E+3	759E+0	000E+0	000E+0	542E+0	304E+0	69,3E+0	64,2E+0	-7,06E+3	
*WDP		m³ depriv.	736E+0	3,63E+0	000E+0	000E+0	29,0E+0	1,45E+0	1,92E+0	2,70E+0	-90,9E+0	
_egend						um of A1, A2, and ne System Bounda		t to Site, B1-B7: U	lse Stage, C1: De-0	Construction, C2:	Waste Transpo	
Acronyms		C3: Waste Processing, C4: Disposal, D: Benefits and Loads Beyond the System Boundary. GWP-total: Climate change. GWP-fossil: Climate change- fossil. GWP-biogenic: Climate change - biogenic. GWP-luluc: Climate change - land use and transformation. ODP Ozone layer depletion. AP: Acidification terrestrial and freshwater. EP-freshwater: Eutrophication freshwater. EPmarine: Eutrophication marine. EP-terrestrial: Eutrophication terrestrial. POCP: Photochemical oxidation. ADPE: Abiotic depletion - elements. ADPF: Abiotic depletion - fossil resources. WDP: Water scarcity. PM: Respiratory inorganics particulate matter. IR: Ionising radiation. HTP-c: Cancer human health effects. HTP-nc: Non-cancer human health effects. SQP: Land use related impacts. soil quality										
Disclaimer 1		The results of thi	s environmental i	mpact indicator s	shall be used with	care as the uncert	cainties on these r	results are high or	as there is limited	d experienced wit	h the indicator.	

			ADDITION	NAL MANDATORY IN	MPACT CATEGORY IN	DICATORS PER DECL	ARED UNIT					
Parameter	Unit	A1-A3	A4	A5	B1-B7	C1	C2	С3	C4	D		
GWP - GHG	kg CO ₂ eq.	787E+0	52,1E+0	000E+0	000E+0	52,7E+0	20,8E+0	7,05E+0	19,0E+0	-546E+0		
RESOURCE USE INDICATORS PER DECLARED UNIT												
Parameter	Unit	A1-A3	A4	A 5	B1-B7	C1	C2	C3	C4	D		
PERE	MJ	8,47E+3	11,1E+O	000E+0	000E+0	180E+0	4,46E+0	759E+0	2,53E+3	-859E+0		
PERM	MJ	10,1E+3	000E+0	000E+0	000E+0	000E+0	000E+0	-7,59E+3	-2,53E+3	000E+0		
PERT	MJ	18,6E+3	11,1E+O	000E+0	000E+0	180E+0	4,46E+0	3,22E+0	1,19E+0	-859E+0		
PENRE	MJ	8,68E+3	759E+0	000E+0	000E+0	542E+0	304E+0	165E+0	549E+0	-7,06E+3		
PENRM	WJ	2,20E+3	000E+0	000E+0	000E+0	000E+0	000E+0	-1,65E+3	-549E+0	000E+0		
PENRT	MJ	10,9E+3	759E+0	000E+0	000E+0	542E+0	304E+0	69,3E+0	64,2E+0	-7,06E+3		
SM	kg	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0		
RSF	MJ	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0		
NRSF	MJ	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0		
FW	m³	5,14E+0	151E-3	000E+0	000E+0	219E-3	60,4E-3	809E-3	69,9E-3	-2,26E+0		

Legend

PERE: Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM: Use of renewable primary energy resources used as raw materials; PERM: Use of renewable primary energy resources; PENRE: Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM: Use of non-renewable primary energy resources used as raw materials; PENRT: Total use of non-renewable primary energy re-sources; SM: Use of secondary material; RSF: Use of renewable secondary fuels; NRSF: Use of non-renewable secondary fuels; FW: Use of net fresh water

	WASTE & OUTPUT INDICATORS											
Parameter	Unit	A1-A3	A4	A5	B1-B7	C1	C2	С3	C4	D		
HWD	kg	555E-3	21,2E-3	000E+0	000E+0	38,9E-3	8,46E-3	3,15E+0	1,61E-3	-204E-3		
NHWD	kg	174E+0	66,6E+0	000E+0	000E+0	3,16E+0	26,6E+0	5,01E+0	251E+0	-31,6E+0		
RWD	kg	4,08E-3	232E-6	000E+0	000E+0	101E-6	92,6E-6	49,0E-6	21,4E-6	-19,1E-3		
CRU	kg	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0		
MFR	kg	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0		
MER	kg	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	750E+0	000E+0	000E+0		
EE (Electrical)	MJ	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	7,59E+3	000E+0	000E+0		
EE (Thermal)	MJ	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0	000E+0		
				1			1					

Legend

HWD: Hazardous waste disposed, NHWD: Non-hazardous waste disposed, RWD: Radioactive waste disposed, CRU: Components for reuse, MFR: Material for recycling, MER: Materials for energy recovery, EE (Electrical): Exported energy electrical, EE (Thermal): Exported energy, Thermal.



Additional Informations

For more information about Kastamonu Entegre and its products



Scan or Click!

VOC Emissions

Testing Laboratory: RISE Research Institutes of Sweden AB
Test Reference: For updated test reference ID, it is recommended to contact the relevant sales executive.

Emission measurements according to SS-EN ISO 16000-9:2006 (Indoor air – Part 9: Determination of the emission of volatile organic compounds from building products and furnishing – Emission test chamber method) after 28 days regarding volatile organic compounds (VOC and VVOC/SVOC), carcinogenic substances (VOC-substances, EU Regulation No 1272/2008 Annex VI, cat 1A and 1B) formaldehyde and acetaldehyde (ISO 16000-3:2011). Evaluation according to EN 16516:2017 (EU-LCI values).





/ISO 9001/ Quality management systems - Requirements

/ISO 14001/ Enviroment Management System- Requirements

/ISO 14020:2000/ Environmental labels and declarations — General principles

/GPI / General Programme Instructions of the International EPD® System. Version 4.0. EN ISO 9001/ Quality Management Systems - Requirements EN ISO 14001/ Environmental Management Systems - Requirements

/EN 15804:2012+A2:2019 / Sustainability of construction works - Environmental Product Declarations - Core rules for the product category of construction products

/ISO 14025 / DIN EN ISO 14025:2009-11: Environmental labels and declarations - Type III environmental declarations - Principles and procedures

/PCR for Construction Products and Construction Services / Prepared by IVL Swedish Environmental Research Institute, Swedish environmental Protection Agency, SP Trä, Swedish Wood Preservation Institute, Swedisol, SCDA, Svenskt Limträ AB, SSAB, The International EPD System, 2019:14 Version 1.3.3

/ISO 14040/44 / DIN EN ISO 14040: 2006-10 / Environmental management - Life cycle assessment - Principles and framework (ISO14040:2006) and Requirements and guidelines (ISO 14044:2006

/The International EPD® System/ The International EPD® System is a programme for type III environmental declarations, maintaining a system to verify and register EPD®s as well as keeping a library of EPD®s and PCRs in accordance with ISO 14025. www.environdec. com

/Ecoinvent / Ecoinvent Centre, www.ecoinvent.org

/SimaPro/ SimaPro LCA Software, Pré Consultants, the Netherlands, www.pre-sustainability.com



Contact Informations

Programme

EPD registered through fully aligned regional programme:

EPD Turkey: www.epdturkey.org



ENVIRONMENTAL PRODUCT DECLARATIONS

The International EPD* System www.environdec.com



ENVIRONMENTAL PRODUCT DECLARATIONS

Programme Operator

EPD Turkey SÜRATAM A.Ş.

Nef 09 B Blok No:7/15, 34415 Kağıthane / Istanbul, TURKEY

> www.epdturkey.org info@epdturkey.org

EPD International AB Box 210 60

SE-100 31 Stockholm, Sweden

www.environdec.com info@environdec.com

Owner of The Declaration

Kastamonu Entegre Agac Sanayi ve Ticaret A.S.

Altunizade Mh. Kısıklı Cd.No:13 34662 Uskudar/Istanbul, Turkey



Contact: Cemalettin İlhan Quality Manager Phone: +90 216 554 30 00

> www.keas.com.tr info@keas.com.tr

LCA Practitioner



www.metsims.com info@metsims.com

Turkey:
Nef 09 B Blok NO:7/46-47
34415 Kagıthane/Istanbul, TÜRKIYE
+90 212 281 13 33

United Kingdom: 4 Clear Water Place Oxford OX2 7NL, UK 0 800 722 0185



Kastamonu Entegre Agac Sanayi ve Ticaret A.S.



- **f** KastamonuEntegre.A.S
- KeasKurumsal
- in KastamonuEntegre A.S.
- kastamonuentegre