ENVIRONMENTAL PRODUCT DECLARATION

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

Melamine Faced MDF

from AGT Ağaç Sanayi ve Tic. A.Ş.

EPD Registration Number: S-P-01913	**Publication Date:** 04.05.2020	**Revision Date:** 01.12.2021
Geographical Scope: Global	**Validity Date:** 03.05.2025	**Revision No:** V1.1

TURKEY EPD®

ENVIRONMENTAL PRODUCT DECLARATIONS

AGT

Melamine Faced MDF

PROGRAMME INFORMATION

Programme	EPD Turkey, a fully aligned regional programme SÜRATAM – Turkish Centre for Sustainable Production Research & Design Nef 09 B Blok No:7/15 34415 Kagıthane/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

Product Category Rules (PCR):
2019:14 Version 1.0, 2019-12-20, Construction Products and CPC 54 Construction Services and 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 EPD verification X

Third party verifier: Vladimír Kocí, PhD
Approved by: The International EPD® System

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

YES NO X

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. For further information about comparability, see EN 15804 and ISO 14025.

Revisions:
V1.1. : LCA Method change, Database and Software update.

COMPANY INFORMATION

AGT; (Technology That Develops the Wood) which started its activities in Antalya in 1984 with the dream of processing and developing the wood specifically for individuals and institutions with developing technology, operates today as one of the world's leading companies in the furniture components industry. In its modern production facilities established in Antalya Organized Industrial Zone on a total area of 450 thousand square meters; AGT provides service to the furniture and decoration sectors with MDF, MF MDF, Panel, Profile production and it also provides service to the construction sector with flooring and skirting board production.

Ranked in Turkey's Top 500 Industrial Enterprises, our company has obtained approximately 50% of the turnover of over 1 billion TL from exports in 2019. With our employees over 1000 people, we can produce all the wooden materials required for the interior within our own structure.

Since the first day we were founded, we have not compromised our ethical value and quality principles. For all our customers, employees and business partners without considering them on small or big scale; quality, trend and development is still our main target. Today, we add color, elegance and sustainable vitality to the living space of millions of people who value quality and aesthetics with our more than 1000 sales points on 5 continents. In addition to its widespread dealer channel within Turkey; AGT, which has sales points on 5 continents, exports approximately 90 countries, primarily to Canada, Eastern Europe-Balkans, Mena and Russia.

Quality is a target that is constantly being renewed and developed according to the conditions, not reached. With a reliable, organized and institutionalized business approach in the furniture components industry; our quality policy is to increase our production quality by closely following the developing technology, to fully meet the expectations and wishes of our customers, to increase the efficiency of the quality management system, to always be a preferred brand in national and international markets by ensuring the continuity of our place in the sector.

Today, we will continue to be the choice of those who care about quality, aesthetics and elegance with our determination to be a leading player that guides the market not only in our country but also in the global arena along with our vision of "Technology That Develops the Wood", thinking long-term and strategically, prioritizing the compliance with international standards.

The company has ISO 9001 Quality Management System, ISO 14001 Environment Management System, ISO 45001 Occupational Health & Safety Management System, ISO 10002 Customer Satisfaction Management System, ISO 27001 Information Security Management System, ISO 50001 Energy Management System Certification, PEFC (Programme for the Endorsement of Forest Certification), FSC(Forest Stewardship Council) and TSCA Certification.

PRODUCT INFORMATION

AGT **Melamine Faced MDF**

For detailed product information:

Scan or Click !

Medium-density fibreboard (MDF) is a wood product valued for its fabricability which allows precision joinery work and finishing. Medium Density Fibreboard is widely used to manufacture furniture. Medium Density Fibreboard can also be used as a building material. Medium Density Fibreboard panels are composed of wood, resin and wax.

AGT Medium Density Fibreboard (Raw) is a wood product made from pine. Its applications include furniture production and construction.

Melamine Faced MDF is obtained by coating the decorative design on the MDF board, which is made by firing melamine resin and glue with technological impregnation machines.

UN CPC code: CPC 31441

Typical Material Composition

Material	Composition
MDF	%98-%99
Impregnated Paper and Auxiliary Materials	%0-2

Features of AGT MDF :

- 70 decor alternatives
- Various surface alternatives
- Trendy modern decors
- Perfect harmony of rich patterns with surface structure
- High bending resistance
- High expansion resistance
- Strong frame
- High screw pull and hold strength

Available Dimensions

	2100 mm X 2800 mm				1830 mm X 3660 mm	
	One Face*		Double Face		Double Face	
6 mm	x	x	x	x		
8 mm	x	x	x	x		
10 mm			x	x		
16 mm			x	x	x	x
18 mm	x	x	x	x	x	x
22 mm			x	x		
25 mm			x	x		
30 mm			x	x		
40 mm			x	x		

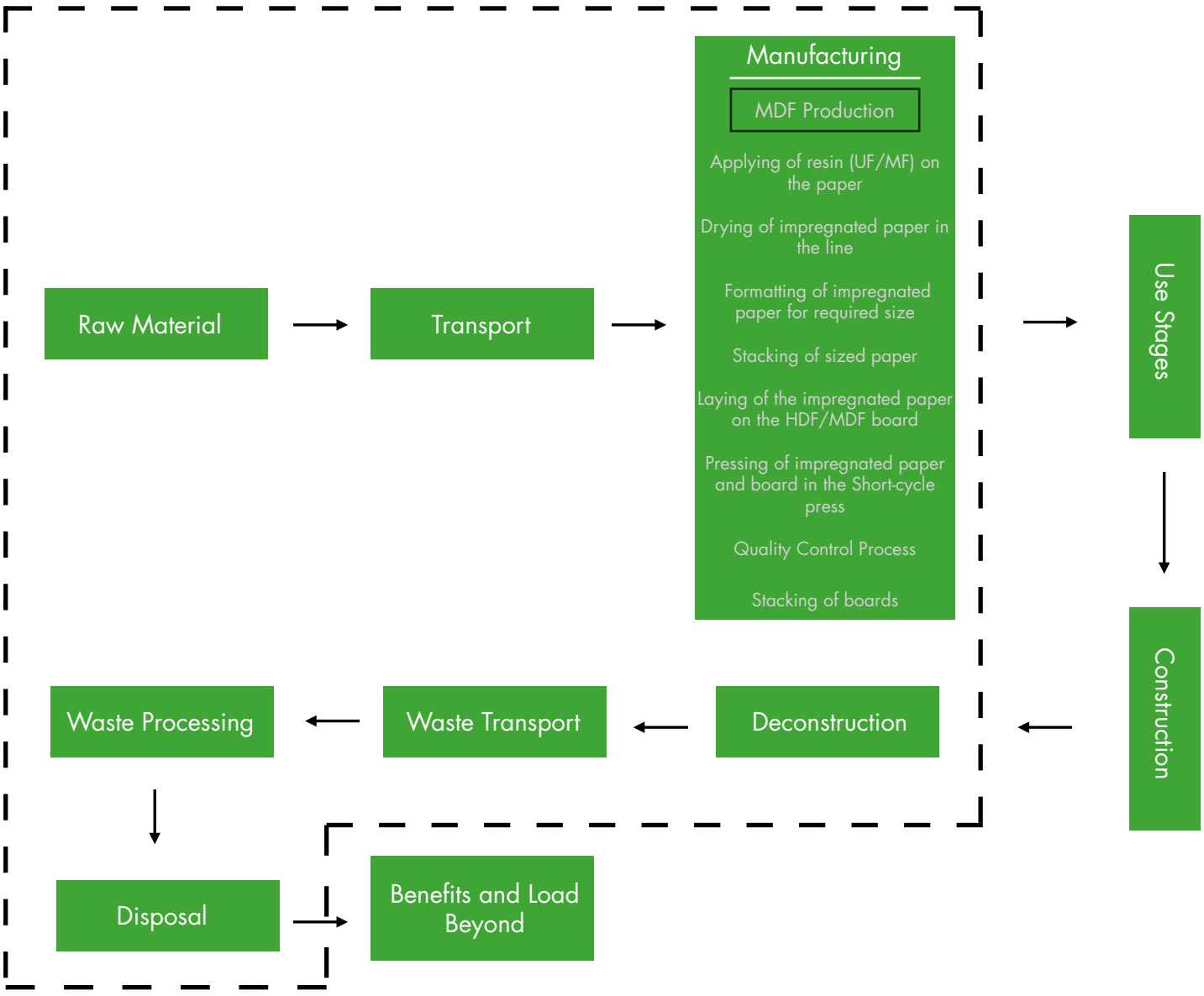
Technical Spesifications

AGT MDFLAM TECHNICAL SPECIFICATIONS			
SPECIFICATION	UNIT	TEST STANDARD	TEST RESULT
DENSİTY	Kg/m^3 ±%7	EN 323	720
THİCKNESS	mm	EN 324-1	18
TOLERANCES ON THİCKNESS	mm	EN 324-1 EN 622-1	±0.2
TOLERANCES ON LENGTH AND WİDTH	mm/m	EN 324-2 EN 622-1	± 2mm/m, maximum ±5 mm
WATER İNTAKE (MAXİMUM)	%	EN 317	20
SWELLİNG İN THİCKNESS 24 H (MAXİMUM)	%	EN 317	1.8
SCREW HOLDING (SURFACE) (MIN.)	N	EN 320	1000
SCREW HOLDING (EDGE) (MIN.)	N	EN 320	900
RESİSTANCE TO ABRASİON	Cycle	TS EN 438-2	Solid Colour: 250 Patem Design: 75
RESİSTANCE TO SCRATCHİNG	N	TS EN 438-2	HGS: 3.5 N NTR:5 N
RESİSTANCE TO DRY HEAT		TS EN 14323	5 (no visible change)
RESİSTANCE TO STEAM		TS EN 14323	5 (no visible change)
RESİSTANCE TO CRACKING		TS EN 14323	5 (no visible change)
RESİSTANCE TO STAİN		TS EN 14323	5 (no visible change)
POROSİTY(SURFACE)		AGT surface control standard	5 (no defect)
RELEASE OF FORMALDEHYDE	mg/m^3	TS EN 717-1	0.016- E0 Class
COLOUR MEASUREMENT	ΔE	TS 12552	ΔE≤1

LCA INFORMATION

Declared Unit	1 m^2 of Melamine Faced MDF with an average weight 26.6 kg/m^2
Time Representativeness	2019
Reference Service Life (RSL)	RSL is 10 years provided that it complies with the conditions of use. RSL depends on application area and usage.
Database(s) and LCA Software used	Ecoinvent 3.6 and SimaPro 9.1
Description of system boundaries	Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D)

System Diagram



DESCRIPTION OF SYSTEM BOUNDARY

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw Materials Supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction	Transport	Waste processing	Disposal	Reuse-Recycling-Recovery Potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

The system boundary covers the production of raw materials, all relevant transport down to factory gate, manufacturing by AGT, deconstruction of the product from its construction site, transport of the deconstructed material to waste processing facility with an assumed distance of 200 km, waste processing and disposal.

Waste processing, while included in the system boundary, doesn't contribute to the environmental impacts due to the assumption that the product goes directly to landfill in disposal stage without any processing.

For benefits and loads beyond, a calorific value of 18.6 MJ per kg of MDF was assumed (Günther et al., 2012) to calculate the amount of avoided natural gas use for heating. AGT produces wooden packaging materials from its own process waste. Due to this, packaging materials were not included separately to avoid double counting.

For deconstruction stage, 0.323 MJ electricity use per kg of material was assumed (Gervasio et al., 2018). For environmental impact assessment, EF Method (adapted) which is available in SimaPro 9 was used.

Energy related indicators were calculated from Cumulative Energy Demand (LHV) and resource indicators were calculated using inventory flows. There are no co-product allocations within the LCA study underlying this EPD.

Hazardous and non-hazardous waste amounts were allocated using yearly production amounts of all AGT products. Primary data obtained from AGT is valid for year 2019. Ecoinvent 3.5 was used as secondary database.

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.

LCA RESULTS

Environmentals Impacts for 1 m² MF - MDF by AGT							
Impact Category	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP - Fossil	kg CO_2 eq	11.7	0.655	0.223	0	0.102	-8.54
GWP - Biogenic	kg CO_2 eq	-20.0	0.006	130E-6	0	1.25	-0.002
GWP - Luluc	kg CO_2 eq	0.037	0.006	69.6E-6	0	25.9E-6	-376E-6
GWP - Total	kg CO_2 eq	-8.26	0.667	0.223	0	1.35	-8.54
ODP	kg CFC-11 eq	2.00E-6	18.5E-9	52.8E-9	0	38.6E-9	-851E-9
AP	mol H+ eq	0.076	0.004	0.001	0	0.001	-0.013
*EP - Freshwater	kg P eq	0.004	0.001	18.8E-6	0	21.1E-6	-135E-6
EP - Freshwater	kg PO_4 eq	0.012	0.002	57.6E-6	0	64.7E-6	-414E-6
EP - Marine	kg N eq	0.010	0.001	164E-6	0	0.005	-0.003
EP - Terrestrial	mol N eq	0.196	0.006	0.002	0	0.004	-0.034
POCP	kg NMVOC	0.030	0.002	0.001	0	0.001	-0.013
ADPE	kg Sb eq	164E-6	1.58E-6	3.91E-6	0	924E-9	-4.89E-6
ADPF	MJ	223	7.20	3.558	0	2.82	-131
WDP	m^3 depriv.	18.8	0.306	0.013	0	0.013	-0.288
PM	disease inc.	1.13E-6	18.4E-9	19.3E-9	0	19.4E-9	-37.7E-9
IR	kBq U-235 eq	0.674	0.010	0.017	0	0.018	-0.025
ETP - FW	CTUe	156	6.30	3.05	0	2.30	-36.0
HTTP - C	CTUh	4.66E-9	116E-12	69.3E-12	0	67.4E-12	-720E-12
HTTP - NC	CTUh	128E-9	5.58E-9	3.14E-9	0	2.77E-9	-24.4E-9
SQP	Pt	1503	0.415	4.015	0	7.23	-5.48
Acronyms	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, EP-marine: 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, ETP-fw: Ecotoxicity freshwater, HTP-c: Cancer human health effects, HTP-nc: Non-cancer human health effects, SQP: Land use.						
Legend	A1: Raw Material Supply, A2: Transport, A3: Manufacturing, A1-A3: Sum of A1, A2, and A3. A4: Transport to Site, A5: Installation, C1: De-Construction, C2: Waste Transport, C3: Waste Processing, C4: Disposal, D: Benefits and Loads Beyond the System Boundary.						
* Eutrophication-freshwater is also provided in P as additional information.							

Resource use for 1 m² MF - MDF by AGT							
Resource	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	239	1.72	0.038	0	0.111	-0.238
PERM	MJ	0	0	0	0	0	0
PERT	MJ	239	1.72	0.038	0	0.111	-0.238
PENRE	MJ	223	7.20	3.56	0	2.82	-131
PENRM	MJ	0	0	0	0	0	0
PENRT	MJ	223	7.20	3.56	0	2.82	-131
SM	kg	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	-231
NRSF	MJ	0	0	0	0	0	0
FW	m^3	0.040	0.003	0.001	0	0.003	-0.025
Acronyms	PERE: Use of renewable primary energy excluding resources used as raw materials, PERM: Use of renewable primary energy resources used as raw materials, PERT: Total use of renewable primary energy, PENRE: Use of non-renewable primary energy excluding 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, SM: Secondary material, RSF: Renewable secondary fuels, NRSF: Non-renewable secondary fuels, FW: Net use of fresh water.						

Waste and output flows for 1 m² MF - MDF by AGT							
Flow	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	kg	0.015	0	0	0	0	0
NHWD	kg	3.75	0	0	0	0	0
RWD	kg	0	0	0	0	0	0
CRU	kg	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0
MER	kg	0	0	0	0	0	-26.6
EE (Electrical)	MJ	0	0	0	0	0	0
EE (Thermal)	MJ	0	0	0	0	0	-495
Acronyms	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						
Legend	A1: Raw Material Supply, A2: Transport, A3: Manufacturing, A1-A3: Sum of A1, A2, and A3, C1: De-Construction, C2: Waste Transport, C3: Waste Processing, C4: Disposal, D: Benefits and Loads Beyond the System Boundary.						

Information on Biogenic Carbon Content

Results per functional or declared unit		
Biogenic Carbon Content	**Unit**	**QUANTITY**
Biogenic carbon content in product	kg C	2.25

Note: 1 kg biogenic carbon is equivalent to 44/12 kg of CO_2.

ADDITIONAL INFORMATION

Product | Catalogue

Please follow the product catalogue for more information, product details and images.

Scan or Click !

Product | Standarts

MDF LAM products manufactured by AGT follows the below standards:

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- TS EN 14322
- TS EN ISO 12460-3
- TS-EN-717-1

VOC Emissions | Indoor Air Quality

Volatile Organic Compounds (VOC) tests and evidence have been carried out on the product, according to ISO 16000 parts.

Report Number: TURT200046258

Formaldehyde | Indoor Air Quality

MF - MDF: 0.016 mg/m^3, (TS-EN-717-1)
Class : E0

REFERENCES

/GPI/ General Programme Instructions of the International EPD® System. Version 3.0

/ISO 9001/ Quality management systems – Requirements

/ISO 14001/ Enviroment Management System- Requirements

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

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

/ISO 14025/ ISO 14025:2006 Preview Environmental labels and declarations – Type III environmental declarations – Principles and procedures

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

/ISO 45001/ Occupational Health & Safety Management System Certification - Requirements

/ Gervasio et al., 2018 /Model for Life Cycle Assessment of buildings LCA, JRC Technical Reports, 2018.

/ Günther et al. ,2012 /Calorific value of selected wood species and wood products, Springer.

/PCR for Construction Products and CPC 54 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 2.0, DATE 2019-12-20

/Ecoinvent/ Ecoinvent Centre, www.ecoinvent.org

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

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