ENVIRONMENTAL PRODUCT DECLARATION

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

HATKO HYBRIDGRASS BIO

PROGRAMME
The International EPD® System

PROGRAMME OPERATOR
EPD Turkey

GEOGRAPHICAL SCOPE
Global

EPD REGISTRATION NUMBER
S-P-06837

PUBLICATION DATE
2023/04/21

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2028/04/20

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

Programme Information

Programme Information

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Information about verification and reference PCR:

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)

Product category rules (PCR)
PCR 2019:14 Construction products (EN 15804:2012+A2.2019/AC:2021) Version 1.2.5 and Sub-PCR-F Resilient textile and laminate floor coverings (EN 16810)

PCR review was conducted by
The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.

Independent verification of the declaration and data, according to ISO 14025:2021:

☐ *EPD process verification* ☑ *EPD verification*

Third party verifier
Sunil Kumar
SimaPro partners for India & Sri Lanka, SIPL Pvt Ltd

Approved by
The International EPD® System Technical Committee, supported by the Secretariat

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

☐ *Yes* ☑ *No*

LCA Study & EPD Design Conducted by
Semtrio Sustainability Consulting
BUDOTEK Teknopark, No 8/27
Umraniye / Istanbul Turkey
www.semtrio.com

Hatko Dokuma Tekstil İnşaat Taahhüt ve Tic. Ltd. Şti. 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.

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.

Company Information

Owner of the EPD

Hatko Dokuma Tekstil İnşaat Taahhüt ve Tic. Ltd. Şti.

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HATKO is one of the 10 largest artificial grass manufacturers in the world, offering a one stop solution from concept to installation for sport and landscape. Licenced by FIFA, ITF, FIH and IAAF, HATKO has installed over 400 FIFA certified pitches in 100 countries across 4 continents.

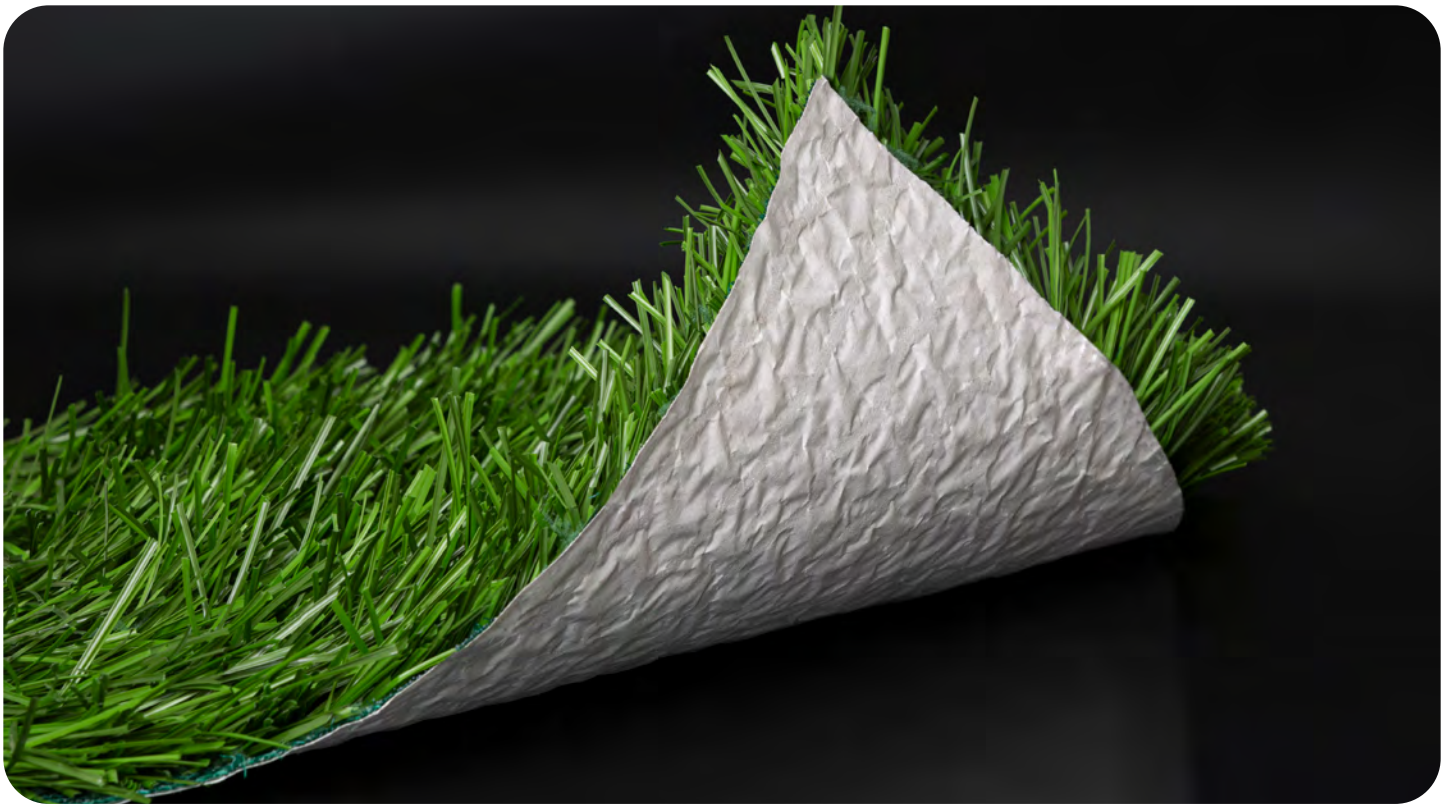
The key focus at HATKO is the development of safe, strong, durable and environmentally friendly surfaces that satisfy all the needs of the players while meeting all the regulations of the different fields of sport.

With worldwide agents, installation teams, state of the art production facility with 6 million square meter production capacity, HATKO develops and delivers innovative products that provide playing comfort and longer playing hours with low maintenance cost, in all climatic regions.

Based in Osmaniye, southern Turkey, HATKO's manufacturing plant spans over 30,000 m² and is equipped with cutting-edge technology. HATKO offers groundbreaking and high quality products according to industry assessments.

Product Information

Product Name:
HATKO HYBRIDGRASS BIO



HATKO HYBRIDGRASS BIO combines all the benefits of a natural grass playing surface with the strength and durability of synthetic grass. HYBRIDGRASS BIO, by using a new fusion coating technology, has eliminated the use of latex. It is therefore a lightweight yet a stable carpet. Since this carpet is produced with a single polymer, it can be 100% recycled.

Production

The HYBRIDGRASS BIO system consists of low-density polyethylene yarn which is tufted onto a primary backing. Using newly developed fusion coating technology, the tufts are bonded to the primary backing eliminating the use of secondary backing such as latex. The synthetic grass fibers are tufted on a special patented backing incorporating over 50% voids enhancing the growing conditions for the natural grass.

Intended Use of Product

HYBRIDGRASS BIO system is designed to enhance and optimize the surface performance of natural grass. HYBRIDGRASS BIO carpet is installed on a carefully selected root zone layer and filled with a specifically defined root zone mixture before high quality sports field grass is seeded into the surface.

The natural grass grows between the synthetic grass fibers creating a strong and vigorous playing surface. The 'open' texture of the backing ensures that the grass roots are not obstructed in their vertical movement downwards.

HYBRIDGRASS BIO provides a consistently high-quality playing surface even when natural grass has worn out.

Technical Specifications

Product Group Classification:

NACE CODE: 13.93.01 Manufacture of carpets and rugs

Production Standards	Test Method
Carpet Mass /Pile Weight	ISO 8543: 1998
No of Tufts	ISO 1763: 1986
Open Structure	
Gauge	
Stitch Rate	
Number of Fibers	
Water Permeability	EN 12616: 2013
Yarn Tensile Strength	EN 13864: 2004
Color Change (Grey Scale)	EN 20105–A02

UN CPC Code : 272, Carpets and other textile floor coverings

LCA Information

Declared Unit

1 m² of HATKO Hybridgrass BIO manufactured and packaged in Osmaniye facility (TR).

Reference Service Life

The lifetime of HATKO Hybridgrass BIO is at least 8 years.

Time Representativeness

The production data in this LCA study represents the period of 1st January 2022 and 31st December 2022.

Database(s) and LCA software used

SimaPro v9.4.0.2 LCA software and Ecoinvent 3.7.1

Description of System Boundaries

Cradle to Gate (A1-A3)

Data Quality and Data Collection

According to EN 15804:2012+A2:2019 specific data was used for module A3 (Processes the manufacturer has influence over) and was gathered from the HATKO manufacturing plant. Specific data includes actual product weights, amounts of raw materials used, product content, energy consumption, transport figures and amounts of wastes. Data represents the period from 1st January 2022 and 31st December 2022. For secondary data Ecoinvent v3.7.1 data sets was used. LCA was modelled in SimaPro v9.4. Proxy data was not used in this study.

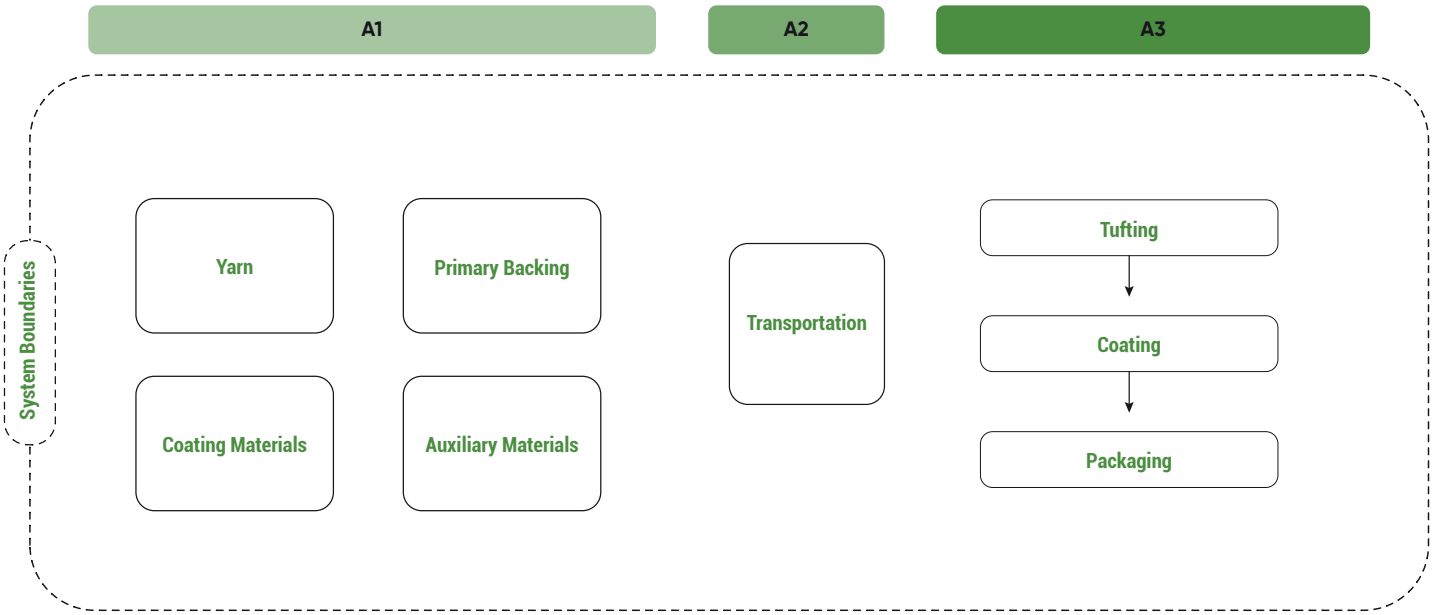
Allocation

Allocation of impacts among co-products was not applied.

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	Maintanence	Repair	Replacement	Refurbishment	Operaitional energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Recycling Potential
MODULES	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Module declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Geography	GLO	GLO	TR	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific data used	>99%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation-products	Not Relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation-sites	Not Relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-

System Diagram



Description of Declared Modules

A1 - Raw Materials Supply

This module takes into account raw material extraction, processing and energy used in the production process.

A2 - Transport to the Manufacturer

This module includes transportation of the raw materials from supplier to factory gate. Transportation types are considered as seaway and roadway.

A3 - Manufacturing

This stage includes energy and water consumption during the manufacturing process. Additionally, packaging materials are covered in this module. The processing of any waste arising from this stage is also included. Followed production processes are as;

- Tufting
- Coating
- Packaging

Information on which life cycle stages are not considered

The scope of the LCA and EPD is from cradle to gate (A1-A3). Life cycle stages beyond HATKO's gate are excluded from the LCA Environmental impacts relating to personnel, infrastructure and production equipment not directly consumed as specified in the Product Category Rules (2019:14 Construction Production v1.2.5) Section 2.2.2.

Content Declaration

Content Declaration of HYBRIDGRASS BIO

PRODUCT	YARN, WEIGHT-%	PRIMARY BACKING, WEIGHT-%	COATING MATERIAL, WEIGHT-%	AUXILIARY MATERIALS WEIGHT-%	RENEWABLE MATERIAL, WEIGHT %	BIOGENIC CARBON, WEIGHT-%
HATKO HYBRIDGRASS BIO	80%-85%	10%-15%	4%-10%	6%-10%	0	0

Packaging Materials

HATKO HYBRIDGRASS BIO	WEIGHT, %	BIOGENIC CARBON, KG
Board	<1%	0,0357
Polyethylene Packing	<1%	-
Polypropylene Packing	<1%	-

Environmental Performance

Potential Environmental Impact *Mandatory Indicators According to EN 15804*

RESULTS PER FUNCTIONAL OR DECLARED UNIT		
Indicator	Unit	Total A1-3
GWP-fossil	kg CO_2 eq	3,52
GWP -biogenic	kg CO_2 eq	-0,074
GWP-luluc	kg CO_2 eq	0,003
GWP-total	kg CO_2 eq	3,45
ODP	kg CFC 11eq	1,47E-07
AP	mol H+ eq	0,015
EP-Freshwater	kg P eq	0,001
EP-marine	kg N eq	0,003
EP-Terrestrial	kg N eq	0,034
POCP	kg NMVOC eq	0,013
ADP-minerals & metals*	kg Sb eq	2,42E-05
ADP-fossil*	MJ	99,1
WDP	m^3	3,05

** Disclaimer: 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.*

Acronyms

GWP-fossil = Global Warming Potential fossil fuels; **GWP-biogenic =** Global Warming Potential biogenic; **GWP-luluc =** Global Warming Potential land use and land use change; **ODP =** Depletion potential of the stratospheric ozone layer; **AP =** Acidification potential, Accumulated Exceedance; **EP- Freshwater =** Eutrophication potential, fraction of nutrients reaching aquatic freshwater end compartment; **EP-marine =** Eutrophication potential, fraction of nutrients reaching marine end compartment; **EP-terrestrial =** Eutrophication potential, Accumulated Exceedance; **POCP =** Formation potential of tropospheric ozone; **ADP-minerals&metals =** Abiotic depletion potential for non-fossil resources; **ADP-fossil =** Abiotic depletion for fossil resources potential; **WDP =** Water (user) deprivation potential, deprivation-weighted water consumption

Potential Environmental Impact *Additional Mandatory and Voluntary Indicators*

RESULTS PER FUNCTIONAL OR DECLARED UNIT		
Indicator	Unit	Total A1-3
GWP-GHG[1]	kg CO_2 eq	3,15
RESULTS PER FUNCTIONAL OR DECLARED UNIT		
PM	[disease inc.]	1,32E-07
IRP	[kBq U235 eq]	0,204
ETP-fw	[CTUe]	39,8
HT-C	[CTUh]	1,52E-09
HT-nc	[CTUh]	2,56E-08
SQP	[pt]	30

Acronyms

GWP-GHG = Global Warming Potential total excl. biogenic carbon following IPCC AR5 methodology; **PM=** Potential incidence of disease due to PM emissions; **IRP =** Potential Human exposure efficiency relative to U235; **ETP-fw =** Potential Comparative Toxic Unit for ecosystems; **HT-C =** Potential Comparative Toxic Unit for humans; **HT-nc =** Potential Comparative Toxic Unit for humans **SQP =** Potential soil quality index (SQP)

[1] *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. This indicator is thus equal to the GWP indicator originally defined in EN 15804:2012+A2:2019/AC:2021.*

Disclaimer 2: This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Disclaimer 3: The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

Use of Resources

RESULTS PER FUNCTIONAL OR DECLARED UNIT		
Indicator	Unit	Total A1-3
PERE	MJ	6,14
PERM	MJ	0
PERT	MJ	6,14
PENRE	MJ	106
PENRM	MJ	0
PENRT	MJ	106
SM	kg	0
RSF	MJ	0
NRSF	MJ	0
FW	m^3	0,246

Acronyms

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; **PERT =** Total 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 resources; **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 Production

RESULTS PER FUNCTIONAL OR DECLARED UNIT		
Indicator	Unit	Total A1-3
Hazardous waste disposed	kg	0
Non-hazardous waste disposed	kg	0
Radioactive waste disposed	kg	0

Output Flows

RESULTS PER FUNCTIONAL OR DECLARED UNIT		
Indicator	Unit	A1-3 Total
Components for re-use	kg	0
Material for recycling	kg	0,067
Materials for energy recovery	kg	0
Exported energy, electricity	MJ	0
Exported energy, thermal	MJ	0

References

ISO 14040 2021 Environmental management - Life cycle assessment - Principles and framework

ISO 14044 2021 Environmental management - Life cycle assessment - Requirements and guidelines

ISO 14025 2006 Environmental labels and declarations - Type III environmental declarations - Principles and procedures

ISO 14020 2000 Environmental labels and declarations - General principles

EN 15804:2012+A2.2019/AC:2021 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products

Sub-PCR-F Resilient textile and laminate floor coverings (EN 16810)

The International EPD® System www.environdec.com

The International EPD® System The General Programme Instructions v4

The International EPD® System PCR 2029:14 Construction products v1.2.5 (EN 15804:2012+A2.2019/AC:2021)

Ecoinvent 3.7 www.ecoinvent.org

SimaPro LCA Software www.simapro.com

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