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The Norwegian EPD Foundation

ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025, ISO 21930 and EN 15804

Owner of the declaration:	Heymat AS
Program operator:	The Norwegian EPD Foundation
Publisher:	The Norwegian EPD Foundation
Declaration number:	NEPD-3172-1814-EN
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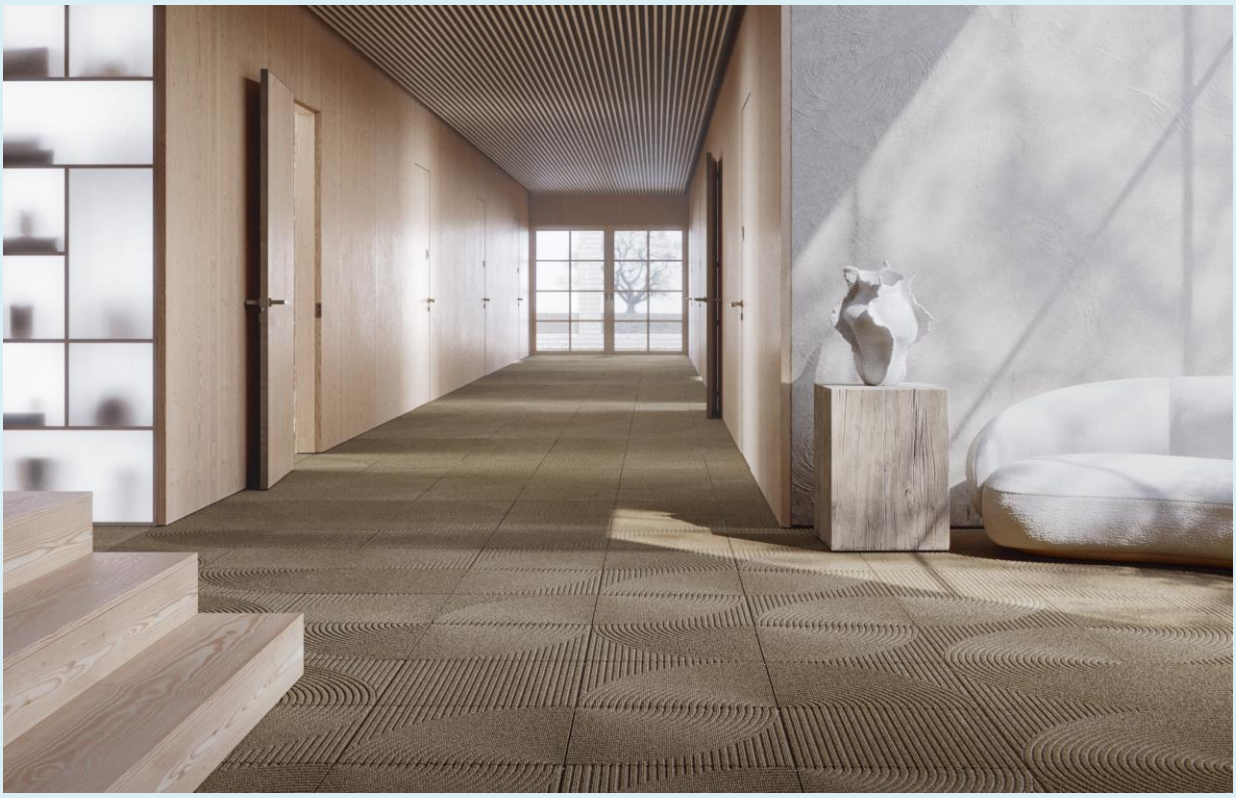
Issue date:	14.10.2021
Valid to:	14.10.2026

Heymat Zen Carpet Tile

Heymat AS

www.epd-norge.no



General information

Product:
Heymat ZEN carpet tiles

Owner of the declaration:
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Declaration number:
NEPD-3172-1814-EN

Organisation no:
916229410

ECO Platform reference number:

Place of production:
Georgia, USA

This declaration is based on Product Category Rules:
CEN Standard EN 15804 serves as core PCR
NPCR Part A: Construction products and services
PCR Part B from IBU: Requirements on the EPD for Floor coverings

Issue date:
14.10.2021

Statement of liability:
The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturerinformation, life cycle assessment data and evidences.

Valid to:
14.10.2026

Declared unit:
1 m2 carpet tile from cradle to warehouse gate in Norway: Manufactured in USA, transported to Heymat's Warehouse in Mo i Rana.

Year of study:
2021

Declared unit with option:
1 m2 carpet tile, manufactured in USA, transported to Mo i Rana, stored, sent to building site, installed in building, demounted and waste treated.

Comparability:
EPD of construction products may not be comparable if they do not comply with EN 15804 and seen in a building context.

The EPD has been worked out by:
Julie Lyslo Skullestad

Verification:
The CEN Norm EN 15804 serves as the core PCR. Independent verification of the declaration and data, according to ISO14025:2010

☐ internal ☑ external

Third party verifier:
Alexander Borg
(Independent verifier approved by EPD Norway)

Approved
Håkon Hauan
Managing Director of EPD-Norway

Product

Product description:
Rubber backed carpet tiles for halways and entrance zones.
The fabric is made from recycled PET fibers.

Product specification:
The carpet consists of a rubber backing and a needle punched fabric made of recycled PET.

Materials	kg	%
Rubber	3,807	78,4 %
PET needle punched fabric	1,047	21,6 %
Total	**4,854**	**100 %**

Packaging for transport:	kg
Cardboard packaging	0,23
Pallets	0,84

Technical data:

Name	Value	Unit
Product thickness	7,62	mm
Surface pile thickness	3,81	mm
Total carpet weight	4,85	kg/m2
Abraison Class*	30 000	Martindale
Dimensions on tiles	450x450	mm
# of tiles per m2	4,94	tiles

* Tested according to ISO 11856

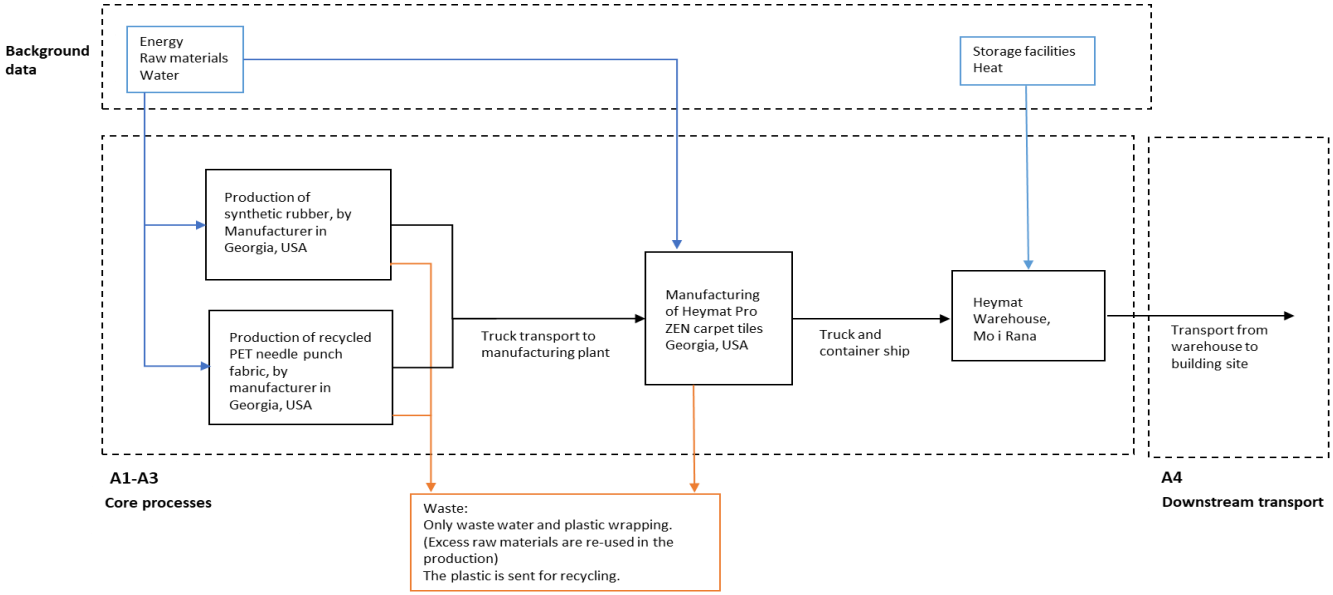
Backing:	SBR Rubber
Fabric:	Recycled PET fibers

Market:
Norway

LCA: Calculation rules

Declared unit:
1 m2 of Heymat Pro Zen carpet tiles

System boundary:
A1-A3, A4, A5, C1-C4 and D.
Flow sheet for A1-A4 is shown below.
The manufacturer is also producing the rubber and the recycled PET fabric used in the carpets. Hence, this is a part of the foreground system.



Data quality:
Data for A1-A3 is based on site specific consumption data for the manufacturer. Production data for the year 2019 is used. Generic data is obtained from Ecoinvent v 3.7, Allocation, Recycled Content (July 2021) and SimaPro v.9.2. Characterization factors from EN15804:2012 + A1:2013.

Allocation:
The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation, as long as the difference in economic value is less than 25 %, then economic allocation is used. Effects of primary production of recycled materials allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to the user of the recycled material.

Cut-off criteria:
All major raw materials and all the essential energy is included. The production process for raw materials and energy flows that are included with very small amounts (<1%) are not included. This cut-off rule does not apply for hazardous materials and substances.

LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

Transport from warehouse in Mo i Rana to user (A4)
A4 represents transport from the warehouse in Mo i Rana to a builidng cite in the Oslo Area, 10 km from the train staiton.

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Value (l/t)
Railway	Unknown (Ecoinvent process)	Diesel train	500	l/tkm	0,0089
Railway	Unknown (Ecoinvent process)	Electric train	500	kWh/tkm	0,048
Truck	36,67% (Ecoinvent process)	Euro 6	10	l/tkm	0,03

Installation in the building (A5)
Installation of the carpets is done by hand with fastening tape, thus no electricity or other energy resources are necessary.
It is assumed a 5 % material loss due to cutting and customizing.

	Unit	Value
Fastening tape	kg	0,1
Water consumption	m^3	0,0
Electricity consumption	kWh	0,0
Material loss	%	5 %

Deconstruciton/disassembly (C1)
Disassembly of the carpet tiles at the end of the building's lifetime does not require any specific tool other than what is used for the general demolition of the building. Thus, no use of resources are needed in this phase.

Transport to waste processing (C2)
It is assumed that the waste treatment facility is 50 km from the building site.

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy	Value
Truck	36,67 %	Euro 6	50	l/tkm	0,03

End of Life (C3, C4)
After disassembly, it is assumed that the carpet and the fastening tape is sent to incineration with energy recovery.
This is regarded as the most probable scenario for waste treatment.

	Unit	Value
Hazardous waste disposed	kg	0
Collected as mixed construction waste	kg	0
Reuse	kg	0
Recycling	kg	0
Energy recovery	kg	4,953
To landfill	kg	0

Benefits and loads beyond the system boundaries (D)
The benefits and loads beyond the life cycle has been modeled based on all net output waste flows from module A5 and C3. All waste flows are assumed to be incinerated with energy recovery.
The table below shows the waste output flows from the diffeent life cycle stages. No waste occurs in C1, C2 or A4.

	A5	**C3**
Waste flow for incineration with energy recovery (kg)	1,366	4,953

The exported energy is substituting Norwegian district heating mix and electricity mix.
All conversion efficiency factors and losses from waste to delivered energy has been accounted for.
Data for the district heating is based on Norwegian average fuel mix from 2020 (Statistics Norway).
The electircity mix is the same as in the rest of the analysis, i.e. Norwegian consumption mix (Ecoinvent v. 3.7).

	Unit	Value
Substitutied delivered electric energy	MJ	4,35
Substituted delivered district heating	MJ	155,57

LCA: Results

The LCA results show environmental impacts, resource use and outflows calculated according to EN 15804: 2012 + A1: 2013.
The results are per m^2 of carpet tiles.

System boundaries (X=included, MND= module not declared, MNR=module not relevant)

Product stage			Assemby stage		Use stage							End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

Environmental impact

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO_2 -eqv	1,70E+01	2,34E-01	2,19E+00	0,00E+00	3,91E-02	1,47E+01	3,28E+00	-8,47E-01
ODP	kg CFC11-eqv	3,29E-06	2,63E-08	1,68E-07	0,00E+00	7,11E-09	1,34E-08	1,07E-09	-7,17E-08
POCP	kg C_2H_4 -eqv	-1,84E-04	4,91E-05	2,01E-04	0,00E+00	4,48E-06	4,21E-05	4,42E-06	-5,57E-04
AP	kg SO_2 -eqv	9,13E-02	1,81E-03	8,94E-03	0,00E+00	9,22E-05	1,57E-03	3,86E-04	-6,74E-03
EP	kg PO_4^{3-}-eqv	1,25E-02	2,81E-04	5,96E-02	0,00E+00	9,13E-06	2,75E-04	9,29E-05	-1,45E-03
ADPM	kg Sb-eqv	3,73E-04	1,06E-06	1,97E-05	0,00E+00	1,45E-07	3,73E-07	5,81E-08	-3,60E-05
ADPE	MJ	2,58E+02	2,89E+00	1,58E+01	0,00E+00	5,86E-01	8,27E-01	1,18E-01	-9,54E+00

GWP Global warming potential; ODP Depletion potential of the stratospheric ozone layer; POCP Formation potential of tropospheric photochemical oxidants; AP Acidification potential of land and water; EP Eutrophication potential; ADPM Abiotic depletion potential for non fossil resources; ADPE Abiotic depletion potential for fossil resources

Resource use

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
RPEE	MJ	8,89E+01	2,43E-01	1,79E+01	0,00E+00	8,18E-03	4,45E-02	7,93E-03	-9,34E+01
RPEM	MJ	1,81E+01	0,00E+00	9,05E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TPE	MJ	1,07E+02	2,43E-01	1,21E+01	0,00E+00	8,18E-03	4,45E-02	7,93E-03	-9,34E+01
NRPE	MJ	9,72E+01	3,45E+00	1,54E+01	0,00E+00	5,99E-01	8,80E-01	1,30E-01	-1,17E+01
NRPM	MJ	1,87E+02	0,00E+00	1,87E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TRPE	MJ	2,84E+02	3,45E+00	2,68E+01	0,00E+00	5,99E-01	8,80E-01	1,30E-01	-1,17E+01
SM	kg	9,05E-01	0,00E+00	4,53E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
W	m^3	6,32E-01	1,40E-03	2,63E-01	0,00E+00	6,10E-05	6,22E-03	1,21E-04	-3,45E-01

RPEE Renewable primary energy resources used as energy carrier; RPEM Renewable primary energy resources used as raw materials; TPE Total use of renewable primary energy resources; NRPE Non renewable primary energy resources used as energy carrier; NRPM Non renewable primary energy resources used as materials; TRPE Total use of non renewable primary energy resources; SM Use of secondary materials; RSF Use of renewable secondary fuels; NRSF Use of non renewable secondary fuels; W Use of net fresh water

End of life - Waste

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HW	kg	5,65E-03	6,77E-06	3,28E-03	0,00E+00	1,56E-06	5,65E-06	1,92E-07	-1,72E-05
NHW	kg	3,99E+00	5,12E-02	2,95E-01	0,00E+00	2,92E-02	5,32E-02	2,08E-01	-4,15E-01
RW	kg	1,16E-03	2,15E-05	3,25E-04	0,00E+00	4,10E-06	2,27E-06	6,98E-07	-5,58E-05

HW Hazardous waste disposed; NHW Non hazardous waste disposed; RW Radioactive waste disposed

End of life - Output flow

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
CR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MR	kg	1,83E-02	0,00E+00	2,07E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	1,37E+00	0,00E+00	0,00E+00	4,95E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	5,64E-01	0,00E+00	0,00E+00	3,79E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	2,02E+01	0,00E+00	0,00E+00	1,35E+02	0,00E+00	0,00E+00

CR Components for reuse; MR Materials for recycling; MER Materials for energy recovery; EEE Exported electric energy; ETE Exported thermal energy

Reading example: 9,0 E-03 = $9,0*10^{-3}$ = 0,009

Additional Norwegian requirements

Greenhous gas emission from the use of electricity in the manufacturing phase
For the manufacturing in Georgia, USA, an average production mix including imports for the SERC power grid market is used. The SERC power grid is the power grid that supplies Georgia with electricity.
For the storage in Norway, an average Norwegian production mix including imports is used.
The emission factors are obtained from Ecoinvent v 3.7 (July 2021)

Data source	Emission factor	Unit
Electricity, low voltage, SERC-market USA	0,614	kg CO_2-eqv/kWh
Electricity, low voltage, NO	0,0229	kg CO_2-eqv/kWh

Dangerous substances

☑ The product contains no substances given by the REACH Candidate list or the Norwegian priority list

☐ The product contains substances given by the REACH Candidate list or the Norwegian priority list that are less than 0,1 % by weight.

☐ The product contain dangerous substances, more then 0,1% by weight, given by the REACH Candidate List or the Norwegian Priority list, see table.

☐ The product contains no substances given by the REACH Candidate list or the Norwegian priority list. The product is classified as hazardous waste (Avfallsforskiften, Annex III), see table.

Indoor environment
Not relevant. No tests have been carried out on the product concerning indoor climate

Carbon footprint
Carbon footprint has not been worked out for the product.

Bibliography

ISO 14025:2010	*Environmental labels and declarations - Type III environmental declarations - Principles and procedures*
ISO 14044:2006	*Environmental management - Life cycle assessment - Requirements and guidelines*
EN 15804:2012+A1:2013	*Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products*
ISO 21930:2007	*Sustainability in building construction - Environmental declaration of building products*
Ecoinvent v3.7	*Allocation, cut-off by classification, Swiss centre of Life Cycle Inventories*
NPCR Part A:	EPD-Norge, *Product category rules, Part A: Construction products and services* , 2017
PCR Part B:	Institut Bauen und Umwelt e.V. *Product catgory rules Part B: Requirements on the EPD for Floor coverings* , 2017
ISO 11856:2014	*Textile floor coverings — Test methods for the determination of fibre bind using a Modified Martindale Machine*
Skullestad, Julie Lyslo (2021)	*LCI/LCA Report for Heymat Pro Zen Carpet Tiles, Aase Teknikk AS*
Statistics Norway (2021)	*Table 04727: Balance of district heating (GWh). For the year 2020*
Statistics Norway (2021)	*Table 04730:Consumption of fuel used for gross production of district heating, by type of energy (GWh). For the year 2020*

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