ASPEN

ECO PLATFORM EPD VERIFIED

EPD® THE INTERNATIONAL EPD® SYSTEM

TURKEY EPD® ENVIRONMENTAL PRODUCT DECLARATIONS

Environmental Product Declaration

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

TARGA

RAISED ACCESS FLOORING SYSTEMS – CALCIUM SULPHATE CORE from ASPEN

PROGRAMME
The International EPD® System
www.environdec.com

LOCAL OPERATOR
EPD Turkey

PROGRAMME OPERATOR
EPD International AB & EPD Turkey

EPD REGISTRATION NUMBER
S-P-04870

PUBLICATION DATE
05.01.2023

VALID UNTIL
05.01.2028

Programme Information

Programme:	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com

This EPD is in accordance with EN 15804+A2 and ISO 14025:2010 standards. The EN 15804 +A2:2019 serves as the core Product Category Rules (PCR). In addition, the Int'l EPD System PCR 2019:14 Construction products, version 1.11, valid until 2024.12.20.
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 third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☐ EPD verification
Third party verifier: *Dr. Nasser Ayoub* Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

ASPEN has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable.

Company Information

Owner of the EPD: Aspen Yapı ve Zemin Sistemleri San. ve Tic. A.Ş.

Name and location of production site: 2. Organize Sanayi Bolgesi 5. Yol No:9 54300 Hendek / Sakarya

ASPEN

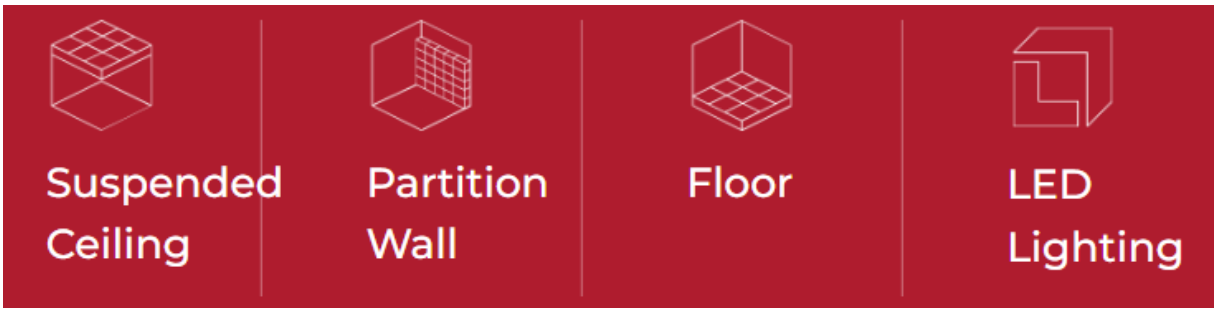
ASPEN combines the power of modern architecture with aesthetics and shares its values with the world since 1989. Starting with the production of ceiling systems with integrated LED, and then moving to partitions and raised access floors, Aspen is a global interior fit-out manufacturer aimed to provide bespoke solutions to its customers.

ASPEN is one of the leading companies in the industry with a successful history and vision to be the leader in the sector. Through its product variety and application methods, ASPEN has been continuously adapting to the changing requirements of modern architecture. Since the day it was founded, ASPEN has been increasing its strength day by day and reinforcing its position as the expert in the sector.

As a pioneer in environmental labelling (EPD) in the building materials industry in Turkey, Aspen has received EPDs for 9 of its product groups since 2014. Aspen Eskişehir factory is ISO 14001 certified, while Aspen Sakarya factory is FSC certified. In addition to the environmental labelling of the products, Aspen also documents its products' effects on indoor air quality and emissions with VOC tests. Since 2014, Aspen has been actively involved in the Sustainability and Environmental Labelling of Construction Materials commissions of the relevant NGOs, and the Green Building Certification systems commissions, and organizes continuous training and awareness-raising events for its employees and business partners on these issues.

Product Variety:

ASPEN regards the flexibility, continuity and durability of the material as our priority in mass production solutions that strengthen the originally designed structures. With this awareness, their products, which are gathered under 4 titles as Suspended Ceiling, Partition Wall, Floor and LED Lighting Systems, constitute a product range that provides a holistic solution for the needs of modern architecture. Aspen's product range, fed by strong brands, offers the opportunity to create hundreds of different combinations.



Product information

Product name: TARGA RAISED ACCESS FLOORING SYSTEMS - CALCIUM SULPHATE CORE

Geographical scope: The study generally applies to the actual situation in Turkey. When there is no specific data for Turkey, European data has been preferred to use as the conditions in Europe are similar with Turkey. European data of raw materials, haulage vehicles, diesel used for transportation and waste has been used substitute for Turkey's specific data.

CPC code: 42190

Product Description:

Targa Raised Access Flooring Systems produced by Aspen have been designed to provide the space required for data, power, air conditioning, fire and security infrastructures that have become a necessity for all commercial spaces. Targa Raised Access Flooring Systems enable a fast and cost-free intervention to the space formed under finishing level with their modular structure and thus render the space functional. It consists of 60 x 60 cm panels freely laying on pedestals, stringers and braces which form the substructure. Panel core can be chipboard or calcium sulfate according to project requirements.

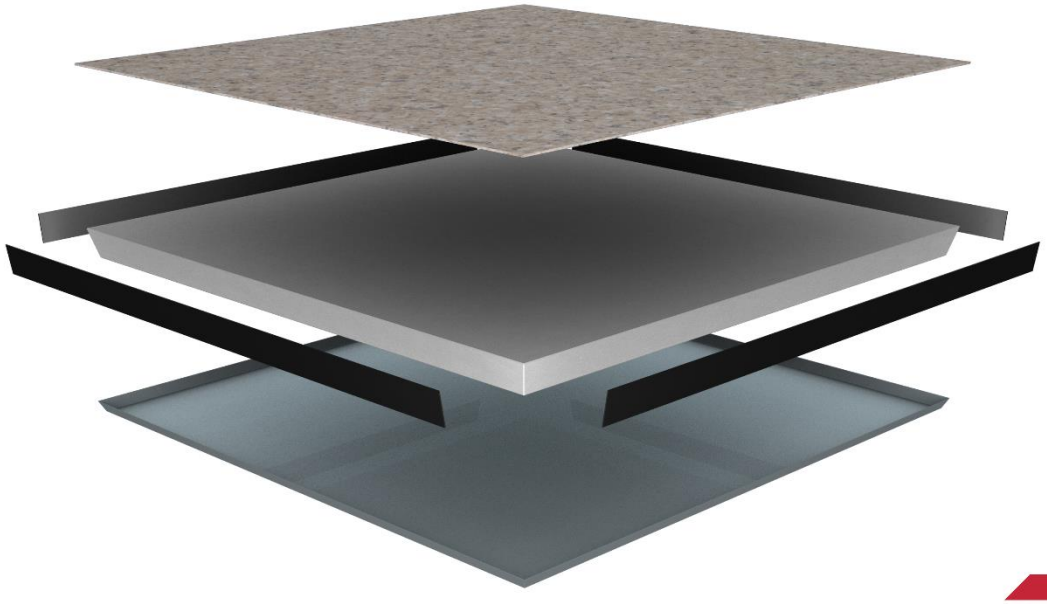
The products need a are produced according to EN 12825: 2012 Raised access floors and EN 13964:2014 standard.
For the placing on the market of the product in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) Regulation (EU) No. 305/2011 (CPR) applies.

Content of the product as shown in below.

Content of the product	
Materials / Chemical Substances	% by weight
Calcium Sulphate	75 - 80
Steel	15 - 20
Wood	3 - 5
PVC	2 - 5
Additives	< 1

Packaging materials as shown in below.

Packaging	
Materials	Weight
Wood	0,063 kg
Cardboard	0,096 kg



**Annual material usage/consumption analyzes and annual total production quantities were taken from Aspen and calculations of how much raw material is used in 1 m^2 of product were made accordingly. By dividing the total consumption by the total production quantities, the effects were calculated on the basis of the annual average of 1 unit square meter. Its deviation is minimal here anyway.*

Technical Data:

Technical Data for Targa Raised Floor Calcium Sulphate Core Panel		
Constructional data	**Value**	**Unit**
System construction (min/max)	30 – 40.5	mm
Substructure (from - to)	50 – 1010 (excluding panel)	mm
Grammage / system weight	36.11 – 69.44	kg/m2
Density of the base course	26-40 mm 1100-1650	kg/m3

Fire protection	**Value**	**Unit**
Fire protection (/EN 13501/DIN 4102/) building material class B/C	Bfl-s1	-
Fire protection (/EN 13501/DIN 4102/), Fire resistance B/C	No performance declared	-
Electrostatics (/DIN EN 1081/)	No performance declared	Ω

Declared unit and mass reference	**Value**	**Unit**
Declared unit	1	m2
Grammage	43.05	kg/m2

The products do not contain any substances listed in the candidate list /(https://echa.europa.eu/it/candidate -list-table - date: 16.01.2020)/ exceeding 0.1 percentage by mass.
The products do not contain other CMR substances in categories 1A or 1B which are not on the candidate list, exceeding 0.1 percentage by mass.
Biocide products were not added to this construction product or it has not been treated with biocide products (this then concerns a treated product as defined by the (EU) Ordinance on Biocide Products No. 528/2012).
There are no products that can be included in ‘’Candidate List of Substances of Very High Concern for Authorization’’ and raw materials used are not part of the EU REACH regulation.

Application Area:

Targa Raised Floor Systems provide fast and inexpensive intervention to the area created under it; In this way, it adds functionality to the space. With Targa, which can respond to all kinds of requests of designers thanks to its diverse coating types, today's modern commercial areas have a plain and aesthetic appearance away from both cables and installations; as well as gaining a structure that allows all kinds of modification and layout plan applications.

In general, raised floor installation areas are offices, IT rooms, public, commercial and private buildings in order to create cavities/installation space.

LCA Information

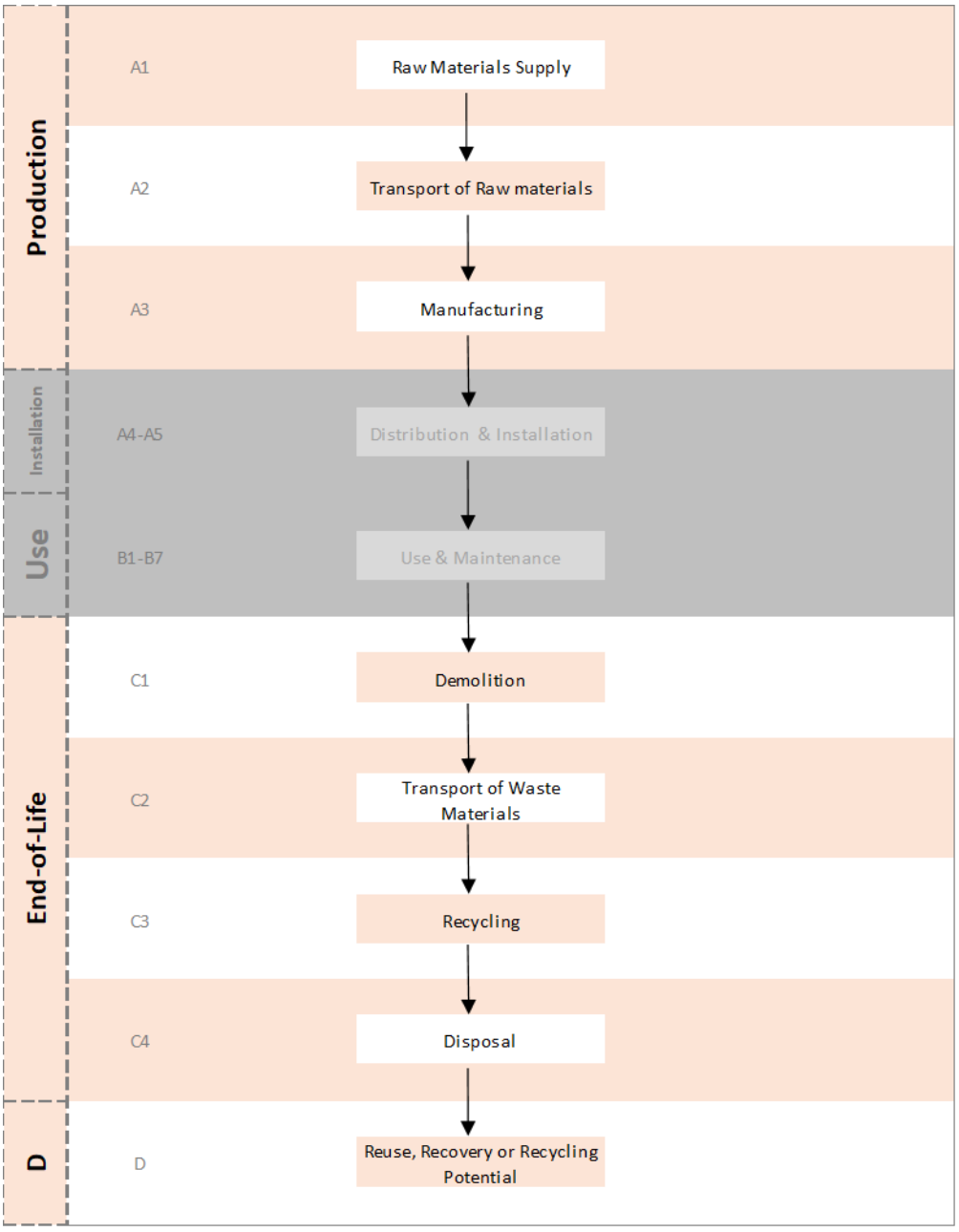
Declared unit: 1 m^2

Reference service life: Not applicable for this product category.

Time representativeness: Goal of the study is to determine the actual environmental loads for 12 consecutive months, so data for the time period between 01.01.2021 and 31.12.2021 is used.

Database(s) and LCA software used: Ecoinvent v3.8 and OpenLCA v1.11

System diagram:



Description of system boundaries: Cradle to gate with options

Excluded lifecycle stages: Modules A4-A5, Modules B1-B7

	Production			Installation		Use stage							End-of-Life				Next product system
	Raw material supply (extraction, processing, recycled material)	Transport to manufacturer	Manufacturing	Transport to building site	Installation into building	Use / application	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction / demolition	Transport to EoL	Waste processing for reuse, recovery or recycling	Disposal	Reuse, recovery or recycling potential
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X
Specific data used	>99%					-	-	-	-	-	-	-	-	-	-	-	-
Variation products	Not relevant					-	-	-	-	-	-	-	-	-	-	-	-
Variation sites	Not relevant					-	-	-	-	-	-	-	-	-	-	-	-

Period under consideration:

The period under consideration is defined as one year. The monthly data is collected by the producer and is averaged to obtain the yearly data. The specific data for the year 2021 is utilized within this study.

Estimates and Assumptions:

In the end of life stages, copper, aluminum and steel in product is assumed to be recycled by 95%. Since there is no follow up procedure, transportation distance to the closest recycling facilities, disposal area is estimated as 50 km and common transportation type and fuel are used in the calculation. All the other estimations and assumptions regarding the cut off criteria and the allocation are declared in that parts. There are no other additional estimations and/or assumptions in the scope of this study.

Cut of Rules:

All inputs and outputs to a (unit) process are included in the calculation, for which data were available. The applied cut off criteria is 1% off renewable and non-renewable primary energy usage and 1% of the total mass input of that unit process in case of in sufficient input data or data gaps for a unit process.

The total of neglected input flows is a maximum of 1% of energy usage and mass.

Allocation:

The allocation was performed in which the product output fixed to 1 m^2 and the corresponding amount of product was used in calculations. Average breakdown was done by considering product total weight per year production. According to this, the total energy, water, and raw materials used to produce the product were divided by the total annual production.

Life cycle Stages

Module	Module Description	Unit Processes Included in Scope
A1	Extraction and processing of raw materials and packaging materails; any reuse of products or materials from previous product systems; processing of secondary materials; generation of electricity from primary energy resources; energy, or other, recovery processes from secondary fuels	This includes the extraction and processing of all raw materials for the 1 m^2 final porducts components. All raw materials used is shown in the Table 2.
A2	Transport (to the manufacturer)	The raw materials are transported to the manufacturing site. The modelling includes road and sea transportations of each raw material.
A3	Manufacturing, including ancillary material production	The product stage includes the extraction and processing of raw materials and energies, transport to the manufacturer, manufacturing and processing of the products. Manufacturing of the final products. While the raw materials are transported to the factory, they are kept together with the packaging. These are sent to the landfill as waste. Packaging wastes and proudction wastes are modeled in Module A3.
A4	Transport to the building site	Module Not Declared
A5	Construction – installation process	Module Not Declared
B1	Product use	Module Not Declared
B2	Product maintenance	Module Not Declared
B3	Product repair	Module Not Declared
B4	Product replacement	Module Not Declared
B5	Product refurbishment	Module Not Declared
B6	Operational energy use by technical building systems	Module Not Declared
B7	Operational water uses by technical building systems	Module Not Declared
C1	Deconstruction, demolition	In module C1, product is either disposed of with manually removed via scraping. It is assumed that recyclable products such as steel, aluminum, copper are sent to recycling facilities.
C2	Transport to the waste processing	Transport of end of life products to the recycling facility and landfill. Transportation of waste materials is assumed a 50 km average distance to recycling facility and landfill area.
C3	Waste processing for reuse, recovery and/or recycling	Since the manufacturer has no procedure for lifetime completed products, metals (steel, copper, aliminum) are considered to be recycled in the end of life period.
C4	Disposal	In Module D, it is considered disposal of non-recyclable parts inside. end of life product
D	Reuse-recovery-recycling potential	Potential loads and benefits of end of life product

Environmental performance

Potential environmental impact

1 m2 Targa Raised Floor Calcium Sulphate Core Panel_Potential environmental impacts										
Parameter		Unit	PRODUCT STAGE			END OF LIFE STAGE				
			A1	A2	A3	C1	C2	C3	C4	D
			Raw Material Supply	Transport to Manufacturer	Manufacturing	Deconstruction Demolition	Tramsport	Waste Processing	Disposal	Reuse, recovery or recycling potential
Global Warming Potential (GWP)	Fossil	[kg CO2-Eq.]	3,05E+01	6,47E+00	1,08E-01	0,00E+00	3,50E-01	-2,25E-01	1,91E+00	-1,37E+01
	Biogenic	[kg CO2-Eq.]	7,06E-02	4,75E-02	-2,26E-03	0,00E+00	2,57E-03	2,49E+00	2,75E+01	-3,47E-01
	Land use and land transformation	[kg CO2-Eq.]	3,96E-02	2,57E-03	5,31E-06	0,00E+00	1,39E-04	-1,69E-04	9,10E-04	-1,22E-02
	Total	[kg CO2-Eq.]	3,06E+01	6,52E+00	1,05E-01	0,00E+00	3,53E-01	2,26E+00	2,94E+01	-1,41E+01
Ozone Layer Depletion (ODP)		[kg CFC11-Eq.]	2,65E-06	1,20E-06	4,87E-08	0,00E+00	6,47E-08	-1,81E-08	9,92E-08	-6,77E-07
Acidification potential (AP)		[kg SO2-Eq.]	1,43E-01	2,06E-02	3,73E-04	0,00E+00	1,11E-03	-8,84E-04	5,03E-03	-5,26E-02
Acidification potential (AP)		[mol H+ Eq.]	1,75E-01	2,65E-02	4,29E-04	0,00E+00	1,43E-03	-1,14E-03	6,32E-03	-6,45E-02
Eutrophication aquatic freshwater		[kg P]	1,19E-02	4,24E-04	3,12E-06	0,00E+00	2,29E-05	-7,38E-05	5,70E-04	-6,64E-03
Eutrophication aquatic marine		[kg N-Eq.]	4,03E-02	8,00E-03	4,36E-05	0,00E+00	4,32E-04	-5,13E-04	6,47E-02	-1,54E-02
Eutrophication terrestrial		[molc N-Eq.]	3,76E-01	8,73E-02	4,69E-04	0,00E+00	4,72E-03	-3,44E-03	1,73E-02	-1,46E-01
Formation potential of tropospheric ozone (POCP)		[kg ethene-Eq.]	1,13E-02	8,43E-04	5,38E-05	0,00E+00	4,56E-05	-6,85E-05	4,83E-03	-6,41E-03
Photochemical ozone formation (POCP)		[kg NMVOC Eq.]	1,18E-01	2,62E-02	3,52E-04	0,00E+00	1,41E-03	-9,51E-04	1,25E-02	-5,61E-02
Abiotic depletion potential - Elements (ADPE)		[kg Sb-Eq.]	2,76E-04	2,27E-05	1,35E-07	0,00E+00	1,23E-06	-5,33E-06	2,50E-06	-1,80E-04
Abiotic depletion potential -Fossil Fuels (ADPF)		[MJ]	3,53E+02	9,67E+01	8,27E+00	0,00E+00	5,22E+00	-1,87E+00	1,14E+01	-1,40E+02
Carbon uptake (CU)		[CO2 eq.]	-2,59E+00	-3,07E-02	-1,82E-04	0,00E+00	-1,66E-03	7,58E-03	-8,72E-03	2,53E-01
Freshwater ecotoxicity (FE)		[PAF.m3.day]	4,19E+05	2,12E+04	1,38E+02	0,00E+00	1,15E+03	-2,07E+04	2,29E+06	-2,02E+05
Human toxicity, cancer (HTC)		[cases]	2,92E-05	3,51E-07	3,68E-09	0,00E+00	1,89E-08	-4,28E-08	1,11E-06	-2,69E-05
Human toxicity, non-cancer		[cases]	8,31E-06	8,39E-07	7,95E-09	0,00E+00	4,53E-08	-1,65E-07	1,56E-05	-5,09E-06
Land use - Potential soil quality index (LU-SQP)		[Pt]	4,05E+02	9,68E+01	3,35E-02	0,00E+00	5,23E+00	-9,20E+00	1,58E+01	-5,45E+01
Particulate matter (PM)		[disease inc]	2,59E-06	4,52E-07	1,08E-09	0,00E+00	2,44E-08	-1,72E-08	7,48E-08	-1,13E-06
Ionizing radiation, human		[kBq U235 eq.]	1,63E+00	5,08E-01	8,79E-04	0,00E+00	2,74E-02	-2,50E-02	7,58E-02	-6,12E-01
Water (user) deprivation potential (WDP)		[m3 world eq.Deprived]	1,23E+01	4,73E-01	3,74E-03	0,00E+00	2,55E-02	5,14E-02	4,82E-01	-5,14E+00

Use of resources

1 m2 Targa Raised Floor Calcium Sulphate Core Panel_Use of primary and secondary resources										
Parameter		Unit	PRODUCT STAGE			END OF LIFE STAGE				
			A1	A2	A3	C1	C2	C3	C4	D
			Raw Material Supply	Transport to Manufacturer	Manufacturing	Deconstruction Demolition	Tramsport	Waste Processing	Disposal	Reuse, recovery or recycling potential
Primary energy resources – Renewable	Use as energy carrier	[MJ]	2,94E+01	3,48E-01	2,05E-03	0,00E+00	1,88E-02	-8,56E-02	9,67E-02	-2,78E+00
	Used as raw materials	[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
	TOTAL	[MJ]	2,94E+01	3,48E-01	2,05E-03	0,00E+00	1,88E-02	-8,56E-02	9,67E-02	-2,78E+00
Primary energy resources – Non-renewable	Use as energy carrier	[MJ]	3,53E+02	9,67E+01	8,27E+00	0,00E+00	5,23E+00	-1,88E+00	1,14E+01	-1,40E+02
	Used as raw materials	[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
	TOTAL	[MJ]	3,53E+02	9,67E+01	8,27E+00	0,00E+00	5,23E+00	-1,88E+00	1,14E+01	-1,40E+02
Secondary material		[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
Renewable secondary fuels		[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
Non-renewable secondary fuels		[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
Net use of fresh water		[m³]	2,87E-01	1,10E-02	8,70E-05	0,00E+00	5,95E-04	-1,20E-03	1,12E-02	-1,20E-01

Waste production and output flows

Waste production

1 m2 Targa Raised Floor Calcium Sulphate Core Panel_Waste production									
Parameter	Unit	PRODUCT STAGE			END OF LIFE STAGE				
		A1	A2	A3	C1	C2	C3	C4	D
		Raw Material Supply	Transport to Manufacturer	Manufacturing	Deconstruction Demolition	Tramsport	Waste Processing	Disposal	Reuse, recovery or recycling potential
Hazardous waste disposed	[kg]	1,25E-03	2,58E-04	7,94E-06	0,00E+00	1,39E-05	-5,84E-06	4,06E-05	-9,58E-04
Non-hazardous waste disposed	[kg]	8,55E+00	5,08E+00	-8,84E-04	0,00E+00	2,74E-01	-1,90E-01	3,59E+01	-6,21E+00
Radioactive waste disposed	[kg]	7,96E-04	6,68E-04	6,85E-07	0,00E+00	3,61E-05	-1,38E-05	6,25E-05	-3,05E-04

Output flows

1 m2 Targa Raised Floor Calcium Sulphate Core Panel_Output Flows									
Parameter	Unit	PRODUCT STAGE			END OF LIFE STAGE				
		A1	A2	A3	C1	C2	C3	C4	D
		Raw Material Supply	Transport to Manufacturer	Manufacturing	Deconstruction Demolition	Tramsport	Waste Processing	Disposal	Reuse, recovery or recycling potential
Components for reuse	[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
Material for recycling	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,04E+00	0,00E+00	0,00E+00
Materials for energy recovery	[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
Exported energy, electricity	[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
Exported energy, thermal	[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

References

• ASPEN; https://www.aspen.com.tr/en/

• “PCR 2019:14-c-PCR-004 c-PCR-004 Resilient, textile and laminate floor coverings (EN 16810) (2019-12-20)” and “PCR 2019:14 Construction products, version 1.11, valid until 2024.12.20” with reference to EN ISO 14025:2010 and EN 15804+A2:2019, Version 1.1, 2021.

• ISO 14040: 2006 Environmental management - Life cycle assessment - Principles and framework

• ISO 14044: 2006 Environmental management - Life cycle assessment - Requirements and Guidelines

• ISO 14020: 2002 Environmental labels and declarations- General principles

• ISO 14025: 2006 Environmental labels and declarations - Type III environmental declarations - Principles and procedures• The International EPD® System; www.environdec.com

• The International EPD® System / The General Programme Instructions; http://www.environdec.com/tr/The-International-EPD-System/General-Programme-Instructions

• openLCA Software, ecoinvent 3.8 database; https://www.openlca.org/openlca

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Accredited or approved by: The International EPD® System

Owner of the Declaration

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