

Environmental Product Declaration

In accordance with ISO 14025 for:

KAROFIX POWERFLEX

from

ENTEGRE HARÇ



Programme:

Programme operator:

EPD registration number:

Publication date:

Valid until:

The International EPD® System, www.environdec.com

EPD International AB

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Programme Information

Programme:	<p>The International EPD® System</p> <p>EPD International AB Box 210 60 SE-100 31 Stockholm Sweden</p> <p>www.environdec.com info@environdec.com</p>
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Product category rules (PCR): *“PCR 2019:14 Construction products / IVL Swedish Environmental Research Institute” with reference to EN ISO 14025:2010 and EN 15804+A2:2019.*

PCR review was conducted by: *<name and organisation of the review chair, and information on how to contact the chair through the programme operator>*

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

EPD process certification EPD verification

Third party verifier: *Vladimír Kočí, PhD - LCA Studio Šárecká 5, 16000 Prague 6, Czech Republic*
www.lcastudio.cz

Approved by: The International EPD® System

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

Yes No

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



Company Information

Owner of the EPD: Entegre HARÇ A.Ş.

Name and location of production site: Hüseyinli Mah. Beykoz Cad. No: 222/4 Çekmeköy – İstanbul

ENTE GRE HARÇ

Entegre Harç Company, which was founded for the production of industrial lime in İstanbul in 1978 by 18 entrepreneurs, was taken over by Ata Construction Group in 1989. It was converted into Lafarge Group (world leader in the production of building materials) and Ata Holding joint venture in 1995.

Entegre, had undertaken the leadership of machine applied plaster sector in the Turkish market with its innovative structure. With this innovative and pioneering approach, Entegre has a wide range of products that add value to buildings and offer quality and cost-effective solutions in every part of the building.

Entegre's product range consists of Cement Based Plasters, Decorative Plasters, Technical Mortars, Water Proofing Products, Thermal Insulation Products, Tile Adhesives and Joint Fillers, Lime and Aggregate product groups.

Without compromising on quality in its service approach, Entegre has determined the satisfaction of its customers and employees as well as its sensitivity to society and the environment as a priority. Entegre, with its advanced production technology, high capacity, high quality and wide range of products, continues to serve in the sector.

Quality Approach

Quality is the priority of Entegre. As a working principle, it applies the total quality approach at every stage of its work. In this context, qualified people in their fields are assigned at every stage of the organization.

It has the necessary quality and standard documents integrated.
These are TSE, TSEK, ISO 9001:2000 and CE documents.



Quality Policy

- Adding value to the buildings with innovative solutions
- To provide solutions that facilitate the lives of consumers in building materials and respond to their needs.
- Creating value for customers; customer-oriented understanding
- To be a company that focuses on sustainable growth, permanent and continues performance development and makes its employees successful.
- To be a responsible company supporting social, urban and cultural relations
- To improve employees' abilities and quality of life
- To work in accordance with national and international laws and standards
- To realize the value creation expected by the shareholders
- To be sensitive to the environment
- To ensure the continuous development of company's quality management system

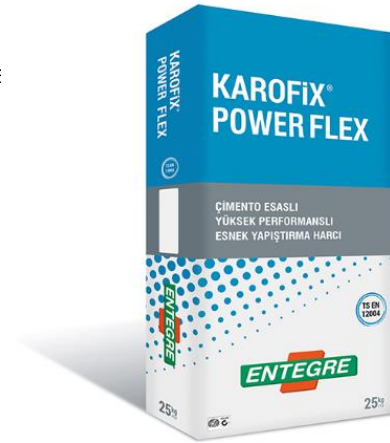
Product information

Product name: KAROFIX POWERFLEX

Product description: Cement Based High Performance Flexible Adhesive Mortar

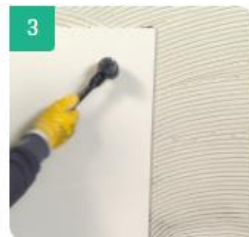
Geographical scope:

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.



Application Field

- Provides superior performance in fixing of coating materials such as ceramic, granite, porcelain ceramic, marble, travertine etc. at all sizes on horizontal and vertical surfaces for interior and exterior areas.
- It may be applied on dry and wet areas (baths, swimming pools, water tanks, terrace, etc.), cement-based plasters and concrete surfaces, floorings with floor heating system, floors exposed to high level of traffic (hotels, hospitals, offices, schools, sports halls, etc.), areas with thermal shock risk, cold storage rooms, floors exposed to vibration, and applications of ceramics over ceramics.



LCA Information

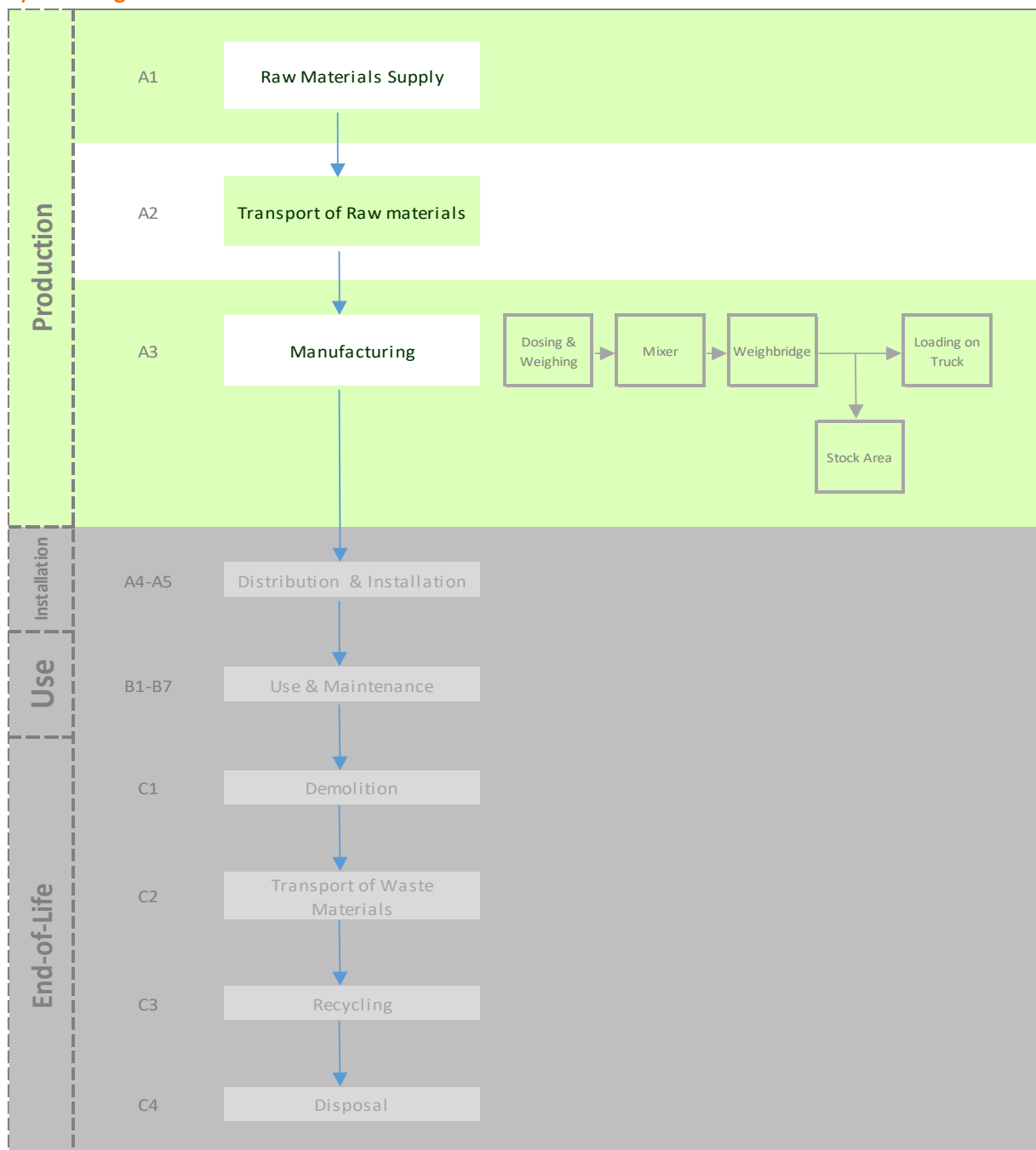
Functional unit / declared unit: 1 kg

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: OpenLCA v1.10 Ecoinvent v3.8

System diagram:



Description of system boundaries: Cradle to gate

Excluded lifecycle stages: Modules A4-A5, Modules B1-B7, Modules C1-C4 and Module D

	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	MND	MND	MND	MND	MND
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:

All the estimations and assumptions regarding the cut off criteria and the allocation are declared in that parts. There are no 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 nonrenewable 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 5% of energy usage and mass.

Allocation:

The allocation was performed in which the product output fixed to 1 kg 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.



Content declaration

Product

Materials / chemical substances	% by weight
Additives	<1

Environmental performance

Potential environmental impact

Parameter	Unit	PRODUCT STAGE			TOTAL	
		Raw Material Supply	Transport to Manufacturer	Manufacturing		
Global Warming Potential (GWP)	Fossil	[kg CO ₂ -Eq.]	4,12E-01	3,67E-03	1,18E-02	4,27E-01
	Biogenic	[kg CO ₂ -Eq.]	1,30E-02	2,62E-05	9,65E-07	1,30E-02
	Land use and land transformation	[kg CO ₂ -Eq.]	1,14E-04	1,51E-06	3,61E-08	1,16E-04
	Total	[kg CO ₂ -Eq.]	4,25E-01	3,70E-03	1,18E-02	4,41E-01
Ozone Layer Depletion (ODP)	[kg CFC11-Eq.]		1,46E-08	6,76E-10	1,40E-11	1,53E-08
Acidification potential (AP)	[kg SO ₂ -Eq.]		9,16E-04	1,53E-05	2,28E-05	9,54E-04
Acidification potential (AP)	[mol H ⁺ -Eq.]		1,16E-03	1,96E-05	2,78E-05	1,21E-03
Eutrophication aquatic freshwater	[kg P eq.]		4,85E-05	2,36E-07	1,03E-08	4,87E-05
Eutrophication aquatic marine	[kg N-Eq.]		2,98E-04	5,61E-06	5,96E-06	3,09E-04
Eutrophication terrestrial	[molc N-Eq.]		3,29E-03	6,15E-05	6,41E-05	3,42E-03
Formation potential of tropospheric ozone (POCP)	[kg ethene-Eq.]		9,09E-04	5,64E-07	6,19E-07	9,10E-04
Photochemical ozone formation (POCP)	[kg NMVOC Eq.]		4,69E-05	1,79E-05	1,62E-05	8,09E-05
Abiotic depletion potential -Elements (ADPE)	[kg Sb-Eq.]		1,25E-06	1,26E-08	2,50E-10	1,26E-06
Abiotic depletion potential -Fossil Fuels (ADPF)	[MJ]		3,43E+00	5,45E-02	7,17E-02	3,56E+00
Carbon uptake (CU)	CO ₂ eq.		-8,85E-03	-1,71E-05	-6,68E-07	-8,87E-03
Freshwater ecotoxicity (FE)	PAF.m3.day		1,48E+03	1,18E+01	2,81E+01	1,52E+03
Human toxicity, cancer (HTC)	cases		1,04E-08	1,99E-10	1,20E-11	1,07E-08
Human toxicity, non-cancer (HTNC)	cases		3,69E-08	4,62E-10	9,23E-11	3,75E-08

Use of resources

Parameter		Unit	PRODUCT STAGE			TOTAL
			Raw Material Supply	Transport to Manufacturer	Manufacturing	
Primary energy resources – Renewable	Use as energy carrier	[MJ]	1,12E-01	1,93E-04	7,17E-02	1,84E-01
	Used as raw materials	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	TOTAL	[MJ]	1,12E-01	1,93E-04	7,17E-02	1,84E-01
Primary energy resources – Non-renewable	Use as energy carrier	[MJ]	3,44E+00	5,45E-02	7,76E-06	3,49E+00
	Used as raw materials	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	TOTAL	[MJ]	3,44E+00	5,45E-02	7,76E-06	3,49E+00
Secondary material		[kg]	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
Non-renewable secondary fuels		[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water		[m³]	1,19E-01	2,62E-04	4,99E-04	1,20E-01

Waste production and output flows

Waste production

Parameter		Unit	PRODUCT STAGE			TOTAL
			Raw Material Supply	Transport to Manufacturer	Manufacturing	
Hazardous waste disposed		[kg]	2,81E-06	1,42E-07	2,98E-09	2,95E-06
Non-hazardous waste disposed		[kg]	2,05E-02	2,76E-03	5,55E-04	2,38E-02
Radioactive waste disposed		[kg]	1,01E-05	3,77E-07	7,32E-09	1,05E-05

Output flows

Parameter		Unit	PRODUCT STAGE			TOTAL
			Raw Material Supply	Transport to Manufacturer	Manufacturing	
Components for reuse		[kg]	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
Materials for energy recovery		[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity		[kg]	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



Additional Information

Entegre, which aims to “leave a liveable environmental heritage” for children, has placed its environmental responsibilities at the top of its working culture. Entegre is realizing its projects in order to protect and improve the natural beauties around us. The company, which has planted 15000 saplings so far, shows its sensitivity to the environment in every field.

Entegre is committed to conducting their activities in a consistent manner with the principle of “sustainable development” in compliance with the laws and regulations.

Their main policy is to continuously improve environmental performance, to use energy and natural resources effectively, to recover waste, to minimize harmful air emissions and water discharge, to provide their customers with information on the environmental impact of our products on a regular basis.



Occupational Health and Safety Approach

“Occupational Health and Safety” is one of the cornerstones of the company’s working culture. For this purpose, regular trainings are provided by professional trainers and “Occupational Health and Safety” awareness is developed in our employees. With this method, it is aimed to maintain a healthy and safe working environment, to prevent occupational risks, to eliminate risk and accident factors.

Health and Safety Policy

Everyone working in Entegre facilities has the right to work in a safe and healthy environment and has the duty to contribute to ensuring these conditions with responsible behaviour. Occupational Health and Safety is one of their basic performance indicators and is their top priority in the continuation of their activities.

References

- Entegre HARÇ A.Ş.; <https://www.entegreharc.com.tr/>
- “PCR 2019:14 Construction products / IVL Swedish Environmental Research Institute” with reference to EN ISO 14025:2010 and EN 15804+A2:2019.
- 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>

Contact

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Accredited or approved by: The International EPD® System



Owner of the Declaration

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LCA Author & EPD Design

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