MYFIX® YAPI KİMYASALLARI

ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO14025 and EN15804:2012 + A2:2019 for

Lithium Silicate-Based Surface Hardener

ECO PLATFORM EPD EN 15804 VERIFIED

TURKEY EPD®
ENVIRONMENTAL PRODUCT DECLARATIONS

Programme:	EPD Turkey, a fully aligned regional programme www.epdturkey.org	The International EPD® System www.environdec.com
Programme operator:	EPD Turkey: SÜRATAM – Turkish Centre for Sustainable Production Research & Design Nef 09 B Blok No:7/15 34415 Kağıthane/Istanbul, TURKEY	EPD International AB
EPD registration number:	S-P-02228	
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Geographical scope:	Turkey	

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 Kağıthane-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 1.1. 2020-09-14 Construction Products
EN 15804:2012 + A2:2019 Sustainability of Construction Works

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

Approved by: The International EPD® System

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

Yes No ☑

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.

COMPANY PROFILE

MYFIX brand has been under the roof of Yıldız Yapı Kimyasalları San. ve Tic. Ltd. Şti. since 2011. By following the changing and developing technology, it has grown steadily and gained a respectable place in the sector. It is taking firm steps towards becoming a leading company in the sector with strong administrative and domestic capital.

In achieving the current position of the MYFIX brand; the right knowledge, field experience, young and dynamic staff who are experts in their fields, and the strategies developed by them have been effective. With its strong R&D and production infrastructure, our company has created a quality product variety and service network that will meet all the expectations of the domestic and international market. By closely following the developments in the sector, we offer fast and precise solutions with a superior quality production approach that meets the requirements of internationally accepted standards. With this principle, we stand behind every job we respect.

LTY

LITHIUM SILICATE BASED SURFACE HARDENER

Solid and smooth surface

HIGH ABRASION RESISTANCE
WATER REPELLENT
DOES NOT DISPERSE AND SPAL

EASILY CLEANED

PRODUCT INFORMATION

Product name:	Lithium silicate based surface hardener
Product identification:	Dust-proof, water-based, glossy, lithium silcate-based, liquid surface hardener designed for application on concrete and cement-based floors.
UN CPC code:	37560
Geographical scope:	Turkey
Product composition:	Lithium silicate: 99% Water: 1%

Technical Properties

- Single component, easy to apply.
- Could be applied on old and new concrete surfaces.
- Abrasion resistance is high and hardness increases over time.
- By penetrating into the concrete, it reacts with lime (calcium hydroxide) that causes the concrete to dusting and hardens the surface by preventing the concrete from dusting. As it fills the pores in the concrete, it also increases water impermeability.
- The surface applied with Lithium silicate based surface hardener is opened to pedestrian traffic after 1-3 hours.
- Does not require another coating after application.
- Fully hardening time is 7 days.
- Dust impermeable.
- Water based.
- Has a transparent and bright appearance.
- Water repellent.
- Provides ease of cleaning.
- Does not scatter and spill.

SYSTEM BOUNDARY

Upstream	Core		Downstream												Other Environmental Information
Raw Material	Raw Material Transport	Manufacturing	Transport to Plant	Construction / Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Deconstruction / Demolition	Transport to Disposal Site	Waste Processing	Disposal	Future reuse, recycling or energy recovery potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

The system boundary covers the production of raw materials, all relevant transport down to factory gate and manufacturing by MYFIX (A1-A3). Besides, A4 stage that refers 'Transport to Site' is also added. These products are integral part of concrete that can not be separated at their end of life stage, therefore C (EoL Stages) and D modules were not declared.

Upstream Process (A1: Raw Material Supply)

Production starts with raw materials. Raw material stage includes raw material extraction/preparation and pre-treatment processes before production.

Core Process (A2:Transportation and A3:Manufacturing)

Transport is relevant for delivery of raw materials and other materials to the plant and the transport of materials within the plant. 'Manufacturing' starts with the mixing of raw materials according to product formulation. The end products are then packaged in bags to be sold. Electric energy is consumed during manufacturing stage.

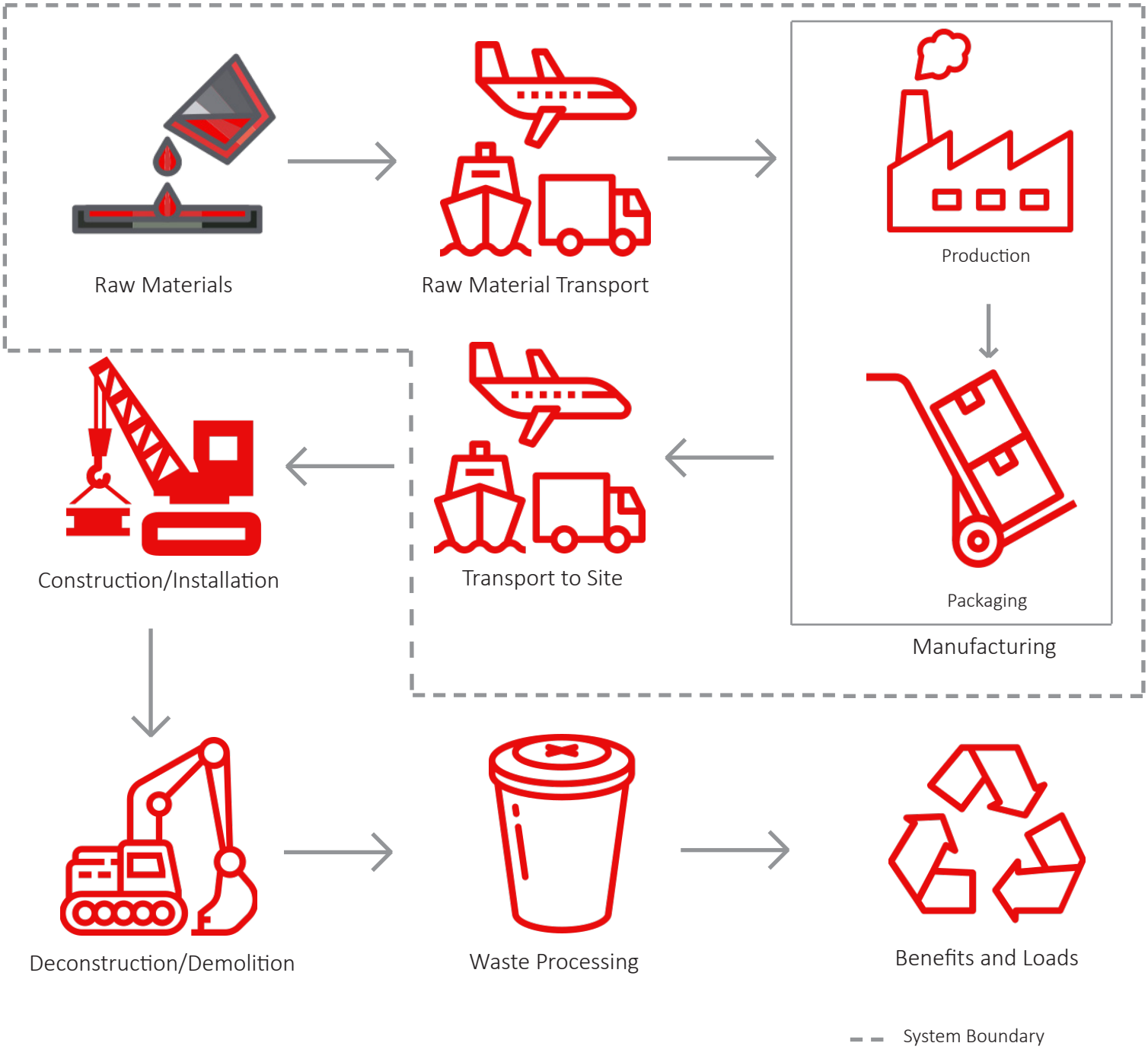
Downstream Processes (A4: Transport to Site)

Transport of final product to site is taken as the weight average values for transportation for the year of 2019.

LCA INFORMATION

Declared Unit	1 kg of Lithium Silicate-Based Surface Hardener
Time Representativeness	Average data for the year of 2019
Database(s) and LCA Software Used	TLCID ver. 1.0 (Turkish Lifecycle Inventory Database), Ecoinvent 3.5 SimaPro 9.0

System Boundary of the LCA Study



MORE INFORMATION

The results of the LCA with the indicators as per EPD requirement are given in the LCA result tables. All energy calculations were obtained using Cumulative Energy Demand (LHV) methodology, while fresh water use is calculated with selected inventory flows in SimaPro according to the PCR.

There are no co-products in the production. Hence, there is no need for co-product allocation.

Energy consumption and transport datasets were allocated based on the average production figures for the year of 2019, and weighted average of environmental impacts for the Lithium Silicate-Based Surface Hardener were presented.

Accordingly, hazardous and non-hazardous waste amounts were also allocated based on the average waste arisings for the period of 2019.

All the waste resulting from the main production and related processes is managed as per Waste Management Plan of MYFIX in accordance with Turkish laws and regulations.

No substances included in the Candidate List of Substances of Very High Concern for authorisation under the REACH Regulations are present in the surface hardener manufactured by MYFIX, either above the threshold for registration with the European Chemicals Agency or above 0.1% (wt/wt).

LCA RESULTS

LCA RESULTS

Environmental Impacts for 1 kg of Lithium Silicate-Based Surface Hardener						
Impact Category	Unit	A1	A2	A3	A1-A3	A4
GWP - Fossil	kg CO_2 eq	131E-3	9.02E-3	93.9E-3	234E-3	8.31E-3
GWP - Biogenic	kg CO_2 eq	241E-6	2.66E-6	-60.0E-3	-59.7E-3	2.48E-6
GWP - Luluc	kg CO_2 eq	81.9E-6	2.58E-6	101E-6	185E-6	2.43E-6
GWP - Total	kg CO_2 eq	131E-3	9.02E-3	34.1E-3	174E-3	8.31E-3
ODP	kg CFC-11 eq	12.1E-9	2.07E-9	2.09E-9	16.3E-9	1.91E-9
AP	mol H+ eq	904E-6	38.5E-6	387E-6	1.33E-3	34.0E-6
EP - Freshwater	kg P eq	86.7E-6	715E-9	12.7E-6	100E-6	666E-9
EP - Marine	kg N eq	321E-6	11.6E-6	77.0E-6	409E-6	9.95E-6
EP - Terrestrial	mol N eq	2.36E-3	128E-6	822E-6	3.31E-3	110E-6
POCP	kg NMVOC eq	466E-6	38.5E-6	376E-6	880E-6	33.3E-6
ADPE	kg Sb eq	931E-9	26.1E-9	49.1E-9	1.01E-6	24.7E-9
ADPF	MJ	1.42E+0	137E-3	2.73E+0	4.28E+0	127E-3
WDP	m^3 depriv.	109E-3	929E-6	30.0E-3	140E-3	862E-6
PM	disease inc.	9.30E-9	683E-12	4.20E-9	14.2E-9	582E-12
IR	kBq U-235 eq	9.18E-3	666E-6	1.22E-3	11.1E-3	615E-6
ETP - FW	CTUe	5.51E+0	96.2E-3	380E-3	5.98E+0	89.2E-3
HTTP - C	CTUh	114E-12	2.86E-12	33.5E-12	150E-12	2.64E-12
HTTP - NC	CTUh	4.32E-9	111E-12	597E-12	5.03E-9	104E-12
SQP	Pt	1.16E+0	90.5E-3	5.09E+0	6.34E+0	85.3E-3
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 related impacts, soil quality.						
Legend	A1: Raw Material, A2: Raw Material Transport, A3: Manufacturing, A1-A3: Sum of A1, A2 and A3, A4: Transport to Site					

Resource Use for 1 kg of Lithium Silicate-Based Surface Hardener						
Impact Category	Unit	A1	A2	A3	A1-A3	A4
PERE	MJ	115E-3	1.43E-3	764E-3	881E-3	1.33E-3
PERM	MJ	0	0	0	0	0
PERT	MJ	115E-3	1.43E-3	764E-3	881E-3	1.33E-3
PENRE	MJ	1.42E+0	137E-3	2.73E+0	4.28E+0	127E-3
PENRM	MJ	0	0	0	0	0
PENRT	MJ	1.42E+0	137E-3	2.73E+0	4.28E+0	127E-3
SM	kg	0	0	0	0	0
RSF	MJ	0	0	0	0	0
NRSF	MJ	0	0	0	0	0
FW	m^3	1.79E-3	22.1E-6	228E-6	2.05E-3	20.6E-6
Waste & Output Flows for 1 kg of Lithium Silicate-Based Surface Hardener						
Impact Category	Unit	A1	A2	A3	A1-A3	A4
HWD	kg	0	0	3.43E-6	3.43E-6	0
NHWD	kg	0	0	0	0	0
RWD	kg	0	0	0	0	0
CRU	kg	0	0	0	0	0
MFR	kg	0	0	0	0	0
MER	kg	0	0	0	0	0
EE (Electrical)	MJ	0	0	0	0	0
EE (Thermal)	MJ	0	0	0	0	0
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, 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, A2: Raw Material Transport, A3: Manufacturing, A1-A3: Sum of A1, A2 and A3, A4: Transport to Site					

Result per funtional/declared unit		
Biogenic Carbon Content	Unit	A1-A3
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging*	kg C	0.015

(*): It is assumed that bio-based products, such as wood, hemp and straw, contain circa 50% carbon by dry mass (Hoxha, E., et al.,2020).

REFERENCES

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

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/The International EPD® System/ The International EPD® System is a programme for Type III environmental declarations, maintaining a system to verify and register EPD®s as well as keeping a library of EPD®s and PCRs in accordance with ISO 14025. www.environdec.com

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/Ecoinvent / Ecoinvent Centre, www.ecoinvent.org

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

/TLCID/ Turkish Life Cycle Inventory Database, Turkish Center for Sustainable Production Research and Design (SURATAM), www.suratam.org

VERIFICATION & REGISTRATION

Programme	EPD registered through fully aligned regional programme: EPD Turkey www.epdturkey.org TURKEY EPD® THE INTERNATIONAL EPD® SYSTEM	The International EPD® System www.environdec.com EPD® THE INTERNATIONAL EPD® SYSTEM
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