

# ENVIRONMENTAL PRODUCT DECLARATION



## C 30/37 READY MIXED CONCRETE



In accordance with ISO 14025:2006 and EN15804:2012+A2:2019

EPD registration number: S-P-04806

Publication date: 2022.05.18

Valid until: 2027.05.17

Geographical Scope: Global

UN CPC Code: UN CPC 375

Programme: The International EPD®

System, [www.environdec.com](http://www.environdec.com)

Programme operator: EPD Turkey

EPD of construction products may not be comparable if they do not comply with EN 15804.

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](http://www.environdec.com).

# PROGRAMME INFORMATION

<b>Programme &amp; Operator</b>	The International EPD® System	EPD Turkey: SÜRATAM-Turkish Centre for Sustainable Production Research&Design
<b>Address</b>	EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden	Nef 09 B Blok No:7/15, 34415 Kağıthane/İstanbul, TURKEY
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CEN standard EN 15804 serves as the Core Product Category Rules (PCR)

Product category rules (PCR): PCR 2019:14 Construction Products, version 1.11, UN CPC 375

PCR review was conducted by:

The Technical Committee of the International EPD® System. See [www.environdec.com/about-us/the-international-epd-system-about-the-system](http://www.environdec.com/about-us/the-international-epd-system-about-the-system) 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](http://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:

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LCA & EPD Prepared by:

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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.

For more information about this EPD or its contents, please contact [export@iston.istanbul](mailto:export@iston.istanbul)

# ABOUT İSTON

İSTON İstanbul Concrete Elements and Ready Mixed Concrete Factories Corporation was founded in 1986 by Istanbul Metropolitan Municipality in order to provide quality solutions to the city's infrastructure and super structure requirements. İston products are preferred at first Istanbul and many cities in Turkey as well as Iston exports to many different countries in the world.

İSTON, which offers new products and technologies to the urban life and construction sector with its R&D and design studies, also carries out national and international projects within the scope of industry and academic cooperation.

İSTON offers products and designs which are compatible with future of cities, also adds cities vision in terms value of aesthetic, comfort and quality. İSTON, one of the most comprehensive company in the construction sector in the world, having more than 1800 products range, expands its field of activity with new products and new fields of activity. As an enterprise of Istanbul Metropolitan Municipality, İSTON create solutions by addressing the expectations and needs of the city dynamics from a wide framework with its participatory democratic management approach.

İSTON continues to make a difference in cities with the activities that support the "New Generation Municipality" understanding of Istanbul Metropolitan Municipality.

İston is a member of Ready Mixed Concrete Association and Turkish Precast Concrete Association.

## COMPANY INFORMATION

### Owner of the EPD

İSTON İSTANBUL BETON ELEMANLARI VE HAZIR BETON FABRİKALARI SAN. VE TİC. A.Ş.

### Production Site

Iston Hadimkoy Facility  
75 yıl Cd. Atatürk sanayi sitesi girişi, No: 2 Hadımköy  
Mah. Arnavutköy/İstanbul


# ABOUT READY MIXED CONCRETE

One of the most important case in the formation of cities is solid construction. One of the most important factors of solid urbanization is advanced ready-mixed concrete production technology. İSTON serves in ready mixed concrete at high quality standards as well. With its wide vehicle fleet, expert staff, high production technology, integrated production network, İSTON produces ready-mixed concrete at world standards and brings solid structures and urban facilities to the city.

## PRODUCT INFORMATION

<b>Product Name</b>	C 30/37 Ready-Mixed Concrete
<b>Product Density</b>	2,340.6 kg/m <sup>3</sup>
<b>Characteristic Compressive Strength</b>	40 MPa
<b>Product Composition</b>	15% Cement, 45% Aggregate, 27% Sand, 5% Stone Dust, 7% Water
<b>Packaging</b>	No packaging used. The product is transported with truck mixers.

# LCA INFORMATION



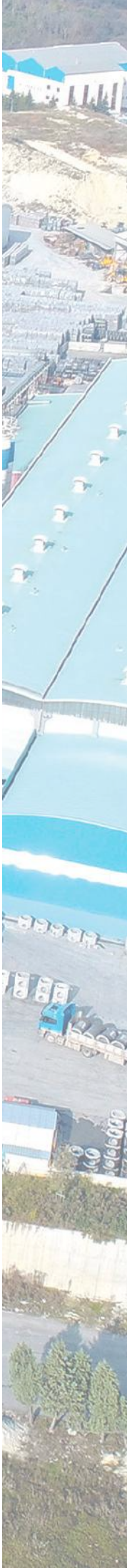
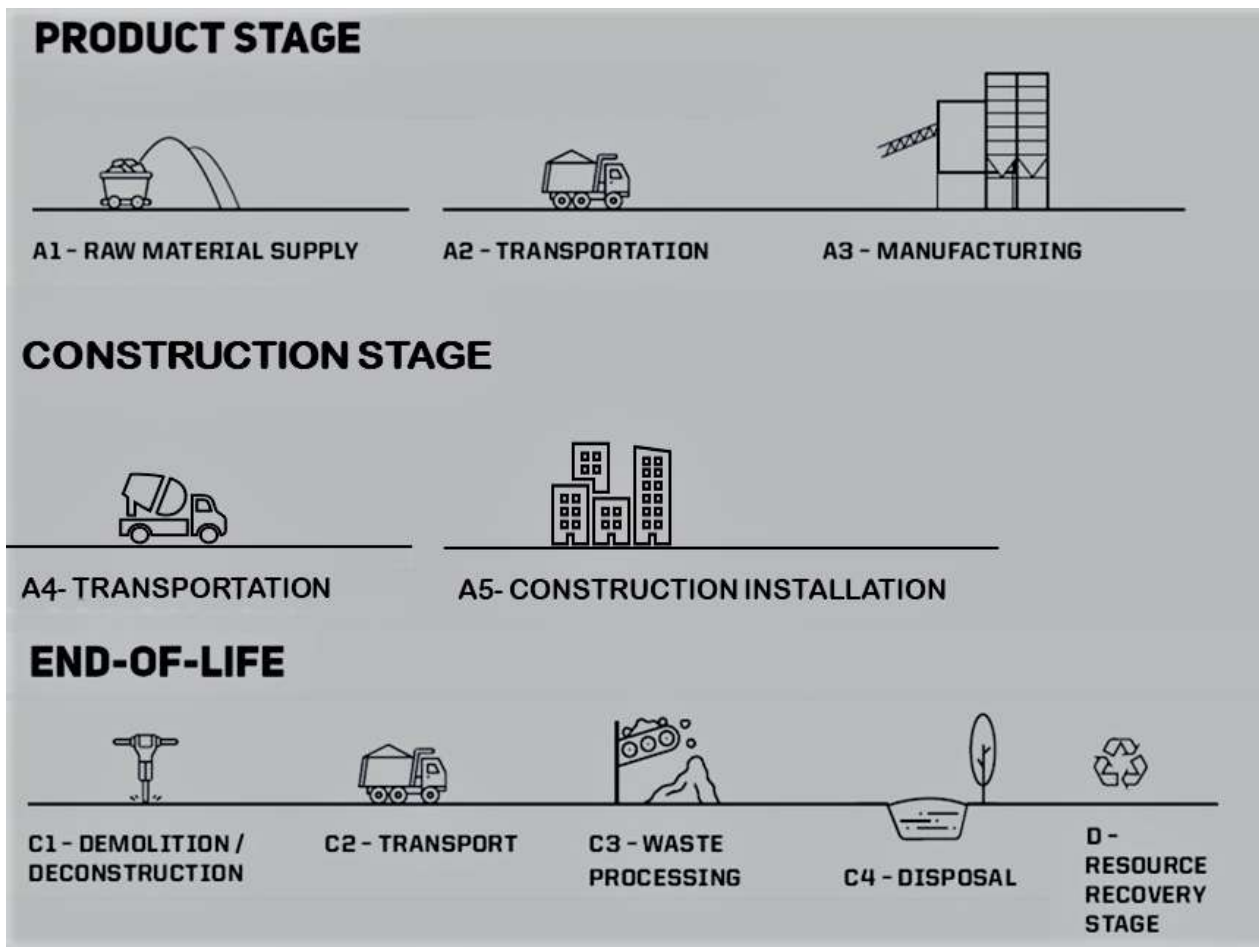
<b>Declared/Functional Unit</b>	The functional unit is 1 cubic meter of ready mixed concrete.
<b>Time representativeness</b>	2021
<b>Databases and LCA software used</b>	Ecoinvent 3.8 , EU&DK Input Output Database SimaPro 9.3
<b>Description of system boundaries</b>	Cradle to gate with options (A1-A3 + A4 + A5 + C + D)
<b>Cut off rules</b>	No cut-off criteria was applied. 100% of the inflows were accounted.
<b>Allocation</b>	It was necessary to apply allocation to electricity consumption.

# SYSTEM BOUNDARIES

The scope of the LCA and EPD is from Cradle to Gate with options (A1-A3+A4+A5+C+D).

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				RESOURCE RECOVERY STAGE
Raw material supply	Transport	Manufacturing	Transport	Construction installation	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

(X: Modules Declared, MND: Modules Not Declared)



# LCA RESULTS

## ENVIRONMENTAL IMPACTS OF 1 M3 READY-MIXED CONCRETE

Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-fossil	kg CO <sub>2</sub> eq.	3.09E+02	3.52E+01	5.45E-01	3.44E+02	5.26E+00	2.99E+01	2.85E+01	1.19E+01	6.58E+00	3.70E+00	-3.40E+00
GWP-biogenic	kg CO <sub>2</sub> eq.	3.43E+00	1.90E-02	5.57E-03	3.45E+00	3.94E-03	1.06E-02	2.91E-01	6.45E-03	2.32E-03	3.66E-03	-4.40E-02
GWP-luluc	kg CO <sub>2</sub> eq.	1.28E-01	1.47E-02	3.95E-03	1.46E-01	2.05E-03	2.98E-03	2.07E-01	5.00E-03	6.57E-04	3.49E-03	-4.80E-03
GWP-total	kg CO <sub>2</sub> eq.	3.12E+02	3.52E+01	5.55E-01	3.48E+02	5.27E+00	2.99E+01	2.90E+01	1.19E+01	6.58E+00	3.70E+00	-3.45E+00
ODP	kg CFC 11 eq.	1.15E-05	7.59E-06	1.28E-08	1.91E-05	1.24E-06	6.39E-06	6.68E-07	2.58E-06	1.41E-06	1.50E-06	-2.74E-07
AP	mol H <sup>+</sup> eq.	8.85E-01	1.04E-01	3.57E-03	9.93E-01	1.71E-02	3.11E-01	1.87E-01	3.52E-02	6.84E-02	3.48E-02	-2.19E-02
EP-freshwater	kg P eq.	3.69E-02	2.66E-03	5.63E-04	4.01E-02	3.96E-04	9.26E-04	2.94E-02	9.03E-04	2.04E-04	3.38E-04	-1.85E-03
EP-freshwater <sup>1</sup>	kg PO <sub>4</sub> <sup>3-</sup> eq.	1.12E-01	8.12E-03	1.72E-03	1.22E-01	1.21E-03	2.83E-03	8.98E-02	2.75E-03	6.22E-04	1.03E-03	-5.64E-03
EP- marine	kg N eq.	2.47E-01	2.11E-02	6.02E-04	2.69E-01	3.83E-03	1.38E-01	3.15E-02	7.16E-03	3.03E-02	1.21E-02	-5.04E-03
EP-terrestrial	mol N eq.	2.80E+00	2.30E-01	5.44E-03	3.04E+00	4.18E-02	1.51E+00	2.84E-01	7.80E-02	3.32E-01	1.32E-01	-6.07E-02
POCP	kg NMVOC eq.	7.09E-01	8.63E-02	1.50E-03	7.97E-01	1.62E-02	4.15E-01	7.83E-02	2.93E-02	9.13E-02	3.85E-02	-1.56E-02
ADP- minerals&metals <sup>2</sup>	kg Sb eq.	1.20E-03	1.22E-04	7.48E-07	1.32E-03	1.25E-05	1.54E-05	3.91E-05	4.14E-05	3.39E-06	8.43E-06	-3.21E-05
ADP-fossil <sup>2</sup>	MJ	1.50E+03	5.20E+02	5.86E+00	2.03E+03	8.40E+01	4.10E+02	3.06E+02	1.76E+02	9.03E+01	1.03E+02	-5.00E+01
WDP	m <sup>3</sup>	8.13E+01	1.82E+00	1.99E-01	8.34E+01	3.22E-01	6.42E-01	1.04E+01	6.17E-01	1.41E-01	4.65E+00	-6.02E+00
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 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											

[1] EN 15804:2012+A2:2019 specifies that the unit for the indicator for Eutrophication aquatic freshwater shall be kg PO<sub>4</sub> eq, although the reference given ("EUTREND model, Struijs et al., 2009b, as implemented in ReCiPe") uses the unit kg P eq. This is likely a typographical error in EN 15804, which is expected to be corrected in a future revision. Until this has been corrected, results for Eutrophication aquatic freshwater shall be given in both kg PO<sub>4</sub> eq. and kg P eq. in the EPD.

[2]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.

# LCA RESULTS

## ADDITIONAL ENVIRONMENTAL IMPACTS

Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-GHG*	kg CO <sub>2</sub> eq.	3.12E+02	3.52E+01	5.55E-01	3.48E+02	5.27E+00	2.99E+01	2.90E+01	1.19E+01	6.58E+00	3.70E+00	-3.45E+00
Particulate matter	disease inc.	7.70E-06	2.80E-06	1.53E-08	1.05E-05	5.98E-07	8.33E-06	8.02E-07	9.51E-07	1.40E-05	7.00E-07	-2.76E-07
Human toxicity. non-cancer	CTUh	2.42E-06	4.20E-07	4.66E-09	2.85E-06	6.99E-08	1.74E-07	2.44E-07	1.43E-07	3.83E-08	4.29E-08	-6.08E-08
Human toxicity. non-cancer - metals	CTUh	1.99E-06	3.28E-07	4.34E-09	2.32E-06	5.58E-08	4.68E-08	2.27E-07	1.11E-07	1.03E-08	1.70E-08	-3.52E-08
Human toxicity. non-cancer - organics	CTUh	3.63E-08	1.52E-08	6.48E-11	5.16E-08	2.29E-09	5.50E-09	3.39E-09	5.17E-09	1.21E-09	1.44E-09	-1.17E-09
Human toxicity. non-cancer - inorganics	CTUh	4.06E-07	7.88E-08	3.01E-10	4.86E-07	1.20E-08	1.23E-07	1.58E-08	2.67E-08	2.70E-08	2.47E-08	-2.47E-08
Human toxicity. cancer	CTUh	7.40E-08	1.32E-08	1.02E-10	8.74E-08	1.80E-09	9.28E-09	5.32E-09	4.49E-09	2.04E-09	1.65E-09	-3.36E-09
Human toxicity. cancer - metals	CTUh	4.00E-08	7.16E-09	8.74E-11	4.72E-08	9.76E-10	4.38E-09	4.57E-09	2.43E-09	9.63E-10	7.97E-10	-1.90E-09
Human toxicity. cancer - organics	CTUh	3.41E-08	6.07E-09	1.43E-11	4.02E-08	8.29E-10	4.91E-09	7.50E-10	2.06E-09	1.08E-09	8.58E-10	-1.47E-09
Human toxicity. cancer - inorganics	CTUh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ecotoxicity. freshwater - organics	CTUe	4.09E+01	2.98E+01	1.13E-02	7.07E+01	4.87E+00	2.54E+01	5.90E-01	1.01E+01	5.59E+00	5.97E+00	-7.83E-01
Ionising radiation	kBq U-235 eq	8.07E+00	2.39E+00	4.69E-03	1.05E+01	3.95E-01	1.85E+00	2.45E-01	8.10E-01	4.07E-01	4.59E-01	-7.75E-01
Land use	Pt	8.16E+02	3.57E+02	5.06E-01	1.17E+03	9.48E+01	5.22E+01	2.64E+01	1.21E+02	1.15E+01	2.17E+02	-4.60E+01
Ecotoxicity. freshwater - inorganics	CTUe	2.79E+02	1.16E+02	5.66E-01	3.96E+02	1.71E+01	6.71E+01	2.96E+01	3.93E+01	1.48E+01	1.68E+01	-6.50E+00
Ecotoxicity. freshwater	CTUe	3.53E+03	4.49E+02	5.73E+00	3.98E+03	7.03E+01	2.40E+02	3.00E+02	1.52E+02	5.28E+01	6.52E+01	-5.79E+01
Ecotoxicity. freshwater - metals	CTUe	3.21E+03	3.04E+02	5.15E+00	3.52E+03	4.83E+01	1.47E+02	2.70E+02	1.03E+02	3.25E+01	4.24E+01	-5.06E+01

\* 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 almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.



# LCA RESULTS

## RESOURCE USE

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	2.11E+02	1.45E+00	3.47E+00	6.79E+01	3.07E+00	7.63E-01	6.41E+00	-1.23E+01
PERM	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
PERT	MJ	2.11E+02	1.45E+00	3.47E+00	6.79E+01	3.07E+00	7.63E-01	6.41E+00	-1.23E+01
PENRE	MJ	2.36E+03	9.14E+01	4.43E+02	3.37E+02	1.92E+02	9.74E+01	1.17E+02	-8.30E+01
PENRM	MJ	1.30E-01	4.35E-03	6.13E-03	2.69E-03	8.33E-03	1.35E-03	1.90E-02	-3.45E-03
PENRT	MJ	2.36E+03	9.14E+01	4.43E+02	3.37E+02	1.92E+02	9.74E+01	1.17E+02	-8.30E+01
SM	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
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
FW	m3	1.99E+00	9.56E-03	2.07E-02	2.08E-01	1.84E-02	4.55E-03	1.10E-01	-1.50E-01
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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water								



# LCA RESULTS

## WASTE PRODUCTION

Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1.17E-03	1.37E-03	2.37E-06	2.55E-03	2.06E-04	1.12E-03	4.66E-04	1.24E-04	2.47E-04	1.56E-04	-1.03E-04
Non-hazardous waste disposed	kg	8.21E+00	2.69E+01	3.30E-02	3.51E+01	7.77E+00	5.58E-01	9.13E+00	1.73E+00	1.23E-01	7.02E+02	-8.42E-01
Radioactive waste disposed	kg	5.74E-03	3.39E-03	1.91E-06	9.13E-03	5.55E-04	2.83E-03	1.15E-03	9.97E-05	6.23E-04	6.77E-04	-2.55E-04

## OUTPUT FLOWS

Indicator	Unit	A1	A2	A3	Tot. A1-A3	A4	A5	C1	C2	C3	C4	D
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	0	0	0	0	0	0	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0
Exported energy. electricity	MJ	0	0	0	0	0	0	0	0	0	0	0
Exported energy. thermal	MJ	0	0	0	0	0	0	0	0	0	0	0

## BIOGENIC CARBON CONTENT

BIOGENIC CARBON CONTENT	Unit	QUANTITY
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging	kg C	0

## ADDITIONAL INFORMATION

There are no co-products in the production. Therefore, no co-product allocation has been applied.

None of the components are included in the Candidate List for Substances of Very High Concern (SVHC).

İSTON carries out all activities in accordance with Occupational Health and Safety Management System and Environmental Management and Quality Assurance System, Information Security Management System, Quality Laboratory Management System.

## REFERENCES

### **EN 15804:2012+A2:2019**

Sustainability of construction works - Environmental Product Declarations - Core rules for the product category of construction products

### **PCR 2019:14 v.1.11**

Product Category rules - Construction products - The International EPD® System

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

### **ISO 14040:2006**

Environmental management - Life Cycle Assessment - Principles and framework

### **ISO 14044:2006**

Environmental management - Life Cycle Assessment - Requirements and guidelines

# CONTACT INFORMATION

## EPD OWNER

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## LCA PRACTITIONER & EPD DESIGN

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**HALIÇ ÇEVRE  
DANIŞMANLIK**

## PROGRAMME

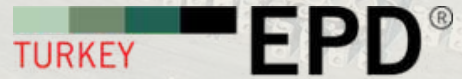
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THE INTERNATIONAL EPD® SYSTEM

## PROGRAMME OPERATOR

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THE INTERNATIONAL EPD® SYSTEM

## LCA & EPD VERIFIER

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