



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

9633230112

**TSN-BETON HANNOVER GMBH,
WERK LEHRTE**



GENERAL INFORMATION

MANUFACTURER INFORMATION

Manufacturer	TSN-Beton Hannover GmbH, Werk Lehrte
Address	Daimlerstraße 2-4, 31275 Lehrte
Contact details	kontakt@tsn-beton.de
Website	https://www.tsn-beton.de/

PRODUCT IDENTIFICATION

Product name	9633230112
Product number / reference	96332301
Place(s) of production	Deutschland

EPD INFORMATION

The EPD owner has the sole ownership, liability, and responsibility for the EPD. Construction products EPDs may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

EPD program operator	The Building Information Foundation RTS sr
EPD standards	This EPD is in accordance with EN 15804+A2 and ISO 14025 standards.
Product category rules	The CEN standard EN 15804 serves as the core PCR. In addition, the is used.
EPD author	Michael Mondry, Ha-Be Baustoffprüftechnik GmbH
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ External verification ☒ Internal certification



PRODUCT INFORMATION

PRODUCT DESCRIPTION

Diese EPD bezieht sich auf die Betonsorte C30/37, F4, GK16mm, mit RC Material, XC4, XF1, mit der Sortennummer 9633230112

PRODUCT APPLICATION

Bauvorhaben:
Landeshauptstadt Hannover
Stadtteil Südstadt-Bult
Hildesheimer Str. 114

ADDITIONAL TECHNICAL INFORMATION

Further information can be found at <https://www.tsn-beton.de>

PRODUCT RAW MATERIAL COMPOSITION

Product and Packaging Material	Weight, kg	Country Region of origin
Sand 0/2 Uetze	723	Deutschland
Kiessand 2/8 Leinetal	173	Deutschland
Kies 8/16 Leinetal	258	Deutschland
RC Material 2/16	611	Deutschland
CEM III/A 42,5N	360	Deutschland
Frischwasser, Restwasser	175	Deutschland
Zusatzmittel BV/FM RC570	2,34	Deutschland

SUBSTANCES, REACH - VERY HIGH CONCERN

Editing guide: remove either the statement, or the following table:

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).



LIFE-CYCLE ASSESSMENT

LIFE-CYCLE ASSESSMENT INFORMATION

Period for data Kalenderjahr 2021

DECLARED AND FUNCTIONAL UNIT

Declared unit 1 m³

Mass per declared unit 2300 kg

Functional unit

Reference service life

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C -

Biogenic carbon content in packaging, kg C -

SYSTEM BOUNDARY

This EPD covers the cradle to gate with modules scope with the following modules; A1 (Raw material supply), A2 (Transport) and A3 (Manufacturing)

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A 1	A 2	A 3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
x	x	x	MN D	MN D	MN D	MN D	MN D	MN D	MN D	MN D	MN D	MN D	MN D	MN D	MN D	MN D	MN D	MN D
Geography, by two-letter ISO country code or regions. The International EPD System only.																		
D E	D E	D E	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. Modules not relevant = MNR.

ENVIRONMENTAL IMPACT DATA

Note: additional environmental impact data may be presented in annexes.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total	kg CO ₂ e	1,5E2	3,7E0	5,93E-1	1,54E2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
GWP – fossil	kg CO ₂ e	1,49E2	3,69E0	5,79E-1	1,54E2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
GWP – biogenic	kg CO ₂ e	3,71E-1	2,68E-3	7,71E-3	3,82E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
GWP – LULUC	kg CO ₂ e	1,29E-1	1,11E-3	6,41E-3	1,37E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Ozone depletion pot.	kg CFC ₁₁ e	5,14E-7	8,69E-7	8,03E-8	1,46E-6	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Acidification potential	mol H ⁺ e	1,84E-1	1,55E-2	2,35E-3	2,02E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
EP-freshwater ³⁾	kg Pe	1,18E-4	3,01E-5	2,79E-5	1,76E-4	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
EP-marine	kg Ne	6E-2	4,67E-3	3,97E-4	6,51E-2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
EP-terrestrial	mol Ne	6,57E-1	5,16E-2	4,94E-3	7,13E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
POCP (“smog”)	kg NMVOCe	1,76E-1	1,66E-2	1,25E-3	1,94E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
ADP-minerals & metals	kg Sbe	3,2E-4	6,31E-5	2,11E-6	3,85E-4	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
ADP-fossil resources	MJ	6,54E2	5,75E1	2,38E1	7,35E2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Water use ²⁾	m ³ e depr.	9,25E0	2,14E-1	1,49E-1	9,61E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

- 1) GWP = Global Warming Potential; EP = Eutrophication potential; POCP = Photochemical ozone formation; ADP = Abiotic depletion potential. 2) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator. 3) Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO₄e.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	1,6E-7	3,34E-7	1,04E-8	5,04E-7	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Ionizing radiation ⁵⁾	kBq U235e	1,03E-1	2,51E-1	4,36E-1	7,9E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Ecotoxicity (freshwater)	CTUe	5,57E1	4,39E1	1,01E1	1,1E2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Human toxicity, cancer	CTUh	3,56E-9	1,12E-9	2,03E-10	4,88E-9	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Human tox. non-cancer	CTUh	4,11E-8	5,21E-8	5,11E-9	9,83E-8	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
SQP	-	3,9E0	8,68E1	4,69E-1	9,12E1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

4) SQP = Land use related impacts/soil quality. 5) EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy	MJ	3,2E2	7,24E-1	5,54E0	3,26E2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Renew. PER as material	MJ	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Total use of renew. PER	MJ	3,2E2	7,24E-1	5,54E0	3,26E2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Non-re. PER as energy	MJ	6,27E2	5,75E1	2,45E1	7,09E2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Non-re. PER as material	MJ	2,7E1	0E0	0E0	2,7E1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Total use of non-re. PER	MJ	6,54E2	5,75E1	2,45E1	7,36E2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Secondary materials	kg	1,12E-2	0E0	0E0	1,12E-2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Renew. secondary fuels	MJ	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Non-ren. secondary fuels	MJ	3,39E2	0E0	0E0	3,39E2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Use of net fresh water	m ³	4,05E-1	1,2E-2	4,97E-3	4,22E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

6) PER = Primary energy resources

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	2E-1	5,59E-2	3,95E-2	2,95E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Non-hazardous waste	kg	3,22E1	6,18E0	1,01E0	3,94E1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
Radioactive waste	kg	3,39E-2	3,95E-4	1,88E-4	3,45E-2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG	kg CO ₂ e	1,49E2	3,69E0	5,79E-1	1,54E2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

8) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013) This indicator is almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.



BIBLIOGRAPHY

ISO 14025:2010 Environmental labels and declarations – Type III environmental declarations. Principles and procedures.

ISO 14040:2006 Environmental management. Life cycle assessment. Principles and frameworks.

ISO 14044:2006 Environmental management. Life cycle assessment. Requirements and guidelines.

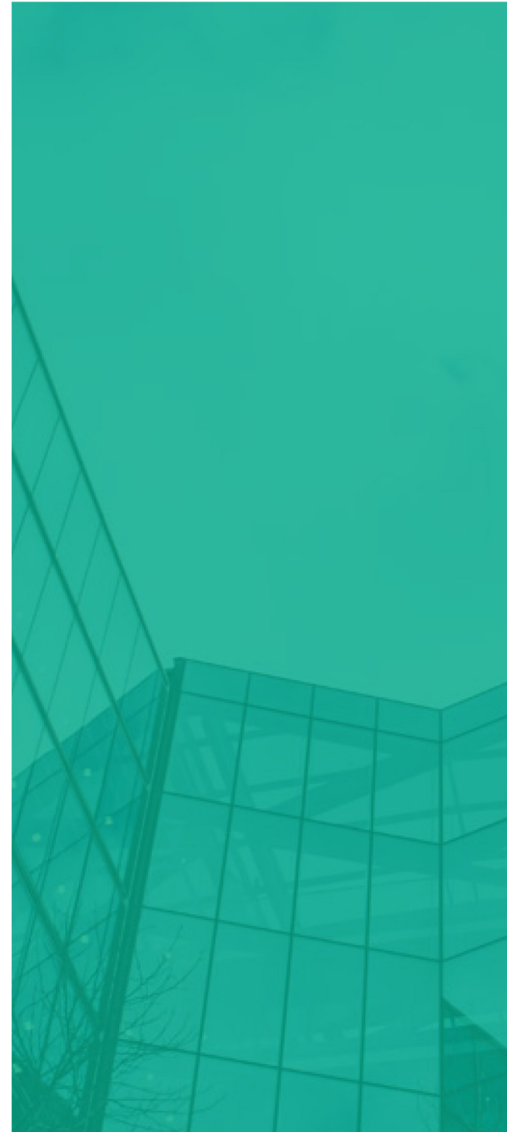
Ecoinvent database v3.6 (2019) and One Click LCA database.

EN 15804:2012+A2:2019 Sustainability in construction works – Environmental product declarations – Core rules for the product category of construction products.

Editorial guide: remove if not environdec

EPD. General Programme Instructions of the international EPD® system. Version 4.0

9633230112 LCA background report 29.11.2022





EPD AUTHOR AND CONTRIBUTORS

Manufacturer	TSN-Beton Hannover GmbH, Werk Lehrte
EPD author	Michael Mondry, Ha-Be Baustoffprüftechnik GmbH
EPD program operator	The Building Information Foundation RTS sr
Background data	This EPD is based on Ecoinvent 3.6 (cut-off) and One Click LCA databases.
LCA software	The LCA and EPD have been created using One Click LCA Pre-Verified EPD Generator for
Software verification date	17 January 2021