Environmental Product Declaration

of multiple products based on the average results of the product group

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Webnet

from

Jakob AG (Jakob Rope Systems)

Programme:	The International EPD System, www.environdec.com
Programme operator:	EPD International AB
Type of EPD:	EPD of multiple products from a company
EPD registration number:	EPD-IES-0025326:001
Version date:	2025-08-06
Validity date:	2030-08-06

An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.environdec.com

Included products:

- **Webnet with sleeves – type 'Webnet Micro'**
- **Webnet with sleeves – type 'Webnet'**
- **Webnet sleeveless**

GENERAL INFORMATION

Programme Information	
Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	support@environdec.com

Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): PCR 2019:14 Construction products version 2.0.1
PCR review was conducted by: The Technical Committee of the International EPD® System. A full list of members available on www.environdec.com. Chair of the PCR review: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via info@environdec.com.
c-PCR, if applicable: NA

Third-party Verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ **Individual EPD verification without a pre-verified LCA/EPD tool** Third-party verifier: Angela Schindler, Umweltberatung, Tuefinger Str. 12, 88682 Salem, Germany Approved by: 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 published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit version number) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison.
For further information about comparability, see EN 15804 and ISO 14025.

INFORMATION ABOUT EPD OWNER

Owner of the EPD:
Jakob AG (Jakob Rope Systems)

Address:
Jakob AG, Dorfstrasse 34, 3555 Trubschachen, Switzerland

Contact:
Fabian Graber, fabian.graber@jakob.ch, +41 (0) 34 495 10 10

Description of the organisation:
Jakob Rope Systems develops and provides stainless steel architectural systems and solutions for rope and lifting technology. Its products and services are well established in the market and are sold in over 40 countries worldwide. Production and processing mainly take place at its sites in Trubschachen (Switzerland) and Saigon (Vietnam). Webnet is manufactured at the Saigon site. Learn more: www.jakob.com.

Figure -1: Jakob Saigon LTD

Product-related or management system-related certifications:
Jakob Rope Systems production facility in Saigon has implemented an environmental management system in accordance with the ISO 14001 standard. The production site in Trubschachen has a certified quality management according to the ISO 9001 standard, issued by SQS. The production site in Vietnam has a certified quality management according to the ISO 9001 standard and an environment management according to the ISO 14001 standard, issued by TÜV Rheinland.

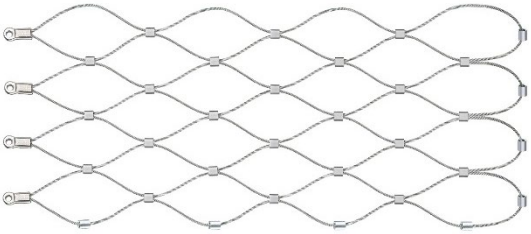
Webnet is approved by the German Institute for Building Technology (Deutsches Institut für Bautechnik – DIBt) as a fall protection system (https://www.jakob.com/files/6_downloads/certificates/EN/Jakob-Rope-Systems-Certificate-General-Building-Supervisory-Approval-Webnet-EN.pdf)

PRODUCT INFORMATION

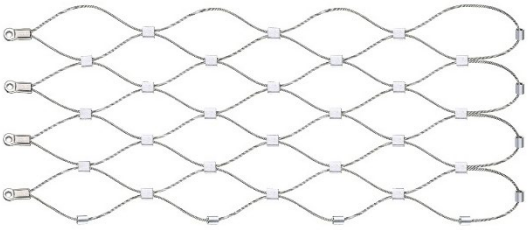
Product name:
Webnet

Product identification:
The average product declared corresponds to the average Webnet product manufactured at the Webnet production site in 2024, calculated by weighting all Webnet products manufactured by their production volume in 2024. All varieties of Webnet products manufactured (with sleeves, version 'Webnet micro'; with sleeves, version 'Webnet', and Webnet without sleeves) were included in the calculation of the average product and are thus covered by the EPD presented. The different varieties of Webnet products are presented below:

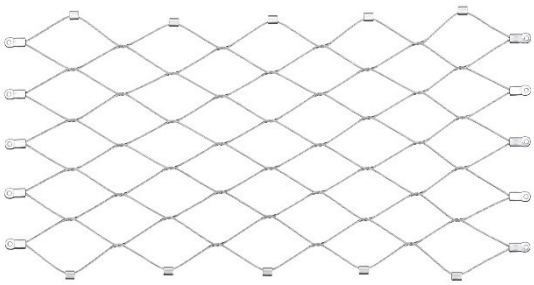
- Webnet with sleeves "type Micro"



- Webnet with sleeves "type Webnet"



- Webnet sleeveless



UN CPC code:

412 – Products of iron or steel

Product description:

Webnet is a stainless-steel mesh that can be mounted on railings and in stairways to provide support. On facades it serves as a climbing aid for plants. Its transparency makes it ideal as a discreet building element for zoo enclosure or a protective structure. Webnet is made of high-quality steel of the material groups AISI 316/316L (EN1.4401/1.4404), that is externally purchased. The technical service life of the Webnet depends on where it is installed.

Detailed information on the product's technical specifications is shown below and can be found in the Webnet catalog available at the Jakob Rope Systems website.

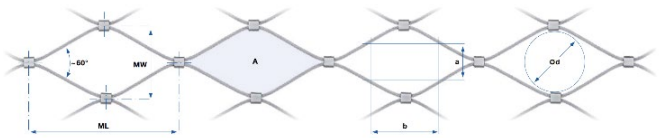
(https://www.jakob.com/files/6_downloads/catalogues/Jakob-Rope-Systems-catalogue-webnet.pdf)

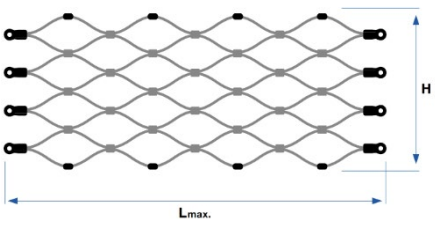
Products covered by EPD:

- **Webnet with sleeves "type Micro"**

Table 1: technical information of Webnet with sleeves "type Micro" included in EPD

No.	Rope Ø	Construction	Mesh aperture MW × ML	Weight	Rope length	Number of sleeves	Mesh aperture[1] A	a	b	Ød	max. production lengths[2] Lmax.	Light transmission
	mm		mm	kg/m²	m/m²	per/par/per m²	mm²	mm	mm	mm	m	%
20261-0100-020	1	6×7+WC	20 × 37,99	1,31	148	2475	328	9	19	15	30	82,5
20261-0100-025	1	6×7+WC	25 × 45,52	0,92	110	1620	511	12	22	20	40	86,6
20261-0100-030	1	6×7+WC	30 × 53,64	0,79	107	1173	734	14	26	25	40	89,3
20261-0100-035	1	6×7+WC	35 × 61,33	0,68	101	884	994	17	30	29	50	91,1
20261-0100-040	1	6×7+WC	40 × 70,36	0,51	73	662	1318	19	35	34	60	92,4
20261-0100-050	1	6×7+WC	50 × 87,34	0,37	57	410	2074	24	43	42	70	94,2
20261-0100-060	1	6×7+WC	60 × 104,56	0,3	48	281	3007	29	52	51	80	95,3
20261-0100-070	1	6×7+WC	70 × 121,88	0,25	42	218	4118	34	60	60	85	96,1
20261-0100-080	1	6×7+WC	80 × 139,04	0,24	36	163	5388	39	69	69	90	96,6
20261-0150-025	1,5	6×7+WC	25 × 45,46	1,84	88	1822	476	12	22	19	40	79,2
20261-0150-030	1,5	6×7+WC	30 × 60,73	1,28	73	1105	794	14	30	24	40	84
20261-0150-035	1,5	6×7+WC	35 × 67,98	1,2	62	855	1060	16	33	29	50	86
20261-0150-040	1,5	6×7+WC	40 × 75,18	0,85	55	663	1361	19	37	34	60	88,6
20261-0150-050	1,5	6×7+WC	50 × 91,39	0,64	44	451	2113	24	45	44	70	91,1
20261-0150-060	1,5	6×7+WC	60 × 107,78	0,5	38	315	3033	29	53	54	80	92,8
20261-0150-070	1,5	6×7+WC	70 × 124,78	0,47	32	232	4138	34	62	61	85	94
20261-0150-080	1,5	6×7+WC	80 × 141,45	0,34	29	189	5399	39	70	69	90	94,8
20261-0150-100	1,5	6×7+WC	100 × 175,34	0,3	22	126	8449	49	87	87	100	96
20261-0150-120	1,5	6×7+WC	120 × 210,36	0,24	18	85	12243	59	104	104	100	96,7
20261-0150-140	1,5	6×7+WC	140 × 244,98	0,2	16	60	16710	69	122	122	100	97,2
20261-0150-160	1,5	6×7+WC	160 × 280,1	0,17	14	46	21908	79	139	139	100	97,6
20261-0150-180	1,5	6×7+WC	180 × 314,33	0,14	13	39	27730	89	156	157	100	98
20261-0150-200	1,5	6×7+WC	200 × 348,51	0,13	11	33	34232	99	173	174	100	98,2
20261-0150-250	1,5	6×7+WC	250 × 435,6	0,12	9	22	53680	124	217	218	100	98,5
20261-0200-040	2	6×7+WC	40 × 74,93	1,54	55	663	1308	18	36	33	60	84,3
20261-0200-050	2	6×7+WC	50 × 91,11	1,16	44	451	2049	23	45	43	70	87,9
20261-0200-060	2	6×7+WC	60 × 107,54	0,92	38	315	2959	28	53	53	80	90,3
20261-0200-070	2	6×7+WC	70 × 124,1	0,74	32	232	4038	33	61	60	85	91,8
20261-0200-080	2	6×7+WC	80 × 141,03	0,65	29	189	5296	38	69	69	90	93
20261-0200-100	2	6×7+WC	100 × 175,16	0,48	22	126	8334	48	87	86	100	94,5
20261-0200-120	2	6×7+WC	120 × 209,78	0,37	18	85	12082	58	104	103	100	95,6
20261-0200-140	2	6×7+WC	140 × 244,11	0,32	16	60	16503	68	121	121	100	96,3
20261-0200-160	2	6×7+WC	160 × 278,29	0,27	14	46	21599	78	138	138	100	96,8
20261-0200-180	2	6×7+WC	180 × 313,2	0,26	13	39	27443	88	156	156	100	97,2
20261-0200-200	2	6×7+WC	200 × 348,4	0,21	11	33	34014	98	173	173	100	97,5
20261-0200-250	2	6×7+WC	250 × 435,2	0,17	9	22	59373	123	217	217	100	98

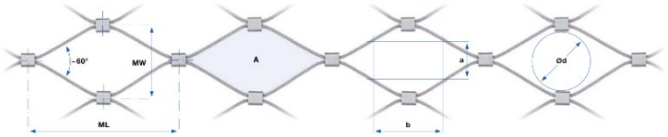


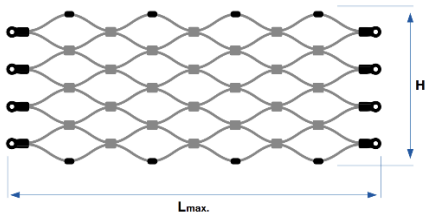


- **Webnet with sleeves “type Webnet”**

Table 2: technical information of Webnet with sleeves “type Webnet” included in EPD

Nr. / N° / No.	Rope Ø	Construction	Mesh aperture MW × ML	Weight	Rope length	Number of sleeves	Mesh aperture[1] A	a	b	Ød	max. production lengths[2] Lmax.	Light transmission
	mm		mm	kg/m²	m/m²	per/par/per m²	mm²	mm	mm	mm	m	%
20256-0300-040	3	6×19+WC	40 × 74,8	4,1	60	760	1198	17	36	30	60	74,3
20256-0300-050	3	6×19+WC	50 × 90,5	2,91	48	490	1909	22	44	40	70	76
20256-0300-060	3	6×19+WC	60 × 106,6	2,27	40	360	2771	27	51	50	80	84
20256-0300-070	3	6×19+WC	70 × 124	1,81	34	260	3869	32	60	59	85	87
20256-0300-080	3	6×19+WC	80 × 141	1,51	30	195	5110	37	69	68	90	88,7
20256-0300-100	3	6×19+WC	100 × 175	1,18	25	130	8101	47	86	85	100	91,4
20256-0300-120	3	6×19+WC	120 × 209	0,96	21	95	11655	57	103	102	100	93
20256-0300-140	3	6×19+WC	140 × 244	0,8	18	73	16191	67	120	120	100	94
20256-0300-160	3	6×19+WC	160 × 279	0,69	16	57	21309	77	138	137	100	95
20256-0300-180	3	6×19+WC	180 × 313	0,59	14	45	27040	87	155	155	100	95,6
20256-0300-200	3	6×19+WC	200 × 346,18	0,46	11	33	33372	97	172	172	100	96
20256-0300-250	3	6×19+WC	250 × 432,95	0,34	9	22	52571	122	215	216	100	97
20256-0300-300	3	6×19+WC	300 × 519,38	0,29	7	18	76059	147	258	259	100	97,5
20256-0300-400	3	6×19+WC	400 × 691,89	0,24	6	12	135930	197	344	347	100	98,2





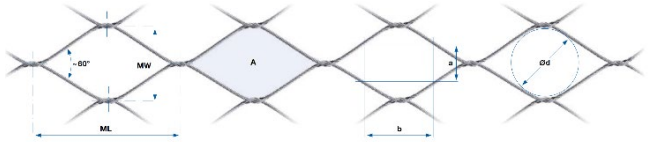
- **Webnet sleeveless**

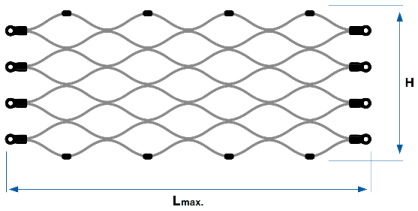
Table 3: technical information of Webnet sleeveless included in EPD

Nr. / N° / No.	Rope Ø	Construction	Mesh aperture MW × ML	Weight	Rope length	Number of knots	Mesh aperture[1] A	a	b	Ød	max. production lengths[2] Lmax.	Light transmission
	mm		mm	kg/m²	m/m²	per/par/per m²	mm²	mm	mm	mm	m	%
20260-0150-025	1,5	6×7+WC	25 × 44,61	1,07	118	1617	482	11	22	21	20	86,6
20260-0150-030	1,5	6×7+WC	30 × 60,18	0,8	88	976	803	14	29	27	20	89
20260-0150-035	1,5	6×7+WC	35 × 66,74	0,65	72	781	1056	16	33	30	25	90,5
20260-0150-040	1,5	6×7+WC	40 × 74,76	0,59	65	587	1370	19	37	35	30	91,6
20260-0150-050	1,5	6×7+WC	50 × 89,74	0,48	53	377	2091	24	44	43	40	93,6
20260-0150-060	1,5	6×7+WC	60 × 105,66	0,4	44	263	2989	29	52	51	40	93,5
20260-0150-070	1,5	6×7+WC	70 × 124,58	0,35	38	182	4147	34	62	61	50	95
20260-0150-080	1,5	6×7+WC	80 × 139,56	0,31	34	149	5343	39	69	69	50	95,7
20260-0150-100	1,5	6×7+WC	100 × 174,6	0,25	27	85	8420	49	87	86	60	96,4
20260-0150-120	1,5	6×7+WC	120 × 208,48	0,21	23	56	12149	59	103	104	60	97
20260-0150-140	1,5	6×7+WC	140 × 243,06	0,17	19	42	16595	69	121	121	60	97,5
20260-0150-160	1,5	6×7+WC	160 × 277,75	0,16	18	30	21740	79	138	139	60	97,8
20260-0150-180	1,5	6×7+WC	180 × 313,56	0,14	15	22	27679	89	156	156	60	98
20260-0150-200	1,5	6×7+WC	200 × 349,88	0,12	13	16	34384	99	174	174	60	98,2
20260-0150-250	1,5	6×7+WC	250 × 432,43	0,09	10	9	53305	124	215	217	60	98,6
20260-0200-040	2	6×7+WC	40 × 74,8	1,09	65	587	1328	18	36	34	30	88,8
20260-0200-050	2	6×7+WC	50 × 89,72	0,94	56	377	2040	23	44	43	40	91
20260-0200-060	2	6×7+WC	60 × 105,72	0,74	44	263	2931	25	52	51	40	92,4
20260-0200-070	2	6×7+WC	70 × 122,35	0,64	38	182	4002	33	60	60	50	93,5
20260-0200-080	2	6×7+WC	80 × 139,57	0,57	34	149	5263	38	69	68	50	94,3
20260-0200-100	2	6×7+WC	100 × 173,48	0,45	27	85	8275	48	86	86	60	95,4
20260-0200-120	2	6×7+WC	120 × 207,52	0,38	23	56	11973	58	103	104	60	96,2
20260-0200-140	2	6×7+WC	140 × 243,06	0,32	19	42	16454	68	120	122	60	96,7
20260-0200-160	2	6×7+WC	160 × 276,27	0,3	18	30	21463	78	137	139	60	97,1
20260-0200-180	2	6×7+WC	180 × 313,17	0,25	15	22	27463	88	156	157	60	97,4
20260-0200-200	2	6×7+WC	200 × 346,8	0,22	13	16	33879	98	172	175	60	97,7
20260-0200-250	2	6×7+WC	250 × 433,35	0,18	10	9	53167	123	216	219	60	98,2

Table 4: technical information of Webnet sleeveless included in EPD

Nr. / N° / No.	Rope Ø	Construction	Mesh aperture MW x ML	Weight	Rope length	Number of knots	Mesh aperture* A	a	b	Ød	max. production lengths² Lmax.	Light transmission
	mm		mm	kg/m²	m/m²	per/par/per m²	mm²	mm	mm	mm	m	%
20260-0300-040	3	6×19+WC	40 × 73,86	2,34	65	587	1248	17	35	33	30	83,4
20260-0300-050	3	6×19+WC	50 × 88,26	1,99	53	377	1909	22	43	42	40	86,5
20260-0300-060	3	6×19+WC	60 × 105,66	1,65	44	263	2812	27	51	50	40	88,7
20260-0300-070	3	6×19+WC	70 × 122,46	1,43	38	182	3869	32	60	59	50	90,3
20260-0300-080	3	6×19+WC	80 × 139,49	1,28	34	149	5104	37	68	68	50	91,5
20260-0300-100	3	6×19+WC	100 × 173,32	1,01	27	85	8072	47	85	85	60	93,1
20260-0300-120	3	6×19+WC	120 × 207,26	0,86	23	56	11723	57	102	103	60	94,3
20260-0300-140	3	6×19+WC	140 × 241,74	0,71	19	42	16089	67	119	120	60	95
20260-0300-160	3	6×19+WC	160 × 276,52	0,68	18	30	21168	77	137	138	60	95,7
20260-0300-180	3	6×19+WC	180 × 310,96	0,56	15	22	26913	87	154	156	60	96,2
20260-0300-200	3	6×19+WC	200 × 345,87	0,5	13	16	33393	97	171	173	60	96,5
20260-0300-250	3	6×19+WC	250 × 433,56	0,38	10	9	52696	122	215	218	60	97,2
20260-0300-300	3	6×19+WC	300 × 517,28	0,34	9	7	75800	147	257	261	60	97,7
20260-0300-400	3	6×19+WC	400 × 685,35	0,26	7	3	134690	197	341	348	60	98,3
20260-0400-060	4	6×19+WC	60 × 104	2,77	44	263	2657	27	50	49	40	85,2
20260-0400-070	4	6×19+WC	70 × 121,01	2,39	38	182	3693	32	58	58	50	87,2
20260-0400-080	4	6×19+WC	80 × 138,1	2,14	34	149	4902	37	67	67	50	88,7
20260-0400-100	4	6×19+WC	100 × 171,93	1,7	27	85	7818	47	84	85	60	91
20260-0400-120	4	6×19+WC	120 × 207,4	1,45	23	56	11502	57	102	103	60	92,4
20260-0400-140	4	6×19+WC	140 × 242,67	1,2	19	42	15883	67	119	121	60	93,5
20260-0400-160	4	6×19+WC	160 × 275,6	1,13	18	30	20789	77	136	138	60	94,3
20260-0400-180	4	6×19+WC	180 × 311,49	0,95	15	22	26611	87	154	156	60	95
20260-0400-200	4	6×19+WC	200 × 345,18	0,8	13	16	32938	97	170	174	60	95,4
20260-0400-250	4	6×19+WC	250 × 431,39	0,63	10	9	51944	122	214	218	60	96,3
20260-0400-300	4	6×19+WC	300 × 515,33	0,57	9	7	74927	147	255	262	60	97
20260-0400-400	4	6×19+WC	400 × 675,3	0,44	7	3	131932	197	335	248	60	97,7
20260-0500-100	5	6×19+WC	100 × 170,17	2,57	27	85	7544	46	82	82	60	88,7
20260-0500-120	5	6×19+WC	120 × 207,49	2,19	23	56	11273	56	101	101	60	90,5
20260-0500-140	5	6×19+WC	140 × 242,67	1,81	19	42	15608	66	119	119	60	91,9
20260-0500-160	5	6×19+WC	160 × 273,24	1,71	18	30	20298	76	134	135	60	92,8
20260-0500-180	5	6×19+WC	180 × 309,04	1,43	15	22	26047	86	152	153	60	93,6
20260-0500-200	5	6×19+WC	200 × 342,87	1,2	13	16	32323	96	169	171	60	94,2
20260-0500-250	5	6×19+WC	250 × 432,98	0,95	10	9	51642	121	214	216	60	95,4
20260-0500-300	5	6×19+WC	300 × 512,51	0,86	9	7	73926	146	254	258	60	96,2
20260-0500-400	5	6×19+WC	400 × 688,61	0,67	7	3	133756	196	342	347	60	97,1





Name and location of production site(s):

26 Street Vietnam-Singapore 2A Industrial Park, Vinh Tan Ward Tan Uyen City, Binh Duong Province, Vietnam, Jakob Saigon ltd

Manufacturing process:

The manufacturing process begins with the procurement of stainless-steel rope for Webnet rope, as well as stainless-steel wires and rods for sleeves and eye-ends. The imported stainless-steel wires are cut to precise specifications based on the design drawings. Once prepared, the wires are manually threaded through pre-positioned sleeves within pre-assembled steel frameworks, ensuring the required mesh aperture is achieved for each specific Webnet type.

CONTENT DECLARATION

Product content	Mass, kg	Post-consumer recycled material[1], mass-% of product	Biogenic material, mass-% of product	Biogenic material, kg C/product or declared unit
Stainless steel	1.00	Unknown	0 %	0
Sum	**1.00**	**Unknown**	**0%**	**0**

[1] Stainless steel inputs used to manufacture Webnet were modelled using the Ecoinvent dataset 'steel production, chromium steel 18/8, hot rolled – RoW', as implemented in the OpenLCA EN 15804 Add-on version 3.11. The dataset includes 0.551 kg iron scrap input per kg of steel produced.

Modelling of biogenic carbon:

Since module A5 was not declared, the balancing out of the biogenic carbon contained in packaging was included within modules A1-A3, in line with Annex 2, PCR 2019:14 Version 2.0.1.

Packaging materials	Mass, kg[1]	Mass-% (versus the product)	Biogenic material, kg C/product or declared unit
Cardboard	1.67E-03	0.17%	7.09E-04
Plastic pallet	1.50E-04	0.02%	0
Wooden crate	1.67E-03	0.17%	7.42E-04
Plastic drawstring	2.00E-02	2%	0
Total	**2.35E-02**	**2.36 %**	**1.45E-03**

[1] Number provided here takes reuse of packaging material into account.

1 kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of CO_2.

Hazardous substances from the candidate list of SVHC	EC No.	CAS No.	Mass-% per product or declared unit
-	-	-	-

No dangerous substances or materials from the candidate list of SVHC are used.

LCA INFORMATION

Functional unit or Declared unit:
The declared unit is 1 kilogram of Webnet product, including ropes, sleeves, loose sleeves, and eye-ends, ready for installation.

Reference service life:
n/a

Time representativeness:
Data describing the acquisition of raw materials and manufacturing processes covers production year 2024.

Geographical scope:
Raw materials used for production come from global sources, as they are procured from multiple suppliers across different regions and continents.
The product is manufactured in Vietnam.
Webnet is mainly sold in Europe. To conservatively include the impacts of the End-of-life stage in other countries, End-of-life activities are modeled globally.

Database(s) and LCA software used:
This life cycle assessment is based on the Database Ecoinvent version 3.11, as implemented within the software OpenLCA via this software's EN15804 add-on for Ecoinvent version 3.11. The characterization factors (CF) implemented within this OpenLCA software version correspond to EF v3.1. In alignment with EN 15804, and PCR 2019:14 v.2.0.1, section 4.3.8, characterization factors of long-term flows were set to zero. Infrastructure processes were excluded from the foreground processes of Webnet manufacturing. All upstream processes were modelled using datasets from Ecoinvent version 3.11, which include infrastructure and capital goods.

EPD/LCA Tool used:
n/a

Description of system boundaries:
This life cycle assessment study covers Cradle to gate with modules C1-C4 and module D, i.e. is of type A1-A3 + C + D). In accordance with the requirements of PCR 2019:14 Version 2.0.1, the results of modules A1-A3 are declared in aggregated form.
Construction process stages (A4-A5) and use stages (B1-B7) are not included since highly dependent on the application. In addition, the environmental impact of the use phase can be considered negligible because Webnet is a passive product requiring virtually no maintenance. A more detailed breakdown of what is included in the system boundary, is shown in (Table 5).

Table 5: Inclusions and exclusions in the system boundary

EPD Module	Life Cycle Stages	Definitions
A1	Materials	- Extraction and processing of raw material (stainless steel) and the manufacturing of pre-products (stainless steel rope, stainless steel rod) that serve as input for the manufacturing processes taking place at Jakob AG's site in Vietnam.
A2	Upstream transport	- Raw material transportation via truck or truck + sea freight from suppliers to the manufacturing site.
A3	Manufacturing	- Consumption of electricity associated with cutting ropes to size; consumption of electricity, water, auxiliary materials (oil, and detergent) associated with manufacturing of sleeves and eye-ends; production of Webnet packaging material. - Treatment of production waste (steel scrap, waste mineral oil) until end-of-waste state, including transportation to treatment facilities. - Note that the manufacturing facilities are not heated.
C1	Deconstruction/Demolition	- Considered not to be associated with environmental impacts since carried out manually without involvement of machines.
C2	Transport	- Transportation of demolished Webnet to disposal (inert landfill)
C3	Waste processing for recovery	- NA (end-of-waste state of steel scrap considered reached upon Webnet demolition)
C4	Disposal	- Disposal of Webnet on landfill site (assumed percentage of landfilling, main scenario declared: 5%)[1]
D	Impacts and Benefits beyond the system boundary	- Transportation of demolished Webnet and steel scrap from Webnet production to recycling facility; processing for recycling (sorting and pressing) - Substitution of primary steel production by steel production form 100% recycled steel

[1]End Of Life stage was modelled assuming 95% recycling and 5% landfilling of Webnet products.

Data quality:

The primary data collection has been carried out in collaboration with Jakob Saigon professionals (Jakob AG manufacturing site in Vietnam). Where specific data was not available like specific data from steel inputs purchased, generic datasets from Ecoinvent have been used. All data used have been included in the LCA Report.

Electricity mix:

A specific electricity mix is used in the manufacturing process, consisting of both self-generated photovoltaic (PV) electricity and purchased electricity from the national grid in Vietnam. Both sources were modeled using the ecoinvent database. Grid electricity was modeled as residual mix, conservatively determining the latter as the consumption mix in Vietnam minus the renewables therein. The combined electricity mix used in the manufacturing process has a GWP-GHG emission factor of 0.596 kg CO_2 eq./kWh.

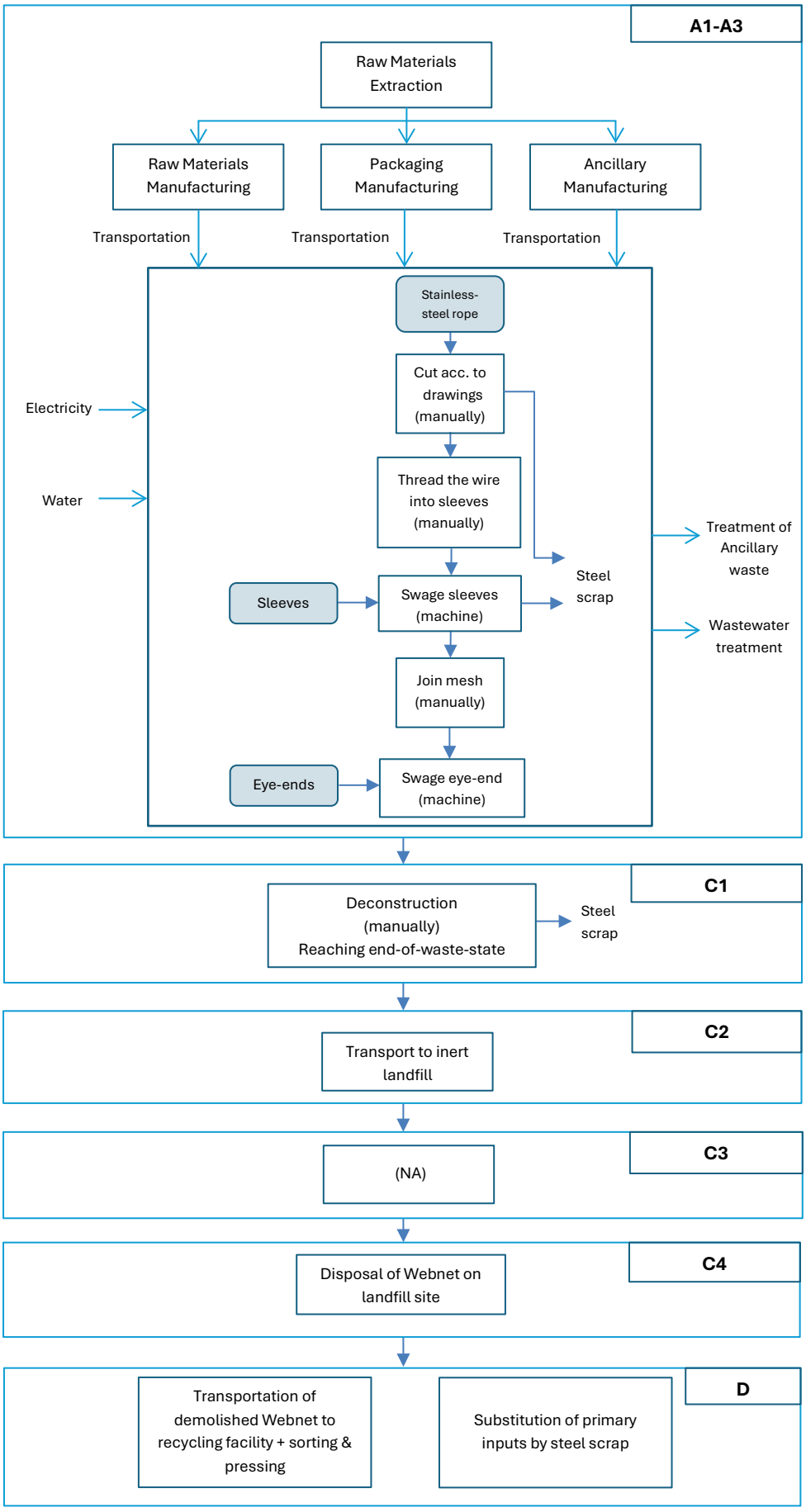
Cut-off criteria:
In case of uncertainties or missing data, conservative assumptions have been made. Packaging material of inputs and auxiliaries used in A1-A3 and their transport to the manufacturing site were not taking into account since considered outside of the system boundary according to EN 15804 and PCR 2019.14.

Allocation procedures:
The scrap leaving modules A1-A3 in the form of Webnet production waste was modelled by waste allocation, considering the end-of-waste state to be reached at the gate of the Webnet manufacturing site. Both the Webnet scrap leaving modules A1-A3 and the steel originating from the disassembly of Webnet at the end-of-life stage were thus considered in module D. Production inputs and production waste generated in A1-A3 were allocated to Webnet production based on Webnet's share of total product output in 2024.
Webnet production itself was modelled by modelling 1) Webnet rope production (cutting purchased rope to size) and 2) sleeves and eye-end production (swaging, cutting to size, degreasing, heat treatment, etc.) separately, allocating production inputs and waste to these two unit processes based on process understanding.

Explanation of product group:
This is an average EPD. The average product declared corresponds to the average Webnet product manufactured at the Webnet production site in 2024, calculated by weighing all Webnet products manufactured by their production volume in 2024. The main difference between the products included is the relative proportions of rope and sleeve and eye-end components across the various Webnet configurations. Since rope generally makes up a larger mass fraction in most products and has lower impacts per kg, configurations with a higher rope to-eye-end ratio tend to have lower overall environmental impacts. Conversely, products with more sleeves and eye-ends relative to rope show higher impacts. This varying component ratio across product types is the main driver behind the observed variation in EPD results. The observed deviation in environmental indicators between different Webnet configurations is more than 10% (applicable to all indicators declared). The majority of the products in the group have a lower impact than presented here.

LCA practitioners:
Seyedehgelareh Sanei, *Jakob AG (Jakob Rope Systems), Engineering Department*, with the support of Linda Roberts, *Neosys AG*

Process flow diagram:



More information:

Recycled stainless steel scrap is an input for Webnet. Since its origin is unknown (sourced from scrapyards), it is treated as waste, not as a co-product, in accordance with PCR 2019:14 v.2.0.1.

A summary of the data quality assessment, including data sources, reference years, and the share of primary data, is presented in the (Table 6) in accordance with PCR Section 4.6.4.

Table 6: Data sources, reference years, data categories and share of primary data, calculated based on GWP-GHG results for A1-A3.

Process	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
Manufacturing of product	Collected data	EPD owner	2024	Primary data	0%
Generation of electricity used in manufacturing product	Database	Ecoinvent v3.11 with EN15804 add-on	2008-2020	Primary data*	7%
Transportation of steel inputs to the manufacturing site	Database	Ecoinvent v3.11 with EN15804 add-on	2007-2009	Primary data	1%
Production of stainless-steel inputs	Database	Ecoinvent v3.11 with EN15804 add-on	1997-2000	Secondary data	0%
Production of packaging	Database	Ecoinvent v3.11 with EN15804 add-on	2011-2019	Secondary data	0%
Total share of primary data, of GWP-GG results for A1-A3					**8%**

*Electricity consumption was largely determined based on measured data, complemented by some conservative assumptions. Though classified as primary data, electricity data quality could be improved further by installing additional meters, thus making measured data fully available.

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	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
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	GLO	VN	-	-	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
Specific data used	8%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	>10%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	N/A			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Description of the system boundary (X = Included in LCA; ND = Not declared; N/A = Not applicable). GLO = global; EU = European Union; VN = Vietnam

ENVIRONMENTAL PERFORMANCE

LCA results of the product(s) - main environmental performance results

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. It is not recommended to use the results of modules A1-A3 without taking into account the results of module C.

Mandatory impact category indicators according to EN 15804

Results per functional or declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	7.39E+00	0.00E+00	1.62E-02	0.00E+00	6.26E-03	-3.46E+00
GWP-biogenic	kg CO_2 eq.	1.10E-02	0.00E+00	4.03E-06	0.00E+00	2.15E-06	-5.35E-03
GWP-luluc	kg CO_2 eq.	1.67E-02	0.00E+00	7.24E-06	0.00E+00	3.56E-06	-3.55E-03
GWP-total	**kg CO_2 eq.**	**7.42E+00**	**0.00E+00**	**1.62E-02**	**0.00E+00**	**6.26E-03**	**-3.47E+00**
ODP	kg CFC 11 eq.	5.88E-08	0.00E+00	2.05E-10	0.00E+00	1.74E-10	-2.41E-08
AP	mol H^+ eq.	4.27E-02	0.00E+00	5.52E-05	0.00E+00	4.38E-05	-2.06E-02
EP-freshwater	kg P eq.	5.16E-04	0.00E+00	2.01E-07	0.00E+00	6.12E-08	-2.91E-04
EP-marine	kg N eq.	7.57E-03	0.00E+00	1.72E-05	0.00E+00	1.67E-05	-3.37E-03
EP-terrestrial	mol N eq.	8.17E-02	0.00E+00	1.90E-04	0.00E+00	1.84E-04	-3.74E-02
POCP	kg NMVOC eq.	2.63E-02	0.00E+00	7.48E-05	0.00E+00	6.63E-05	-1.17E-02
ADP-minerals&metals*	kg Sb eq.	1.71E-04	0.00E+00	5.44E-08	0.00E+00	9.37E-09	-1.15E-04
ADP-fossil*	MJ	8.37E+01	0.00E+00	2.24E-01	0.00E+00	1.53E-01	-3.93E+01
WDP*	m^3	3.63E+00	0.00E+00	1.19E-03	0.00E+00	6.73E-03	-1.32E+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						

** 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.*

Due to limited supplier-specific data, the upstream production of stainless steel was modelled using generic information, including an assumed recycled (scrap) content of 55%. Feedback from suppliers suggests that the actual recycled content is likely higher. As a result, the GWP-total calculated for Webnet represents a conservative estimate, reflecting the precautionary assumptions applied in the modelling.

Additional mandatory and voluntary impact category indicators

Results per functional or declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	**kg CO_2 eq.**	**7.42E+00**	**0.00E+00**	**1.62E-02**	**0.00E+00**	**6.26E-03**	**-3.47E+00**
PM	Disease Incidence	5.74E-07	0.00E+00	1.25E-09	0.00E+00	1.01E-09	-3.25E-07
IRP	kBq U235 eq.	1.70E-01	0.00E+00	7.02E-05	0.00E+00	3.56E-05	-8.61E-02
ETP-fw	CTUe	8.50E+01	0.00E+00	4.12E-02	0.00E+00	1.11E-02	-5.48E+01
HTP-c	CTUh	8.72E-09	0.00E+00	2.72E-12	0.00E+00	1.14E-12	-3.76E-09
HTP-nc	CTUh	1.35E-07	0.00E+00	1.39E-10	0.00E+00	2.56E-11	-7.98E-08
SQP	Dimensionless	3.63E+01	0.00E+00	1.31E-01	0.00E+00	3.01E-01	-2.00E+01

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Resource use indicators

Results per functional or declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	2.02E+01	0.00E+00	3.11E-03	0.00E+00	1.43E-03	-1.18E+01
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2.02E+01	0.00E+00	3.11E-03	0.00E+00	1.43E-03	-1.18E+01
PENRE	MJ	8.37E+01	0.00E+00	2.24E-01	0.00E+00	1.53E-01	-3.93E+01
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	8.37E+01	0.00E+00	2.24E-01	0.00E+00	1.53E-01	-3.93E+01
SM*	kg	6.76E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.03E-01
RSF	MJ	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
FW	m^3	8.36E-02	0.00E+00	3.00E-05	0.00E+00	1.58E-04	-2.92E-02
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						

*The SM content of Webnet packaging material has conservatively been set to zero, i.e. packaging material was not included in calculating the SM indicator

Waste indicators

Results per functional or declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	5.94E+00	0.00E+00	3.80E-04	0.00E+00	1.24E-04	-3.83E+00
Non-hazardous waste disposed	kg	1.56E+01	0.00E+00	2.16E-03	0.00E+00	1.66E-03	-3.97E+00
Radioactive waste disposed	kg	1.07E-04	0.00E+00	4.42E-08	0.00E+00	2.24E-08	-5.35E-05

Output flow indicators

Results per functional or declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	2.28E-01	9.50E-01	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	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
Exported energy, thermal	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Additional LCA results (other environmental performance results) of the product(s)

Table 7: Minimum, maximum, average, and variation from the average environmental impact values (A-C) for the products covered in this EPD

LCA result of one declared unit product (A-C)	Unit	Min	Representative/ Average	Max	(A-C) Variation %
GWP-fossil	kg CO2 eq.	6.24E+00	7.42E+00	8.28E+00	-15.79% / +11.67%
GWP-biogenic	kg CO2 eq.	9.08E-03	1.11E-02	1.25E-02	-17.87% / +13.20%
GWP-luluc	kg CO2 eq.	1.39E-02	1.67E-02	1.88E-02	-16.81% / +12.42%
GWP-total	**kg CO2 eq.**	**6.27E+00**	**7.44E+00**	**8.31E+00**	**-15.80% / +11.67%**
ODP	kg CFC 11 eq.	4.73E-08	5.92E-08	6.80E-08	-20.10% / +14.85%
AP	mol H+ eq.	3.52E-02	4.28E-02	4.84E-02	-17.82% / +13.16%
EP-freshwater	kg P eq.	4.27E-04	5.17E-04	5.83E-04	-17.42% / +12.87%
EP- marine	kg N eq.	6.24E-03	7.61E-03	8.62E-03	-17.99% / +13.29%
EP-terrestrial	mol N eq.	6.89E-02	8.21E-02	9.19E-02	-16.11% / +11.90%
POCP	kg NMVOC eq.	2.21E-02	2.65E-02	2.97E-02	-16.57% / +12.24%
ADP-minerals&metals	kg Sb eq.	1.51E-04	1.71E-04	1.86E-04	-11.65% / +8.61%
ADP-fossil	kg CO2 eq.	7.10E+01	8.41E+01	9.38E+01	-15.60% / +11.52%
WDP	kg CO2 eq.	3.18E+00	3.64E+00	3.97E+00	-12.54% / +9.26%
(GWP-IOBC/GHG)	**kg CO2 eq.**	**6.27E+00**	**7.44E+00**	**8.31E+00**	**-15.80% / +11.67%**
(PM)	Disease Incidence	5.08E-07	5.77E-07	6.27E-07	-11.90% / +8.79%
(IRP)	kBq U235 eq.	1.50E-01	1.70E-01	1.85E-01	-11.62% / +8.59%
(ETP-fw)	CTUe	7.48E+01	8.51E+01	9.27E+01	-12.05% / +8.90%
(HTP-c)	CTUh	7.73E-09	8.72E-09	9.46E-09	-11.38% / +8.40%
(HTP-nc)	CTUh	1.17E-07	1.35E-07	1.48E-07	-13.20% / +9.75%
(SQP)	Dimensionless	3.21E+01	3.67E+01	4.02E+01	-12.64% / +9.34%
(MFR)	kg	1.05E+00	1.18E+00	1.28E+00	-11.26% / +8.32%
(PERE)	MJ	1.70E+01	2.02E+01	2.26E+01	-15.99% / +11.81%
(PERT)	MJ	1.70E+01	2.02E+01	2.26E+01	-15.99% / +11.81%
(PENRE)	MJ	7.10E+01	8.41E+01	9.38E+01	-15.60% / +11.53%
(PENRT)	MJ	7.10E+01	8.41E+01	9.38E+01	-15.60% / +11.53%
(SM)	kg	6.03E-01	6.76E-01	7.30E-01	-10.80% / +7.98%
(FW)	m3	7.34E-02	8.38E-02	9.15E-02	-12.45% / +9.19%
(HWD)	kg	5.29E+00	5.94E+00	6.43E+00	-11.01% / +8.13%
(NHWD)	kg	5.50E+00	1.56E+01	2.30E+01	-64.72% / +47.81%
(RWD)	kg	9.48E-05	1.07E-04	1.16E-04	-11.60% / +8.57%

The results of the equivalent 100% scenarios (100% recycling; 100% landfill) in line with section 4.8.4 of PCR 2019:14 V.2.0.1 are presented in the tables below.

Table 8: Results of scenario 100% recycling at the end-of-life

Indicator	Unit	C1 - 100% Recycling	C2 - 100% Recycling	C3 - 100% Recycling	C4 - 100% Recycling	D - 100% Recycling
GWP-biogenic	kg CO2 eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.89E-03
GWP-fossil	kg CO2 eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.81E+00
GWP-luluc	kg CO2 eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.91E-03
GWP-total	**kg CO2 eq.**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**-3.81E+00**
ADPF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.32E+01
ADPE	kg Sb eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.27E-04
AP	mol H+ eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.27E-02
ODP	kg CFC-11 eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.65E-08
EP-freshwater	kg P eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.20E-04
EP-marine	kg N eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.71E-03
EP-terrestrial	mol N eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.11E-02
POCP	kg NMVOC eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.29E-02
WDP	m3 World eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.46E+00
GWP-IOBC/GHG	**kg CO2 eq.**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**-3.81E+00**
ETP-fw	CTUe	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.03E+01
HTP-nc	CTUh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-8.77E-08
HTP-c	CTUh	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.13E-09
IRP	kBq U235 eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-9.47E-02
PM	Disease Incidence	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.57E-07
SQP	Dimensionless	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.20E+01
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	1.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.32E+01
PERT	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.30E+01
FW	m3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.21E-02
PENRE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.32E+01
PENRM	MJ	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
PERE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.30E+01
PERM	MJ	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
SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.53E-01
HWD	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.22E+00
NHWD	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.36E+00
RWD	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-5.88E-05

Table 9: Results of scenario 100% inert landfill at the end-of-life

Indicator	Unit	C1 - 100% Landfill	C2 - 100% Landfill	C3 - 100% Landfill	C4 - 100% Landfill	D - 100% Landfill
GWP-biogenic	kg CO2 eq.	0.00E+00	8.06E-05	0.00E+00	4.31E-05	0.00E+00
GWP-fossil	kg CO2 eq.	0.00E+00	3.24E-01	0.00E+00	1.25E-01	0.00E+00
GWP-luluc	kg CO2 eq.	0.00E+00	1.45E-04	0.00E+00	7.11E-05	0.00E+00
GWP-total	**kg CO2 eq.**	**0.00E+00**	**3.24E-01**	**0.00E+00**	**1.25E-01**	**0.00E+00**
ADPF	MJ	0.00E+00	4.47E+00	0.00E+00	3.07E+00	0.00E+00
ADPE	kg Sb eq.	0.00E+00	1.09E-06	0.00E+00	1.87E-07	0.00E+00
AP	mol H+ eq.	0.00E+00	1.10E-03	0.00E+00	8.77E-04	0.00E+00
ODP	kg CFC-11 eq.	0.00E+00	4.10E-09	0.00E+00	3.48E-09	0.00E+00
EP-freshwater	kg P eq.	0.00E+00	4.02E-06	0.00E+00	1.22E-06	0.00E+00
EP-marine	kg N eq.	0.00E+00	3.44E-04	0.00E+00	3.34E-04	0.00E+00
EP-terrestrial	mol N eq.	0.00E+00	3.80E-03	0.00E+00	3.68E-03	0.00E+00
POCP	kg NMVOC eq.	0.00E+00	1.50E-03	0.00E+00	1.33E-03	0.00E+00
WDP	m3 World eq.	0.00E+00	2.38E-02	0.00E+00	1.35E-01	0.00E+00
GWP-IOBC/GHG	**kg CO2 eq.**	**0.00E+00**	**3.24E-01**	**0.00E+00**	**1.25E-01**	**0.00E+00**
ETP-fw	CTUe	0.00E+00	8.25E-01	0.00E+00	2.22E-01	0.00E+00
HTP-nc	CTUh	0.00E+00	2.78E-09	0.00E+00	5.11E-10	0.00E+00
HTP-c	CTUh	0.00E+00	5.44E-11	0.00E+00	2.27E-11	0.00E+00
IRP	kBq U235 eq.	0.00E+00	1.40E-03	0.00E+00	7.12E-04	0.00E+00
PM	Disease Incidence	0.00E+00	2.49E-08	0.00E+00	2.01E-08	0.00E+00
SQP	Dimensionless	0.00E+00	2.63E+00	0.00E+00	6.02E+00	0.00E+00
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	0.00E+00	4.47E+00	0.00E+00	3.07E+00	0.00E+00
PERT	MJ	0.00E+00	6.22E-02	0.00E+00	2.87E-02	0.00E+00
FW	m3	0.00E+00	6.00E-04	0.00E+00	3.17E-03	0.00E+00
PENRE	MJ	0.00E+00	4.47E+00	0.00E+00	3.07E+00	0.00E+00
PENRM	MJ	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
PERE	MJ	0.00E+00	6.22E-02	0.00E+00	2.87E-02	0.00E+00
PERM	MJ	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
SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
HWD	kg	0.00E+00	7.60E-03	0.00E+00	2.48E-03	0.00E+00
NHWD	kg	0.00E+00	4.32E-02	0.00E+00	3.32E-02	0.00E+00
RWD	kg	0.00E+00	8.84E-07	0.00E+00	4.47E-07	0.00E+00

ABBREVIATIONS

Abbreviation	Definition
General Abbreviations	
EN	European Norm (Standard)
EPD	Environmental Product Declaration
EF	Environmental Footprint
GPI	General Programme Instructions
ISO	International Organization for Standardization
LCA	Life Cycle Assessment
PCR	Product Category Rules
c-PCR	Complementary Product Category Rules
CEN	European Committee for Standardization
CLC	Co-location centre
CPC	Central product classification
GHS	Globally harmonized system of classification and labelling of chemicals
GRI	Global Reporting Initiative
Environmental Impact Indicators (EN 15804)	
GHG	Greenhouse gas
GWP	Global Warming Potential (kg CO_2 eq.)
GWP-fossil	Global Warming Potential from fossil sources (kg CO_2 eq.)
GWP-biogenic	Global Warming Potential from biogenic sources (kg CO_2 eq.)
GWP-luluc	Global Warming Potential from land use and land use change (kg CO_2 eq.)
GWP-total	Total Global Warming Potential (kg CO_2 eq.)
GWP-GHG	Global Warming Potential for greenhouse gases (kg CO_2 eq.)
ODP	Ozone Depletion Potential (kg CFC-11 eq.)
AP	Acidification Potential (mol H^+ eq.)
EP	Eutrophication Potential
EP-freshwater	Freshwater eutrophication potential (kg P eq.)
EP-marine	Marine eutrophication potential (kg N eq.)
EP-terrestrial	Terrestrial eutrophication potential (mol N eq.)
POCP	Photochemical Ozone Creation Potential (kg NMVOC eq.)
ADP	Abiotic Depletion Potential
ADP-minerals&metals	Abiotic depletion potential for non-fossil resources (kg Sb eq.)
ADP-fossil	Abiotic depletion potential for fossil resources (MJ)
WDP	Water Deprivation Potential (m^3)
Resource Use Indicators	
PERE	Use of renewable primary energy excluding renewable primary energy resources used as raw materials (MJ)
PERM	Use of renewable primary energy resources used as raw materials (MJ)
PERT	Total use of renewable primary energy resources (MJ)
PENRE	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (MJ)
PENRM	Use of non-renewable primary energy resources used as raw materials (MJ)
PENRT	Total use of non-renewable primary energy resources (MJ)
SM	Use of secondary material (kg)
RSF	Use of renewable secondary fuels (MJ)
NRSF	Use of non-renewable secondary fuels (MJ)
FW	Use of net fresh water (m^3)
Waste Indicators	
HW	Hazardous Waste (disposed) (kg)
NHW	Non-Hazardous Waste (disposed) (kg)
RW	Radioactive Waste (disposed) (kg)
Output Flow Indicators	
CFR	Components for Reuse (kg)
MR	Material for Recycling (kg)

MER	Materials for Energy Recovery (kg)
EEE	Exported Energy, Electricity (MJ)
EET	Exported Energy, Thermal (MJ)
Lifecycle Stages / Modules	
A1	Raw material supply
A2	Transport
A3	Manufacturing
A4	Transport to site
A5	Construction/Installation
B1	Use
B2	Maintenance
B3	Repair
B4	Replacement
B5	Refurbishment
B6	Operational energy use
B7	Operational water use
C1	Deconstruction/Demolition
C2	Transport to waste processing
C3	Waste processing
C4	Disposal
D	Reuse-Recovery-Recycling potential
Other Relevant Terms	
SVHC	Substances of Very High Concern
EC No.	European Community Number
CAS No.	Chemical Abstracts Service Number
MJ	Megajoule
kg	Kilogram
m^3	Cubic Meter
NMVOC	Non-Methane Volatile Organic Compounds
Sb eq.	Antimony Equivalents
P eq.	Phosphorus Equivalents
N eq.	Nitrogen Equivalents
CFC-11 eq.	Chlorofluorocarbon-11 Equivalents
CO_2 eq.	Carbon Dioxide Equivalents
kg C	Kilograms of Carbon
kg CO_2 eq.	Kilograms of Carbon Dioxide Equivalent
ND	Not Declared

Differences versus previous versions

This EPD is a new creation and is not based on the existing EPD.

REFERENCES

GPI (2025) General Programme Instructions for the International EPD® System, Version 5.0.1

PCR 2019:14 VERSION 2.0.1 (2019) Product Category Rules Construction Products PCR 2019:14 VERSION 2.0.1

ecoinvent v3.11 (2024): Ecoinventory database version 3.11 of the Swiss Centre for Life Cycle Inventories, Dübendorf.

https://worldstainless.org/sustainability/environment/recycling/

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Norms

ISO 14040 DIN EN ISO 14040:2006: Environmental management – Life cycle assessment – Principles and framework

ISO 14044 DIN EN ISO 14044:2006: Environmental management – Life cycle assessment – Requirements and guidelines

EN 15804 + A2 EN15804:2012+A2:2019+AC:2021: Sustainability of construction works – Environmental Product Declarations – Core rules for the product category of construction products

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

EPD
INTERNATIONAL EPD SYSTEM
www.environdec.com