Environmental Product Declaration





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

Helifix remedial products

from

Leviat Ltd



EPD of multiple products. Products covered by this EPD: the helical stainless steel bar of CemTie, CemenTie, RetroTie, ResiTie, Helibar Remedial, DryFix Asymmetric Tie, DryFix Render Pinning, DryFix Terracotta Tie, DryFix

Programme: The International EPD® System, <u>www.environdec.com</u>

Programme operator: EPD International AB

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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

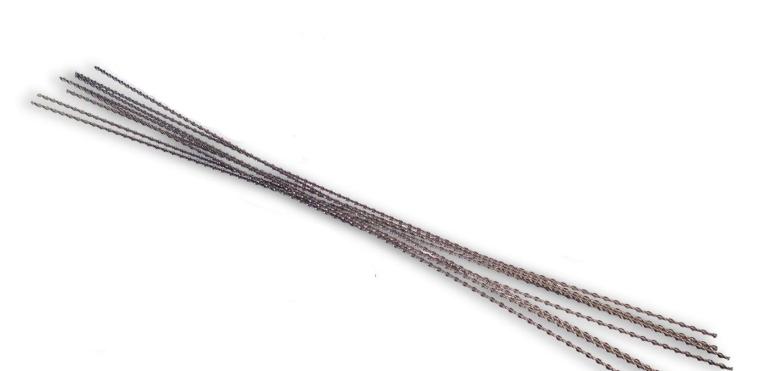






Table of contents

Programme information	3
Company information	4
Product information	4
LCA information	5
System diagram:	7
Modules declared	8
Environmental performance	11
List of acronyms	15
References	16





Programme information

Programme:	The International EPD® System					
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden					
Website: www.environdec.com						
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Accountabilities for PCR, LCA and independent, third-party verification
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 1.3.4
PCR review was conducted by: technical committee of the International EPD® System
Life Cycle Assessment (LCA)
LCA accountability: LCA accountability: Studio Fieschi & soci s.r.l C.so Vittorio Emanuele II, 18 10123 Torino, IT - www.studiofieschi.it
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:
□ EPD verification by individual verifier
Third-party verifier: Callum Hill, JCH Industrial Ecology Ltd
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 registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same 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 equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.





Company information

Owner of the EPD:

Leviat Limited

UK HQ: President Way | President Park | Sheffield | S4 7UR | United Kingdom

Contact:

EPD.UK@leviat.com

https://www.leviat.com/

Production site:

Leviat Limited, Deeside Site, North Wales, UK

<u>Description of the organisation:</u>

Leviat is the global leader in lifting, connecting and anchoring technologies for the construction sector. We imagine, model and make engineered solutions and innovative products that enable safer, faster, stronger, more sustainable construction.

Home to trusted product brands such as Ancon, Halfen, Helifix, Isedio and Thermomass, Leviat has an extraordinary legacy of pioneering construction solutions. As an industry leader, driven by innovation and continuous improvement, Leviat is committed to achieving a more sustainable built environment, working closer with our customers & business partners.

The company is ISO 9001, ISO 14001, ISO 45001 certified

Product information

<u>Product name:</u> Helifix Remedial Products. Products covered by this EPD: the helical stainless steel bar of CemTie, CemenTie, RetroTie, ResiTie, Helibar Remedial, DryFix Asymmetric Tie, DryFix Render Pinning, DryFix Terracotta Tie, DryFix

Product identification:

Helifix remedial products provide secure and lasting connections in sustainable remedial solutions that extend the life of existing structures, upholding the integrity and longevity of our built environment.

<u>Product description:</u> Helifix products are well proven in virtually all commonly used construction materials, combining strength, durability and holding power with the flexibility to allow normal building movement. They provide secure and lasting connections in new build applications and sustainable remedial solutions that greatly extend the life of existing structures, Helifix products and processes deliver considerable benefits that are both well recognised and highly regarded.

<u>UN CPC code:</u> 42190 - Other structures (except prefabricated buildings) and parts of structures, of iron, steel or aluminium; plates, rods, angles, shapes, sections, profiles, tubes and the like, prepared for use in structures, of iron, steel or aluminium; props and similar equipment for scaffolding, shuttering or pitpropping

Geographical scope: Global





LCA information

<u>Declared unit:</u> 1 kg of Helifix remedial, packed and ready for shipment, based on the average results of the product group. The average environmental profile is calculated as the arithmetic mean of the extreme values of the group. Only the helical stainless steel bars are considered in this EPD; fixing elements, grouts, guns or other accessories are excluded.

The use of this approach means that the environmental profiles of all intermediate configurations of the products analysed can be considered included in the study.

Reference service life: not applicable

<u>Time representativeness:</u> All data about the product composition, manufacturing and distribution are referred to year 2023. Secondary data are the most recent available at the time of the study and are representative of the period 2019-2024.

Database(s) and LCA software used: Ecoinvent v.3.10, SimaPro v. 9.6.

The study is based on EN 15804 reference package 3.1.

Type of EPD:

is cradle-to-gate with options, modules C1-C4, module D and module A4. (A1-A3 + A4 + C + D) Module A5 and modules B1 to B7 are excluded.

System boundaries:

System boundaries include the following modules:

- A1: production of raw materials and semi-finished stainless steel products. This includes the processing of semi-finished products upstream in the supply chain (e.g. drawing, hot-rolling, etc.);
- A2: transport of raw materials (and semi-finished products) to the production;
- A3: Manufacturing of products at the Leviat production site. Production and consumption of electricity used in production processes; production and consumption of fossil fuels (diesel, LPG) used for internal product handling; management of waste produced by the plant.

The processes covered by this module include:

- mechanical processing (helical screwing);
- packing and storage;
- A4: market distribution of the analysed products.
- **B**: not applicable to the assessed products
- C1: dismantling or demolition process;
- C2: transport of waste to treatment/disposal sites;
- C3: waste treatment in preparation for recovery/recycling;
- C4: final disposal;

Module D: potential benefits and impacts related to recovery-reuse-recycling of materials and energy along the life cycle. In this module, benefits and/or impacts related to, for example, the potential recycling of materials at the end-of-life of the products under study are assessed. The modelling of recovery-reuse-recycling benefits is carried out according to the requirements of EN 15804:2012 + A2:2019 § 6.4.3.3.





The scenarios included for modules A4, C and D are currently in use and are representative for one of the most probable alternatives.

Due to the range of variables involved and the need to add grouts for installation, attempting to define 'typical' installations for assessing environmental and resource impacts would yield highly inaccurate results and would be misleading for comparative purposes. Therefore, A5 Module have been excluded from the EPD.

In accordance with the PCR 2019:14 v1.3.4, the system boundaries do not include:

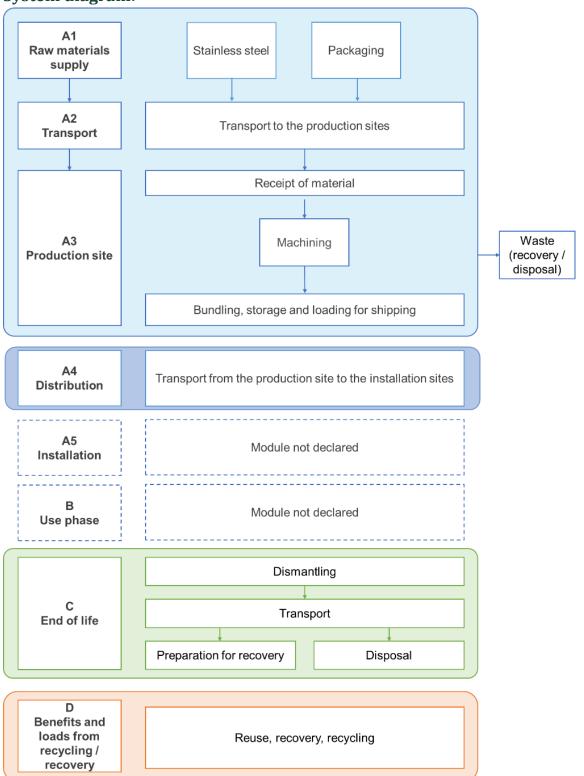
- Module A5 related to the installation of the product. Module A5 is considered included only for the balance of the biogenic carbon contained in the packaging;
- Input and output flows related to personnel (e.g., energy used in head offices and sales offices, transports of employees to and from workplace, etc);
- Input and output flows related to production and maintenance of equipment, capital goods and infrastructures¹.
- Impacts related to the production and transport of packaging materials of incoming semi-finished products.

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¹ The exclusion of capital goods and infrastructures is limited to the foreground processes (i.e. those directly modelled and documented in the study). Impacts from these processes may still be included in the background data (e.g. data from Ecoinvent).



System diagram:



More information:

Modules C and D are modelled according to the distribution volumes of the product arount the world.





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			ge	Resource recovery stage			
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	nse	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling- potential
Module	A1	A2	А3	A4	A5	B1	B2	В3	В4	В5	В6	В7	C1	C2	СЗ	C4	D
Modules declared	х	х	х	ND	ND ²	ND	ND	ND	ND	ND	ND	ND	х	х	х	х	
Geograph	GLO	GLO	UK	-	-	-	-	-	-	-	-	-	GL O	GL O	GL O	GL O	GLO
Specific data used		<10%		-	-	-	-	-	-	-	-	-	-	-	-	-	
Variation – products		<10%		-		1	-	-	-	-	-	1	-		-	-	
Variation – sites		0		-	-	-	-	-	-	-	-	-	-	-	-	-	

<u>Cut-off</u>: The rules defined in EN 15804:2012 + A2:2019 §6.3.6 and in PCR 2019:14 v 1.3.4 §4.4 apply. A cut-off has been applied to the following features:

• Suppliers whose supply share was below 0.5% in the reference year;

Allocation rules:

In the case of multifunctional situations, i.e. where systems generate several products, the allocation rules in PCR 2019:14 apply.

Relevant allocations were applied in modules A1 and A3.

- A1: economic allocation was applied to the stainless steel from the market in order to characterize the impacts related to the pre-consumer scrap used as raw material in Leviat's supply chain;
- A3: mass allocation per kg of finished product of the plant energy / fuel consumption and waste generation;

² Module A5 is considered only for the "balancing-out reporting" of the biogenic carbon contained in the packaging





<u>Electricity mix</u>: The electricity used in the production process (step A1-A3) was modelled based on the REGO certificates assigned to Leviat for the supply period 1st April 2023 – 31st March. The GWP-GHG of the electricity mix used to model module A3 is 7,42E-03 kg CO2 eq./kWh.

Assumptions for the end of life scenario of the product (modules C1-C4)

Module C1: The process of dismantling the manifold is mainly associated with the process of dismantling the building in which it is contained. It is assumed that the energy source used for this purpose is diesel and that the average energy consumption in this phase is 0.07 MJ/kg.

Module C2: Transport of waste to treatment/disposal points. An average transport scenario to collection, recovery and disposal sites of 50 km traveled by land. For transport, a > 32 ton lorry, Euro5 related to the relevant geography was used.

Modules C3 - C4: waste preparation for recovery-recycling and final disposal.

The following considerations apply:

- The share of material sent for recycling in the EU is derived from the Product Environmental Footprint (PEF);
- The same share is applied to the non-EU scenarios. The global recycling rate of the stainless steel reaches 95% (The global life cycle of stainless steels, Worls Stainless, 2024), but the PEF percentage was chosen to maintain a conservative approach.

Assumptions for the indicators on the use of primary energy resources

The indicators on the use of primary energy resources as raw materials (PERM and PENRM) are referred to the packaging, as they are not relevant for the product itself. In accordance with option B of Annex 3 of the PCR 2019:14 v1.3.4, it is considered that the energy contained in the packaging is lost as it is assumed that it does not leave the system as useful energy.





Content information

1 kg of average Helifix remedial product, packed

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Stainless steel	1	9.6%	0%
TOTAL	1	9.6%	0%
Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
Cardboard	0.067	7%	0.028
Wood	0.303	30%	0.136
LDPE	0.025	2%	0
TOTAL	0.394	39%	0.164

In the reference year, 100% stainless steel from electric arc furnaces was used to manufacture the product. In accordance with the Italian CAM requirements for green public procurement, the following table details the content of recovered, recycled or by-product material, calculated as a weighted average of the total steel mix used to calculate the environmental profile of the product.

	Content in the product (%)
Total recycled content (pre- and post- consumer)	62.9%
Total content of recovered material	0%
Total content of by-products	0%

The product does not contain SVHC substances listed in the Candidate List of Substances of Very High Concern for authorisation in a concentration > 0.1%.





Environmental performance

Results per 1 kg of average Helifix bar, packed

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. The use of the results of modules A1-A3 is discouraged without considering the results of module C.

Mandatory impact category indicators according to EN 15804

	Results per functional or declared unit												
Indicator	Unit	A1-A3	A 4	C1	C2	C3	C4	D					
GWP- fossil	kg CO ₂ eq.	5.59E+00	8.76E-02	6.57E-03	7.76E-03	1.30E-02	1.35E-03	-1.31E-01					
GWP- biogenic ³	kg CO ₂ eq.	3.51E-02	3.32E-06	2.83E-07	2.95E-07	7.08E-06	2.79E-06	1.28E-04					
GWP- luluc	kg CO ₂ eq.	1.18E-02	2.33E-06	2.26E-07	1.92E-07	1.60E-05	2.06E-07	1.20E-04					
GWP- total	kg CO ₂ eq.	5.64E+00	8.76E-02	6.57E-03	7.77E-03	1.30E-02	1.35E-03	-1.31E-01					
ODP	kg CFC 11 eq.	5.18E-08	1.50E-09	1.03E-10	1.56E-10	2.03E-10	4.47E-11	2.79E-10					
AP	mol H ⁺ eq.	3.02E-02	4.28E-04	6.14E-05	1.94E-05	9.98E-05	1.58E-05	-3.35E-04					
EP- freshwate r	kg P eq.	2.87E-04	6.91E-08	6.21E-09	7.00E-09	2.74E-07	4.63E-08	-4.56E-06					
EP- marine	kg N eq.	5.88E-03	1.42E-04	2.89E-05	7.42E-06	4.19E-05	3.93E-06	-8.59E-05					
EP- terrestrial	mol N eq.	6.34E-02	1.56E-03	3.17E-04	8.12E-05	4.59E-04	4.23E-05	-1.04E-03					
POCP	kg NMVOC eq.	2.04E-02	5.18E-04	9.41E-05	3.36E-05	1.38E-04	1.55E-05	-4.15E-04					
ADP- minerals& metals*	kg Sb eq.	7.92E-05	2.88E-09	2.75E-10	2.64E-10	6.35E-10	3.93E-10	2.61E-08					
ADP- fossil*	MJ	6.57E+01	1.16E+00	8.65E-02	1.03E-01	1.99E-01	3.29E-02	-6.26E-01					
WDP*	m ³	4.80E-01	7.09E-04	6.83E-05	4.56E-05	8.22E-04	-1.98E-02	7.24E-03					
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 = Depler potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedar 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 =						= Depletion ceedance; ne end							

Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for

³ The balance of CO₂ from biogenic origin entering and leaving the system is 0. Biogenic carbon enters the system as wood and cardboard packaging in A1-A3. Since A5 is not included, CO2 from biogenic origin has been balanced in A3.





non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption

Additional mandatory and voluntary impact category indicators

Results per functional or declared unit												
Indicator	Unit	A1-A3	A4	C1	C2	C3	C4	D				
GWP- GHG⁴	kg CO ₂ eq.	5.64E+00	8.76E-02	6.57E-03	7.77E-03	1.30E-02	1.35E-03	-1.31E-01				

Resource use indicators

Results per functional or declared unit												
Indicator	Unit	A1-A3	A 4	C1	C2	C3	C4	D				
PERE*	MJ	1.72E+01	2.76E-03	1.94E-04	3.55E-04	1.52E-02	5.54E-04	2.35E-01				
PERM*	MJ	6.28E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00				
PERT	MJ	2.35E+01	2.76E-03	1.94E-04	3.55E-04	1.52E-02	5.54E-04	2.35E-01				
PENRE*	MJ	6.48E+01	1.16E+00	8.65E-02	1.03E-01	1.99E-01	3.29E-02	-6.26E-01				
PENRM*	MJ	9.41E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00				
PENRT	MJ	6.57E+01	1.16E+00	8.65E-02	1.03E-01	1.99E-01	3.29E-02	-6.26E-01				
SM	kg	6.32E-01	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				
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00				
FW	m ³	5.24E-01	1.89E-04	1.85E-05	1.88E-05	5.90E-04	-3.94E-04	1.01E-02				
Acronyn	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											

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 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 =

^{*} 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.

 $^{^4}$ 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 CO₂ is set to zero.





Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

Waste indicators

	Results per functional or declared unit												
Indicator	Unit	A1-A3	A4	C1	C2	C 3	C4	D					
Hazardou s waste disposed*	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00					
Non- hazardou s waste disposed*	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00					
Radioacti ve waste disposed*	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00					

^{*}Hazardous waste disposed and Non-hazardous waste disposed indicators are set to 0 because all the relevant waste treatment processes are included within the system boundaries.

Output flow indicators

Results per functional or declared unit											
Indicator	Unit	A1-A3	A4	C1	C2	C 3	C4	D			
Compone nts for re-use	kg	0.00E+00	0.00E+00	0.00E+00	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	8.50E-01	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	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	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	0.00E+00			

^{*} In accordance with option B of Annex 3 of the PCR 2019:14 v1.3.4, it is considered that the energy contained in the packaging is lost as it does not leave the system as useful energy.

^{**}Radioactive waste is considered not relevant within the value chains included in the study





Additional environmental information

Product related:

Wherever possible, repair and refurbishment is increasingly seen as a more sustainable option than demolition in terms of architectural value, materials usage, overall cost and environmental impact.

Helifix products and their concealed, non-disruptive installation techniques play an important role for preserving a wide range of structures, from housing, offices, and factories to bridges, churches, listed buildings, and heritage sites. Our solutions ensure minimal disruption while maintaining structural integrity and aesthetic value.

Helifix remedial products are manufactured from stainless steel making them suitable for most building applications. Stainless steel is also class A1 non-combustible.

Business related:

As part of CRH in the UK, Leviat shares a long-standing commitment to environmental sustainability and decarbonisation. At Leviat, we recognise our responsibility in safeguarding the construction industry, society, and the planet. This commitment is deeply rooted in our core values, which prioritise people, character, performance, and innovation. As a UK business, we are committed to:

- An absolute 30% reduction in emissions from a 2021 base year by 2030
- A 42% reduction in Scope 1 and 2 emissions by 2030
- Implementation of renewable energy solutions at Leviat's UK facilities
- Development of Environmental Product Declarations (EPDs) to measure and reduce embodied carbon in products
- Focus on operational efficiencies and optimised material use
- Collaboration with suppliers to decarbonise the supply chain





List of acronyms

ADP Abiotic Depletion Potential

AP Acidification Potential

BoM Bill of Materials

EP Eutrophication Potential

EPD Environmental Product Declaration

EoL End of Life

EoW End of Waste

GWP Global Warming Potential

IES International EPD® System

LCA Life Cycle Assessment

LCI Life Cycle Inventory

LCIA Life Cycle Impact Assessment

LDPE Low-density polyethylene

ODP Ozone Depletion Potential

PCR Product Category Rules

POCP Photochemical Ozone Creation Potential

POFP Photochemical Ozone Formation Potential

RSL Reference Service Life





References

- ISO 14025:2010 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
- International EPD® System, General Programme Instructions, 4.0
- EN 15804:2012 + A2:2019 Sustainability of construction works Environmental product declarations Core rules for the product category of construction products
- PCR 2019:14 Product category rules for construction products, Version 1.3.4

Other references and databases:

- Gervasio, H., Dimova, S., 2018, Model for Life Cycle Assessment (LCA) of buildings, EC JRC technical reports
- Product Environmental Footprint, Annex C V2.1, May 2020
- The global life cycle of stainless steels, Worls Stainless, 2024
- IMO (2015), Third IMO Greenhouse gases study 2014, Internation Maritime Organization, London
- OAG (2016) OAG Analytics

