Environmental Product Declaration

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

Ancon TWP2 Thermal Windposts

from

Leviat Ltd

EPD of multiple products. Products covered by this EPD: TWP2

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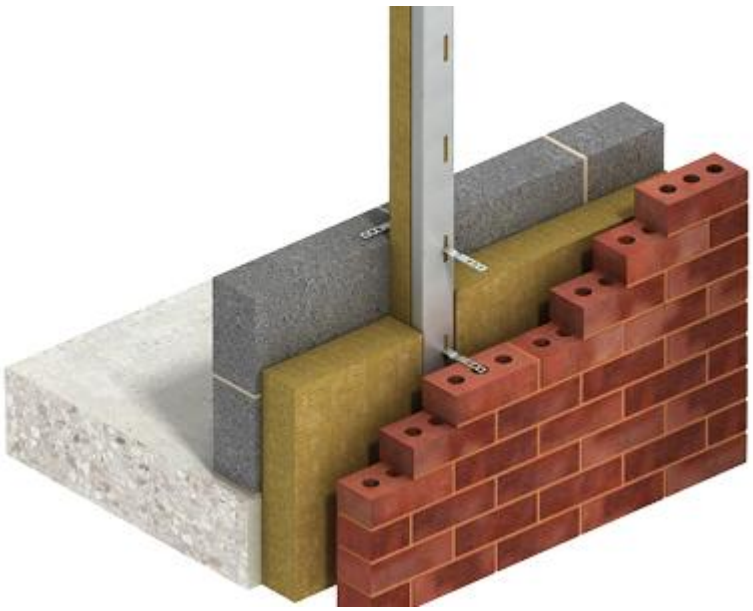

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Programme information

Programme:	The International EPD® System
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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
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Contact:
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https://www.leviat.com/
Production site:
President Way | President Park | Sheffield | S4 7UR | United Kingdom
Description of the organisation:
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

Product name: Thermal Windposts. Products covered by this EPD: TWP2

Product identification:
Ancon Thermal Windposts carry UKCA and CE marking to BS EN 1090-1 confirming design to EN 1993 (Eurocode 3) and manufacture at facilities externally audited by approved and notified bodies. We are certified to undertake welded fabrication work to Execution Class 2 which overs the vast majority of building applications and is the default class when unspecified.

Product description:
The revolutionary Ancon Thermal Windpost (TWP2) is designed to span vertically between floors, to provide additional lateral support for panels of masonry. It has been specially designed and engineered after extensive research and testing, with a variety of features to improve the thermal performance and repeatability of the junction. With robust integral non-combustible mineral fibre insulation in combination with a thermal slot array, using the Thermal Windpost in place of a traditional windpost results in up to 70% reduction in thermal transmission through the span of the section, as well as improving the consistency and repeatability of fitting insulation in and around the post, ensuring that the intended thermal design is met.

UN CPC code: 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

Declared unit: 1 kg of Thermal Windposts, 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.

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
Time representativeness: 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. hot-rolling, etc.);
- **A2**: transport of raw materials (and semi-finished products) to the production site;
- **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 (cutting from plate and bending);
  - welding;
  - water-cutting of insulation;
  - 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.

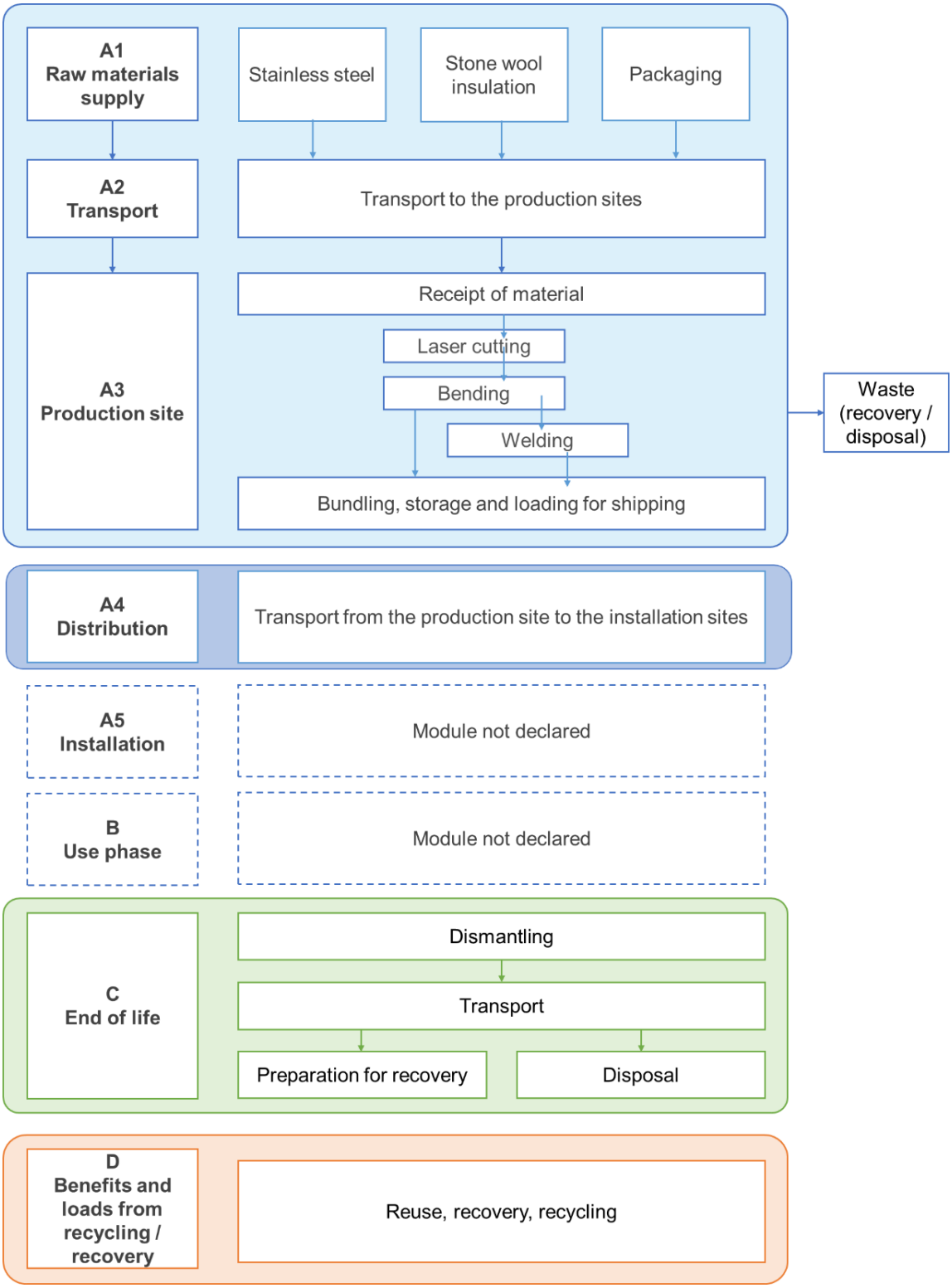
Due to the range of variables, attempting to define 'typical' installations for assessing environmental and resource impacts would yield highly inaccurate results and would be misleading for comparative purposes. Therefore, A5 Module have been excluded from the EPD.

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 infrastructures[1].
- Impacts related to the production and transport of packaging materials of incoming semi-finished products.

[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				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[2]	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	
Geography	GLO	GLO	UK	UK+IE	-	-	-	-	-	-	-	-	UK+ IE	UK+ IE	UK+ IE	UK+ IE	UK+IE
Specific data used	<10%			-	-	-	-	-	-	-	-	-	-	-	-	-	
Variation – products	<10%			-	-	-	-	-	-	-	-	-	-	-	-	-	
Variation – sites	0			-	-	-	-	-	-	-	-	-	-	-	-	-	

Cut-off: 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;
- Metal closures in the timber crates used to pack the product.

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

Electricity mix: 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;
- It is assumed that 100% of the stone wool in the TWP is sent to landfill, in accordance with the Supplier's EPD.

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 Thermal Windposts, packed

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Stainless steel	0.86	39.43%	0%
Stone wool	0.14	0%	0%
TOTAL	1	39.43%	0%
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/kg**

Timber	4.80E-02	4.8%	0.022
TOTAL	4.80E-02	4.8%	0.022

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 Thermal Windpost, 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**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	2.62E+00	2.11E-02	6.57E-03	7.77E-03	1.10E-02	1.54E-03	-1.45E-01
GWP-biogenic[3]	kg CO_2 eq.	2.14E-02	8.21E-07	2.83E-07	2.93E-07	6.17E-06	2.16E-06	1.32E-04
GWP-luluc	kg CO_2 eq.	2.05E-03	5.36E-07	2.26E-07	1.91E-07	1.37E-05	1.75E-07	1.22E-04
GWP-total	kg CO_2 eq.	2.64E+00	2.11E-02	6.57E-03	7.77E-03	1.10E-02	1.54E-03	-1.45E-01
ODP	kg CFC 11 eq.	1.27E-05	4.43E-10	1.03E-10	1.58E-10	1.74E-10	4.42E-11	2.62E-10
AP	mol H^+ eq.	1.18E-02	3.25E-05	6.14E-05	1.93E-05	8.48E-05	1.70E-05	-3.83E-04
EP-freshwater	kg P eq.	3.42E-04	1.83E-08	6.21E-09	6.51E-09	2.34E-07	3.90E-08	-5.09E-06
EP-marine	kg N eq.	2.12E-03	7.38E-06	2.89E-05	7.41E-06	3.57E-05	4.97E-06	-9.70E-05
EP-terrestrial	mol N eq.	2.44E-02	8.08E-05	3.17E-04	8.11E-05	3.91E-04	5.38E-05	-1.17E-03
POCP	kg NMVOC eq.	8.02E-03	5.98E-05	9.41E-05	3.37E-05	1.17E-04	1.86E-05	-4.60E-04
ADP-minerals&metals*	kg Sb eq.	4.76E-05	7.15E-10	2.75E-10	2.56E-10	5.43E-10	3.45E-10	2.55E-08
ADP-fossil*	MJ	2.34E+01	2.88E-01	8.65E-02	1.02E-01	1.70E-01	3.32E-02	-7.36E-01
WDP*	m^3	8.75E-01	1.22E-04	6.83E-05	4.35E-05	6.96E-04	-1.68E-02	6.74E-03
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							

[3] The balance of CO_2 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, CO_2 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

** 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.*

Additional mandatory and voluntary impact category indicators

Results per functional or declared unit								
Indicator	**Unit**	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[4]	kg CO_2 eq.	2.64E+00	2.11E-02	6.57E-03	7.77E-03	1.10E-02	1.54E-03	-1.45E-01

Resource use indicators

Results per functional or declared unit								
Indicator	**Unit**	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
PERE*	MJ	5.36E+00	1.01E-03	1.94E-04	3.63E-04	1.32E-02	5.06E-04	2.45E-01
PERM*	MJ	2.78E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	5.39E+00	1.01E-03	1.94E-04	3.63E-04	1.32E-02	5.06E-04	2.45E-01
PENRE*	MJ	2.34E+01	2.88E-01	8.65E-02	1.02E-01	1.70E-01	3.32E-02	-7.36E-01
PENRM*	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	2.34E+01	2.88E-01	8.65E-02	1.02E-01	1.70E-01	3.32E-02	-7.36E-01
SM	kg	5.54E-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	2.77E-01	5.22E-05	1.85E-05	1.86E-05	5.03E-04	-3.32E-04	1.03E-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 =							

[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 CO_2 is set to zero.

	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

*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.

Waste indicators

Results per functional or declared unit								
Indicator	**Unit**	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous 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-hazardous waste disposed*	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Radioactive 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.
**Radioactive waste is considered not relevant within the value chains included in the study

Output flow indicators

Results per functional or declared unit								
Indicator	**Unit**	**A1-A3**	**A4**	**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	0.00E+00
Material for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.27E-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

Additional environmental information

Product related:
The first of its kind, and beneficial for both contractors and designers alike, the Ancon Thermal Windpost has been designed unlike any other windpost seen on the market.

Our Thermal Windpost is engineered to be up to 35% lighter than a traditional windpost, making it much easier to handle on ste. The teardrop hem increases the strength of the post and eliminates sharp edges, meaning that safety on site is also improved.

They are manufactured from grade 1.4301 (304) stainless steel making them suitable for most building applications. Stainless steel is also class A1 non-combustible. Supplied with robust integral non-combustible mineral fibre insulation packed behind the flange, we ensure there are no gaps or voids and complete continuity of the insulation layer is achieved – resulting in up to 70% reduction in thermal transmission through the span of the section.

The use of thinner gauge stainless steel reduces the amount of highly conductive material penetrating the insulation layer. The additional inclusion of a thermal slot array within the insulation zone slows the rate of thermal flux locally and in turn further reduces transmission through that part of the web. This is particularly efficient when fully surrounded by insulation.

Life-cycle costing is increasingly recognized as the true way to establish the cost of building components. The use of stainless steel means no costly remedial or refurbishment measures are required during the life of the structure. At the end of a long service life, our stainless steel products are 100% recyclable. When a product finally reaches the end of its long service life, it remains a valuable source of its main alloying elements - chromium, nickel and molybdenum. These can be easily recovered and separated from the other materials and returned to the production process. Stainless steel recycling is an economically viable, self-sustaining process. There are considerable savings in energy, and reduced CO2 emissions, in production methods which use recycled materials. The amount of recycled material in any stainless steel product is typically 70-90%, and as scrap availability is the limiting factor, this percentage will increase as the use of stainless steel continues to grow. The raw material produced today will not be recycled for many years. In addition to a product's end-of-life recycling, any scrap material generated during its manufacture is recycled in the same way. Leviat recycles 100% of its stainless steel scrap.

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
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