ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH ISO 14025:2026 AND EN 15804:2012+A2:2019/AC:2021 FOR:

STEEL PEDESTALS FOR ACCESS FLOORING & EXTERNAL SUPPORT SYSTEMS

FROM

ISAAC H GRAINGER & SON LTD

EPD registration number: S-P-11226

Publication date: 2023-12-18
Valid until 2028-12-17

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

Programme: The International EPD® System
Programme operator: EPD International AB
www.environdec.com

GENERAL INFORMATION

This EPD provides environmental performance indicators for steel pedestals manufactured by Isaac H Grainger & Son Ltd in the UK. It presents details of the LCA calculation, a description of the product life cycle it covers, values for the environmental indicators specified by EN 15804 with a brief interpretation important for their use. The EOD is for an average product across all the company's pedestals.

PROGRAMME INFORMATION	
EPD programme:	The International EPD® System
EPD programme operator:	EPD International AB - Box 21060 - SE-10031 Stockholm - Sweden www.environdec.com - info@environdec.com
Accountability for PCR , LCA and independent third-party verification	
EPD based on Product Category Rules:	The CEN standard EN 15804+A2:2019 serves as the core PCR
	PCR 2019:14 Construction products (EN 15804:A2) (V1.3.1 2023-07-08) - The International EPD® System
PCR review conducted by:	The Technical Committee of the International EPD® System The Review Panel can be contacted via info@environdec.com
LCA conducted by:	EuGeos Limited, UK - www.eugeos.co.uk
LCA software:	openLCA from GreenDelta
Background data from:	ecoinvent V3.8
Third-party verification:	Independent third-party verification of this EPD and data, according to ISO 14025/2006: ☐ internal certification ☑ external verification
Third party verifier:	Matthew Fishwick, Fishwick Environmental Ltd Recognized Individual Verifier
Accredited or approved by:	The International EPD® System
Procedure for data follow-up during EPD validity:	involves third party verifier: ☐ yes ☑ no
EPD information	
EPD registration	S-P-11226 published on 2023-12-18; valid until 2028-12-17
EPD owner	Isaac H Grainger & Son Ltd, Cradley Heath, West Midlands, UK

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 PROFILE

Isaac H Grainger & Son Ltd. is a family business based in the West Midlands, UK. It supplies a comprehensive range of products used in access flooring systems.

The company manufactures access floor pedestals and some other accessories used in access floor systems at its factory in Cradley Heath.

Isaac H Grainger & Son operates a quality and environmental management system, and is certified to both ISO 9001 and ISO 14001.

CONTACT

Nathan Grainger, Commercial Director Designate
Isaac H Grainger & Son Ltd
8 Gawne Lane
Cradley Heath
West Midlands B64 5QY
UK

http://www.isaacgrainger.co.uk
tel: +44 (0)1384 637 777

email: sales@isaacgrainger.co.uk

PRODUCT INFORMATION

STEEL PEDESTALS FOR ACCESS FLOORING & EXTERNAL SUPPORT SYSTEMS

Access flooring systems are raised floors that allow electrical and mechanical services to be installed beneath their surface. Access floor pedestals are vertical adjustable structures that support the panels that constitute the access floor above the substrate floor. Pedestals are fabricated steel items, zinc-plated and passivated. They are available in a range of dimensions, to allow different heights of the underfloor void and to accommodate different loadings on the installed access floor.

Isaac H Grainger & Son offer several ranges of steel pedestals for different uses: H, M, E, X for access flooring; RDFR for paving and RPFR for decking. All pedestals are produced in the same way using steels of very similar compositions but different dimensions (e.g. tube diameter, thickness of the tube, top- & base- plates).

When installed, a "cap" may be fitted to the top of the pedestal for the access floor panel to rest on; these caps are polymer (typically polypropylene) mouldings with brass inserts weighing approximately 20g per piece. They are not covered by this EPD.

This EPD applies to all pedestals from Isaac H Grainger & Sons; a few of which are illustrated below.

Model X10 DSC0516 (X-Range)

Model M3E DSC0486 (M-Range)

Model H7 Screw Down DSC0577 (H-Range)

Model E4E DSC0550 (E-Range)

Access floor pedestals produced by Isaac H Grainger & Son Ltd are classified CPC 4219 under the UN CPC classification system v2.1.

MANUFACTURING

Access floor pedestals are made in a steel fabrication process starting from stock mild steel forms such as sheet and tube. These are worked, cut to size and welded to form the main pedestal elements. These are zinc-plated and passivated (chromium III passivation is used) by a specialist electroplating sub-contractor, then finished pedestals assembled.

Metal waste generated during the manufacturing stage is segregated and recycled. Metal-working lubricants used at the Cradley Heath are purchased from a local oil recycling business and returned there for recovery when used.

NAME AND LOCATION OF PRODUCTION SITES

Manufacturing takes place in Isaac H. Grainger & Son's facilities in Cradley Heath, UK and Aligarh, India

PACKAGING & TRANSPORTATION

Goods are packed in woven polyethylene sacks and then secured on pallets using polyethylene stretch-wrap for transport to the construction site. This packaging can be reused or recycled from the construction site.

INSTALLATION

Pedestals are installed as part of an access floor or external support system.

PRODUCT USE AND MAINTENANCE

Once installed, no specific maintenance is required in normal use.

END-OF-LIFE

At the end of its life the access flooring system can be removed and pedestals can be recycled.

As wastes removed from a building, pedestals fall under European Waste Catalogue (EWC) code 17-04-05.

RESIDUAL RISKS AND EMERGENCIES

There are no residual risks associated with the normal day to day use of access floor pedestals. Care must be taken that pedestals are not subjected to loadings in excess of those indicated on the applicable technical data sheet.

FURTHER PRODUCT INFORMATION

Detailed product information, official Certification and datasheets with technical data can be found:

on our website http://www.isaacgrainger.co.uk
or by contacting tel: +44 (0)1384 637 777
email: sales@isaacgrainger.co.uk

LCA INFORMATION

This section of the EPD records key features of the LCA on which it is based.

The LCA was carried out by EuGeos using openLCA software and production data from the product manufacturing facilities for a continuous 12-month period between 2022/01/01 and 2022/12/31; background data were taken from the ecoinvent database (v3.8).

DECLARED UNIT

The declared unit is 1kg of access floor pedestal.

CONTENT INFORMATION

The material composition of Grainger's pedestals is shown below, per declared unit of 1kg.

Materials	Weight; kg	Post-consumer material; weight %	Biogenic material; weight %	Biogenic material; kg C/kg
Steel	0.99	10	0	0
Zinc	<0.01	0	0	0
TOTAL	**1**	**10**	**0**	**0**

Packaging materials	Weight; kg	Weight; % vs product	Weight biogenic material; kg C/kg
Polyethylene	<0.01	<1	0
Wood	0.05	5	0.5
TOTAL	**0.06**	**6**	

No substances included in the Candidate List of Substances of Very High Concern for authorisation under the REACH Regulations are present in the pedestal, either above the threshold for registration with the European Chemicals Agency or above 0.1% (wt/wt).

LCA SCOPE

This EPD covers the production stage, transport to site, installation and end-of-life stages (modules A1-A3, C1-C4 and D; see below). The use stage is omitted in this cradle-to-gate with modules C1 – C4 and D EPD. As required by the PCR, modules A1-A3 are declared in aggregated form.

Product stage			Construction process stage		Use stage							End of life stage				Benefits & loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse- recovery- recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared X: included in LCA; ND: module not declared; NR: module not relevant																
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography																
GLO	GLO	GB, IN	-	-	-	-	-	-	-	-	-	GB	GB	GB	GB	EUR
Specific data used																
20%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - products																
<5%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites																
+/-50%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Module D provides an estimate of the potential benefits that would accrue to a different product system were the product constituents and recycled wastes identified in data for other life cycle modules actually recycled or recovered at current rates and using current technologies.

GEOGRAPHICAL SCOPE

The EPD applies to products manufactured in Great Britain (GB) and India (IN), with end-of-life in Great Britain.

REFERENCE SERVICE LIFE

No specific reference service life for the product is declared.

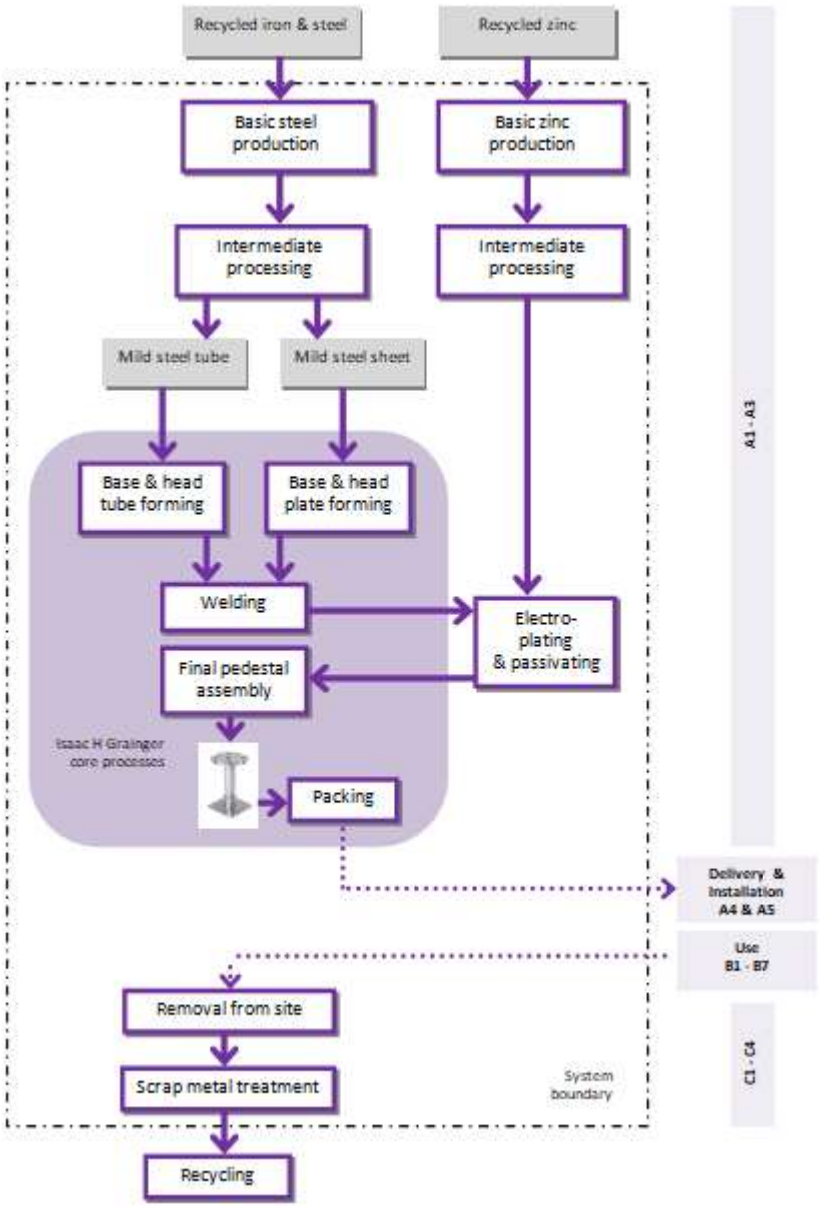
SYSTEM BOUNDARIES

The system boundary of the EPD is defined using the modular approach set out in EN 15804: cradle to gate (A1–A3) with modules C1–C4 and module D.

As well as the core processes which cover manufacture of the pedestal at Isaac H Grainger & Son's factories , the system therefore includes production of all raw materials and components from basic resources; transport of those materials at all stages up to Graingers' factory and warehouse in Cradley Heath; transport to a specialist plating facility and the plating activity itself, the production of fuels and energy carriers and their delivery to manufacturing sites; the treatment of all wastes.

The upstream processing of recycled material inputs prior to their reaching the end-of-waste state is outside the system boundary.

The product life cycle covered by this EPD is illustrated below.



LCA DATA

DATA SOURCES AND QUALITY

TIME REPRESENTATIVENESS

Production data covering a period of 12 months from 01 January 2022 to 31 December 2022 were collected from Isaac H Grainger & Son Ltd's manufacturing facilities in Cradley Heath, UK and Aligarh, India. The producer-specific data used in LCA calculations are therefore based on 1 year averaged data and have been updated within the last 5 years.

These data were checked to ensure that sufficient materials and water are included within the inputs to account for all products, wastes and emissions.

BACKGROUND DATA

Background (generic) data were taken from the ecoinvent database (v3.8). This was updated in 2021, fulfilling the EN 15804 requirement that generic data used in the LCA have been updated within the last 10 years.

DATA QUALITY

Data quality has been reviewed for processes that contribute significantly to the overall LCA. Other data were also assessed and judged fit for purpose.

No environmental impact potential stemming from proxy data exceeds 10% of the total indicator value for any impact category.

CUT-OFF CRITERIA

The collected data covered all raw materials, consumables and packaging materials; associated transport to the manufacturing site; process energy and water use; direct production wastes; emissions to air and water.

According to EN 15804 and the PCR, flows can be omitted (cut-off) from a core process in the LCA up to a maximum of 1% of the total mass of material inputs or 1% of the total energy content of fuels and energy carriers, up to a combined total of 5% of either; consumables for metal-working machines meet these cut-off criteria and were omitted from the LCA underpinning this EPD.

Capital goods in foreground processes are excluded from the LCA, although capital goods are included in the background datasets used.

ALLOCATION

Pedestal production is a steel fabrication process. Common inputs (fuels, lubricants, welding consumables) were allocated between all output of Isaac H Grainger & Son's factories on the basis of production volume.

In the background data, the ecoinvent default allocation is applied to all processes except those in which secondary materials are used, where the "cut-off" allocation is applied. This ensures that secondary materials are free of upstream burdens that arise prior to their reaching the "end of waste" state, in accordance with Section 6.3.4.2 of EN 15804.

ASSUMPTIONS AND ESTIMATES

The passivation process was omitted from the LCA. Given the very small quantities of chromium present in passivated zinc coatings on steel (Grasso 2005), this is not considered significant. The burdens of zinc electroplating were estimated using data for batch galvanising, adjusted to allow for the reportedly lower deposition efficiency of electroplating.

Inputs to and outputs from the system are accounted for over a 100-year time period; long-term emissions are therefore omitted from the impact assessment part of the LCA.

The "primary energy used as material" (PERM; PENRM) indicators are calculated using - as characterisation factors - published values for constituent materials which can yield energy on combustion, where available,

and from published calorific values where PE(N)RM values are not available. Only packaging materials are combustible: applied characterisation factors are 48MJ/kg for polyethylene and polypropylene, 14MJ/kg for wood.

"Primary energy as fuel" indicators (PENRE, PERE) are calculated as the total primary energy demand minus primary energy used as material.

The effective, production-weighted generation mix for electricity is gas - 28%; nuclear – 10%; coal – 15%; hydro – 5%; solar (including on-site PV) 41%; wind & biomass – 0.5% each. The carbon footprint of this (GWP-GHG) is 0.48kgCO_2e/kg.

Output flows are calculated for module A3 only, thus the reported values represent a conservative estimate of materials recovery from the product stage.

Modules C1 - C4 are modelled using scenarios.

Removal from site (Module C1) is assumed to be a manual operation, without identifiable energy or material inputs. No components for reuse are generated and all outputs are treated within the system boundary (in Module C3 or C4). Therefore no potential environmental impacts associated with this module are reported.

Relevant parameters for Module C2 are shown in the table below.

TRANSPORT SCENARIO Module C2	
Parameter	**Quantity & unit**
Vehicle type	lorry
Fuel type and consumption	diesel, 0.1 l/km
Capacity utilisation (including empty returns)	33% / 6t average load
Distance	50km road
Bulk density of transported products	7800kgm^{-3}

For consistency with the system boundary applied for input of recycled material, sorting and pressing of steel scrap is included to represent waste treatment (Module C3). It is assumed that all pedestals are collected for treatment as scrap metal.

To ensure mass balance across the life cycle in light of the omission of Module A5, management of waste packaging is included in Module C4. Disposal to landfill is assumed. The quantity of wood disposed is $^{1}/_{10}$ of the quantity of wood in the declared unit, in line with the assumption that a typical pallet is re-used 10 times.

The benefits reported in Module D are calculated for **net** flows of materials across the system boundary (materials to be recycled or recovered leaving the modelled system from the end-of-life stage minus recycled materials content of the product. The calculation of these net flows for pedestals is based on 10% recycled steel content of the pedestals and 100% recycling of the material treated in Module C3. As a result, Module D accounts for recycling of 0.9kg steel.

In assessing the potential benefits, a quality factor of 0.9 has been applied to account for the lower quality of recycled low-grade ferrous metal compared to new steel. The benefits of ferrous metal recycling are assumed to be avoided production of converter (basic oxygen furnace) steel less the burdens associated with re-melting steel in an electric arc furnace in Europe.

ENVIRONMENTAL INDICATOR RESULTS

Environmental information for the declared unit of 1kg of steel pedestal are presented in the following tables in the form of quantitative indicator values calculated using the methods specified in EN 15804:2019+A2, covering environmental impact potentials, resource and energy use, and waste generation for all declared modules. The A1-A3 modules are shown on an aggregated basis as mandated by PCR 2019:14 §5.4.5; the results of modules A1-A3 should not be used without considering the results of modules C.

CORE ENVIRONMENTAL IMPACTS (EN 15804:2019+A2)		Unit	A1-A3	C1	C2	C3	C4	D
Climate change – GWP fossil	GWP-fossil	kg CO_2 eq	4.78E+00	0.00E+00	1.07E-02	1.23E-02	6.60E-04	-1.18E+00
Climate change – GWP biogenic	GWP-biogenic	kg CO_2 eq	1.25E-01	0.00E+00	4.84E-06	5.73E-06	5.10E-04	-5.40E-04
Climate change – GWP land transformation	GWP-luluc	kg CO_2 eq	3.57E-03	0.00E+00	4.98E-06	5.15E-06	1.09E-07	-6.40E-04
Climate change – GWP total	GWP-total	kg CO_2 eq	4.91E+00	0.00E+00	1.07E-02	1.23E-02	1.17E-03	-1.18E+00
Ozone depletion	ODP	kg CFC-11 eq	2.72E-07	0.00E+00	2.41E-09	2.18E-09	3.21E-11	-5.29E-08
Acidification potential	AP	mol H+ eq	2.04E-02	0.00E+00	4.26E-05	1.10E-04	9.10E-07	-5.26E-03
Eutrophication – freshwater	EP-freshwater	kg P eq	2.04E-03	0.00E+00	8.04E-07	7.81E-07	2.04E-08	-4.90E-04
Eutrophication – marine	EP-marine	kg N eq	4.95E-03	0.00E+00	1.24E-05	4.46E-05	4.17E-06	-1.32E-03
Eutrophication – terrestrial	EP-terrestrial	mol N eq	4.72E-02	0.00E+00	1.40E-04	4.90E-04	3.38E-06	-1.23E-02
Photochemical ozone formation	POFP	kg NMVOC eq	1.85E-02	0.00E+00	4.16E-05	1.30E-04	1.24E-06	-5.98E-03
Depletion of abiotic resources – minerals & metals [1]	ADPMM	kg Sb eq	3.43E-05	0.00E+00	4.87E-08	1.33E-08	3.51E-10	-1.86E-05
Depletion of abiotic resources – fossil fuels [1]	ADPFF	MJ, ncv	7.55E+01	0.00E+00	1.64E-01	2.15E-01	2.61E-03	-1.56E+01
Water (user) deprivation potential [1]	WDP	m3 world-eq deprived	1.77E+00	0.00E+00	8.10E-04	8.80E-04	1.10E-04	-2.13E-01

1 - The results of this environmental impact indicator shall be used with care because either the uncertainties associated with the results are high or there is limited experience with the indicator

ADDITIONAL ENVIRONMENTAL IMPACT (EN 15804:2019+A2)		Unit	A1-A3	C1	C2	C3	C4	D
Climate change – GWP fossil & land transformation [2]	GWP-GHG	kg CO_2 eq	4.91E+00	0.00E+00	1.07E-02	1.23E-02	1.17E-03	-1.18E+00

2 - 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		Unit	A1-A3	C1	C2	C3	C4	D
Renewable primary energy as energy carrier	PERE	MJ	4.72E+00	0.00E+00	2.70E-03	1.58E-02	4.57E-05	-7.08E-01
Renewable primary energy resources as material utilization	PERM	MJ	7.70E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources	PERT	MJ	5.49E+00	0.00E+00	2.70E-03	1.58E-02	4.57E-05	-7.08E-01
Non-renewable primary energy as energy carrier	PENRE	MJ	7.53E+01	0.00E+00	1.64E-01	2.15E-01	2.61E-03	-1.56E+01
Non-renewable primary energy as material utilization	PENRM	MJ	1.92E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources	PENRT	MJ	7.55E+01	0.00E+00	1.64E-01	2.15E-01	2.61E-03	-1.56E+01
Use of secondary material	SM	kg	6.38E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.25E-01
Use of renewable secondary fuels	RSF	MJ	3.86E-02	0.00E+00	5.99E-05	2.86E-05	4.86E-07	2.20E-02
Use of non-renewable secondary fuels	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.26E-02
Use of net fresh water	FW	m^3	4.56E-02	0.00E+00	2.07E-05	2.25E-05	2.73E-06	-6.01E-03

WASTE		Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	HW	kg	9.43E+00	0.00E+00	4.21E-03	3.91E-03	8.00E-05	-2.25E+00
Non-hazardous waste disposed	NHW	kg	6.13E-01	0.00E+00	6.70E-03	2.60E-04	1.00E-02	-7.38E-02
Radioactive waste disposed	RW	kg	4.28E-03	0.00E+00	3.58E-06	2.50E-05	4.91E-08	6.70E-04
OUTPUT FLOWS		**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	CFR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	MFR	kg	4.60E-01	0.00E+00	0.00E+00	1.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	MER	kg	0.00E+00	0.00E+00	0.00E+00	5.03E-05	0.00E+00	0.00E+00
Exported energy - electricity	EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - thermal	EET	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

ENVIRONMENTAL IMPACTS (EN 15804+A1:2013)

For information, indicator values calculated using the methods prescribed in the earlier version of EN 15804 (EN 15804+A1:2013) are provided in the table below for the declared unit of 1kg of pedestal; modules A1 - A3 are shown on an aggregated basis.

ENVIRONMENTAL IMPACTS (EN 15804:2013+A1)		Unit	A1-A3	C1	C2	C3	C4	D
Global warming potential	GWP	kg CO_2-eq	4.70E+00	0.00E+00	1.06E-02	1.22E-02	7.60E-04	-1.13E+00
Depletion potential of the stratospheric ozone layer	ODP	kg CFC11-eq	2.72E-07	0.00E+00	2.41E-09	2.18E-09	3.21E-11	-5.29E-08
Acidification potential of land and water	AP	kg SO_2-eq	1.73E-02	0.00E+00	3.37E-05	7.62E-05	1.04E-06	-4.40E-03
Eutrophication potential	EP	kg PO_4^{3-}-eq	8.69E-03	0.00E+00	7.51E-06	1.82E-05	3.66E-05	-2.10E-03
Formation potential of tropospheric ozone photochemical oxidants	POCP	kg ethene-eq	1.64E-03	0.00E+00	1.40E-06	1.84E-06	1.87E-07	-6.40E-04
Abiotic depletion potential for non-fossil resources	ADPE	kg Sb-eq	3.43E-05	0.00E+00	4.87E-08	1.33E-08	3.51E-10	-1.86E-05
Abiotic depletion potential for fossil resources	ADPF	MJ	7.55E+01	0.00E+00	1.64E-01	2.15E-01	2.61E-03	-1.56E+01

LCA INTERPRETATION

The environmental indicator results are relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

Steel production and its processing upstream of Isaac H Grainger & Son account for the majority of all indicator totals except for ADPFF. For example, these activities are responsible for more than 80% of the GWPtotal indicator value (carbon footprint). This strong contribution from upstream activities to the environmental indicator values is common in LCA of finished steel products. The quality of the data available to represent steelmaking and further processing to the standard forms supplied to Isaac H. Grainger & Sons has been assessed. This assessment identified various sources of uncertainty which influence the final indicator values reported in this EPD. The uncertainty in those indicator values is considered to be at least +/-10% for the climate change category, and is likely higher for other categories.

Indicator values obtained for resource depletion (ADPMM, ADPFF), stratospheric ozone depletion (ODP) and water deprivation (WDP) potential should be used with caution; all are subject to uncertainties in data or method which limit the scope for their use as the basis for comparisons. The use of zinc in the electroplating process is a significant driver of the ADPMM indicator reported in this EPD.

No untreated wastes leave the modelled system, which includes waste treatment activities as required by EN 15804. The waste indicators HWD, NHWD and TRWD presented in this EPD therefore represent waste flows *within* the modelled system.

ADDITIONAL ENVIRONMENTAL INFORMATION

This EPD replaces a previous EPD applying to Graingers' pedestals (S-P-01186), issued in March 2018.

REFERENCES

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LCA of Pedestals (2023) - Report for Isaac H Grainger & Son Ltd - EuGeos Limited

PCR 2014:09 Construction products and Construction services, Version 1.3.1, 2023-07-08 - The International EPD® System - EPD International AB.

GLOSSARY

The International EPD® System: a programme for Type III environmental declarations, maintaining a system to verify and register EPD®s as well as keeping a library of EPD®s and PCRs in accordance with ISO 14025. (www.environdec.com)

Life cycle assessment (LCA): LCA studies the environmental aspects and quantifies the potential impacts (positive or negative) of a product (or service) throughout its entire life. ISO standards ISO 14040 and ISO 14044 set out conventions for conducting LCA.

REACH Regulation: REACH is the European Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals. It entered into force in 2007, replacing the former legislative framework for chemicals in the EU.

Isaac H Grainger & Son Ltd
8 Gawne Lane
Cradley Heath
West Midlands B64 5QY - UK

http://www.isaacgrainger.co.uk