



Siniat Metal Framing environmental product declaration

Programme: EPD Australasia
www.epd-australasia.com
Programme operator: EPD Australasia Limited
www.epd-australasia.com
Registration no.: S-P-07444

Valid from: 2024-02-01
Valid until: 2029-02-01
Geographical scope: Australia

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

EPD of multiple products, based on a representative product. Products covered in this EPD are listed in page 8





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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.

The results for EN15804+A1 compliant EPDs are not comparable with EN15804+A2 compliant studies as the methodologies are different. Results that are EN15804+A1 compliant are given in this document to assist comparability across EPDs.

www.siniat.com.au
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Cover image:
Metal products manufactured by Etex Australia at the Beenleigh factory in Queensland

what is an environmental product declaration?





Etex, the manufacturer of Siniat products, recognises the importance of providing transparent and independently verified environmental impact information about our products.

An Environmental Product Declaration (EPD) tells the environmental story of a product over its life cycle. It is like a nutritional label on a food product – it communicates information about the product. An EPD is science-based, independently verified, and globally recognised. It is based on international standards, registered in a central system and publicly available.

An EPD is based on a Life Cycle Assessment (LCA) which is a methodology for assessing environmental impacts associated with all the stages of the life cycle of a commercial product, process, or service. It involves collecting extensive data across the products' life cycles – from raw material extraction and processing (cradle), through the product's manufacture, distribution and use, to the recycling or final disposal of the materials composing it (grave).

An EPD shows that a company is serious about environmental sustainability. It also provides the data 'the market' needs to understand environmental issues and make truly sustainable decisions.

An EPD can be used for any product or service to:

-  show relevant environmental impacts, such as the product's carbon footprint
-  describe its functional properties and the materials from which it is composed
-  give comparable information in the same product group
-  earn points in rating tools, such as Green Star (GBCA) and Infrastructure Sustainability (IS) rating scheme of the Infrastructure Sustainability Council (ISC).

About this EPD

Siniat metal framing products are for use with Siniat wall and ceiling linings. The products are manufactured at the Etex roll forming plant in Beenleigh, Queensland.

This is a 'type B' EPD - 'cradle-to-gate' with options, modules C1-C4, module D and with optional modules (A1-A3 + C1-C4 + D and additional modules A4 and A5). 'Cradle' refers to the raw material extraction and 'the gate' is the gate of the metal framing manufacturing facility as the product is ready to go out to customers.

Etex Australia, as the EPD owner has the sole ownership, liability, and responsibility for the EPD.

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Siniat — a sustainable choice

Siniat products are manufactured by Etex, global leaders in lightweight construction materials.

Siniat's quality range of products and systems is designed for performance. It provides solutions for fire, water, sound and impact resistance, as well as space-giving, acoustic and aesthetic design for all commercial and residential construction projects.

Siniat's innovative lightweight construction systems include metal framing, systems for walls and ceilings, decorative, acoustic wall & ceiling linings, and plaster finishing compounds and accessories for internal applications.

our commitment to a sustainable future

The Siniat vision for sustainability is simple: to be the most sustainable provider of drywall solutions in our sector.

The Etex Group is committed to its 'Road to Sustainability 2030' - a roadmap for the future to help build a safer, sustainable future.

The five priority areas are:

- › Health, safety and well-being
- › Diversity, equity and inclusion
- › Customer Engagement
- › Circularity
- › Decarbonisation.

A wide range of Siniat products are also [GreenTag GreenRate Level A certified](#), and Siniat offers the Opt2Act opt-in carbon neutral program. Under the program, customers can choose to opt-in for carbon neutral product. The specific products opted-in are certified by the Australian Government's Climate Active as Carbon Neutral.

Etex Australia is committed to our organisation's value Connect and Care; and we underscore our vision and commitment in our Sustainability Policy:



We are responsible for our operational footprint



We work towards a carbon neutral future



We respect and care about our teammates, our customers, and our community.

our why

We want to inspire people around the world to build living spaces that are ever more safe, sustainable, smart and beautiful.

our how

We work as one, fostering a collaborative and caring culture, a pioneering spirit and a passion to always do better for our customers.

our what

Building on our experience and global market needs, we strive to improve our customers quality of living with ever more effective lightweight solutions.

OUR facilities

Siniat is a major supplier to the lightweight construction industry and a one-stop-shop for complete wall and ceiling solutions.

We have plasterboard manufacturing facilities in Matraville (Sydney, NSW), Altona (Melbourne, VIC) and Bundaberg (QLD). Our compound manufacturing is based in Altona and our metal roll forming plant is in Beenleigh (Brisbane, QLD).

Our products are distributed via a national distribution network comprising of company owned retail stores, independently owned and operated Plastamasta stores, and other independent retailers.



Our manufacturing facilities are certified and independently audited to the stringent requirements of management systems standards including:

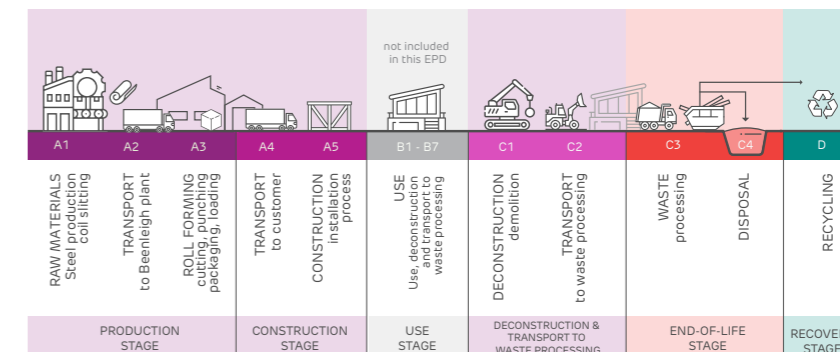
- > ISO 9001:2015 Quality
- > ISO 14001:2015 Environment
- > ISO 45001:2018 Health & Safety

considered in this EPD

Siniat metal framing products suit a wide range of standard applications including internal wall linings and ceilings.

This EPD covers 258 Siniat metal framing products manufactured using ZINCALUME® AM 150 in Beenleigh, Queensland, Australia. They are predominantly:

- > Wall and ceiling framing systems – stud and track
- > Angles and beads
- > Accessories



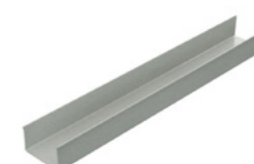
Stud

Siniat metal studs are vertical framing members that help to create wall structures. Also available are the Interhome H-stud and acoustic stud for special applications.



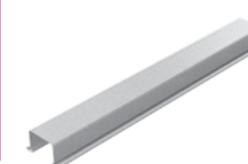
Track

Siniat metal tracks are horizontal framing members that help to create wall and ceiling structures. Also available are the DH track, Nogging track and Slotted DH track.



Furring Channel

Siniat furring channel is part of their suspended ceiling systems. They are used together with Siniat top cross rail to create a stable substrate to which plasterboard can be screw fixed.



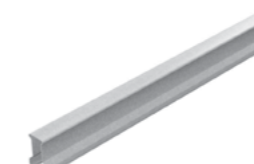
Battens

Battens are framing members that plasterboard is fixed to in a wall or ceiling system. Siniat manufactures a range of battens for different applications.



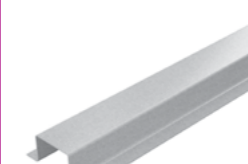
Top Cross Rail

Top cross rail is used in suspended ceiling systems in conjunction with furring channel, suspension rods and a variety of clips.



Top Hats

Siniat top hats are mainly used in facade systems and soffits to support the wall and ceiling cladding.



Beads and angles

Siniat offers a wide range of quality steel plaster finishing sections to suit various applications. They add strength to a joint, at an angle or in the corners of a wall for a seamless finish.



considered in this EPD contd.

Table 1. Product groups for Module A1-A3 including representative product, BMT, % punchouts and products represented

Group	Product Category	Product type	Representative Product			BMT	No. of products in group	Product List (Codes)
			Code	Description	Punchouts			
A	Accessories	Facade Components	P57	AFS-Façade Flashi blk71/0.42/0.42 25000	1.98%	0.420	4	P54, P55, P56, P57
B	Angles and Beads	Angles	P9	ABA-Back Angle 28/28/0.30 2400 (20/480)	0.411%	0.300	2	P9, P12
C	Angles and Beads	Angles	P90	AP90-External 30/30/0.38 2400 (20/480)	0.382%	0.380	31	P80, P81, P82, P84, P85, P86, P87, P88, P89, P90, P91, P92, P93, P94, P95, P96, P97, P98, P99, P100, P101, P102, P103, P104, P108, P109, P110, P111, P112, P113, P114
D	Angles and Beads	Angles	P105	APSB-Stopping Bead 10/30/0.50 3000	1.57%	0.500	3	P105, P106, P107
E	Angles and Beads	Angles	P14	ABA-Back Angle 50/50/0.70 3600 (10/500)	0.330%	0.700	5	P10, P11, P13, P14, P263
F	Angles and Beads	Angles	P15	ABA-Back Angle 50/50/1.15 3000 (10/250)	1.29%	1.15	3	P8, P15, P16
G	Framing	Ceiling Channels	P48	AFC-Furring Channel 38/28/0.42 6000	0.226%	0.420	24	P30, P31, P32, P33, P34, P35, P36, P37, P38, P39, P40, P41, P42, P43, P44, P45, P46, P47, P48, P49, P50, P51, P52, P266
H	Framing	Ceiling Tracks	P129	AT-Furring Channel Track 28/30/0.50 3000	0.224%	0.500	2	P128, P129
I	Framing	Ceiling Rail	P121	ATCR-Top Cross Rail 10/25/0.75 3600	1.43%	0.750	6	P121, P122, P123, P124, P125, P127
J	Framing	Top Hats	P138	ATH-Top Hat 50/35/0.75 6000 (10/50)	0.540%	0.750	7	P130, P131, P134, P137, P138, P139, P144
K	Framing	Top Hats	P141	ATH-Top Hat 50/35/1.15 6000 (10/50)	0.492%	1.15	16	P58, P59, P132, P133, P135, P136, P140, P141, P142, P143, P145, P146, P147, P148, P149, P150
L	Framing	Tracks	P155	AT-Track 64/32/0.50 3000(10/50)	0.111%	0.500	11	P19, P21, P24, P27, P154, P155, P158, P159, P162, P163, P272
M	Framing	Tracks	P164	AT-Track 92/32/0.70 3000(10/50)	0.313%	0.700	27	P17, P20, P22, P25, P28, P61, P62, P63, P65, P66, P67, P68, P69, P70, P71, P72, P74, P75, P76, P77, P116, P117, P119, P152, P156, P160, P164
N	Framing	Tracks	P165	AT-Track 92/32/1.15 3000(10/50)	0.268%	1.15	15	P18, P23, P26, P29, P73, P78, P79, P115, P118, P120, P153, P157, P161, P165, P166
O	Framing	Studs	P239	AWSL stud 92/35/0.55 3000(10/40)	0.140%	0.550	36	P1, P2, P3, P4, P5, P7, P183, P184, P185, P186, P189, P190, P191, P192, P193, P194, P195, P196, P197, P214, P215, P216, P217, P218, P219, P220, P221, P237, P238, P239, P240, P241, P242, P243, P244, P267
P	Framing	Studs	P248	AWSL stud 92/35/0.75 3600(10/40)	0.265%	0.750	33	P167, P168, P169, P170, P171, P172, P173, P174, P188, P198, P199, P200, P201, P202, P203, P204, P205, P222, P223, P224, P225, P226, P227, P228, P229, P245, P246, P247, P248, P249, P250, P251, P252
Q	Framing	Studs	P255	AWSL stud 92/35/1.15 3000(10/40)	0.213%	1.15	33	P175, P176, P177, P178, P179, P180, P181, P182, P206, P207, P208, P209, P210, P211, P212, P213, P230, P231, P232, P233, P234, P235, P236, P253, P254, P255, P256, P257, P258, P259, P260, P261, P262

how to use this EPD

Etex Australia has developed this EPD to help showcase the environmental credentials of their Siniat-branded metal framing products. The EPD also provides life cycle data for calculating the impacts of metal framing products at a building level.

This data may be used by specifiers and developers to calculate and present the environmental impacts of particular construction projects.

This EPD can allow the represented products to qualify for points under green rating tools, such as the Green Star rating tool of the Australian Green Building Council (GBCA).

"The use of Environmental Product Declarations (EPDs) in Green Star aims to increase the supply of products and materials with publicly available EPDs that have been completed in accordance with recognised international standards. It does so by incentivising the use of such products and materials in Green Star rated buildings and fitouts."

Australian Green Building Council (GBCA)

The remainder of this EPD comprises 2 parts

Part 01 is the Technical Information for the method, assumptions and descriptions of environmental indicators.

Part 02 contains the results from modelling the life cycle assessment of the different products.

technical information

declared unit

EPDs that do not cover the full product life cycle from raw material extraction through to end-of-life use the term “declared unit”, rather than “functional unit”. “Declared unit” will be used in these EPDs.

The declared unit for the EPD is 1 kg of Siniat metal framing products installed plus its packaging

Siniat metal framing products are specified and purchased by length, appropriate to the size of building. Most products can be made in a range of lengths, with increments of 5mm.

Table 2. industry classification

Product type	Classification	Code	Category
Ceiling products, wall framing, finishing and accessories	UN CPC Ver.2	41262	Angles, shapes and sections, cold-formed, cold finished or further worked, of iron or non-alloy steel
	ANZSIC 2006	C222100	Structural steel fabricating



content declaration

Table 3. Composition of Siniat metal framing products (per kg)

Product composition		Weight (kg/m ²)	Weight (% per kg)	Recycled material (post-consumer) *	Biogenic material (weight %)	Weight biogenic carbon (kg C/kg)
Steel Base	Carbon Steel	2.36 (0.30 mm) – 11.78 (1.50 mm)	>92%	0%	0%	0
	Aluminium	0.072–0.088	<5%	0%	0%	0
Metallic coating (AM150)	Magnesium	0.002–0.005	<0.2%	0%	0%	0
	Silicon	0.002–0.003	<0.2%	0%	0%	0
	Zinc	0.059–0.079	<4%	0%	0%	0
Surface treatment	Passivation	<0.002	<0.2%	0%	0%	0
	Resin	≤0.002	<0.2%	0%	0%	0

*The average recycled content in the BlueScope steel (pre- and post-consumer combined) is 17.4% (BlueScope Steel Ltd, 2023).

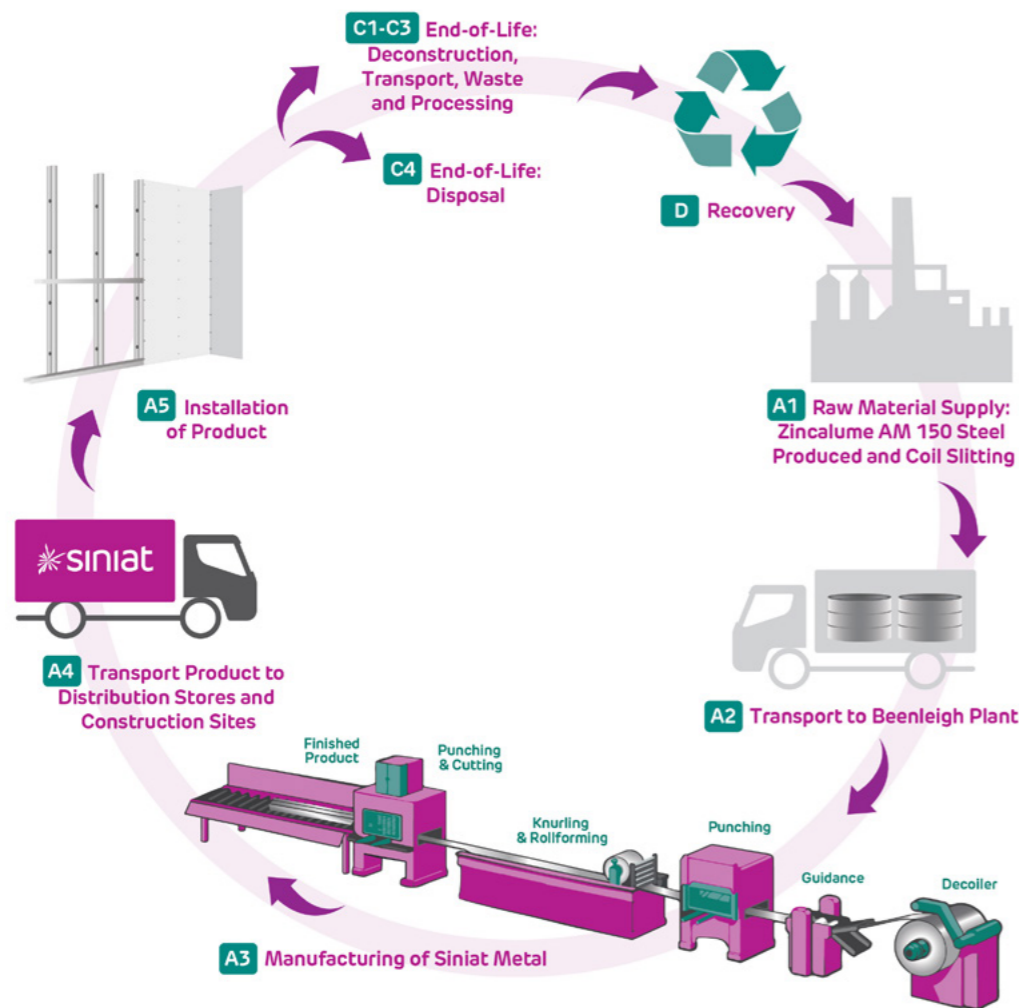
Table 4. packaging per 1 kg of Siniat metal framing product

Packaging materials	Weight (g)	Weight-% (versus the product)	Weight biogenic carbon (kg C/kg packaging)
Plastic - Polypropylene	0.528	0.0528%	0.000
Timber	0.884	0.0882%	0.433

dangerous substances

Siniat metal framing products are manufactured using BlueScope’s ZINCALUME® AM 150. ZINCALUME® AM 150:

- > Does not release dangerous substances to soil and water.
- > Does not contain hazardous substances requiring labelling.
- > Does not contain materials identified in the European Chemicals Agency’s Candidate List of Substances of Very High Concern in the products at a concentration greater than 0.1% (ECHA, 2022).



system boundaries

As shown in the table below, this is a 'type B' EPD - 'cradle-to-gate' with options, modules C1-C4, module D and with optional modules (A1-A3 + C1-C4 + D and additional modules A4 and A5). Other life cycle stages (Modules B1-B7) are dependent on particular scenarios and best modelled at the building level.

Table 5. Modules included in the scope of the EPD

Module	Production stage					Use stage							End-of-life				Resource recovery
	Raw material supply	Transport of raw materials	Manufacturing	Transport to customer	Construction / Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction / demolition	Transport to waste processing	Waste processing	Disposal	Future reuse, recycling or energy recovery potential
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Module declared	X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	GLO	AU	AU	AU	-	-	-	-	-	-	-	AU	AU	AU	AU	AU
Specific data	>90%		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation: products	<10%		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation: sites	0%		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

X = included in the EPD; ND = Module not declared (such a declaration shall not be regarded as an indicator result of zero)

manufacturing process

The majority of Siniat's metal products are manufactured in Beenleigh, Queensland to meet stringent product specifications under management systems certified as conforming to ISO 9001 Quality, ISO 45001 Health & Safety, and ISO 14001 Environmental.

The majority of Siniat metal products are manufactured with BlueScope steel. The manufacture of the steel itself is the major contributor to the environmental impacts of the products. Once production is complete, coils of BlueScope steel are shipped to third party coil slitters, who cut the master coils to specific widths for each Siniat metal profile. These smaller coils are then transported to the Beenleigh plant, ready for use in manufacturing.

The manufacturing of Siniat metal profiles starts with loading the metal coils to individual production lines, then forming, cutting and punching, stacking and packing of the products, and transfer into the warehouse. The product is then ready for distribution to customers.

packaging products

Packaging of Siniat products unities primarily for handling and transit safety purposes:

- > Metal lengths are strapped into bundles
- > Bundles are unitised into packs
- > Packs are individually strapped for transit and stored on timber bearers

Module A1 - A3: Production stage

The production stage includes the environmental impacts associated with raw materials extraction and processing of inputs, transport to, between and within Etex manufacturing site, manufacturing of average product at the exit gate of the manufacturing site and transport of product to customer.

Module A1 (raw material supply) includes the steel production at BlueScope steel from raw and recycled materials in Australia, production of consumables, coil slitting, and generation and transmission of electricity in Australia.

Module A2 (transportation) includes transport by rail and road of coil steel to coil slitters and from coil slitters to the Beenleigh plant.

Module A3 (manufacturing) includes production of the metal profiles, on-site transport by forklift and the recycling of manufacturing waste.

Module A4 and A5: Distribution and Construction stage

Module A4 (distribution) includes distribution from the Etex Beenleigh manufacturing site through distribution centres and to the construction site. An average distribution model is applied, which includes both distribution through builder’s merchants and direct delivery by Etex to construction sites in major urban centres.

Module A5 (installation) includes the materials used to install the metal framing and the production and disposal of metal framing offcuts from installation, including a combination of metal framing recycling and landfill.

Note that although the installation of Siniat products may require additional materials (such as screws) and energy (such as electricity for nail guns), they were not modelled in this study due to data limitations.

Table 6. Assumptions for product distribution (Module A4)

Process	Estimated weighted avg. transport to construction sites (km)	Utilisation rate (%)	Comments
Truck	870*	100	Manufacturing sites/distribution centres to builder’s merchants or directly to construction sites

* the weighted average distance is 820 km and an additional 50 km is included if truck travels empty after unloading (for conservative purposes).

Table 7. Assumptions for product installation (Module A5)

Group	Product Category	Product Type	Representative Product	BMT	Offcuts* (%)
A	Accessories	Facade Components	P57	0.42	0.50%
B	Angles and Beads	Angles	P9	0.30	0.50%
C	Angles and Beads	Angles	P90	0.38	0.50%
D	Angles and Beads	Angles	P105	0.50	6.67%
E	Angles and Beads	Angles	P14	0.70	6.67%
F	Angles and Beads	Angles	P15	1.15	6.67%
G	Framing	Ceiling Channels	P48	0.42	2.00%
H	Framing	Ceiling Tracks	P129	0.50	6.67%
I	Framing	Ceiling Rail	P121	0.75	6.67%
J	Framing	Top Hats	P138	0.75	2.00%
K	Framing	Top Hats	P141	1.15	2.00%
L	Framing	Tracks	P155	0.50	6.67%
M	Framing	Tracks	P164	0.70	6.67%
N	Framing	Tracks	P165	1.15	6.67%
O	Framing	Studs	P239	0.55	6.67%
P	Framing	Studs	P248	0.75	6.67%
Q	Framing	Studs	P255	1.15	6.67%

* This is the percentage of offcuts produced in Module A5 compared to the product leaving the manufacturing system in Module A3.

Module C1-C4: End-of-Life stage

When a building reaches its end-of-life, Siniat metal framing products are disposed of either by recycling or to landfill.

As demonstrated in National Waste Surveys, metal products have a high recycling rate, and can be readily disassembled and separated during demolition or deconstruction.

Module C includes waste processing followed by recycling or landfill of the product.

Module C1 (deconstruction/demolition) includes demolition of the whole building including Siniat metal using a 100-kW construction excavator.

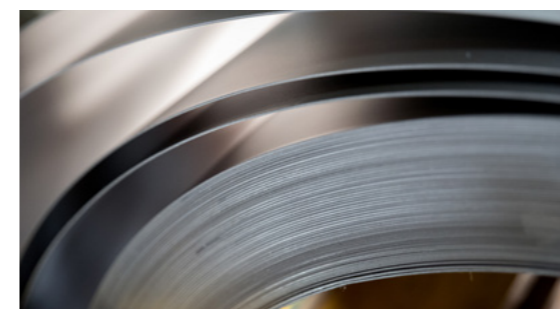
Module C2 (transport to end-of-life) includes transport of recovered Siniat metal framing products to a metal recycling facility and/or a landfill, after demolition of the building or part of the building where they were used.

Module C3 (waste processing) includes the processing of metal framing waste for reuse or recycling.

Module C4 (disposal) includes disposal of metal framing which cannot be recycled (into a landfill for ferrous metals).

Table 8. Assumptions for End-of-Life scenario development

Process	Unit per declared unit
Collection process	0.9 kg collected separately
	0.1 kg collected with mixed construction waste
Recovery system	0 kg for re-use
	0.9 kg for recycling
	0 kg for energy recovery
Disposal specified by type	0.1 kg product or material for final deposition
Assumptions for scenario development	<ul style="list-style-type: none"> Diesel consumption for demolishing/deconstructing the building with an Excavator (100-kW): 0.172 g diesel per kg of product. All construction waste is transported from the building site to a waste processing or landfill facility via truck. Transport distance is assumed to be 50 km with a capacity utilisation of 50%. The processing stage includes shredding of steel waste ready for recycling, with an assumption of 0% loss, and electricity input of 0.2 MJ/kg steel



Module D: Benefits and loads beyond the system boundary

Module D declares a potential credit or burden for the net scrap associated with Siniat product. Net scrap is the amount of scrap left after scrap from post-consumer needs are removed from scrap produced from product. That is, secondary product used in product manufacture is subtracted from the overall amount of recycled product after the first life cycle. If the net balance is positive, a credit is given based on the worldsteel “Value of scrap”.

life cycle inventory (LCI) data and assumptions

Primary data was used for all manufacturing operations up to the factory gate, including upstream data for input steel from BlueScope. Primary data for Etex's own operations was sourced from the period 1 July 2020 to 30 June 2021. Background data was used for other input materials.

All data in the background system was from the Sphera Managed LCA Content (MLC) Databases (2022.2) (Sphera, 2022). Most datasets have a reference year between 2015 and 2021 and all fall within the 10-year limit allowable for generic data under EN 15804.

Upstream data

Data for ZINCALUME® AM 150 is sourced from BlueScope's LCA Report for Coated Steel Products, conducted for their COLORBOND® EPD, updated in 2023 (BlueScope Steel Ltd, 2023). Packaging materials of raw materials were excluded in this study due to data limitations, while we realise their effects would be minimal (<1% of the cumulative mass of all inputs).

Electricity

Electricity used in the metal forming processes accounts for less than 10% of GWP-GHG impacts for Siniat products. The emission factor for the Queensland electricity grid for the GWP-GHG indicator is 1.03 kg CO₂ eq./kWh (Sphera, 2022).

Product transport

Siniat metal products are distributed from the manufacturing sites or the distribution centres either to builder's merchants or directly to construction sites. Weighted average transport distances were calculated based on routes documented by Etex – approximately, 870 km from the manufacturing site to customer. An average payload capacity of 24.7 t was assumed for commercial carriers.

Installation

Installation of Siniat metal products may require additional materials (such as screws) and energy (such as electricity for nail guns). However, they were not modelled in this study due to data limitations.

End-of-life

The modelling for Module C1 (deconstruction/demolition) was based on the use of a 100-kW construction excavator (fuel consumption of 0.172 kg diesel per tonne steel). The modelling for Module C2 (transport) assumed 50 km transport by truck to a waste processing facility or landfill, with assumed utilisation of 50%.

The recycling scenario was based on the National Waste Report (Pickin, et al., 2018), which indicates that the average metals recycling rate in Australia is 90%. This is an Australian average scenario for steel construction products and therefore appropriate for all products included in this EPD.

Module C3 includes the processing of construction waste for recycling – including the separation of metal from other building materials and pre-processing to the stage where it becomes suitable to be purchased by a metal manufacturer's steel recycling facility. The processing stage includes shredding of steel waste ready for recycling, with an assumption of 0% loss, and electricity input of 0.2 MJ/kg steel.

Cut-off criteria

Personnel-related processes are excluded as per section 4.3.2 in the PCR (EPD International, 2023).

thinkstep-anz consistently excludes environmental impacts from infrastructure, construction, production equipment, and tools that are not directly consumed in the foreground production process ('capital goods'), regardless of potential significance. High-quality infrastructure-related data isn't always available and there is no clear cut-off for what to include. For this reason, capital goods data are applied to LCA studies inconsistently. This is expected to lead to reduced consistency and comparability of EPDs. Capital goods were previously excluded from EPDs, thus including capital goods in current EPDs would further reduce their comparability.

Infrastructure used in electricity generation is included as standard in the Sphera MLC datasets, as this is important for renewable generation.

For the processes within the system boundary, all available energy and material flow data have been included in the model. In cases where no matching life cycle inventories are available to represent a flow, proxy data have been applied based on conservative assumptions regarding environmental impacts.

In compliance with EN15804 (section 6.3.6), the following cut-off criteria were applied during data collection and analysis:

- **Mass:** If a flow is less than 1% of the cumulative mass of all the inputs and outputs of the LCI, it may be excluded, providing its environmental relevance is not a concern.
- **Energy:** If a flow is less than 1% of the cumulative energy of all the inputs and outputs of the LCI, it may be excluded, providing its environmental relevance is not a concern.
- **Environmental relevance:** If a flow met the above criteria for exclusion, yet was thought to potentially have a significant environmental impact, it has been included.

- Material flows which leave the system (emissions) and whose environmental impact is greater than 1% of the whole impact of an impact category that has been considered in the assessment have been covered.
- The sum of all excluded material flows in any unit process, and therefore as combined in Module A1-A3 must not exceed 5 % of mass, energy or environmental relevance.

Raw material packaging data was not available, specifically – hence, they are excluded in this study. However, we realise their effects would be minimal. Regarding Siniat metal framing products' packaging materials, given the timber bearers are used multiple times before it reaches its end-of-life, the production and end-of-life impacts of the timber bearers are allocated based on 10 uses, which is a conservative approach.

Allocation

Multi-output allocation

Etex produces steel scrap during manufacture (Module A3). This steel scrap is sold to a recycler, which has a relatively small economic value compared to the main product. In this study, we applied economic allocation for production scrap, according to section 4.5.1 of the PCR (EPD International, 2023). For each metal product, the respective product price and punchout rate are considered when allocating the impacts between the product and scraps. The impacts allocated to the products varied between 99.954% and 99.997% whereas the impacts allocated to the scraps varied between 0.003% and 0.046%.

PCR also suggests that: "Some LCI databases include datasets that are described as being compliant with the allocation rules of EN 15804, but which have been modelled using cut-off allocation (i.e., waste allocation according to Section 4.5.2) for some production (A1-A3) scrap. Such datasets can be used without adjustments, if the production scrap has no, negligible, or negative economic value (as co-product allocation then yields the same or nearly the same result as cut-off allocation, see Section 4.5.2) or if it can be justified that co-product allocation is not possible (if so, the use of cut-off allocation shall be declared in the EPD). Otherwise, such datasets shall be adjusted by manually adding an environmental burden in compliance with EN 15804 or as a conservative assumption" (section 4.5.5, (EPD International, 2023)).

However, in BlueScope's ZINCALUME® AM 125 EPD (used as an input for this study), any open scrap inputs into manufacturing have remain unconnected, and so have been treated as 'burden free' (BlueScope Steel Ltd,

2023). This is not consistent with the PCR (EPD International, 2023) – however, adjusting BlueScope's ZINCALUME® AM 125 EPD dataset is not possible.

Etex does not use any secondary materials in its processes. Secondary materials (such as steel) may be included in the input materials, in which case the allocation occurs in the background data.

Installation scrap allocation

As described in Section 4.5.2 of the PCR (EPD International, 2023), steel scrap produced during installation (Module A5) is modelled as wastes which are subsequently sent for recycling (100%).

The "end of waste" state for the offcuts is at the point when the scrap leaves steel scrapping facility, when the steel is no longer a product in its first life cycle and starts to be a potential input for its second life cycle. Module D begins with the transport of processed scrap from scrap dealers and includes the full recycling process (re-smelting in an electric arc furnace) to produce new steel.

The environmental impacts associated with transport to and processing at recycling facilities are accounted for in Module A5 and credits for recovered steel scrap are given in Module D.

End-of-life allocation

End-of-Life allocation generally follows the requirements of ISO 14044, section 4.3.4.3.

Material recycling (cut-off approach): The system boundary at end-of-life is drawn after scrap collection to account for the collection rate, which generates an open scrap output for the product system. The processing and recycling of the scrap is associated with the subsequent product system and is not considered in this study.

Steel scrap recycling (avoided burden approach): Scrap output during the production and from the disposed product are first used to satisfy open scrap inputs from the production stage. The difference between scrap input and output is called the 'net scrap output from the product life cycle'. A credit for this net scrap is given in module D and based on the worldsteel "Value of scrap".

Energy recovery & landfilling (cut-off approach): The system boundary includes the landfilling processes following the polluter-pays-principle. In cases where materials are sent to landfills, they are linked to an inventory that accounts for waste composition, regional leakage rates, landfill gas capture as well as utilisation rates (flaring vs. power production). No credits for power or heat production are assigned.

The “end of waste” state is at the point when the scrap leaves the C3 waste processing step. This cut-off point is made because steel, and in particular construction steel, has economic value. Module D starts at the “end of waste”, when the steel is no longer a product in its first life cycle and starts to be a potential input for its second life cycle. It begins with the transport of processed scrap from scrap dealers and includes the full recycling process (re-smelting in an electric arc furnace) to produce new steel. For offcuts that are landfilled, landfill is the end-of-waste point. Table 5 defines presents the end-of waste state for products at end-of-life. The recycling rate is based on a waste and recycling report prepared for the Government of Australia (Pickin, et al., 2018).

The environmental impacts associated with transport to and processing at recycling and landfill facilities are considered in Modules C2 and C3 and credits for recovered steel scrap are given in Module D.

Explanation of Average / Representative Products & Variation

This EPD covers 258 Siniat products manufactured using ZINCALUME® AM 150. Due to similarities between products, we have grouped them together based on the substrate material, gauge (BMT - base metal thickness) and proportion of punch-outs.

Statistical analysis was performed to determine the lowest number of groups while still achieving a variation of less than ±10% for the GWP-GHG impact indicator of each group for Module A1-A3 in line with the PCR (EPD International, 2023). As presented in Table 1, products in this study are represented by 18 products - mainly for Modules A1-A3 and Module A5. The impacts in Module A4, Modules C1-C4, and Module D are consistent across all products (when calculated per kg of product). LCA results have been calculated and declared for a representative product within each group (i.e., not an average).

Table 9. End-of-waste state for end-of-life product

Process	Unit per declared unit	End-of-waste state
Metal scrap at end-of-life	Recycling (90%)	C3 Recycling – shredding. The shredded product is valuable and sold for recycling back into steel.
	Landfill (10%)	C4 Landfill – Ferrous metal in landfill.

environmental impact indicators

An introduction to each environmental impact indicator is provided below. The best-known effect of each indicator is listed to the right of its name. The abbreviation corresponds to the labels in the following tables.



Climate change (global warming potential) (GWP-total, GWP-fossil, GWP-biogenic, GWP-luluc)

A measure of greenhouse gas emissions, such as CO₂ and methane. These emissions are causing an increase in the absorption of radiation emitted by the earth, increasing the natural greenhouse effect. This may in turn have adverse impacts on ecosystem health, human health and material welfare. The Global Warming Potential (GWP) includes four sub indicators: total (GWPT), fossil (GWPF), biogenic (GWPb), and land-use and land-use change (GWPluluc).



Ozone depletion potential (ODP)

Depletion of the ozone leads to higher levels of UVB ultraviolet rays reaching the earth’s surface with detrimental effects on humans and plants. The Ozone Depletion Potential is a measure of air emissions that contribute to the depletion of the stratospheric ozone layer.



Acidification potential (AP)

Acidification Potential is a measure of emissions that cause acidifying effects to the environment. A molecule’s acidification potential indicates its capacity to increase the hydrogen ion (H⁺) concentration in the presence of water, thus decreasing the pH value. Potential effects include fish mortality, forest decline, and the deterioration of building materials.



Eutrophication potential (EP-fw, EP-m, EP-t)

Eutrophication covers all potential impacts of excessively high levels of macronutrients, the most important of which are nitrogen (N) and phosphorus (P). In aquatic ecosystems where this term is mostly applied, this typically describes a degradation in water quality. Eutrophication can result in an undesirable change in the type of species that flourish and an increase in the production of biomass. As the decomposition of biomass consumes oxygen, eutrophication may decrease the available oxygen level in the water column and threaten fish in their ability to respire.



Photochemical ozone formation potential (POFP)

Photochemical Ozone Formation Potential gives an indication of the emissions from precursors that contribute to ground level smog formation, mainly ozone (O₃). Ground level ozone may be harmful to human health and ecosystems and may also damage crops. These emissions are produced by the reaction of volatile organic compounds (VOCs) and carbon monoxide in the presence of nitrogen oxides and UV light.



Abiotic resource depletion (ADP-mm, ADP-f)

The consumption of non-renewable resources decreases the availability of these resources and their associated functions in the future. Depletion of mineral resources and non-renewable energy resources are reported separately. Depletion of mineral resources is assessed based on total reserves.



Water depletion potential (WDP)

Water scarcity is a measure of the stress on a region due to water consumption.



assessment indicators

The results tables describe the different environmental indicators for each product per declared unit, for each declared module. The first section of each table contains the environmental impact indicators, describing the potential environmental impacts of the product as shown in Table 8. The second section shows the resource indicators, describing the use of renewable and non-renewable material resources, renewable and non-renewable primary energy and water, as shown in Table 9. The final section of each table displays the waste and other outputs, as shown in Table 10.

Table 10. EN15804+A2 Core Environmental Impact Indicators

Impact category	Abbreviation
Climate change – total	GWP
Climate change – fossil	GWPf
Climate change – biogenic	GWPb
Climate change – land use and land use change	GWP-luluc
Ozone depletion	ODP
Acidification	AP
Eutrophication aquatic freshwater	EPfw
Eutrophication aquatic marine	EPm
Eutrophication terrestrial	EPt
Photochemical ozone formation	POFP
Depletion of abiotic resources – minerals and metals*	ADPmm
Depletion of abiotic resources – fossil fuels*	ADPf
Water Depletion Potential*	WDP

Table 11. Life cycle inventory indicators on use of resources

Indicator	Abbreviation
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE
Use of renewable primary energy resources used as raw materials	PERM
Total use of renewable primary energy resources	PERT
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE
Use of non-renewable primary energy resources used as raw materials	PENRM
Total use of non-renewable primary energy resources	PENRT
Use of secondary material	SM
Use of renewable secondary fuels	RSF
Use of non-renewable secondary fuels	NRSF
Total use of net fresh water	FW

Environmental impacts

The reported impact categories represent impact potentials, i.e., they are approximations of environmental impacts that could occur if the emissions would (a) follow the underlying impact pathway and (b) meet certain conditions in the receiving environment while doing so. The environmental impact results are therefore relative expressions only and do not predict actual impacts, the exceeding of thresholds, safety margins, or risks.

Long-term emissions (>100 years) are not taken into consideration in the impact estimate.

*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.

Resource Use indicators

The resource use indicators describe the use of renewable and non-renewable material resources, renewable and non-renewable primary energy and water.

The use of primary energy is separated into energy used as raw material and energy used as energy carrier as per option C in Annex 3 in the PCR (EPD International, 2023).

Note: Water consumption: The FW indicator in the EPD results tables reports consumption (i.e. net use) of 'blue water' (which includes river water, lake water and ground water). This indicator deliberately excludes consumption of 'green water' (rain water), as net loss should be interpreted as any additional water loss beyond what would occur in the original, natural system.

Table 12. Life cycle inventory indicators on waste categories and output flows

Indicator	Abbreviation
Hazardous waste disposed	HWD
Non-hazardous waste disposed	NHWD
Radioactive waste disposed	RWD
Components for reuse	CRU
Materials for energy recovery	MFR
Materials for recycling	MER
Exported electrical energy	EEE
Exported thermal energy	EET

Table 13. Biogenic carbon content indicators

Indicator	Abbreviation
Biogenic carbon content - product	BCC-prod
Biogenic carbon content - packaging	BCC-pack

Table 14. Additional Environmental Impact Indicators

Impact category	Abbreviation
Particulate matter emissions	PM
Ionising radiation - human health***	IRP
Eco-toxicity – freshwater*	ETP-fw
Human toxicity, cancer*	HTP-c
Human toxicity, non-canc.*	HTP-nc
Land use related impacts / soil quality*	SQP
Climate change**	GWP-GHG

Table 15. EN15804+A1 Environmental Impact Indicators

Indicator	Abbreviation
Global warming potential	GWP
Ozone depletion potential	ODP
Acidification potential	AP
Eutrophication potential	EP
Photochemical oxone creation potential	POCP
Abiotic depletion potential for non-fossil resources	ADPE
Abiotic depletion potential for fossil resources	ADPF

For all products, the following indicators are not relevant, hence result in zero values:

- Components for re-use (CRU) is zero since there are none produced
- Use of renewable secondary fuels (RSF) is zero since there are none used
- Use of non-renewable secondary fuels (NRSF) is zero since there are none used
- Materials for energy recovery (MER) is zero since no credits are claimed for any incinerated wastes, applying the cut-off approach
- Exported electrical energy (EEE) is zero since there is none produced
- Exported thermal energy (EET) is zero since there is none produced
- Biogenic carbon content - product (BCC-product) is zero since the product does not contain biogenic carbon

Waste and output flows

Waste indicators describe waste generated within the life cycle of the product. Waste is categorised by hazard class, End-of-Life fate and exported energy content.

Biogenic Carbon Content Indicators

1 kg biogenic carbon is equivalent to 44/12 kg CO₂.

Additional environmental impact indicators

Optional environmental impact categories provide further information on environmental impacts.

*The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

**This indicator is identical to GWP-total except that the CF for biogenic CO₂ is set to zero. It has been included in the EPD following the PCR (EPD International, 2023). Note that the latest GWP-GHG as required by the PCR is not aligned with internationally agreed IPCC GWP factors.

***This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and some construction materials, is also not measured by this indicator.

EN15804+A1 Environmental Impact Indicators

EN 15804+A1 Core environmental impact categories aid comparison and backwards compatibility with rating tools.

LCA results for 1 kg of metal product: P57 of Group A (Reg. No. S-P-07444-001)

EN15804+A2 ENVIRONMENTAL IMPACT INDICATORS									
	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	3.31	0.0427	0.0191	6.44E-04	0.0079	0.0441	0.00484	-1.22
GWPf	kg CO ₂ -eq.	3.3	0.0427	0.0171	6.43E-04	0.0079	0.044	0.00483	-1.22
GWPb	kg CO ₂ -eq.	0.00384	1.42E-05	0.00204	2.82E-07	2.63E-06	4.92E-05	9.53E-06	6.56E-04
GWP-luluc	kg CO ₂ -eq.	1.44E-04	4.59E-07	7.43E-07	6.93E-09	8.49E-08	1.69E-06	2.91E-06	-2.47E-05
ODP	kg CFC ₁₁ -eq.	2.00E-12	4.28E-15	1.12E-14	6.46E-17	7.91E-16	1.96E-13	6.35E-15	7.57E-16
AP	Mole of H ⁺ eq.	0.0122	7.66E-05	6.30E-05	3.23E-06	1.69E-05	2.21E-04	1.52E-05	-0.00218
EPfw	kg P eq.	8.12E-07	7.02E-09	1.61E-08	1.06E-10	1.30E-09	2.40E-08	3.71E-09	-2.20E-07
EPm	kg N eq.	0.00264	3.22E-05	1.38E-05	1.54E-06	7.38E-06	4.74E-05	3.71E-06	-3.28E-04
EPt	Mole of N eq.	0.0295	3.54E-04	1.53E-04	1.68E-05	8.12E-05	5.18E-04	4.08E-05	-0.00257
POFP	kg NMVOC eq.	0.00864	7.48E-05	4.48E-05	4.30E-06	1.64E-05	1.32E-04	1.18E-05	-0.00151
ADPmm	kg Sb-eq.	1.25E-05	7.68E-10	6.29E-08	1.16E-11	1.42E-10	3.69E-09	3.37E-10	-6.16E-08
ADPmf	MJ	32.8	0.566	0.17	0.00853	0.105	0.475	0.0685	-11.1
WDP	m ³ world equiv.	0.221	2.70E-04	0.00119	4.07E-06	4.99E-05	0.0172	3.28E-04	-0.231

EN15804+A2 RESOURCE USE INDICATORS									
	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	2.61	0.00276	0.0137	4.17E-05	5.11E-04	0.102	0.00559	0.723
PERM	MJ	0.0146	0	7.34E-05	0	0	0	0	0
PERT	MJ	2.62	0.00276	0.0138	4.17E-05	5.11E-04	0.102	0.00559	0.723
PENRE	MJ	32.7	0.566	0.17	0.00854	0.105	0.498	0.0685	-11.1
PENRM	MJ	0.049	0	1.20E-04	0	0	-0.0227	0	0
PENRT	MJ	32.8	0.566	0.17	0.00854	0.105	0.475	0.0685	-11.1
SM	kg	0.279	0	0.0014	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m ³	0.00681	5.39E-06	3.54E-05	8.13E-08	9.96E-07	2.42E-04	9.65E-06	-0.00522

EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW INDICATORS									
	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	7.48E-10	9.18E-13	3.85E-12	1.38E-14	1.70E-13	1.59E-11	1.03E-11	-8.47E-11
NHWD	kg	0.0898	1.37E-05	8.62E-04	2.07E-07	2.54E-06	1.48E-04	0.1	0.2
RWD	kg	2.59E-04	1.10E-07	1.31E-06	1.67E-09	2.04E-08	6.49E-08	8.26E-07	1.84E-06
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0.425	0	0.00716	0	0	0.9	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS		
	UNIT	A1-A3
BCC-prod	kg	0
BCC-pack	kg	3.83E-04

EN15804+A2 ADDITIONAL INDICATORS									
	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidences	1.47E-07	5.46E-10	7.52E-10	3.71E-11	1.15E-10	2.16E-09	1.63E-10	-2.97E-08
IRP	kBq U235 eq.	0.0472	1.44E-05	2.38E-04	2.17E-07	2.66E-06	8.32E-06	1.22E-04	0.0281
ETP-fw	CTUe	5.65	0.227	0.0309	0.00342	0.0419	0.0908	0.0203	-0.54
HTP-c	CTUh	3.91E-10	3.83E-12	2.00E-12	5.77E-14	7.08E-13	4.07E-12	2.41E-12	-5.05E-10
HTP-nc	CTUh	5.82E-08	1.39E-10	2.96E-10	2.89E-12	2.62E-11	1.36E-10	2.43E-10	-1.66E-08
SQP	Pt	1.44	0.0016	0.0076	2.41E-05	2.95E-04	0.0608	0.00532	0.14
GWP-GHG	kg CO ₂ -eq.	3.3	0.0427	0.0171	6.43E-04	0.0079	0.044	0.00483	-1.22

EN15804+A1 ENVIRONMENTAL INDICATORS									
	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	3.22	0.0421	0.0185	6.34E-04	0.0078	0.0434	0.00459	-1.16
ODP	kg CFC ₁₁ -eq.	2.35E-12	5.04E-15	1.32E-14	7.60E-17	9.32E-16	2.30E-13	7.48E-15	4.67E-16
AP	kg SO ₂ -eq.	0.0099	5.50E-05	5.10E-05	2.26E-06	1.20E-05	1.81E-04	1.22E-05	-0.00188
EP	kg PO ₄ ³⁻ -eq.	9.44E-04	1.09E-05	5.36E-06	5.15E-07	2.50E-06	1.63E-05	1.31E-06	-1.10E-04
POCP	kg C ₂ H ₄ -eq.	0.00138	-9.17E-06	7.05E-06	2.12E-07	-2.62E-06	9.69E-06	1.14E-06	-5.55E-04
ADPE	kg Sb-eq.	1.25E-05	7.69E-10	6.29E-08	1.16E-11	1.42E-10	3.69E-09	3.42E-10	-5.96E-08
ADPF	MJ	31.9	0.564	0.166	0.00851	0.104	0.473	0.0661	-11.4

Notes:

- The results are determined for a representative product within the group, i.e. not an average. The GWP-GHG results vary by less than +/- 10% within each group. See Table 1 for grouping details.
- In this EPD, the Sphera EN15804+A2 characterisation factors (based on EF 3.0) are used.
- PCR2019:14 v1.3.1 discourages the use of the results of modules A1-A3 without considering the results of module C (EPD International, 2023).
- For disclaimers related to individual environmental indicators, please refer to pages 20-21.

LCA results for 1 kg of metal product: P9 of Group B (Reg. No. S-P-07444-002)

EN15804+A2 ENVIRONMENTAL IMPACT INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	3.45	0.0427	0.0199	6.44E-04	0.0079	0.0441	0.00484	-1.24
GWPf	kg CO ₂ -eq.	3.45	0.0427	0.0178	6.43E-04	0.0079	0.044	0.00483	-1.24
GWPb	kg CO ₂ -eq.	0.00402	1.42E-05	0.00204	2.82E-07	2.63E-06	4.92E-05	9.53E-06	6.66E-04
GWP-luluc	kg CO ₂ -eq.	1.79E-04	4.59E-07	9.22E-07	6.93E-09	8.49E-08	1.69E-06	2.91E-06	-2.50E-05
ODP	kg CFC ₁₁ -eq.	2.30E-12	4.28E-15	1.27E-14	6.46E-17	7.91E-16	1.96E-13	6.35E-15	7.42E-16
AP	Mole of H+ eq.	0.0131	7.66E-05	6.72E-05	3.23E-06	1.69E-05	2.21E-04	1.52E-05	-0.00222
EPfw	kg P eq.	9.25E-07	7.02E-09	1.67E-08	1.06E-10	1.30E-09	2.40E-08	3.71E-09	-2.24E-07
EPm	kg N eq.	0.00278	3.22E-05	1.45E-05	1.54E-06	7.38E-06	4.74E-05	3.71E-06	-3.35E-04
EPT	Mole of N eq.	0.031	3.54E-04	1.61E-04	1.68E-05	8.12E-05	5.18E-04	4.08E-05	-0.00263
POFP	kg NMVOC eq.	0.00902	7.48E-05	4.67E-05	4.30E-06	1.64E-05	1.32E-04	1.18E-05	-0.00154
ADPmm	kg Sb-eq.	1.68E-05	7.68E-10	8.46E-08	1.16E-11	1.42E-10	3.69E-09	3.37E-10	-6.25E-08
ADPF	MJ	34.5	0.566	0.179	0.00853	0.105	0.475	0.0685	-11.3
WDP	m ³ world equiv.	0.251	2.70E-04	0.00134	4.07E-06	4.99E-05	0.0172	3.28E-04	-0.235

EN15804+A2 RESOURCE USE INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	3.26	0.00276	0.017	4.17E-05	5.11E-04	0.102	0.00559	0.734
PERM	MJ	0.0146	0	7.34E-05	0	0	0	0	0
PERT	MJ	3.28	0.00276	0.017	4.17E-05	5.11E-04	0.102	0.00559	0.734
PENRE	MJ	34.5	0.566	0.179	0.00854	0.105	0.507	0.0685	-11.3
PENRM	MJ	0.0583	0	1.20E-04	0	0	-0.031	0	0
PENRT	MJ	34.5	0.566	0.179	0.00854	0.105	0.475	0.0685	-11.3
SM	kg	0.375	0	0.00189	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m ³	0.00833	5.39E-06	4.31E-05	8.13E-08	9.96E-07	2.42E-04	9.65E-06	-0.0053

EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	8.39E-10	9.18E-13	4.31E-12	1.38E-14	1.70E-13	1.59E-11	1.03E-11	-8.60E-11
NHWD	kg	0.117	1.37E-05	9.97E-04	2.07E-07	2.54E-06	1.48E-04	0.1	0.203
RWD	kg	3.40E-04	1.10E-07	1.72E-06	1.67E-09	2.04E-08	6.49E-08	8.26E-07	1.86E-06
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0.395	0	0.00701	0	0	0.9	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS

	UNIT	A1-A3
BCC-prod	kg	0
BCC-pack	kg	3.83E-04

EN15804+A2 ADDITIONAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidences	1.53E-07	5.46E-10	7.85E-10	3.71E-11	1.15E-10	2.16E-09	1.63E-10	-3.03E-08
IRP	kBq U235 eq.	0.0621	1.44E-05	3.13E-04	2.17E-07	2.66E-06	8.32E-06	1.22E-04	0.0285
ETP-fw	CTUe	6.35	0.227	0.0343	0.00342	0.0419	0.0908	0.0203	-0.55
HTP-c	CTUh	4.47E-10	3.83E-12	2.28E-12	5.77E-14	7.08E-13	4.07E-12	2.41E-12	-5.13E-10
HTP-nc	CTUh	5.86E-08	1.39E-10	2.98E-10	2.89E-12	2.62E-11	1.36E-10	2.43E-10	-1.68E-08
SQP	Pt	1.67	0.0016	0.00874	2.41E-05	2.95E-04	0.0608	0.00532	0.142
GWP-GHG	kg CO ₂ -eq.	3.45	0.0427	0.0178	6.43E-04	0.0079	0.044	0.00483	-1.24

EN15804+A1 ENVIRONMENTAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	3.36	0.0421	0.0192	6.34E-04	0.0078	0.0434	0.00459	-1.18
ODP	kg CFC ₁₁ -eq.	2.71E-12	5.04E-15	1.50E-14	7.60E-17	9.32E-16	2.30E-13	7.48E-15	4.43E-16
AP	kg SO ₂ -eq.	0.0106	5.50E-05	5.45E-05	2.26E-06	1.20E-05	1.81E-04	1.22E-05	-0.00192
EP	kg PO ₄ ³⁻ -eq.	9.93E-04	1.09E-05	5.61E-06	5.15E-07	2.50E-06	1.63E-05	1.31E-06	-1.12E-04
POCP	kg C ₂ H ₄ -eq.	0.0014	-9.17E-06	7.17E-06	2.12E-07	-2.62E-06	9.69E-06	1.14E-06	-5.64E-04
ADPE	kg Sb-eq.	1.68E-05	7.69E-10	8.46E-08	1.16E-11	1.42E-10	3.69E-09	3.42E-10	-6.05E-08
ADPF	MJ	33.4	0.564	0.173	0.00851	0.104	0.473	0.0661	-11.6

Notes:

- The results are determined for a representative product within the group, i.e. not an average. The GWP-GHG results vary by less than +/-10% within each group. See Table 1 for grouping details.
- In this EPD, the Sphera EN15804+A2 characterisation factors (based on EF 3.0) are used.
- PCR2019:14 v1.3.1 discourages the use of the results of modules A1-A3 without considering the results of module C (EPD International, 2023).
- For disclaimers related to individual environmental indicators, please refer to pages 20-21.

LCA results for 1 kg of metal product: P90 of Group C (Reg. No. S-P-07444-003)

EN15804+A2 ENVIRONMENTAL IMPACT INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	3.31	0.0427	0.0191	6.44E-04	0.0079	0.0441	0.00484	-1.23
GWPf	kg CO ₂ -eq.	3.3	0.0427	0.0171	6.43E-04	0.0079	0.044	0.00483	-1.23
GWPb	kg CO ₂ -eq.	0.00383	1.42E-05	0.00204	2.82E-07	2.63E-06	4.92E-05	9.53E-06	6.61E-04
GWP-luluc	kg CO ₂ -eq.	1.52E-04	4.59E-07	7.82E-07	6.93E-09	8.49E-08	1.69E-06	2.91E-06	-2.48E-05
ODP	kg CFC ₁₁ -eq.	2.06E-12	4.28E-15	1.15E-14	6.46E-17	7.91E-16	1.96E-13	6.35E-15	7.51E-16
AP	Mole of H+ eq.	0.0123	7.66E-05	6.34E-05	3.23E-06	1.69E-05	2.21E-04	1.52E-05	-0.00219
EPfw	kg P eq.	8.33E-07	7.02E-09	1.62E-08	1.06E-10	1.30E-09	2.40E-08	3.71E-09	-2.22E-07
EPm	kg N eq.	0.00264	3.22E-05	1.38E-05	1.54E-06	7.38E-06	4.74E-05	3.71E-06	-3.31E-04
EPT	Mole of N eq.	0.0295	3.54E-04	1.53E-04	1.68E-05	8.12E-05	5.18E-04	4.08E-05	-0.00259
POFP	kg NMVOC eq.	0.00864	7.48E-05	4.48E-05	4.30E-06	1.64E-05	1.32E-04	1.18E-05	-0.00152
ADPmm	kg Sb-eq.	1.35E-05	7.68E-10	6.80E-08	1.16E-11	1.42E-10	3.69E-09	3.37E-10	-6.20E-08
ADPF	MJ	32.9	0.566	0.171	0.00853	0.105	0.475	0.0685	-11.2
WDP	m ³ world equiv.	0.226	2.70E-04	0.00122	4.07E-06	4.99E-05	0.0172	3.28E-04	-0.233

EN15804+A2 RESOURCE USE INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	2.75	0.00276	0.0144	4.17E-05	5.11E-04	0.102	0.00559	0.728
PERM	MJ	0.0146	0	7.34E-05	0	0	0	0	0
PERT	MJ	2.77	0.00276	0.0145	4.17E-05	5.11E-04	0.102	0.00559	0.728
PENRE	MJ	32.8	0.566	0.171	0.00854	0.105	0.5	0.0685	-11.2
PENRM	MJ	0.0515	0	1.20E-04	0	0	-0.0249	0	0
PENRT	MJ	32.9	0.566	0.171	0.00854	0.105	0.475	0.0685	-11.2
SM	kg	0.301	0	0.00151	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m ³	0.00713	5.39E-06	3.71E-05	8.13E-08	9.96E-07	2.42E-04	9.65E-06	-0.00525

EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	7.63E-10	9.18E-13	3.93E-12	1.38E-14	1.70E-13	1.59E-11	1.03E-11	-8.52E-11
NHWD	kg	0.0959	1.37E-05	8.92E-04	2.07E-07	2.54E-06	1.48E-04	0.1	0.202
RWD	kg	2.78E-04	1.10E-07	1.40E-06	1.67E-09	2.04E-08	6.49E-08	8.26E-07	1.85E-06
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0.4	0	0.00704	0	0	0.9	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS

	UNIT	A1-A3
BCC-prod	kg	0
BCC-pack	kg	3.83E-04

EN15804+A2 ADDITIONAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidences	1.47E-07	5.46E-10	7.52E-10	3.71E-11	1.15E-10	2.16E-09	1.63E-10	-2.99E-08
IRP	kBq U235 eq.	0.0506	1.44E-05	2.55E-04	2.17E-07	2.66E-06	8.32E-06	1.22E-04	0.0283
ETP-fw	CTUe	5.77	0.227	0.0314	0.00342	0.0419	0.0908	0.0203	-0.544
HTP-c	CTUh	4.01E-10	3.83E-12	2.05E-12	5.77E-14	7.08E-13	4.07E-12	2.41E-12	-5.08E-10
HTP-nc	CTUh	5.76E-08	1.39E-10	2.93E-10	2.89E-12	2.62E-11	1.36E-10	2.43E-10	-1.67E-08
SQP	Pt	1.49	0.0016	0.00782	2.41E-05	2.95E-04	0.0608	0.00532	0.141
GWP-GHG	kg CO ₂ -eq.	3.3	0.0427	0.0171	6.43E-04	0.0079	0.044	0.00483	-1.23

EN15804+A1 ENVIRONMENTAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	3.22	0.0421	0.0185	6.34E-04	0.0078	0.0434	0.00459	-1.17
ODP	kg CFC ₁₁ -eq.	2.42E-12	5.04E-15	1.35E-14	7.60E-17	9.32E-16	2.30E-13	7.48E-15	4.57E-16
AP	kg SO ₂ -eq.	0.00997	5.50E-05	5.13E-05	2.26E-06	1.20E-05	1.81E-04	1.22E-05	-0.0019
EP	kg PO ₄ ³⁻ -eq.	9.46E-04	1.09E-05	5.37E-06	5.15E-07	2.50E-06	1.63E-05	1.31E-06	-1.11E-04
POCP	kg C ₂ H ₄ -eq.	0.00137	-9.17E-06	7.00E-06	2.12E-07	-2.62E-06	9.69E-06	1.14E-06	-5.59E-04
ADPE	kg Sb-eq.	1.35E-05	7.69E-10	6.80E-08	1.16E-11	1.42E-10	3.69E-09	3.42E-10	-6.00E-08
ADPF	MJ	31.9	0.564	0.166	0.00851	0.104	0.473	0.0661	-11.5

Notes:

- The results are determined for a representative product within the group, i.e. not an average. The GWP-GHG results vary by less than +/-10% within each group. See Table 1 for grouping details.
- In this EPD, the Sphera EN15804+A2 characterisation factors (based on EF 3.0) are used.
- PCR2019:14 v1.3.1 discourages the use of the results of modules A1-A3 without considering the results of module C (EPD International, 2023).
- For disclaimers related to individual environmental indicators, please refer to pages 20-21.

LCA results for 1 kg of metal product: P105 of Group D (Reg. No. S-P-07444-004)

EN15804+A2 ENVIRONMENTAL IMPACT INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	3.21	0.0427	0.238	6.44E-04	0.0079	0.0441	0.00484	-1.31
GWPf	kg CO ₂ -eq.	3.21	0.0427	0.236	6.43E-04	0.0079	0.044	0.00483	-1.31
GWPb	kg CO ₂ -eq.	0.00371	1.42E-05	0.00242	2.82E-07	2.63E-06	4.92E-05	9.53E-06	7.03E-04
GWP-luluc	kg CO ₂ -eq.	1.27E-04	4.59E-07	9.28E-06	6.93E-09	8.49E-08	1.69E-06	2.91E-06	-2.64E-05
ODP	kg CFC ₁₁ -eq.	1.85E-12	4.28E-15	1.48E-13	6.46E-17	7.91E-16	1.96E-13	6.35E-15	8.16E-16
AP	Mole of H+ eq.	0.0117	7.66E-05	8.62E-04	3.23E-06	1.69E-05	2.21E-04	1.52E-05	-0.00233
EPfw	kg P eq.	7.57E-07	7.02E-09	6.92E-08	1.06E-10	1.30E-09	2.40E-08	3.71E-09	-2.36E-07
EPm	kg N eq.	0.00255	3.22E-05	1.88E-04	1.54E-06	7.38E-06	4.74E-05	3.71E-06	-3.50E-04
EPT	Mole of N eq.	0.0285	3.54E-04	0.00211	1.68E-05	8.12E-05	5.18E-04	4.08E-05	-0.00274
POFP	kg NMVOC eq.	0.00838	7.48E-05	6.15E-04	4.30E-06	1.64E-05	1.32E-04	1.18E-05	-0.00162
ADPmm	kg Sb-eq.	1.06E-05	7.68E-10	7.56E-07	1.16E-11	1.42E-10	3.69E-09	3.37E-10	-6.59E-08
ADPF	MJ	31.7	0.566	2.35	0.00853	0.105	0.475	0.0685	-11.9
WDP	m ³ world equiv.	0.206	2.70E-04	0.0161	4.07E-06	4.99E-05	0.0172	3.28E-04	-0.247

EN15804+A2 RESOURCE USE INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	2.31	0.00276	0.173	4.17E-05	5.11E-04	0.102	0.00559	0.774
PERM	MJ	0.0146	0	0.00104	0	0	0	0	0
PERT	MJ	2.33	0.00276	0.174	4.17E-05	5.11E-04	0.102	0.00559	0.774
PENRE	MJ	31.7	0.566	2.34	0.00854	0.105	0.495	0.0685	-11.9
PENRM	MJ	0.0452	0	0.0017	0	0	-0.0192	0	0
PENRT	MJ	31.7	0.566	2.35	0.00854	0.105	0.475	0.0685	-11.9
SM	kg	0.235	0	0.0168	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m ³	0.0061	5.39E-06	4.55E-04	8.13E-08	9.96E-07	2.42E-04	9.65E-06	-0.00559

EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	7.02E-10	9.18E-13	5.15E-11	1.38E-14	1.70E-13	1.59E-11	1.03E-11	-9.06E-11
NHWD	kg	0.0776	1.37E-05	0.00599	2.07E-07	2.54E-06	1.48E-04	0.1	0.214
RWD	kg	2.22E-04	1.10E-07	1.59E-05	1.67E-09	2.04E-08	6.49E-08	8.26E-07	1.97E-06
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0.423	0	0.102	0	0	0.9	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS

	UNIT	A1-A3
BCC-prod	kg	0
BCC-pack	kg	3.83E-04

EN15804+A2 ADDITIONAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidences	1.42E-07	5.46E-10	1.04E-08	3.71E-11	1.15E-10	2.16E-09	1.63E-10	-3.17E-08
IRP	kBq U235 eq.	0.0404	1.44E-05	0.00289	2.17E-07	2.66E-06	8.32E-06	1.22E-04	0.03
ETP-fw	CTUe	5.3	0.227	0.404	0.00342	0.0419	0.0908	0.0203	-0.577
HTP-c	CTUh	3.63E-10	3.83E-12	2.66E-11	5.77E-14	7.08E-13	4.07E-12	2.41E-12	-5.41E-10
HTP-nc	CTUh	5.74E-08	1.39E-10	4.12E-09	2.89E-12	2.62E-11	1.36E-10	2.43E-10	-1.78E-08
SQP	Pt	1.33	0.0016	0.1	2.41E-05	2.95E-04	0.0608	0.00532	0.15
GWP-GHG	kg CO ₂ -eq.	3.21	0.0427	0.236	6.43E-04	0.0079	0.044	0.00483	-1.31

EN15804+A1 ENVIRONMENTAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	3.12	0.0421	0.232	6.34E-04	0.0078	0.0434	0.00459	-1.24
ODP	kg CFC ₁₁ -eq.	2.18E-12	5.04E-15	1.74E-13	7.60E-17	9.32E-16	2.30E-13	7.48E-15	5.06E-16
AP	kg SO ₂ -eq.	0.0095	5.50E-05	6.97E-04	2.26E-06	1.20E-05	1.81E-04	1.22E-05	-0.00202
EP	kg PO ₄ ³⁻ -eq.	9.13E-04	1.09E-05	6.79E-05	5.15E-07	2.50E-06	1.63E-05	1.31E-06	-1.17E-04
POCP	kg C ₂ H ₄ -eq.	0.00136	-9.17E-06	9.70E-05	2.12E-07	-2.62E-06	9.69E-06	1.14E-06	-5.94E-04
ADPE	kg Sb-eq.	1.06E-05	7.69E-10	7.56E-07	1.16E-11	1.42E-10	3.69E-09	3.42E-10	-6.38E-08
ADPF	MJ	30.9	0.564	2.29	0.00851	0.104	0.473	0.0661	-12.2

Notes:

- The results are determined for a representative product within the group, i.e. not an average. The GWP-GHG results vary by less than +/-10% within each group. See Table 1 for grouping details.
- In this EPD, the Sphera EN15804+A2 characterisation factors (based on EF 3.0) are used.
- PCR2019:14 v1.3.1 discourages the use of the results of modules A1-A3 without considering the results of module C (EPD International, 2023).
- For disclaimers related to individual environmental indicators, please refer to pages 20-21.

LCA results for 1 kg of metal product: P14 of Group E (Reg. No. S-P-07444-005)

EN15804+A2 ENVIRONMENTAL IMPACT INDICATORS									
	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	3.05	0.0427	0.227	6.44E-04	0.0079	0.0441	0.00484	-1.30
GWPf	kg CO ₂ -eq.	3.05	0.0427	0.224	6.43E-04	0.0079	0.044	0.00483	-1.30
GWPb	kg CO ₂ -eq.	0.00348	1.42E-05	0.00241	2.82E-07	2.63E-06	4.92E-05	9.53E-06	6.99E-04
GWP-luluc	kg CO ₂ -eq.	1.02E-04	4.59E-07	7.46E-06	6.93E-09	8.49E-08	1.69E-06	2.91E-06	-2.63E-05
ODP	kg CFC ₁₁ -eq.	1.61E-12	4.28E-15	1.31E-13	6.46E-17	7.91E-16	1.96E-13	6.35E-15	8.21E-16
AP	Mole of H+ eq.	0.0109	7.66E-05	8.05E-04	3.23E-06	1.69E-05	2.21E-04	1.52E-05	-0.00231
EPfw	kg P eq.	6.68E-07	7.02E-09	6.28E-08	1.06E-10	1.30E-09	2.40E-08	3.71E-09	-2.35E-07
EPm	kg N eq.	0.0024	3.22E-05	1.78E-04	1.54E-06	7.38E-06	4.74E-05	3.71E-06	-3.48E-04
EPT	Mole of N eq.	0.0269	3.54E-04	0.00199	1.68E-05	8.12E-05	5.18E-04	4.08E-05	-0.00272
POFP	kg NMVOC eq.	0.00795	7.48E-05	5.84E-04	4.30E-06	1.64E-05	1.32E-04	1.18E-05	-0.00161
ADPmm	kg Sb-eq.	7.59E-06	7.68E-10	5.42E-07	1.16E-11	1.42E-10	3.69E-09	3.37E-10	-6.56E-08
ADPF	MJ	29.9	0.566	2.22	0.00853	0.105	0.475	0.0685	-11.8
WDP	m ³ world equiv.	0.183	2.70E-04	0.0144	4.07E-06	4.99E-05	0.0172	3.28E-04	-0.246

EN15804+A2 RESOURCE USE INDICATORS									
	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1.84	0.00276	0.14	4.17E-05	5.11E-04	0.102	0.00559	0.77
PERM	MJ	0.0146	0	0.00104	0	0	0	0	0
PERT	MJ	1.86	0.00276	0.141	4.17E-05	5.11E-04	0.102	0.00559	0.77
PENRE	MJ	29.8	0.566	2.21	0.00854	0.105	0.489	0.0685	-11.8
PENRM	MJ	0.0393	0	0.0017	0	0	-0.0139	0	0
PENRT	MJ	29.9	0.566	2.22	0.00854	0.105	0.475	0.0685	-11.8
SM	kg	0.168	0	0.012	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m ³	0.00499	5.39E-06	3.76E-04	8.13E-08	9.96E-07	2.42E-04	9.65E-06	-0.00556

EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW INDICATORS									
	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	6.29E-10	9.18E-13	4.62E-11	1.38E-14	1.70E-13	1.59E-11	1.03E-11	-9.02E-11
NHWD	kg	0.0588	1.37E-05	0.00465	2.07E-07	2.54E-06	1.48E-04	0.1	0.213
RWD	kg	1.66E-04	1.10E-07	1.18E-05	1.67E-09	2.04E-08	6.49E-08	8.26E-07	1.96E-06
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0.41	0	0.101	0	0	0.9	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS		
	UNIT	A1-A3
BCC-prod	kg	0
BCC-pack	kg	3.83E-04

EN15804+A2 ADDITIONAL INDICATORS									
	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidences	1.35E-07	5.46E-10	9.86E-09	3.71E-11	1.15E-10	2.16E-09	1.63E-10	-3.15E-08
IRP	kBq U235 eq.	0.03	1.44E-05	0.00215	2.17E-07	2.66E-06	8.32E-06	1.22E-04	0.0299
ETP-fw	CTUe	4.74	0.227	0.364	0.00342	0.0419	0.0908	0.0203	-0.574
HTP-c	CTUh	3.19E-10	3.83E-12	2.34E-11	5.77E-14	7.08E-13	4.07E-12	2.41E-12	-5.38E-10
HTP-nc	CTUh	5.58E-08	1.39E-10	4.01E-09	2.89E-12	2.62E-11	1.36E-10	2.43E-10	-1.77E-08
SQP	Pt	1.16	0.0016	0.0876	2.41E-05	2.95E-04	0.0608	0.00532	0.149
GWP-GHG	kg CO ₂ -eq.	3.05	0.0427	0.224	6.43E-04	0.0079	0.044	0.00483	-1.3

EN15804+A1 ENVIRONMENTAL INDICATORS									
	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	2.96	0.0421	0.22	6.34E-04	0.0078	0.0434	0.00459	-1.24
ODP	kg CFC ₁₁ -eq.	1.90E-12	5.04E-15	1.55E-13	7.60E-17	9.32E-16	2.30E-13	7.48E-15	5.14E-16
AP	kg SO ₂ -eq.	0.00884	5.50E-05	6.50E-04	2.26E-06	1.20E-05	1.81E-04	1.22E-05	-0.002
EP	kg PO ₄ ³⁻ -eq.	8.61E-04	1.09E-05	6.42E-05	5.15E-07	2.50E-06	1.63E-05	1.31E-06	-1.17E-04
POCP	kg C ₂ H ₄ -eq.	0.00131	-9.17E-06	9.38E-05	2.12E-07	-2.62E-06	9.69E-06	1.14E-06	-5.91E-04
ADPE	kg Sb-eq.	7.59E-06	7.69E-10	5.43E-07	1.16E-11	1.42E-10	3.69E-09	3.42E-10	-6.35E-08
ADPF	MJ	29.3	0.564	2.17	0.00851	0.104	0.473	0.0661	-12.2

Notes:

- The results are determined for a representative product within the group, i.e. not an average. The GWP-GHG results vary by less than +/-10% within each group. See Table 1 for grouping details.
- In this EPD, the Sphera EN15804+A2 characterisation factors (based on EF 3.0) are used.
- PCR2019:14 v1.3.1 discourages the use of the results of modules A1-A3 without considering the results of module C (EPD International, 2023).
- For disclaimers related to individual environmental indicators, please refer to pages 20-21.

LCA results for 1 kg of metal product: P15 of Group F (Reg. No. S-P-07444-006)

EN15804+A2 ENVIRONMENTAL IMPACT INDICATORS									
	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	2.95	0.0427	0.22	6.44E-04	0.0079	0.0441	0.00484	-1.29
GWPf	kg CO ₂ -eq.	2.95	0.0427	0.218	6.43E-04	0.0079	0.044	0.00483	-1.29
GWPb	kg CO ₂ -eq.	0.00337	1.42E-05	0.0024	2.82E-07	2.63E-06	4.92E-05	9.53E-06	6.93E-04
GWP-luluc	kg CO ₂ -eq.	7.88E-05	4.59E-07	5.81E-06	6.93E-09	8.49E-08	1.69E-06	2.91E-06	-2.60E-05
ODP	kg CFC ₁₁ -eq.	1.41E-12	4.28E-15	1.17E-13	6.46E-17	7.91E-16	1.96E-13	6.35E-15	8.32E-16
AP	Mole of H+ eq.	0.0104	7.66E-05	7.66E-04	3.23E-06	1.69E-05	2.21E-04	1.52E-05	-0.00229
EPfw	kg P eq.	5.94E-07	7.02E-09	5.76E-08	1.06E-10	1.30E-09	2.40E-08	3.71E-09	-2.32E-07
EPm	kg N eq.	0.0023	3.22E-05	1.71E-04	1.54E-06	7.38E-06	4.74E-05	3.71E-06	-3.43E-04
EPT	Mole of N eq.	0.0259	3.54E-04	0.00192	1.68E-05	8.12E-05	5.18E-04	4.08E-05	-0.00268
POFP	kg NMVOC eq.	0.0077	7.48E-05	5.66E-04	4.30E-06	1.64E-05	1.32E-04	1.18E-05	-0.00159
ADPmm	kg Sb-eq.	4.77E-06	7.68E-10	3.41E-07	1.16E-11	1.42E-10	3.69E-09	3.37E-10	-6.49E-08
ADPF	MJ	28.7	0.566	2.13	0.00853	0.105	0.475	0.0685	-11.7
WDP	m ³ world equiv.	0.163	2.70E-04	0.013	4.07E-06	4.99E-05	0.0172	3.28E-04	-0.244

EN15804+A2 RESOURCE USE INDICATORS									
	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1.42	0.00276	0.11	4.17E-05	5.11E-04	0.102	0.00559	0.763
PERM	MJ	0.0146	0	0.00104	0	0	0	0	0
PERT	MJ	1.43	0.00276	0.111	4.17E-05	5.11E-04	0.102	0.00559	0.763
PENRE	MJ	28.7	0.566	2.13	0.00854	0.105	0.484	0.0685	-11.7
PENRM	MJ	0.0334	0	0.0017	0	0	-0.00857	0	0
PENRT	MJ	28.7	0.566	2.13	0.00854	0.105	0.475	0.0685	-11.7
SM	kg	0.105	0	0.00752	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m ³	0.00399	5.39E-06	3.05E-04	8.13E-08	9.96E-07	2.42E-04	9.65E-06	-0.0055

EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW INDICATORS									
	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	5.69E-10	9.18E-13	4.20E-11	1.38E-14	1.70E-13	1.59E-11	1.03E-11	-8.93E-11
NHWD	kg	0.0412	1.37E-05	0.00339	2.07E-07	2.54E-06	1.48E-04	0.1	0.211
RWD	kg	1.12E-04	1.10E-07	8.05E-06	1.67E-09	2.04E-08	6.49E-08	8.26E-07	1.94E-06
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0.429	0	0.102	0	0	0.9	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS		
	UNIT	A1-A3
BCC-prod	kg	0
BCC-pack	kg	3.83E-04

EN15804+A2 ADDITIONAL INDICATORS									
	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidences	1.31E-07	5.46E-10	9.55E-09	3.71E-11	1.15E-10	2.16E-09	1.63E-10	-3.11E-08
IRP	kBq U235 eq.	0.0202	1.44E-05	0.00145	2.17E-07	2.66E-06	8.32E-06	1.22E-04	0.0296
ETP-fw	CTUe	4.29	0.227	0.332	0.00342	0.0419	0.0908	0.0203	-0.566
HTP-c	CTUh	2.83E-10	3.83E-12	2.08E-11	5.77E-14	7.08E-13	4.07E-12	2.41E-12	-5.33E-10
HTP-nc	CTUh	5.54E-08	1.39E-10	3.98E-09	2.89E-12	2.62E-11	1.36E-10	2.43E-10	-1.75E-08
SQP	Pt	1.01	0.0016	0.077	2.41E-05	2.95E-04	0.0608	0.00532	0.148
GWP-GHG	kg CO ₂ -eq.	2.95	0.0427	0.218	6.43E-04	0.0079	0.044	0.00483	-1.29

EN15804+A1 ENVIRONMENTAL INDICATORS									
	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	2.87	0.0421	0.214	6.34E-04	0.0078	0.0434	0.00459	-1.22
ODP	kg CFC ₁₁ -eq.	1.67E-12	5.04E-15	1.38E-13	7.60E-17	9.32E-16	2.30E-13	7.48E-15	5.31E-16
AP	kg SO ₂ -eq.	0.00837	5.50E-05	6.17E-04	2.26E-06	1.20E-05	1.81E-04	1.22E-05	-0.00198
EP	kg PO ₄ ³⁻ -eq.	8.29E-04	1.09E-05	6.18E-05	5.15E-07	2.50E-06	1.63E-05	1.31E-06	-1.15E-04
POCP	kg C ₂ H ₄ -eq.	0.0013	-9.17E-06	9.27E-05	2.12E-07	-2.62E-06	9.69E-06	1.14E-06	-5.85E-04
ADPE	kg Sb-eq.	4.77E-06	7.69E-10	3.41E-07	1.16E-11	1.42E-10	3.69E-09	3.42E-10	-6.28E-08
ADPF	MJ	28.3	0.564	2.1	0.00851	0.104	0.473	0.0661	-12

Notes:

- The results are determined for a representative product within the group, i.e. not an average. The GWP-GHG results vary by less than +/-10% within each group. See Table 1 for grouping details.
- In this EPD, the Sphera EN15804+A2 characterisation factors (based on EF 3.0) are used.
- PCR2019:14 v1.3.1 discourages the use of the results of modules A1-A3 without considering the results of module C (EPD International, 2023).
- For disclaimers related to individual environmental indicators, please refer to pages 20-21.

LCA results for 1 kg of metal product: P48 of Group G (Reg. No. S-P-07444-007)

EN15804+A2 ENVIRONMENTAL IMPACT INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	3.25	0.0427	0.0703	6.44E-04	0.0079	0.0441	0.00484	-1.25
GWPf	kg CO ₂ -eq.	3.25	0.0427	0.0682	6.43E-04	0.0079	0.044	0.00483	-1.25
GWPb	kg CO ₂ -eq.	0.00375	1.42E-05	0.00213	2.82E-07	2.63E-06	4.92E-05	9.53E-06	6.70E-04
GWP-luluc	kg CO ₂ -eq.	1.41E-04	4.59E-07	2.94E-06	6.93E-09	8.49E-08	1.69E-06	2.91E-06	-2.52E-05
ODP	kg CFC ₁₁ -eq.	1.96E-12	4.28E-15	4.46E-14	6.46E-17	7.91E-16	1.96E-13	6.35E-15	7.66E-16
AP	Mole of H+ eq.	0.012	7.66E-05	2.52E-04	3.23E-06	1.69E-05	2.21E-04	1.52E-05	-0.00222
EPfw	kg P eq.	7.98E-07	7.02E-09	2.90E-08	1.06E-10	1.30E-09	2.40E-08	3.71E-09	-2.25E-07
EPm	kg N eq.	0.00259	3.22E-05	5.47E-05	1.54E-06	7.38E-06	4.74E-05	3.71E-06	-3.35E-04
EPT	Mole of N eq.	0.029	3.54E-04	6.11E-04	1.68E-05	8.12E-05	5.18E-04	4.08E-05	-0.00263
POFP	kg NMVOC eq.	0.00849	7.48E-05	1.78E-04	4.30E-06	1.64E-05	1.32E-04	1.18E-05	-0.00155
ADPmm	kg Sb-eq.	1.23E-05	7.68E-10	2.51E-07	1.16E-11	1.42E-10	3.69E-09	3.37E-10	-6.29E-08
ADPF	MJ	32.2	0.566	0.68	0.00853	0.105	0.475	0.0685	-11.4
WDP	m ³ world equiv.	0.217	2.70E-04	0.00481	4.07E-06	4.99E-05	0.0172	3.28E-04	-0.236

EN15804+A2 RESOURCE USE INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	2.56	0.00276	0.0547	4.17E-05	5.11E-04	0.102	0.00559	0.738
PERM	MJ	0.0146	0	2.98E-04	0	0	0	0	0
PERT	MJ	2.58	0.00276	0.055	4.17E-05	5.11E-04	0.102	0.00559	0.738
PENRE	MJ	32.2	0.566	0.68	0.00854	0.105	0.498	0.0685	-11.4
PENRM	MJ	0.049	0	4.86E-04	0	0	-0.0227	0	0
PENRT	MJ	32.2	0.566	0.681	0.00854	0.105	0.475	0.0685	-11.4
SM	kg	0.274	0	0.00559	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m ³	0.00669	5.39E-06	1.42E-04	8.13E-08	9.96E-07	2.42E-04	9.65E-06	-0.00533

EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	7.35E-10	9.18E-13	1.54E-11	1.38E-14	1.70E-13	1.59E-11	1.03E-11	-8.65E-11
NHWD	kg	0.0882	1.37E-05	0.00222	2.07E-07	2.54E-06	1.48E-04	0.1	0.204
RWD	kg	2.54E-04	1.10E-07	5.20E-06	1.67E-09	2.04E-08	6.49E-08	8.26E-07	1.88E-06
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0.4	0	0.0286	0	0	0.9	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS

	UNIT	A1-A3
BCC-prod	kg	0
BCC-pack	kg	3.83E-04

EN15804+A2 ADDITIONAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidences	1.44E-07	5.46E-10	3.00E-09	3.71E-11	1.15E-10	2.16E-09	1.63E-10	-3.03E-08
IRP	kBq U235 eq.	0.0463	1.44E-05	9.47E-04	2.17E-07	2.66E-06	8.32E-06	1.22E-04	0.0287
ETP-fw	CTUe	5.56	0.227	0.121	0.00342	0.0419	0.0908	0.0203	-0.552
HTP-c	CTUh	3.84E-10	3.83E-12	8.01E-12	5.77E-14	7.08E-13	4.07E-12	2.41E-12	-5.16E-10
HTP-nc	CTUh	5.72E-08	1.39E-10	1.17E-09	2.89E-12	2.62E-11	1.36E-10	2.43E-10	-1.69E-08
SQP	Pt	1.42	0.0016	0.0303	2.41E-05	2.95E-04	0.0608	0.00532	0.143
GWP-GHG	kg CO ₂ -eq.	3.25	0.0427	0.0682	6.43E-04	0.0079	0.044	0.00483	-1.25

EN15804+A1 ENVIRONMENTAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	3.16	0.0421	0.0683	6.34E-04	0.0078	0.0434	0.00459	-1.19
ODP	kg CFC ₁₁ -eq.	2.31E-12	5.04E-15	5.26E-14	7.60E-17	9.32E-16	2.30E-13	7.48E-15	4.69E-16
AP	kg SO ₂ -eq.	0.00972	5.50E-05	2.04E-04	2.26E-06	1.20E-05	1.81E-04	1.22E-05	-0.00193
EP	kg PO ₄ ³⁻ -eq.	9.27E-04	1.09E-05	2.00E-05	5.15E-07	2.50E-06	1.63E-05	1.31E-06	-1.12E-04
POCP	kg C ₂ H ₄ -eq.	0.00136	-9.17E-06	2.78E-05	2.12E-07	-2.62E-06	9.69E-06	1.14E-06	-5.67E-04
ADPE	kg Sb-eq.	1.23E-05	7.69E-10	2.51E-07	1.16E-11	1.42E-10	3.69E-09	3.42E-10	-6.08E-08
ADPF	MJ	31.3	0.564	0.663	0.00851	0.104	0.473	0.0661	-11.7

Notes:

- The results are determined for a representative product within the group, i.e. not an average. The GWP-GHG results vary by less than +/-10% within each group. See Table 1 for grouping details.
- In this EPD, the Sphera EN15804+A2 characterisation factors (based on EF 3.0) are used.
- PCR2019:14 v1.3.1 discourages the use of the results of modules A1-A3 without considering the results of module C (EPD International, 2023).
- For disclaimers related to individual environmental indicators, please refer to pages 20-21.

LCA results for 1 kg of metal product: P129 of Group H (Reg. No. S-P-07444-008)

EN15804+A2 ENVIRONMENTAL IMPACT INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	3.17	0.0427	0.235	6.44E-04	0.0079	0.0441	0.00484	-1.31
GWPf	kg CO ₂ -eq.	3.16	0.0427	0.233	6.43E-04	0.0079	0.044	0.00483	-1.31
GWPb	kg CO ₂ -eq.	0.00364	1.42E-05	0.00242	2.82E-07	2.63E-06	4.92E-05	9.53E-06	7.05E-04
GWP-luluc	kg CO ₂ -eq.	1.26E-04	4.59E-07	9.16E-06	6.93E-09	8.49E-08	1.69E-06	2.91E-06	-2.65E-05
ODP	kg CFC ₁₁ -eq.	1.82E-12	4.28E-15	1.46E-13	6.46E-17	7.91E-16	1.96E-13	6.35E-15	8.13E-16
AP	Mole of H+ eq.	0.0116	7.66E-05	8.51E-04	3.23E-06	1.69E-05	2.21E-04	1.52E-05	-0.00234
EPfw	kg P eq.	7.46E-07	7.02E-09	6.84E-08	1.06E-10	1.30E-09	2.40E-08	3.71E-09	-2.37E-07
EPm	kg N eq.	0.00251	3.22E-05	1.86E-04	1.54E-06	7.38E-06	4.74E-05	3.71E-06	-3.52E-04
EPT	Mole of N eq.	0.0281	3.54E-04	0.00208	1.68E-05	8.12E-05	5.18E-04	4.08E-05	-0.00276
POFP	kg NMVOC eq.	0.00827	7.48E-05	6.07E-04	4.30E-06	1.64E-05	1.32E-04	1.18E-05	-0.00162
ADPmm	kg Sb-eq.	1.04E-05	7.68E-10	7.46E-07	1.16E-11	1.42E-10	3.69E-09	3.37E-10	-6.61E-08
ADPF	MJ	31.3	0.566	2.32	0.00853	0.105	0.475	0.0685	-11.9
WDP	m ³ world equiv.	0.203	2.70E-04	0.0159	4.07E-06	4.99E-05	0.0172	3.28E-04	-0.248

EN15804+A2 RESOURCE USE INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	2.28	0.00276	0.171	4.17E-05	5.11E-04	0.102	0.00559	0.776
PERM	MJ	0.0146	0	0.00104	0	0	0	0	0
PERT	MJ	2.29	0.00276	0.172	4.17E-05	5.11E-04	0.102	0.00559	0.776
PENRE	MJ	31.2	0.566	2.31	0.00854	0.105	0.495	0.0685	-11.9
PENRM	MJ	0.0452	0	0.0017	0	0	-0.0192	0	0
PENRT	MJ	31.3	0.566	2.32	0.00854	0.105	0.475	0.0685	-11.9
SM	kg	0.232	0	0.0166	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m ³	0.00601	5.39E-06	4.49E-04	8.13E-08	9.96E-07	2.42E-04	9.65E-06	-0.0056

EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	6.93E-10	9.18E-13	5.08E-11	1.38E-14	1.70E-13	1.59E-11	1.03E-11	-9.09E-11
NHWD	kg	0.0766	1.37E-05	0.00592	2.07E-07	2.54E-06	1.48E-04	0.1	0.215
RWD	kg	2.19E-04	1.10E-07	1.57E-05	1.67E-09	2.04E-08	6.49E-08	8.26E-07	1.97E-06
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0.404	0	0.1	0	0	0.9	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS

	UNIT	A1-A3
BCC-prod	kg	0
BCC-pack	kg	3.83E-04

EN15804+A2 ADDITIONAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidences	1.40E-07	5.46E-10	1.02E-08	3.71E-11	1.15E-10	2.16E-09	1.63E-10	-3.19E-08
IRP	kBq U235 eq.	0.0399	1.44E-05	0.00285	2.17E-07	2.66E-06	8.32E-06	1.22E-04	0.0301
ETP-fw	CTUe	5.23	0.227	0.399	0.00342	0.0419	0.0908	0.0203	-0.579
HTP-c	CTUh	3.58E-10	3.83E-12	2.62E-11	5.77E-14	7.08E-13	4.07E-12	2.41E-12	-5.42E-10
HTP-nc	CTUh	5.66E-08	1.39E-10	4.07E-09	2.89E-12	2.62E-11	1.36E-10	2.43E-10	-1.78E-08
SQP	Pt	1.31	0.0016	0.0988	2.41E-05	2.95E-04	0.0608	0.00532	0.151
GWP-GHG	kg CO ₂ -eq.	3.16	0.0427	0.233	6.43E-04	0.0079	0.044	0.00483	-1.31

EN15804+A1 ENVIRONMENTAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	3.08	0.0421	0.229	6.34E-04	0.0078	0.0434	0.00459	-1.25
ODP	kg CFC ₁₁ -eq.	2.15E-12	5.04E-15	1.72E-13	7.60E-17	9.32E-16	2.30E-13	7.48E-15	5.01E-16
AP	kg SO ₂ -eq.	0.00937	5.50E-05	6.88E-04	2.26E-06	1.20E-05	1.81E-04	1.22E-05	-0.00202
EP	kg PO ₄ ³⁻ -eq.	9.01E-04	1.09E-05	6.70E-05	5.15E-07	2.50E-06	1.63E-05	1.31E-06	-1.18E-04
POCP	kg C ₂ H ₄ -eq.	0.00134	-9.17E-06	9.57E-05	2.12E-07	-2.62E-06	9.69E-06	1.14E-06	-5.96E-04
ADPE	kg Sb-eq.	1.04E-05	7.69E-10	7.46E-07	1.16E-11	1.42E-10	3.69E-09	3.42E-10	-6.40E-08
ADPF	MJ	30.5	0.564	2.26	0.00851	0.104	0.473	0.0661	-12.3

Notes:

- The results are determined for a representative product within the group, i.e. not an average. The GWP-GHG results vary by less than +/-10% within each group. See Table 1 for grouping details.
- In this EPD, the Sphera EN15804+A2 characterisation factors (based on EF 3.0) are used.
- PCR2019:14 v1.3.1 discourages the use of the results of modules A1-A3 without considering the results of module C (EPD International, 2023).
- For disclaimers related to individual environmental indicators, please refer to pages 20-21.

LCA results for 1 kg of metal product: P121 of Group I (Reg. No. S-P-07444-009)

EN15804+A2 ENVIRONMENTAL IMPACT INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	3.06	0.0427	0.228	6.44E-04	0.0079	0.0441	0.00484	-1.29
GWPf	kg CO ₂ -eq.	3.06	0.0427	0.225	6.43E-04	0.0079	0.044	0.00483	-1.3
GWPb	kg CO ₂ -eq.	0.00351	1.42E-05	0.00241	2.82E-07	2.63E-06	4.92E-05	9.53E-06	6.97E-04
GWP-luluc	kg CO ₂ -eq.	9.91E-05	4.59E-07	7.25E-06	6.93E-09	8.49E-08	1.69E-06	2.91E-06	-2.62E-05
ODP	kg CFC ₁₁ -eq.	1.59E-12	4.28E-15	1.30E-13	6.46E-17	7.91E-16	1.96E-13	6.35E-15	8.25E-16
AP	Mole of H+ eq.	0.011	7.66E-05	8.06E-04	3.23E-06	1.69E-05	2.21E-04	1.52E-05	-0.0023
EPfw	kg P eq.	6.62E-07	7.02E-09	6.24E-08	1.06E-10	1.30E-09	2.40E-08	3.71E-09	-2.34E-07
EPm	kg N eq.	0.00241	3.22E-05	1.78E-04	1.54E-06	7.38E-06	4.74E-05	3.71E-06	-3.46E-04
EPT	Mole of N eq.	0.027	3.54E-04	0.002	1.68E-05	8.12E-05	5.18E-04	4.08E-05	-0.00271
POFP	kg NMVOC eq.	0.00798	7.48E-05	5.87E-04	4.30E-06	1.64E-05	1.32E-04	1.18E-05	-0.0016
ADPmm	kg Sb-eq.	7.19E-06	7.68E-10	5.14E-07	1.16E-11	1.42E-10	3.69E-09	3.37E-10	-6.53E-08
ADPF	MJ	30	0.566	2.22	0.00853	0.105	0.475	0.0685	-11.8
WDP	m ³ world equiv.	0.181	2.70E-04	0.0143	4.07E-06	4.99E-05	0.0172	3.28E-04	-0.245

EN15804+A2 RESOURCE USE INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1.79	0.00276	0.136	4.17E-05	5.11E-04	0.102	0.00559	0.767
PERM	MJ	0.0146	0	0.00104	0	0	0	0	0
PERT	MJ	1.81	0.00276	0.137	4.17E-05	5.11E-04	0.102	0.00559	0.767
PENRE	MJ	29.9	0.566	2.22	0.00854	0.105	0.488	0.0685	-11.8
PENRM	MJ	0.0383	0	0.0017	0	0	-0.013	0	0
PENRT	MJ	30	0.566	2.22	0.00854	0.105	0.475	0.0685	-11.8
SM	kg	0.159	0	0.0114	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m ³	0.00487	5.39E-06	3.67E-04	8.13E-08	9.96E-07	2.42E-04	9.65E-06	-0.00554

EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	6.25E-10	9.18E-13	4.59E-11	1.38E-14	1.70E-13	1.59E-11	1.03E-11	-8.99E-11
NHWD	kg	0.0564	1.37E-05	0.00447	2.07E-07	2.54E-06	1.48E-04	0.1	0.212
RWD	kg	1.58E-04	1.10E-07	1.13E-05	1.67E-09	2.04E-08	6.49E-08	8.26E-07	1.95E-06
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0.427	0	0.102	0	0	0.9	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS

	UNIT	A1-A3
BCC-prod	kg	0
BCC-pack	kg	3.83E-04

EN15804+A2 ADDITIONAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidences	1.36E-07	5.46E-10	9.90E-09	3.71E-11	1.15E-10	2.16E-09	1.63E-10	-3.14E-08
IRP	kBq U235 eq.	0.0286	1.44E-05	0.00205	2.17E-07	2.66E-06	8.32E-06	1.22E-04	0.0298
ETP-fw	CTUe	4.71	0.227	0.362	0.00342	0.0419	0.0908	0.0203	-0.571
HTP-c	CTUh	3.16E-10	3.83E-12	2.32E-11	5.77E-14	7.08E-13	4.07E-12	2.41E-12	-5.36E-10
HTP-nc	CTUh	5.63E-08	1.39E-10	4.04E-09	2.89E-12	2.62E-11	1.36E-10	2.43E-10	-1.76E-08
SQP	Pt	1.14	0.0016	0.0866	2.41E-05	2.95E-04	0.0608	0.00532	0.149
GWP-GHG	kg CO ₂ -eq.	3.06	0.0427	0.225	6.43E-04	0.0079	0.044	0.00483	-1.3

EN15804+A1 ENVIRONMENTAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	2.97	0.0421	0.221	6.34E-04	0.0078	0.0434	0.00459	-1.23
ODP	kg CFC ₁₁ -eq.	1.88E-12	5.04E-15	1.53E-13	7.60E-17	9.32E-16	2.30E-13	7.48E-15	5.21E-16
AP	kg SO ₂ -eq.	0.00884	5.50E-05	6.50E-04	2.26E-06	1.20E-05	1.81E-04	1.22E-05	-0.00199
EP	kg PO ₄ ³⁻ -eq.	8.64E-04	1.09E-05	6.44E-05	5.15E-07	2.50E-06	1.63E-05	1.31E-06	-1.16E-04
POCP	kg C ₂ H ₄ -eq.	0.00132	-9.17E-06	9.45E-05	2.12E-07	-2.62E-06	9.69E-06	1.14E-06	-5.89E-04
ADPE	kg Sb-eq.	7.19E-06	7.69E-10	5.14E-07	1.16E-11	1.42E-10	3.69E-09	3.42E-10	-6.32E-08
ADPF	MJ	29.4	0.564	2.18	0.00851	0.104	0.473	0.0661	-12.1

Notes:

- The results are determined for a representative product within the group, i.e. not an average. The GWP-GHG results vary by less than +/-10% within each group. See Table 1 for grouping details.
- In this EPD, the Sphera EN15804+A2 characterisation factors (based on EF 3.0) are used.
- PCR2019:14 v1.3.1 discourages the use of the results of modules A1-A3 without considering the results of module C (EPD International, 2023).
- For disclaimers related to individual environmental indicators, please refer to pages 20-21.

LCA results for 1 kg of metal product: P138 of Group J (Reg. No. S-P-07444-010)

EN15804+A2 ENVIRONMENTAL IMPACT INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	3.03	0.0427	0.0659	6.44E-04	0.0079	0.0441	0.00484	-1.23
GWPf	kg CO ₂ -eq.	3.03	0.0427	0.0638	6.43E-04	0.0079	0.044	0.00483	-1.23
GWPb	kg CO ₂ -eq.	0.00347	1.42E-05	0.00212	2.82E-07	2.63E-06	4.92E-05	9.53E-06	6.61E-04
GWP-luluc	kg CO ₂ -eq.	9.82E-05	4.59E-07	2.06E-06	6.93E-09	8.49E-08	1.69E-06	2.91E-06	-2.48E-05
ODP	kg CFC ₁₁ -eq.	1.58E-12	4.28E-15	3.68E-14	6.46E-17	7.91E-16	1.96E-13	6.35E-15	7.81E-16
AP	Mole of H+ eq.	0.0109	7.66E-05	2.28E-04	3.23E-06	1.69E-05	2.21E-04	1.52E-05	-0.00218
EPfw	kg P eq.	6.56E-07	7.02E-09	2.62E-08	1.06E-10	1.30E-09	2.40E-08	3.71E-09	-2.22E-07
EPm	kg N eq.	0.00238	3.22E-05	5.05E-05	1.54E-06	7.38E-06	4.74E-05	3.71E-06	-3.28E-04
EPT	Mole of N eq.	0.0268	3.54E-04	5.66E-04	1.68E-05	8.12E-05	5.18E-04	4.08E-05	-0.00257
POFP	kg NMVOC eq.	0.00791	7.48E-05	1.66E-04	4.30E-06	1.64E-05	1.32E-04	1.18E-05	-0.00152
ADPmm	kg Sb-eq.	7.12E-06	7.68E-10	1.45E-07	1.16E-11	1.42E-10	3.69E-09	3.37E-10	-6.20E-08
ADPF	MJ	29.7	0.566	0.629	0.00853	0.105	0.475	0.0685	-11.2
WDP	m ³ world equiv.	0.18	2.70E-04	0.00405	4.07E-06	4.99E-05	0.0172	3.28E-04	-0.233

EN15804+A2 RESOURCE USE INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1.77	0.00276	0.0386	4.17E-05	5.11E-04	0.102	0.00559	0.728
PERM	MJ	0.0146	0	2.98E-04	0	0	0	0	0
PERT	MJ	1.79	0.00276	0.0389	4.17E-05	5.11E-04	0.102	0.00559	0.728
PENRE	MJ	29.7	0.566	0.629	0.00854	0.105	0.488	0.0685	-11.2
PENRM	MJ	0.0383	0	4.87E-04	0	0	-0.013	0	0
PENRT	MJ	29.7	0.566	0.629	0.00854	0.105	0.475	0.0685	-11.2
SM	kg	0.158	0	0.00322	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m ³	0.00483	5.39E-06	1.04E-04	8.13E-08	9.96E-07	2.42E-04	9.65E-06	-0.00525

EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	6.19E-10	9.18E-13	1.30E-11	1.38E-14	1.70E-13	1.59E-11	1.03E-11	-8.52E-11
NHWD	kg	0.0558	1.37E-05	0.00156	2.07E-07	2.54E-06	1.48E-04	0.1	0.201
RWD	kg	1.57E-04	1.10E-07	3.21E-06	1.67E-09	2.04E-08	6.49E-08	8.26E-07	1.85E-06
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0.414	0	0.0289	0	0	0.9	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS

	UNIT	A1-A3
BCC-prod	kg	0
BCC-pack	kg	3.83E-04

EN15804+A2 ADDITIONAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidences	1.34E-07	5.46E-10	2.80E-09	3.71E-11	1.15E-10	2.16E-09	1.63E-10	-2.98E-08
IRP	kBq U235 eq.	0.0284	1.44E-05	5.81E-04	2.17E-07	2.66E-06	8.32E-06	1.22E-04	0.0282
ETP-fw	CTUe	4.67	0.227	0.103	0.00342	0.0419	0.0908	0.0203	-0.541
HTP-c	CTUh	3.13E-10	3.83E-12	6.57E-12	5.77E-14	7.08E-13	4.07E-12	2.41E-12	-5.08E-10
HTP-nc	CTUh	5.57E-08	1.39E-10	1.15E-09	2.89E-12	2.62E-11	1.36E-10	2.43E-10	-1.67E-08
SQP	Pt	1.13	0.0016	0.0245	2.41E-05	2.95E-04	0.0608	0.00532	0.141
GWP-GHG	kg CO ₂ -eq.	3.03	0.0427	0.0638	6.43E-04	0.0079	0.044	0.00483	-1.23

EN15804+A1 ENVIRONMENTAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	2.95	0.0421	0.064	6.34E-04	0.0078	0.0434	0.00459	-1.17
ODP	kg CFC ₁₁ -eq.	1.86E-12	5.04E-15	4.34E-14	7.60E-17	9.32E-16	2.30E-13	7.48E-15	4.92E-16
AP	kg SO ₂ -eq.	0.00876	5.50E-05	1.84E-04	2.26E-06	1.20E-05	1.81E-04	1.22E-05	-0.00189
EP	kg PO ₄ ³⁻ -eq.	8.56E-04	1.09E-05	1.86E-05	5.15E-07	2.50E-06	1.63E-05	1.31E-06	-1.10E-04
POCP	kg C ₂ H ₄ -eq.	0.00131	-9.17E-06	2.68E-05	2.12E-07	-2.62E-06	9.69E-06	1.14E-06	-5.58E-04
ADPE	kg Sb-eq.	7.12E-06	7.69E-10	1.45E-07	1.16E-11	1.42E-10	3.69E-09	3.42E-10	-5.99E-08
ADPF	MJ	29.1	0.564	0.617	0.00851	0.104	0.473	0.0661	-11.5

Notes:

- The results are determined for a representative product within the group, i.e. not an average. The GWP-GHG results vary by less than +/-10% within each group. See Table 1 for grouping details.
- In this EPD, the Sphera EN15804+A2 characterisation factors (based on EF 3.0) are used.
- PCR2019:14 v1.3.1 discourages the use of the results of modules A1-A3 without considering the results of module C (EPD International, 2023).
- For disclaimers related to individual environmental indicators, please refer to pages 20-21.

LCA results for 1 kg of metal product: P141 of Group K (Reg. No. S-P-07444-011)

EN15804+A2 ENVIRONMENTAL IMPACT INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	2.93	0.0427	0.0638	6.44E-04	0.0079	0.0441	0.00484	-1.22
GWPf	kg CO ₂ -eq.	2.93	0.0427	0.0617	6.43E-04	0.0079	0.044	0.00483	-1.22
GWPb	kg CO ₂ -eq.	0.00333	1.42E-05	0.00212	2.82E-07	2.63E-06	4.92E-05	9.53E-06	6.57E-04
GWP-luluc	kg CO ₂ -eq.	7.81E-05	4.59E-07	1.65E-06	6.93E-09	8.49E-08	1.69E-06	2.91E-06	-2.46E-05
ODP	kg CFC ₁₁ -eq.	1.40E-12	4.28E-15	3.32E-14	6.46E-17	7.91E-16	1.96E-13	6.35E-15	7.87E-16
AP	Mole of H+ eq.	0.0103	7.66E-05	2.17E-04	3.23E-06	1.69E-05	2.21E-04	1.52E-05	-0.00217
EPfw	kg P eq.	5.90E-07	7.02E-09	2.48E-08	1.06E-10	1.30E-09	2.40E-08	3.71E-09	-2.20E-07
EPm	kg N eq.	0.00228	3.22E-05	4.85E-05	1.54E-06	7.38E-06	4.74E-05	3.71E-06	-3.25E-04
EPT	Mole of N eq.	0.0257	3.54E-04	5.45E-04	1.68E-05	8.12E-05	5.18E-04	4.08E-05	-0.00254
POFP	kg NMVOC eq.	0.00763	7.48E-05	1.61E-04	4.30E-06	1.64E-05	1.32E-04	1.18E-05	-0.00151
ADPmm	kg Sb-eq.	4.73E-06	7.68E-10	9.66E-08	1.16E-11	1.42E-10	3.69E-09	3.37E-10	-6.16E-08
ADPF	MJ	28.5	0.566	0.605	0.00853	0.105	0.475	0.0685	-11.1
WDP	m ³ world equiv.	0.162	2.70E-04	0.00369	4.07E-06	4.99E-05	0.0172	3.28E-04	-0.231

EN15804+A2 RESOURCE USE INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1.41	0.00276	0.0311	4.17E-05	5.11E-04	0.102	0.00559	0.723
PERM	MJ	0.0146	0	2.98E-04	0	0	0	0	0
PERT	MJ	1.42	0.00276	0.0314	4.17E-05	5.11E-04	0.102	0.00559	0.723
PENRE	MJ	28.5	0.566	0.604	0.00854	0.105	0.484	0.0685	-11.1
PENRM	MJ	0.0334	0	4.87E-04	0	0	-0.00857	0	0
PENRT	MJ	28.5	0.566	0.605	0.00854	0.105	0.475	0.0685	-11.1
SM	kg	0.104	0	0.00213	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m ³	0.00396	5.39E-06	8.63E-05	8.13E-08	9.96E-07	2.42E-04	9.65E-06	-0.00522

EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	5.64E-10	9.18E-13	1.19E-11	1.38E-14	1.70E-13	1.59E-11	1.03E-11	-8.47E-11
NHWD	kg	0.0409	1.37E-05	0.00125	2.07E-07	2.54E-06	1.48E-04	0.1	0.2
RWD	kg	1.12E-04	1.10E-07	2.28E-06	1.67E-09	2.04E-08	6.49E-08	8.26E-07	1.84E-06
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0.418	0	0.0289	0	0	0.9	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS

	UNIT	A1-A3
BCC-prod	kg	0
BCC-pack	kg	3.83E-04

EN15804+A2 ADDITIONAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidences	1.30E-07	5.46E-10	2.71E-09	3.71E-11	1.15E-10	2.16E-09	1.63E-10	-2.95E-08
IRP	kBq U235 eq.	0.0201	1.44E-05	4.11E-04	2.17E-07	2.66E-06	8.32E-06	1.22E-04	0.0281
ETP-fw	CTUe	4.25	0.227	0.0946	0.00342	0.0419	0.0908	0.0203	-0.537
HTP-c	CTUh	2.80E-10	3.83E-12	5.89E-12	5.77E-14	7.08E-13	4.07E-12	2.41E-12	-5.05E-10
HTP-nc	CTUh	5.50E-08	1.39E-10	1.13E-09	2.89E-12	2.62E-11	1.36E-10	2.43E-10	-1.66E-08
SQP	Pt	1	0.0016	0.0218	2.41E-05	2.95E-04	0.0608	0.00532	0.14
GWP-GHG	kg CO ₂ -eq.	2.93	0.0427	0.0617	6.43E-04	0.0079	0.044	0.00483	-1.22

EN15804+A1 ENVIRONMENTAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	2.84	0.0421	0.0619	6.34E-04	0.0078	0.0434	0.00459	-1.16
ODP	kg CFC ₁₁ -eq.	1.65E-12	5.04E-15	3.91E-14	7.60E-17	9.32E-16	2.30E-13	7.48E-15	5.02E-16
AP	kg SO ₂ -eq.	0.00831	5.50E-05	1.75E-04	2.26E-06	1.20E-05	1.81E-04	1.22E-05	-0.00188
EP	kg PO ₄ ³⁻ -eq.	8.22E-04	1.09E-05	1.79E-05	5.15E-07	2.50E-06	1.63E-05	1.31E-06	-1.09E-04
POCP	kg C ₂ H ₄ -eq.	0.00128	-9.17E-06	2.63E-05	2.12E-07	-2.62E-06	9.69E-06	1.14E-06	-5.55E-04
ADPE	kg Sb-eq.	4.73E-06	7.69E-10	9.67E-08	1.16E-11	1.42E-10	3.69E-09	3.42E-10	-5.96E-08
ADPF	MJ	28	0.564	0.595	0.00851	0.104	0.473	0.0661	-11.4

Notes:

- The results are determined for a representative product within the group, i.e. not an average. The GWP-GHG results vary by less than +/-10% within each group. See Table 1 for grouping details.
- In this EPD, the Sphera EN15804+A2 characterisation factors (based on EF 3.0) are used.
- PCR2019:14 v1.3.1 discourages the use of the results of modules A1-A3 without considering the results of module C (EPD International, 2023).
- For disclaimers related to individual environmental indicators, please refer to pages 20-21.

LCA results for 1 kg of metal product: P155 of Group L (Reg. No. S-P-07444-012)

EN15804+A2 ENVIRONMENTAL IMPACT INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	3.17	0.0427	0.235	6.44E-04	0.0079	0.0441	0.00484	-1.31
GWPf	kg CO ₂ -eq.	3.16	0.0427	0.233	6.43E-04	0.0079	0.044	0.00483	-1.31
GWPb	kg CO ₂ -eq.	0.00364	1.42E-05	0.00242	2.82E-07	2.63E-06	4.92E-05	9.53E-06	7.05E-04
GWP-luluc	kg CO ₂ -eq.	1.26E-04	4.59E-07	9.15E-06	6.93E-09	8.49E-08	1.69E-06	2.91E-06	-2.65E-05
ODP	kg CFC ₁₁ -eq.	1.82E-12	4.28E-15	1.46E-13	6.46E-17	7.91E-16	1.96E-13	6.35E-15	8.12E-16
AP	Mole of H+ eq.	0.0116	7.66E-05	8.50E-04	3.23E-06	1.69E-05	2.21E-04	1.52E-05	-0.00234
EPfw	kg P eq.	7.46E-07	7.02E-09	6.84E-08	1.06E-10	1.30E-09	2.40E-08	3.71E-09	-2.37E-07
EPm	kg N eq.	0.00251	3.22E-05	1.86E-04	1.54E-06	7.38E-06	4.74E-05	3.71E-06	-3.52E-04
EPT	Mole of N eq.	0.0281	3.54E-04	0.00208	1.68E-05	8.12E-05	5.18E-04	4.08E-05	-0.00276
POFP	kg NMVOC eq.	0.00826	7.48E-05	6.07E-04	4.30E-06	1.64E-05	1.32E-04	1.18E-05	-0.00162
ADPmm	kg Sb-eq.	1.04E-05	7.68E-10	7.45E-07	1.16E-11	1.42E-10	3.69E-09	3.37E-10	-6.61E-08
ADPF	MJ	31.2	0.566	2.31	0.00853	0.105	0.475	0.0685	-11.9
WDP	m ³ world equiv.	0.203	2.70E-04	0.0159	4.07E-06	4.99E-05	0.0172	3.28E-04	-0.248

EN15804+A2 RESOURCE USE INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	2.28	0.00276	0.171	4.17E-05	5.11E-04	0.102	0.00559	0.777
PERM	MJ	0.0146	0	0.00104	0	0	0	0	0
PERT	MJ	2.29	0.00276	0.172	4.17E-05	5.11E-04	0.102	0.00559	0.777
PENRE	MJ	31.2	0.566	2.31	0.00854	0.105	0.495	0.0685	-11.9
PENRM	MJ	0.0452	0	0.0017	0	0	-0.0192	0	0
PENRT	MJ	31.2	0.566	2.31	0.00854	0.105	0.475	0.0685	-11.9
SM	kg	0.232	0	0.0166	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m ³	0.00601	5.39E-06	4.49E-04	8.13E-08	9.96E-07	2.42E-04	9.65E-06	-0.0056

EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	6.92E-10	9.18E-13	5.07E-11	1.38E-14	1.70E-13	1.59E-11	1.03E-11	-9.09E-11
NHWD	kg	0.0765	1.37E-05	0.00591	2.07E-07	2.54E-06	1.48E-04	0.1	0.215
RWD	kg	2.19E-04	1.10E-07	1.57E-05	1.67E-09	2.04E-08	6.49E-08	8.26E-07	1.97E-06
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0.402	0	0.1	0	0	0.9	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS

	UNIT	A1-A3
BCC-prod	kg	0
BCC-pack	kg	3.83E-04

EN15804+A2 ADDITIONAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidences	1.40E-07	5.46E-10	1.02E-08	3.71E-11	1.15E-10	2.16E-09	1.63E-10	-3.19E-08
IRP	kBq U235 eq.	0.0398	1.44E-05	0.00285	2.17E-07	2.66E-06	8.32E-06	1.22E-04	0.0301
ETP-fw	CTUe	5.23	0.227	0.399	0.00342	0.0419	0.0908	0.0203	-0.58
HTP-c	CTUh	3.58E-10	3.83E-12	2.62E-11	5.77E-14	7.08E-13	4.07E-12	2.41E-12	-5.42E-10
HTP-nc	CTUh	5.65E-08	1.39E-10	4.06E-09	2.89E-12	2.62E-11	1.36E-10	2.43E-10	-1.78E-08
SQP	Pt	1.31	0.0016	0.0987	2.41E-05	2.95E-04	0.0608	0.00532	0.151
GWP-GHG	kg CO ₂ -eq.	3.16	0.0427	0.233	6.43E-04	0.0079	0.044	0.00483	-1.31

EN15804+A1 ENVIRONMENTAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	3.08	0.0421	0.228	6.34E-04	0.0078	0.0434	0.00459	-1.25
ODP	kg CFC ₁₁ -eq.	2.15E-12	5.04E-15	1.72E-13	7.60E-17	9.32E-16	2.30E-13	7.48E-15	5.01E-16
AP	kg SO ₂ -eq.	0.00936	5.50E-05	6.87E-04	2.26E-06	1.20E-05	1.81E-04	1.22E-05	-0.00202
EP	kg PO ₄ ³⁻ -eq.	9.00E-04	1.09E-05	6.69E-05	5.15E-07	2.50E-06	1.63E-05	1.31E-06	-1.18E-04
POCP	kg C ₂ H ₄ -eq.	0.00134	-9.17E-06	9.56E-05	2.12E-07	-2.62E-06	9.69E-06	1.14E-06	-5.96E-04
ADPE	kg Sb-eq.	1.04E-05	7.69E-10	7.45E-07	1.16E-11	1.42E-10	3.69E-09	3.42E-10	-6.40E-08
ADPF	MJ	30.5	0.564	2.26	0.00851	0.104	0.473	0.0661	-12.3

Notes:

- The results are determined for a representative product within the group, i.e. not an average. The GWP-GHG results vary by less than +/-10% within each group. See Table 1 for grouping details.
- In this EPD, the Sphera EN15804+A2 characterisation factors (based on EF 3.0) are used.
- PCR2019:14 v1.3.1 discourages the use of the results of modules A1-A3 without considering the results of module C (EPD International, 2023).
- For disclaimers related to individual environmental indicators, please refer to pages 20-21.

LCA results for 1 kg of metal product: P164 of Group M (Reg. No. S-P-07444-013)

EN15804+A2 ENVIRONMENTAL IMPACT INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	3.05	0.0427	0.227	6.44E-04	0.0079	0.0441	0.00484	-1.3
GWPf	kg CO ₂ -eq.	3.04	0.0427	0.224	6.43E-04	0.0079	0.044	0.00483	-1.3
GWPb	kg CO ₂ -eq.	0.00348	1.42E-05	0.00241	2.82E-07	2.63E-06	4.92E-05	9.53E-06	6.99E-04
GWP-luluc	kg CO ₂ -eq.	1.02E-04	4.59E-07	7.46E-06	6.93E-09	8.49E-08	1.69E-06	2.91E-06	-2.63E-05
ODP	kg CFC ₁₁ -eq.	1.61E-12	4.28E-15	1.31E-13	6.46E-17	7.91E-16	1.96E-13	6.35E-15	8.21E-16
AP	Mole of H ⁺ eq.	0.0109	7.66E-05	8.05E-04	3.23E-06	1.69E-05	2.21E-04	1.52E-05	-0.00231
EPfw	kg P eq.	6.68E-07	7.02E-09	6.28E-08	1.06E-10	1.30E-09	2.40E-08	3.71E-09	-2.35E-07
EPm	kg N eq.	0.0024	3.22E-05	1.78E-04	1.54E-06	7.38E-06	4.74E-05	3.71E-06	-3.48E-04
EPT	Mole of N eq.	0.0269	3.54E-04	0.00199	1.68E-05	8.12E-05	5.18E-04	4.08E-05	-0.00272
POFP	kg NMVOC eq.	0.00795	7.48E-05	5.84E-04	4.30E-06	1.64E-05	1.32E-04	1.18E-05	-0.00161
ADPmm	kg Sb-eq.	7.59E-06	7.68E-10	5.42E-07	1.16E-11	1.42E-10	3.69E-09	3.37E-10	-6.56E-08
ADPF	MJ	29.9	0.566	2.22	0.00853	0.105	0.475	0.0685	-11.8
WDP	m ³ world equiv.	0.183	2.70E-04	0.0144	4.07E-06	4.99E-05	0.0172	3.28E-04	-0.246

EN15804+A2 RESOURCE USE INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1.84	0.00276	0.14	4.17E-05	5.11E-04	0.102	0.00559	0.770
PERM	MJ	0.0146	0	0.00104	0	0	0	0	0
PERT	MJ	1.86	0.00276	0.141	4.17E-05	5.11E-04	0.102	0.00559	0.770
PENRE	MJ	29.8	0.566	2.21	0.00854	0.105	0.489	0.0685	-11.9
PENRM	MJ	0.0393	0	0.0017	0	0	-0.0139	0	0
PENRT	MJ	29.9	0.566	2.22	0.00854	0.105	0.475	0.0685	-11.9
SM	kg	0.168	0	0.012	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m ³	0.00499	5.39E-06	3.76E-04	8.13E-08	9.96E-07	2.42E-04	9.65E-06	-0.00556

EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	6.28E-10	9.18E-13	4.62E-11	1.38E-14	1.70E-13	1.59E-11	1.03E-11	-9.02E-11
NHWD	kg	0.0587	1.37E-05	0.00465	2.07E-07	2.54E-06	1.48E-04	0.1	0.213
RWD	kg	1.66E-04	1.10E-07	1.18E-05	1.67E-09	2.04E-08	6.49E-08	8.26E-07	1.96E-06
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0.41	0	0.101	0	0	0.9	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS

	UNIT	A1-A3
BCC-prod	kg	0
BCC-pack	kg	3.83E-04

EN15804+A2 ADDITIONAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidences	1.35E-07	5.46E-10	9.86E-09	3.71E-11	1.15E-10	2.16E-09	1.63E-10	-3.15E-08
IRP	kBq U235 eq.	0.03	1.44E-05	0.00215	2.17E-07	2.66E-06	8.32E-06	1.22E-04	0.0299
ETP-fw	CTUe	4.74	0.227	0.364	0.00342	0.0419	0.0908	0.0203	-0.574
HTP-c	CTUh	3.19E-10	3.83E-12	2.34E-11	5.77E-14	7.08E-13	4.07E-12	2.41E-12	-5.38E-10
HTP-nc	CTUh	5.58E-08	1.39E-10	4.01E-09	2.89E-12	2.62E-11	1.36E-10	2.43E-10	-1.77E-08
SQP	Pt	1.16	0.0016	0.0876	2.41E-05	2.95E-04	0.0608	0.00532	0.149
GWP-GHG	kg CO ₂ -eq.	3.04	0.0427	0.224	6.43E-04	0.0079	0.044	0.00483	-1.3

EN15804+A1 ENVIRONMENTAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	2.96	0.0421	0.22	6.34E-04	0.0078	0.0434	0.00459	-1.24
ODP	kg CFC ₁₁ -eq.	1.90E-12	5.04E-15	1.54E-13	7.60E-17	9.32E-16	2.30E-13	7.48E-15	5.14E-16
AP	kg SO ₂ -eq.	0.00883	5.50E-05	6.50E-04	2.26E-06	1.20E-05	1.81E-04	1.22E-05	-0.002
EP	kg PO ₄ ³⁻ -eq.	8.61E-04	1.09E-05	6.42E-05	5.15E-07	2.50E-06	1.63E-05	1.31E-06	-1.17E-04
POCP	kg C ₂ H ₄ -eq.	0.00131	-9.17E-06	9.38E-05	2.12E-07	-2.62E-06	9.69E-06	1.14E-06	-5.91E-04
ADPE	kg Sb-eq.	7.59E-06	7.69E-10	5.43E-07	1.16E-11	1.42E-10	3.69E-09	3.42E-10	-6.35E-08
ADPF	MJ	29.3	0.564	2.17	0.00851	0.104	0.473	0.0661	-12.2

Notes:

- The results are determined for a representative product within the group, i.e. not an average. The GWP-GHG results vary by less than +/-10% within each group. See Table 1 for grouping details.
- In this EPD, the Sphera EN15804+A2 characterisation factors (based on EF 3.0) are used.
- PCR2019:14 v1.3.1 discourages the use of the results of modules A1-A3 without considering the results of module C (EPD International, 2023).
- For disclaimers related to individual environmental indicators, please refer to pages 20-21.

LCA results for 1 kg of metal product: P165 of Group N (Reg. No. S-P-07444-014)

EN15804+A2 ENVIRONMENTAL IMPACT INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	2.92	0.0427	0.218	6.44E-04	0.0079	0.0441	0.00484	-1.29
GWPf	kg CO ₂ -eq.	2.92	0.0427	0.215	6.43E-04	0.0079	0.044	0.00483	-1.29
GWPb	kg CO ₂ -eq.	0.00332	1.42E-05	0.00239	2.82E-07	2.63E-06	4.92E-05	9.53E-06	6.94E-04
GWP-luluc	kg CO ₂ -eq.	7.80E-05	4.59E-07	5.75E-06	6.93E-09	8.49E-08	1.69E-06	2.91E-06	-2.61E-05
ODP	kg CFC ₁₁ -eq.	1.40E-12	4.28E-15	1.16E-13	6.46E-17	7.91E-16	1.96E-13	6.35E-15	8.29E-16
AP	Mole of H+ eq.	0.0103	7.66E-05	7.58E-04	3.23E-06	1.69E-05	2.21E-04	1.52E-05	-0.00229
EPfw	kg P eq.	5.88E-07	7.02E-09	5.71E-08	1.06E-10	1.30E-09	2.40E-08	3.71E-09	-2.33E-07
EPm	kg N eq.	0.00228	3.22E-05	1.69E-04	1.54E-06	7.38E-06	4.74E-05	3.71E-06	-3.44E-04
EPT	Mole of N eq.	0.0257	3.54E-04	0.0019	1.68E-05	8.12E-05	5.18E-04	4.08E-05	-0.00269
POFP	kg NMVOC eq.	0.00762	7.48E-05	5.61E-04	4.30E-06	1.64E-05	1.32E-04	1.18E-05	-0.00159
ADPmm	kg Sb-eq.	4.72E-06	7.68E-10	3.37E-07	1.16E-11	1.42E-10	3.69E-09	3.37E-10	-6.51E-08
ADPF	MJ	28.4	0.566	2.11	0.00853	0.105	0.475	0.0685	-11.8
WDP	m ³ world equiv.	0.162	2.70E-04	0.0129	4.07E-06	4.99E-05	0.0172	3.28E-04	-0.244

EN15804+A2 RESOURCE USE INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1.4	0.00276	0.109	4.17E-05	5.11E-04	0.102	0.00559	0.765
PERM	MJ	0.0146	0	0.00104	0	0	0	0	0
PERT	MJ	1.42	0.00276	0.11	4.17E-05	5.11E-04	0.102	0.00559	0.765
PENRE	MJ	28.4	0.566	2.11	0.00854	0.105	0.484	0.0685	-11.8
PENRM	MJ	0.0334	0	0.0017	0	0	-0.00857	0	0
PENRT	MJ	28.4	0.566	2.11	0.00854	0.105	0.475	0.0685	-11.8
SM	kg	0.104	0	0.00744	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m ³	0.00395	5.39E-06	3.02E-04	8.13E-08	9.96E-07	2.42E-04	9.65E-06	-0.00552

EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	5.63E-10	9.18E-13	4.16E-11	1.38E-14	1.70E-13	1.59E-11	1.03E-11	-8.95E-11
NHWD	kg	0.0408	1.37E-05	0.00336	2.07E-07	2.54E-06	1.48E-04	0.1	0.212
RWD	kg	1.11E-04	1.10E-07	7.97E-06	1.67E-09	2.04E-08	6.49E-08	8.26E-07	1.95E-06
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0.415	0	0.101	0	0	0.9	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS

	UNIT	A1-A3
BCC-prod	kg	0
BCC-pack	kg	3.83E-04

EN15804+A2 ADDITIONAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidences	1.29E-07	5.46E-10	9.45E-09	3.71E-11	1.15E-10	2.16E-09	1.63E-10	-3.12E-08
IRP	kBq U235 eq.	0.02	1.44E-05	0.00143	2.17E-07	2.66E-06	8.32E-06	1.22E-04	0.0297
ETP-fw	CTUe	4.24	0.227	0.329	0.00342	0.0419	0.0908	0.0203	-0.568
HTP-c	CTUh	2.80E-10	3.83E-12	2.06E-11	5.77E-14	7.08E-13	4.07E-12	2.41E-12	-5.34E-10
HTP-nc	CTUh	5.49E-08	1.39E-10	3.94E-09	2.89E-12	2.62E-11	1.36E-10	2.43E-10	-1.75E-08
SQP	Pt	0.998	0.0016	0.0762	2.41E-05	2.95E-04	0.0608	0.00532	0.148
GWP-GHG	kg CO ₂ -eq.	2.92	0.0427	0.215	6.43E-04	0.0079	0.044	0.00483	-1.29

EN15804+A1 ENVIRONMENTAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	2.84	0.0421	0.211	6.34E-04	0.0078	0.0434	0.00459	-1.23
ODP	kg CFC ₁₁ -eq.	1.65E-12	5.04E-15	1.36E-13	7.60E-17	9.32E-16	2.30E-13	7.48E-15	5.27E-16
AP	kg SO ₂ -eq.	0.00829	5.50E-05	6.11E-04	2.26E-06	1.20E-05	1.81E-04	1.22E-05	-0.00199
EP	kg PO ₄ ³⁻ -eq.	8.20E-04	1.09E-05	6.12E-05	5.15E-07	2.50E-06	1.63E-05	1.31E-06	-1.15E-04
POCP	kg C ₂ H ₄ -eq.	0.00128	-9.17E-06	9.17E-05	2.12E-07	-2.62E-06	9.69E-06	1.14E-06	-5.86E-04
ADPE	kg Sb-eq.	4.72E-06	7.69E-10	3.38E-07	1.16E-11	1.42E-10	3.69E-09	3.42E-10	-6.30E-08
ADPF	MJ	28	0.564	2.08	0.00851	0.104	0.473	0.0661	-12.1

Notes:

- The results are determined for a representative product within the group, i.e. not an average. The GWP-GHG results vary by less than +/-10% within each group. See Table 1 for grouping details.
- In this EPD, the Sphera EN15804+A2 characterisation factors (based on EF 3.0) are used.
- PCR2019:14 v1.3.1 discourages the use of the results of modules A1-A3 without considering the results of module C (EPD International, 2023).
- For disclaimers related to individual environmental indicators, please refer to pages 20-21.

LCA results for 1 kg of metal product: P239 of Group O (Reg. No. S-P-07444-015)

EN15804+A2 ENVIRONMENTAL IMPACT INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	3.13	0.0427	0.232	6.44E-04	0.0079	0.0441	0.00484	-1.31
GWPf	kg CO ₂ -eq.	3.12	0.0427	0.23	6.43E-04	0.0079	0.044	0.00483	-1.31
GWPb	kg CO ₂ -eq.	0.00359	1.42E-05	0.00241	2.82E-07	2.63E-06	4.92E-05	9.53E-06	7.03E-04
GWP-luluc	kg CO ₂ -eq.	1.18E-04	4.59E-07	8.62E-06	6.93E-09	8.49E-08	1.69E-06	2.91E-06	-2.64E-05
ODP	kg CFC ₁₁ -eq.	1.76E-12	4.28E-15	1.41E-13	6.46E-17	7.91E-16	1.96E-13	6.35E-15	8.15E-16
AP	Mole of H+ eq.	0.0114	7.66E-05	8.35E-04	3.23E-06	1.69E-05	2.21E-04	1.52E-05	-0.00233
EPfw	kg P eq.	7.21E-07	7.02E-09	6.66E-08	1.06E-10	1.30E-09	2.40E-08	3.71E-09	-2.36E-07
EPm	kg N eq.	0.00247	3.22E-05	1.83E-04	1.54E-06	7.38E-06	4.74E-05	3.71E-06	-3.51E-04
EPT	Mole of N eq.	0.0277	3.54E-04	0.00205	1.68E-05	8.12E-05	5.18E-04	4.08E-05	-0.00275
POFP	kg NMVOC eq.	0.00816	7.48E-05	5.99E-04	4.30E-06	1.64E-05	1.32E-04	1.18E-05	-0.00162
ADPmm	kg Sb-eq.	9.53E-06	7.68E-10	6.81E-07	1.16E-11	1.42E-10	3.69E-09	3.37E-10	-6.60E-08
ADPF	MJ	30.8	0.566	2.28	0.00853	0.105	0.475	0.0685	-11.9
WDP	m ³ world equiv.	0.197	2.70E-04	0.0154	4.07E-06	4.99E-05	0.0172	3.28E-04	-0.248

EN15804+A2 RESOURCE USE INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	2.14	0.00276	0.161	4.17E-05	5.11E-04	0.102	0.00559	0.775
PERM	MJ	0.0146	0	0.00104	0	0	0	0	0
PERT	MJ	2.15	0.00276	0.162	4.17E-05	5.11E-04	0.102	0.00559	0.775
PENRE	MJ	30.8	0.566	2.28	0.00854	0.105	0.493	0.0685	-11.9
PENRM	MJ	0.0433	0	0.0017	0	0	-0.0175	0	0
PENRT	MJ	30.8	0.566	2.28	0.00854	0.105	0.475	0.0685	-11.9
SM	kg	0.212	0	0.0151	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m ³	0.00568	5.39E-06	4.25E-04	8.13E-08	9.96E-07	2.42E-04	9.65E-06	-0.00559

EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	6.72E-10	9.18E-13	4.93E-11	1.38E-14	1.70E-13	1.59E-11	1.03E-11	-9.07E-11
NHWD	kg	0.0709	1.37E-05	0.00551	2.07E-07	2.54E-06	1.48E-04	0.1	0.214
RWD	kg	2.02E-04	1.10E-07	1.45E-05	1.67E-09	2.04E-08	6.49E-08	8.26E-07	1.97E-06
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0.404	0	0.1	0	0	0.9	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS

	UNIT	A1-A3
BCC-prod	kg	0
BCC-pack	kg	3.83E-04

EN15804+A2 ADDITIONAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidences	1.39E-07	5.46E-10	1.01E-08	3.71E-11	1.15E-10	2.16E-09	1.63E-10	-3.18E-08
IRP	kBq U235 eq.	0.0367	1.44E-05	0.00263	2.17E-07	2.66E-06	8.32E-06	1.22E-04	0.0301
ETP-fw	CTUe	5.07	0.227	0.388	0.00342	0.0419	0.0908	0.0203	-0.578
HTP-c	CTUh	3.46E-10	3.83E-12	2.53E-11	5.77E-14	7.08E-13	4.07E-12	2.41E-12	-5.41E-10
HTP-nc	CTUh	5.63E-08	1.39E-10	4.04E-09	2.89E-12	2.62E-11	1.36E-10	2.43E-10	-1.78E-08
SQP	Pt	1.26	0.0016	0.0952	2.41E-05	2.95E-04	0.0608	0.00532	0.15
GWP-GHG	kg CO ₂ -eq.	3.12	0.0427	0.23	6.43E-04	0.0079	0.044	0.00483	-1.31

EN15804+A1 ENVIRONMENTAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	3.04	0.0421	0.226	6.34E-04	0.0078	0.0434	0.00459	-1.24
ODP	kg CFC ₁₁ -eq.	2.07E-12	5.04E-15	1.66E-13	7.60E-17	9.32E-16	2.30E-13	7.48E-15	5.05E-16
AP	kg SO ₂ -eq.	0.00919	5.50E-05	6.75E-04	2.26E-06	1.20E-05	1.81E-04	1.22E-05	-0.00202
EP	kg PO ₄ ³⁻ -eq.	8.87E-04	1.09E-05	6.60E-05	5.15E-07	2.50E-06	1.63E-05	1.31E-06	-1.18E-04
POCP	kg C ₂ H ₄ -eq.	0.00133	-9.17E-06	9.50E-05	2.12E-07	-2.62E-06	9.69E-06	1.14E-06	-5.94E-04
ADPE	kg Sb-eq.	9.53E-06	7.69E-10	6.81E-07	1.16E-11	1.42E-10	3.69E-09	3.42E-10	-6.38E-08
ADPF	MJ	30.1	0.564	2.23	0.00851	0.104	0.473	0.0661	-12.2

Notes:

- The results are determined for a representative product within the group, i.e. not an average. The GWP-GHG results vary by less than +/-10% within each group. See Table 1 for grouping details.
- In this EPD, the Sphera EN15804+A2 characterisation factors (based on EF 3.0) are used.
- PCR2019:14 v1.3.1 discourages the use of the results of modules A1-A3 without considering the results of module C (EPD International, 2023).
- For disclaimers related to individual environmental indicators, please refer to pages 20-21.

LCA results for 1 kg of metal product: P248 of Group P (Reg. No. S-P-07444-016)

EN15804+A2 ENVIRONMENTAL IMPACT INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	3.03	0.0427	0.225	6.44E-04	0.0079	0.0441	0.00484	-1.3
GWPf	kg CO ₂ -eq.	3.02	0.0427	0.223	6.43E-04	0.0079	0.044	0.00483	-1.3
GWPb	kg CO ₂ -eq.	0.00345	1.42E-05	0.0024	2.82E-07	2.63E-06	4.92E-05	9.53E-06	6.98E-04
GWP-luluc	kg CO ₂ -eq.	9.79E-05	4.59E-07	7.17E-06	6.93E-09	8.49E-08	1.69E-06	2.91E-06	-2.62E-05
ODP	kg CFC ₁₁ -eq.	1.58E-12	4.28E-15	1.28E-13	6.46E-17	7.91E-16	1.96E-13	6.35E-15	8.22E-16
AP	Mole of H+ eq.	0.0108	7.66E-05	7.97E-04	3.23E-06	1.69E-05	2.21E-04	1.52E-05	-0.00231
EPfw	kg P eq.	6.54E-07	7.02E-09	6.19E-08	1.06E-10	1.30E-09	2.40E-08	3.71E-09	-2.34E-07
EPm	kg N eq.	0.00238	3.22E-05	1.76E-04	1.54E-06	7.38E-06	4.74E-05	3.71E-06	-3.47E-04
EPT	Mole of N eq.	0.0267	3.54E-04	0.00198	1.68E-05	8.12E-05	5.18E-04	4.08E-05	-0.00272
POFP	kg NMVOC eq.	0.00789	7.48E-05	5.80E-04	4.30E-06	1.64E-05	1.32E-04	1.18E-05	-0.00161
ADPmm	kg Sb-eq.	7.10E-06	7.68E-10	5.08E-07	1.16E-11	1.42E-10	3.69E-09	3.37E-10	-6.55E-08
ADPF	MJ	29.6	0.566	2.2	0.00853	0.105	0.475	0.0685	-11.8
WDP	m ³ world equiv.	0.179	2.70E-04	0.0142	4.07E-06	4.99E-05	0.0172	3.28E-04	-0.246

EN15804+A2 RESOURCE USE INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1.77	0.00276	0.135	4.17E-05	5.11E-04	0.102	0.00559	0.77
PERM	MJ	0.0146	0	0.00104	0	0	0	0	0
PERT	MJ	1.78	0.00276	0.136	4.17E-05	5.11E-04	0.102	0.00559	0.77
PENRE	MJ	29.6	0.566	2.2	0.00854	0.105	0.488	0.0685	-11.8
PENRM	MJ	0.0383	0	0.0017	0	0	-0.013	0	0
PENRT	MJ	29.6	0.566	2.2	0.00854	0.105	0.475	0.0685	-11.8
SM	kg	0.158	0	0.0113	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m ³	0.00481	5.39E-06	3.63E-04	8.13E-08	9.96E-07	2.42E-04	9.65E-06	-0.00555

EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	6.17E-10	9.18E-13	4.54E-11	1.38E-14	1.70E-13	1.59E-11	1.03E-11	-9.01E-11
NHWD	kg	0.0557	1.37E-05	0.00443	2.07E-07	2.54E-06	1.48E-04	0.1	0.213
RWD	kg	1.56E-04	1.10E-07	1.12E-05	1.67E-09	2.04E-08	6.49E-08	8.26E-07	1.96E-06
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0.41	0	0.101	0	0	0.9	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS

	UNIT	A1-A3
BCC-prod	kg	0
BCC-pack	kg	3.83E-04

EN15804+A2 ADDITIONAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidences	1.34E-07	5.46E-10	9.78E-09	3.71E-11	1.15E-10	2.16E-09	1.63E-10	-3.15E-08
IRP	kBq U235 eq.	0.0283	1.44E-05	0.00202	2.17E-07	2.66E-06	8.32E-06	1.22E-04	0.0299
ETP-fw	CTUe	4.66	0.227	0.358	0.00342	0.0419	0.0908	0.0203	-0.573
HTP-c	CTUh	3.12E-10	3.83E-12	2.29E-11	5.77E-14	7.08E-13	4.07E-12	2.41E-12	-5.37E-10
HTP-nc	CTUh	5.56E-08	1.39E-10	3.99E-09	2.89E-12	2.62E-11	1.36E-10	2.43E-10	-1.77E-08
SQP	Pt	1.13	0.0016	0.0856	2.41E-05	2.95E-04	0.0608	0.00532	0.149
GWP-GHG	kg CO ₂ -eq.	3.02	0.0427	0.223	6.43E-04	0.0079	0.044	0.00483	-1.3

EN15804+A1 ENVIRONMENTAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	2.94	0.0421	0.219	6.34E-04	0.0078	0.0434	0.00459	-1.24
ODP	kg CFC ₁₁ -eq.	1.86E-12	5.04E-15	1.51E-13	7.60E-17	9.32E-16	2.30E-13	7.48E-15	5.16E-16
AP	kg SO ₂ -eq.	0.00874	5.50E-05	6.43E-04	2.26E-06	1.20E-05	1.81E-04	1.22E-05	-0.002
EP	kg PO ₄ ³⁻ -eq.	8.54E-04	1.09E-05	6.36E-05	5.15E-07	2.50E-06	1.63E-05	1.31E-06	-1.16E-04
POCP	kg C ₂ H ₄ -eq.	0.0013	-9.17E-06	9.34E-05	2.12E-07	-2.62E-06	9.69E-06	1.14E-06	-5.90E-04
ADPE	kg Sb-eq.	7.10E-06	7.69E-10	5.08E-07	1.16E-11	1.42E-10	3.69E-09	3.42E-10	-6.34E-08
ADPF	MJ	29	0.564	2.15	0.00851	0.104	0.473	0.0661	-12.1

Notes:

- The results are determined for a representative product within the group, i.e. not an average. The GWP-GHG results vary by less than +/-10% within each group. See Table 1 for grouping details.
- In this EPD, the Sphera EN15804+A2 characterisation factors (based on EF 3.0) are used.
- PCR2019:14 v1.3.1 discourages the use of the results of modules A1-A3 without considering the results of module C (EPD International, 2023).
- For disclaimers related to individual environmental indicators, please refer to pages 20-21.

LCA results for 1 kg of metal product: P255 of Group Q (Reg. No. S-P-07444-017)

EN15804+A2 ENVIRONMENTAL IMPACT INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	2.92	0.0427	0.218	6.44E-04	0.0079	0.0441	0.00484	-1.29
GWPf	kg CO ₂ -eq.	2.92	0.0427	0.215	6.43E-04	0.0079	0.044	0.00483	-1.29
GWPb	kg CO ₂ -eq.	0.00332	1.42E-05	0.00239	2.82E-07	2.63E-06	4.92E-05	9.53E-06	6.94E-04
GWP-luluc	kg CO ₂ -eq.	7.79E-05	4.59E-07	5.74E-06	6.93E-09	8.49E-08	1.69E-06	2.91E-06	-2.61E-05
ODP	kg CFC ₁₁ -eq.	1.40E-12	4.28E-15	1.16E-13	6.46E-17	7.91E-16	1.96E-13	6.35E-15	8.29E-16
AP	Mole of H+ eq.	0.0103	7.66E-05	7.58E-04	3.23E-06	1.69E-05	2.21E-04	1.52E-05	-0.00229
EPfw	kg P eq.	5.88E-07	7.02E-09	5.71E-08	1.06E-10	1.30E-09	2.40E-08	3.71E-09	-2.33E-07
EPm	kg N eq.	0.00228	3.22E-05	1.69E-04	1.54E-06	7.38E-06	4.74E-05	3.71E-06	-3.44E-04
EPT	Mole of N eq.	0.0256	3.54E-04	0.0019	1.68E-05	8.12E-05	5.18E-04	4.08E-05	-0.00269
POFP	kg NMVOC eq.	0.00761	7.48E-05	5.60E-04	4.30E-06	1.64E-05	1.32E-04	1.18E-05	-0.00159
ADPmm	kg Sb-eq.	4.72E-06	7.68E-10	3.37E-07	1.16E-11	1.42E-10	3.69E-09	3.37E-10	-6.51E-08
ADPF	MJ	28.4	0.566	2.11	0.00853	0.105	0.475	0.0685	-11.8
WDP	m ³ world equiv.	0.162	2.70E-04	0.0129	4.07E-06	4.99E-05	0.0172	3.28E-04	-0.244

EN15804+A2 RESOURCE USE INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1.4	0.00276	0.109	4.17E-05	5.11E-04	0.102	0.00559	0.765
PERM	MJ	0.0146	0	0.00104	0	0	0	0	0
PERT	MJ	1.42	0.00276	0.11	4.17E-05	5.11E-04	0.102	0.00559	0.765
PENRE	MJ	28.4	0.566	2.11	0.00854	0.105	0.484	0.0685	-11.8
PENRM	MJ	0.0334	0	0.0017	0	0	-0.00857	0	0
PENRT	MJ	28.4	0.566	2.11	0.00854	0.105	0.475	0.0685	-11.8
SM	kg	0.104	0	0.00744	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m ³	0.00395	5.39E-06	3.02E-04	8.13E-08	9.96E-07	2.42E-04	9.65E-06	-0.00552

EN15804+A2 WASTE MATERIAL AND OUTPUT FLOW INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	5.63E-10	9.18E-13	4.15E-11	1.38E-14	1.70E-13	1.59E-11	1.03E-11	-8.95E-11
NHWD	kg	0.0407	1.37E-05	0.00336	2.07E-07	2.54E-06	1.48E-04	0.1	0.212
RWD	kg	1.11E-04	1.10E-07	7.96E-06	1.67E-09	2.04E-08	6.49E-08	8.26E-07	1.95E-06
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0.414	0	0.101	0	0	0.9	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	0	0	0	0	0	0
EET	MJ	0	0	0	0	0	0	0	0

EN15804+A2 BIOGENIC CARBON CONTENT INDICATORS

	UNIT	A1-A3
BCC-prod	kg	0
BCC-pack	kg	3.83E-04

EN15804+A2 ADDITIONAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidences	1.29E-07	5.46E-10	9.45E-09	3.71E-11	1.15E-10	2.16E-09	1.63E-10	-3.12E-08
IRP	kBq U235 eq.	0.02	1.44E-05	0.00143	2.17E-07	2.66E-06	8.32E-06	1.22E-04	0.0297
ETP-fw	CTUe	4.24	0.227	0.328	0.00342	0.0419	0.0908	0.0203	-0.568
HTP-c	CTUh	2.79E-10	3.83E-12	2.06E-11	5.77E-14	7.08E-13	4.07E-12	2.41E-12	-5.34E-10
HTP-nc	CTUh	5.48E-08	1.39E-10	3.94E-09	2.89E-12	2.62E-11	1.36E-10	2.43E-10	-1.75E-08
SQP	Pt	0.997	0.0016	0.0762	2.41E-05	2.95E-04	0.0608	0.00532	0.148
GWP-GHG	kg CO ₂ -eq.	2.92	0.0427	0.215	6.43E-04	0.0079	0.044	0.00483	-1.29

EN15804+A1 ENVIRONMENTAL INDICATORS

	UNIT	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP	kg CO ₂ -eq.	2.84	0.0421	0.211	6.34E-04	0.0078	0.0434	0.00459	-1.23
ODP	kg CFC ₁₁ -eq.	1.65E-12	5.04E-15	1.36E-13	7.60E-17	9.32E-16	2.30E-13	7.48E-15	5.27E-16
AP	kg SO ₂ -eq.	0.00828	5.50E-05	6.10E-04	2.26E-06	1.20E-05	1.81E-04	1.22E-05	-0.00199
EP	kg PO ₄ ³⁻ -eq.	8.20E-04	1.09E-05	6.12E-05	5.15E-07	2.50E-06	1.63E-05	1.31E-06	-1.15E-04
POCP	kg C ₂ H ₄ -eq.	0.00128	-9.17E-06	9.17E-05	2.12E-07	-2.62E-06	9.69E-06	1.14E-06	-5.86E-04
ADPE	kg Sb-eq.	4.72E-06	7.69E-10	3.37E-07	1.16E-11	1.42E-10	3.69E-09	3.42E-10	-6.30E-08
ADPF	MJ	28	0.564	2.08	0.00851	0.104	0.473	0.0661	-12.1

Notes:

- The results are determined for a representative product within the group, i.e. not an average. The GWP-GHG results vary by less than +/-10% within each group. See Table 1 for grouping details.
- In this EPD, the Sphera EN15804+A2 characterisation factors (based on EF 3.0) are used.
- PCR2019:14 v1.3.1 discourages the use of the results of modules A1-A3 without considering the results of module C (EPD International, 2023).
- For disclaimers related to individual environmental indicators, please refer to pages 20-21.

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program-related information and verification

Declaration owner	Etex Australia Pty Ltd Siniat.com.au opt2act@siniat.com.au Etex Australia Pty Ltd 31 Military Road Matraville NSW 2036, Australia	
Geographical scope	Australia	
Reference year	1 July 2020 - 30 June 2021	
EPD produced by	thinkstep Pty Ltd thinkstep-anz.com anz@thinkstep-anz.com thinkstep Pty Ltd 25 Jubilee Street, South Perth Western Australia 6151, Australia	
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CEN standard EN 15804+A2 served as the core PCR		
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PCR review conducted by	The Technical Committee of the International EPD® System No chair appointed	
Independent verification of the declaration and data, according to ISO 14025	<input type="checkbox"/> EPD process certification (Internal) <input checked="" type="checkbox"/> EPD verification (External)	
Third party verifier, approved by EPD Australasia	Rob Rouwette start2see Pty Ltd www.start2see.com.au Rob.Rouwette@start2see.com.au	
Procedure for follow-up of data during EPD validity involved third-party verifier	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	
Version history	1.0	

An Environmental Product Declaration, or EPD, is a standardised and verified way of quantifying the environmental impacts of a product based on a consistent set of rules known as a PCR (Product Category Rules).

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804.

Annex

Table A1: Siniat metal framing product details

Product Code	Product Category	Product Type	Product Description	BMT	% punch-outs
P1	Framing	Studs	AAS-Acoustic Stud 92/40/0.55 2700(10/40)	0.55	1.23%
P2	Framing	Studs	AAS-Acoustic Stud 92/40/0.55 3000(10/40)	0.55	0.71%
P3	Framing	Studs	AAS-Acoustic Stud 92/40/0.55 3600(10/40)	0.55	1.01%
P4	Framing	Studs	AAS-Acoustic Stud 92/40/0.55 4200(10/40)	0.55	1.65%
P5	Framing	Studs	AAS-Acoustic Stud 92/40/0.55 4800(10/40)	0.55	0.71%
P7	Framing	Studs	AAS-Acoustic Stud 92/40/0.55 Custom (50)	0.55	2.20%
P8	Angles and Beads	Angles	ABA-Back Angle 100/100/1.15 3000(10/100)	1.15	1.02%
P9	Angles and Beads	Angles	ABA-Back Angle 28/28/0.30 2400 (20/480)	0.30	0.41%
P10	Angles and Beads	Angles	ABA-Back Angle 35/35/0.70 3000 (10/500)	0.70	0.59%
P11	Angles and Beads	Angles	ABA-Back Angle 35/35/0.70 3600 (10/500)	0.70	0.64%
P12	Angles and Beads	Angles	ABA-Back Angle 40/40/0.30 1800 (10/500)	0.30	1.06%
P13	Angles and Beads	Angles	ABA-Back Angle 50/50/0.70 3000 (10/500)	0.70	0.33%
P14	Angles and Beads	Angles	ABA-Back Angle 50/50/0.70 3600 (10/500)	0.70	0.33%
P15	Angles and Beads	Angles	ABA-Back Angle 50/50/1.15 3000 (10/250)	1.15	1.29%
P16	Angles and Beads	Angles	ABA-Back Angle 75/75/1.15 3000 (10/100)	1.15	1.14%
P18	Framing	Tracks	ADHT-Deflect Hd Track 150/50/1.15 3000	1.15	0.89%
P19	Framing	Tracks	ADHT-Deflect Hd Track 51/50/0.55 3000	0.55	0.92%
P20	Framing	Tracks	ADHT-Deflect Hd Track 51/50/0.7 3000	0.70	4.76%
P21	Framing	Tracks	ADHT-Deflect Hd Track 64/50/0.55 3000	0.55	0.20%
P22	Framing	Tracks	ADHT-Deflect Hd Track 64/50/0.70 3000	0.70	0.26%
P23	Framing	Tracks	ADHT-Deflect Hd Track 64/50/1.15 3000	1.15	0.56%
P24	Framing	Tracks	ADHT-Deflect Hd Track 76/50/0.55 3000	0.55	0.38%
P25	Framing	Tracks	ADHT-Deflect Hd Track 76/50/0.70 3000	0.70	0.51%

Product Code	Product Category	Product Type	Product Description	BMT	% punch-outs
P26	Framing	Tracks	ADHT-Deflect Hd Track 76/50/1.15 3000	1.15	0.99%
P27	Framing	Tracks	ADHT-Deflect Hd Track 92/50/0.55 3000	0.55	0.26%
P28	Framing	Tracks	ADHT-Deflect Hd Track 92/50/0.70 3000	0.70	0.24%
P29	Framing	Tracks	ADHT-Deflect Hd Track 92/50/1.15 3000	1.15	0.42%
P30	Framing	Ceiling Battens	AFCB-Back Blocking Batten 35/16/0.38 300	0.38	0.54%
P31	Framing	Ceiling Battens	AFCC-Batten 71/35/0.38 6000 (10/100)	0.38	1.30%
P32	Framing	Ceiling Battens	AFCC-Cycl. Ceil. Batten 54/22/0.38 6100	0.38	0.28%
P33	Framing	Ceiling Battens	AFCD-Domestic Batten 35/16/0.38 4800	0.38	0.28%
P34	Framing	Ceiling Battens	AFCD-Domestic Batten 35/16/0.38 6000	0.38	0.26%
P35	Framing	Ceiling Channels	AFC-Furring Channel 38/18/0.42 2400	0.42	0.25%
P36	Framing	Ceiling Channels	AFC-Furring Channel 38/18/0.42 2700	0.42	0.40%
P37	Framing	Ceiling Channels	AFC-Furring Channel 38/18/0.42 3000	0.42	0.23%
P38	Framing	Ceiling Channels	AFC-Furring Channel 38/18/0.42 3600	0.42	0.24%
P39	Framing	Ceiling Channels	AFC-Furring Channel 38/18/0.42 4800	0.42	0.35%
P40	Framing	Ceiling Channels	AFC-Furring Channel 38/18/0.42 6000	0.42	0.30%
P41	Framing	Ceiling Channels	AFC-Furring Channel 38/18/0.42 Custom	0.42	3.10%
P42	Framing	Ceiling Channels	AFC-Furring Channel 38/28/0.42 2400	0.42	0.74%
P43	Framing	Ceiling Channels	AFC-Furring Channel 38/28/0.42 2700	0.42	0.30%
P44	Framing	Ceiling Channels	AFC-Furring Channel 38/28/0.42 2800 (41/	0.42	0.51%
P45	Framing	Ceiling Channels	AFC-Furring Channel 38/28/0.42 3000	0.42	0.21%
P46	Framing	Ceiling Channels	AFC-Furring Channel 38/28/0.42 3600	0.42	0.19%
P47	Framing	Ceiling Channels	AFC-Furring Channel 38/28/0.42 4800	0.42	0.25%
P48	Framing	Ceiling Channels	AFC-Furring Channel 38/28/0.42 6000	0.42	0.23%
P49	Framing	Ceiling Channels	AFC-Furring Channel 38/28/0.42 Custom	0.42	6.17%
P50	Framing	Ceiling Channels	AFC-Furring Channel 60/28/0.42 3600	0.42	0.64%
P51	Framing	Ceiling Channels	AFC-Furring Channel 60/28/0.42 4800	0.42	0.54%
P52	Framing	Ceiling Channels	AFC-Furring Channel 60/28/0.42 6000	0.42	0.55%
P54	Accessories	Facade Components	AFSBS-Backing Strip 61/9.3/0.42 1190	0.42	2.78%
P55	Accessories	Facade Components	AFSBS-Backing Strip 61/9.3/0.42 2390	0.42	1.12%

Product Code	Product Category	Product Type	Product Description	BMT	% punch-outs
P56	Accessories	Facade Components	AFSBS-Backing Strip 61/9.3/0.42 2990	0.42	1.18%
P57	Accessories	Facade Components	AFS-Façade Flashi blk71/0.42/0.42 25000	0.42	1.98%
P58	Framing	Top Hats	AFSTH-Façade Top Hat 120/35/1.15 6000	1.15	1.07%
P59	Framing	Top Hats	AFSTH-Façade Top Hat 120/35/1.15 7200	1.15	1.59%
P61	Framing	Tracks	ANT-Noggin Track 150/32/0.70 3670 450Pun	0.70	1.63%
P62	Framing	Tracks	ANT-Noggin Track 150/32/0.70 3670 600Pun	0.70	1.29%
P63	Framing	Tracks	ANT-Noggin Track 150/32/0.70 3670 Custom	0.70	4.29%
P65	Framing	Tracks	ANT-Noggin Track 64/32/0.70 3670 400 Pun	0.70	0.65%
P66	Framing	Tracks	ANT-Noggin Track 64/32/0.70 3670 450 Pun	0.70	0.64%
P67	Framing	Tracks	ANT-Noggin Track 64/32/0.70 3670 600 Pun	0.70	0.56%
P68	Framing	Tracks	ANT-Noggin Track 64/32/0.70 3670 Custom	0.70	2.48%
P69	Framing	Tracks	ANT-Noggin Track 64/50/0.70 3670 450 Pun	0.70	1.48%
P70	Framing	Tracks	ANT-Noggin Track 76/32/0.70 3670 450 Pun	0.70	0.99%
P71	Framing	Tracks	ANT-Noggin Track 76/32/0.70 3670 600 Pun	0.70	0.84%
P72	Framing	Tracks	ANT-Noggin Track 76/32/0.70 3670 Custom	0.70	4.57%
P73	Framing	Tracks	ANT-Noggin Track 76/32/1.15 3670 600 Pun	1.15	7.56%
P74	Framing	Tracks	ANT-Noggin Track 92/32/0.70 3670 300 Pun	0.70	0.85%
P75	Framing	Tracks	ANT-Noggin Track 92/32/0.70 3670 400 Pun	0.70	0.72%
P76	Framing	Tracks	ANT-Noggin Track 92/32/0.70 3670 450 Pun	0.70	0.82%
P77	Framing	Tracks	ANT-Noggin Track 92/32/0.70 3670 600 Pun	0.70	0.83%
P78	Framing	Tracks	ANT-Noggin Track 92/32/1.15 3670 450 Pun	1.15	3.93%
P79	Framing	Tracks	ANT-Noggin Track 92/32/1.15 3670 600 Pun	1.15	3.92%
P80	Angles and Beads	Angles	AP135-External 30/30/0.38 2400 (20/200)	0.38	1.54%

Product Code	Product Category	Product Type	Product Description	BMT	% punch-outs
P81	Angles and Beads	Angles	AP135-External 30/30/0.38 2700 (20/200)	0.38	2.47%
P82	Angles and Beads	Angles	AP135-External 30/30/0.38 3000 (20/200)	0.38	1.52%
P84	Angles and Beads	Angles	AP135-Internal 30/30/0.38 2400 (20/200)	0.38	0.69%
P85	Angles and Beads	Angles	AP135-Internal 30/30/0.38 2700 (20/200)	0.38	0.86%
P86	Angles and Beads	Angles	AP135-Internal 30/30/0.38 3000 (20/200)	0.38	0.98%
P87	Angles and Beads	Angles	AP135-Internal 30/30/0.38 3600 (20/200)	0.38	4.76%
P88	Angles and Beads	Angles	AP90-External 30/30/0.38 1820 (20/480)	0.38	3.81%
P89	Angles and Beads	Angles	AP90-External 30/30/0.38 2120 (20/480)	0.38	0.37%
P90	Angles and Beads	Angles	AP90-External 30/30/0.38 2400 (20/480)	0.38	0.38%
P91	Angles and Beads	Angles	AP90-External 30/30/0.38 2550 (20/480)	0.38	0.65%
P92	Angles and Beads	Angles	AP90-External 30/30/0.38 2700 (20/480)	0.38	0.39%
P93	Angles and Beads	Angles	AP90-External 30/30/0.38 3000 (20/480)	0.38	0.56%
P94	Angles and Beads	Angles	AP90-External 30/30/0.38 3600 (20/480)	0.38	0.47%
P95	Angles and Beads	Angles	AP90-Internal 30/30/0.38 2400 (20/480)	0.38	0.81%
P96	Angles and Beads	Angles	AP90-Internal 30/30/0.38 2700 (20/480)	0.38	0.73%
P97	Angles and Beads	Angles	AP90-Internal 30/30/0.38 3000 (20/480)	0.38	0.65%
P98	Angles and Beads	Angles	AP90-Internal 30/30/0.38 3600 (20/480)	0.38	0.77%
P99	Angles and Beads	Angles	APAWB-Archway Bead 25/5.7/0.38 3000	0.38	1.37%
P100	Angles and Beads	Angles	APSASL-Stopping Angle SL 40/10/0.38 3000	0.38	1.02%
P101	Angles and Beads	Angles	APSA-Stopping Angle 30/10/0.38 3000	0.38	0.97%
P102	Angles and Beads	Angles	APSA-Stopping Angle 30/13/0.38 3000	0.38	0.99%
P103	Angles and Beads	Angles	APSA-Stopping Angle 30/16/0.38 3000	0.38	1.40%
P104	Angles and Beads	Angles	APSA-Stopping Angle 30/20/0.38 3000	0.38	2.47%
P105	Angles and Beads	Angles	APSB-Stopping Bead 10/30/0.50 3000	0.50	1.57%

Product Code	Product Category	Product Type	Product Description	BMT	% punch-outs
P106	Angles and Beads	Angles	APSB-Stopping Bead 13/30/0.50 3000	0.50	1.90%
P107	Angles and Beads	Angles	APSB-Stopping Bead 16/30/0.50 3000	0.50	5.36%
P108	Angles and Beads	Angles	ARB-Render Bead30/30/0.38 2400 1.5Radius	0.38	0.45%
P109	Angles and Beads	Angles	ARB-Render Bead30/30/0.38 2400 2.5Radius	0.38	2.10%
P110	Angles and Beads	Angles	ARB-Render Bead30/30/0.38 2400 4.5Radius	0.38	0.30%
P111	Angles and Beads	Angles	ARB-Render Bead30/30/0.38 2700 1.5Radius	0.38	1.10%
P112	Angles and Beads	Angles	ARB-Render Bead30/30/0.38 2800 2.5Radius	0.38	2.31%
P113	Angles and Beads	Angles	ARB-Render Bead30/30/0.38 2800 4.5Radius	0.38	4.83%
P114	Angles and Beads	Angles	ARB-Render Bead30/30/0.38 3000 1.5Radius	0.38	1.01%
P115	Framing	Tracks	ASDHT-Slott.DHT 150/50/1.15 3000(10/30)	1.15	1.56%
P116	Framing	Tracks	ASDHT-Slott.DHT 64/50/0.75 3000(10/50)	0.75	1.08%
P117	Framing	Tracks	ASDHT-Slott.DHT 76/50/0.75 3000(10/50)	0.75	0.29%
P118	Framing	Tracks	ASDHT-Slott.DHT 76/50/1.15 3000(10/50)	1.15	1.83%
P119	Framing	Tracks	ASDHT-Slott.DHT 92/50/0.75 3000(10/50)	0.75	1.18%
P120	Framing	Tracks	ASDHT-Slott.DHT 92/50/1.15 3000(10/50)	1.15	1.01%
P121	Framing	Ceiling Rail	ATCR-Top Cross Rail 10/25/0.75 3600	0.75	1.43%
P122	Framing	Ceiling Rail	ATCR-Top Cross Rail 10/25/0.75 4800	0.75	0.90%
P123	Framing	Ceiling Rail	ATCR-Top Cross Rail 10/25/0.75 6000	0.75	0.46%
P124	Framing	Ceiling Rail	ATCR-Top Cross Rail 10/38/0.75 4800	0.75	1.01%
P125	Framing	Ceiling Rail	ATCR-Top Cross Rail Curv 10/25/0.75 3600	0.75	6.98%
P127	Framing	Ceiling Rail	ATCR-TopCross Rail Curve 10/25/0.75 6000	0.75	7.41%
P128	Framing	Ceiling Tracks	AT-Furring Channel Track 18/30/0.50 3000	0.50	0.44%
P129	Framing	Ceiling Tracks	AT-Furring Channel Track 28/30/0.50 3000	0.50	0.22%
P130	Framing	Top Hats	ATH-Top Hat 38/19/0.70 2400 (10/50)	0.70	3.25%
P131	Framing	Top Hats	ATH-Top Hat 50/15/0.75 3600 (10/50)	0.75	0.97%

Product Code	Product Category	Product Type	Product Description	BMT	% punch-outs
P132	Framing	Top Hats	ATH-Top Hat 50/15/1.15 3600 (10/50)	1.15	0.66%
P133	Framing	Top Hats	ATH-Top Hat 50/15/1.15 6000 (10/50)	1.15	0.85%
P134	Framing	Top Hats	ATH-Top Hat 50/25/0.75 3600 (10/50)	0.75	1.16%
P135	Framing	Top Hats	ATH-Top Hat 50/25/1.15 3600 (10/50)	1.15	1.03%
P136	Framing	Top Hats	ATH-Top Hat 50/25/1.15 6000 (10/50)	1.15	0.73%
P137	Framing	Top Hats	ATH-Top Hat 50/35/0.75 3600(10/50)	0.75	0.48%
P138	Framing	Top Hats	ATH-Top Hat 50/35/0.75 6000 (10/50)	0.75	0.54%
P139	Framing	Top Hats	ATH-Top Hat 50/35/0.75 7200 (10/50)	0.75	1.04%
P140	Framing	Top Hats	ATH-Top Hat 50/35/1.15 3600 (10/50)	1.15	0.59%
P141	Framing	Top Hats	ATH-Top Hat 50/35/1.15 6000 (10/50)	1.15	0.49%
P142	Framing	Top Hats	ATH-Top Hat 50/35/1.15 7200 (10/50)	1.15	1.38%
P143	Framing	Top Hats	ATH-Top Hat 50/35/1.15 Custom (50)	1.15	0.50%
P144	Framing	Top Hats	ATH-Top Hat 50/50/0.75 3600 (10/50)	0.75	0.60%
P145	Framing	Top Hats	ATH-Top Hat 50/50/1.15 3600 (10/50)	1.15	0.56%
P146	Framing	Top Hats	ATH-Top Hat 50/50/1.15 6000 (10/50)	1.15	2.21%
P147	Framing	Top Hats	ATH-Top Hat 50/50/1.15 7200 (10/50)	1.15	2.04%
P148	Framing	Top Hats	ATH-Top Hat 75/35/1.15 3600 (10/50)	1.15	2.86%
P149	Framing	Top Hats	ATH-Top Hat 75/35/1.15 6000 (10/50)	1.15	2.29%
P150	Framing	Top Hats	ATH-Top Hat 75/35/1.15 7200 (10/50)	1.15	0.86%
P152	Framing	Tracks	AT-Track 150/32/0.75 3000(10/30)	0.75	0.45%
P153	Framing	Tracks	AT-Track 150/32/1.15 3000(10/30)	1.15	0.57%
P154	Framing	Tracks	AT-Track 51/32/0.50 3000(10/50)	0.50	0.57%
P155	Framing	Tracks	AT-Track 64/32/0.50 3000(10/50)	0.50	0.11%
P156	Framing	Tracks	AT-Track 64/32/0.70 3000(10/50)	0.70	0.36%

Product Code	Product Category	Product Type	Product Description	BMT	% punch-outs
P157	Framing	Tracks	AT-Track 64/32/1.15 3000(10/50)	1.15	0.42%
P158	Framing	Tracks	AT-Track 76/32/0.50 3000(10/50)	0.50	0.24%
P159	Framing	Tracks	AT-Track 76/32/0.50 3600(10/50)	0.50	1.12%
P160	Framing	Tracks	AT-Track 76/32/0.70 3000(10/50)	0.70	0.30%
P161	Framing	Tracks	AT-Track 76/32/1.15 3000(10/50)	1.15	0.50%
P162	Framing	Tracks	AT-Track 92/32/0.50 3000(10/50)	0.50	0.18%
P163	Framing	Tracks	AT-Track 92/32/0.50 3600(10/50)	0.50	0.55%
P164	Framing	Tracks	AT-Track 92/32/0.70 3000(10/50)	0.70	0.31%
P165	Framing	Tracks	AT-Track 92/32/1.15 3000(10/50)	1.15	0.27%
P166	Framing	Tracks	AT-Track Holes 92/32/1.15 3000(10/50)	1.15	0.77%
P167	Framing	Studs	AWSL stud 150/35/0.75 2700(10/30)	0.75	2.91%
P168	Framing	Studs	AWSL stud 150/35/0.75 3000(10/30)	0.75	0.46%
P169	Framing	Studs	AWSL stud 150/35/0.75 3600(10/30)	0.75	0.49%
P170	Framing	Studs	AWSL stud 150/35/0.75 4200(10/30)	0.75	1.05%
P171	Framing	Studs	AWSL stud 150/35/0.75 4800(10/30)	0.75	0.61%
P172	Framing	Studs	AWSL stud 150/35/0.75 6000(10/30)	0.75	0.66%
P173	Framing	Studs	AWSL stud 150/35/0.75 7200(10/30)	0.75	0.70%
P174	Framing	Studs	AWSL stud 150/35/0.75 custom (30)	0.75	3.08%
P175	Framing	Studs	AWSL stud 150/35/1.15 2700(10/30)	1.15	0.44%
P176	Framing	Studs	AWSL stud 150/35/1.15 3000(10/30)	1.15	0.57%
P177	Framing	Studs	AWSL stud 150/35/1.15 3600(10/30)	1.15	0.80%
P178	Framing	Studs	AWSL stud 150/35/1.15 4200(10/30)	1.15	1.58%
P179	Framing	Studs	AWSL stud 150/35/1.15 4800(10/30)	1.15	0.75%
P180	Framing	Studs	AWSL stud 150/35/1.15 6000(10/30)	1.15	0.53%
P181	Framing	Studs	AWSL stud 150/35/1.15 7200(10/30)	1.15	1.27%

Product Code	Product Category	Product Type	Product Description	BMT	% punch-outs
P182	Framing	Studs	AWSL stud 150/35/1.15 custom (30)	1.15	5.13%
P183	Framing	Studs	AWSL stud 51/35/0.50 2400(10/50)	0.50	1.62%
P184	Framing	Studs	AWSL stud 51/35/0.50 2700(10/50)	0.50	0.35%
P185	Framing	Studs	AWSL stud 51/35/0.50 3000(10/50)	0.50	0.38%
P186	Framing	Studs	AWSL stud 51/35/0.50 3600(10/50)	0.50	0.25%
P187	Framing	Studs	AWSL stud 51/35/0.50 custom (50)	0.50	10.63%
P188	Framing	Studs	AWSL stud 51/35/0.75 3600(10/50)	0.75	3.85%
P189	Framing	Studs	AWSL stud 64/35/0.50 2400(10/50)	0.50	0.41%
P190	Framing	Studs	AWSL stud 64/35/0.50 2700(10/50)	0.50	0.35%
P191	Framing	Studs	AWSL stud 64/35/0.50 2800(10/50)	0.50	0.45%
P192	Framing	Studs	AWSL stud 64/35/0.50 3000(10/50)	0.50	0.10%
P193	Framing	Studs	AWSL stud 64/35/0.50 3600(10/50)	0.50	0.32%
P194	Framing	Studs	AWSL stud 64/35/0.50 4200(10/50)	0.50	0.49%
P195	Framing	Studs	AWSL stud 64/35/0.50 4800(10/50)	0.50	0.70%
P196	Framing	Studs	AWSL stud 64/35/0.50 6000(10/50)	0.50	1.02%
P197	Framing	Studs	AWSL stud 64/35/0.50 custom (50)	0.50	0.98%
P198	Framing	Studs	AWSL stud 64/35/0.75 2400(10/50)	0.75	0.00%
P199	Framing	Studs	AWSL stud 64/35/0.75 2700(10/50)	0.75	1.00%
P200	Framing	Studs	AWSL stud 64/35/0.75 3000(10/50)	0.75	0.40%
P201	Framing	Studs	AWSL stud 64/35/0.75 3600(10/50)	0.75	0.42%
P202	Framing	Studs	AWSL stud 64/35/0.75 4200(10/50)	0.75	0.42%
P203	Framing	Studs	AWSL stud 64/35/0.75 4800(10/50)	0.75	0.68%

Product Code	Product Category	Product Type	Product Description	BMT	% punch-outs
P204	Framing	Studs	AWSL stud 64/35/0.75 6000(10/50)	0.75	0.40%
P205	Framing	Studs	AWSL stud 64/35/0.75 custom (50)	0.75	0.69%
P206	Framing	Studs	AWSL stud 64/35/1.15 2400(10/50)	1.15	1.53%
P207	Framing	Studs	AWSL stud 64/35/1.15 2700(10/50)	1.15	1.39%
P208	Framing	Studs	AWSL stud 64/35/1.15 3000(10/50)	1.15	0.31%
P209	Framing	Studs	AWSL stud 64/35/1.15 3600(10/50)	1.15	0.47%
P210	Framing	Studs	AWSL stud 64/35/1.15 4200(10/50)	1.15	0.48%
P211	Framing	Studs	AWSL stud 64/35/1.15 4800(10/50)	1.15	0.86%
P212	Framing	Studs	AWSL stud 64/35/1.15 6000(10/50)	1.15	0.52%
P213	Framing	Studs	AWSL stud 64/35/1.15 custom (50)	1.15	1.62%
P214	Framing	Studs	AWSL stud 76/35/0.55 2400(10/50)	0.55	0.42%
P215	Framing	Studs	AWSL stud 76/35/0.55 2700(10/50)	0.55	0.29%
P216	Framing	Studs	AWSL stud 76/35/0.55 3000(10/50)	0.55	0.13%
P217	Framing	Studs	AWSL stud 76/35/0.55 3600(10/50)	0.55	0.40%
P218	Framing	Studs	AWSL stud 76/35/0.55 4200(10/50)	0.55	0.57%
P219	Framing	Studs	AWSL stud 76/35/0.55 4800(10/50)	0.55	0.72%
P220	Framing	Studs	AWSL stud 76/35/0.55 6000(10/50)	0.55	0.00%
P221	Framing	Studs	AWSL stud 76/35/0.55 custom (50)	0.55	1.15%
P222	Framing	Studs	AWSL stud 76/35/0.75 2400(10/50)	0.75	5.10%
P223	Framing	Studs	AWSL stud 76/35/0.75 2700(10/50)	0.75	1.22%
P224	Framing	Studs	AWSL stud 76/35/0.75 3000(10/50)	0.75	0.31%
P225	Framing	Studs	AWSL stud 76/35/0.75 3600(10/50)	0.75	0.25%

Product Code	Product Category	Product Type	Product Description	BMT	% punch-outs
P226	Framing	Studs	AWSL stud 76/35/0.75 4200(10/50)	0.75	0.46%
P227	Framing	Studs	AWSL stud 76/35/0.75 4800(10/50)	0.75	0.48%
P228	Framing	Studs	AWSL stud 76/35/0.75 6000(10/50)	0.75	0.80%
P229	Framing	Studs	AWSL stud 76/35/0.75 custom (50)	0.75	1.46%
P230	Framing	Studs	AWSL stud 76/35/1.15 2400(10/50)	1.15	2.65%
P231	Framing	Studs	AWSL stud 76/35/1.15 2700(10/50)	1.15	0.82%
P232	Framing	Studs	AWSL stud 76/35/1.15 3000(10/50)	1.15	0.59%
P233	Framing	Studs	AWSL stud 76/35/1.15 3600(10/50)	1.15	0.71%
P234	Framing	Studs	AWSL stud 76/35/1.15 4200(10/50)	1.15	0.64%
P235	Framing	Studs	AWSL stud 76/35/1.15 4800(10/50)	1.15	1.41%
P236	Framing	Studs	AWSL stud 76/35/1.15 6000(10/50)	1.15	0.75%
P237	Framing	Studs	AWSL stud 92/35/0.55 2400(10/40)	0.55	0.61%
P238	Framing	Studs	AWSL stud 92/35/0.55 2700(10/40)	0.55	0.30%
P239	Framing	Studs	AWSL stud 92/35/0.55 3000(10/40)	0.55	0.14%
P240	Framing	Studs	AWSL stud 92/35/0.55 3600(10/40)	0.55	0.33%
P241	Framing	Studs	AWSL stud 92/35/0.55 4200(10/40)	0.55	0.56%
P242	Framing	Studs	AWSL stud 92/35/0.55 4800(10/40)	0.55	0.52%
P243	Framing	Studs	AWSL stud 92/35/0.55 6000(10/40)	0.55	0.83%
P244	Framing	Studs	AWSL stud 92/35/0.55 custom (40)	0.55	1.65%
P245	Framing	Studs	AWSL stud 92/35/0.75 2400(10/40)	0.75	1.57%
P246	Framing	Studs	AWSL stud 92/35/0.75 2700(10/40)	0.75	0.63%
P247	Framing	Studs	AWSL stud 92/35/0.75 3000(10/40)	0.75	0.22%

Product Code	Product Category	Product Type	Product Description	BMT	% punch-outs
P248	Framing	Studs	AWSL stud 92/35/0.75 3600(10/40)	0.75	0.26%
P249	Framing	Studs	AWSL stud 92/35/0.75 4200(10/40)	0.75	0.28%
P250	Framing	Studs	AWSL stud 92/35/0.75 4800(10/40)	0.75	0.34%
P251	Framing	Studs	AWSL stud 92/35/0.75 6000(10/40)	0.75	0.46%
P252	Framing	Studs	AWSL stud 92/35/0.75 custom (40)	0.75	1.30%
P253	Framing	Studs	AWSL stud 92/35/1.15 2700(10/40)	1.15	0.45%
P254	Framing	Studs	AWSL stud 92/35/1.15 2800(10/40)	1.15	0.33%
P255	Framing	Studs	AWSL stud 92/35/1.15 3000(10/40)	1.15	0.21%
P256	Framing	Studs	AWSL stud 92/35/1.15 3600(10/40)	1.15	0.27%
P257	Framing	Studs	AWSL stud 92/35/1.15 4200(10/40)	1.15	0.43%
P258	Framing	Studs	AWSL stud 92/35/1.15 4800(10/40)	1.15	0.46%
P259	Framing	Studs	AWSL stud 92/35/1.15 6000(10/40)	1.15	0.54%
P260	Framing	Studs	AWSL stud 92/35/1.15 7200(10/40)	1.15	1.18%
P261	Framing	Studs	AWSL stud 92/35/1.15 custom (40)	1.15	2.10%
P262	Framing	Studs	AWSL-Stud 92/35/1.15 2400(10/40)	1.15	1.44%
P263	Angles and Beads	Angles	BA-Back Angle 35/35/0.75 3000 (10/500)	0.75	0.50%
P266	Framing	Ceiling Battens	FCC-Batten 71/35/0.38 6000 (10/100)	0.38	4.32%
P267	Framing	Studs	H-Stud Interhome 25/35/0.55 Custom	0.55	0.00%
P272	Framing	Tracks	UW runner 64/32/0.50 3600(10/50)	0.50	0.49%



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