ENVIRONMENTAL PRODUCT DECLARATION FOR THE ALUMINIUM EXTRUSION BILLET "HYDRO RECYCLED ALUMINIUM 6.0" PRODUCED BY HYDRO ALUMINIUM UK LTD

We are aluminium

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PCR: 2019:14 Construction products, version 1.2.5, 2022-11-01
Geographical scope: Europe
EPD registration number: S-P-05332
Publication date: 2022-03-07
Revision date: 2023-10-28 (version 3)
Validity date: 2027-03-07

EPD in accordance with ISO 14025 and EN 15804:2012+A2:2019
An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

SUMMARY

1 PROGRAMME RELATED INFORMATION

This EPD is developed under the program The International EPD ® System, in compliance with the General Program Instruction version 4.0 for the EPD development and the Product Category Rules PCR "Construction products" 2019:14 version 1.2.5.

More information about the International EPD ® System is available on the website:
https://www.environdec.com/

2 PRODUCT RELATED INFORMATION

2.1 THE COMPANY

Hydro Aluminium UK Ltd is a company of Hydro group manufacturing aluminium billets from remelting (casthouse) and aluminium profiles by extrusion. The casthouse produces billets in one single family, i.e. 6000 (alloys 6063, 6082, 6060 and 6005) in 7, 8- and 9-inch diameter. The plant has a capability serving all Hydro UK Extrusion sites.

2.2 THE PRODUCT

Hydro Recycled Aluminium 6.0 is the average aluminium billet produced by Hydro Aluminium UK Ltd in Tibshelf. The aluminium billets are intermediate products which feed other processing steps for the production of other products, mainly profiles for the building sector. Aluminium scrap and primary ingots are melted, with the eventual addition of alloying elements, and billets produced through a casting process.

The production process, represented in Figure 1, includes the remelting of aluminium scrap and primary ingots and the following casting process. During the process, impurities are removed, and alloys are added, if needed, to adjust the chemical composition and to reach the quality standard. Casted billets are bound together by means of plastic straps and wood bars and are stored to be sold externally or to be used internally as input in the extrusion process (profiles production).

The reference CPC code is 415 "Semi-finished products of copper, nickel, aluminium, lead, zinc and tin or their alloys".

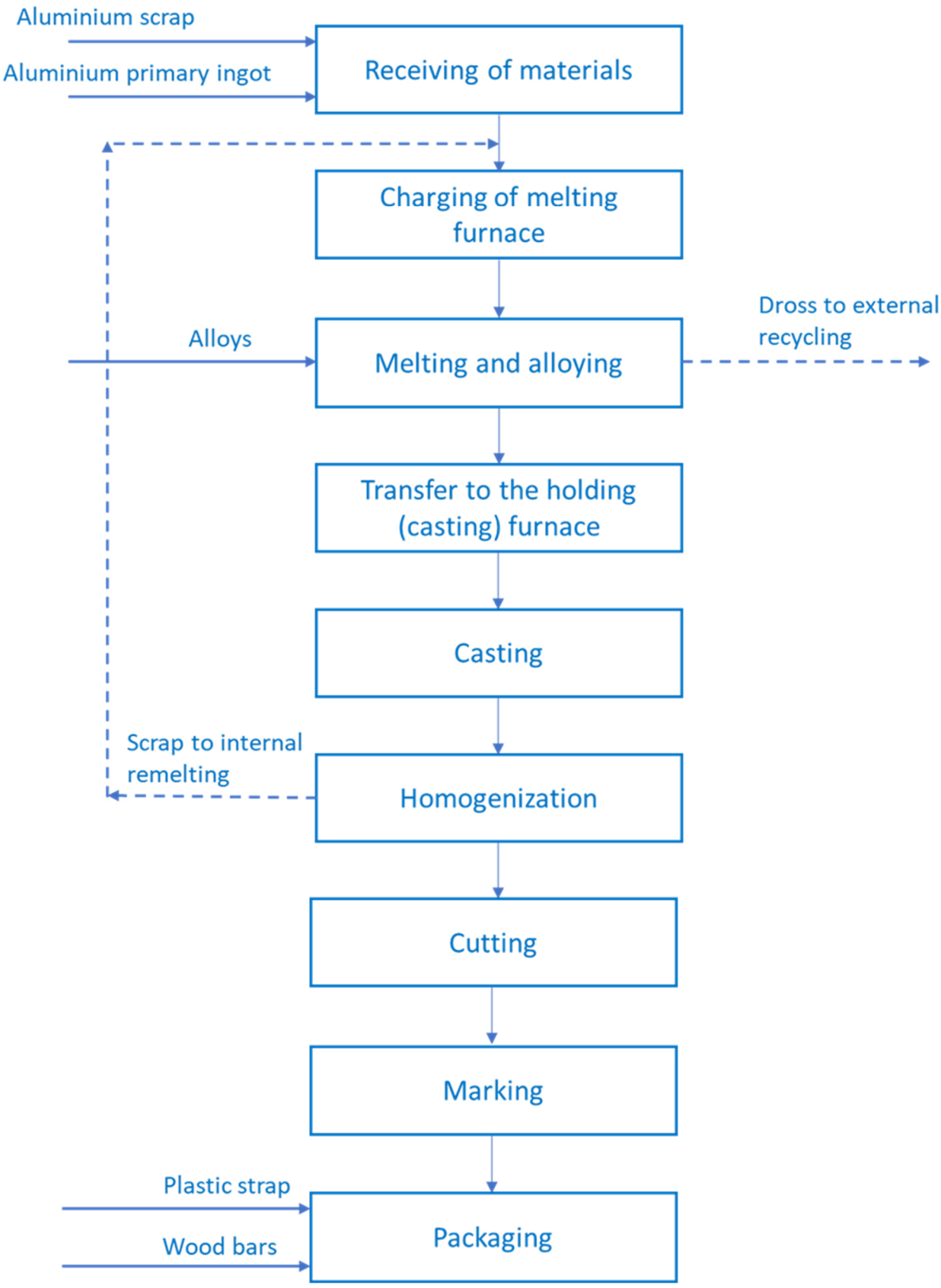


Figure 1: Production process of the aluminium billet occurring in Tibshelf's site.

2.2.1 TECHNICAL CHARACTERISTICS OF THE PRODUCT

All products are produced according to European standards specific for each casthouse products. The products are variants within the 6000 alloys. For more detailed information about shapes, dimensions, and tolerances: www.hydro.com/en/products/casthouse-products/ .

2.2.2 PRODUCT COMPOSITION

The composition of the product is reported in Table 1. The content of SVHC does not exceed 0,1 % of the total weight.

Table 1: BoM of the aluminium billet produced in Tibshelf by Hydro Aluminium UK Ltd

BoM of the aluminium billet	
Material contribution (% in weight) to 1 kg of aluminium billet	
Aluminium scrap, of which	**55,11**
Process scrap	*42,19*
Post-consumer	*12,92*
Primary aluminium ingot	**43,44**
Alloys, of which	**1, 45**
Silicon	*0,80*
Manganese	*0,19*
Magnesium	*0,37*
Boron-titanium	*0,07*
Copper	*0,02*
Packaging per kg of aluminium billet	
Plastic strap	**0,00001 kg/kg**
Wood	**0,0004 kg/kg**

2.2.3 PRODUCT REFERENCE SERVICE LIFE

Product Reference Service Life is dependent on product application. Aluminium itself has an infinite lifetime.

2.2.4 MARKET

The reference market is Europe. Application sector includes Building and Construction, but also Automotive and Transport, Consumer Goods, General Engineering.

3 ENVIRONMENTAL PRODUCT DECLARATION

3.1 METHODOLOGY

The study behind the present EPD has been performed according to the state of art of the LCA methodology, with specific reference to the construction sector, in accordance with the following standard and guidelines:

- EN ISO 14040: 2006 Environmental management -- Life cycle assessment -- Principles and framework
- EN ISO 14044:2006 Environmental management -- Life cycle assessment -- Requirements and guidelines

- EN 15804:2012+A2:2019 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products.
- EN 15804:2012+A1:2013 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products.
- General Programme Instructions (GPI) for the International EPD® VERSION 4.0
- The International EPD® System Product Category Rules (PCRs) for construction products version 2019:14, 1.2.5.

The goal of the study is the evaluation of the potential environmental impacts of the aluminium billet.

The EPD is mainly addressed to the business-to-business communication. The data elaboration has been performed with the software Gabi, version 10.7.0.183. The database used are the most updated ones implemented in Gabi software. More in detail, main database used is Sphera 2021, European Aluminium 2015 and IAI 2015. The LCIA method recommended by the EN 15804:2012+A2 is used.

3.2 DECLARED UNIT

The declared unit is 1 kg of aluminium billet, plus its packaging.

3.3 SYSTEM BOUNDARY

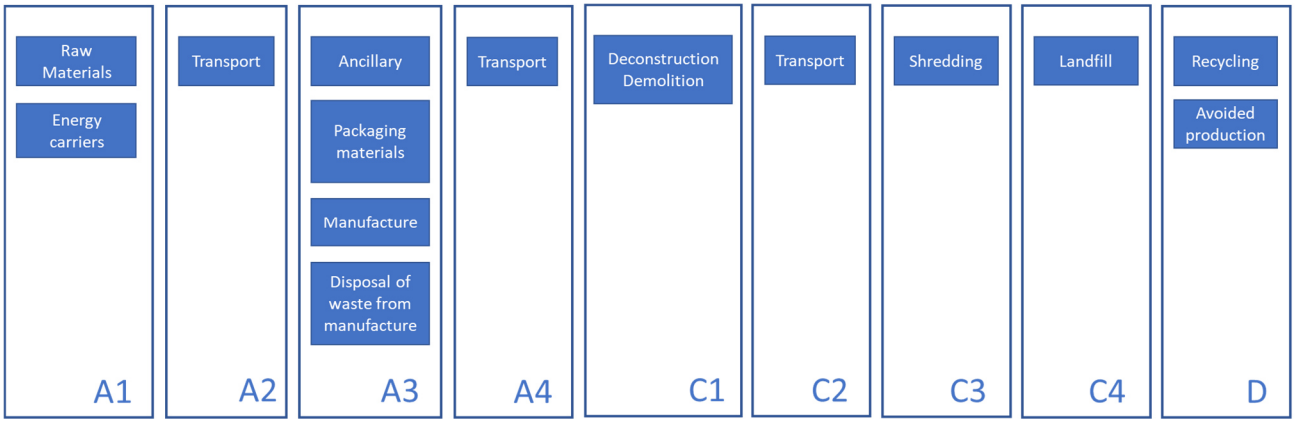
The EPD is a Cradle to Gate with modules C1-C4 and D (as represented in Table 2 and in showed in Figure 2). Modules A5 and B1 to B7 are excluded as they are strongly dependent on the specific application within the reference market.

Table 2: Life cycle stages included in the study for the aluminium billet produced in Tibshelf by Hydro Aluminium UK Ltd

	PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE	END-OF-LIFE STAGE				BENEFITS and LOADS BEYOND SYSTEM BOUNDARY
	A1	A2	A3	A4	A5	B1 to B7	C1	C2	C3	C4	D
	Raw Material Supply	Transport	Manufacturing	Transport	Construction/Installation	Use, Maintenance, Repair, Replacement, Refurbishment, Operational energy use, Operational water use	Deconstruction/Demolition	Transport	Waste processing	Disposal	Reuse, Recycling potential
Modules declared	X	X	X	X	ND	ND	X	X	X	X	X
Geography	EU, extra-EU, GLO	EU, extra-EU, GLO	EU, GB	GLO, EU	-	-	EU	GLO, EU	EU	EU	EU, GLO
Specific data*	>90%			-	-	-	-	-	-	-	-
Variation – products	Not relevant					-	-	-	-	-	-
Variation – sites	Not relevant					-	-	-	-	-	-

*The share of the GWP-GHG indicator results in A1-A3 is coming from product-specific LCI data.

Figure 2: System boundaries for the study of the aluminium billet produced in Tibshelf by Hydro Aluminium UK Ltd



The following stages are included in the study:

Raw Materials supply (A1). Production of raw materials used in the product. More in detail, A1 includes:

- Production of primary ingots
- Production of aluminium included in process scrap (see 3.4.2)
- Shredding and sorting of post-consumer scrap
- Production of alloys.

The production of energy carriers used in the production process is part of A1 as well.

Transport of raw materials to the factory (A2)

Manufacturing of the Hydro aluminium billet (A3). It includes the following production phases:

- Melting, alloying and casting
- Cutting and homogenization
- Cooling and binding (packaging) for final storage

Moreover, in module A3, the production of primary packaging, of the ancillary materials and the treatment of waste generated from the manufacturing processes are accounted for. Since module A5 is excluded, the CO_2 stocked the packaging has been balanced with an equal emission of CO_2.

Transport to the user (A4)

De-construction, demolition processes (C1): deconstruction and demolition

Transport from collection to waste processing and disposal site (C2)

Waste processing (C3): shredding and sorting

Disposal (C4): landfill of material fractions not entering the recycling treatment

Module D: transport to recycling treatment site (remelter), remelting process and benefit due to the avoided production of primary aluminium.

The reference year of the study is 2018. However, significant data (energy and Bill of Materials) have been updated to 2019.

3.4 MAIN ASSUMPTIONS, CUT-OFFS, BACKGROUND DATA INFORMATION AND SCENARIOS

3.4.1 DATA QUALITY

Specific data are used for all of Hydro's processes based on the reference production period, i.e., 2019. All background data used in the study are from LCI database and are not older than 5 years. Background data, for instance, transport and energy production, are from Sphera. In addition, with specific reference to the electricity used in the manufacturing process, the UK residual electricity mix is used.

3.4.2 ALLOCATION

The allocation is made in accordance with the provisions of EN 15804. Energy, resources (water and ancillary) and packaging in input and waste and emissions in output from the foundry are firstly allocated between billets and dross according to their economic value. Then, an allocation by mass is applied.

The production of aluminium included in process scrap is allocated to the Hydro Recycled Aluminium 6.0 billet. Process scrap is modelled as a mix of primary ingot imported from outside Europe, primary ingot

produced in Europe and post-consumer scrap. The recycling process and transport of the material is also allocated to the analysed product.

3.4.3 CUT-OFFS CRITERIA

Raw and packaging materials are fully included as well as the energy for manufacturing. In the same way, all manufacturing waste (including hazardous waste) and air emissions are accounted for.

The construction of the manufacturing site (capital goods) is not included.

3.4.4 BACKGROUND DATA INFORMATION

For most of the raw materials as well as for the packaging of the finished products a European production is considered.

For process scrap see 3.4.2.

Raw materials road transport is assumed on a truck Euro 4 (> 32 t) with a utilisation ratio of 61%.

3.4.5 SCENARIOS FOR OPTIONAL MODULES

For the transport towards clients an average distance, based on Hydro's client's location, is considered (Table 3).

Table 3: Distance and transport mean considered for module A4.

Transport information for module A4		
Transport mean	**Utilisation ratio - %**	**Distance travelled - km**
Diesel truck, Euro IV, > 32 t	61	212

As one of the main reference markets, building sector is considered for the End-of-life modules.

Profiles are assumed to be manually dismantled. In light of this, no impacts are accounted for in module C1.

After collection, aluminium is shredded, sorted, and sent to remelting. Material lost at the collection and waste treatment sites is sent to landfill. Collection and waste processing efficiency are reported in Table 4, whereas Table 5 reports transport information.

Table 4: Applied collection and waste processing efficiency for the End-of-life.

End-of-life - collection and processing efficiency	
Collection efficiency - %	
Aluminium collected	**96**
Aluminium lost at the collection site	**4**
Processing efficiency (shredding) - %	
Aluminium sent to recycling after shredding	**95**
Aluminium lost in the shredding	**5**

Table 5: Distance and transport means applied for the End-of-life.

End-of-life – transport information for modules C and D		
Transport mean	**Utilisation ratio - %**	**Distance travelled - km**
Materials not collected and sent to landfill (module C2)		
Diesel truck, Euro IV, > 32 t	61	200
Material collected and sent to waste processing (module C2)		
Diesel truck, Euro IV, > 32 t	61	200*
Materials from waste processing to remelter (module D)		
Diesel truck, Euro IV, > 32 t	61	200

*no additional transport is assumed for material which is landfilled after waste processing.

Module D environmental impacts address burden and benefit from net output flows leaving the product system, i.e., from flows leaving the product system, lowered of the recycled content % initially included in the product. The primary aluminium ingot consumed in Europe is considered for the accounting of benefits from remelted aluminium.

3.5 PARAMETERS DESCRIBING THE ENVIRONMENTAL IMPACT ACCORDING EN 15804:2012+A2:2019

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

Table 6: Environmental profile of the Hydro Recycled Aluminium 6.0 billet per declared unit (1 kg) produced in Tibshelf by Hydro Aluminium UK Ltd according to EN 15804:2012+A2:2019 plus additional GWP-GHG Indicator required by PCRs.

Impacts of the Hydro Recycled Aluminium 6.0 billet per declared unit (1 kg) according EN 15804:2012+A2:2019							
Impact category – core indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Climate Change (GWPtot) [kg CO2 eq.]	6,06E+00	1,42E-02	0,00E+00	1,34E-02	2,00E-02	1,30E-03	-5,96E+00
Climate Change (fossil) (GWPf) [kg CO2 eq.]	6,03E+00	1,39E-02	0,00E+00	1,31E-02	1,98E-02	1,33E-03	-5,95E+00
Climate Change (biogenic) (GWPb) [kg CO2 eq.]	1,14E-02	1,52E-04	0,00E+00	1,43E-04	1,68E-04	-3,87E-05	-1,23E-02
Climate Change (land use change) (GWPluc) [kg CO2 eq.]	1,84E-02	1,17E-04	0,00E+00	1,10E-04	2,82E-05	3,91E-06	-1,02E-03
Ozone depletion (ODP) [kg CFC-11 eq.]	2,25E-07	1,82E-18	0,00E+00	1,72E-18	4,74E-16	5,18E-18	-4,47E-11
Acidification terrestrial and freshwater (AP) [Mole of H+ eq.]	4,33E-02	8,36E-05	0,00E+00	7,88E-05	4,11E-05	9,48E-06	-3,46E-02
Eutrophication freshwater (EPfr) [kg P eq.]	5,13E-04	4,24E-08	0,00E+00	4,00E-08	5,33E-08	2,23E-09	-2,64E-06
Eutrophication marine (EPmar) [kg N eq.]	5,31E-03	4,10E-05	0,00E+00	3,87E-05	9,77E-06	2,46E-06	-4,98E-03
Eutrophication terrestrial (EPter) [Mole of N eq.]	5,77E-02	4,54E-04	0,00E+00	4,28E-04	1,03E-04	2,70E-05	-5,44E-02
Photochemical ozone formation - human health (POCP) [kg NMVOC eq.]	1,69E-02	7,88E-05	0,00E+00	7,43E-05	2,65E-05	7,46E-06	-1,50E-02
Resource use, mineral and metals (ADPe) [kg Sb eq.] *	2,54E-06	1,09E-09	0,00E+00	1,02E-09	5,83E-09	1,26E-10	-1,34E-06
Resource use, energy carriers (ADPf) [MJ] *	6,45E+01	1,90E-01	0,00E+00	1,79E-01	3,51E-01	1,77E-02	-7,30E+01
Water deprivation potential (WDP) [m³ world equiv.] *	2,16E+00	1,24E-04	0,00E+00	1,17E-04	3,14E-03	1,43E-04	-8,82E-01
GWP-GHG indicator required by PCR 2019:14							
Climate change - GWP-GHG [kg CO2 eq.]**	6,04E+00	1,41E-02	0,00E+00	1,33E-02	1,98E-02	1,33E-03	-5,95E+00

*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 experienced with the indicator.

**The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product.

3.6 PARAMETERS DESCRIBING THE ENVIRONMENTAL IMPACT ACCORDING EN 15804:2012+A1:2013

Table 7: Environmental profile of the Hydro Recycled Aluminium 6.0 billet per declared unit (1 kg) produced in Tibshelf by Hydro Aluminium UK Ltd EN 15804:2012+A1:2013.

Impacts of the Hydro Recycled Aluminium 6.0 billet per declared unit (1 kg) according EN 15804:2012+A1:2013							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	5,95E+00	1,38E-02	0,00E+00	1,31E-02	1,95E-02	1,26E-03	-5,91E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	1,93E-07	2,43E-18	0,00E+00	2,29E-18	6,32E-16	6,90E-18	-8,22E-11
Acidification potential (AP) [kg SO2 eq.]	3,72E-02	5,69E-05	0,00E+00	5,37E-05	3,31E-05	7,54E-06	-2,94E-02
Eutrophication potential (EP) [kg Phosphate eq.]	3,69E-03	1,43E-05	0,00E+00	1,35E-05	4,36E-06	8,55E-07	-1,73E-03
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	2,12E-03	-2,20E-05	0,00E+00	-2,07E-05	2,78E-06	5,79E-07	-1,61E-03
Abiotic depletion potential for non fossil resources (ADPe) [kg Sb eq.]	2,55E-06	1,09E-09	0,00E+00	1,03E-09	6,15E-09	1,27E-10	-1,36E-06
Abiotic depletion potential for fossil resources (ADPf) [MJ]	5,90E+01	1,89E-01	0,00E+00	1,78E-01	2,17E-01	1,71E-02	-6,15E+01

*Negative impact for Photochemical Ozone Creation Potential (POCP) in modules A4 and C2, D is due to the NO emissions from truck.

3.7 INDICATORS OF RESOURCES USE

Table 8: Indicators of resources of the Hydro Recycled Aluminium 6.0 billet per declared unit (1 kg) produced in Tibshelf by Hydro Aluminium UK Ltd.

Indicators on resources use	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy resources excluding renewable primary energy resources used as raw materials (PERE) [MJ]	4,10E+01	1,06E-02	0,00E+00	1,00E-02	1,62E-01	2,38E-03	-3,31E+01
Use of renewable primary energy resources used as raw materials (PERM) [MJ]*	4,88E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy resources (PERT) [MJ]	4,10E+01	1,06E-02	0,00E+00	1,00E-02	1,62E-01	2,38E-03	-3,31E+01
Use of non-renewable primary energy resources excluding non-renewable primary energy resources used as raw materials (PENRE) [MJ]	6,60E+01	1,90E-01	0,00E+00	1,79E-01	3,51E-01	1,77E-02	-7,30E+01
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	1,23E-09	9,99E-16	0,00E+00	9,99E-16	1,30E-14	2,98E-16	0,00E+00
Total use of non-renewable primary energy resources (PENRT) [MJ]	6,60E+01	1,90E-01	0,00E+00	1,79E-01	3,51E-01	1,77E-02	-7,30E+01
Use of secondary materials (SM) [kg]	5,51E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels (RSF) [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable secondary fuels (NRSF) [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water (FW) [m3]	2,67E-01	1,21E-05	0,00E+00	1,14E-05	1,57E-04	4,36E-06	-8,38E-02

* The calorific value of the wood bar used for the packaging was considered as 12,2 MJ/kg (AIEL 2009).

3.8 INDICATORS OF WASTE AND OUTPUT FLOWS

Table 9: Indicators on output flows and waste of the Hydro Recycled Aluminium 6.0 billet per declared unit (1 kg) produced in Tibshelf by Hydro Aluminium UK Ltd.

Indicators on output flows and waste categories	A1-A3	A4	C1	C2	C3	C4	D
Hazardous waste disposed (HWD) [kg]	3,22E-08	9,58E-12	0,00E+00	9,04E-12	9,32E-11	1,88E-12	-5,14E-08
Non-hazardous waste disposed (NHWD) [kg]	1,12E+00	2,82E-05	0,00E+00	2,67E-05	2,50E-04	8,81E-02	-1,78E+00
Radioactive waste disposed (RWD) [kg]	1,79E-03	2,30E-07	0,00E+00	2,17E-07	5,21E-05	1,86E-07	-4,35E-03
Materials for Recycling (MFR) [kg]	5,33E-02	0,00E+00	0,00E+00	0,00E+00	9,12E-01	0,00E+00	0,00E+00
Material for Energy Recovery (MER) [kg]	1,92E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy (EEE) [MJ]	3,12E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET) [MJ]	5,50E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Components for reuse [kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

3.9 INFORMATION ON BIOGENIC CARBON CONTENT

The mass of biogenic carbon containing materials in the products is less than 5%. Since module A5 is not included in the EPD, the CO_2 stocked in the wood bars has been balanced in module A3 with an equal emission of CO_2.

Table 10: Information on biogenic carbon content for the packaging of the Hydro Recycled Aluminium 6.0 billet per declared unit (1 kg) produced by Hydro Aluminium UK Ltd.

Information on biogenic carbon content	A1-A3	A4	C1	C2	C3	C4	D
Biogenic carbon content in packaging [kg]*	2,43E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

*1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

4 REFERENCE

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International Organisation for Standardization (ISO), 2020 Environmental management – Life Cycle assessment – Requirements and guidelines. ISO 14040:2006, Geneva

International Organisation for Standardization (ISO), 2006c Environmental labels and declarations -- Type III environmental declarations -- Principles and procedures. ISO 14025:2006, Geneva

5 ADDITIONAL INFORMATION

5.1 ADDITIONAL INFORMATION CONCERNING THE PROGRAMME AND THE EPD

EPDs within the same product category but from different programme may not be comparable.
EPDs of construction products may not be comparable if they do not comply with EN 15804. Environmental product declarations within the same product category from different programs may not be comparable. This EPD and the PCR 2019:14 "Construction products" are available on the website of The International EPD® System (www.environdec.com).
The EPD owner has the sole ownership, liability, and responsibility of the EPD.
The verifier and the Programme Operator do not make any claim nor have any responsibility of the legality of the products included in the present EPD. The LCA study and the present EPD have been issued with the technical scientific support of Ecoinnovazione S.r.l., spin-off ENEA (http://ecoinnovazione.it/?lang=en).

5.2 ADDITIONAL INFORMATION ON THE PRODUCT AND ON THE COMPANY

Aluminium billet covered by the present EPD are produced in Tibshelf.
For further information on product characteristics, typical applications, technical datasheet and case histories, please visit our website www.hydro.com or contact us to marketing.extrusion.uk@hydro.com.

All indicators reported in 3.5 are quantified according to allocation rules as clarified in 3.4.2. An additional assessment has been performed for all products covered by the present EPD. In this additional approach, the process scrap is considered zero burden, i.e., the process scrap enters the studied system without any material burden. The estimated impact results according to this additional approach are available at the company upon request.

6 VERIFICATION AND REGISTRATION

ISO 21930 and CEN standard EN 15804 served as core PCR	
EPD Programme:	The International EPD® System For more information – www.environdec.it
PCR:	PCR 2019:14 Construction products, version 1.2.5
PCR review was conducted by:	See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.
EPD Registration nº:	S-P-05332
EPD validity:	5 years
Technical support:	Ecoinnovazione S.r.l. – spin-off ENEA Via della Liberazione 6, 40128 Bologna www.ecoinnovazione.it
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:	EPD verification by individual verifier (external)
Third party verifier:	Jane Anderson, ConstructionLCA Ltd Jane Anderson

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Accredited by:	The International EPD-system
Procedure for follow-up during EPD validity involves third party verifier:	Yes

7 REVISIONS

2022-03-07 Version 1

2023-06-12 Version 2 ***implemented in the context of maintenance 2023 (reference year 2019)***
List of changes compared to the first publishing:

- Programme operator address and PCR version and date of publication (cover page)
- Bill of materials (par 2.2.2)
- PCR, GPI and Gabi versions (par 3.1)
- Specification of the reference year (par 3.3)
- Information on purchased electricity in paragraph Data quality (par 3.4.1)
- Description of process scrap impact allocation (par 3.4.2)
- Parameters describing the environmental impact according EN 15804:2012+A2:2019 (par 3.5)
- Parameters describing the environmental impact (additional approach to the modelling of process scrap) according EN15804+A2 (par 3.6)
- Parameters describing the environmental impact according EN15804+A1(par 3.7)
- Parameters describing the environmental impact (additional approach to the modelling of process scrap) according EN15804+A1 (par 3.8)
- Indicators of resource use (par 3.9)
- Indicators of waste and output flows (par 3.10)
- Information on biogenic carbon content (par 3.11)
- Water scarcity (WS) indicator changed name to Water deprivation potential (WDP) indicator and disclaimer on the conversion factor from kg P eq. to kg PO_4 eq. was deleted (Table 6)
- PCR version and review members (par 6)

2023-10-28 Version 3 Editorial change:

- Editorial revisions have been implemented for the resources use indicators due to the identification of an error in the previous reporting of these indicators (par 3.7).