ENVIRONMENTAL PRODUCT DECLARATION (EPD) FOR

ALUMINIUM PROFILES
IMPLEMENTED WITH HYDRO RESTORE INNOVATIVE, SJUNNEN BILLET

PRODUCED BY HYDRO EXTRUSION SWEDEN AB
FINSPÅNG AND VETLANDA SITE

Hydro
We are aluminium

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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 3.01 for the EPD development and the Product Category Rules PCR "Construction products" 2019:14 version 1.11.

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 Extrusion Sweden is a leading industrial company committed to a sustainable future. Its purpose is to create more viable societies by developing natural resources into products and solutions in innovative and efficient ways. Hydro Extrusions Sweden serves customers in all industries, from automotive and transportation to building and construction, electronics, offshore and maritime. Hydros' experts help design and manufacture customized extrusions to fully fabricated components.

Hydro Extrusion Sweden manufactures aluminium profiles in Finspång and Vetlanda sites. The production site in Finspång has 200 employees, it is equipped with extrusion lines (2 presses), fabrication and friction stir welding lines and a laboratory for quality testing. The production site in Vetlanda has 650 employees, it is equipped with extrusion lines (3 presses), fabrication line, 2 anodising lines (vertical and horizontal systems) and painting. Both sites include also die shops for the cleaning and maintenance of steel dies.

The company is certified according to several ISO standard, among all ISO 9001, 14001, 45001 and 50001.

2.2 THE PRODUCT

Aluminium profiles produced by Hydro Extrusion Sweden AB are manufactured starting from aluminium billets (externally purchased and provided by Sjunnen casthouse). The production stage, common to both extrusion sites and all analysed profiles, consists of the profiles extrusion by means of electricity-driven presses. Extruded profiles can undergo a fabrication process, which can include CNC, bending, cutting and assembly processes. A friction stir welding (FSW) process can be implemented at Finspång. In this process, profiles are joined in a solid state in order to produce wide panels, such as roofs or sides of trains, which are difficult or impossible to extrude. Painting (powder coating) and anodising can be implemented at Vetlanda.

The present EPD covers the following aluminium profiles implemented with Hydro RESTORE innovative, Sjunnen billet:

1. mill finished profiles
2. mill finished, fabricated profiles
3. mill finished, friction stir welded

4. mill finished, friction stir welded with fabrication
5. mill finished, anodised
6. mill finished, anodised with fabrication
7. mill finished, painted
8. mill finished, painted with fabrication

The products covered by the present EPD are representative of Hydro Extrusion Sweden. Manufacturing steps are averaged on profile volumes from each of the sites.

The production processes of all products covered by the present EPD is schematized in Figure 1.

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

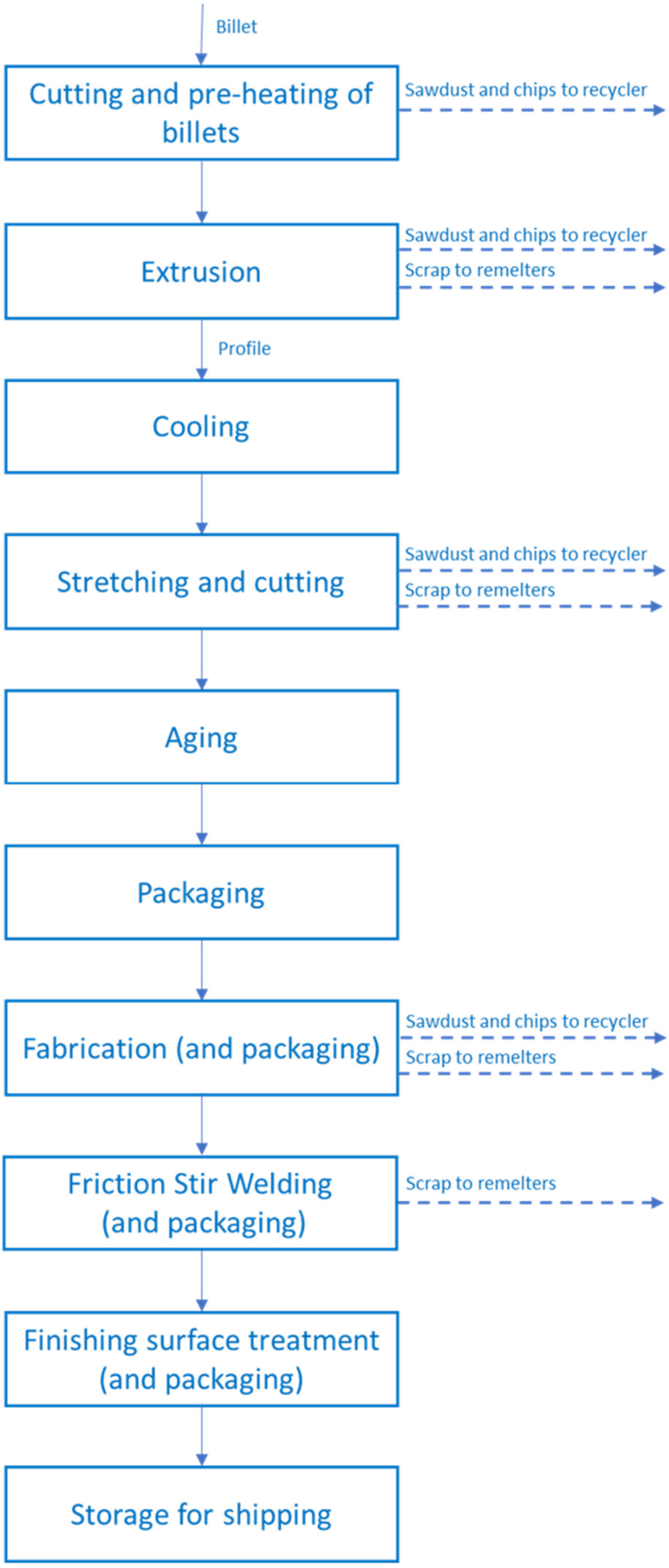


Figure 1: Scheme of the manufacturing process occurring at Hydro Extrusion Sweden (fabrication, friction stir welding, anodising and painting if applied).

2.2.1 TECHNICAL CHARACTERISTICS OF THE PRODUCTS

Hydro RESTORE innovative, Sjunnen billets are still not placed on the market, consequently the profiles implemented with these billets are also not placed on the market. Hydro Extrusion Sweden will manufacture the profiles starting from the billets coming from Sjunnen casthouse, which will be extruded in presses. The produced profiles eventually will undergo further processing such as fabrication or friction stir welding or finishing treatments (painting or anodising).

2.2.2 PRODUCT COMPOSITION

Profiles are made 100% of aluminium billets (input metal), plus the addition of painting (powder coating), for painted profiles.

The composition of input metal for the 8 products covered by the present EPD is reported in Table 1 based on information declared in EPD. The content of SVHC in the products does not exceed 0,1 % of the total weight.

Table 1: Composition of the input metal.

Composition of the input metal					
Composition (% in weight) of the input metal*					
Hydro RESTORE innovative, Sjunnen					
Pre-consumer	38,45				
Post-consumer	50,00				
Primary aluminium ingot	10,00				
Alloys	1,55				
Additional weight (kg) due to powder coating, per declared unit					
Painting	0,067				
Packaging of profile (kg per kg of profile)**					
	Extrusion	**Fabricated**	**FSW**	**Anodising**	**Painting**
Plastic	0,002	0,001	0,001	0,01	0,003
Wood	0,01	0,004	0,003	0,003	0,009
Cardboard/Fanfold	0,01	0,004	0,003	0,01	0,007

** higher detail on Hydro RESTORE innovative, Sjunnen billet composition is available in the related EPD.*
*** The reported amount are those ones applied in each department*

2.2.3 PRODUCT REFERENCE SERVICE LIFE

The Product Reference Service Life depends on the specific application.

2.2.4 MARKET

Profiles produced by Hydro in Finspång and Vetlanda are used in several market sectors. 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 3.01
- The International EPD® System Product Category Rules (PCRs) for construction products, 2019:14 version 1.11.

The EPD is mainly addressed to the business-to-business communication. The data elaboration has been performed with the Gabi software, version 10.6.1.35. The database used are the most updated ones implemented in Gabi software. More in detail, main database used is Sphera, European Aluminium and IAI. The LCIA method used is the method EN 15804:2012+A2:2019.

3.2 DECLARED UNIT

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

3.3 SYSTEM BOUNDARY

The EPD is a “Cradle to Gate with modules C1-C4 and D and optional modules” (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 profiles by Hydro Extrusion Sweden AB.

	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	Dismantling/De-construction/Demolition	Transport	Waste processing	Disposal	Reuse, Recycling potential
	X	X	X	X	ND	ND	X	X	X	X	X
Geography	EU, extra-EU, GLO	EU, extra-EU, GLO	EU, SE	GLO, EU	-	-	EU	GLO, EU	EU	EU	EU, GLO
Specific data*				-	-	-	-	-	-	-	-
Mill finished profile	89%			-	-	-	-	-	-	-	-
Fabricated profile	89%			-	-	-	-	-	-	-	-
Friction stir welded profile	90%			-	-	-	-	-	-	-	-
Friction stir welded profile with fabrication	89%			-	-	-	-	-	-	-	-
Anodised profile	85%			-	-	-	-	-	-	-	-
Anodised profile with fabrication	85%			-	-	-	-	-	-	-	-
Painted profile	82%			-	-	-	-	-	-	-	-
Painted profile with fabrication	82%			-	-	-	-	-	-	-	-
Variation – products	Not relevant			-	-	-	-	-	-	-	-
Variation sites – GWP-GHG**				-	-	-	-	-	-	-	-
Finspang (100% production)	Mill finished profile 0,32%			-	-	-	-	-	-	-	-
	Fabricated profile 0,67%			-	-	-	-	-	-	-	-
	Anodised profile 7,80%			-	-	-	-	-	-	-	-
Vetlanda (100% production)	Mill finished profile -0,84%			-	-	-	-	-	-	-	-
	Fabricated profile -0,58%			-	-	-	-	-	-	-	-
	Anodised profile -1,38%			-	-	-	-	-	-	-	-

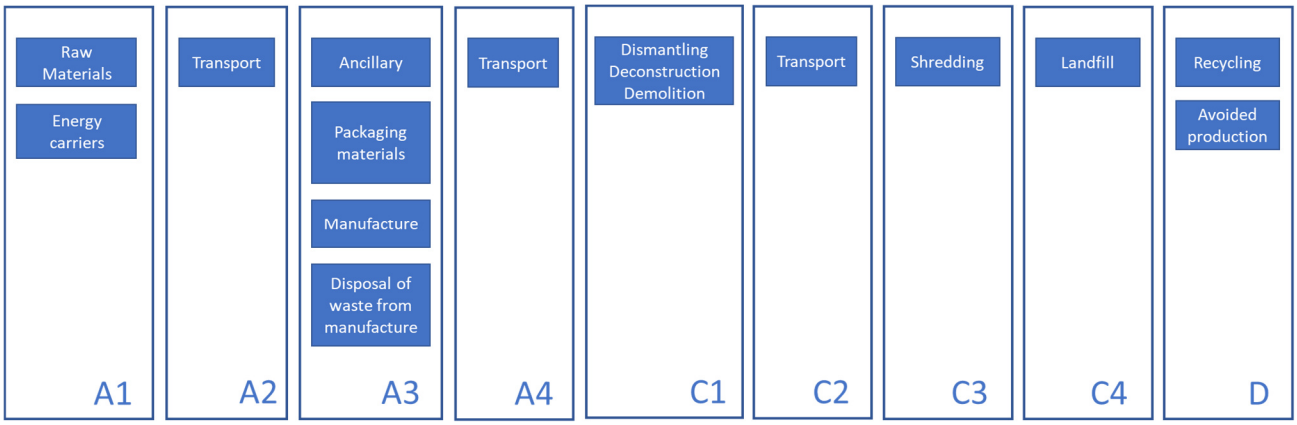
*Share of GWP-GHG indicator in A1-A3 coming from product-specific LCI data. To this regard:

- The specific GWP-GHG is not an EPD quality indicator and does not concern the representativeness and reliability of declared results.

- The specific GWP-GHG intends to quantify the share of final impacts linked to LCI information (datasets) collected at the sites of company' suppliers.
- The specific GWP-GHG coming from EPD of suppliers, if not declared in the EPD themselves, is based on expert judgment.
- The definition of specific and proxy in the PCR differs from the definition of specific and proxy in the GPI
- The term "specific" (according to the definition of PCR) does not concern the representativeness of datasets.

**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.

Figure 2: System boundaries for the study of the aluminium profiles Hydro Extrusion Sweden AB.



The following stages are included in the study:

Raw Materials supply (A1). Production of raw materials used in the products, i.e. of the billets, and the production of energy carriers used in the production process.

Transport of raw materials to the factory (A2)

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

- Extrusion
- Fabrication
- Friction stir welding
- Anodising
- Painting

The produced profiles are analysed as a product "averaged" on production volume from Finspång and Vetlanda sites:

- 47% of profiles extruded at Finspång site and 53% at Vetlanda,
- 40% of profiles fabricated at Finspång and other 60% at Vetlanda,
- 10% of profiles anodised at Finspang and other 90% at Vetlanda.

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)

Dismantling, De-construction or demolition processes (C1)

Transport from Dismantling/De-construction/Demolition sites 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 period of the study is 12 months of 2021.

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. All background data used in the study are from LCI database, from EPDs and are not older than 5 years. Background data, for instance, transport and energy production, are from Sphera database.

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 are allocated to the profile production based on the mass. The production of aluminium included in process scrap is allocated to the main product in which the material is used.

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 auxiliaries, manufacturing waste (including hazardous waste) and air emissions are accounted for.

Auxiliaries and chemicals excluded due to the negligible amount or lack of information about the exact composition (<5%):

- At Finspang the chemicals in input to the extrusion and fabrication processes
- At Vetlanda the chemicals used in extrusion, fabrication, anodising and painting processes
- General auxiliaries and chemicals that are not accounted separately for each department of the plant

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

3.4.4 BACKGROUND DATA INFORMATION

For Hydro RESTORE innovative, Sjunnen aluminium billets, primary data from producer (EPD) are used. For the remaining materials as well as for the packaging of the finished products a European production is considered. In case the European production is missing or is outdated the German datasets are used.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	610
Container ship, 5,000 to 200,000 dwt payload capacity, ocean going	70	1.085

* the weighted average transport of the profiles from both Finspång and Vetlanda extrusion sites to the clients.

The end-of-life scenario is Europe-based and relates to an average application. No impacts of dismantling or demolition processes are allocated to the profiles.

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 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 EN15804+A2

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: Impacts of mill finished profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg) according to EN 15804:2012+A2:2019 plus additional GWP-GHG Indicator required by PCRs.

Impacts of mill finished profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A2							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Climate Change – total - GWPtot [kg CO2 eq.]	3,47E+00	1,62E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-3,06E+00
Climate Change, fossil - GWPf [kg CO2 eq.]	3,46E+00	1,60E-02	0,00E+00	1,27E-02	1,98E-02	5,97E-04	-3,06E+00
Climate Change, biogenic - GWPb [kg CO2 eq.]	9,86E-03	9,82E-05	0,00E+00	1,66E-04	1,49E-04	-1,77E-05	-6,35E-03
Climate Change, land use and land use change - GWPluc [kg CO2 eq.]	9,72E-04	3,82E-05	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-5,50E-04
Ozone depletion - ODP [kg CFC-11 eq.]	1,81E-11	9,44E-16	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-2,29E-11
Acidification – AP [Mole of H+ eq.]	1,71E-02	3,82E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-1,78E-02
Eutrophication, freshwater – Epfr [kg P eq.]*	3,03E-06	2,25E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-1,36E-06
Eutrophication, marine - EPmar [kg N eq.]	2,88E-03	1,10E-04	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-2,56E-03
Eutrophication, terrestrial – Epter [Mole of N eq.]	3,14E-02	1,21E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-2,80E-02
Photochemical ozone formation, human health – POCP [kg NMVOC eq.]	8,55E-03	2,91E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-7,73E-03
Resource use, mineral and metals – ADPe [kg Sb eq.]**	2,00E-06	9,12E-10	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-6,86E-07
Resource use, fossils – ADPf [MJ]**	4,65E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-3,75E+01
Water use - WU [m^3 world equiv.]**	7,03E-01	7,79E-05	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-4,53E-01
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO2 eq.]***	3,46E+00	1,61E-02	0,00E+00	1,28E-02	1,98E-02	5,98E-04	-3,06E+00

* The results in kg P eq. can be obtained by dividing the results in kg PO4 eq. by a factor of 3,07.
** 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.

Table 7: Impacts of fabricated profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg) according to EN 15804:2012+A2:2019 plus additional GWP-GHG Indicator required by PCRs.

Impacts of fabricated profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A2							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Climate Change – total - GWPtot [kg CO2 eq.]	3,58E+00	1,62E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-3,06E+00
Climate Change, fossil - GWPf [kg CO2 eq.]	3,55E+00	1,60E-02	0,00E+00	1,27E-02	1,98E-02	5,97E-04	-3,06E+00
Climate Change, biogenic - GWPb [kg CO2 eq.]	2,50E-02	9,82E-05	0,00E+00	1,66E-04	1,49E-04	-1,77E-05	-6,35E-03
Climate Change, land use and land use change - GWPluc [kg CO2 eq.]	1,15E-03	3,82E-05	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-5,50E-04
Ozone depletion - ODP [kg CFC-11 eq.]	1,83E-11	9,44E-16	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-2,29E-11
Acidification – AP [Mole of H+ eq.]	1,75E-02	3,82E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-1,78E-02
Eutrophication, freshwater – Epfr [kg P eq.]*	4,74E-06	2,25E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-1,36E-06
Eutrophication, marine - EPmar [kg N eq.]	3,03E-03	1,10E-04	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-2,56E-03
Eutrophication, terrestrial – Epter [Mole of N eq.]	3,28E-02	1,21E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-2,80E-02
Photochemical ozone formation, human health – POCP [kg NMVOC eq.]	8,87E-03	2,91E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-7,73E-03
Resource use, mineral and metals – ADPe [kg Sb eq.]**	2,03E-06	9,12E-10	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-6,86E-07
Resource use, fossils – ADPf [MJ]**	5,53E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-3,75E+01
Water use - WU [m^3 world equiv.]**	7,49E-01	7,79E-05	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-4,53E-01
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO2 eq.]***	3,56E+00	1,61E-02	0,00E+00	1,28E-02	1,98E-02	5,98E-04	-3,06E+00

* The results in kg P eq. can be obtained by dividing the results in kg PO4 eq. by a factor of 3,07.
** 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.

Table 8: Impacts of friction stir welded profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg) according to EN 15804:2012+A2:2019 plus additional GWP-GHG Indicator required by PCRs.

Impacts of friction stir welded profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A2							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Climate Change – total - GWPtot [kg CO2 eq.]	3,57E+00	1,62E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-3,06E+00
Climate Change, fossil - GWPf [kg CO2 eq.]	3,55E+00	1,60E-02	0,00E+00	1,27E-02	1,98E-02	5,97E-04	-3,06E+00
Climate Change, biogenic - GWPb [kg CO2 eq.]	1,34E-02	9,82E-05	0,00E+00	1,66E-04	1,49E-04	-1,77E-05	-6,35E-03
Climate Change, land use and land use change - GWPluc [kg CO2 eq.]	1,07E-03	3,82E-05	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-5,50E-04
Ozone depletion - ODP [kg CFC-11 eq.]	1,82E-11	9,44E-16	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-2,29E-11
Acidification – AP [Mole of H+ eq.]	1,74E-02	3,82E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-1,78E-02
Eutrophication, freshwater – Epfr [kg P eq.]*	4,52E-06	2,25E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-1,36E-06
Eutrophication, marine - EPmar [kg N eq.]	3,00E-03	1,10E-04	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-2,56E-03
Eutrophication, terrestrial – Epter [Mole of N eq.]	3,25E-02	1,21E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-2,80E-02
Photochemical ozone formation, human health – POCP [kg NMVOC eq.]	8,81E-03	2,91E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-7,73E-03
Resource use, mineral and metals – ADPe [kg Sb eq.]**	2,04E-06	9,12E-10	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-6,86E-07
Resource use, fossils – ADPf [MJ]**	6,20E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-3,75E+01
Water use - WU [m^3 world equiv.]**	7,54E-01	7,79E-05	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-4,53E-01
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO2 eq.]***	3,56E+00	1,61E-02	0,00E+00	1,28E-02	1,98E-02	5,98E-04	-3,06E+00

* The results in kg P eq. can be obtained by dividing the results in kg PO4 eq. by a factor of 3,07.
** 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.

Table 9: Impacts of friction stir welded with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg) according to EN 15804:2012+A2:2019 plus additional GWP-GHG Indicator required by PCRs.

Impacts of friction stir welded with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A2							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Climate Change – total - GWPtot [kg CO2 eq.]	3,68E+00	1,62E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-3,06E+00
Climate Change, fossil - GWPf [kg CO2 eq.]	3,65E+00	1,60E-02	0,00E+00	1,27E-02	1,98E-02	5,97E-04	-3,06E+00
Climate Change, biogenic - GWPb [kg CO2 eq.]	2,85E-02	9,82E-05	0,00E+00	1,66E-04	1,49E-04	-1,77E-05	-6,35E-03
Climate Change, land use and land use change - GWPluc [kg CO2 eq.]	1,25E-03	3,82E-05	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-5,50E-04
Ozone depletion - ODP [kg CFC-11 eq.]	1,84E-11	9,44E-16	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-2,29E-11
Acidification – AP [Mole of H+ eq.]	1,78E-02	3,82E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-1,78E-02
Eutrophication, freshwater – Epfr [kg P eq.]*	6,24E-06	2,25E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-1,36E-06
Eutrophication, marine - EPmar [kg N eq.]	3,15E-03	1,10E-04	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-2,56E-03
Eutrophication, terrestrial – Epter [Mole of N eq.]	3,40E-02	1,21E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-2,80E-02
Photochemical ozone formation, human health – POCP [kg NMVOC eq.]	9,14E-03	2,91E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-7,73E-03
Resource use, mineral and metals – ADPe [kg Sb eq.]**	2,07E-06	9,12E-10	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-6,86E-07
Resource use, fossils – ADPf [MJ]**	7,09E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-3,75E+01
Water use - WU [m^3 world equiv.]**	8,00E-01	7,79E-05	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-4,53E-01
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO2 eq.]***	3,65E+00	1,61E-02	0,00E+00	1,28E-02	1,98E-02	5,98E-04	-3,06E+00

* The results in kg P eq. can be obtained by dividing the results in kg PO4 eq. by a factor of 3,07.
** 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.

Table 10: Impacts of anodised profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg) according to EN 15804:2012+A2:2019 plus additional GWP-GHG Indicator required by PCRs.

Impacts of anodised profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A2							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Climate Change – total - GWPtot [kg CO2 eq.]	3,90E+00	1,62E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-3,06E+00
Climate Change, fossil - GWPf [kg CO2 eq.]	3,84E+00	1,60E-02	0,00E+00	1,27E-02	1,98E-02	5,97E-04	-3,06E+00
Climate Change, biogenic - GWPb [kg CO2 eq.]	5,88E-02	9,82E-05	0,00E+00	1,66E-04	1,49E-04	-1,77E-05	-6,35E-03
Climate Change, land use and land use change - GWPluc [kg CO2 eq.]	1,85E-03	3,82E-05	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-5,50E-04
Ozone depletion - ODP [kg CFC-11 eq.]	1,99E-11	9,44E-16	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-2,29E-11
Acidification – AP [Mole of H+ eq.]	2,01E-02	3,82E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-1,78E-02
Eutrophication, freshwater – Epfr [kg P eq.]*	2,78E-05	2,25E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-1,36E-06
Eutrophication, marine - EPmar [kg N eq.]	3,68E-03	1,10E-04	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-2,56E-03
Eutrophication, terrestrial – Epter [Mole of N eq.]	3,83E-02	1,21E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-2,80E-02
Photochemical ozone formation, human health – POCP [kg NMVOC eq.]	1,02E-02	2,91E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-7,73E-03
Resource use, mineral and metals – ADPe [kg Sb eq.]**	2,22E-06	9,12E-10	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-6,86E-07
Resource use, fossils – ADPf [MJ]**	7,49E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-3,75E+01
Water use - WU [m^3 world equiv.]**	9,93E-01	7,79E-05	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-4,53E-01
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO2 eq.]***	3,84E+00	1,61E-02	0,00E+00	1,28E-02	1,98E-02	5,98E-04	-3,06E+00

* The results in kg P eq. can be obtained by dividing the results in kg PO4 eq. by a factor of 3,07.
** 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.

Table 11: Impacts of anodised with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg) according to EN 15804:2012+A2:2019 plus additional GWP-GHG Indicator required by PCRs.

Impacts of anodised with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A2							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Climate Change – total - GWPtot [kg CO2 eq.]	4,01E+00	1,62E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-3,06E+00
Climate Change, fossil - GWPf [kg CO2 eq.]	3,93E+00	1,60E-02	0,00E+00	1,27E-02	1,98E-02	5,97E-04	-3,06E+00
Climate Change, biogenic - GWPb [kg CO2 eq.]	7,39E-02	9,82E-05	0,00E+00	1,66E-04	1,49E-04	-1,77E-05	-6,35E-03
Climate Change, land use and land use change - GWPluc [kg CO2 eq.]	2,03E-03	3,82E-05	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-5,50E-04
Ozone depletion - ODP [kg CFC-11 eq.]	2,01E-11	9,44E-16	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-2,29E-11
Acidification – AP [Mole of H+ eq.]	2,05E-02	3,82E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-1,78E-02
Eutrophication, freshwater – Epfr [kg P eq.]*	2,95E-05	2,25E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-1,36E-06
Eutrophication, marine - EPmar [kg N eq.]	3,82E-03	1,10E-04	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-2,56E-03
Eutrophication, terrestrial – Epter [Mole of N eq.]	3,98E-02	1,21E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-2,80E-02
Photochemical ozone formation, human health – POCP [kg NMVOC eq.]	1,06E-02	2,91E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-7,73E-03
Resource use, mineral and metals – ADPe [kg Sb eq.]**	2,25E-06	9,12E-10	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-6,86E-07
Resource use, fossils – ADPf [MJ]**	8,37E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-3,75E+01
Water use - WU [m^3 world equiv.]**	1,04E+00	7,79E-05	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-4,53E-01
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO2 eq.]***	3,93E+00	1,61E-02	0,00E+00	1,28E-02	1,98E-02	5,98E-04	-3,06E+00

* The results in kg P eq. can be obtained by dividing the results in kg PO4 eq. by a factor of 3,07.
** 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.

Table 12: Impacts of painted profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg) according to EN 15804:2012+A2:2019 plus additional GWP-GHG Indicator required by PCRs.

Impacts of painted profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A2							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Climate Change – total - GWPtot [kg CO2 eq.]	3,94E+00	1,62E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-3,06E+00
Climate Change, fossil - GWPf [kg CO2 eq.]	3,89E+00	1,60E-02	0,00E+00	1,27E-02	1,98E-02	5,97E-04	-3,06E+00
Climate Change, biogenic - GWPb [kg CO2 eq.]	4,31E-02	9,82E-05	0,00E+00	1,66E-04	1,49E-04	-1,77E-05	-6,35E-03
Climate Change, land use and land use change - GWPluc [kg CO2 eq.]	1,17E-03	3,82E-05	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-5,50E-04
Ozone depletion - ODP [kg CFC-11 eq.]	1,99E-11	9,44E-16	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-2,29E-11
Acidification – AP [Mole of H+ eq.]	1,82E-02	3,82E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-1,78E-02
Eutrophication, freshwater – Epfr [kg P eq.]*	8,58E-06	2,25E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-1,36E-06
Eutrophication, marine - EPmar [kg N eq.]	3,24E-03	1,10E-04	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-2,56E-03
Eutrophication, terrestrial – Epter [Mole of N eq.]	3,48E-02	1,21E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-2,80E-02
Photochemical ozone formation, human health – POCP [kg NMVOC eq.]	9,64E-03	2,91E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-7,73E-03
Resource use, mineral and metals – ADPe [kg Sb eq.]**	2,11E-06	9,12E-10	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-6,86E-07
Resource use, fossils – ADPf [MJ]**	7,14E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-3,75E+01
Water use - WU [m^3 world equiv.]**	8,13E-01	7,79E-05	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-4,53E-01
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO2 eq.]***	3,89E+00	1,61E-02	0,00E+00	1,28E-02	1,98E-02	5,98E-04	-3,06E+00

* The results in kg P eq. can be obtained by dividing the results in kg PO4 eq. by a factor of 3,07.
** 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.

Table 13: Impacts of painted with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg) according to EN 15804:2012+A2:2019 plus additional GWP-GHG Indicator required by PCRs.

Impacts of painted with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A2							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Climate Change – total - GWPtot [kg CO2 eq.]	4,05E+00	1,62E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-3,06E+00
Climate Change, fossil - GWPf [kg CO2 eq.]	3,99E+00	1,60E-02	0,00E+00	1,27E-02	1,98E-02	5,97E-04	-3,06E+00
Climate Change, biogenic - GWPb [kg CO2 eq.]	5,83E-02	9,82E-05	0,00E+00	1,66E-04	1,49E-04	-1,77E-05	-6,35E-03
Climate Change, land use and land use change - GWPluc [kg CO2 eq.]	1,36E-03	3,82E-05	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-5,50E-04
Ozone depletion - ODP [kg CFC-11 eq.]	2,01E-11	9,44E-16	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-2,29E-11
Acidification – AP [Mole of H+ eq.]	1,86E-02	3,82E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-1,78E-02
Eutrophication, freshwater – Epfr [kg P eq.]*	1,03E-05	2,25E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-1,36E-06
Eutrophication, marine - EPmar [kg N eq.]	3,38E-03	1,10E-04	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-2,56E-03
Eutrophication, terrestrial – Epter [Mole of N eq.]	3,63E-02	1,21E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-2,80E-02
Photochemical ozone formation, human health – POCP [kg NMVOC eq.]	9,97E-03	2,91E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-7,73E-03
Resource use, mineral and metals – ADPe [kg Sb eq.]**	2,14E-06	9,12E-10	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-6,86E-07
Resource use, fossils – ADPf [MJ]**	8,02E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-3,75E+01
Water use - WU [m^3 world equiv.]**	8,59E-01	7,79E-05	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-4,53E-01
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO2 eq.]***	3,99E+00	1,61E-02	0,00E+00	1,28E-02	1,98E-02	5,98E-04	-3,06E+00

* The results in kg P eq. can be obtained by dividing the results in kg PO4 eq. by a factor of 3,07.
** 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 (ADDITIONAL APPROACH TO THE MODELING OF PROCESS SCRAP) ACCORDING EN15804+A2

In this additional approach, the pre-consumer scrap is considered a co-product of the production process from which it comes from and it is represented as primary aluminium.

Table 14: Impacts of mill finished profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg) plus additional GWP-GHG Indicator required by PCRs. Additional approach to the modelling of process scrap according to EN 15804:2012+A2:2019.

Impacts of mill finished profile implemented with Hydro RESTORE innovative, Sjunnen billet. Additional approach to the modelling of process scrap. Method EN15801+A2							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Climate Change – total - GWPtot [kg CO2 eq.]	1,42E+00	1,62E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-7,08E-01
Climate Change, fossil - GWPf [kg CO2 eq.]	1,42E+00	1,60E-02	0,00E+00	1,27E-02	1,98E-02	5,97E-04	-7,06E-01
Climate Change, biogenic - GWPb [kg CO2 eq.]	3,79E-03	9,82E-05	0,00E+00	1,66E-04	1,49E-04	-1,77E-05	-1,47E-03
Climate Change, land use and land use change - GWPluc [kg CO2 eq.]	6,02E-04	3,82E-05	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,27E-04
Ozone depletion - ODP [kg CFC-11 eq.]	1,30E-11	9,44E-16	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-5,30E-12
Acidification – AP [Mole of H+ eq.]	6,36E-03	3,82E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-4,11E-03
Eutrophication, freshwater – Epfr [kg P eq.]*	2,38E-06	2,25E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-3,15E-07
Eutrophication, marine - EPmar [kg N eq.]	1,26E-03	1,10E-04	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-5,92E-04
Eutrophication, terrestrial – Epter [Mole of N eq.]	1,37E-02	1,21E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-6,47E-03
Photochemical ozone formation, human health – POCP [kg NMVOC eq.]	3,68E-03	2,91E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,79E-03
Resource use, mineral and metals – ADPe [kg Sb eq.]**	1,85E-06	9,12E-10	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,59E-07
Resource use, fossils – ADPf [MJ]**	2,17E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-8,66E+00
Water use - WU [m^3 world equiv.]**	4,24E-01	7,79E-05	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,05E-01
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO2 eq.]***	1,42E+00	1,61E-02	0,00E+00	1,28E-02	1,98E-02	5,98E-04	-7,06E-01

* The results in kg P eq. can be obtained by dividing the results in kg PO4 eq. by a factor of 3,07.
** 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.

Table 15: Impacts of fabricated profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg) plus additional GWP-GHG Indicator required by PCRs. Additional approach to the modelling of process scrap according to EN 15804:2012+A2:2019.

Impacts of fabricated profile implemented with Hydro RESTORE innovative, Sjunnen billet. Additional approach to the modelling of process scrap. Method EN15801+A2							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Climate Change – total - GWPtot [kg CO2 eq.]	1,64E+00	1,62E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-7,08E-01
Climate Change, fossil - GWPf [kg CO2 eq.]	1,62E+00	1,60E-02	0,00E+00	1,27E-02	1,98E-02	5,97E-04	-7,06E-01
Climate Change, biogenic - GWPb [kg CO2 eq.]	1,90E-02	9,82E-05	0,00E+00	1,66E-04	1,49E-04	-1,77E-05	-1,47E-03
Climate Change, land use and land use change - GWPluc [kg CO2 eq.]	8,20E-04	3,82E-05	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,27E-04
Ozone depletion - ODP [kg CFC-11 eq.]	1,42E-11	9,44E-16	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-5,30E-12
Acidification – AP [Mole of H+ eq.]	7,20E-03	3,82E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-4,11E-03
Eutrophication, freshwater – Epfr [kg P eq.]*	4,20E-06	2,25E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-3,15E-07
Eutrophication, marine - EPmar [kg N eq.]	1,50E-03	1,10E-04	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-5,92E-04
Eutrophication, terrestrial – Epter [Mole of N eq.]	1,61E-02	1,21E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-6,47E-03
Photochemical ozone formation, human health – POCP [kg NMVOC eq.]	4,28E-03	2,91E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,79E-03
Resource use, mineral and metals – ADPe [kg Sb eq.]**	2,02E-06	9,12E-10	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,59E-07
Resource use, fossils – ADPf [MJ]**	3,16E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-8,66E+00
Water use - WU [m^3 world equiv.]**	5,00E-01	7,79E-05	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,05E-01
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO2 eq.]***	1,62E+00	1,61E-02	0,00E+00	1,28E-02	1,98E-02	5,98E-04	-7,06E-01

* The results in kg P eq. can be obtained by dividing the results in kg PO4 eq. by a factor of 3,07.
** 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.

Table 16: Impacts of friction stir welded profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg) plus additional GWP-GHG Indicator required by PCRs. Additional approach to the modelling of process scrap according to EN 15804:2012+A2:2019.

Impacts of friction stir welded profile implemented with Hydro RESTORE innovative, Sjunnen billet. Additional approach to the modelling of process scrap. Method EN15801+A2							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Climate Change – total - GWPtot [kg CO2 eq.]	2,03E+00	1,62E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-7,08E-01
Climate Change, fossil - GWPf [kg CO2 eq.]	2,02E+00	1,60E-02	0,00E+00	1,27E-02	1,98E-02	5,97E-04	-7,06E-01
Climate Change, biogenic - GWPb [kg CO2 eq.]	7,35E-03	9,82E-05	0,00E+00	1,66E-04	1,49E-04	-1,77E-05	-1,47E-03
Climate Change, land use and land use change - GWPluc [kg CO2 eq.]	8,76E-04	3,82E-05	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,27E-04
Ozone depletion - ODP [kg CFC-11 eq.]	1,79E-11	9,44E-16	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-5,30E-12
Acidification – AP [Mole of H+ eq.]	8,97E-03	3,82E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-4,11E-03
Eutrophication, freshwater – Epfr [kg P eq.]*	4,38E-06	2,25E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-3,15E-07
Eutrophication, marine - EPmar [kg N eq.]	1,82E-03	1,10E-04	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-5,92E-04
Eutrophication, terrestrial – Epter [Mole of N eq.]	1,97E-02	1,21E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-6,47E-03
Photochemical ozone formation, human health – POCP [kg NMVOC eq.]	5,26E-03	2,91E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,79E-03
Resource use, mineral and metals – ADPe [kg Sb eq.]**	2,58E-06	9,12E-10	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,59E-07
Resource use, fossils – ADPf [MJ]**	4,28E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-8,66E+00
Water use - WU [m^3 world equiv.]**	6,25E-01	7,79E-05	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,05E-01
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO2 eq.]***	2,02E+00	1,61E-02	0,00E+00	1,28E-02	1,98E-02	5,98E-04	-7,06E-01

* The results in kg P eq. can be obtained by dividing the results in kg PO4 eq. by a factor of 3,07.
** 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.

Table 17: Impacts of friction stir welded with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg) plus additional GWP-GHG Indicator required by PCRs. Additional approach to the modelling of process scrap according to EN 15804:2012+A2:2019.

Impacts of friction stir welded with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet. Additional approach to the modelling of process scrap. Method EN15801+A2							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Climate Change – total - GWPtot [kg CO2 eq.]	2,24E+00	1,62E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-7,08E-01
Climate Change, fossil - GWPf [kg CO2 eq.]	2,22E+00	1,60E-02	0,00E+00	1,27E-02	1,98E-02	5,97E-04	-7,06E-01
Climate Change, biogenic - GWPb [kg CO2 eq.]	2,25E-02	9,82E-05	0,00E+00	1,66E-04	1,49E-04	-1,77E-05	-1,47E-03
Climate Change, land use and land use change - GWPluc [kg CO2 eq.]	1,09E-03	3,82E-05	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,27E-04
Ozone depletion - ODP [kg CFC-11 eq.]	1,91E-11	9,44E-16	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-5,30E-12
Acidification – AP [Mole of H+ eq.]	9,82E-03	3,82E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-4,11E-03
Eutrophication, freshwater – Epfr [kg P eq.]*	6,20E-06	2,25E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-3,15E-07
Eutrophication, marine - EPmar [kg N eq.]	2,06E-03	1,10E-04	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-5,92E-04
Eutrophication, terrestrial – Epter [Mole of N eq.]	2,21E-02	1,21E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-6,47E-03
Photochemical ozone formation, human health – POCP [kg NMVOC eq.]	5,86E-03	2,91E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,79E-03
Resource use, mineral and metals – ADPe [kg Sb eq.]**	2,75E-06	9,12E-10	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,59E-07
Resource use, fossils – ADPf [MJ]**	5,28E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-8,66E+00
Water use - WU [m^3 world equiv.]**	7,02E-01	7,79E-05	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,05E-01
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO2 eq.]***	2,22E+00	1,61E-02	0,00E+00	1,28E-02	1,98E-02	5,98E-04	-7,06E-01

* The results in kg P eq. can be obtained by dividing the results in kg PO4 eq. by a factor of 3,07.
** 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.

Table 18: Impacts of anodised profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg) plus additional GWP-GHG Indicator required by PCRs. Additional approach to the modelling of process scrap according to EN 15804:2012+A2:2019.

Impacts of anodised profile implemented with Hydro RESTORE innovative, Sjunnen billet. Additional approach to the modelling of process scrap. Method EN15801+A2							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Climate Change – total - GWPtot [kg CO2 eq.]	2,05E+00	1,62E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-7,08E-01
Climate Change, fossil - GWPf [kg CO2 eq.]	2,00E+00	1,60E-02	0,00E+00	1,27E-02	1,98E-02	5,97E-04	-7,06E-01
Climate Change, biogenic - GWPb [kg CO2 eq.]	5,34E-02	9,82E-05	0,00E+00	1,66E-04	1,49E-04	-1,77E-05	-1,47E-03
Climate Change, land use and land use change - GWPluc [kg CO2 eq.]	1,63E-03	3,82E-05	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,27E-04
Ozone depletion - ODP [kg CFC-11 eq.]	1,48E-11	9,44E-16	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-5,30E-12
Acidification – AP [Mole of H+ eq.]	1,06E-02	3,82E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-4,11E-03
Eutrophication, freshwater – Epfr [kg P eq.]*	2,73E-05	2,25E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-3,15E-07
Eutrophication, marine - EPmar [kg N eq.]	2,29E-03	1,10E-04	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-5,92E-04
Eutrophication, terrestrial – Epter [Mole of N eq.]	2,32E-02	1,21E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-6,47E-03
Photochemical ozone formation, human health – POCP [kg NMVOC eq.]	6,01E-03	2,91E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,79E-03
Resource use, mineral and metals – ADPe [kg Sb eq.]**	2,15E-06	9,12E-10	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,59E-07
Resource use, fossils – ADPf [MJ]**	5,18E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-8,66E+00
Water use - WU [m^3 world equiv.]**	8,00E-01	7,79E-05	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,05E-01
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO2 eq.]***	2,00E+00	1,61E-02	0,00E+00	1,28E-02	1,98E-02	5,98E-04	-7,06E-01

* The results in kg P eq. can be obtained by dividing the results in kg PO4 eq. by a factor of 3,07.
** 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.

Table 19: Impacts of anodised with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg) plus additional GWP-GHG Indicator required by PCRs. Additional approach to the modelling of process scrap according to EN 15804:2012+A2:2019.

Impacts of anodised with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet. Additional approach to the modelling of process scrap. Method EN15801+A2							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Climate Change – total - GWPtot [kg CO2 eq.]	2,28E+00	1,62E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-7,08E-01
Climate Change, fossil - GWPf [kg CO2 eq.]	2,21E+00	1,60E-02	0,00E+00	1,27E-02	1,98E-02	5,97E-04	-7,06E-01
Climate Change, biogenic - GWPb [kg CO2 eq.]	6,86E-02	9,82E-05	0,00E+00	1,66E-04	1,49E-04	-1,77E-05	-1,47E-03
Climate Change, land use and land use change - GWPluc [kg CO2 eq.]	1,86E-03	3,82E-05	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,27E-04
Ozone depletion - ODP [kg CFC-11 eq.]	1,60E-11	9,44E-16	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-5,30E-12
Acidification – AP [Mole of H+ eq.]	1,16E-02	3,82E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-4,11E-03
Eutrophication, freshwater – Epfr [kg P eq.]*	2,91E-05	2,25E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-3,15E-07
Eutrophication, marine - EPmar [kg N eq.]	2,55E-03	1,10E-04	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-5,92E-04
Eutrophication, terrestrial – Epter [Mole of N eq.]	2,58E-02	1,21E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-6,47E-03
Photochemical ozone formation, human health – POCP [kg NMVOC eq.]	6,66E-03	2,91E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,79E-03
Resource use, mineral and metals – ADPe [kg Sb eq.]**	2,33E-06	9,12E-10	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,59E-07
Resource use, fossils – ADPf [MJ]**	6,19E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-8,66E+00
Water use - WU [m^3 world equiv.]**	8,83E-01	7,79E-05	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,05E-01
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO2 eq.]***	2,21E+00	1,61E-02	0,00E+00	1,28E-02	1,98E-02	5,98E-04	-7,06E-01

* The results in kg P eq. can be obtained by dividing the results in kg PO4 eq. by a factor of 3,07.
** 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.

Table 20: Impacts of painted profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg) plus additional GWP-GHG Indicator required by PCRs. Additional approach to the modelling of process scrap according to EN 15804:2012+A2:2019.

Impacts of painted profile implemented with Hydro RESTORE innovative, Sjunnen billet. Additional approach to the modelling of process scrap. Method EN15801+A2							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Climate Change – total - GWPtot [kg CO2 eq.]	1,89E+00	1,62E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-7,08E-01
Climate Change, fossil - GWPf [kg CO2 eq.]	1,85E+00	1,60E-02	0,00E+00	1,27E-02	1,98E-02	5,97E-04	-7,06E-01
Climate Change, biogenic - GWPb [kg CO2 eq.]	3,71E-02	9,82E-05	0,00E+00	1,66E-04	1,49E-04	-1,77E-05	-1,47E-03
Climate Change, land use and land use change - GWPluc [kg CO2 eq.]	8,02E-04	3,82E-05	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,27E-04
Ozone depletion - ODP [kg CFC-11 eq.]	1,48E-11	9,44E-16	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-5,30E-12
Acidification – AP [Mole of H+ eq.]	7,46E-03	3,82E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-4,11E-03
Eutrophication, freshwater – Epfr [kg P eq.]*	7,94E-06	2,25E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-3,15E-07
Eutrophication, marine - EPmar [kg N eq.]	1,62E-03	1,10E-04	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-5,92E-04
Eutrophication, terrestrial – Epter [Mole of N eq.]	1,71E-02	1,21E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-6,47E-03
Photochemical ozone formation, human health – POCP [kg NMVOC eq.]	4,78E-03	2,91E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,79E-03
Resource use, mineral and metals – ADPe [kg Sb eq.]**	1,95E-06	9,12E-10	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,59E-07
Resource use, fossils – ADPf [MJ]**	4,66E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-8,66E+00
Water use - WU [m^3 world equiv.]**	5,33E-01	7,79E-05	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,05E-01
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO2 eq.]***	1,85E+00	1,61E-02	0,00E+00	1,28E-02	1,98E-02	5,98E-04	-7,06E-01

* The results in kg P eq. can be obtained by dividing the results in kg PO4 eq. by a factor of 3,07.
** 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.

Table 21: Impacts of painted with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg) plus additional GWP-GHG Indicator required by PCRs. Additional approach to the modelling of process scrap according to EN 15804:2012+A2:2019.

Impacts of painted with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet. Additional approach to the modelling of process scrap. Method EN15801+A2							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Climate Change – total - GWPtot [kg CO2 eq.]	2,10E+00	1,62E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-7,08E-01
Climate Change, fossil - GWPf [kg CO2 eq.]	2,05E+00	1,60E-02	0,00E+00	1,27E-02	1,98E-02	5,97E-04	-7,06E-01
Climate Change, biogenic - GWPb [kg CO2 eq.]	5,22E-02	9,82E-05	0,00E+00	1,66E-04	1,49E-04	-1,77E-05	-1,47E-03
Climate Change, land use and land use change - GWPluc [kg CO2 eq.]	1,02E-03	3,82E-05	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,27E-04
Ozone depletion - ODP [kg CFC-11 eq.]	1,60E-11	9,44E-16	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-5,30E-12
Acidification – AP [Mole of H+ eq.]	8,30E-03	3,82E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-4,11E-03
Eutrophication, freshwater – Epfr [kg P eq.]*	9,76E-06	2,25E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-3,15E-07
Eutrophication, marine - EPmar [kg N eq.]	1,85E-03	1,10E-04	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-5,92E-04
Eutrophication, terrestrial – Epter [Mole of N eq.]	1,95E-02	1,21E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-6,47E-03
Photochemical ozone formation, human health – POCP [kg NMVOC eq.]	5,38E-03	2,91E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,79E-03
Resource use, mineral and metals – ADPe [kg Sb eq.]**	2,13E-06	9,12E-10	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,59E-07
Resource use, fossils – ADPf [MJ]**	5,66E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-8,66E+00
Water use - WU [m^3 world equiv.]**	6,10E-01	7,79E-05	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,05E-01
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO2 eq.]***	2,05E+00	1,61E-02	0,00E+00	1,28E-02	1,98E-02	5,98E-04	-7,06E-01

* The results in kg P eq. can be obtained by dividing the results in kg PO4 eq. by a factor of 3,07.
** 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.

3.7 PARAMETERS DESCRIBING THE ENVIRONMENTAL IMPACT ACCORDING EN15804+A1

Table 22: Impacts of mill finished profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg). Method EN15801+A1

Impacts of mill finished profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A1							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	3,42E+00	1,58E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-3,03E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	2,81E-11	1,11E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-4,22E-11
Acidification potential (AP) [kg SO2 eq.]	1,43E-02	2,99E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-1,51E-02
Eutrophication potential (EP) [kg Phosphate eq.]	1,01E-03	3,71E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-8,92E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	8,25E-04	4,17E-06	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-8,23E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,03E-06	9,13E-10	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-7,00E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	3,39E+01	2,02E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-3,16E+01

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

Table 23: Impacts of fabricated profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg). Method EN15801+A1

Impacts of fabricated profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A1							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	3,53E+00	1,58E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-3,03E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	2,84E-11	1,11E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-4,22E-11
Acidification potential (AP) [kg SO2 eq.]	1,46E-02	2,99E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-1,51E-02
Eutrophication potential (EP) [kg Phosphate eq.]	1,08E-03	3,71E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-8,92E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	8,30E-04	4,17E-06	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-8,23E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,08E-06	9,13E-10	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-7,00E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	3,52E+01	2,02E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-3,16E+01

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

Table 24: Impacts of friction stir welded profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg). Method EN15801+A1

Impacts of friction stir welded profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A1							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	3,52E+00	1,58E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-3,03E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	2,82E-11	1,11E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-4,22E-11
Acidification potential (AP) [kg SO2 eq.]	1,46E-02	2,99E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-1,51E-02
Eutrophication potential (EP) [kg Phosphate eq.]	1,07E-03	3,71E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-8,92E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	8,40E-04	4,17E-06	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-8,23E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,10E-06	9,13E-10	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-7,00E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	3,45E+01	2,02E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-3,16E+01

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

Table 25: Impacts of friction stir welded with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg). Method EN15801+A1

Impacts of friction stir welded with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A1							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	3,63E+00	1,58E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-3,03E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	2,85E-11	1,11E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-4,22E-11
Acidification potential (AP) [kg SO2 eq.]	1,48E-02	2,99E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-1,51E-02
Eutrophication potential (EP) [kg Phosphate eq.]	1,14E-03	3,71E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-8,92E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	8,46E-04	4,17E-06	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-8,23E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,15E-06	9,13E-10	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-7,00E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	3,57E+01	2,02E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-3,16E+01

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

Table 26: Impacts of anodised profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg). Method EN15801+A1

Impacts of anodised profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A1							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	3,83E+00	1,58E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-3,03E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	3,02E-11	1,11E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-4,22E-11
Acidification potential (AP) [kg SO2 eq.]	1,68E-02	2,99E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-1,51E-02
Eutrophication potential (EP) [kg Phosphate eq.]	1,51E-03	3,71E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-8,92E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	1,02E-03	4,17E-06	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-8,23E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,31E-06	9,13E-10	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-7,00E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	3,89E+01	2,02E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-3,16E+01

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

Table 27: Impacts of anodised with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg). Method EN15801+A1

Impacts of anodised with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A1							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	3,94E+00	1,58E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-3,03E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	3,05E-11	1,11E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-4,22E-11
Acidification potential (AP) [kg SO2 eq.]	1,70E-02	2,99E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-1,51E-02
Eutrophication potential (EP) [kg Phosphate eq.]	1,58E-03	3,71E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-8,92E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	1,02E-03	4,17E-06	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-8,23E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,36E-06	9,13E-10	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-7,00E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	4,01E+01	2,02E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-3,16E+01

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

Table 28: Impacts of painted profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg). Method EN15801+A1

Impacts of painted profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A1							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	3,87E+00	1,58E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-3,03E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	3,02E-11	1,11E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-4,22E-11
Acidification potential (AP) [kg SO2 eq.]	1,52E-02	2,99E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-1,51E-02
Eutrophication potential (EP) [kg Phosphate eq.]	1,19E-03	3,71E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-8,92E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	1,04E-03	4,17E-06	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-8,23E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,18E-06	9,13E-10	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-7,00E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	4,03E+01	2,02E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-3,16E+01

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

Table 29: Impacts of painted with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg). Method EN15801+A1

Impacts of painted with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A1							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	3,98E+00	1,58E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-3,03E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	3,05E-11	1,11E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-4,22E-11
Acidification potential (AP) [kg SO2 eq.]	1,55E-02	2,99E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-1,51E-02
Eutrophication potential (EP) [kg Phosphate eq.]	1,26E-03	3,71E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-8,92E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	1,05E-03	4,17E-06	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-8,23E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,23E-06	9,13E-10	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-7,00E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	4,16E+01	2,02E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-3,16E+01

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

3.8 PARAMETERS DESCRIBING THE ENVIRONMENTAL IMPACT (ADDITIONAL APPROACH TO THE MODELING OF PROCESS SCRAP) ACCORDING EN15804+A1

In this additional approach, the pre-consumer scrap is considered a co-product of the production process from which it comes from, and it is represented as primary aluminium.

Table 30: Impacts of mill finished profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg). Additional approach to the modelling of process scrap according to EN 15804+A1.

Impacts of mill finished profile implemented with Hydro RESTORE innovative, Sjunnen billet. Additional approach to the modelling of process scrap. Method EN15801+A1							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	1,60E+00	1,58E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-8,58E-01
Ozone Depletion Potential (ODP) [kg R11 eq.]	1,72E-11	1,11E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-1,19E-11
Acidification potential (AP) [kg SO2 eq.]	6,30E-03	2,99E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-4,27E-03
Eutrophication potential (EP) [kg Phosphate eq.]	5,32E-04	3,71E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-2,52E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	3,28E-04	4,17E-06	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-2,33E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	1,95E-06	9,13E-10	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,98E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	1,56E+01	2,02E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-8,94E+00

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

Table 31: Impacts of fabricated profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg). Additional approach to the modelling of process scrap according to EN 15804+A1.

Impacts of fabricated profile implemented with Hydro RESTORE innovative, Sjunnen billet. Additional approach to the modelling of process scrap. Method EN15801+A1							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	1,83E+00	1,58E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-8,58E-01
Ozone Depletion Potential (ODP) [kg R11 eq.]	1,88E-11	1,11E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-1,19E-11
Acidification potential (AP) [kg SO2 eq.]	7,04E-03	2,99E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-4,27E-03
Eutrophication potential (EP) [kg Phosphate eq.]	6,38E-04	3,71E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-2,52E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	3,59E-04	4,17E-06	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-2,33E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,15E-06	9,13E-10	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,98E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	1,80E+01	2,02E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-8,94E+00

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

Table 32: Impacts of friction stir welded profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg). Additional approach to the modelling of process scrap according to EN 15804+A1.

Impacts of friction stir welded profile implemented with Hydro RESTORE innovative, Sjunnen billet. Additional approach to the modelling of process scrap. Method EN15801+A1							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	2,28E+00	1,58E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-8,58E-01
Ozone Depletion Potential (ODP) [kg R11 eq.]	2,37E-11	1,11E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-1,19E-11
Acidification potential (AP) [kg SO2 eq.]	8,83E-03	2,99E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-4,27E-03
Eutrophication potential (EP) [kg Phosphate eq.]	7,76E-04	3,71E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-2,52E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	4,67E-04	4,17E-06	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-2,33E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,75E-06	9,13E-10	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,98E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	2,18E+01	2,02E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-8,94E+00

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

Table 33: Impacts of friction stir welded with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg). Additional approach to the modelling of process scrap according to EN 15804+A1.

Impacts of friction stir welded with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet. Additional approach to the modelling of process scrap. Method EN15801+A1							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	2,51E+00	1,58E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-8,58E-01
Ozone Depletion Potential (ODP) [kg R11 eq.]	2,52E-11	1,11E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-1,19E-11
Acidification potential (AP) [kg SO2 eq.]	9,58E-03	2,99E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-4,27E-03
Eutrophication potential (EP) [kg Phosphate eq.]	8,82E-04	3,71E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-2,52E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	4,98E-04	4,17E-06	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-2,33E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,95E-06	9,13E-10	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,98E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	2,42E+01	2,02E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-8,94E+00

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

Table 34: Impacts of anodised profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg). Additional approach to the modelling of process scrap according to EN 15804+A1.

Impacts of anodised profile implemented with Hydro RESTORE innovative, Sjunnen billet. Additional approach to the modelling of process scrap. Method EN15801+A1							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	2,01E+00	1,58E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-8,58E-01
Ozone Depletion Potential (ODP) [kg R11 eq.]	1,93E-11	1,11E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-1,19E-11
Acidification potential (AP) [kg SO2 eq.]	8,72E-03	2,99E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-4,27E-03
Eutrophication potential (EP) [kg Phosphate eq.]	1,03E-03	3,71E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-2,52E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	5,22E-04	4,17E-06	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-2,33E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,23E-06	9,13E-10	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,98E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	2,05E+01	2,02E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-8,94E+00

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

Table 35: Impacts of anodised with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg). Additional approach to the modelling of process scrap according to EN 15804+A1.

Impacts of anodised with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet. Additional approach to the modelling of process scrap. Method EN15801+A1							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	2,24E+00	1,58E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-8,58E-01
Ozone Depletion Potential (ODP) [kg R11 eq.]	2,09E-11	1,11E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-1,19E-11
Acidification potential (AP) [kg SO2 eq.]	9,46E-03	2,99E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-4,27E-03
Eutrophication potential (EP) [kg Phosphate eq.]	1,14E-03	3,71E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-2,52E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	5,53E-04	4,17E-06	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-2,33E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,43E-06	9,13E-10	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,98E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	2,29E+01	2,02E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-8,94E+00

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

Table 36: Impacts of painted profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg). Additional approach to the modelling of process scrap according to EN 15804+A1.

Impacts of painted profile implemented with Hydro RESTORE innovative, Sjunnen billet. Additional approach to the modelling of process scrap. Method EN15801+A1							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	2,05E+00	1,58E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-8,58E-01
Ozone Depletion Potential (ODP) [kg R11 eq.]	1,93E-11	1,11E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-1,19E-11
Acidification potential (AP) [kg SO2 eq.]	7,15E-03	2,99E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-4,27E-03
Eutrophication potential (EP) [kg Phosphate eq.]	7,09E-04	3,71E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-2,52E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	5,45E-04	4,17E-06	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-2,33E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,10E-06	9,13E-10	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,98E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	2,20E+01	2,02E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-8,94E+00

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

Table 37: Impacts of painted with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet per declared unit (1 kg). Additional approach to the modelling of process scrap according to EN 15804+A1.

Impacts of painted with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet. Additional approach to the modelling of process scrap. Method EN15801+A1							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	2,28E+00	1,58E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-8,58E-01
Ozone Depletion Potential (ODP) [kg R11 eq.]	2,09E-11	1,11E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-1,19E-11
Acidification potential (AP) [kg SO2 eq.]	7,89E-03	2,99E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-4,27E-03
Eutrophication potential (EP) [kg Phosphate eq.]	8,14E-04	3,71E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-2,52E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	5,76E-04	4,17E-06	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-2,33E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,30E-06	9,13E-10	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,98E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	2,44E+01	2,02E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-8,94E+00

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

3.9 INDICATORS OF RESOURCES USE, WASTE AND OUTPUT FLOWS, BIOGENIC CONTENT

The LCI indicators are calculated using the methodology implemented in the Gabi software.

Mill finished profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A2							
Resource use indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy (PERE) [MJ]	2,46E+01	5,63E-03	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-1,70E+01
Primary energy resources used as raw materials (PERM) [MJ]	0,00E+00	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]	2,46E+01	5,63E-03	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-1,70E+01
Use of non-renewable primary energy (PENRE) [MJ]	4,66E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-3,75E+01
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources (PENRT) [MJ]	4,66E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-3,75E+01
Input of secondary material (SM) [kg]	8,85E-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]	6,26E-02	6,55E-06	0,00E+00	1,12E-05	1,83E-04	1,99E-06	-4,30E-02
Output flows and waste categories	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed (HWD) [kg]	9,73E-07	8,98E-13	0,00E+00	8,33E-13	3,01E-11	4,02E-13	-2,64E-08
Non-hazardous waste disposed (NHWD) [kg]	1,23E+00	2,37E-05	0,00E+00	2,49E-05	4,83E-02	4,00E-02	-9,15E-01
Radioactive waste disposed (RWD) [kg]	4,79E-03	2,41E-07	0,00E+00	2,14E-07	5,46E-05	8,74E-08	-2,23E-03
Components for re-use (CRU) [kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for Recycling (MFR) [kg]	4,38E-01	0,00E+00	0,00E+00	9,60E-01	9,12E-01	0,00E+00	0,00E+00
Material for Energy Recovery (MER) [kg]	1,57E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy (EEE) [MJ]	3,32E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET) [MJ]	6,08E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Biogenic carbon content	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Biogenic carbon content in packaging [kg]*	3,54E-05	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. The mass of biogenic carbon containing materials in the products is less than 5%.

Fabricated profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A2							
Resource use indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy (PERE) [MJ]	2,73E+01	5,63E-03	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-1,70E+01
Primary energy resources used as raw materials (PERM) [MJ]	0,00E+00	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]	2,73E+01	5,63E-03	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-1,70E+01
Use of non-renewable primary energy (PENRE) [MJ]	5,54E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-3,75E+01
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources (PENRT) [MJ]	5,54E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-3,75E+01
Input of secondary material (SM) [kg]	8,85E-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]	6,59E-02	6,55E-06	0,00E+00	1,12E-05	1,83E-04	1,99E-06	-4,30E-02
Output flows and waste categories	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed (HWD) [kg]	1,02E-06	8,98E-13	0,00E+00	8,33E-13	3,01E-11	4,02E-13	-2,64E-08
Non-hazardous waste disposed (NHWD) [kg]	1,27E+00	2,37E-05	0,00E+00	2,49E-05	4,83E-02	4,00E-02	-9,15E-01
Radioactive waste disposed (RWD) [kg]	7,95E-03	2,41E-07	0,00E+00	2,14E-07	5,46E-05	8,74E-08	-2,23E-03
Components for re-use (CRU) [kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for Recycling (MFR) [kg]	6,08E-01	0,00E+00	0,00E+00	9,60E-01	9,12E-01	0,00E+00	0,00E+00
Material for Energy Recovery (MER) [kg]	4,12E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy (EEE) [MJ]	1,87E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET) [MJ]	3,40E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Biogenic carbon content	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Biogenic carbon content in packaging [kg]	7,32E-05	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. The mass of biogenic carbon containing materials in the products is less than 5%.

Friction stir welded profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A2							
Resource use indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy (PERE) [MJ]	2,86E+01	5,63E-03	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-1,70E+01
Primary energy resources used as raw materials (PERM) [MJ]	0,00E+00	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]	2,86E+01	5,63E-03	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-1,70E+01
Use of non-renewable primary energy (PENRE) [MJ]	6,21E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-3,75E+01
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources (PENRT) [MJ]	6,21E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-3,75E+01
Input of secondary material (SM) [kg]	8,85E-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]	6,79E-02	6,55E-06	0,00E+00	1,12E-05	1,83E-04	1,99E-06	-4,30E-02
Output flows and waste categories	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed (HWD) [kg]	9,74E-07	8,98E-13	0,00E+00	8,33E-13	3,01E-11	4,02E-13	-2,64E-08
Non-hazardous waste disposed (NHWD) [kg]	1,25E+00	2,37E-05	0,00E+00	2,49E-05	4,83E-02	4,00E-02	-9,15E-01
Radioactive waste disposed (RWD) [kg]	1,10E-02	2,41E-07	0,00E+00	2,14E-07	5,46E-05	8,74E-08	-2,23E-03
Components for re-use (CRU) [kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for Recycling (MFR) [kg]	9,62E-01	0,00E+00	0,00E+00	9,60E-01	9,12E-01	0,00E+00	0,00E+00
Material for Energy Recovery (MER) [kg]	3,08E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy (EEE) [MJ]	6,13E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET) [MJ]	1,11E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Biogenic carbon content	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Biogenic carbon content in packaging [kg]	5,42E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Friction stir welded with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A2							
Resource use indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy (PERE) [MJ]	3,12E+01	5,63E-03	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-1,70E+01
Primary energy resources used as raw materials (PERM) [MJ]	0,00E+00	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]	3,12E+01	5,63E-03	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-1,70E+01
Use of non-renewable primary energy (PENRE) [MJ]	7,09E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-3,75E+01
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources (PENRT) [MJ]	7,09E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-3,75E+01
Input of secondary material (SM) [kg]	8,85E-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]	7,13E-02	6,55E-06	0,00E+00	1,12E-05	1,83E-04	1,99E-06	-4,30E-02
Output flows and waste categories	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed (HWD) [kg]	1,02E-06	8,98E-13	0,00E+00	8,33E-13	3,01E-11	4,02E-13	-2,64E-08
Non-hazardous waste disposed (NHWD) [kg]	1,29E+00	2,37E-05	0,00E+00	2,49E-05	4,83E-02	4,00E-02	-9,15E-01
Radioactive waste disposed (RWD) [kg]	1,42E-02	2,41E-07	0,00E+00	2,14E-07	5,46E-05	8,74E-08	-2,23E-03
Components for re-use (CRU) [kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for Recycling (MFR) [kg]	1,13E+00	0,00E+00	0,00E+00	9,60E-01	9,12E-01	0,00E+00	0,00E+00
Material for Energy Recovery (MER) [kg]	5,63E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy (EEE) [MJ]	2,15E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET) [MJ]	3,91E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Biogenic carbon content	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Biogenic carbon content in packaging [kg]	9,20E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Anodised profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A2							
Resource use indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy (PERE) [MJ]	4,06E+01	5,63E-03	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-1,70E+01
Primary energy resources used as raw materials (PERM) [MJ]	0,00E+00	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]	4,06E+01	5,63E-03	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-1,70E+01
Use of non-renewable primary energy (PENRE) [MJ]	7,49E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-3,75E+01
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources (PENRT) [MJ]	7,49E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-3,75E+01
Input of secondary material (SM) [kg]	8,85E-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]	7,77E-02	6,55E-06	0,00E+00	1,12E-05	1,83E-04	1,99E-06	-4,30E-02
Output flows and waste categories	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed (HWD) [kg]	9,78E-07	8,98E-13	0,00E+00	8,33E-13	3,01E-11	4,02E-13	-2,64E-08
Non-hazardous waste disposed (NHWD) [kg]	1,72E+00	2,37E-05	0,00E+00	2,49E-05	4,83E-02	4,00E-02	-9,15E-01
Radioactive waste disposed (RWD) [kg]	1,45E-02	2,41E-07	0,00E+00	2,14E-07	5,46E-05	8,74E-08	-2,23E-03
Components for re-use (CRU) [kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for Recycling (MFR) [kg]	4,45E-01	0,00E+00	0,00E+00	9,60E-01	9,12E-01	0,00E+00	0,00E+00
Material for Energy Recovery (MER) [kg]	7,57E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy (EEE) [MJ]	1,99E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET) [MJ]	3,59E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Biogenic carbon content	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Biogenic carbon content in packaging [kg]	8,22E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Anodised with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A2							
Resource use indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy (PERE) [MJ]	4,32E+01	5,63E-03	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-1,70E+01
Primary energy resources used as raw materials (PERM) [MJ]	0,00E+00	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]	4,32E+01	5,63E-03	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-1,70E+01
Use of non-renewable primary energy (PENRE) [MJ]	8,37E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-3,75E+01
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources (PENRT) [MJ]	8,37E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-3,75E+01
Input of secondary material (SM) [kg]	8,85E-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]	8,10E-02	6,55E-06	0,00E+00	1,12E-05	1,83E-04	1,99E-06	-4,30E-02
Output flows and waste categories	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed (HWD) [kg]	1,03E-06	8,98E-13	0,00E+00	8,33E-13	3,01E-11	4,02E-13	-2,64E-08
Non-hazardous waste disposed (NHWD) [kg]	1,76E+00	2,37E-05	0,00E+00	2,49E-05	4,83E-02	4,00E-02	-9,15E-01
Radioactive waste disposed (RWD) [kg]	1,77E-02	2,41E-07	0,00E+00	2,14E-07	5,46E-05	8,74E-08	-2,23E-03
Components for re-use (CRU) [kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for Recycling (MFR) [kg]	6,16E-01	0,00E+00	0,00E+00	9,60E-01	9,12E-01	0,00E+00	0,00E+00
Material for Energy Recovery (MER) [kg]	1,01E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy (EEE) [MJ]	3,53E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET) [MJ]	6,39E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Biogenic carbon content	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Biogenic carbon content in packaging [kg]	1,20E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Painted profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A2							
Resource use indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy (PERE) [MJ]	3,11E+01	5,63E-03	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-1,70E+01
Primary energy resources used as raw materials (PERM) [MJ]	0,00E+00	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]	3,11E+01	5,63E-03	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-1,70E+01
Use of non-renewable primary energy (PENRE) [MJ]	7,15E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-3,75E+01
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources (PENRT) [MJ]	7,15E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-3,75E+01
Input of secondary material (SM) [kg]	8,85E-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]	7,15E-02	6,55E-06	0,00E+00	1,12E-05	1,83E-04	1,99E-06	-4,30E-02
Output flows and waste categories	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed (HWD) [kg]	9,76E-07	8,98E-13	0,00E+00	8,33E-13	3,01E-11	4,02E-13	-2,64E-08
Non-hazardous waste disposed (NHWD) [kg]	1,29E+00	2,37E-05	0,00E+00	2,49E-05	4,83E-02	4,00E-02	-9,15E-01
Radioactive waste disposed (RWD) [kg]	1,25E-02	2,41E-07	0,00E+00	2,14E-07	5,46E-05	8,74E-08	-2,23E-03
Components for re-use (CRU) [kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for Recycling (MFR) [kg]	4,86E-01	0,00E+00	0,00E+00	9,60E-01	9,12E-01	0,00E+00	0,00E+00
Material for Energy Recovery (MER) [kg]	4,17E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy (EEE) [MJ]	4,68E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET) [MJ]	8,49E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Biogenic carbon content	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Biogenic carbon content in packaging [kg]	8,56E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Painted with fabrication profile implemented with Hydro RESTORE innovative, Sjunnen billet. Method EN15801+A2							
Resource use indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy (PERE) [MJ]	3,38E+01	5,63E-03	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-1,70E+01
Primary energy resources used as raw materials (PERM) [MJ]	0,00E+00	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]	3,38E+01	5,63E-03	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-1,70E+01
Use of non-renewable primary energy (PENRE) [MJ]	8,03E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-3,75E+01
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources (PENRT) [MJ]	8,03E+01	2,04E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-3,75E+01
Input of secondary material (SM) [kg]	8,85E-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]	7,48E-02	6,55E-06	0,00E+00	1,12E-05	1,83E-04	1,99E-06	-4,30E-02
Output flows and waste categories	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed (HWD) [kg]	1,02E-06	8,98E-13	0,00E+00	8,33E-13	3,01E-11	4,02E-13	-2,64E-08
Non-hazardous waste disposed (NHWD) [kg]	1,33E+00	2,37E-05	0,00E+00	2,49E-05	4,83E-02	4,00E-02	-9,15E-01
Radioactive waste disposed (RWD) [kg]	1,56E-02	2,41E-07	0,00E+00	2,14E-07	5,46E-05	8,74E-08	-2,23E-03
Components for re-use (CRU) [kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for Recycling (MFR) [kg]	6,56E-01	0,00E+00	0,00E+00	9,60E-01	9,12E-01	0,00E+00	0,00E+00
Material for Energy Recovery (MER) [kg]	6,72E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy (EEE) [MJ]	6,22E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET) [MJ]	1,13E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Biogenic carbon content	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Biogenic carbon content in packaging [kg]	1,23E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

4 REFERENCES

Ecoinnovazione, 2022. Technical report: LCA of aluminium extrusion profiles produced by Hydro Extrusion Sweden AB.

EN 15804:2012+A2:2019 “Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products”

Environmental Product Declaration (EPD) for the Hydro RESTORE innovative, Sjunnen billet produced by Hydro Extrusion Italy srl, S-P-04642 (Version2)

International EPD® System, 2019. General Programme Instructions for the International EPD System, version 3.01

International EPD® System, 2019. PCR 2019:14 Construction products, version 1.11

International Organisation for Standardization (ISO), 2006a Environmental management – Life Cycle assessment – Principles and framework. ISO 14040:2006/Amd 1:2020, Geneva

International Organisation for Standardization (ISO), 2006b Environmental management – Life Cycle assessment – Requirements and guidelines. ISO 14044:2006/Amd 2:2020, 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 operator 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 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 profiles covered by the present EPD are produced in Finspång and Vetlanda.

For further information on product characteristics, typical applications, technical datasheet and case histories, please visit our website www.hydro.com or contact Elisabeth.hermansson@hydro.com.

6 VERIFICATION AND REGISTRATION

CEN standard EN 15804 served as core PCR	
EPD Programme:	The International EPD® System For more information – www.environdec.com
PCR:	PCR 2019:14 Construction products version 1.11, 2021-02-05
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-07379
EPD validity:	5 years
EPD valid within the following geographical area:	Global
Technical support:	Ecoinnovazione S.r.l. – spin-off ENEA Via della Liberazione 6, 40128 Bologna www.ecoinnovazione.it
Independent verification of the declaration and data according to ISO 14025:	EPD verification (external)
Third party verifier:	David Althoff Palm, Ramboll Sweden AB
Procedure for follow-up during EPD validity involves third party verifier:	Yes
Accredited by:	The International EPD-system