ENVIRONMENTAL PRODUCT DECLARATION (EPD) FOR

MILL FINISHED AND FABRICATED ALUMINIUM PROFILES

PRODUCED BY HYDRO EXTRUSION DENMARK A/S – TØNDER SITE



Hydro

We are aluminium

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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 Denmark manufactures aluminium profiles. The company has 280 employees, and it is equipped with extrusion (2 presses) and fabrication lines. The site also includes a Laboratory (for testing) and a die shop for the cleaning and maintenance of steel dies.

It 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 Denmark are used in several markets, among all automotive, building and construction, industrial and general engineering. Profiles are manufactured starting from aluminium billets (externally purchased). The production stage, common to all the analysed profiles, consists of the extrusion of the billets by means of electricity-driven presses. A fabrication stage is eventually applied, which can include CNC, cutting, punching and forming. The present EPD cover the following aluminium profiles:

1. mill finished profiles implemented with the average billet purchased by Hydro Extrusion Denmark A/S
2. fabricated profiles implemented with the average billet purchased by Hydro Extrusion Denmark A/S
3. mill finished profiles implemented with Hydro CIRCAL billet
4. fabricated profiles implemented with Hydro CIRCAL billet
5. mill finished profiles implemented with Hydro REDUXA billet
6. fabricated profiles implemented with Hydro REDUXA billet
7. mill finished profiles implemented with Hydro EUROPE billet
8. fabricated profiles implemented with Hydro EUROPE billet
9. mill finished profiles implemented with the average remelted billet purchased by Hydro Extrusion Denmark A/S
10. fabricated profiles implemented with the average remelted billet purchased by Hydro Extrusion Denmark A/S
11. mill finished profiles implemented with the average primary billet purchased by Hydro Extrusion Denmark A/S
12. fabricated profiles implemented with the average primary billet purchased by Hydro Extrusion Denmark A/S

The present EPD covers only the profiles extruded in Tønder's presses (extrusion code "F1" or "F2").

The production process of all profiles 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".

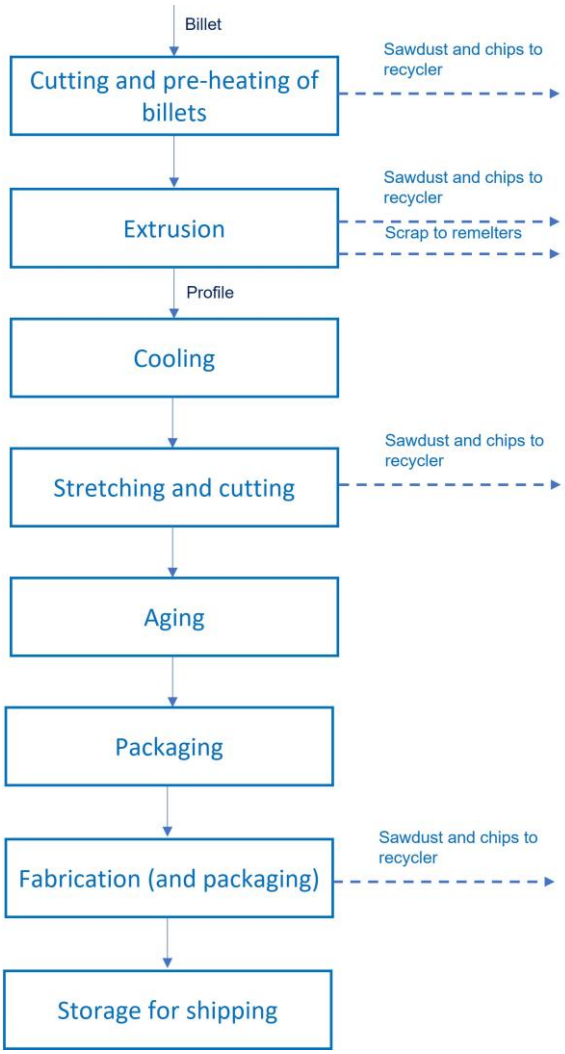


Figure 1: Production process of the profiles.

2.2.1 TECHNICAL CHARACTERISTICS OF THE PRODUCT

The studied aluminium profiles are products used in several markets, among all automotive, building and construction, industrial and general engineering. Profiles are manufactured starting from billets (externally purchased), which are then extruded in presses. The produced profiles eventually undergo further processing, namely fabrication. This can include CNC, cutting, punching and forming.

2.2.2 PRODUCT COMPOSITION

Profiles are made 100% of aluminium billets (input metal), which can be sourced from smelters (primary production) and/or remelters.

The composition of input metal for the 12 products covered by the present EPD is reported in Table 1 based on the feedstock information available to Hydro Extrusion Denmark A/S and/or on information declared in EPDs. 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*						
	Average	**Circal**	**Reduxa**	**Europe**	**Remelted**	**Primary**
Post-consumer	5-9	81	0	5-10	19	4-9
Alloys	0 – 2	0.1	1	1-2	1-2	0 – 2
Aluminium (excluding post-consumer)	95-89	19	99	94-88	80-79	96-89
Packaging of profile (kg per kg of profile)**						
	Mill finished			**Fabricated**		
Plastic	0,00319			0,00638		
Wood	0,00883			0,01766		
Paper&cardboard	0,00574			0,01148		
Metal	0,00018			0,00036		

** higher detail on CIRCAL, REDUXA and Europe billet composition is available in the related EPDs.*
***Reported packaging for fabricated profiles includes the packaging applied to the extrusion too*

2.2.3 PRODUCT REFERENCE SERVICE LIFE

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

2.2.4 MARKET

The reference market is Europe. Application sector is mainly Building and Construction, but also Automotive and Transport, 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 (for additional indicators)
- 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 Denmark A/S – Tonder site

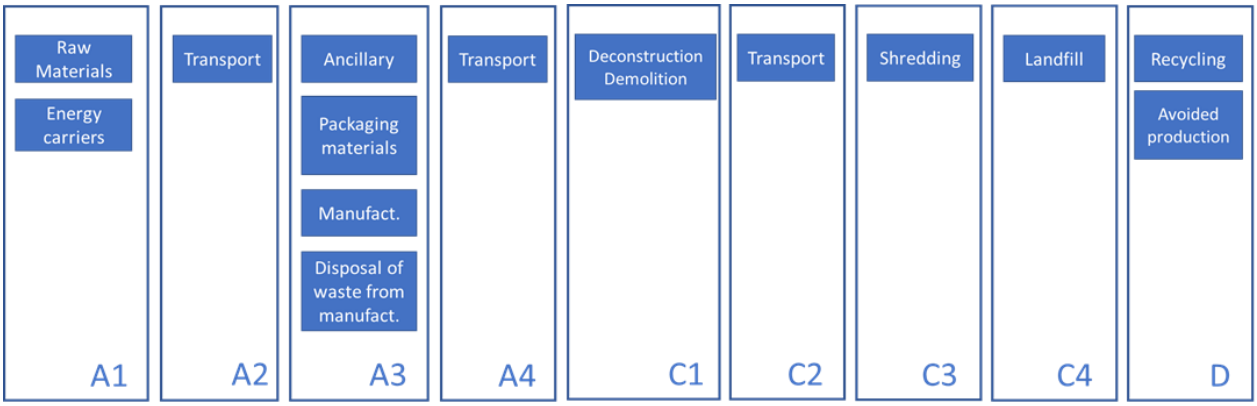
	PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE	END-OF-LIFE STAGE				BENEFITS and LOADS BEYOND SYSTEM BOUNDARY
	A1	A2	A3	A4	A5	B1 to B7	C1	C2	C3	C4	D
	Raw Material Supply	Transport	Manufacturing	Transport	Construction/Installation	Use, Maintenance, Repair, Replacement, Refurbishment, Operational energy use,	Dismantling/De-construction/Demolition	Transport	Waste processing	Disposal	Reuse, Recycling potential
	X	X	X	X	NA	NA	X	X	X	X	X
Geography	EU, extra-EU, GLO	EU, extra-EU, GLO	EU, DK	GLO, EU	-	-	EU	GLO, EU	EU	EU	EU, GLO
Specific data used*				-							
Profiles with average purchased billet	Mill finished 42% Fabricated 42%			-	-	-	-	-	-	-	-
Profiles with CIRCAL	Mill finished 20% Fabricated 21%			-	-	-	-	-	-	-	-
Profiles with REDUXA	Mill finished 80% Fabricated 78%			-	-	-	-	-	-	-	-
Profiles with EUROPE	Mill finished 40% Fabricated 40%			-	-	-	-	-	-	-	-
Profiles with average remelted billet purchased	Mill finished 31% Fabricated 32%			-	-	-	-	-	-	-	-
Profiles with average primary billet purchased	Mill finished 43% Fabricated 43%			-	-	-	-	-	-	-	-
Variation – products	Not relevant			-	-	-	-	-	-	-	-
Variation – sites	Not relevant			-	-	-	-	-	-	-	-

*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.

Figure 2: System boundaries for the study of the aluminium profiles Hydro Extrusion Denmark A/S – Tonder site



The following stages are included in the study:

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

- Production of billets

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

Transport of raw materials to the factory (A2)

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

- Extrusion
- Fabrication

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

Transport to the user (A4)

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 2023[1].

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 and are not older than 5 years. Background data, for instance, transport and energy production, are from Sphera.

3.4.2 ALLOCATION

The allocation is made in accordance with the provisions of EN 15804. Energy and resources (water and ancillary) 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[2] is allocated to the main product in which the material is used (process scrap as co-product). For the additional LCIA indicators in 3.6.2 a different approach is applied to process scrap, more in detail no burden is allocated to process scrap (zero-burden approach).

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. Excluded auxiliaries are < 1% in mass of total inflows/outflows.

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

3.4.4 BACKGROUND DATA INFORMATION

For almost all aluminium billets entering the production site, 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.

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**

[1] The reference period for the first publication of the EPD was from 1 July 2020 to 30 June 2021. In the context of the Revision n. 2, the metal input, energy (consumption and electricity mix) and material efficiency of both extrusion and fabrication were updated to 2023.

[2] Process scrap is here intended as synonymous of "pre-consumer material" as defined in ISO 14021.

Diesel truck, Euro IV, > 32 t	61	532
Container ship, 5,000 to 200,000 dwt payload capacity, ocean going	70	15

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 addresses 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.

3.5.1 CO-PRODUCT APPROACH TO THE MODELING OF PROCESS SCRAP

Table 6 Impacts of mill finished profile implemented with the average billet purchased. Method EN15801+A2 – coproduct approach

Impacts of mill finished profile implemented with the average billet purchased. Method EN15801+A2 – co-product approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	5,90E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-6,93E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	5,80E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-6,92E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	4,06E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-1,44E-02
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	5,58E-02	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,25E-03
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	4,55E-07	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-5,19E-11
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	4,04E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-4,02E-02
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	2,08E-03	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-3,09E-06
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	5,85E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-5,80E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	5,80E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-6,34E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	1,79E-02	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,75E-02
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	1,10E-05	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,55E-06
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	7,01E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-8,48E+01
Water Use - WDP [m^3 world equiv.]**	9,21E-01	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,02E+00
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO_2 eq.]***	5,86E+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 the average billet purchased. Method EN15801+A2 – coproduct approach

Impacts of fabricated profile implemented with the average billet purchased. Method EN15801+A2 – co-product approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	6,12E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-6,93E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	6,02E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-6,92E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	4,40E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-1,44E-02
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	5,60E-02	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,25E-03
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	4,55E-07	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-5,19E-11
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	4,12E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-4,02E-02
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	2,08E-03	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-3,09E-06
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	6,18E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-5,80E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	6,15E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-6,34E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	1,87E-02	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,75E-02
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	1,10E-05	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,55E-06
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	7,27E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-8,48E+01
Water Use - WDP [m^3 world equiv.]**	9,33E-01	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,02E+00
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO_2 eq.]***	6,08E+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 mill finished profile implemented with CIRCAL. Method EN15801+A2 – coproduct approach

Impacts of mill finished profiles implemented with CIRCAL. Method EN15801+A2 – co-product approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	1,98E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-1,42E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	1,91E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-1,42E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	1,68E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-2,95E-03
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	4,46E-02	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-2,56E-04
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	1,90E-07	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-1,07E-11
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	1,23E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-8,26E-03
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	5,47E-05	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-6,34E-07
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	1,76E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-1,19E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	1,97E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-1,30E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	6,43E-03	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-3,60E-03
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	3,41E-06	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-3,19E-07
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	2,55E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-1,74E+01
Water Use - WDP [m^3 world equiv.]**	4,46E-01	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-2,11E-01
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO_2 eq.]***	1,96E+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 fabricated profile implemented with CIRCAL. Method EN15801+A2 – coproduct approach

Impacts of fabricated profiles implemented with CIRCAL. Method EN15801+A2 – co-product approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	2,20E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-1,42E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	2,13E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-1,42E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	2,02E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-2,95E-03
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	4,47E-02	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-2,56E-04
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	1,90E-07	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-1,07E-11
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	1,31E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-8,26E-03
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	5,53E-05	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-6,34E-07
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	2,09E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-1,19E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	2,33E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-1,30E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	7,28E-03	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-3,60E-03
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	3,45E-06	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-3,19E-07
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	2,81E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-1,74E+01
Water Use - WDP [m^3 world equiv.]**	4,58E-01	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-2,11E-01
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO_2 eq.]***	2,18E+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 mill finished profile implemented with REDUXA. Method EN15801+A2 – coproduct approach

Impacts of mill finished profiles implemented with REDUXA. Method EN15801+A2 – co-product approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	4,27E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-7,50E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	4,22E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-7,48E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	3,59E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-1,55E-02
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	7,13E-03	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,35E-03
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	4,84E-07	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-5,61E-11
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	2,44E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-4,35E-02
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	5,38E-05	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-3,34E-06
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	3,66E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-6,27E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	3,98E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-6,85E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	1,20E-02	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,89E-02
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	6,08E-06	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,68E-06
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	4,23E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-9,17E+01
Water Use - WDP [m^3 world equiv.]**	6,37E-01	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,11E+00
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO_2 eq.]***	4,23E+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 fabricated profile implemented with REDUXA. Method EN15801+A2 – coproduct approach

Impacts of fabricated profiles implemented with REDUXA. Method EN15801+A2 – co-product approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	4,49E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-7,50E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	4,44E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-7,48E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	3,94E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-1,55E-02
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	7,29E-03	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,35E-03
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	4,84E-07	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-5,61E-11
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	2,52E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-4,35E-02
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	5,44E-05	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-3,34E-06
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	3,98E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-6,27E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	4,34E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-6,85E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	1,28E-02	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,89E-02
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	6,11E-06	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,68E-06
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	4,49E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-9,17E+01
Water Use - WDP [m^3 world equiv.]**	6,49E-01	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,11E+00
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO_2 eq.]***	4,45E+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 mill finished profile implemented with EUROPE. Method EN15801+A2 – coproduct approach

Impacts of mill finished profiles implemented with EUROPE. Method EN15801+A2 – co-product approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	6,08E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-6,93E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	5,97E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-6,92E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	4,39E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-1,44E-02
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	6,86E-02	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,25E-03
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	4,99E-07	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-5,19E-11
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	4,35E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-4,02E-02
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	2,61E-03	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-3,09E-06
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	6,24E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-5,80E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	6,06E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-6,34E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	1,90E-02	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,75E-02
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	1,27E-05	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,55E-06
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	7,31E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-8,49E+01
Water Use - WDP [m^3 world equiv.]**	1,03E+00	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,03E+00
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO_2 eq.]***	6,04E+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 fabricated profile implemented with EUROPE. Method EN15801+A2 – coproduct approach

Impacts of fabricated profiles implemented with EUROPE. Method EN15801+A2 – co-product approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	6,30E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-6,93E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	6,18E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-6,92E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	4,73E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-1,44E-02
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	6,88E-02	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,25E-03
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	4,99E-07	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-5,19E-11
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	4,43E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-4,02E-02
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	2,61E-03	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-3,09E-06
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	6,57E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-5,80E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	6,42E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-6,34E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	1,98E-02	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,75E-02
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	1,28E-05	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,55E-06
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	7,57E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-8,49E+01
Water Use - WDP [m^3 world equiv.]**	1,04E+00	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,03E+00
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO_2 eq.]***	6,25E+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 14 Impacts of mill finished profile implemented with the average remelted billet. Method EN15801+A2 – coproduct approach

Impacts of mill finished profile implemented with the average remelted billet. Method EN15801+A2 – co-product approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	6,31E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-5,78E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	6,28E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-5,77E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	1,64E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-1,20E-02
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	9,09E-03	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,04E-03
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	4,82E-08	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-4,33E-11
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	3,56E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-3,35E-02
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	6,20E-05	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-2,57E-06
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	5,68E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-4,84E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	6,22E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-5,29E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	1,70E-02	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,46E-02
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	2,74E-06	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,30E-06
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	7,38E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-7,07E+01
Water Use - WDP [m^3 world equiv.]**	3,86E-01	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-8,55E-01
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO_2 eq.]***	6,29E+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 15 Impacts of fabricated profile implemented with the average remelted billet. Method EN15801+A2 – coproduct approach

Impacts of fabricated profile implemented with the average remelted billet. Method EN15801+A2 – co-product approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	6,53E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-5,78E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	6,50E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-5,77E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	1,99E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-1,20E-02
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	9,25E-03	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,04E-03
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	4,82E-08	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-4,33E-11
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	3,64E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-3,35E-02
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	6,25E-05	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-2,57E-06
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	6,01E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-4,84E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	6,57E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-5,29E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	1,79E-02	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,46E-02
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	2,78E-06	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,30E-06
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	7,64E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-7,07E+01
Water Use - WDP [m^3 world equiv.]**	3,98E-01	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-8,55E-01
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO_2 eq.]***	6,51E+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 16 Impacts of mill finished profile implemented with the average primary billet. Method EN15801+A2 – coproduct approach

Impacts of mill finished profile implemented with the average primary billet. Method EN15801+A2 – co-product approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	5,87E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-7,02E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	5,77E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-7,00E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	4,24E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-1,46E-02
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	5,93E-02	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,26E-03
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	4,86E-07	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-5,25E-11
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	4,07E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-4,07E-02
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	2,23E-03	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-3,13E-06
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	5,87E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-5,87E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	5,77E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-6,42E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	1,79E-02	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,77E-02
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	1,16E-05	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,57E-06
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	6,98E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-8,59E+01
Water Use - WDP [m^3 world equiv.]**	9,61E-01	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,04E+00
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO_2 eq.]***	5,83E+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 17 Impacts of fabricated profile implemented with the average primary billet. Method EN15801+A2 – coproduct approach

Impacts of fabricated profile implemented with the average primary billet. Method EN15801+A2 – co-product approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	6,09E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-7,02E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	5,98E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-7,00E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	4,58E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-1,46E-02
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	5,95E-02	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,26E-03
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	4,86E-07	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-5,25E-11
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	4,15E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-4,07E-02
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	2,23E-03	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-3,13E-06
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	6,19E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-5,87E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	6,12E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-6,42E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	1,88E-02	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,77E-02
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	1,17E-05	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,57E-06
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	7,24E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-8,59E+01
Water Use - WDP [m^3 world equiv.]**	9,73E-01	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,04E+00
Indicators required by the PCR 2019:14	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG [kg CO_2 eq.]***	6,04E+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.

3.5.2 ZERO-BURDEN APPROACH TO THE MODELING OF PROCESS SCRAP

Table 18 Impacts of mill finished profile implemented with the average billet purchased. Method EN15801+A2 – zero burden approach

Impacts of mill finished profile implemented with the average billet purchased. Method EN15801+A2 – zero burden approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	5,74E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-5,47E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	5,65E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-5,46E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	2,68E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-1,14E-02
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	4,69E-02	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-9,84E-04
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	4,75E-07	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-4,10E-11
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	4,09E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-3,18E-02
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	1,79E-03	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-2,44E-06
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	6,03E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-4,58E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	6,07E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-5,00E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	2,07E-02	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,38E-02
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	1,11E-05	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,23E-06
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	6,54E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-6,70E+01
Water Use - WDP [m^3 world equiv.]**	9,38E-01	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-8,09E-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.

Table 19 Impacts of fabricated profile implemented with the average billet purchased. Method EN15801+A2 – zero burden approach

Impacts of fabricated profile implemented with the average billet purchased. Method EN15801+A2 – zero burden approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	7,33E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-5,47E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	7,22E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-5,46E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	3,59E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-1,14E-02
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	5,83E-02	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-9,84E-04
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	5,89E-07	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-4,10E-11
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	5,16E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-3,18E-02
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	2,22E-03	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-2,44E-06
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	7,81E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-4,58E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	7,88E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-5,00E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	2,65E-02	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,38E-02
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	1,38E-05	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,23E-06
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	8,35E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-6,70E+01
Water Use - WDP [m^3 world equiv.]**	1,17E+00	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-8,09E-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.

Table 20 Impacts of mill finished profile implemented with CIRCAL. Method EN15801+A2 – zero burden approach

Impacts of mill finished profiles implemented with CIRCAL. Method EN15801+A2 – zero burden approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	1,92E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-8,25E-01
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	1,86E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-8,23E-01
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	1,40E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-1,71E-03
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	4,19E-02	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,48E-04
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	4,84E-08	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-6,17E-12
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	1,11E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-4,78E-03
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	3,99E-04	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-3,67E-07
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	1,94E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-6,90E-04
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	2,08E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-7,54E-03
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	7,48E-03	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-2,08E-03
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	2,39E-06	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,85E-07
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	2,34E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-1,01E+01
Water Use - WDP [m^3 world equiv.]**	4,02E-01	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,22E-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.

Table 21 Impacts of fabricated profile implemented with CIRCAL. Method EN15801+A2 – zero burden approach

Impacts of fabricated profiles implemented with CIRCAL. Method EN15801+A2 – zero burden approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	2,58E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-8,25E-01
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	2,51E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-8,23E-01
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	2,00E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-1,71E-03
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	5,21E-02	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,48E-04
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	6,01E-08	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-6,17E-12
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	1,46E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-4,78E-03
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	4,95E-04	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-3,67E-07
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	2,72E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-6,90E-04
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	2,93E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-7,54E-03
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	1,01E-02	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-2,08E-03
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	3,00E-06	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,85E-07
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	3,14E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-1,01E+01
Water Use - WDP [m^3 world equiv.]**	5,10E-01	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,22E-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.

Table 22 Impacts of mill finished profile implemented with REDUXA. Method EN15801+A2 – zero burden approach

Impacts of mill finished profiles implemented with REDUXA. Method EN15801+A2 – zero burden approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	5,70E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-7,50E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	5,64E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-7,48E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	4,70E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-1,55E-02
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	9,53E-03	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,35E-03
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	6,49E-07	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-5,61E-11
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	3,27E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-4,35E-02
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	7,20E-05	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-3,34E-06
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	4,88E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-6,27E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	5,32E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-6,85E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	1,60E-02	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,89E-02
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	8,14E-06	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,68E-06
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	5,64E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-9,17E+01
Water Use - WDP [m^3 world equiv.]**	8,52E-01	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,11E+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.

Table 23 Impacts of fabricated profile implemented with REDUXA. Method EN15801+A2 – zero burden approach

Impacts of fabricated profiles implemented with REDUXA. Method EN15801+A2 – zero burden approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	7,28E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-7,50E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	7,20E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-7,48E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	6,10E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-1,55E-02
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	1,20E-02	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,35E-03
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	8,05E-07	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-5,61E-11
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	4,13E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-4,35E-02
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	8,99E-05	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-3,34E-06
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	6,38E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-6,27E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	6,95E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-6,85E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	2,07E-02	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,89E-02
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	1,01E-05	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,68E-06
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	7,23E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-9,17E+01
Water Use - WDP [m^3 world equiv.]**	1,07E+00	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,11E+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.

Table 24 Impacts of mill finished profile implemented with EUROPE. Method EN15801+A2 – zero burden approach

Impacts of mill finished profiles implemented with EUROPE. Method EN15801+A2 – zero burden approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	5,97E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-5,49E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	5,88E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-5,47E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	2,56E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-1,14E-02
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	5,69E-02	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-9,86E-04
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	5,00E-07	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-4,11E-11
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	4,47E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-3,18E-02
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	2,24E-03	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-2,44E-06
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	6,56E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-4,59E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	6,51E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-5,02E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	1,96E-02	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,39E-02
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	1,26E-05	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,23E-06
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	6,86E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-6,71E+01
Water Use - WDP [m^3 world equiv.]**	1,00E+00	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-8,11E-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.

Table 25 Impacts of fabricated profile implemented with EUROPE. Method EN15801+A2 – zero burden approach

Impacts of fabricated profiles implemented with EUROPE. Method EN15801+A2 – zero burden approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	7,62E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-5,49E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	7,49E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-5,47E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	3,44E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-1,14E-02
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	7,08E-02	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-9,86E-04
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	6,20E-07	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-4,11E-11
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	5,63E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-3,18E-02
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	2,78E-03	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-2,44E-06
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	8,46E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-4,59E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	8,43E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-5,02E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	2,52E-02	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,39E-02
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	1,57E-05	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,23E-06
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	8,74E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-6,71E+01
Water Use - WDP [m^3 world equiv.]**	1,25E+00	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-8,11E-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.

Table 26 Impacts of mill finished profile implemented with the average remelted billet. Method EN15801+A2 – zero burden approach

Impacts of mill finished profile implemented with the average remelted billet. Method EN15801+A2 – zero burden approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	2,10E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-1,30E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	2,09E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-1,29E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	6,49E-03	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-2,69E-03
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	8,76E-03	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-2,33E-04
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	3,71E-08	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-9,71E-12
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	1,31E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-7,53E-03
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	1,24E-04	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-5,78E-07
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	2,13E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-1,09E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	2,33E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-1,19E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	4,21E-02	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-3,28E-03
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	2,06E-06	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-2,91E-07
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	2,42E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-1,59E+01
Water Use - WDP [m^3 world equiv.]**	5,32E-01	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,92E-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.

Table 27 Impacts of fabricated profile implemented with the average remelted billet. Method EN15801+A2 – zero burden approach

Impacts of fabricated profile implemented with the average remelted billet. Method EN15801+A2 – zero burden approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	2,82E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-1,30E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	2,79E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-1,29E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	1,07E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-2,69E-03
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	1,10E-02	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-2,33E-04
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	4,60E-08	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-9,71E-12
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	1,70E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-7,53E-03
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	1,55E-04	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-5,78E-07
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	2,96E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-1,09E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	3,24E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-1,19E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	5,31E-02	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-3,28E-03
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	2,59E-06	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-2,91E-07
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	3,23E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-1,59E+01
Water Use - WDP [m^3 world equiv.]**	6,70E-01	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-1,92E-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.

Table 28 Impacts of mill finished profile implemented with the average primary billet. Method EN15801+A2 – zero burden approach

Impacts of mill finished profile implemented with the average primary billet. Method EN15801+A2 – zero burden approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	6,01E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-5,79E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	5,92E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-5,77E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	2,84E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-1,20E-02
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	4,97E-02	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,04E-03
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	5,08E-07	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-4,33E-11
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	4,30E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-3,36E-02
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	1,91E-03	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-2,58E-06
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	6,33E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-4,84E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	6,35E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-5,29E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	1,91E-02	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,46E-02
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	1,18E-05	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,30E-06
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	6,85E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-7,08E+01
Water Use - WDP [m^3 world equiv.]**	9,69E-01	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-8,56E-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.

Table 29 Impacts of fabricated profile implemented with the average primary billet. Method EN15801+A2 – zero burden approach

Impacts of fabricated profile implemented with the average primary billet. Method EN15801+A2 – zero burden approach							
Core impacts indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global Warming Potential – total – GWP-total [kg CO_2 eq.]	7,67E+00	3,25E-02	0,00E+00	1,30E-02	1,99E-02	5,80E-04	-5,79E+00
Global Warming Potential – fossil - GWP-fossil [kg CO_2 eq.]	7,55E+00	3,23E-02	0,00E+00	1,29E-02	1,98E-02	5,97E-04	-5,77E+00
Global Warming Potential – biogenic - GWP-biogenic [kg CO_2 eq.]	3,78E-02	-4,48E-05	0,00E+00	-1,79E-05	1,49E-04	-1,77E-05	-1,20E-02
Global Warming Potential – land use and land use change – GWP-lucuc [kg CO_2 eq.]	6,18E-02	1,81E-04	0,00E+00	7,24E-05	6,23E-06	1,10E-06	-1,04E-03
Depletion potential of the stratospheric ozone layer - ODP [kg CFC-11 eq.]	6,30E-07	1,95E-15	0,00E+00	7,78E-16	2,78E-13	1,40E-15	-4,33E-11
Acidification potential, Accumulated Exceedance – AP [mole of H+ eq.]	5,42E-02	1,92E-04	0,00E+00	7,65E-05	4,73E-05	4,23E-06	-3,36E-02
Eutrophication potential, fraction of nutrients reaching freshwater acquatic end compartment – EP-freshwater [kg P eq.]*	2,38E-03	9,69E-08	0,00E+00	3,88E-08	5,70E-08	1,01E-09	-2,58E-06
Eutrophication potential, fraction of nutrients reaching freshwater marine end compartment – EP-marine [kg N eq.]	8,17E-03	9,39E-05	0,00E+00	3,75E-05	1,11E-05	1,08E-06	-4,84E-03
Eutrophication potential, Accumulated Exceedance – EP-terrestrial [mole of N eq.]	8,23E-02	1,04E-03	0,00E+00	4,15E-04	1,17E-04	1,19E-05	-5,29E-02
Formation potential of tropospheric ozone – POCP [kg NMVOC eq.]	2,45E-02	1,81E-04	0,00E+00	7,22E-05	2,99E-05	3,29E-06	-1,46E-02
Depletion of abiotic resources - mineral and metals – ADP-minerals&metals [kg Sb eq.]**	1,47E-05	2,72E-09	0,00E+00	1,09E-09	5,24E-09	6,12E-11	-1,30E-06
Depletion of abiotic resources - fossils – ADP-fossil [MJ]**	8,73E+01	4,34E-01	0,00E+00	1,74E-01	3,53E-01	7,82E-03	-7,08E+01
Water Use - WDP [m^3 world equiv.]**	1,21E+00	2,91E-04	0,00E+00	1,17E-04	4,32E-03	6,55E-05	-8,56E-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.

3.6 PARAMETERS DESCRIBING THE ENVIRONMENTAL IMPACT ACCORDING EN15804+A1

3.6.1 CO-PRODUCT APPROACH TO THE MODELING OF PROCESS SCRAP

Table 30 Impacts of mill finished profile implemented with the average billet purchased. Method EN15801+A1 – coproduct approach

Impacts of mill finished profile implemented with the average billet purchased. Method EN15801+A1 – co-product approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	5,77E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-6,87E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	3,96E-07	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-9,55E-11
Acidification potential (AP) [kg SO2 eq.]	3,44E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-3,42E-02
Eutrophication potential (EP) [kg Phosphate eq.]	9,00E-03	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-2,02E-03
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	2,07E-03	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-1,86E-03
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	1,06E-05	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,58E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	5,64E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-7,15E+01

* 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 the average billet purchased. Method EN15801+A1 – coproduct approach

Impacts of fabricated profile implemented with the average billet purchased. Method EN15801+A1 – co-product approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	5,99E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-6,87E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	3,96E-07	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-9,55E-11
Acidification potential (AP) [kg SO2 eq.]	3,50E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-3,42E-02
Eutrophication potential (EP) [kg Phosphate eq.]	9,12E-03	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-2,02E-03
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	2,09E-03	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-1,86E-03
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	1,06E-05	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,58E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	5,88E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-7,15E+01

* 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 mill finished profile implemented with CIRCAL. Method EN15801+A1 – coproduct approach

Impacts of mill finished profile implemented with CIRCAL. Method EN15801+A1 – co-product approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	1,89E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-1,41E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	1,25E-07	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-1,96E-11
Acidification potential (AP) [kg SO2 eq.]	9,89E-03	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-7,02E-03
Eutrophication potential (EP) [kg Phosphate eq.]	2,82E-03	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-4,15E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	8,49E-04	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-3,83E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,71E-06	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-3,26E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	2,21E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-1,47E+01

* 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 fabricated profile implemented with REDUXA. Method EN15801+A1 – coproduct approach

Impacts of fabricated profile implemented with CIRCAL. Method EN15801+A1 – co-product approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	2,11E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-1,41E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	1,25E-07	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-1,96E-11
Acidification potential (AP) [kg SO2 eq.]	1,05E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-7,02E-03
Eutrophication potential (EP) [kg Phosphate eq.]	2,93E-03	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-4,15E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	8,72E-04	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-3,83E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,75E-06	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-3,26E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	2,45E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-1,47E+01

* 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 mill finished profile implemented with REDUXA. Method EN15801+A1 – coproduct approach

Impacts of mill finished profile implemented with REDUXA. Method EN15801+A1 – co-product approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	4,13E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-7,43E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	3,61E-07	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-1,03E-10
Acidification potential (AP) [kg SO2 eq.]	2,02E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-3,70E-02
Eutrophication potential (EP) [kg Phosphate eq.]	1,56E-03	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-2,18E-03
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	9,46E-04	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-2,01E-03
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,64E-06	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,71E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	3,41E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-7,74E+01

* 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 fabricated profile implemented with REDUXA. Method EN15801+A1 – coproduct approach

Impacts of fabricated profile implemented with REDUXA. Method EN15801+A1 – co-product approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	4,35E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-7,43E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	3,61E-07	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-1,03E-10
Acidification potential (AP) [kg SO2 eq.]	2,08E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-3,70E-02
Eutrophication potential (EP) [kg Phosphate eq.]	1,68E-03	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-2,18E-03
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	9,69E-04	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-2,01E-03
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,67E-06	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,71E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	3,65E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-7,74E+01

* 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 mill finished profile implemented with EUROPE. Method EN15801+A1 – coproduct approach

Impacts of mill finished profile implemented with EUROPE. Method EN15801+A1 – co-product approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	5,97E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-6,87E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	4,43E-07	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-9,55E-11
Acidification potential (AP) [kg SO2 eq.]	3,72E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-3,42E-02
Eutrophication potential (EP) [kg Phosphate eq.]	1,09E-02	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-2,02E-03
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	2,29E-03	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-1,86E-03
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	1,27E-05	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,58E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	5,87E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-7,16E+01

* 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 fabricated profile implemented with EUROPE. Method EN15801+A1 – coproduct approach

Impacts of fabricated profile implemented with EUROPE. Method EN15801+A1 – co-product approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	6,18E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-6,87E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	4,43E-07	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-9,55E-11
Acidification potential (AP) [kg SO2 eq.]	3,78E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-3,42E-02
Eutrophication potential (EP) [kg Phosphate eq.]	1,10E-02	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-2,02E-03
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	2,31E-03	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-1,86E-03
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	1,28E-05	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,58E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	6,11E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-7,16E+01

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

Table 38 Impacts of mill finished profile implemented with the average remelted billet. Method EN15801+A1 – coproduct approach

Impacts of mill finished profile implemented with the average remelted billet. Method EN15801+A1 – co-product approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	6,02E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-5,73E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	3,63E-08	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-7,96E-11
Acidification potential (AP) [kg SO2 eq.]	3,00E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-2,85E-02
Eutrophication potential (EP) [kg Phosphate eq.]	2,45E-03	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-1,68E-03
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	1,71E-03	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-1,55E-03
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,66E-06	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,32E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	6,32E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-5,97E+01

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

Table 39 Impacts of fabricated profile implemented with the average remelted billet. Method EN15801+A1 – coproduct approach

Impacts of fabricated profile implemented with the average remelted billet. Method EN15801+A1 – co-product approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	6,23E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-5,73E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	3,63E-08	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-7,96E-11
Acidification potential (AP) [kg SO2 eq.]	3,06E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-2,85E-02
Eutrophication potential (EP) [kg Phosphate eq.]	2,57E-03	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-1,68E-03
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	1,73E-03	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-1,55E-03
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,70E-06	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,32E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	6,56E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-5,97E+01

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

Table 40 Impacts of mill finished profile implemented with the average primary billet. Method EN15801+A1 – coproduct approach

Impacts of mill finished profile implemented with the average primary billet. Method EN15801+A1 – co-product approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	5,76E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-6,95E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	4,23E-07	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-9,67E-11
Acidification potential (AP) [kg SO2 eq.]	3,47E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-3,46E-02
Eutrophication potential (EP) [kg Phosphate eq.]	9,49E-03	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-2,04E-03
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	2,10E-03	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-1,89E-03
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	1,12E-05	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,60E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	5,59E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-7,24E+01

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

Table 41 Impacts of fabricated profile implemented with the average primary billet. Method EN15801+A1 – coproduct approach

Impacts of fabricated profile implemented with the average primary billet. Method EN15801+A1 – co-product approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	5,97E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-6,95E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	4,23E-07	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-9,67E-11
Acidification potential (AP) [kg SO2 eq.]	3,53E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-3,46E-02
Eutrophication potential (EP) [kg Phosphate eq.]	9,61E-03	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-2,04E-03
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	2,12E-03	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-1,89E-03
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	1,12E-05	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,60E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	5,83E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-7,24E+01

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

3.6.2 ZERO-BURDEN APPROACH TO THE MODELING OF PROCESS SCRAP

Table 42 Impacts of mill finished profile implemented with the average billet purchased. Method EN15801+A1 – zero burden approach

Impacts of mill finished profile implemented with the average billet purchased. Method EN15801+A1 – zero burden approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	5,65E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-5,42E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	4,17E-07	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-7,54E-11
Acidification potential (AP) [kg SO2 eq.]	3,48E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-2,70E-02
Eutrophication potential (EP) [kg Phosphate eq.]	8,27E-03	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-1,59E-03
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	1,76E-03	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-1,47E-03
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	1,06E-05	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,25E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	5,57E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-5,65E+01

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

Table 43 Impacts of fabricated profile implemented with the average billet purchased. Method EN15801+A1 – zero burden approach

Impacts of fabricated profile implemented with the average billet purchased. Method EN15801+A1 – zero burden approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	7,21E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-5,42E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	5,17E-07	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-7,54E-11
Acidification potential (AP) [kg SO2 eq.]	4,38E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-2,70E-02
Eutrophication potential (EP) [kg Phosphate eq.]	1,04E-02	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-1,59E-03
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	2,21E-03	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-1,47E-03
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	1,32E-05	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,25E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	7,13E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-5,65E+01

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

Table 44 Impacts of mill finished profile implemented with CIRCAL. Method EN15801+A1 – zero burden approach

Impacts of mill finished profile implemented with CIRCAL. Method EN15801+A1 – zero burden approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	2,52E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-8,17E-01
Ozone Depletion Potential (ODP) [kg R11 eq.]	1,68E-07	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-1,14E-11
Acidification potential (AP) [kg SO2 eq.]	1,32E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-4,07E-03
Eutrophication potential (EP) [kg Phosphate eq.]	3,77E-03	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-2,40E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	1,14E-03	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-2,22E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	3,63E-06	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,88E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	2,93E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-8,51E+00

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

Table 45 Impacts of fabricated profile implemented with REDUXA. Method EN15801+A1 – zero burden approach

Impacts of fabricated profile implemented with CIRCAL. Method EN15801+A1 – zero burden approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	3,32E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-8,17E-01
Ozone Depletion Potential (ODP) [kg R11 eq.]	2,08E-07	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-1,14E-11
Acidification potential (AP) [kg SO2 eq.]	1,70E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-4,07E-03
Eutrophication potential (EP) [kg Phosphate eq.]	4,79E-03	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-2,40E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	1,43E-03	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-2,22E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	4,55E-06	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,88E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	3,86E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-8,51E+00

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

Table 46 Impacts of mill finished profile implemented with REDUXA. Method EN15801+A1 – zero burden approach

Impacts of mill finished profile implemented with REDUXA. Method EN15801+A1 – zero burden approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	5,52E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-7,43E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	4,84E-07	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-1,03E-10
Acidification potential (AP) [kg SO2 eq.]	2,71E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-3,70E-02
Eutrophication potential (EP) [kg Phosphate eq.]	2,08E-03	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-2,18E-03
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	1,27E-03	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-2,01E-03
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	3,53E-06	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,71E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	4,54E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-7,74E+01

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

Table 47 Impacts of fabricated profile implemented with REDUXA. Method EN15801+A1 – zero burden approach

Impacts of fabricated profile implemented with REDUXA. Method EN15801+A1 – zero burden approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	7,05E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-7,43E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	6,01E-07	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-1,03E-10
Acidification potential (AP) [kg SO2 eq.]	3,42E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-3,70E-02
Eutrophication potential (EP) [kg Phosphate eq.]	2,70E-03	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-2,18E-03
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	1,60E-03	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-2,01E-03
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	4,42E-06	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,71E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	5,85E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-7,74E+01

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

Table 48 Impacts of mill finished profile implemented with EUROPE. Method EN15801+A1 – zero burden approach

Impacts of mill finished profile implemented with EUROPE. Method EN15801+A1 – zero burden approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	5,90E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-5,44E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	4,50E-07	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-7,56E-11
Acidification potential (AP) [kg SO2 eq.]	3,81E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-2,71E-02
Eutrophication potential (EP) [kg Phosphate eq.]	9,97E-03	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-1,60E-03
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	1,94E-03	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-1,47E-03
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	1,26E-05	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,25E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	5,91E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-5,66E+01

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

Table 49 Impacts of fabricated profile implemented with EUROPE. Method EN15801+A1 – zero burden approach

Impacts of fabricated profile implemented with EUROPE. Method EN15801+A1 – zero burden approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	7,52E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-5,44E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	5,59E-07	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-7,56E-11
Acidification potential (AP) [kg SO2 eq.]	4,79E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-2,71E-02
Eutrophication potential (EP) [kg Phosphate eq.]	1,25E-02	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-1,60E-03
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	2,44E-03	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-1,47E-03
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	1,57E-05	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,25E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	7,55E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-5,66E+01

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

Table 50 Impacts of mill finished profile implemented with the average remelted billet. Method EN15801+A1 – zero burden approach

Impacts of mill finished profile implemented with the average remelted billet. Method EN15801+A1 – zero burden approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	1,91E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-1,29E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	4,86E-08	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-1,79E-11
Acidification potential (AP) [kg SO2 eq.]	1,15E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-6,40E-03
Eutrophication potential (EP) [kg Phosphate eq.]	1,40E-03	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-3,78E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	5,64E-04	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-3,49E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,22E-06	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-2,97E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	2,24E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-1,34E+01

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

Table 51 Impacts of fabricated profile implemented with the average remelted billet. Method EN15801+A1 – zero burden approach

Impacts of fabricated profile implemented with the average remelted billet. Method EN15801+A1 – zero burden approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	2,57E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-1,29E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	6,03E-08	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-1,79E-11
Acidification potential (AP) [kg SO2 eq.]	1,49E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-6,40E-03
Eutrophication potential (EP) [kg Phosphate eq.]	1,86E-03	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-3,78E-04
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	7,23E-04	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-3,49E-04
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	2,79E-06	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-2,97E-07
Abiotic depletion potential for fossil resources (ADPF) [MJ]	3,00E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-1,34E+01

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

Table 52 Impacts of mill finished profile implemented with the average primary billet. Method EN15801+A1 – zero burden approach

Impacts of mill finished profile implemented with the average primary billet. Method EN15801+A1 – zero burden approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	5,93E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-5,73E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	4,44E-07	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-7,97E-11
Acidification potential (AP) [kg SO2 eq.]	3,65E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-2,85E-02
Eutrophication potential (EP) [kg Phosphate eq.]	8,79E-03	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-1,69E-03
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	1,85E-03	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-1,55E-03
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	1,12E-05	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,32E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	5,82E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-5,97E+01

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

Table 53 Impacts of fabricated profile implemented with the average primary billet. Method EN15801+A1 – zero burden approach

Impacts of fabricated profile implemented with the average primary billet. Method EN15801+A1 – zero burden approach							
Impact category	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Global warming potential (GWP) [kg CO2 eq.]	7,55E+00	3,17E-02	0,00E+00	1,27E-02	1,95E-02	5,66E-04	-5,73E+00
Ozone Depletion Potential (ODP) [kg R11 eq.]	5,52E-07	2,29E-15	0,00E+00	9,17E-16	3,28E-13	1,65E-15	-7,97E-11
Acidification potential (AP) [kg SO2 eq.]	4,59E-02	1,31E-04	0,00E+00	5,21E-05	3,82E-05	3,37E-06	-2,85E-02
Eutrophication potential (EP) [kg Phosphate eq.]	1,10E-02	3,28E-05	0,00E+00	1,31E-05	4,82E-06	3,76E-07	-1,69E-03
Photochemical Ozone Creation Potential (POCP) [kg Ethene eq.]*	2,32E-03	-5,01E-05	0,00E+00	-2,01E-05	2,78E-06	2,65E-07	-1,55E-03
Abiotic depletion potential for non fossil resources (ADPE) [kg Sb eq.]	1,40E-05	2,72E-09	0,00E+00	1,09E-09	5,59E-09	6,18E-11	-1,32E-06
Abiotic depletion potential for fossil resources (ADPF) [MJ]	7,44E+01	4,31E-01	0,00E+00	1,72E-01	2,13E-01	7,56E-03	-5,97E+01

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

3.7 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 the average billet purchased. Method EN15801+A2 – co-product approach							
Ressource use indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy (PERE) [MJ]	4,76E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-3,85E+01
Primary energy resources used as raw materials (PERM) [MJ]	3,27E-04	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]	4,76E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-3,85E+01
Use of non-renewable primary energy (PENRE) [MJ]	6,99E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-8,49E+01
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	3,30E-04	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]	6,99E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-8,49E+01
Input of secondary material (SM) [kg]	1,11E-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]	3,44E-01	2,79E-05	0,00E+00	1,12E-05	1,83E-04	1,99E-06	-9,74E-02
Output flows and waste categories	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed (HWD) [kg]	1,03E+00	2,08E-12	0,00E+00	8,33E-13	3,01E-11	4,02E-13	-5,98E-08
Non-hazardous waste disposed (NHWD) [kg]	3,53E+00	6,24E-05	0,00E+00	2,49E-05	4,83E-02	4,00E-02	-2,07E+00
Radioactive waste disposed (RWD) [kg]	8,04E-04	5,36E-07	0,00E+00	2,14E-07	5,46E-05	8,74E-08	-5,06E-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]	4,16E-01	0,00E+00	9,60E-01	0,00E+00	9,12E-01	0,00E+00	0,00E+00
Material for Energy Recovery (MER) [kg]	2,42E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy (EEE) [MJ]	7,25E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET) [MJ]	1,31E-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]*	5,26E-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 the average billet purchased. Method EN15801+A2 – co-product approach							
Ressource use indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy (PERE) [MJ]	4,92E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-3,85E+01
Primary energy resources used as raw materials (PERM) [MJ]	3,27E-04	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]	4,92E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-3,85E+01
Use of non-renewable primary energy (PENRE) [MJ]	7,25E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-8,49E+01
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	3,30E-04	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]	7,25E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-8,49E+01
Input of secondary material (SM) [kg]	1,11E-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]	3,46E-01	2,79E-05	0,00E+00	1,12E-05	1,83E-04	1,99E-06	-9,74E-02
Output flows and waste categories	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed (HWD) [kg]	1,03E+00	2,08E-12	0,00E+00	8,33E-13	3,01E-11	4,02E-13	-5,98E-08
Non-hazardous waste disposed (NHWD) [kg]	3,97E+00	6,24E-05	0,00E+00	2,49E-05	4,83E-02	4,00E-02	-2,07E+00
Radioactive waste disposed (RWD) [kg]	8,57E-04	5,36E-07	0,00E+00	2,14E-07	5,46E-05	8,74E-08	-5,06E-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]	7,36E-01	0,00E+00	9,60E-01	0,00E+00	9,12E-01	0,00E+00	0,00E+00
Material for Energy Recovery (MER) [kg]	4,66E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy (EEE) [MJ]	1,39E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET) [MJ]	2,51E-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]	1,02E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

*1 kg biogenic carbon is equivalent to 44/12 kg CO_2. The mass of biogenic carbon containing materials in the products is less than 5%.

Mill finished profile implemented with CIRCAL. Method EN15801+A2 – co-product approach							
Ressource use indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy (PERE) [MJ]	1,17E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-7,91E+00
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]	1,17E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-7,91E+00
Use of non-renewable primary energy (PENRE) [MJ]	2,55E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-1,74E+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]	2,55E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-1,74E+01
Input of secondary material (SM) [kg]	8,89E-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]	7,40E-02	2,79E-05	0,00E+00	1,12E-05	1,83E-04	1,99E-06	-2,00E-02
Output flows and waste categories	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed (HWD) [kg]	1,86E-03	2,08E-12	0,00E+00	8,33E-13	3,01E-11	4,02E-13	-1,23E-08
Non-hazardous waste disposed (NHWD) [kg]	9,43E-01	6,24E-05	0,00E+00	2,49E-05	4,83E-02	4,00E-02	-4,26E-01
Radioactive waste disposed (RWD) [kg]	1,42E-04	5,36E-07	0,00E+00	2,14E-07	5,46E-05	8,74E-08	-1,04E-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]	1,21E+00	0,00E+00	9,60E-01	0,00E+00	9,12E-01	0,00E+00	0,00E+00
Material for Energy Recovery (MER) [kg]	2,38E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy (EEE) [MJ]	7,09E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET) [MJ]	1,28E-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]*	5,26E-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 CIRCAL. Method EN15801+A2 – co-product approach							
Ressource use indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy (PERE) [MJ]	1,33E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-7,91E+00
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]	1,33E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-7,91E+00
Use of non-renewable primary energy (PENRE) [MJ]	2,81E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-1,74E+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]	2,81E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-1,74E+01
Input of secondary material (SM) [kg]	8,89E-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]	7,53E-02	2,79E-05	0,00E+00	1,12E-05	1,83E-04	1,99E-06	-2,00E-02
Output flows and waste categories	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed (HWD) [kg]	1,86E-03	2,08E-12	0,00E+00	8,33E-13	3,01E-11	4,02E-13	-1,23E-08
Non-hazardous waste disposed (NHWD) [kg]	1,38E+00	6,24E-05	0,00E+00	2,49E-05	4,83E-02	4,00E-02	-4,26E-01
Radioactive waste disposed (RWD) [kg]	1,96E-04	5,36E-07	0,00E+00	2,14E-07	5,46E-05	8,74E-08	-1,04E-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]	1,52E+00	0,00E+00	9,60E-01	0,00E+00	9,12E-01	0,00E+00	0,00E+00
Material for Energy Recovery (MER) [kg]	4,63E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy (EEE) [MJ]	1,38E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET) [MJ]	2,48E-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]*	1,02E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

*1 kg biogenic carbon is equivalent to 44/12 kg CO_2. The mass of biogenic carbon containing materials in the products is less than 5%.

Mill finished profile implemented with REDUXA. Method EN15801+A2 – co-product approach							
Ressource use indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy (PERE) [MJ]	5,79E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-4,16E+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]	5,79E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-4,16E+01
Use of non-renewable primary energy (PENRE) [MJ]	4,23E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-9,18E+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]	4,23E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-9,18E+01
Input of secondary material (SM) [kg]	0,00E+00	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]	4,84E-01	2,79E-05	0,00E+00	1,12E-05	1,83E-04	1,99E-06	-1,05E-01
Output flows and waste categories	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed (HWD) [kg]	3,02E-02	2,08E-12	0,00E+00	8,33E-13	3,01E-11	4,02E-13	-6,46E-08
Non-hazardous waste disposed (NHWD) [kg]	3,12E+00	6,24E-05	0,00E+00	2,49E-05	4,83E-02	4,00E-02	-2,24E+00
Radioactive waste disposed (RWD) [kg]	2,57E-04	5,36E-07	0,00E+00	2,14E-07	5,46E-05	8,74E-08	-5,47E-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]	4,06E-01	0,00E+00	9,60E-01	0,00E+00	9,12E-01	0,00E+00	0,00E+00
Material for Energy Recovery (MER) [kg]	2,38E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy (EEE) [MJ]	7,09E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET) [MJ]	1,28E-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]*	5,26E-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 REDUXA. Method EN15801+A2 – co-product approach							
Ressource use indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy (PERE) [MJ]	5,95E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-4,16E+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]	5,95E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-4,16E+01
Use of non-renewable primary energy (PENRE) [MJ]	4,49E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-9,18E+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]	4,49E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-9,18E+01
Input of secondary material (SM) [kg]	0,00E+00	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]	4,85E-01	2,79E-05	0,00E+00	1,12E-05	1,83E-04	1,99E-06	-1,05E-01
Output flows and waste categories	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed (HWD) [kg]	3,02E-02	2,08E-12	0,00E+00	8,33E-13	3,01E-11	4,02E-13	-6,46E-08
Non-hazardous waste disposed (NHWD) [kg]	3,56E+00	6,24E-05	0,00E+00	2,49E-05	4,83E-02	4,00E-02	-2,24E+00
Radioactive waste disposed (RWD) [kg]	3,10E-04	5,36E-07	0,00E+00	2,14E-07	5,46E-05	8,74E-08	-5,47E-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]	7,26E-01	0,00E+00	9,60E-01	0,00E+00	9,12E-01	0,00E+00	0,00E+00
Material for Energy Recovery (MER) [kg]	4,63E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy (EEE) [MJ]	1,38E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET) [MJ]	2,48E-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]*	1,02E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

*1 kg biogenic carbon is equivalent to 44/12 kg CO_2. The mass of biogenic carbon containing materials in the products is less than 5%.

Mill finished profile implemented with EUROPE. Method EN15801+A2 – co-product approach							
Ressource use indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy (PERE) [MJ]	4,74E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-3,85E+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]	4,74E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-3,85E+01
Use of non-renewable primary energy (PENRE) [MJ]	7,30E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-8,49E+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]	7,30E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-8,49E+01
Input of secondary material (SM) [kg]	6,68E-02	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]	3,54E-01	2,79E-05	0,00E+00	1,12E-05	1,83E-04	1,99E-06	-9,74E-02
Output flows and waste categories	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed (HWD) [kg]	1,30E+00	2,08E-12	0,00E+00	8,33E-13	3,01E-11	4,02E-13	-5,98E-08
Non-hazardous waste disposed (NHWD) [kg]	3,77E+00	6,24E-05	0,00E+00	2,49E-05	4,83E-02	4,00E-02	-2,07E+00
Radioactive waste disposed (RWD) [kg]	4,22E-04	5,36E-07	0,00E+00	2,14E-07	5,46E-05	8,74E-08	-5,06E-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]	4,06E-01	0,00E+00	9,60E-01	0,00E+00	9,12E-01	0,00E+00	0,00E+00
Material for Energy Recovery (MER) [kg]	2,38E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy (EEE) [MJ]	7,09E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET) [MJ]	1,28E-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]*	5,26E-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 EUROPE. Method EN15801+A2 – co-product approach							
Ressource use indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy (PERE) [MJ]	4,90E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-3,85E+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]	4,90E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-3,85E+01
Use of non-renewable primary energy (PENRE) [MJ]	7,56E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-8,49E+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]	7,56E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-8,49E+01
Input of secondary material (SM) [kg]	6,68E-02	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]	3,55E-01	2,79E-05	0,00E+00	1,12E-05	1,83E-04	1,99E-06	-9,74E-02
Output flows and waste categories	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed (HWD) [kg]	1,30E+00	2,08E-12	0,00E+00	8,33E-13	3,01E-11	4,02E-13	-5,98E-08
Non-hazardous waste disposed (NHWD) [kg]	4,21E+00	6,24E-05	0,00E+00	2,49E-05	4,83E-02	4,00E-02	-2,07E+00
Radioactive waste disposed (RWD) [kg]	4,76E-04	5,36E-07	0,00E+00	2,14E-07	5,46E-05	8,74E-08	-5,06E-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]	7,26E-01	0,00E+00	9,60E-01	0,00E+00	9,12E-01	0,00E+00	0,00E+00
Material for Energy Recovery (MER) [kg]	4,63E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy (EEE) [MJ]	1,38E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET) [MJ]	2,48E-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]*	1,02E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

*1 kg biogenic carbon is equivalent to 44/12 kg CO_2. The mass of biogenic carbon containing materials in the products is less than 5%.

Mill finished profile implemented with the average REMELTED billet. Method EN15801+A2 – co-product approach							
Ressource use indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy (PERE) [MJ]	3,32E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-3,21E+01
Primary energy resources used as raw materials (PERM) [MJ]	4,69E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy resources (PERT) [MJ]	3,32E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-3,21E+01
Use of non-renewable primary energy (PENRE) [MJ]	7,22E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-7,08E+01
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	4,73E-03	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]	7,23E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-7,08E+01
Input of secondary material (SM) [kg]	8,29E-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]	8,53E-02	2,79E-05	0,00E+00	1,12E-05	1,83E-04	1,99E-06	-8,12E-02
Output flows and waste categories	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed (HWD) [kg]	2,48E-04	2,08E-12	0,00E+00	8,33E-13	3,01E-11	4,02E-13	-4,98E-08
Non-hazardous waste disposed (NHWD) [kg]	2,01E+00	6,24E-05	0,00E+00	2,49E-05	4,83E-02	4,00E-02	-1,73E+00
Radioactive waste disposed (RWD) [kg]	3,05E-03	5,36E-07	0,00E+00	2,14E-07	5,46E-05	8,74E-08	-4,22E-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]	5,53E-01	0,00E+00	9,60E-01	0,00E+00	9,12E-01	0,00E+00	0,00E+00
Material for Energy Recovery (MER) [kg]	2,93E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy (EEE) [MJ]	9,35E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET) [MJ]	1,75E-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]*	5,26E-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 the average REMELTED billet. Method EN15801+A2 – co-product approach							
Ressource use indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy (PERE) [MJ]	3,48E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-3,21E+01
Primary energy resources used as raw materials (PERM) [MJ]	4,69E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy resources (PERT) [MJ]	3,48E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-3,21E+01
Use of non-renewable primary energy (PENRE) [MJ]	7,48E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-7,08E+01
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	4,73E-03	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]	7,48E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-7,08E+01
Input of secondary material (SM) [kg]	8,29E-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]	8,66E-02	2,79E-05	0,00E+00	1,12E-05	1,83E-04	1,99E-06	-8,12E-02
Output flows and waste categories	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed (HWD) [kg]	2,48E-04	2,08E-12	0,00E+00	8,33E-13	3,01E-11	4,02E-13	-4,98E-08
Non-hazardous waste disposed (NHWD) [kg]	2,45E+00	6,24E-05	0,00E+00	2,49E-05	4,83E-02	4,00E-02	-1,73E+00
Radioactive waste disposed (RWD) [kg]	3,10E-03	5,36E-07	0,00E+00	2,14E-07	5,46E-05	8,74E-08	-4,22E-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]	8,72E-01	0,00E+00	9,60E-01	0,00E+00	9,12E-01	0,00E+00	0,00E+00
Material for Energy Recovery (MER) [kg]	5,17E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy (EEE) [MJ]	1,60E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET) [MJ]	2,95E-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]*	1,02E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

*1 kg biogenic carbon is equivalent to 44/12 kg CO_2. The mass of biogenic carbon containing materials in the products is less than 5%.

Mill finished profile implemented with the average PRIMARY billet. Method EN15801+A2 – co-product approach							
Ressource use indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy (PERE) [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Primary energy resources used as raw materials (PERM) [MJ]	4,87E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-3,90E+01
Total use of renewable primary energy resources (PERT) [MJ]	6,97E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-8,59E+01
Use of non-renewable primary energy (PENRE) [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-renewable primary energy resources used as raw materials (PENRM) [MJ]	6,97E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-8,59E+01
Total use of non-renewable primary energy resources (PENRT) [MJ]	5,68E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Input of secondary material (SM) [kg]	0,00E+00	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]	3,64E-01	2,79E-05	0,00E+00	1,12E-05	1,83E-04	1,99E-06	-9,86E-02
Use of net fresh water (FW) [m3]	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Output flows and waste categories	1,11E+00	2,08E-12	0,00E+00	8,33E-13	3,01E-11	4,02E-13	-6,05E-08
Hazardous waste disposed (HWD) [kg]	3,65E+00	6,24E-05	0,00E+00	2,49E-05	4,83E-02	4,00E-02	-2,10E+00
Non-hazardous waste disposed (NHWD) [kg]	6,35E-04	5,36E-07	0,00E+00	2,14E-07	5,46E-05	8,74E-08	-5,12E-03
Radioactive waste disposed (RWD) [kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Components for re-use (CRU) [kg]	4,06E-01	0,00E+00	9,60E-01	0,00E+00	9,12E-01	0,00E+00	0,00E+00
Materials for Recycling (MFR) [kg]	2,38E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for Energy Recovery (MER) [kg]	7,09E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy (EEE) [MJ]	1,28E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET) [MJ]	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Biogenic carbon content	5,26E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Biogenic carbon content in packaging [kg]*	0,00E+00	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 the average PRIMARY billet. Method EN15801+A2 scrap – co-product approach							
Ressource use indicators	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Use of renewable primary energy (PERE) [MJ]	5,03E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-3,90E+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]	5,03E+01	2,47E-02	0,00E+00	9,87E-03	1,91E-01	1,17E-03	-3,90E+01
Use of non-renewable primary energy (PENRE) [MJ]	7,23E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-8,59E+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]	7,23E+01	4,35E-01	0,00E+00	1,74E-01	3,53E-01	7,83E-03	-8,59E+01
Input of secondary material (SM) [kg]	5,68E-02	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]	3,65E-01	2,79E-05	0,00E+00	1,12E-05	1,83E-04	1,99E-06	-9,86E-02
Output flows and waste categories	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed (HWD) [kg]	1,11E+00	2,08E-12	0,00E+00	8,33E-13	3,01E-11	4,02E-13	-6,05E-08
Non-hazardous waste disposed (NHWD) [kg]	4,09E+00	6,24E-05	0,00E+00	2,49E-05	4,83E-02	4,00E-02	-2,10E+00
Radioactive waste disposed (RWD) [kg]	6,89E-04	5,36E-07	0,00E+00	2,14E-07	5,46E-05	8,74E-08	-5,12E-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]	7,26E-01	0,00E+00	9,60E-01	0,00E+00	9,12E-01	0,00E+00	0,00E+00
Material for Energy Recovery (MER) [kg]	4,63E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported electrical energy (EEE) [MJ]	1,38E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported thermal energy (EET) [MJ]	2,48E-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]*	1,02E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

*1 kg biogenic carbon is equivalent to 44/12 kg CO_2. The mass of biogenic carbon containing materials in the products is less than 5%.

4 REFERENCES

Ecoinnovazione, 2022. Technical report: LCA of aluminium extrusion profiles produced by Hydro Extrusion Denmark A/S, updated to 2024

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

Environmental Product Declaration (EPD) of the average aluminium billet produced by Hydro Extrusion Sweden. Registered at The International EPD System, S-P-04643.

Environmental Product Declaration (EPD) of extrusion billet EUROPE produced by Hydro Aluminium AS. Registered at EPD Norge, NEPD-1839-768-EN

Environmental Product Declaration (EPD) of extrusion billet REDUXA produced by Hydro Aluminium AS. Registered at EPD Norge, NEPD-1840-768-EN

Environmental Product Declaration (EPD) of extrusion billet CIRCAL produced by Hydro Aluminium AS. Registered at EPD Norge, NEPD-1841-768-EN

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 Tønder.

For further information on product characteristics, typical applications, technical datasheet and case histories, please visit our website Extrusions Denmark (hydro.com) or contact tommy.falk@hydro.com and peter.thomsen@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.it
PCR:	PCR 2019:14 Construction products version 1.11
PCR review was conducted by:	The Technical Committee of the International EPD® System. See www.environdec.com 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 n°:	S-P-06710
EPD validity:	5 years
EPD valid within the following geographical area:	Global
Technical support:	Francesca Reale, Alessandra Zamagni 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)
Procedure for follow-up during EPD validity involves third party verifier	Yes
Third party verifier:	DNV Business Assurance Italia S.r.l. https://www.dnv.it/assurance/index.html
Accredited by:	ACCREDIA (Registration number 008H rev.01)

7 REVISIONS

Rev.2 (second maintenance) - Changes implemented compared to revision n.0:

- In 3.3 it is specified which inventory data have been updated
- In 3.3, the specific GWP-GHG is updated as resulting from the maintenance study.
- Paragraphs 3.5, 3.6 and 3.7 are updated with LCIA and LCI indicators as resulting from the maintenance study.
- In 3.7 tables's title and related dida are revised to specify they are quantified according to the co-product approach
- In 5.2 Hydro reference contact is updated

Rev.1 (first maintenance) - Changes implemented compared to revision n.0:

- In 3.3 it is specified which inventory data have been updated
- In 3.3, the specific GWP-GHG is updated as resulting from the maintenance study.
- In 3.4.2 the allocation approach is further specified. Moreover, the allocation approach for the quantification of additional LCIA indicators it is specified
- A clarification on "process scrap" meaning has been added
- Names of indicators in section 3.5 have been aligned to names used in EN15804+A2. Acronyms of indicators have been aligned to those ones used in the EPD templates for EPD compliant with EN15804+A2 available on Environdec's website
- Paragraphs 3.5, 3.6 and 3.7 are updated with LCIA and LCI indicators as resulting from the maintenance study.
- In 3.5 and 3.6 additional indicators are added, namely the LCIA indicators of EN15804+A2 and 15804+A1 calculated according to the zero-burden approach to the modeling of process scrap scrap. Sub-paragraphs are created for sake of clear communication (tables are re-numbered and related dida revised, accordingly)
- In 3.7 tables's title and related dida are revised to specify they are quantified according to the co-product approach
- In 5.2 Hydro reference contact is updated
- In chapter 6 the text information about the PCR review was corrected with updated info