ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:
Steel reinforcement products for concrete - Swedish production from Celsa Steel Service AB

Programme: The International EPD® System, environdec.com
Programme operator: EPD International AB
EPD registration number: S-P-00305
First release: 2012-04-26
EPD Version: 2021-09-22
Valid until: 2024-09-21
Geographical coverage: Sweden
Climate change: 373 kg CO_2 eq./tonne, (A1 to A3)

An EPD should provide current information and may be updated if conditions change.
The stated validity is therefore subject to the continued registration and publication at environdec.com

celsa steelservice

NORDIC SUSTAINABILITY.
Renewable reinforcing steel manufactured with hydropower and passion.

GENERAL INFORMATION

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

CEN standard EN 15804:2012+A2:2019 serves as the Core Product Category Rules (PCR)	
Product category rules (PCR): PCR 2019:14 Construction products version1.0	
PCR review was conducted by: The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.	
Independent third-party verification of the declaration and data, according to EN15804:2010	
☐ EPD process certification	☒ EPD verification
Third party verifier: Bureau Veritas Certification Sverige AB, Fabrikgatan 14, 412 50 Göteborg Accredited by: Swedac	
Procedure for follow-up of data during EPD validity involves third party verifier:	
☒ Yes	☐ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. It should be noted in particular that there are differences between the present version of EN 15804 and the earlier version. For further information about comparability, see EN 15804 and ISO 14025.

Company information

CELSA Nordic & CELSA Steel Service Sweden

CELSA Nordic is a producer of steel reinforcement products in the Nordic countries and is part of the Spanish privately owned company CELSA GROUP since 2007. CELSA Nordic's melt shop and rolling mill are located in the northern part of Norway, in the city of Mo i Rana. The steel reinforcement products are distributed through the company's downstream reinforcing services, CELSA Steel Service. CELSA Steel Service is located in Norway, Sweden, Denmark, and Finland.

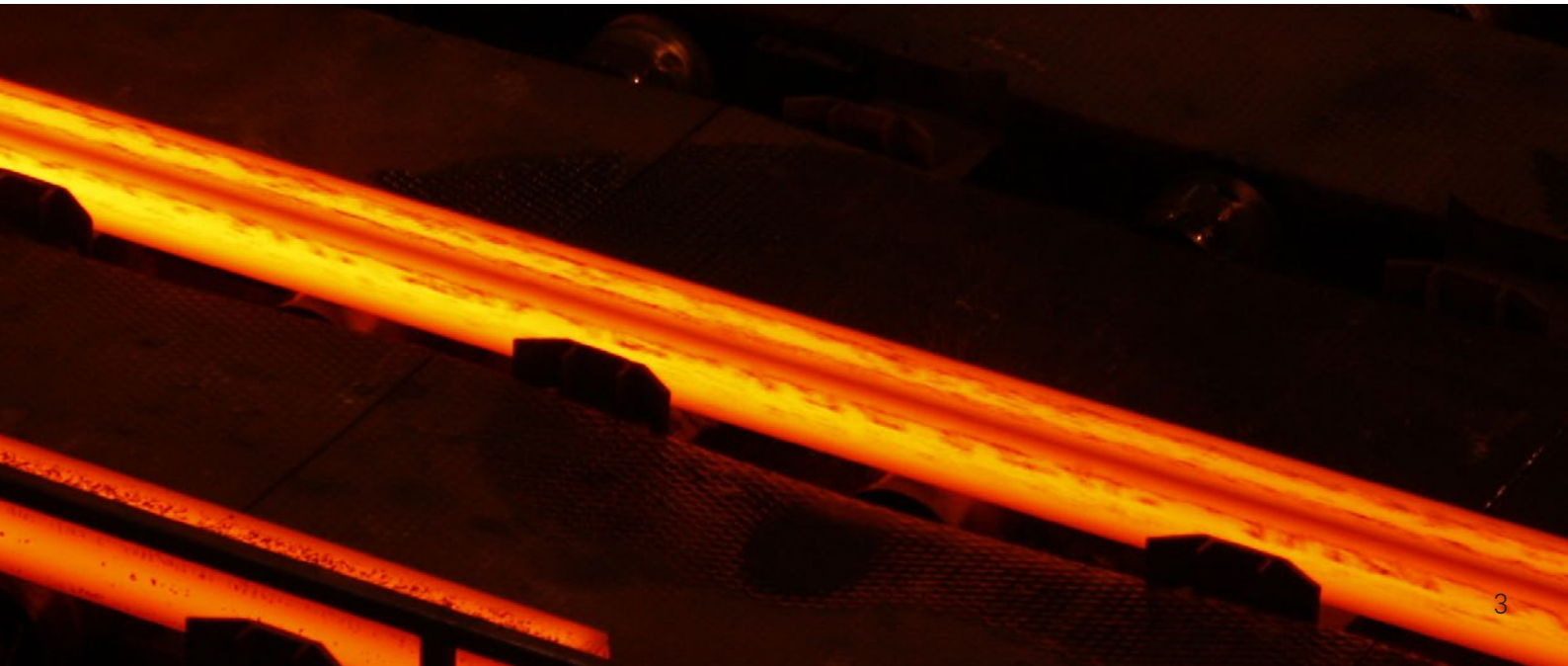
CELSA Steel Service is the leading reinforcing supplier and manufacturer in Sweden. Products and services are sold to the Swedish construction industry throughout Sweden. The head office is located in Halmstad with manufacturing sites and logistics centers in Halmstad, Västerås and Vännäs. Sales offices are located throughout Sweden. CELSA Steel Service employees can provide advice and assistance in all of our market areas.

Celsa Steel Service supplies and manufactures:

- Standard and special mesh
- Cut & Bend
- Welded prefabricated elements
- Steel spacers
- Concreate accessories

In addition to reinforcement products, CELSA Steel Service also provides:

- Reinforcement detailing
- Software for registering reinforcement and for organizing reinforcement-related information
- 3D modeling of reinforcement in market- leading BIM tools
- Advice on product selection and reinforcement design



ABOUT THE EPD

This EPD is based on a Life Cycle Assessment (LCA) and provides information that can be used in order to put into perspective different steel sourcing.

Methodology

The environmental impact of CELSA Steel Service products has been calculated according to the rules of the EPD (Environmental Product Declaration) International program. EN 15804:2012 + A2:2019 and PRODUCT CATEGORY RULES (PCR) 2019:14, version 1.0, Construction Products are the basis for the calculation of the life cycle assessment (LCA) from the cradle to the end-of-life stage. The environmental impacts from processes common to all products in Sweden, i.e. the steel mill, the transport to customers and the end-of-life stage make up between 85 % and 90 % of the total impacts from the product chain, measured as GWP-fossil.

From this, we estimate that the variance between different products from different production sites is within ± 10%. All the scrap including the pre-consumer scrap is treated as post-consumer scrap, i.e. as if it had been used in a product and not wasted in a production process as virgin material before it could be used. No environmental impacts from previous products or processes are allocated to the declared product. The environmental burdens of transport to the steel mill in Mo i Rana and of scrap shredding are allocated to the declared product. As additional information, the content of pre-consumer scrap and the climate impact of producing the quantity of steel in the pre-consumer scrap are also calculated and reported.

Input data

Site-specific data on use of the fuels and commodities provided by CELSA Armeringsstål AS has been used for the steel production in Norway. Specific data for Celsa's core processes was collected as annual average data for the year 2020. Electricity consumption data according to country averages has been used for electricity consumed. Specific data from the suppliers has been collected wherever possible. Otherwise, generic data has been collected from commercial databases, mainly from the GaBi professional database (Sphera Solutions GmbH).

By the selection of data, the geographical location of each supplier has been considered to the extent possible. For by-products, economic allocation based on the relative revenues from the allocable products is applied.

For the steel works, the national consumption mix in Norway is applied. Norwegian Consumption Mix used has a GWP-fossil of 0.030 kg CO2 eq./kWh (1 kV - 60 kV).

The quality of the inventory data for energy and commodities has been assessed against the criteria of the UN Environment Global Guidance on LCA database development (EN 15804:2012+A2 (2019), Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products, European Committee for Standardization).

These criteria are geographical, technical and temporal representativeness. For most of the commodities and energy wares, which cause significant environmental impacts, the data quality is good, with a few occasional exceptions, where the data quality is fair or poor.

Declared unit

Reinforcement steel is normally sold by weight and therefore the declared unit is set to 1 tonne reinforcement steel.

Raw material

The EPD considers reinforcement steel made out of hot rolled products, transformed into straight ribbed bars, cut and bent, mesh, and combinations of these (special welded products). The production of low-alloyed steel from scrap and additional alloying metals is done in an electric arc furnace (EAF).

Scrap is transported from Norway (approx. 62 %) and imports (approx. 38 %) from Sweden, Denmark and Finland to the steel works in Mo i Rana, Norway. After hot rolling, the products are transported to production sites in Sweden where they are worked into reinforcement products.

System boundaries

The system boundaries are described in the system diagram and in the table in the section LCA information.

The Environmental Product Declaration (EPD) shows the environmental performance of the product through its life cycle stages from cradle to end-of-life. The life cycle stages are upstream processes (A1), transportation to national production sites (A2), core processes (A3) and end-of-life processes (C1 – C4). The upstream processes include steelmaking processes and the core processes include processing activities from coils and straight bars to project specific reinforcement steel.

The raw material is transported from the steelworks mainly by boat (minor quantities also by truck) to the production sites in Halmstad and Västerås and by truck to the production site in Vännäs. The average delivery distance to customers is 300 km by truck (module A4).

Scope

The objective of the life cycle assessment is to provide the basic environmental data necessary to prepare the EPD, i.e. to give an environmental profile of the manufacturing of CELSA´s steel reinforcement products. The aim of the LCA report and the EPD is to be a useful tool for different actors in the construction and real estate sector, (business to business). The system is of the type cradle to gate with options, modules C1 - C4 and module D, as defined by EN 15804:2012+A2:2019. The product chain starts with shredding of the steel scrap (if any) and the transport of the scrap to the steel works

Commodities and energy are followed upstream to their origin in natural resources. The product chain ends with the recovery of reinforcement steel from crushed concrete from the demolition of a construction. Benefits and loads beyond the system boundaries (resource recovery stage) are also included.

Additional information

Product contains no substances in the REACH Candidate list. Products contain no substances in the Norwegian priority list. 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.

EPD of construction products may not be comparable if they do not comply with EN15804.

Verification

CEN standard EN 15804 serves as the Core Product Category Rules (PCR). Independent third-party verification of the declaration and data, according to ISO EN15804:2010.

PRODUCT INFORMATION

Name and location of production site(s)

Halmstad, Västerås, and Vännäs

Product-related or management system-related certifications

Material Standards: SS 212540:2011 and EN 10080:2005
Product Certificates: SBS A3/001, A3/016 and A3/017
Supplier CELSA Armeringsstål AS: OSHAS 18001, ISO 14001, EMAS

Registrations in other environmental assessment systems

Byggvarubedömningen, BASTA, Sunda Hus

UN CPC code

41241 and 41242

Material Characteristics

Product diameter range from 4 mm to 40 mm
Yield stress, Re ⩾ 500 MPa - Rm/Re ⩾ 1.15
Elongation Agt ⩾ 7.5 %
Density 7700 kg/m^3

Product name and identification

Steel reinforcement products for concrete

Included products and description

Products range from cut and bent, mesh (Halmstad), BAMTEC® (Västerås), SpinMaster (Halmstad), to an extensive production of prefabricated reinforcement elements (special welded products).

Other Certifications at CELSA Steel Service AB

ISO 9001, ISO 14001

Product content (weight %)

Iron 98–99
Carbon 0.05–0.2
Manganese 0.3–0.7
Silicon 0.2

LCA INFORMATION

Declared unit

Per tonne of reinforcement products.

Reference service life

Not applicable

Time representativeness

Specific data for Celsa's core processes was collected as annual average data for the year 2020. Specific data for the manufacture of several major additives and commodities was collected as annual average data for the year 2019. Generic data for modes of transport has 2020 as reference year. Materials, for which specific data was not available, have reference years between 2017 and 2020, with one less important exception, soap (model for drawing softener), for which only old data was available. Generic data for energy wares from primary energy sources has 2017 as reference year with one exception, data for the biodiesel HVO100, used by CSS Sweden for deliveries with the company´s trucks. Data for HVO100 is based on a process model from 2013.

Database(s) and LCA software used

LCA software GaBi 10.5 with its Professional Database version 2021.1 (Sphera Solutions GmbH).

Description of system boundaries

Cradle to gate (A1-A3) with modules C1-C4, module D and with optional module A4.

More information

This LCA comprises products, which are converted from rolled steel bars in Sweden. Steel bars which are sold without further processing are not included. The three production sites of CELSA Steel Service in Sweden have different turnovers and offer different types of products, use different types and quantities of energy and commodities per tonne of product, and have different transport routes of steel bars from Mo i Rana. In order to calculate data for an average reinforcement product, the total use of each type of energy and each type of commodity for all sites was divided by the total output of products from all sites. For transports, tonnage-weighted average transport distances were calculated for ship routes and for truck routes.

Cut-off criteria

The principle is zero cut-off. All raw materials, all commodities, and all waste-treatment processes reported by the factory operators, for which specific, generic or (as a last possibility) estimated data could be obtained, are included. Commodities for which no data at all could be found, amount to less than 1 % weight.

Allocation

In the base case, the environmental impacts of the recycled scrap used in module A1 are allocated to the product from which the scrap was obtained. The environmental burdens of transport to the steel mill in Mo i Rana and of scrap shredding are allocated to the declared product. As additional information, the content of preconsumer scrap and the climate impact of virgin production of the steel corresponding to the primary preconsumer scrap is also calculated and reported.

Otherwise as a rule, economic allocation based on the relative revenues from the allocatable products is applied. This in principle also applies to recyclable steel waste from module A3, which is regarded as a co-product. The environmental impact thus allocated to the scrap is 0.4 %, which is disregarded.

Source of electricity for the manufacture (A3)

Electricity for the manufacture in Sweden is supplied from the Swedish average consumption mix.

Swedish average consumption mix, low-voltage grid (< 1kV)

Primary energy source 2019	Contribution (%)
Nuclear power	40
Hydro power	39.67
Wind power	10.72
Biomass	6.24
Waste incineration	2.11
Other sources, mainly fossil	1.23 (import 7.41 % of the gross production)
Climate impact (kg CO_2 equiv./kWh)	**0.042**

Scenarios

Transports to building sites (A4)

For deliveries of reinforcement products to building sites in Sweden, an average distance of 300 km by truck is used to calculate the environmental impacts, based on data from CELSA Steel Service in Sweden.

Transport of reinforcement products from the site of production to the building site in Sweden

Mode of transport	Type of vehicle (Gross weight tonnes)	Payload capacity (tonnes)	Capacity use (%)	Distance (km)	Fuel consumption (l/tkm)
Truck, HVO100	28	18.4	50	300	0.05

End-of-life (C1-C4)

C1. Demolition

For the extraction of reinforcement steel from concrete, when a concrete construction is demolished, diesel-powered machinery is assumed. Diesel consumption, specifically allocated to the reinforcement steel, is reported by Erlandsson et al (2015).

C1. Recovery of reinforcement steel from crushed concrete per 1 tonne of steel

Diesel use, kWh (l)	Losses by recovery (%)
1.1 (0.11)	5 [1)]

1) Estimated

C2. Transport to scrap yards or recycling facilities

The same scenario as for A4 transport to building sites but with diesel-powered trucks Euro 6 with 21 % biofuel in the diesel fuel.

C3 Waste processing

A fraction of the recovered steel is fragmented (shredded). This is considered to be part of the life cycle of the product for which the scrap is used as a raw material and is modelled in A1 as part of the production of the raw material steel.

C4. Disposal

No further disposal processes except sorting and classification are necessary.

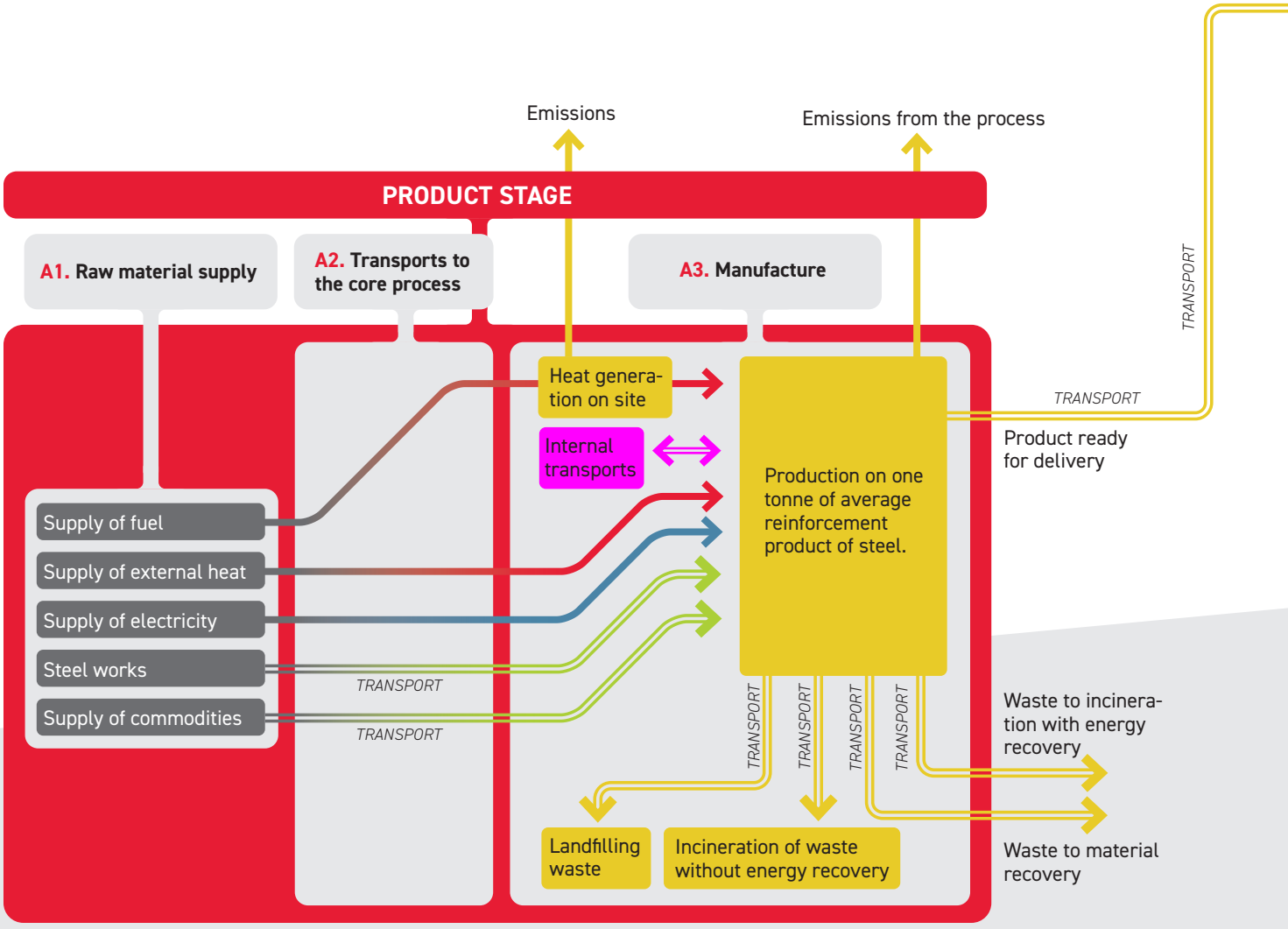
Benefits and loads beyond the system boundaries (D)

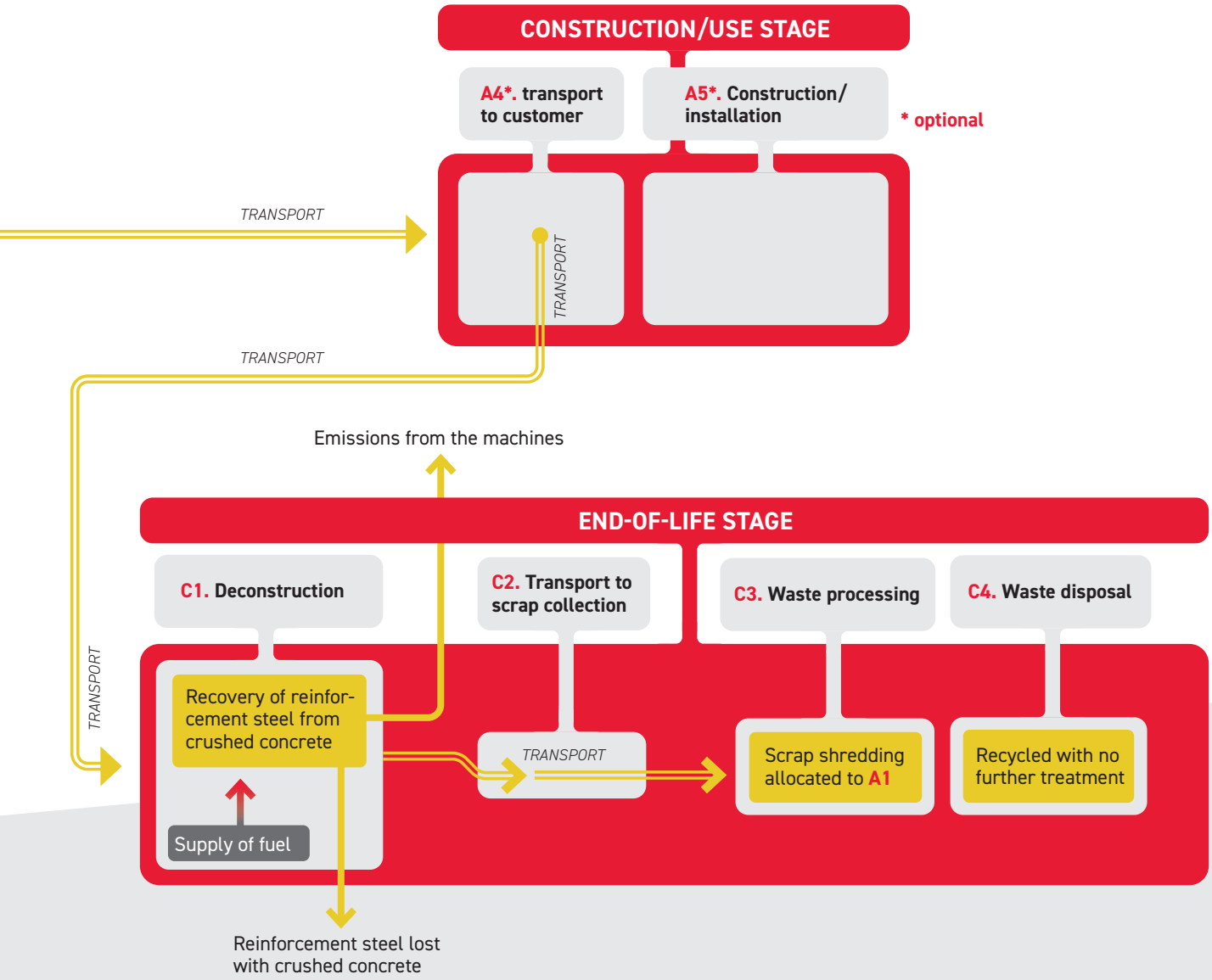
Losses by recovery of steel from crushed concrete, per 1 tonne of steel in the building.

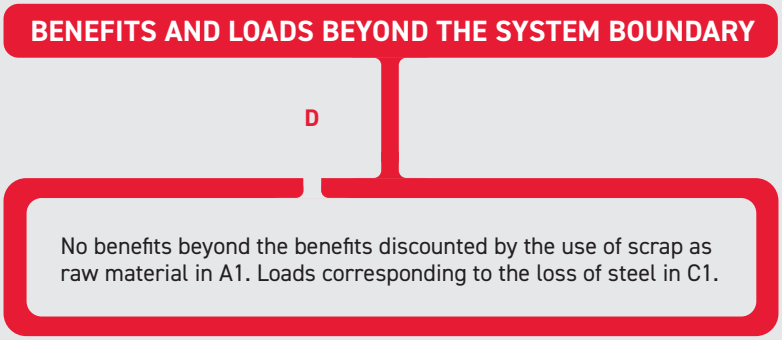
	Quantity (kg)
Substitution of raw material	-50

The load to replace these losses is calculated as the environmental impacts of producing the equivalent quantity of cold rolled steel coil via the blast furnace route. Generic data for EU28 is used for this calculation.

SYSTEM DIAGRAM




CONSTRUCTION/USE STAGE
A4*. transport to customer
A5*. Construction/ installation
* optional
TRANSPORT
TRANSPORT
TRANSPORT
Emissions from the machines
END-OF-LIFE STAGE
C1. Deconstruction
C2. Transport to scrap collection
C3. Waste processing
C4. Waste disposal
TRANSPORT
Recovery of reinforcement steel from crushed concrete
TRANSPORT
Scrap shredding allocated to A1
Recycled with no further treatment
Supply of fuel
Reinforcement steel lost with crushed concrete


BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY
D
No benefits beyond the benefits discounted by the use of scrap as raw material in A1. Loads corresponding to the loss of steel in C1.

SYSTEM BOUNDARIES (A1 TO D)

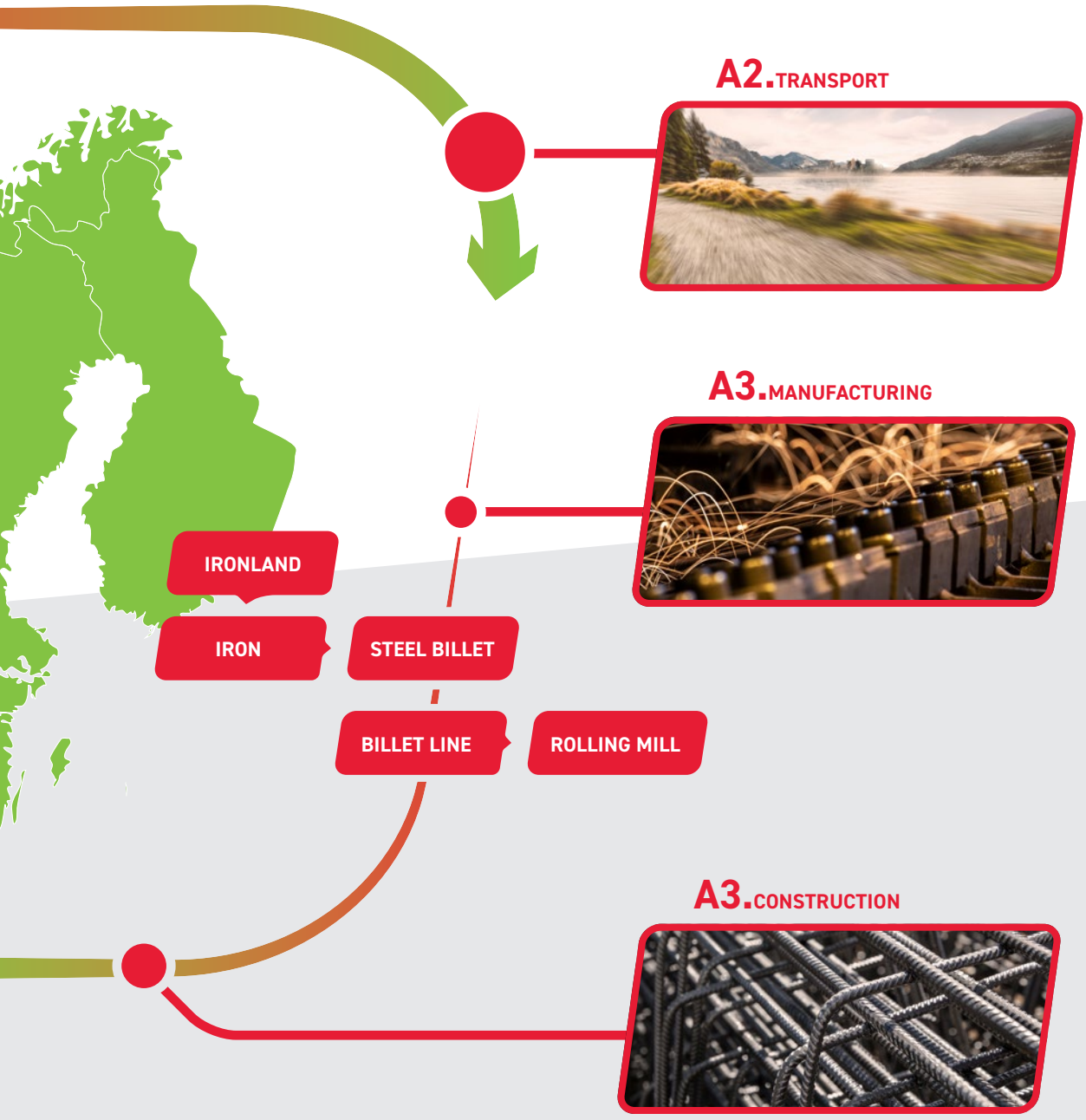
A1. RAW MATERIALS & SCRAP

D. RECYCLING

Ironsand, coal, limestone, scrap.

C4. DISPOSAL

C3. SCRAP PROCESSING


A2. TRANSPORT
A3. MANUFACTURING
IRONLAND
IRON
STEEL BILLET
BILLET LINE
ROLLING MILL
A3. CONSTRUCTION

Modules declared, geographical scope, share of specific data and data variation:

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	x	x	x	x	ND	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x
Geography	NO/ EU/ GLO	NO/SE	SE	SE	-	-	-	-	-	-	-	-	SE	SE	SE	SE	EU
Specific data	70% [2]	50% [3]	50% [4]	50% [3]	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	10 % or less					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	10 % or less					-	-	-	-	-	-	-	-	-	-	-	-

ND: Not declared
2) Measured as contribution to the potential fossil climate impact from specifically inventoried processes.
3) Modes of transports and distances are specific, the data for vehicles and fuel production is generic.
4) Use of raw materials and energy wares are specific, the data for the generation of thermal heat on site is generic, as is the data for producing fuels and commodities and generating electicity.

Content information of the steel

Celsa Steel Service declares that their products do not contain substances of very high concern (SVHC) as defined and listed in the European Chemicals Agency (ECHA) Candidate List of substances of very high concern for Authorization, in levels above 0.0 % by weight for the products that concern this LCA report.

Steel	Weight, kg	Post-consumer material, weight-%	Renewable material, weight-%
Iron	980 – 990	73	0
Carbon	0.5 - 2	0	0
Manganese	3 - 7	0	0
Silicon	2	0	0
TOTAL	1000	73	0

Environmental Information

For construction services, the total value of A1-A3 shall be replaced with the total value of A1-A5.

The indicators, with one exception, are calculated with the characterisation factors published by the Joint Research Centre (ILCD 2013, characterization factors according to EC-JRC EF3.0, 2019), as they can be accessed in GaBi (Sphera Solutions GmbH) in the data set Environmental quantities/EN15804+A2.

The climate impact indicator GWP-GHG is calculated with characterisation factors published in the Intergovernmental Panel on Climate Change's Fifth Assessment Report (IPCC AR5) as they can be accessed in GaBi in the data set Environmental quantities/IPCC AR5/ GWP100, excl. biogenic carbon.

Potential environmental impact – mandatory indicators according to EN 15804

(Declared unit Per tonne of reinforcement products)

Indicator	Unit	A1	A2	A3	Tot.A1-A3	A4	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	319	53,3	0,567	373	13,8	0,345	17,8	0	0	123
GWP-biogenic	kg CO_2 eq.	23,9	1,07	0,0806	25	33,4	0,00358	4,06	0	0	0,571
GWP-luluc	kg CO_2 eq.	0,211	0,0406	0,000271	0,252	0,00835	0,00274	0,17	0	0	0,0247
GWP-total	kg CO_2 eq.	343	54,4	0,65	398	47,2	0,35	22	0	0	124
ODP	kg CFC 11 eq.	1,69E-06	6,37E-15	5,84E-17	1,69E-06	5,51E-09	6,63E-17	4,11E-15	0	0	1,52E-14
AP	mol H^+ eq.	1,06	0,931	0,00334	1,99	0,283	0,00338	0,0236	0	0	0,305
EP-freshwater	kg PO_4^{3-} eq.	0,0159	7,48E-05	3,28E-07	0,0159	4,38E-04	3,05092E-06	1,89E-04	0	0	1,35E-04
EP-freshwater	kg P eq.	0,00517	2,44E-05	1,07E-07	0,00519	1,43E-04	9,95E-07	6,17E-05	0	0	4,39E-05
EP-marine	kg N eq.	0,428	0,471	0,00171	0,901	0,148	0,00164	0,00782	0	0	0,0642
EP-terrestrial	mol N eq.	4,64	5,16	1,87E-02	9,82	1,6	0,0181	0,0921	0	0	0,68
POCP	kg NMVOC eq.	1,16	1,27	0,00496	2,43	0,386	0,0048	0,0207	0	0	0,232
ADP-minerals & metals*	kg Sb eq.	1,13E-04	2,08E-06	6,32E-09	1,15E-04	1,76E-06	2,98E-08	1,85E-06	0	0	4,52E-05
ADP-fossil*	MJ	2520	733	0,453	3253	230	4,49	278	0	0	1140
WDP	m^3	100	0,1	1,E-04	100	1,7	0,003	0,2	0	0	6

**Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*
1) ADP-fossil as defined by EN15804+A2 includes uranium and is thus equal to the resource indicator PENRE.

Comparison to 2019

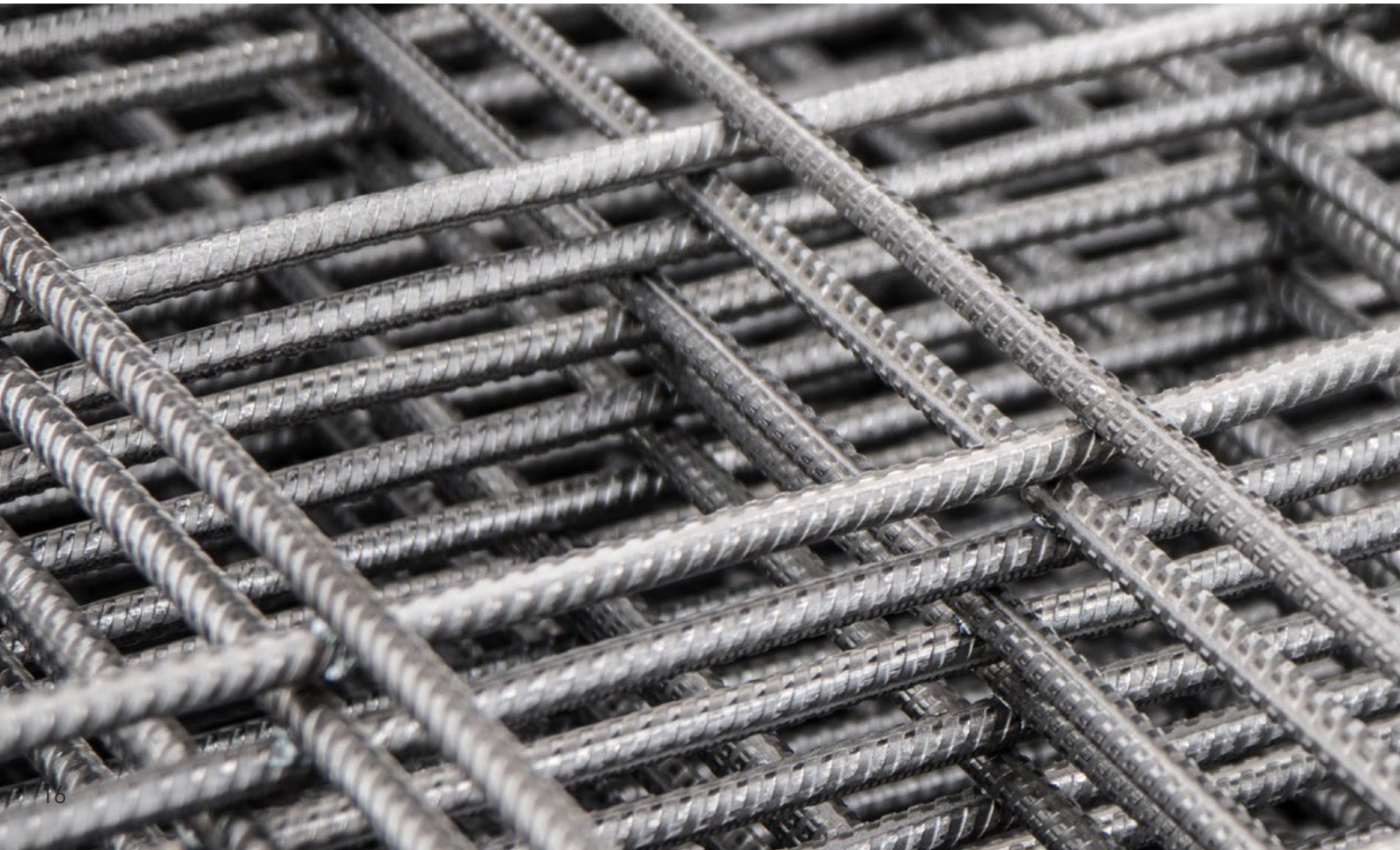
Indicator	Unit	A1	A2	A3	A4	Tot. A1-A4
GWP-fossil	kg CO_2 eq.	361	51,5	0,855	21,7	435
Change	% of the value 2019	-11,6%	3%	-34%	-36%	-11,1%

Potential environmental impact – additional mandatory and voluntary indicators

Results per functional or declared unit.
(Declared unit per tonne of reinforcement products)

Indicator	Unit	A1	A2	A3	Tot.A1-A3	A4	C1	C2	C3	C4	D
GWP-GHG [1]	kg CO_2 eq.	317	52,7	0,564	370	13,8	0,341	17,6	0	0	120

[1] The indicator is calculated with characterization factors from IPCC AR5 GWP 100, excl biogenic carbon, and includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

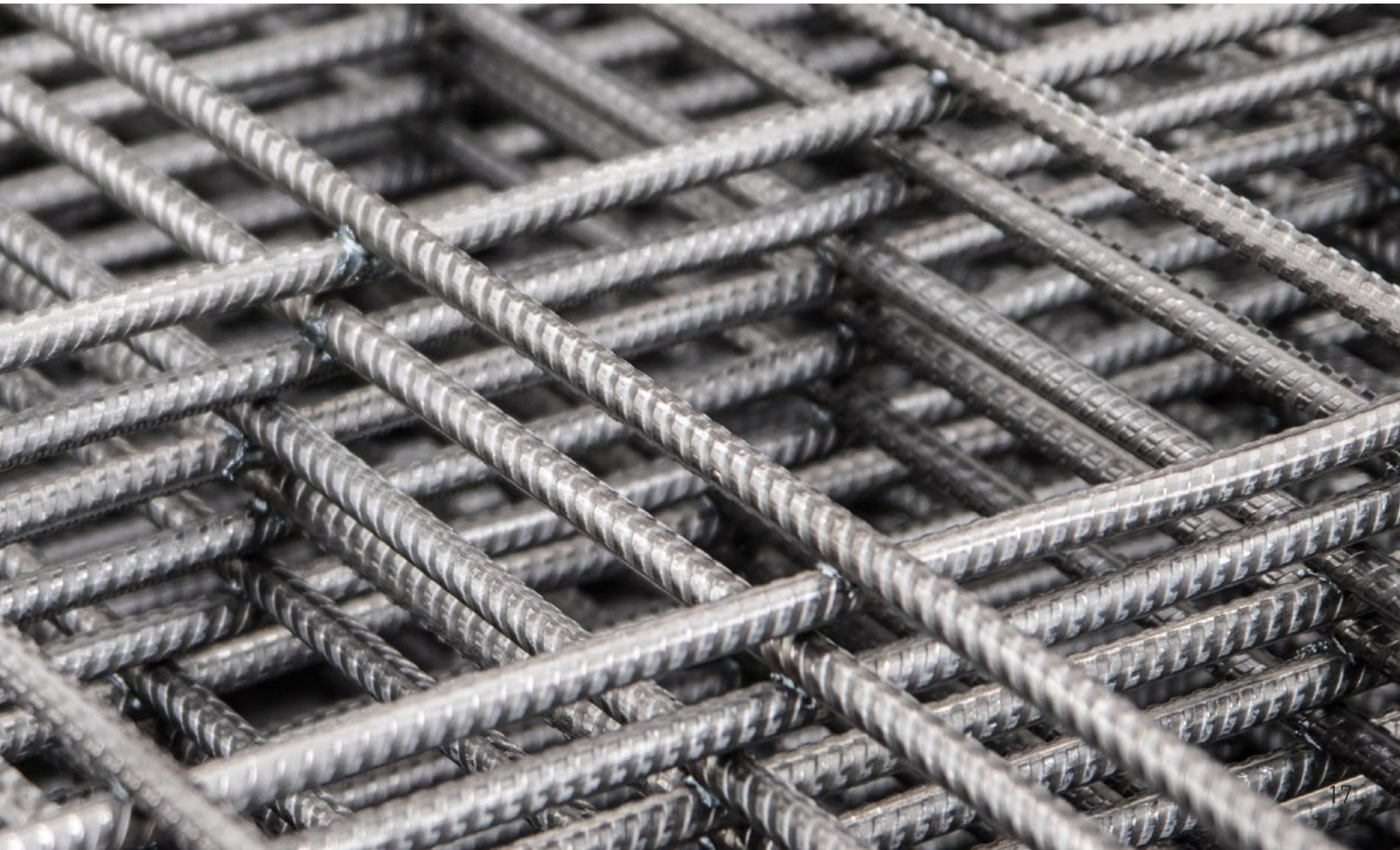


Use of resources

Results per functional or declared unit.
(Declared unit per tonne of reinforcement products)

Indicator	Unit	A1	A2	A3	Tot.A1-A3	A4	C1	C2	C3	C4	D
PERE	MJ	3960	5,9	0,0372	3966	9,95	0,257	16	0	0	16,7
PERM	MJ	11.8 [3)]	0	0	11,8	0	0	0	0	0	0
PERT	MJ	3972	5,9	0,0372	3978	9,95	0,257	16	0	0	16,7
PENRE	MJ	2520	733	0,453	3253	230	4,49	278	0	0	1140
PENRM	MJ	1,5	0	0	1,5	0	0	0	0	0	0
PENRT	MJ	2522	733	0	3255	230	4,49	278	0	0	1140
SM	kg	1130	0	0	1130	0	0	0	0	0	4,17
RSF	MJ	55 [1)]	0	0	55	514 [4)]	0	0	0	0	0
NRSF	MJ	660 [2)]	0	0	660	0	0	0	0	0	0
FW	m^3	50	0,0	0,0035	50	0,05	3,E-04	0,02	0	0	0,1
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water										

1) Municipal waste and tall oil allocated to heat generation.
2) Carbon monoxide, rubber granulate and drilling mud.
3) Packaging material and raw material for drawing softener.
4) Tallow



Waste generation

(Declared unit per tonne of reinforcement products)

Indicator	Unit	A1	A2	A3	Tot.A1-A3	A4	C1	C2	C3	C4	D
Hazardous waste disposed	kg	0,21	8,E-09	6,89E-10	0,21	3,44E-08	2,36E-10	1,47E-08	0	0	9,32E-07
Non-hazardous waste disposed	kg	229	1,78	0,465	231	4,72	50	1,31	0	0	4,1
Radioactive waste disposed	kg	0,173	8,33E-04	4,06E-06	0,174	0,00291	8,14E-06	5,05E-04	0	0	1,04E-05

Output flows

(Declared unit per tonne of reinforcement products)

Indicator	Unit	A1	A2	A3	Tot.A1-A3	A4	C1	C2	C3	C4	D
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	160	0	21,7	182	0	0	0	0	950	4,33E-17
Materials for energy recovery	kg	0,6	0	0,467	1,1	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0

Information on biogenic carbon content

Declared unit Per tonne of reinforcement products.

Biogenic carbon content	Unit	Quantity
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging	kg C	0 [2)]

Note 1: 1 kg biogenic carbon is equivalent to 44/12 kg CO2
Note 2: Minor amounts of wooden pallets are occasionally being used. The quantities are of the order of magnitude of 0.5 – 1.0 kg/tonne of reinforcement steel.

Additional information

Content and potential climate impact of preconsumer scrap

Of the steel scrap used as charge for the steel mill ca. 27 % consists of preconsumer steel scrap and 0.42 % of preconsumer cast iron. Of the steel scrap an estimated share of 46 % originates from scrap-based steel. The rest of the preconsumer steel scrap and the entire quantity of preconsumer cast iron scrap are produced from iron ore via the blast-furnace route. Generic, average data for steel production in Europe is used to calculate the potential climate impact, GWP-fossil, of producing these steel and iron quantities. The result is reported in the table.

The climate impact, GWP-fossil, of manufacturing the quantities of pre-consumer scrap used per declared unit, 1 tonne of reinforcement product.

	Quantity, kg	GWP-fossil, kg CO_2 eq.
Ore-based steel, blast-furnace route, cold rolled	164	400
Scrap-based engineering steel, electric-arc furnace route	140	146
Cast iron, ore based	4.7	7.5

Environment and energy

The protection and improvement of the environment are essential to us. Every day we try to improve our methods and installations by establishing controls, looking for new applications for the reuse or valorization of our waste and investing in technological improvements that benefit the environment. Our plants stand out for their recycling capacity.

CELSA Nordic aims for excellence in environmental management. Hence, in recent years we have been working on implementing the most demanding environmental management systems in our parent companies such as the European EMAS.

Health and Safety

In CELSA Nordic, we are committed to achieving a safe and healthy work environment for all the people who work with us. Our goal is to become an organization where we all believe in the value of our safety and of our colleagues.

Beyond compliance with the legal requirements in terms of occupational risk prevention, in CELSA Nordic we have incorporated into our Occupational Health and Safety Management System a series of programs that allow us to move towards our objective of Zero Accidents.

Environmental policy

- Comply with the legal obligations and requirements in the areas we operate. Information, collaboration and transparency with the Administrations.
- Consider the needs and expectations of the stakeholders. Enter into commitments and voluntary agreements with our closest communities in environmental improvement projects and in the dissemination and training of workers and neighbors in an environmental matter.
- Work with different environmental management systems, certified and adapted to the nature of our activities that ensure care and respect for the environment by encouraging each person in our organization to act in an environmentally responsible manner.
- Apply continuous improvement in all our processes and develop and invest in new technologies that allow us to prevent and minimize atmospheric emissions, generation of waste and inefficient use of resources. Consider the life cycle of the product to determine environmental aspects and impacts.
- Promote commitment and an environmentally responsible performance of our suppliers, contractors and subcontractors, which in this regard are the decisive factor of choice.
- Promote the recovery, recycling and reuse of our products and work with our clients in raising awareness of the steel life cycle. Participate in initiatives that promote the use of environmentally responsible products.

Environmental Principles

- Effective and responsible use of natural resources and energy.
- Systematic appliance of continuous improvement and prevention of pollution in the management of processes that include the establishment and periodic review of environmental objectives and goals.
- Develop a productive system that respects the environment and complies with the legal obligations and commitments and voluntary agreements signed by CELSA Group™ related to its environmental aspects.
- Encourage the implementation of the waste hierarchy in a manner that favors the following management processes: prevention, minimization, reusing, recycling, energy valorization and leaving landfill disposal as a residual management channel.
- Consider and minimize the impact of environmental aspects from the extraction of raw materials to the end-of-life conditions of the equipment, the facilities and the manufactured products, by using the best available and affordable technologies of the company.
- Develop the environmental commitment of each person that will be linked to our business including management, employees, contractors, customers and suppliers, making awareness, information and training an essential tool
- Communicate in an open and transparent way our environmental performance with all the interested parties with the objective of achieving an environmentally respectful integration in our environment.

People and Society

Our commitment to people and society is absolute. We believe in equal opportunities, in the diversity of our people and in the integration of all people who want to be part of the Group. We are proud to have people from different places, races, ideologies, nationalities, religions and abilities.

Not only that, but in CELSA Nordics we promote work-life balance policies and we fully respect the personal and family life of all the employees.

Commitment to the community

Within the framework of our commitment to the community, we are firmly devoted to promoting training projects that result in personal and professional development, not only of those people who make up our organization, but also of those students who aspire to be part of it in the future. We show full respect to the local cultures of the countries and communities where we operate, contributing to their development and aiming to achieve a sustainable and beneficial activity for society.

Code of Ethics and Professional Conduct

CELSA Nordics has a Code of Ethics and Professional Conduct that governs the behavior guidelines of each employee who is part of the Group.

Compliance with the Code is the responsibility of each person, who, through their conduct, must respect the laws, values, principles and rules of the Code, as well as other existing provisions or those that may exist in the future. Likewise, the Code contemplates that employees promote that the subsidiaries and affiliates of CELSA Nordics as well as their suppliers and interest groups, are governed by standards of conduct and values analogous to those established in this Code.

You may find more information about CELSA Nordic Sustainability & Environmental work at:
www.celsanordic.com & celsa-steelservice.se

Differences versus previous versions

Comparison of the modules A1 – A4 of the updated EPD with the previous version of this EPD for the impact category climate change (GWP-fossil). The value in the current EPD is thus decreased by the value in the previous EPD. A positive difference thus gives an increase in relation to the previous EPD.

	A1	A2	A3	A4	Total A1 – A4
Change (%)	-12	+3	-34	-36	-11

The decrease in A1 has been achieved by the exchange of carbon monoxide as a fuel for primary and secondary petroleum fuels and by a decreased use of calcined dolomite at the mill in Mo i Rana.

The decrease in A3 is due to a decreased use of natural gas as an energy ware. However, the large percentage decrease is hardly significant. The contribution of A3 to the total climate impact is very small in absolute numbers.

The decrease in A4 is due to the exchange of fossil diesel fuel for HVO100. That the reduction of the fossil climate impact is only 36 %, although the diesel fuel is 100 % biogenic, is caused by the emissions of climate gases from the production of the fuel. According to our information the HVO100 is produced from tallow from slaughter-house waste. We have no specific data on the supply chain, so we have used a conservative approach, assuming general EU27 conditions. The main emitter of climate gases is then the rendering of the tallow, which according to our data requires a large quantity of thermal heat, supplied from natural gas. Furthermore, the hydrogen used for the hydrogenation must be presumed to be delivered from a naphtha cracker, not from the electrolysis of water with "green" electricity. There is thus a large potential for improvement of the climate footprint of this supply chain.

The small increase in A2 is caused mainly by an increase of the calculated average transport distance by truck. This climate impact of the increased fuel consumption is, however, mitigated by an increased admixture of biodiesel in the diesel fuel for the trucks, as compared to 2019.

General information

EPD Programme
The International EPD® System.
For more information, www.environdec.com

Programme operator
EPD International AB, Box 210 60 SE-100 31 Stockholm Sweden

PCR review conducted by
The Technical committee of the International EPD® System

Declaration number: S-P-00305

Product category rules: PCR 2019:14 Construction products version 1.0

Central Product Classification
CPC 4126, drawn and folded products of iron or steel

First release: 2012-04-26
EPD Version: 2021-09-22
Valid until: 2024-09-21

Owner:
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Declared unit
Per tonne of reinforcement products.

Geographical coverage: Sweden

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Practitioner

This environmental declaration is prepared by Mats Almemark June 2021.

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