



# ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025, ISO 21930 and EN 15804

Owner of the declaration:	CSK Stålindustri A/S
Program operator:	The Norwegian EPD Foundation
Publisher:	The Norwegian EPD Foundation
Declaration number:	NEPD-2693-1395-EN
Registration number:	NEPD-2693-1395-EN
ECO Platform reference number:	-
Issue date:	22.02.2021
Valid to:	22.02.2026

## CE-Mærket stål komponenter

CE Marked steel components

*European average supply*



**CSK Stålindustri A/S**



## General information

### Product

CE-Mærket stål komponenter  
Beams UNP-UPE-HEA-HEB-IPE-HEM

### Program operator

The Norwegian EPD Foundation  
Post Box 5250 Majorstuen, 0303 Oslo, Norway  
Phone: (+47) 23 08 80 00  
e-mail: [post@epd-norge.no](mailto:post@epd-norge.no)

### Declaration number

NEPD-2693-1395-EN

### ECO Platform reference number

### Product Category Rules

EN 15804:2012 + A1:2013 serves as core PCR  
NPCR 013:2019 Part B for Steel and aluminium construction products

### Statement of liability

The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

### Declared unit

-

### Declared unit with options (A1-A4, C1-C4, D):

1kg of steel, cradle-to-gate A1-A3 with options

### Functional unit

-

### Verification

The CEN Norm EN 15804 serves as the core PCR.  
Independent verification of the declaration and data, according to ISO14025:2010

☐ internal ☒ external

Third party verifier:



Ole M. K. Iversen, LCA.no AS  
Independent verifier approved by EPD Norway

### Owner of the declaration

CSK Stålintustri A/S  
Contact person: Jens Peter Frimor  
Phone: +45 25 24 66 36  
e-mail: [jpf@csk.dk](mailto:jpf@csk.dk)

### Manufacturer

CSK Stålintustri A/S  
Industrivej 7, DK-770  
Phone: +45 25 24 66 36  
e-mail: [jpf@csk.dk](mailto:jpf@csk.dk)

### Place of production

Denmark, Thisted  
Latvia, Tukums

### Management system

EN ISO 9001  
EN ISO 14001  
BS/EN 1090

### Organisation number

20216883

### Issue date

22.02.2021

### Valid to

22.02.2026

### Year of study

2020

### Comparability


EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

### The EPD has been worked out by

Michael M. Jenssen, Asplan Viak AS

  asplan viak

Approved



Håkon Hauan  
Managing Director of EPD-Norway

## Product

### About CSK Steel

CSK Steel is a specialized global steel manufacturer driven by close relations with our customers. CSK Steel is certified to supply CE marked steel structures for the European market in all Execution Classes (EXC1-EXC4).

Our quality assurance system is based on ISO 3834, and we are certified according to 1090-1. External quality audits are performed on an ongoing basis to ensure that our certification is always valid and up-to-date.

At CSK Steel we strive to always offer - and deliver - high-quality steel structures and service, ensured by the continuous development and improvement of our quality assurance system and policies.

We are also certified according to international standards for occupational health and safety DS/OHSAS 18001:2007 / ISO 45001:2018. Our environmental management system is certified according to ISO 14001:2015.

### Product Variation

The declared product is produced by CSK in Denmark and Latvia and the results are a weighted average of the two production units; environmental impact varies <10% between locations for most impact categories.

### Product description

CE marked steel components are structural steel beams (UNP-UPE-HEA-HEB-IPE-HEM) manufactured by CSK per customer specification. Incoming hot-rolled profiles are first sand blasted, then cut and welded to the desired shape. Products are then surface treated before transportation to building site.

### Technical data

Dimensions: IPE 80-600, HEA/B/M 100-600, UNP/UPE 80-400, L 40-200, L 65x50 -200x150, T 30-140 and wide steels:160-500, t=5-40. Steel grade ≤ S355. EN 10025 and EN1090-2 standards are applied.

### Product specification

Materials	kg	%
Alloyed steel	0,93 - 0,99	93- 99
Zinc	0 - 0,06	0 - 6
Paints	0 - 0,01	0 - 1

### Market

Nordics

### Reference service life, product

60 years

### Reference service life, building

60 years

## LCA: Calculation rules

### Declared unit

1kg of steel, cradle-to-gate A1-A3 with options

### System boundary

Modules are declared according to NPCR 013 Part B. Declared modules are shown in *Figure 1*. Gray boxes denote modules not declared.

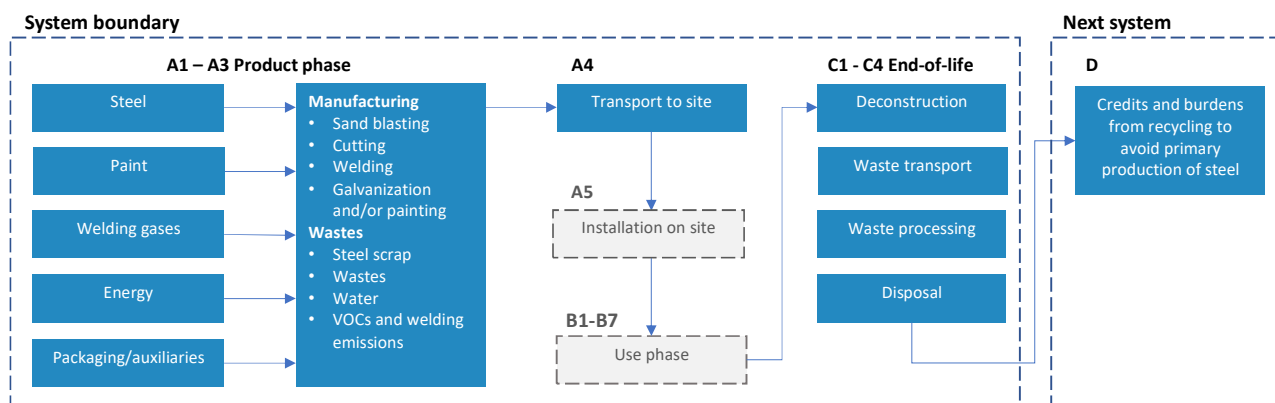


Figure 1: System boundaries

### Data quality

General requirements and guidelines concerning the use of generic and specific data and the quality of those are as described in EN 15804: 2012+A1:2013, clause 6.3.6 and 6.3.7., including ISO14044:2006, 4.2.3.6. The data is representative according to temporal, geographical and technological requirements. Databases used have been ecoinvent v3.6. Upstream steel data provided by suppliers. Calculations have been carried out using Simapro v9.

#### Temporal:

Data for use in module A3 is supplied by the EPD owner and consists of recorded and calculated amounts of specific material and energy consumption. Specific data has been collected for 2019. Generic data has been created or updated within the last 10 years. Any exceptions are documented in the LCA-report.

#### Geographical:

The product included in this EPD is manufactured in Denmark and Latvia and is representative for the intended market. Best available approximations are used where country specific data are unavailable.

#### Technological:

Data represents technology in use.

### Allocation

The allocation is made in accordance with the provisions of EN 15804. Production activities, energy, water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

### Cut-off criteria

All major raw materials and all the essential energy is included. The production process for raw materials and energy flows that are included with very small amounts (<1% energy, mass, impact) are not included. This cut-off rule does not apply for hazardous materials and substances.

### Benefits and loads beyond the system boundary (Module D)

Module D is calculated as net scrap \* LCI for scrap, where the scrap LCI is calculated as the credit for avoided primary production of steel, minus the burden of recycling steel scrap to make new steel, multiplied by the process yield (>1kg scrap is needed to make 1kg new steel). LCI for scrap has been provided by worldsteel (Eurofer, 2019; Worldsteel, 2017).

## LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

### Transport from production place to user (A4)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Value (l/t)
Truck	44 %	Lorry >32t EURO5	300	0.022 l/tkm	6.6

Scenario for distance to building site according to NPCR 013 Part B.

### End of Life (C1, C3, C4)

	Unit	Value
Hazardous waste disposed	kg	0
Collected as mixed construction waste	kg	0
Reuse	kg	0.00
Recycling	kg	0.95
Energy recovery (C3)	kg	0
To landfill (C4)	kg	0.05

### Benefits and loads beyond the system (D)

	Unit	Value
Net new scrap	kg	0.20

#### End of life scenario

Net new scrap is calculated by subtracting the scrap content of outgoing steel from the recycling rate. The average scrap content for European hot-rolled steel is assumed to be 74,6%. Note that outgoing scrap and the parameter for Secondary Material content (SM) differ, wherein the latter accounts for the total amount of scrap needed in the system to fulfill the declared unit.

A 95% recovery rate is assumed, wherein 5% is assumed landfilled - in effect providing a 95% recycling rate. Reuse is not included in this scenario.

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Value (l/t)
Waste collection	50 %	Lorry 21t	19	0.39 l/tkm	7.4
Truck	26 %	Lorry 7,5-16t EURO5	278	0.04 l/tkm	12.2

To provide a plausible scenario for transportation to waste processing, a study of Norwegian waste treatment was used as proxy data (Raadal et al., 2009).

## LCA: Results

### System boundaries (X=included, MND= module not declared, MNR=module not relevant)

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

### Environmental impact

Parameter	Unit	A1-A3	A4	C1	C2	C3	C4	D	
GWP	kg CO <sub>2</sub> -eqv	1.72E+00	2.59E-02	2.15E-02	6.86E-02	2.19E-04	5.30E-05	-3.27E-01	
ODP	kg CFC11-eqv	1.50E-07	5.11E-09	3.87E-09	1.23E-08	2.61E-11	1.77E-11	1.83E-09	
POCP	kg C <sub>2</sub> H <sub>4</sub> -eqv	8.21E-04	4.13E-06	4.30E-06	1.14E-05	5.97E-08	1.94E-08	-1.42E-04	
AP	kg SO <sub>2</sub> -eqv	1.04E-02	8.37E-05	1.63E-04	2.47E-04	1.25E-06	3.95E-07	-6.46E-04	
EP	kg PO <sub>4</sub> <sup>3-</sup> -eqv	2.05E-03	1.42E-05	3.51E-05	4.63E-05	2.73E-07	6.81E-08	-7.09E-05	
ADPM	kg Sb-eqv	1.25E-04	5.06E-08	7.21E-09	1.54E-07	2.15E-09	6.10E-11	-1.03E-06	
ADPE	MJ	2.65E+01	4.08E-01	3.09E-01	9.89E-01	2.91E-03	1.51E-03	-4.76E+00	

GWP Global warming potential; ODP Depletion potential of the stratospheric ozone layer; POCP Formation potential of tropospheric photochemical oxidants; AP Acidification potential of land and water; EP Eutrophication potential; ADPM Abiotic depletion potential for non fossil resources; ADPE Abiotic depletion potential for fossil resources

### Resource use

Parameter	Unit	A1-A3	A4	C1	C2	C3	C4	D	
RPEE	MJ	1.51E+00	6.51E-03	1.66E-03	1.02E-02	1.51E-02	2.80E-05	-2.11E-01	
RPEM	MJ	1.71E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
TPE	MJ	3.22E+00	6.51E-03	1.66E-03	1.02E-02	1.51E-02	2.80E-05	-2.11E-01	
NRPE	MJ	2.27E+01	4.20E-01	3.12E-01	1.01E+00	3.78E-03	1.54E-03	-4.87E+00	
NRPM	MJ	7.48E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
TRPE	MJ	3.02E+01	4.20E-01	3.12E-01	1.01E+00	3.78E-03	1.54E-03	-4.87E+00	
SM	kg	9.52E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NRSF	MJ	5.66E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.97E-01	
W	m <sup>3</sup>	2.10E-02	8.91E-05	4.22E-05	4.22E-05	4.22E-05	1.69E-06	-2.14E-07	

RPEE Renewable primary energy resources used as energy carrier; RPEM Renewable primary energy resources used as raw materials; TPE Total use of renewable primary energy resources; NRPE Non renewable primary energy resources used as energy carrier; NRPM Non renewable primary energy resources used as materials; TRPE Total use of non renewable primary energy resources; SM Use of secondary materials; RSF Use of renewable secondary fuels; NRSF Use of non renewable secondary fuels; W Use of net fresh water

### End of life - Waste

Parameter	Unit	A1-A3	A4	C1	C2	C3	C4	D	
HW	kg	8.65E-02	2.13E-07	1.39E-07	5.10E-07	5.54E-09	1.08E-09	8.35E-17	
NHW	kg	5.00E-01	3.66E-02	3.40E-04	3.46E-02	1.05E-04	1.00E-02	0.00E+00	
RW	kg	6.96E-05	2.95E-06	2.17E-06	7.01E-06	2.12E-08	9.96E-09	0.00E+00	

HW Hazardous waste disposed; NHW Non hazardous waste disposed; RW Radioactive waste disposed

### End of life - Output flow

Parameter	Unit	A1-A3	A4	C1	C2	C3	C4	D	
CR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
MR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.50E-01	0.00E+00	0.00E+00	
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

CR Components for reuse; MR Materials for recycling; MER Materials for energy recovery; EEE Exported electric energy; ETE Exported thermal energy

Reading example: 9,0 E-03 =  $9,0 \cdot 10^{-3}$  = 0,009

## Additional Norwegian requirements

### Greenhouse gas emission from the use of electricity in the manufacturing phase

Norwegian production mix from import, medium voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

Data source	Amount	Unit
Econinvent v3.6 - Denmark	0.359	kg CO <sub>2</sub> -eq/kWh
Econinvent v3.6 - Latvia	0.604	kg CO <sub>2</sub> -eq/kWh

### Dangerous substances

- ☒ The product contains no substances given by the REACH Candidate list or the Norwegian priority list
- ☐ The product contains substances given by the REACH Candidate list or the Norwegian priority list that are less than 0,1 % by weight.
- ☐ The product contain dangerous substances, more then 0,1% by weight, given by the REACH Candidate List or the Norwegian Priority list, see table.
- ☐ The product contains no substances given by the REACH Candidate list or the Norwegian priority list. The product is classified as hazardous waste (Avfallsforsikten, Annex III), see table.

### Indoor environment



No tests have been carried out on the product concerning indoor climate - Not relevant.

### Carbon footprint

Carbon footprint has not been worked out for the product.

## Bibliography

ISO 14025:2010	<i>Environmental labels and declarations - Type III environmental declarations - Principles and procedures</i>
ISO 14044:2006	<i>Environmental management - Life cycle assessment - Requirements and guidelines</i>
EN 15804:2012+A1:2013	<i>Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products</i>
ISO 21930:2007	<i>Sustainability in building construction - Environmental declaration of building products</i>
Jennssen, M.M. (2020)	<i>LCA report for CSK Stålinndustri A/S</i>
NPCR 013:2019	<i>Part B for Steel and Aluminium products</i>
Raadal et al. (2009)	<i>Klimaregnskap for avfallshåndtering. Fase I og II: Glassemballasje, metallemballasje, papir, papp, plastemballasje, våtorganisk avfall, treavfall og restavfall fra husholdninger. ISBN: 82-8035-073-X.</i>

 <b>epd-norge.no</b> The Norwegian EPD Foundation	<b>Publisher/Program operator</b> The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo Norway	Phone: +47 23 08 80 00  e-mail: post@epd-norge.no web: epd-norge.no
	<b>Owner of the declaration</b> CSK Stålinndustri A/S Industrivej 7, DK-770 Denmark	Phone: +45 25 24 66 36 Fax: e-mail: jpf@csk.dk web: csk.dk
 <b>asplan viak</b>	<b>Author of the Life Cycle Assessment</b> Michael M. Jenssen Asplan Viak AS Abels gate 9, 7030 Trondheim, Norway	Phone: +47 41 79 94 17 Fax: e-mail: asplanviak@asplanviak.no web: asplanviak.no





# ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025, ISO 21930 and EN 15804

Owner of the declaration:	CSK Stålindustri A/S
Program operator:	The Norwegian EPD Foundation
Publisher:	The Norwegian EPD Foundation
Declaration number:	NEPD-2694-1395-EN
Registration number:	NEPD-2694-1395-EN
ECO Platform reference number:	-
Issue date:	22.02.2021
Valid to:	22.02.2026

**CE-Mærket stål komponenter**  
CE Marked steel components



**CSK Stålindustri A/S**





## General information

**Product**

CE-Mærket stål komponenter  
Beams UNP-UPE-HEA-HEB-IPE-HEM

**Program operator**

The Norwegian EPD Foundation  
Post Box 5250 Majorstuen, 0303 Oslo, Norway  
Phone: (+47) 23 08 80 00  
e-mail: [post@epd-norge.no](mailto:post@epd-norge.no)

**Declaration number**

NEPD-2694-1395-EN

**ECO Platform reference number**
**Product Category Rules**

EN 15804:2012 + A1:2013 serves as core PCR  
NPCR 013:2019 Part B for Steel and aluminium construction products

**Statement of liability**

The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

**Declared unit**

-

**Declared unit with options (A1-A4, C1-C4, D):**

1kg of steel, cradle-to-gate A1-A3 with options

**Functional unit**

-

**Verification**

The CEN Norm EN 15804 serves as the core PCR.  
Independent verification of the declaration and data, according to ISO14025:2010

☐ internal ☒ external

Third party verifier:

*Ole M.K. Iversen*

Ole M. K. Iversen, LCA.no AS  
Independent verifier approved by EPD Norway

**Owner of the declaration**

CSK Stålinindustri A/S  
Contact person: Jens Peter Frimor  
Phone: +45 25 24 66 36  
e-mail: [jpf@csk.dk](mailto:jpf@csk.dk)

**Manufacturer**

CSK Stålinindustri A/S  
Industrivej 7, DK-770  
Phone: +45 25 24 66 36  
e-mail: [jpf@csk.dk](mailto:jpf@csk.dk)

**Place of production**

Denmark, Thisted  
Latvia, Tukums

**Management system**

EN ISO 9001  
EN ISO 14001  
BS/EN 1090

**Organisation number**

20216883

**Issue date**

22.02.2021

**Valid to**

22.02.2026

**Year of study**

2020

**Comparability**

EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

**The EPD has been worked out by**

Michael M. Jenssen, Asplan Viak AS

*Michael M. Jenssen*  **asplan viak**

Approved

*Håkon Hauan*

Håkon Hauan  
Managing Director of EPD-Norway

## Product

### About CSK Steel

CSK Steel is a specialized global steel manufacturer driven by close relations with our customers. CSK Steel is certified to supply CE marked steel structures for the European market in all Execution Classes (EXC1-EXC4).

Our quality assurance system is based on ISO 3834, and we are certified according to 1090-1. External quality audits are performed on an ongoing basis to ensure that our certification is always valid and up-to-date.

At CSK Steel we strive to always offer - and deliver - high-quality steel structures and service, ensured by the continuous development and improvement of our quality assurance system and policies.

We are also certified according to international standards for occupational health and safety DS/OHSAS 18001:2007 / ISO 45001:2018. Our environmental management system is certified according to ISO 14001:2015.

### Product Variation

The declared product is produced by CSK in Denmark and Latvia and the results are a weighted average of the two production units; variance is less than 10% between production sites for key environmental parameters.

### Product description

CE marked steel components are structural steel beams (UNP-UPE-HEA-HEB-IPE-HEM) manufactured by CSK per customer specification. Incoming hot-rolled profiles are first sand blasted, then cut and welded to the desired shape. Products are then surface treated before transportation to building site.

### Technical data

Dimensions: IPE 80-600, HEA/B/M 100-600, UNP/UPE 80-400, L 40-200, L 65x50 -200x150, T 30-140 and wide steels:160-500, t=5-40. Steel grade  $\leq$  S355. EN 10025 and EN1090-2 standards are applied.

### Product specification

Materials	kg	%
Alloyed steel	0,93 - 0,99	93- 99
Zinc	0 - 0,06	0 - 6
Paints	0 - 0,01	0 - 1

### Market

Nordics

### Reference service life, product

60 years

### Reference service life, building

60 years

## LCA: Calculation rules

### Declared unit

1kg of steel, cradle-to-gate A1-A3 with options

### System boundary

Modules are declared according to NPCR 013 Part B. Declared modules are shown in *Figure 1*. Gray boxes denote modules not declared.

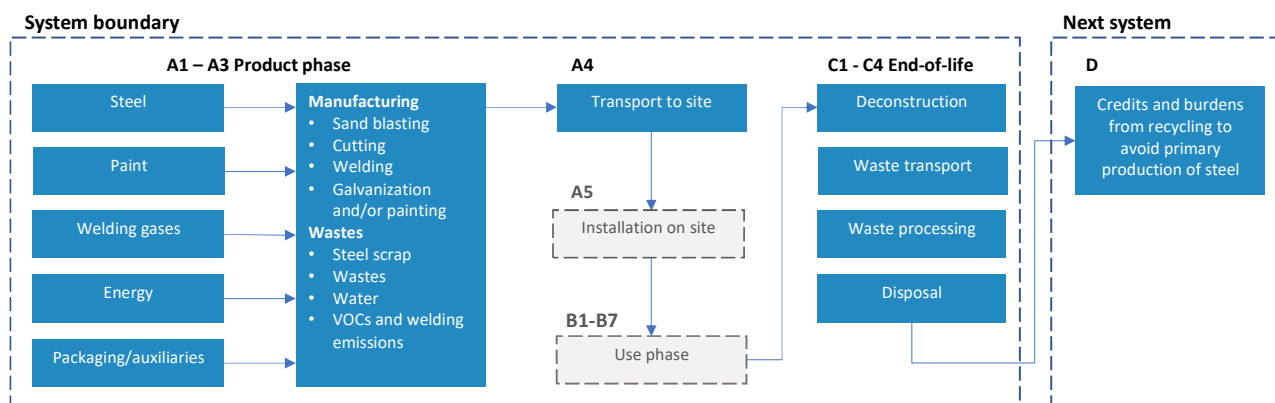


Figure 1: System boundaries

### Data quality

General requirements and guidelines concerning the use of generic and specific data and the quality of those are as described in EN 15804: 2012+A1:2013, clause 6.3.6 and 6.3.7., including ISO14044:2006, 4.2.3.6. The data is representative according to temporal, geographical and technological requirements. Database used has been ecoinvent v3.6. Calculations have been carried out using Simapro v9. Upstream steel data from supplier EPDs:

EPD	EPD programme	Product type	Data age
1	IBU	Hot-rolled / structural section steel	<10 years
2	AENOR	Hot-rolled / structural section steel	<10 years
3	IBU	Hot-rolled / structural section steel	<5 years
4	IBU	Hot-rolled / structural section steel	<5 years

### Allocation

The allocation is made in accordance with the provisions of EN 15804. Production activities, energy, water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

### Cut-off criteria

All major raw materials and all the essential energy is included. The production process for raw materials and energy flows that are included with very small amounts (<1% energy, mass, impact) are not included. This cut-off rule does not apply for hazardous materials and substances.

### Benefits and loads beyond the system boundary (Module D)

Module D is calculated as net scrap \* LCI for scrap, where the scrap LCI is calculated as the credit for avoided primary production of steel, minus the burden of recycling steel scrap to make new steel, multiplied by the process yield (>1kg scrap is needed to make 1kg new steel). LCI for scrap has been provided by worldsteel (Eurofer, 2019; Worldsteel, 2017).

## LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

### Transport from production place to user (A4)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Value (l/t)
Truck	44 %	Lorry >32t EURO5	300	0,022 l/tkm	6.6

Scenario for distance to building site according to NPCR 013 Part B.

### End of Life (C1, C3, C4)

	Unit	Value
Hazardous waste disposed	kg	0
Collected as mixed construction waste	kg	0
Reuse	kg	0.00
Recycling	kg	0.95
Energy recovery (C3)	kg	0
To landfill (C4)	kg	0.05

### Benefits and loads beyond the system (D)

	Unit	Value
Net new scrap	kg	-0.04

#### End of life scenario

Net new scrap is calculated by subtracting the scrap content of outgoing steel from the recycling rate. The weighted average scrap content is 99% from suppliers. Note that outgoing scrap and the parameter for Secondary Material content (SM) differ, wherein the latter accounts for the total amount of scrap needed in the system to fulfill the declared unit.

A 95% recovery rate is assumed, wherein 5% is assumed landfilled - in effect providing a 95% recycling rate. Reuse is not included in this scenario.

### Transport to waste processing (C2)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Value (l/t)
Waste collection	50 %	Lorry 21t	19	0.39 l/tkm	7.4
Truck	26 %	Lorry 7,5-16t EURO5	278	0.04 l/tkm	12.2

To provide a plausible scenario for transportation to waste processing, a study of Norwegian waste treatment was used as proxy data (Raadal et al., 2009).

## LCA: Results

System boundaries (X=included, MND= module not declared, MNR=module not relevant)

Product stage			Assembly stage		Use stage								End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use		De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7		C1	C2	C3	C4	D
X	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND		X	X	X	X	X

### Environmental impact

Parameter	Unit	A1-A3	A4	C1	C2	C3	C4	D	
GWP	kg CO <sub>2</sub> -eqv	1.29E+00	2.59E-02	2.15E-02	6.86E-02	2.19E-04	5.30E-05	6.86E-02	
ODP	kg CFC11-eqv	5.24E-08	5.11E-09	3.87E-09	1.23E-08	2.61E-11	1.77E-11	-3.84E-10	
POCP	kg C <sub>2</sub> H <sub>4</sub> -eqv	4.59E-04	4.13E-06	4.30E-06	1.14E-05	5.97E-08	1.94E-08	2.98E-05	
AP	kg SO <sub>2</sub> -eqv	7.19E-03	8.37E-05	1.63E-04	2.47E-04	1.25E-06	3.95E-07	1.36E-04	
EP	kg PO <sub>4</sub> <sup>3-</sup> -eqv	1.03E-03	1.42E-05	3.51E-05	4.63E-05	2.73E-07	6.81E-08	1.49E-05	
ADPM	kg Sb-eqv	1.14E-04	5.06E-08	7.21E-09	1.54E-07	2.15E-09	6.10E-11	2.17E-07	
ADPE	MJ	1.63E+01	4.08E-01	3.09E-01	9.89E-01	2.91E-03	1.51E-03	9.98E-01	

GWP Global warming potential; ODP Depletion potential of the stratospheric ozone layer; POCP Formation potential of tropospheric photochemical oxidants; AP Acidification potential of land and water; EP Eutrophication potential; ADPM Abiotic depletion potential for non fossil resources; ADPE Abiotic depletion potential for fossil resources

### Resource use

Parameter	Unit	A1-A3	A4	C1	C2	C3	C4	D	
RPEE	MJ	1.35E+00	6.51E-03	1.66E-03	1.02E-02	1.51E-02	2.80E-05	4.43E-02	
RPEM	MJ	1.71E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
TPE	MJ	3.06E+00	6.51E-03	1.66E-03	1.02E-02	1.51E-02	2.80E-05	4.43E-02	
NRPE	MJ	1.06E+01	4.20E-01	3.12E-01	1.01E+00	3.78E-03	1.54E-03	1.02E+00	
NRPM	MJ	7.48E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
TRPE	MJ	1.81E+01	4.20E-01	3.12E-01	1.01E+00	3.78E-03	1.54E-03	1.02E+00	
SM	kg	1.15E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NRSF	MJ	5.66E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.24E-02	
W	m <sup>3</sup>	3.74E-03	8.91E-05	4.22E-05	4.22E-05	4.22E-05	1.69E-06	4.50E-08	

RPEE Renewable primary energy resources used as energy carrier; RPEM Renewable primary energy resources used as raw materials; TPE Total use of renewable primary energy resources; NRPE Non renewable primary energy resources used as energy carrier; NRPM Non renewable primary energy resources used as materials; TRPE Total use of non renewable primary energy resources; SM Use of secondary materials; RSF Use of renewable secondary fuels; NRSF Use of non renewable secondary fuels; W Use of net fresh water

### End of life - Waste

Parameter	Unit	A1-A3	A4	C1	C2	C3	C4	D	
HW	kg	8.87E-02	2.13E-07	1.39E-07	5.10E-07	5.54E-09	1.08E-09	-1.75E-17	
NHW	kg	2.73E-02	3.66E-02	3.40E-04	3.46E-02	1.05E-04	1.00E-02	0.00E+00	
RW	kg	2.52E-04	2.95E-06	2.17E-06	7.01E-06	2.12E-08	9.96E-09	0.00E+00	

HW Hazardous waste disposed; NHW Non hazardous waste disposed; RW Radioactive waste disposed

### End of life - Output flow

Parameter	Unit	A1-A3	A4	C1	C2	C3	C4	D	
CR	kg	3.40E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
MR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.50E-01	0.00E+00	0.00E+00	
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

CR Components for reuse; MR Materials for recycling; MER Materials for energy recovery; EEE Exported electric energy; ETE Exported thermal energy

Reading example: 9,0 E-03 =  $9,0 \cdot 10^{-3}$  = 0,009

## Additional Norwegian requirements

### Greenhouse gas emission from the use of electricity in the manufacturing phase

Norwegian production mix from import, medium voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

Data source	Amount	Unit
Econinvent v3.6 - Denmark	0.359	kg CO <sub>2</sub> -eqv/kWh
Econinvent v3.6 - Latvia	0.604	kg CO <sub>2</sub> -eqv/kWh

### Dangerous substances

- ☒ The product contains no substances given by the REACH Candidate list or the Norwegian priority list
- ☐ The product contains substances given by the REACH Candidate list or the Norwegian priority list that are less than 0,1 % by weight.
- ☐ The product contain dangerous substances, more then 0,1% by weight, given by the REACH Candidate List or the Norwegian Priority list, see table.
- ☐ The product contains no substances given by the REACH Candidate list or the Norwegian priority list. The product is classified as hazardous waste (Avfallsforsikten, Annex III), see table.

### Indoor environment



No tests have been carried out on the product concerning indoor climate - Not relevant.

### Carbon footprint

Carbon footprint has not been worked out for the product.

## Bibliography

ISO 14025:2010	<i>Environmental labels and declarations - Type III environmental declarations - Principles and procedures</i>
ISO 14044:2006	<i>Environmental management - Life cycle assessment - Requirements and guidelines</i>
EN 15804:2012+A1:2013	<i>Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products</i>
ISO 21930:2007	<i>Sustainability in building construction - Environmental declaration of building products</i>
Jennssen, M.M. (2020)	<i>LCA report for CSK Stålinindustri A/S</i>
NPCR 013:2019	<i>Part B for Steel and Aluminium products</i>
Raadal et al. (2009)	<i>Klimaregnskap for avfallshåndtering. Fase I og II: Glassemballasje, metallemballasje, papir, papp, plastemballasje, våtorganisk avfall, treavfall og restavfall fra husholdninger. ISBN: 82-8035-073-X.</i>

 <b>epd-norge.no</b> The Norwegian EPD Foundation	<b>Publisher/Program operator</b> The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo Norway	Phone: +47 23 08 80 00 e-mail: post@epd-norge.no web: epd-norge.no
	<b>Owner of the declaration</b> CSK Stålinindustri A/S Industrivej 7, DK-770 Denmark	Phone: +45 25 24 66 36 Fax: e-mail: jpf@csk.dk web: csk.dk
 <b>asplan viak</b>	<b>Author of the Life Cycle Assessment</b> Michael M. Jenssen Asplan Viak AS Abels gate 9, 7030 Trondheim, Norway	Phone: +47 41 79 94 17 Fax: e-mail: asplanviak@asplanviak.no web: asplanviak.no