

Result summary

# Steel fabric for reinforcement of concrete

Intersig

Calculation number:	EPD-NIBE-20201012-7759
Generation on:	13-07-2021
Issue date:	13-07-2021
Valid until:	13-07-2026
Status:	verified

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# 1 Steel fabric for reinforcement of concrete

## 1.1 COMPANY INFORMATION / DECLARATION OWNER

**Manufacturer:** Intersig

**Production Location:** Intersig

**Address:** Geerstraat 125, 9200DENDERMONDE

**E-mail:**

**Website:** www.intersig.be

## 1.2 EPD INFORMATION

**Calculation number:** EPD-NIBE-20210525-19739

**Date of issue:** 13-07-2021

**End of validity:** 13-07-2026

**Version NIBE's EPD Application:** v2.0

**Version database:** v3.04 (2021-07-06)

**PCR:** EN15804:2019+A2

## 1.3 VERIFICATION OF THE DECLARATION

CEN standard EN 15804:2012 serves as the core PCR.

Independent verification of the declaration. according to EN ISO 14025:2010.

Internal  External

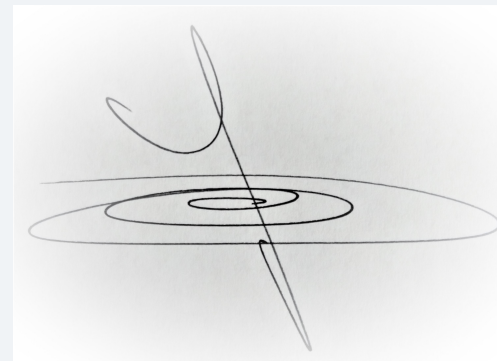
I hereby confirm that, following detailed examination as independent 3rd party verifier, I have not been able to trace any relevant deviations by the Environmental Product Declaration EPD-NIBE-20201012-7759 issued for *Steel fabric for reinforcement of concrete* by *Intersig* and by its project report from the requirements outlined in the corresponding product category regulations based on EN 15804:A2 2019

*Name of the relevant PCR Guidance: NMD Assessment method 1.0*

*Reference to the use of the ECO Platform checklist v3.0 final*

The company-specific data have been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity.

The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at *MRPI*



Third party verifier: Anne Kees Jeeninga, Advieslab

## 1.4 DECLARED UNIT

### ***Reinforcement Steel per ton***

One ton Reinforcement Steel bars for use in reinforced concrete structures. Modules A1-A3 and C1-D are considered. Modules A4-A5 and B1-B3 are not declared.



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## 1.5 SCOPE OF DECLARATION

A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	X	MND	MND	MND	MND	X	X	X	X	X

(X = included, MND = module not declared)

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## 1.6 PRODUCT DESCRIPTION

Intersig produces steel fabric for reinforcement of concrete in various variations: welded fabric, spacers, lattice girders, bars and coils. The process starts with wire rod as raw material. At Intersig wire rod is converted in a range of reinforcement products by processing on wire drawing- and stretching- machines. In this process the wire rod can be adjusted to thickness and can be provided with a profiling. The dimensions vary from 2.8 to 20 mm in standard diameters. The scope of this LCA is the full range of reinforcement products produced from wire rod.

Steel fabric for reinforcement of concrete is used in the construction sector for reinforcing of concrete. Without reinforcement, concrete is poorly resistant to tensile forces that are common in buildings and other structures. The Steel Fabric is prefabricated and the concrete is poured over during construction.

From the purchased wire rod in 2020 approx. 77% was produced in an electric arc furnace process from 100% scrap. The other 23% comes from a blast furnace process. The applicable Ecolnvent process contains approx. 10% scrap. This results in a total of 79,5% of secondary material used in the steel fabric for reinforcement of concrete products.

Intersig complies with most European product standards, requested local or national product standards and international standards, such as ISO 9001 & ISO 14001.

## 1.7 DESCRIPTION OF THE MANUFACTURING PROCESS

The raw material (wire rod), which is largely produced from scrap (77% in 2020), is supplied by ship, train and by truck. The raw material is stored at various places on site before it is processed on wire drawing- and stretching- machines. While drawing the wire, the mill scale is stripped from wire rod, adjusted to thickness (from 2.8 to 20 mm), provided with its profile and the wire is given the correct properties concerning physical values. The mill scale is disposed as waste, mainly iron oxide, and is recycled. The reinforcements such as girders and spacers are welded from ribbed wire on welding lines. Longitudinal and transverse wires are welded together by means of current (spot resistance welding). No other additives or raw materials are added. A large number of articles are produced and kept in stock. They can be stored before they are transported to the customers. The articles do not contain any packaging materials other than 100% recyclable steel wire and in some cases wood pallets and lifting loops.

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## 1.8 RESULTS

Environmental effects	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D	Total
AP	mol H+ eqv.	5.29E+0	6.25E-1	3.48E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.11E-2	0.00E+0	2.50E-3	-7.34E-1	5.57E+0
GWP-total	kg CO2 eqv.	9.93E+2	3.78E+1	8.89E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	7.09E+0	0.00E+0	2.64E-1	-2.04E+2	9.23E+2
GWP-b	kg CO2 eqv.	3.39E-1	1.46E-2	4.88E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.27E-3	0.00E+0	5.22E-4	2.44E+0	3.29E+0
GWP-f	kg CO2 eqv.	9.91E+2	3.77E+1	8.84E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	7.09E+0	0.00E+0	2.63E-1	-2.07E+2	9.18E+2
GWP-luluc	kg CO2 eqv.	1.32E+0	2.33E-2	9.71E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.60E-3	0.00E+0	7.34E-5	2.17E-1	1.66E+0
ETP-fw	CTUe	3.58E+4	4.27E+2	1.77E+3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	9.53E+1	0.00E+0	4.77E+0	-7.08E+3	3.10E+4
PM	disease incidence	9.89E-5	2.33E-6	5.28E-6	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	6.37E-7	0.00E+0	4.86E-8	-1.01E-5	9.71E-5
EP-m	kg N eqv.	1.04E+0	1.71E-1	6.97E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.45E-2	0.00E+0	8.60E-4	-1.40E-1	1.15E+0
EP-fw	kg P eqv.	5.21E-2	3.31E-4	3.65E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	7.15E-5	0.00E+0	2.95E-6	-6.52E-3	4.97E-2
EP-T	mol N eqv.	1.19E+1	1.90E+0	7.94E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.60E-1	0.00E+0	9.48E-3	-1.62E+0	1.31E+1
HTP-c	CTUh	1.22E-5	1.90E-8	4.08E-7	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.09E-9	0.00E+0	1.10E-10	3.39E-7	1.29E-5
HTP-nc	CTUh	2.61E-4	4.20E-7	5.46E-6	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.04E-7	0.00E+0	3.39E-9	5.60E-5	3.23E-4
IR	kBq U235 eqv.	5.64E+1	2.26E+0	9.97E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.48E-1	0.00E+0	3.02E-2	5.42E+0	7.45E+1
SQP	Pt	4.36E+3	3.15E+2	3.54E+2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	9.27E+1	0.00E+0	1.54E+1	-2.82E+2	4.85E+3
ODP	kg CFC 11 eqv.	8.02E-5	7.83E-6	9.74E-6	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.56E-6	0.00E+0	1.08E-7	-3.54E-6	9.59E-5
POCP	kg NMVOC eqv.	4.75E+0	5.04E-1	3.76E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.56E-2	0.00E+0	2.75E-3	-1.20E+0	4.48E+0
ADP-f	MJ	1.34E+4	5.29E+2	1.61E+3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.07E+2	0.00E+0	7.36E+0	-1.23E+3	1.44E+4
ADP-mm	kg Sb-eqv.	1.56E-2	6.30E-4	6.28E-4	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.80E-4	0.00E+0	2.41E-6	-1.68E-4	1.68E-2

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WDP	m3 world eqv.	5.68E+2	1.61E+0	9.14E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.82E-1	0.00E+0	3.30E-1	-4.75E+1	6.14E+2
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**AP**=Acidification (AP) | **GWP-total**=Global warming potential (GWP-total) | **GWP-b**=Global warming potential - Biogenic (GWP-b) | **GWP-f**=Global warming potential - Fossil (GWP-f) | **GWP-luluc**=Global warming potential - Land use and land use change (GWP-luluc) | **ETP-fw**=Ecotoxicity, freshwater (ETP-fw) | **PM**=Particulate Matter (PM) | **EP-m**=Eutrophication marine (EP-m) | **EP-fw**=Eutrophication, freshwater (EP-fw) | **EP-T**=Eutrophication, terrestrial (EP-T) | **HTP-c**=Human toxicity, cancer (HTP-c) | **HTP-nc**=Human toxicity, non-cancer (HTP-nc) | **IR**=Ionising radiation, human health (IR) | **SQP**=Land use (SQP) | **ODP**=Ozone depletion (ODP) | **POCP**=Photochemical ozone formation - human health (POCP) | **ADP-f**=Resource use, fossils (ADP-f) | **ADP-mm**=Resource use, minerals and metals (ADP-mm) | **WDP**=Water use (WDP)

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Parameter	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D	Total
PERE	MJ	1.48E+3	7.01E+0	1.26E+2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.34E+0	0.00E+0	5.95E-2	6.93E+1	1.69E+3
PERM	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PERT	MJ	1.48E+3	7.01E+0	1.26E+2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.34E+0	0.00E+0	5.95E-2	6.93E+1	1.69E+3
PENRE	MJ	1.42E+4	5.61E+2	1.70E+3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.13E+2	0.00E+0	7.82E+0	-1.27E+3	1.54E+4
PENRM	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PENRT	MJ	1.42E+4	5.61E+2	1.70E+3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.13E+2	0.00E+0	7.82E+0	-1.27E+3	1.54E+4
SM	Kg	7.95E+2	0.00E+0	1.23E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	8.08E+2
RSF	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	M3	1.45E+1	5.88E-2	2.35E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.30E-2	0.00E+0	7.86E-3	-8.58E-1	1.61E+1
HWD	Kg	5.08E-2	1.03E-3	3.46E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.71E-4	0.00E+0	1.10E-5	-2.61E-2	2.95E-2
NHWD	Kg	3.99E+2	1.94E+1	2.09E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	6.78E+0	0.00E+0	5.00E+1	-2.42E+1	4.72E+2
RWD	Kg	4.91E-2	3.53E-3	8.78E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	7.02E-4	0.00E+0	4.83E-5	2.52E-3	6.47E-2
CRU	Kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	Kg	0.00E+0	0.00E+0	1.55E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	9.50E+2	0.00E+0	0.00E+0	9.66E+2
MER	Kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EET	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EEE	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
<b>SP</b>	<b>s€</b>	<b>s€ 0,00</b>	<b>s€ 0,00</b>	<b>s€ 0,00</b>	<b>s€ 0,00</b>	<b>s€ 0,00</b>	<b>s€ 0,00</b>	<b>s€ 0,00</b>	<b>s€ 0,00</b>	<b>s€ 0,00</b>	<b>s€ 0,00</b>	<b>s€ 0,00</b>	<b>s€ 0,00</b>	<b>s€ 0,00</b>	<b>s€ 0,00</b>

PERE=renewable primary energy ex. raw materials | PERM=renewable primary energy used as raw materials | PERT=renewable primary energy total | PENRE=non-renewable primary energy ex. raw materials | PENRM=non-renewable primary energy used as raw materials | PENRT=non-renewable primary energy total | SM=use of secondary material | RSF=use of renewable secondary fuels | NRSF=use of non-renewable secondary fuels | FW=use of net fresh water | HWD=hazardous waste disposed | NHWD=non hazardous waste disposed | RWD=radioactive waste disposed | CRU=Components for re-use | MFR=Materials for recycling | MER=Materials for energy recovery | EET=Exported Energy Thermic | EEE=Exported Energy Electric

## 1.9 ADDITIONAL INFORMATION

### Allocation

There is no allocation applied for the environmental profiles / datasets used in this LCA.