

Environmental Product Declaration

according to ISO 14025 and EN 15804



This declaration is for:
Reinforcing Mesh Plus

Provided by:
Van Merksteijn International B.V.



program operator
Stichting MRPI®
publisher
Stichting MRPI®
www.mrpi.nl

MRPI® registration
1.1.00487.2023
date of first issue
28-11-2023
date of this issue
28-11-2023
expiry date
28-11-2028





COMPANY INFORMATION



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PRODUCT

Reinforcing Mesh Plus

DECLARED UNIT/FUNCTIONAL UNIT

1 ton

DESCRIPTION OF PRODUCT

Reinforcing Mesh made out of sustainable produced steel

VISUAL PRODUCT



MRPI® REGISTRATION

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SCOPE OF DECLARATION

This MRPI®-EPD certificate is verified by **Ruben van Gaalen, Ecoreview** .

The LCA study has been done by **Jasper Roosendaal, Royal HaskoningDHV**.

The certificate is based on an LCA-dossier according to ISO14025 and EN15804+A2. It is verified according to the 'MRPI®-EPD verification protocol November 2020.v4.0'. EPDs of construction products may not be comparable if they do not comply with EN15804+A2. Declaration of SVHC that are listed on the 'Candidate List of Substances of Very High Concern for authorisation' when content exceeds the limits for registration with ECHA.

MORE INFORMATION

Wapeningsproducten - Van Merksteijn International
(van-merksteijn.com)

PROGRAM OPERATOR

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ir. J-P den Hollander, Managing director MRPI®

DEMONSTRATION OF VERIFICATION

CEN standard EN15804 serves as the core PCR[a]

Independent verification of the declaration and data,

according to EN ISO 14025:2010:

internal: external: X

Third party verifier:



Ruben van Gaalen, Ecoreview

[a] PCR = Product Category Rules

DETAILED PRODUCT DESCRIPTION

Reinforcing steel – Van Merksteijn International

Steel Wirerod produced by European steel wirerod suppliers is processed into reinforcing mesh plus at Van Merksteijn’s manufacturing plant in Almelo, the Netherlands according to the European standards.

Reference service life = 100 years

About Van Merksteijn International

Steel and Van Merksteijn are often mentioned in one breath. All over the world. No wonder, considering the fact that Van Merksteijn is widely seen as the number one authority in the field of reinforcement products and fencing panels.

Our reputation is the result of hard work, a forward-looking vision, and, of course, knowledge, experience, and craftsmanship. And do you know what distinguishes us even more than all of this? Our overall quality. Yes, we place high demands on quality. Very high. You might say, sky-high. In every conceivable area. It’s the only way we can be sure to keep delivering the very best. In terms of service, speed, problem-solving drive and partnership. In terms of sustainability, safety, working conditions.

It all starts with wire rod, then it just keeps going. It’s always been that way, and always will be.

Chemical composition	Bulk density	C	Mn	Si	P	S
Unit	[t/m ³]	[%]	[%]	[%]	[%]	[%]
COMPONENT > 1% of total mass		[%]				
Steel Rebar (European suppliers, EPD)		1000				

SCOPE AND TYPE

Wirerod from European suppliers is processed in Reinforcing Mesh Plus according to the European standards in Almelo, the Netherlands, processing plant. EPD is valid for the European market (EN15804 + A2) and follows the general ISO14025 standard. The Almelo production site uses for this renewable power. LCA is conducted using the Ecoinvent 3.6 database, Simapro 9.4 LCA software.



REPRESENTATIVENESS

An average production output based on the plant configuration has been retained. The average is conservatively calculated (worst-case scenario) based on production demand and contracted output of the Almelo processing plant. 93% Of the product is based on already verified EPDs from suppliers, the remaining wirerod (7%) has been modelled with Ecoinvent references representative for steel rebar in Europe.

At all times, the choice has been made to calculate with processes and database references that match the geographical context of the production process. Standard profiles that do not match geographically have been adjusted to be geographically accurate location as representative as possible.

ENVIRONMENTAL IMPACT per functional unit or declared unit (core indicators A2)

	UNIT	A1	A2	A3	A1-A3
GWP-total	kg CO2 eq.	3.15E+2	4.11E+1	9.90E+1	4.55E+2
GWP-fossil	kg CO2 eq.	3.26E+2	4.11E+1	9.98E+1	4.67E+2
GWP-biogenic	kg CO2 eq.	1.97E+2	2.67E-1	7.99E+1	2.77E+2
GWP-luluc	kg CO2 eq.	2.36E+0	3.71E-2	-1.76E-2	2.37E+0
ODP	kg CFC11 eq.	4.57E-5	7.31E-6	1.25E-5	6.54E-5
AP	mol H+ eq.	1.45E+0	7.43E-1	2.31E-1	2.43E+0
EP-freshwater	kg PO4 eq.	6.75E-2	5.85E-4	5.58E-4	6.86E-2
EP-marine	kg N eq.	2.99E-1	2.08E-1	6.27E-2	5.70E-1
EP-terrestrial	mol N eq.	3.17E+0	2.30E+0	6.93E-1	6.16E+0
POCP	kg NMVOC eq.	1.05E+0	6.08E-1	1.97E-1	1.86E+0
ADP-minerals & metals	kg Sb eq.	1.86E-3	4.46E-4	2.46E-4	2.56E-3
ADP-fossil	MJ, net calorific value	9.57E+3	5.48E+2	1.37E+3	1.15E+4
WDP	m3 world eq. deprived	1.10E+2	1.74E+0	-4.50E+0	1.07E+2

GWP-total = Global Warming Potential total

GWP-fossil = Global Warming Potential fossil fuels

GWP-biogenic = Global Warming Potential biogenic

GWP-luluc = Global Warming Potential land use and land use change

ODP = Depletion potential of the stratospheric ozone layer

AP = Acidification Potential, Accumulated Exceedence

EP-freshwater = Eutrophication Potential, fraction of nutrients reaching freshwater end compartment

EP-marine = Eutrophication Potential, fraction of nutrients reaching marine end compartment

EP-terrestrial = Eutrophication Potential, Accumulated Exceedence

POCP = Formation potential of tropospheric ozone photochemical oxidants

ADP-minerals&metals = Abiotic Depletion Potential for non fossil resources [2]

ADP-fossil = Abiotic Depletion for fossil resources potential [2]

WDP = Water (user) deprivation potential, deprivation-weighted water consumption [2]

Disclaimer [2]

- 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 experience with the indicator.

ENVIRONMENTAL IMPACT per functional unit or declared unit (additional indicators A2)

	UNIT	A1	A2	A3	A1-A3
PM	Disease incidence	ND	ND	ND	ND
IRP	kBq U235 eq.	ND	ND	ND	ND
ETP-fw	CTUe	ND	ND	ND	ND
HTP-c	CTUh	ND	ND	ND	ND
HTP-nc	CTUh	ND	ND	ND	ND
SQP	---	ND	ND	ND	ND

PM = Potential incidence of disease due to PM emissions

IRP = Potential Human exposure efficiency relative to U235 [1]

ETP-fw = Potential Comparative Toxic Unit for ecosystems [2]

HTP-c = Potential Comparative Toxic Unit for humans [2]

HTP-nc = Potential Comparative Toxic Unit for humans, non-cancer [2]

SQP = Potential soil quality index [2]

Disclaimer [1]

- This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Disclaimer [2]

- 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 experience with the indicator.

RESOURCE USE per functional unit or declared unit (A1 / A2)

	UNIT	A1	A2	A3	A1-A3
PERE	MJ	5.31E+2	9.75E-1	4.68E+0	5.38E+2
PERM	MJ	0.00	0.00	0.00	0.00
PERT	MJ	5.32E+2	7.16E+0	1.90E+2	7.29E+2
PENRE	MJ	8.91E+3	6.92E+1	1.45E+3	1.05E+4
PENRM	MJ	0.00	0.00	5.78E-2	5.78E-2
PENRT	MJ	8.91E+3	5.77E+2	1.51E+3	1.10E+4
SM	kg	8.67E+2	0.00	0.00	8.63E+2
RSF	MJ	0.00	0.00	0.00	0.00
NRSF	MJ	0.00	0.00	0.00	0.00
FW	m3	3.48E+0	6.02E-2	2.38E-1	3.80E+0

PERE = Use of renewable energy excluding renewable primary energy resources

PERM = Use of renewable energy resources used as raw materials

PERT = Total use of renewable primary energy resources

PENRE = Use of non-renewable primary energy resources excluding non-renewable 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 resources

SM = Use of secondary materials

RSF = Use of renewable secondary fuels

NRSF = Use of non renewable secondary fuels

FW = Use of net fresh water

OUTPUT FLOWS AND WASTE CATEGORIES per functional unit or declared unit (A1 / A2)

	UNIT	A1	A2	A3	A1-A3
HWD	kg	5.14E-3	1.28E-3	1.05E+0	1.05E+0
NHWD	kg	1.00E+2	1.24E+1	9.70E+0	1.22E+2
RWD	kg	8.49E-2	3.26E-3	9.68E-4	8.92E-2
CRU	kg	0.00	0.00	0.00	0.00
MFR	kg	1.28E+2	0.00	6.99E-1	1.29E+2
MER	kg	0.00	0.00	0.00	0.00
EEE	MJ	0.00	0.00	1.05E-3	1.05E-3
ETE	MJ	0.00	0.00	1.61E-3	1.61E-3

HWD = Hazardous Waste Disposed

RWD = Radioactive Waste Disposed

MFR = Materials for recycling

EEE = Exported Electrical Energy

NHWD = Non Hazardous Waste Disposed

CRU = Components for reuse

MER = Materials for energy recovery

ETE = Exported Thermal Energy

BIOGENIC CARBON CONTENT per functional unit or declared unit (A1 / A2)

	UNIT	A1	A2	A3	A1-A3
BCCpr	kg C	ND	ND	ND	ND
BCCpa	kg C	ND	ND	ND	ND

BCCpr = Biogenic carbon content in product

BCCpa = Biogenic carbon content in packaging

CALCULATION RULES

Average mode of transport have been assumed for A2

No cut-off criteria have been used nor any type of allocation. The product exists for 93% out of previously verified EPDs.

The infrastructure for the production has been cut-off based on the cut-off criteria. Based on the annual production numbers and impact per tonne wiring rod, infrastructure comes at <E-11.

SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

Production and extraction of raw material- and energy flows (A1)

Extraction of raw materials. Steel rebar is sourced from several suppliers in Europe

- Arcelor Mittal
- Celsa Atlantic
- Sidenor
- Stahl Gerlafingen.

92,44% of this rebar is covered by EPDs (EN15804:A2), the remainder is modelled in Simapro using appropriate Ecoinvent references.

Transport between extraction and manufacturing (A2)

Transport between production sites takes place between suppliers in various locations in Europe and the Almelo site in the Netherlands. Internal transports take place for transshipment and within the factory gates of the manufacturing sites. Wirerod is transported over road, inland waters, sea and rail.

Manufacturing to product (A3)

At the Almelo site, the sourced wirerod is manufactured into Reinforcing Mesh Plus. (This might also include welded fabric, rebar or coils)

DECLARATION OF SVHC

This product does not contain any substances on the SVHC candidate list.

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REMARKS

None