Source: Niedax GmbH & Co. KG

LIFE CYCLE ASSESSMENT FOR CABLE SUPPORT SYSTEMS

as per EN 15804 + A2

Green Steel Cable Tray system

Owner of the declaration
Niedax GmbH & Co. KG
Declaration number: NDX-GS-V01-08025-GB
Declared unit: 1 m cable support system
Issue date: 11.08.2025

Author of the Life Cycle Assessment
FIT-Umwelttechnik GmbH
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1. General information

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Issue date	11.08.2025

Declaration number	NDX-GS-V01-08025-GB
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Author of the Life Cycle Assessment	FIT-Umwelttechnik GmbH
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1.1 Calculation and product category rules

The life cycle assessment for the declared product has been prepared in accordance with EN 15804 + A2.

1.2 Declared product

The declared product is the Green Steel cable support system from Niedax, which consists of a cable tray system. The declared unit refers to one metre [1 m]. The declared unit is specified in [kg / m].

1.3 Scope

Specific data was collected from the manufacturer‘s plant in St. Katharinen, Germany, for the preparation of the life cycle assessment. Data from 2024, which corresponds to the annual average, is used as a basis. The holder of the declaration is responsible for the underlying information and evidence. Furthermore, certificates from the supplier are used for the steel in module A1. These certify a recycling content of 100 % and a GWP of (cable tray) 0.80 tonnes and (overhead hanger and one cantilever) 0.75 tonnes of CO_2 equivalent per tonne of steel.

1.4 Aim of the study and target group

The aim of the following study is to prepare a life cycle assessment for the cable tray system of Niedax GmbH & Co. KG in accordance with EN 15804 + A2. The parameters required by the standard are to be recorded for the information modules A1 to A3, C1 to C4 and D.

The study will create transparency regarding the environmental impacts of products and processes within the company and the supply chain. The results of the life cycle assessment will be communicated to the customer.

2. Scope of the study

2.1 Declared unit

The declared product is the Green Steel cable tray system from Niedax GmbH & Co. KG. The declared unit refers to 1 m of the cable tray system with one overhead hanger and one cantilever. The following table shows the data for the declared unit:

Table 1 Data on the declared unit

Designation	Weight [kg/m]
Cable tray system	3.91

The life cycle assessment applies to the following product range. The products included in the assessment are marked in red.

Table 2 Product range

Cable tray system			
Item description	**Height [mm]**	**Width [mm]**	**Material**
RLVC 60.100 S GS	60	100	S
RLVC 60.200 S GS	60	200	S
RLVC 60.300 S GS	60	300	S

Cantilever		
Item description	**Length [mm]**	**Material**
KTAM 100 S GS	110	S
KTAM 200 S GS	210	S
KTAM 300 S GS	320	S

Overhead hanger		
Item description	**Length [mm]**	**Material**
HU 4530/300 FL GS	301	F
HU 4530/400 FL GS	401	F
HU 4530/500 FL GS	501	F
HU 4530/600 FL GS	601	F
Legend:	S = Steel, pre-galvanised; F = Steel, hot dip galvanised; GS = Green Steel	

2. SCOPE OF THE STUDY

2.2 Product description and manufacture

Cable tray system

Cable tray systems support cables and electrical lines. They are typically made of perforated, slotted, and folded sheet metal. Depending on the design and area of application, they are available in various heights – from 35 to 110 millimeters – and can support distances of up to four meters. They are made of steel or stainless steel with pre-galvanised or hot dip galvanised surfaces. Typical applications include building services engineering, industry, tunnel construction and power plant construction.

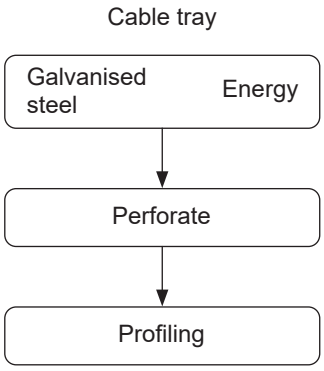

Image 1 Manufacturing process for cable tray

Overhead hanger and cantilever

As each system comprises a cantilever and an overhead hanger, the production processes for these components are described below.

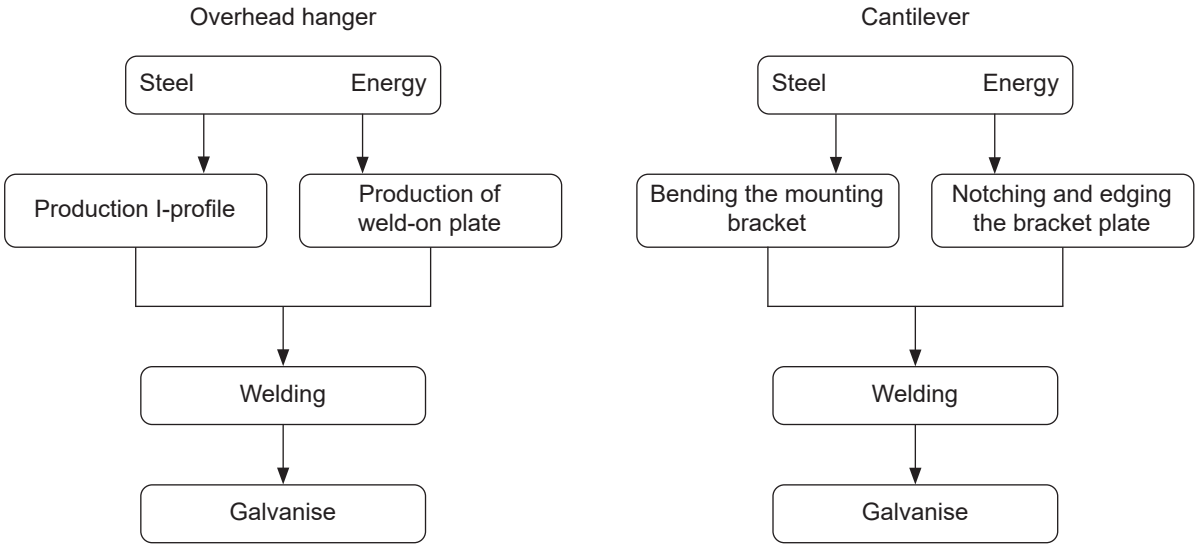

Image 2 Manufacturing process for overhead hanger and cantilever

2.3 System boundaries

Type of life cycle assessment: From cradle to gate with modules C1 – C4 and module D. The following information modules are defined as system boundaries in this study:

- Product stage (A1 – A3):
  - A1, raw material supply
  - A2, transport
  - A3, manufacturing
- End of life stage (C1 – C4):
  - C1, deconstruction / demolition
  - C2, transport
  - C3, waste processing
  - C4, disposal
- Reuse, recovery or recycling potential (D)

A total of eight information modules are considered in order to accurately record the indicators and environmental impacts of the declared unit. Information modules A1 to A3 describe the material supply, transport to the production site, and the production processes of the product itself. The preliminary products are sourced from the European Union. Transport is by truck.

Information modules C1 to C4 address the processes of dismantling or demolition from the building, transport to waste disposal, and the treatment and disposal of the product. Moreover, the potential for reuse, recovery or recycling is documented in Information Module D.

2.4 Information on the electricity mix

The product is manufactured at the production site in St. Katharinen, Germany. For this site, 100 % of the electrical energy required is sourced from the German electricity mix (residual). The electricity mix is accounted for on a country-specific basis and reported in the life cycle inventory.

2.5 Impact assessment

The impact assessment of environmental impacts is carried out in accordance with EN 15804 + A2. The characterisation factors are selected in accordance with PCR. Long-term emissions > 100 years are excluded. The impact assessment results in this study only make relative statements.

2.6 Data collection

Data collection for the life cycle inventory is carried out in accordance with DIN EN ISO 14044. A data collection form was sent to Niedax GmbH & Co. KG. Information on all considered information modules per declared unit was recorded. This study used a consistent and uniform calculation method. All information provided by the manufacturer is documented.

2.7 Assumptions and limitations

If components or materials are used in the life cycle phases of the product that are not available in the databases, they are substituted with comparable components or materials in terms of manufacturing impacts (resource use and emissions) and processing costs. This procedure is applied when a reasonable margin of error can be assumed.

The cut-off criterion according to EN 15804 + A2 is applied. All energy and mass inputs have been considered.

3. Life cycle assessment

3.1 Information module A1 – Raw material supply

The data on the raw material supply of the Green Steel cable tray system is based on manufacturer specifications. This information forms the basis for this information module. The following diagram and table show the material distribution of the declared unit.

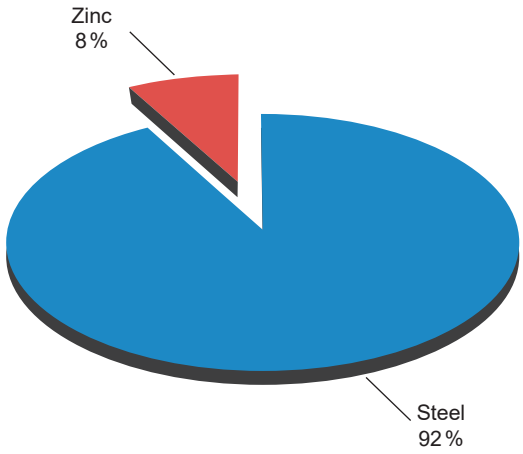

Image 3 Material distribution per declared unit Green Steel cable tray system

Table 3 Material distribution of the product per declared unit

Material	Weight [kg / m]	Distribution [%]
Steel	3,60	92
Zinc	0,31	8
Total	**3,91**	**100**

3.2 Information modul C1 – Deconstruction / demolition

The demolition of the cable support system is calculated in information module C1. Demolition is carried out manually from the building.

3.3 Information module C2 – Transport

The C2 information module describes the transport route of the waste from the declared unit from demolition of the building to the waste treatment plant. The transport route is assumed to be 50 km on average.

Since most of the transport routes are within Europe, a European mix was used as the basis for fuel supply. A standard truck, Euro 5, with 61 % utilization and a standard distribution for highway (70 %), country road (23 %), and city (7 %) is assumed.

3.4 Information modul C3 – Waste processing

In information module C3, the treatment of the waste from the declared unit is calculated from demolition of the building in the waste treatment plant. This data set contains 3 % mass loss.

Table 4 Life cycle inventory data for waste treatment per declared unit Green Steel cable tray system

Material	Weight [kg / m]
Input streams	
Waste from the declared unit	3.91
Output streams	
Waste for recycling	3.76

3.5 Information module C4 – Disposal

This calculation does not result in any elimination. Therefore, information module C4 is declared and reported as zero.

3.6 Information module D – Reuse, recovery or recycling potential

Information module D only shows the substitution potential of primary steel. The recycled content of the product is not taken into account in order to avoid double counting of recycling benefits. As the product consists of 100% recycled steel, module D is reported as zero.

3.7 Characteristic product properties biogenic carbon

No renewable raw materials are used in the product or packaging. Therefore, the biogenic carbon is reported as zero.

4. Results of the life cycle assessment

Table 5 Specification of system boundaries

SPECIFICATION OF SYSTEM BOUNDARIES (X = INCLUDED IN LIFE CYCLE ASSESSMENT; MND = MODULE NOT DECLARED)																
Product stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport	Construction - Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction / demolition	Transport	Waste processing	Disposal	Reuse, recovery or recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x

In information module A1 – A3, 2.09 kg CO_2 equivalent of the total GWP value is attributable to the Green Steel used. As only the total GWP value was provided by the supplier, all other environmental indicators for module A1 – A3 are taken from the data sets for zinc, transport and production.

Table 6 Results of the life cycle assessment Environmental impacts

RESULTS OF THE LIFE CYCLE ASSESSMENT ENVIRONMENTAL IMPACTS: Green Steel cable tray system [1 m]							
Core indicators	**Unit**	**A1-3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	[kg CO_2-eq.]	4.16E+00	0.00E+00	1.97E-02	1.06E-02	0.00E+00	0.00E+00
GWP-fossil	[kg CO_2-eq.]	1.35E+00	0.00E+00	1.89E-02	1.07E-02	0.00E+00	0.00E+00
GWP-biogenic	[kg CO_2-eq.]	7.32E-03	0.00E+00	7.99E-04	-1.74E-04	0.00E+00	0.00E+00
GWP-luluc	[kg CO_2-eq.]	2.27E-04	0.00E+00	1.94E-06	9.23E-05	0.00E+00	0.00E+00
ODP	[kg CFC11-eq.]	5.97E-12	0.00E+00	2.91E-15	2.11E-14	0.00E+00	0.00E+00
AP	[mol H+-eq.]	3.82E-03	0.00E+00	9.30E-05	5.43E-05	0.00E+00	0.00E+00
EP-freshwater	[kg P-eq.]	3.84E-06	0.00E+00	4.78E-09	2.69E-08	0.00E+00	0.00E+00
EP-marine	[kg N-eq.]	7.99E-04	0.00E+00	4.53E-05	2.53E-05	0.00E+00	0.00E+00
EP-terrestrial	[mol N-eq.]	8.52E-03	0.00E+00	4.98E-04	2.74E-04	0.00E+00	0.00E+00
POCP	[kg NMVOC-eq.]	2.20E-03	0.00E+00	9.31E-05	6.73E-05	0.00E+00	0.00E+00
ADPE	[kg Sb-eq.]	1.13E-03	0.00E+00	5.63E-10	1.09E-08	0.00E+00	0.00E+00
ADPF	[MJ]	2.04E+01	0.00E+00	2.60E-01	1.98E-01	0.00E+00	0.00E+00
WDP	[m³ World eq. deprived]	4.64E-01	0.00E+00	4.95E-05	1.91E-03	0.00E+00	0.00E+00
Resource usage							
PERE	[MJ]	6.14E+00	0.00E+00	1.88E-03	1.94E-02	0.00E+00	0.00E+00
PERM	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	[MJ]	6.14E+00	0.00E+00	1.88E-03	1.94E-02	0.00E+00	0.00E+00
PENRE	[MJ]	2.04E+01	0.00E+00	2.60E-01	1,98E-01	0.00E+00	0.00E+00
PENRM	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	[MJ]	2.04E+01	0.00E+00	2.60E-01	1.98E-01	0.00E+00	0.00E+00
SM	[kg]	3.60E+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
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	[m³]	8.58E-03	0.00E+00	2.04E-06	5.18E-05	0.00E+00	0.00E+00
Waste categories							
HWD	[kg]	1.27E-09	0.00E+00	9.88E-12	2.73E-11	0.00E+00	0.00E+00
NHWD	[kg]	3.38E-02	0.00E+00	2.32E-05	5.00E-05	0.00E+00	0.00E+00
RWD	[kg]	1.52E-03	0.00E+00	4.36E-07	2.51E-06	0.00E+00	0.00E+00
Output material flows							
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	0.00E+00	0.00E+00	0.00E+00	3.91E+00	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
EE [electric]	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE [thermal]	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Legend	GWP – Global warming potential, ODP – Ozone depletion potential, AP – Acidification potential, EP – Eutrophication potential, POCP – Photochemical ozone creation potential, ADPE – Abiotic depletion potential for non-fossil resources, ADPF – Abiotic depletion potential for fossil resources, WDP – Water (user) deprivation potential, 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 resources, 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 reuse, MFR – Materials for recycling, MER – Materials for energy recovery, EE – Exported energy per energy carrier						

5. INTERPRETATION

5. Interpretation

5.1 Dominance analysis

The following table and diagram show the main causes of environmental impacts and environmental indicators for the cable tray system per declared unit.

Table 7 Dominance analysis Information modules Green Steel cable tray system per declared unit

Indicator	A1	A2	A3	C1	C2	C3	C4	D
GWP-total [kg CO_2-eq.]	3.45E+00	4.95E-02	6.66E-01	0.00E+00	1.97E-02	1.06E-02	0.00E+00	0.00E+00
GWP-biogenic [kg CO_2-eq.]	4.59E-03	2.01E-03	7.24E-04	0.00E+00	7.99E-04	-1.74E-04	0.00E+00	0.00E+00
ODP [kg CFC11-eq.]	5.92E-12	7.32E-15	4.25E-14	0.00E+00	2.91E-15	2.11E-14	0.00E+00	0.00E+00
AP [mol H+-eq.]	2.94E-03	2.34E-04	6.47E-04	0.00E+00	9.30E-05	5.43E-05	0.00E+00	0.00E+00
EP-freshwater [kg P- eq.]	3.77E-06	1.20E-08	5.77E-08	0.00E+00	4.78E-09	2.69E-08	0.00E+00	0.00E+00
POCP [kg Ethen eq.]	1.30E-03	2.34E-04	6.63E-04	0.00E+00	9.31E-05	6.73E-05	0.00E+00	0.00E+00
ADPE [kg Sb eq.]	1.13E-03	1,42E-09	9.33E-09	0.00E+00	5.63E-10	1.09E-08	0.00E+00	0.00E+00
ADPF [MJ]	1.14E+01	6,55E-01	8.37E+00	0.00E+00	2.60E-01	1.98E-01	0.00E+00	0.00E+00
PERT [MJ]	6.11E+00	4.72E-03	2.85E-02	0.00E+00	1.88E-03	1.94E-02	0.00E+00	0.00E+00
PENRT [MJ]	1.14E+01	6.55E-01	8.37E+00	0.00E+00	2.60E-01	1.98E-01	0.00E+00	0.00E+00

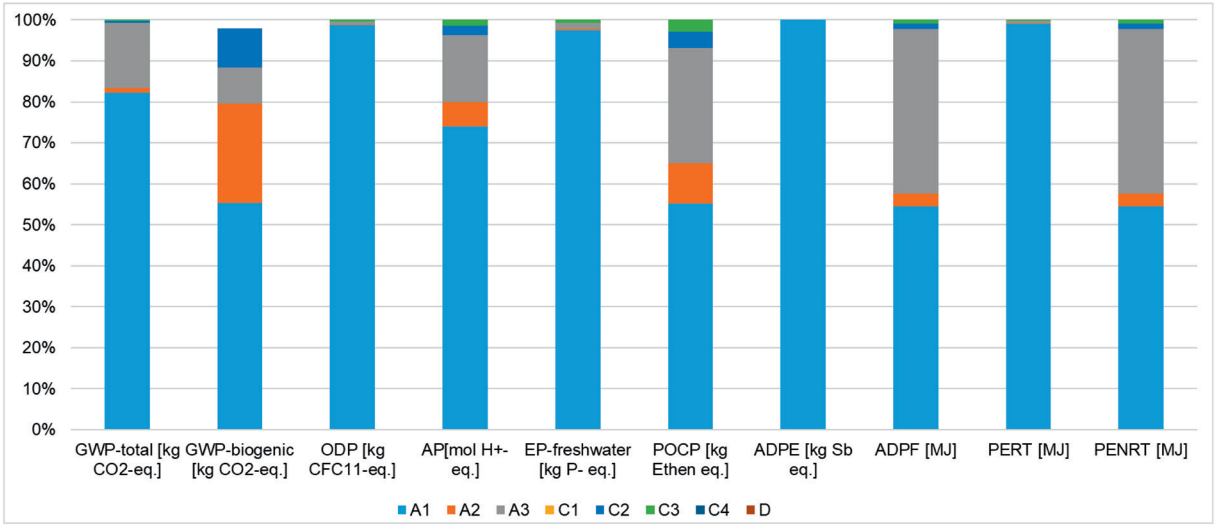

Image 4 Dominance analysis Information modules per declared unit

5.2 Interpretation of results

The dominance analysis shows that the main causes of environmental impacts and indicators lie in information module A1. This is particularly evident from the global warming potential (GWP), which is around 83 % in module A1 in relation to material provision. Production (module A3) also contributes significantly to the GWP, accounting for around 14 % of the total for all information modules.

Transport (modules A2 and C2) and shredding in module C3 play a minor role. The associated environmental impacts are consistently classified as low to marginal.

The use of recycled steel reduces the global warming potential of steel by around two-thirds compared to primary steel production.

6. References

General principles:

- DIN EN ISO 14025
  DIN EN /ISO 14025:2011-10/, Umweltkennzeichnungen und -deklarationen - Typ III Umweltdeklarationen - Grundsätze und Verfahren
- DIN EN ISO 14044
  DIN EN ISO 14044:2006-10, Umweltmanagement - Ökobilanz - Anforderungen und Anleitungen (ISO 14044:2006); Deutsche und Englische Fassung EN ISO 14044:2006
- EN 15804 + A2
  EN 15804:2019-04+A2+AC:2021, Nachhaltigkeit von Bauwerken – Umweltproduktdeklarationen – Grundregeln für die Produktkategorie Bauprodukte
- EN/TR 15941
  CEN/TR 15941:2010-03: Nachhaltigkeit von Bauwerken – Umweltproduktdeklarationen - Methoden für Auswahl und Verwendung von generischen Daten; Deutsche Fassung CEN/TR
- Sphera
  LCA for Experts: Ganzheitliche Bilanzierung
  Leinfelden-Echterdingen; Sphera Solution GmbH (Hrsg.)
  Product Sustainability Data Search | Sphera (GaBi)
  (10.07.2025)

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