Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Steel Profiles

from

METAL TRADE COMAX, a.s.

EPD of multiple products, based on average results

Programme:	The International EPD® System, www.environdec.com
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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 www.environdec.com

General information

Programme information

Programme:	The International EPD® System
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Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): PCR 2019:14 Construction products (EN 15804+A2) (1.3.4)
PCR review was conducted by: The Technical Committee of the International EPD® System. The review panel may be contacted via info@environdec.com
Life Cycle Assessment (LCA)
LCA accountability: LCA Studio s.r.o. Ing. Kamila Sirotná, prof. Ing. Vladimír Kočí, Ph.D.,MBA, Ing. et Ing. Tatiana Trecáková, PhD. Šárecká 1962/5, 16000 Prague 6, Czech Republic www.lcastudio.cz
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: prof. Ing. Silvia Vilčeková, PhD., Silcert, s.r.o. Approved by: The International EPD® System
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 registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: METAL TRADE COMAX, a.s.
Contact: Blažena Žambochová, Head of IMS Department, Blazena.Zambochova@mtcomax.cz

Description of the organisation:

METAL TRADE COMAX, a.s. is one of the oldest representatives in continuous coil coating in Europe and the only producer of continuously coated sheet metal in the Czech Republic.

In particular, the company is a producer of:

- Pre-painted steel and aluminium
- Profiles made of zinc coated strips
- Aluminium, zinc coated and steel strips and sheets
- Metal roofing and roof accessories

METAL TRADE COMAX, a.s. has 4 production plants and employs nearly 500 people.

Over 220 thousand tons of company products are sold per year, more than 55% is exported. Products of METAL TRADE COMAX, a.s. are exported to 28 markets all around the world.

The manufacturing process management and quality is meeting the international standards ISO 9001, ISO 14001, ISO 45001, IATF 16949 and ISO 50001 for all operations. Additionally, Steel profiles and reinforcements for windows are certified by certification body CSTB France and approved according to the technical annex to RAL-GZ 716 by GKFP.

The company is a member of ECCA, seated in Brussels, gathering major European producers of pre-painted sheet metal and quality association for plastic window profile systems Gütegemeinschaft Kunststoff-Fensterprofilsysteme e.V.

The history of the profile center dates back to 1991, when KVARTA LITOVEL, spol. s r.o. started the production of thin-walled profiles in the center of Litovel. After a flood in 1997, the company moved to the outskirts of the town, but since the halls there were soon too small, the former owner decided to invest in new premises in the industrial zone in Viska u Litovle, where today our company, after purchasing 100% of the business share, operates 6 profiling lines including 2 welding lines, 2 cutting lines, 2 NC saws, 2 presses and 1 ADIGE laser saw.

The steel service centers METAL TRADE COMAX, a.s. process steel and galvanized sheets in coils up to a width of 2,000 mm with a thickness of 0.4 - 8.0 mm into sheets up to 12,000 mm long and strips from a width of 21 mm. Thanks to optimum stock levels, the centers are able to meet customer demands efficiently

Product-related or management system-related certifications:

METAL TRADE COMAX, a.s. profiling centre (mentioned also like MTC Litovel profiling center) operate according to international standards

- EN ISO 9001:2015
- EN ISO 14001:2015
- EN ISO 50001:2018
- QB44 CSTB and RAL-GZ 716 GKFP quality marks in the segment of reinforcing steel profiles for PVC windows and doors

Name and location of production site(s): Litovel, Czech Republic

Product information

Product name: Steel Profile

Product identification: Steel profile, open and closed (welded) with wall thickness ranging from of 0,7 to 3,5 mm

Product description:

In the MTC Litovel profiling center, galvanized, cold-rolled, and pickled strips with an input thickness of 0.7 to 3.5 mm are processed.

The company operates six profile lines, including two welding lines, two cutting lines, two NC saws, two presses, and one ADIGE laser saw.

After cutting, the material is distributed to a specific forming line. Various shapes of open profiles can be produced by the steel forming lines, and one of them is equipped with a punching press. Profiles with a maximum wall thickness of 3.0 mm can be produced.

The production of profiles on the new welding line is continuous and fully automated. The welding line consists of a forming section, a high-frequency welder with zinc-covered weld, a cooling emulsion system, a calibration section for the produced welded profile, and an automatic stacker for the produced profiles. The processed wall thickness ranges from 0.9 to 2.5 mm.

A state-of-the-art laser cutting machine is used to cut various shapes of holes in the welded profiles, which are primarily used in door PVC profiles.

The product portfolio consists of window and door profiles, welded profiles, garage profiles, automotive profiles, solar profiles, and more.

Profiles requiring long-term corrosion resistance are manufactured from sheets with a special ZnAlMg surface treatment. The product provides up to four times the corrosion protection, although less zinc is used in its production compared to conventional products.

The process of product and technology design, as well as the development of new products, is carried out by highly qualified engineers. State-of-the-art tools, such as COPRA software and AutoCAD, are used for the development, design, and optimization of production and the tools used.

Thanks to our technologically advanced forming lines, software, and the expertise of our technologists, even complex profile shapes for the rapidly developing market of large-format, low-energy, and retractable windows, or profiles for conservatories and terraces, are produced.

A wide range of reinforcement profiles for all major window producers in the European Union is produced in accordance with:

• EN 10162: Cold rolled steel sections – Technical delivery conditions – Dimensional and cross-sectional tolerances,

• EN 10305-3: Steel tubes for precision applications – Technical delivery conditions – Part 3: Welded cold sized tubes.

To produce welded and unwelded steel profiles, material produced by our premium suppliers is used, in accordance with:

• EN 10025: Hot-rolled products of structural steel – Part 1: General technical delivery conditions,

• EN 10346: Continuous hot-dip coated flat steel products – Technical delivery conditions,

• EN 10143: Continuously plated steel plates and strips – Dimensional tolerances and shape tolerances,

• EN 10140: Cold-rolled steel strip – Dimensional tolerances and shape tolerances,

• EN 10130: Cold-rolled flat products of deep-drawn steels – Technical delivery conditions,

• EN 10131: Uncoated and electroplated zinc or zinc-nickel combination flat products from low carbon and higher yield strength steels for cold forming – Dimensional tolerances and shape tolerances,

• EN 10268+A1: Cold rolled steel flat products with high yield strength for cold forming – Technical delivery conditions.

The packaging of the product is managed according to the customer's requirements. Wood, premium steel band strips with anticorrosion protection, and PET and PP band strips are used for packaging. Every band is clearly marked with a label, and every piece of profile is marked with an ink printer according to the customer's requirements.

UN CPC code: 42190

Geographical scope: Czech Republic, Europe, Global

LCA information

Functional unit / declared unit: declared unit is 1 kg of steel profile

Time representativeness: Site specific data from producer are based on 1 year average for process data (reference year 2023). Time scope less than 10-years were applied for background data. Time scope less than 2-years were applied for specific data.

Database(s) and LCA software used: LCA for Experts (Sphere), databases Sphere and ecoinvent 3.9

Description of system boundaries:

The system boundary is Cradle to gate with options, modules C1–C4, module D and with optional modules (A1–A3 + C + D and additional modules) according to EN 15804+A2. The additional module is module A4 and A5.

It covers the production of raw materials, all relevant transport down to factory gate, manufacturing by MTC, construction, waste processing and disposal of used product. The review framework comprises the following details:

- Raw materials acquisition and transport,
- Further processing of raw materials,
- Production operations,
- Energy and water consumption,
- Waste management,
- Packaging of the final product for delivery,
- Delivery to customer,
- Construction phase including unpacking and treatment of waste packaging,
- Deconstruction of the concrete,
- Transport and waste processing,
- Waste end-of-life – recycling of materials.

More information:
Cut off rules: The cut-off criterion was chosen based on the used PCR. According to the used PCR, more than 99 % of flows were included.

Allocations: All materials and energy flows were modelled based on real tracked consumption of material and production bilances of energies. Steel scrap amount is based on suppliers EPD and suppliers statement of secondary material content. No secondary fuels are used in production. Generic process data for production of input materials and components were used.

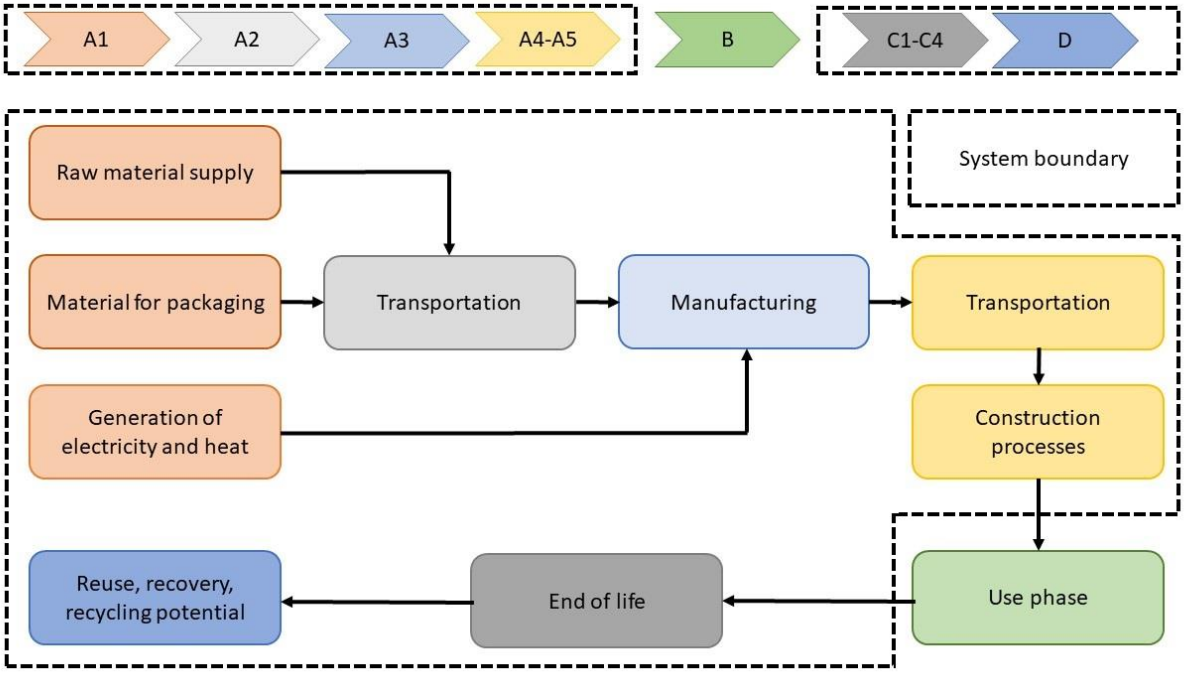
The allocation of impacts in A1-A3 was calculated for the main product and the coproduct – steep scrap, which was done based on economic values of the product and scrap.

The weighted average results of the included products based on production volumes were calculated.

Electricity consumption: Generation of electricity consumed within ROBE lighting s.r.o. production was based on the Czech residual electricity grid mix. GWP-GHG indicator of the used residual electricity grid mix is 0,643 kg CO2 eq./kWh.

Characterisation factors: Characterisation factors are based on Environmental Footprint 3.1. (EF 3.1).

System diagram:



Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	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	x	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x
Geography	GLO	GLO	CZ	EU	EU	NR	NR	NR	NR	NR	NR	NR	EU	EU	EU	EU	EU
Specific data used	75,3%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	<5 %			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	NR			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Content information

Product components	**Weight, kg**	**Post-consumer material, weight-%**	**Biogenic material, weight-% and kg C/kg**
Steel	1,00	8,64 %	0,00
TOTAL	1,00	8,64 %	0,00
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/kg**
Wood	1,02E-02	1,02%	0,38
Steel	1,50E-03	0,15%	0,00
Plastic	2,48E-04	0,02%	0,00
TOTAL	1,19E-02	1,19%	0,32

Dangerous substances from the candidate list of SVHC for Authorisation	**EC No.**	**CAS No.**	**Weight-% per functional or declared unit**
No substances from the SVHC list to report.			

Results of the environmental performance indicators

Mandatory impact category indicators according to EN 15804

Results per 1 kg of steel profile									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	2,63E+00	4,05E-02	-3,14E-04	0,00E+00	4,27E-03	2,07E-02	7,49E-04	-4,09E-01
GWP-biogenic	kg CO_2 eq.	-1,71E-02	1,72E-03	1,89E-02	0,00E+00	0,00E+00	9,01E-06	0,00E+00	6,61E-04
GWP-luluc	kg CO_2 eq.	1,43E-03	6,70E-04	2,51E-07	0,00E+00	7,07E-05	2,46E-06	4,49E-06	-2,00E-04
GWP-total	kg CO_2 eq.	2,61E+00	4,28E-02	1,86E-02	0,00E+00	4,34E-03	2,08E-02	7,53E-04	-4,08E-01
ODP	kg CFC 11 eq.	6,66E-11	4,02E-15	-1,08E-14	0,00E+00	4,24E-16	1,66E-13	2,04E-15	1,29E-12
AP	mol H^+ eq.	6,42E-03	5,41E-05	2,01E-06	0,00E+00	5,72E-06	4,83E-05	5,31E-06	-9,37E-04
EP-freshwater	kg P eq.	2,93E-06	1,70E-07	1,24E-08	0,00E+00	1,80E-08	8,96E-09	1,71E-09	-3,90E-08
EP-marine	kg N eq.	1,59E-03	1,96E-05	3,45E-06	0,00E+00	2,07E-06	1,12E-05	1,37E-06	-2,28E-04
EP-terrestrial	mol N eq.	1,72E-02	2,34E-04	1,83E-05	0,00E+00	2,47E-05	1,21E-04	1,51E-05	-2,46E-03
POCP	kg NMVOC eq.	5,57E-03	5,12E-05	6,18E-06	0,00E+00	5,41E-06	3,31E-05	4,19E-06	-7,56E-04
ADP-minerals&metals*	kg Sb eq.	2,85E-05	3,39E-09	-6,01E-11	0,00E+00	3,58E-10	8,49E-10	4,86E-11	-4,54E-09
ADP-fossil*	MJ	2,74E+01	5,20E-01	-3,54E-02	0,00E+00	5,50E-02	3,53E-01	9,87E-03	-3,11E+00
WDP*	m^3	1,26E-01	5,94E-04	6,95E-04	0,00E+00	6,27E-05	8,75E-04	8,54E-05	-3,41E-03

** 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.*

Acronyms: **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 Exceedance; **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 Exceedance; **POCP** = Formation potential of tropospheric ozone; **ADP-minerals&metals** = Abiotic depletion potential for non-fossil resources; **ADP-fossil** = Abiotic depletion for fossil resources potential; **WDP** = Water (user) deprivation potential, deprivation-weighted water consumption

Additional mandatory and voluntary impact category indicators

Results per 1 kg of steel profile									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	2,63E+00	4,12E-02	4,97E-03	0,00E+00	4,35E-03	2,08E-02	7,55E-04	-4,08E-01

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Resource use indicators

Results per 1 kg of steel profile									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1,81E+00	4,40E-02	-2,04E-03	0,00E+00	4,65E-03	4,01E-02	1,73E-03	5,43E-01
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	6,75E-01	4,40E-02	-2,04E-03	0,00E+00	4,65E-03	4,01E-02	1,73E-03	5,43E-01
PENRE	MJ	2,74E+01	5,20E-01	-3,54E-02	0,00E+00	5,50E-02	3,53E-01	9,87E-03	-3,11E+00
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	8,69E+00	5,20E-01	-3,54E-02	0,00E+00	5,50E-02	3,53E-01	9,87E-03	-3,11E+00
SM	kg	8,64E-02	0,00E+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	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	1,22E-02	4,94E-05	1,37E-05	0,00E+00	5,22E-06	5,66E-05	2,61E-06	-2,75E-04

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

Waste indicators

Results per 1 kg of steel profile									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	3,50E-07	1,68E-11	-1,26E-12	0,00E+00	1,78E-12	4,18E-11	2,48E-12	1,39E-09
Non-hazardous waste disposed	kg	5,73E-02	8,09E-05	2,50E-03	0,00E+00	8,55E-06	8,46E-05	5,00E-02	-6,14E-03
Radioactive waste disposed	kg	4,76E-04	6,73E-07	-2,64E-06	0,00E+00	7,10E-08	3,61E-05	1,02E-07	4,92E-05

Output flow indicators

Results per 1 kg of steel profile									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	4,49E-02	0,00E+00	4,92E-03	0,00E+00	0,00E+00	1,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	3,12E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	-8,38E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	-1,85E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

References

General Programme Instructions of the International EPD® System. Version 5.0.0.
Product Category Rules (PCR): PCR 2019:14 Construction products (EN 15804+A2) (1.3.4)
ISO 14020:2000 Environmental labels and declarations — General principles, 2000-09
ISO 14025: EN ISO 14025:2006-11: Environmental labels and declarations - Type III environmental declarations — Principles and procedures
ISO 14040:2006 Environmental management — Life cycle assessment — Principles and framework, 2006-07
ISO 14044:2006 Environmental management — Life cycle assessment — Requirements and guidelines, 2006-07
EN 15804+A2:2019/AC:2021 European Committee for Standardization: Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products, 2021
Ecoinvent: www.ecoinvent.org, ecoinvent database 3.9.
Sphera: software LCA for Experts. 2023, Sphera solutions, www.sphera.com

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