Environmental Product Declaration

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

Steel Plasterboard 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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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:

MT COMAX, s.r.o. is a subsidiary company of METAL TRADE COMAX, a.s. and is an experienced producer of steel profile. 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.

In 2009, the company expand to Slovakia as MT COMAX, s.r.o the subsidiary company of METAL TRADE COMAX, a.s.. The production plant is located in village Bočiar, 20 km far from Košice, the second-biggest city in Slovakia. MT COMAX, s.r.o is an experienced producer of steel plasterboard profiles, reinforcement window and door profiles.

Product-related or management system-related certifications:

MT COMAX, s.r.o. profiling center operate according to international standards

- ISO 9001:2015
- ISO 14001:2015

Name and location of production site(s): Bočiar, Slovakia

Product information

Product name: Steel Plasterboard profiles

Product identification: Steel plasterboard profiles with wall thicknesses ranging from 0.6 to 2.0 mm

Product description:

In the MT COMAX, s.r.o. profiling center, plasterboard profiles in plain finish, thin-walled and thick-walled plasterboard profiles with wall thicknesses ranging from 0.6 to 2.0 mm, and 11 basic types of profiles are produced. Special profiles are also offered.

For dry construction, construction profiles in plain version are normally produced, but rigidized profiles, which increase the strength of the SDK construction by up to 30%, are also produced.

In addition to the regular supply of profiles, the development of new types of profiles is carried out. The development is conducted by highly qualified engineers with many years of experience in the field. Thanks to the technologically advanced forming lines, software, and the expertise of technologists, new profile shapes for the developing market are produced.

Current range of SDK profiles:

Thin-walled plasterboard profiles with plain and rigidized finish – wall thickness 0.6 mm:

• CD60 | UD28

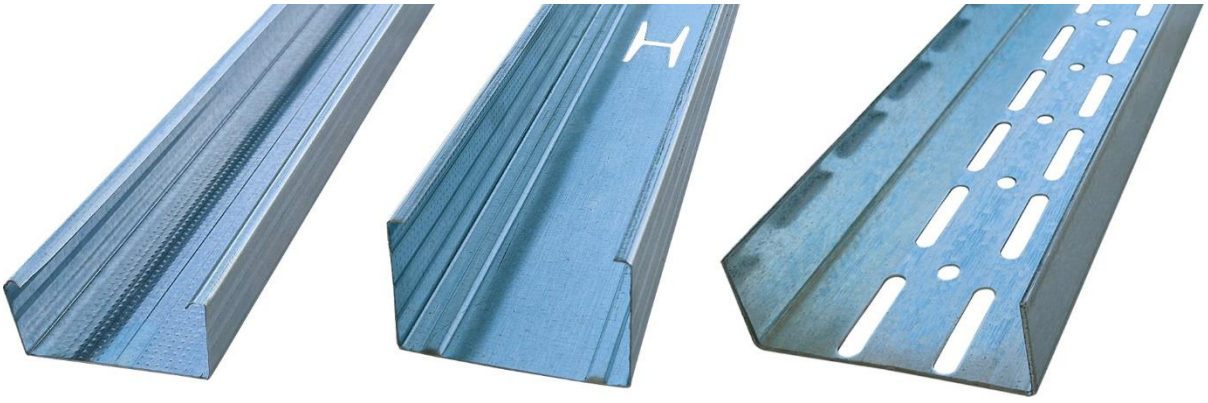
• CW50 | CW75 | CW100

• UW50 | UW75 | UW100

Thick-walled plasterboard profiles – wall thickness 2.0 mm:

• UA50 | UA75 | UA100

Special profiles for dry construction, according to various customers' requests, are also offered.



Dry construction is considered an effective solution for interior work and renovation. Whether it involves non-load bearing partitions, false ceilings, partition walls, or pre-fitted walls, plasterboard solutions enable fast construction with the properties of solid construction.

Comax profiles are distributed to building projects throughout the Slovak and Czech Republics, as well as to Western European and Balkan countries, not only within the European Union.

The delivery and testing of the profiles are governed by the applicable European, Slovak, and Czech technical standards. If necessary, the delivery of profiles according to other, mutually agreed-upon standards can be arranged by the customer with the seller. The control of the specified parameters is carried out based on technical documentation that has been approved by the customer.

A wide range of profiles for plasterboard constructions is produced according to the following standards:

• EN 14195: Metal structural elements for plasterboard systems – Definitions, requirements, and test methods.

• DIN 18182 - Part 1: Accessories for the Processing of Plasterboard – Part: Sheet Metal Profiles.

Material for the production of profiles is also ordered according to the EN standards, as quality is considered very important in production. The material is purchased from well-known suppliers to ensure that the best is offered to customers.

• EN 10346: Continuous hot-dip coated flat steel products – TDP.

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

The product packaging is done according to the customer's requirements.

UN CPC code: 42190

Geographical scope: Slovakia, Europe, Global

LCA information

Functional unit / declared unit: declared unit is 1 kg of plasterboard 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.

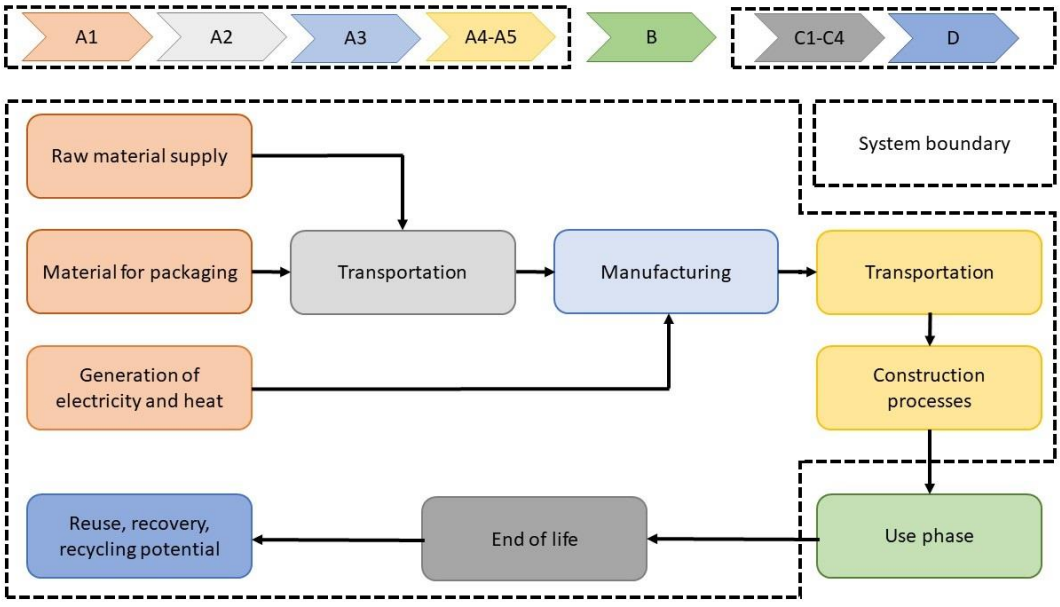
The allocation of impacts in A1-A3 was calculated for the main product and the coproduct – steep scrap, which was done based on economic values of the product and scrap.

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

Electricity consumption: Generation of electricity consumed within MT Comax s.r.o. production was based on the Slovak residual electricity grid mix. GWP-GHG indicator of the used residual electricity grid mix is 0,270 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	SK	EU	EU	NR	NR	NR	NR	NR	NR	NR	EU	EU	EU	EU	EU
Specific data used	56,4%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	12,1%	0,00
TOTAL	1,00	12,1 %	0,00
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/kg**
Wood	2,34E-03	0,23%	0,38
Steel	1,93E-04	0,02%	0,00
Plastic	3,64E-03	0,36%	0,00
TOTAL	6,17E-03	0,62%	0,14

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 plasterboard 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 plasterboard profile									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	2,65E+00	5,17E-02	7,41E-03	6,08E-03	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 plasterboard profile									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1,44E+00	5,52E-02	1,54E-02	1,60E-02	4,65E-03	4,01E-02	1,73E-03	5,42E-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	5,67E-01	5,52E-02	1,54E-02	1,60E-02	4,65E-03	4,01E-02	1,73E-03	5,42E-01
PENRE	MJ	2,85E+01	6,53E-01	1,02E-01	1,13E-01	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	1,40E+01	6,53E-01	1,02E-01	1,13E-01	5,50E-02	3,53E-01	9,87E-03	-3,11E+00
SM	kg	1,21E-01	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	5,36E-04	6,20E-05	2,63E-05	2,26E-05	5,22E-06	5,66E-05	2,61E-06	-2,74E-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 plasterboard profile									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	3,85E-07	2,11E-11	1,55E-11	1,59E-11	1,78E-12	4,18E-11	2,48E-12	1,38E-09
Non-hazardous waste disposed	kg	5,93E-02	1,01E-04	7,05E-04	2,79E-05	8,55E-06	8,46E-05	5,00E-02	-6,14E-03
Radioactive waste disposed	kg	3,25E-04	8,43E-07	1,37E-05	1,46E-05	7,10E-08	3,61E-05	1,02E-07	4,91E-05

Output flow indicators

Results per 1 kg of plasterboard 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	1,02E-02	0,00E+00	1,10E-03	0,00E+00	0,00E+00	1,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	3,37E-04	0,00E+00	8,38E-04	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	-2,62E-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	-5,49E-03	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
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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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