



# ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO14025 and EN15804 for  
**Steel Profiles and Accessories**

The environmental impacts of this product have been assessed from [cradle to grave](#).  
Environmental Product Declaration has been verified by an [independent third party](#).



**CPC Code** / 42190

**Declaration Number** / S-P-00869

**ECO Platform Reg. Number** / 00000502

**Publication Date** / 27.03.2017

**Validity Date** / 26.03.2022

**Market Coverage** / Worldwide



**EPD**®

ENVIRONMENTAL PRODUCT DECLARATIONS



# INFORMATION

The LCA for this EPD is conducted according to the guidelines of ISO 14040/44 and the requirements given in the Product Category Rules (PCR) document for Construction Products and CPC 54 Construction Services (Version 2.01, 2016 03 09) with reference to EN 15804 and the general program guidelines by The International EPD System in accordance with ISO 14025 standards.

The inventory for the LCA study is based on the 2016 production figures for steel profiles and accessories manufactured by UMS Uğur Metal Sanayi Müh. İnş. Nak. İç ve Dış. Tic. Ltd. Şti. (UMS) in their production plant located in Ankara, Turkey.

The LCA was modelled with SimaPro 8.3 LCA software using the impact factors and the latest version of the Ecoinvent database (V3.3) for secondary data and Turkish Life Cycle Inventory Database (TLCID) developed by Turkish Centre for Sustainable Production Research and Design (SÜRATAM) for local data.

<b>EPD Programme</b>	The International EPD® System <a href="http://www.environdec.com">www.environdec.com</a>
<b>EPD Programme Operator</b>	EPD Turkey, Istanbul - Turkey <a href="http://www.epdturkey.org">www.epdturkey.org</a>
<b>EPD Owner</b>	UMS Uğur Metal Sanayi Müh. İnş. Nak. İç ve Dış. Tic. Ltd. Şti., Ankara - Turkey <a href="http://www.umsprofil.com.tr">www.umsprofil.com.tr</a>
<b>Declared Unit</b>	1 ton of steel profile and accessories
<b>EPD Based on Product Category Rules (PCR)</b>	The CEN standard EN 15804 serves as the core PCR The International EPD® System's PCR 2012:01 Construction products and Construction services, Version 2.01, 2016-03-09
<b>PCR Review Conducted by</b>	Technical Committee of the International EPD® System <a href="http://www.environdec.com">www.environdec.com</a> <a href="mailto:info@environdec.com">info@environdec.com</a>
<b>Independent Verification and data, according to ISO 14025:2006</b>	<input type="checkbox"/> Internal <input checked="" type="checkbox"/> External <input type="checkbox"/> EPD® Process Certification
<b>System Boundaries</b>	<input type="checkbox"/> Cradle to Gate <input type="checkbox"/> Cradle to Gate with Option <input checked="" type="checkbox"/> Cradle to Grave
<b>Approved and Verified by</b>	<b>Third Party Verifier</b> Vladimír Kočí, PhD Prague, Czech Republic
<b>EPD Prepared by</b>	Metsims Sustainability Consulting, Istanbul - Turkey <a href="http://www.metsims.com">www.metsims.com</a>

EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 Norm.

The EPD certificate, its background data and the results will be used for business-to-business communications and is expected to be a reliable document for green building designers, architectures, manufacturers of construction products and the other stakeholders in the construction sector to understand the potential environmental impacts caused by steel profiles and accessories.

For more information about this Environmental Product Declaration or its contents, please contact Uğur Usta at [ugur.usta@umsmetal.com.tr](mailto:ugur.usta@umsmetal.com.tr)

# ABOUT UMS



In 1999, Uğur Metal Sanayi (UMS) was established to produce galvanized and painted galvanized steel at Ostim Organized Industrial Zone in Ankara. UMS has reached the highest trade volume in the steel sector in its region in a very short period of time.

In 2005, UMS became the first, largest and only steel service center in the Ostim Organized Industrial Zone. The Company provides timely, high quality service, particularly with its customized orders prepared on cut-to-length line, trapezoidal line, and slitting line.

In 2006, the Company has been awarded TS EN ISO 9001 Quality Management Certificate.

In 2013, with the new investment decision taken, UMS started to manufacture steel profiles used for gypsum and plasterboard applications in the construction of interior walls, exterior walls, ceilings and corners. And today, with its modern and fast machines, UMS has a production capacity of 12 million meters of steel profiles per month.

UMS has a philosophy of “being one step ahead” and aims to enhance product diversity and quality not only to satisfy customer expectations, but to establish standards in steel manufacturing.

# PRODUCT INFORMATION

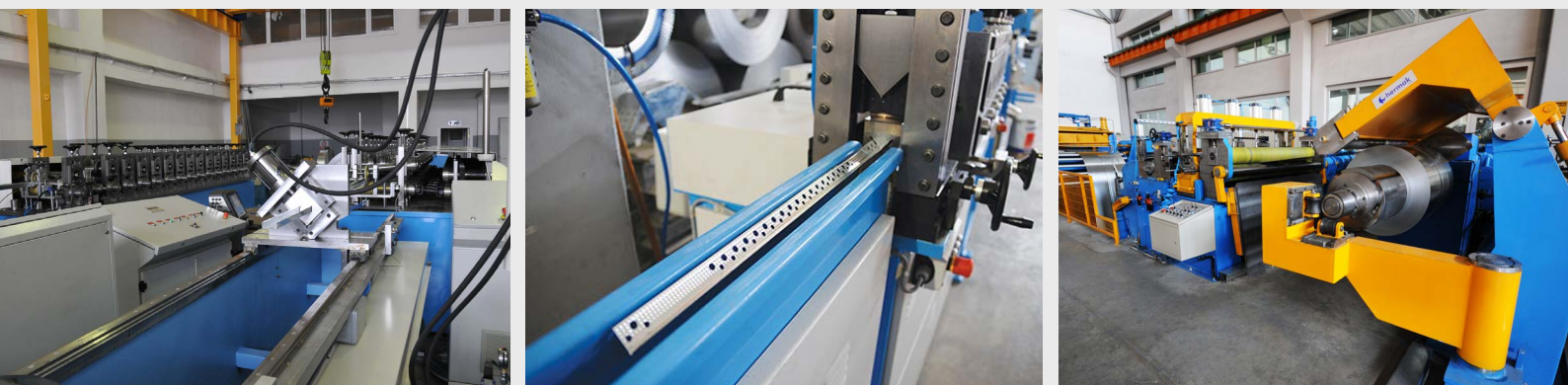
Steel profiles are construction structures that are manufactured according to TS EN 14195 standards and used as carrier elements, partition walls etc.

UMS steel profile products and accessories are primarily used for the mounting of various plasterboard or other sheet materials in the construction of interior walls, exterior walls and ceilings.

The profile sections manufactured by UMS varies from 0.25 mm to 2.00 mm in thickness with the density of 7 850 kg/m<sup>3</sup>. The accessories are also manufactured from galvanized steel coils.

All the waste resulting from the main production and related processes of UMS is managed in accordance with valid local legal requirements.

## Manufacturing Process



The products are manufactured from hot dip galvanized carbon steel. Purchased galvanized coils are divide into narrower bands whose width fits the specific profiles and accessories. Then, steel profiles are manufactured through roll forming technique while accessories are cut from bands according to relevant specifications.



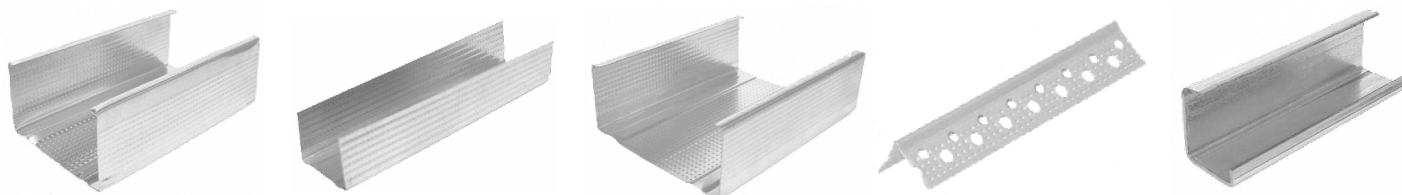
No substances included in the Candidate List of Substances of Very High Concern for authorisation under the REACH Regulations are present in the steel profiles and accessories manufactured by UMS, either above the threshold for registration with the European Chemicals Agency or above 0.1% (wt/wt).










# Technical Specifications & Areas of Use

UMS manufactures various steel profiles and accessories with specifications for different applications.

Steel Profiles	Product Description & Areas of Use	Thickness (mm)
<b>Ceiling Profiles</b>	Used in the construction of plasterboard suspended ceilings. Carrier (C) and non-carrier (U) types are available.	0.40 - 0.60
<b>Wall Profiles</b>	Used in plasterboard partition wall construction. Carrier (C) and non-carrier (U) types are available.	0.40 - 0.80
<b>Corner Profiles</b>	Used in plaster and plasterboard applications, to provide corner perpendicularity and to increase the resistance to crushing.	0.25 - 0.50
<b>Cladding Profiles</b>	Used in exterior wall systems to ensure that the profiles stay on balance and stable and to increase the strength of the corners. Carrier (C) and non-carrier (U) types are available.	0.50 - 2.00



Accessories	Product Description & Areas of Use	
<b>Suspension Hanger</b>		In gypsum suspended ceiling applications, suspension hanger is the connection element between the suspension wire and the ceiling C profiles fixed to the ceiling.
<b>Suspension Wire</b>		Used to adjust how low the surface of the suspended ceiling will be from the supporting platform and connects the systems to the ceiling.
<b>Clips</b>		Used to fix auxillary profiles to main profiles.
<b>Connector</b>		Used for connecting fixed ceiling C profiles to each other.
<b>L Bracket</b>		Used for the door support profiles to fix them to the floor in the base and ceiling.
<b>Double Spring</b>		In gypsum suspended ceiling applications, used to adjust the height of the ceiling.
<b>Agraffe</b>		Used to connect the ceiling to suspended ceiling and C profiles.

# SYSTEM BOUNDARY

## Upstream Process (A1: Raw Material Supply)

Production starts with locally sourced raw materials. 'Raw material supply' includes raw material extraction and pre-treatment processes before production.

## Core Process (A2: Transportation and A3: Manufacturing)

Transport is relevant for delivery of raw materials to the plant and the transport of materials within the plant.

'Manufacturing' starts with coil to band cutting. Steel bands are then formed and cut. The end products are then packaged to be sold.

## Downstream Processes

### Construction Processes (A4: Transport from the gate to the site, A5: Assembly)

Transport of final product to construction site is taken as the weight average values for transport to customers in 2016 (A4).

The product installation do not require ancillary materials, water or energy use. During the installation, around 1 % of the profile products is assumed to be wasted, 95 % of which is recycled and 5 % is send to landfill\*. Packaging waste is assumed to end up at packaging recycling streams due to the relevant national law in Turkey, which requires manufacturers to have certain percentage of their packaging waste to be recovered (A5).

## Use Stage (B1: Use, B2: Maintenance, B3: Repair, B4: Replacement, B5: Refurbishment, B6: Operational Energy Use, B7: Operational Water Use)

The use stage (B1-B7) of declared products do not require any water and energy consumption, maintenance, repair or replacement during their lifetime.

## End of Life Stage (C1: De-construction, C2: Transport, C3: Waste Processing, C4: Disposal)

During de-construction of products do not require any water and energy consumption (C1).

An average of 50 km is taken as a distance from construction site to waste processing and disposal sites (C2).

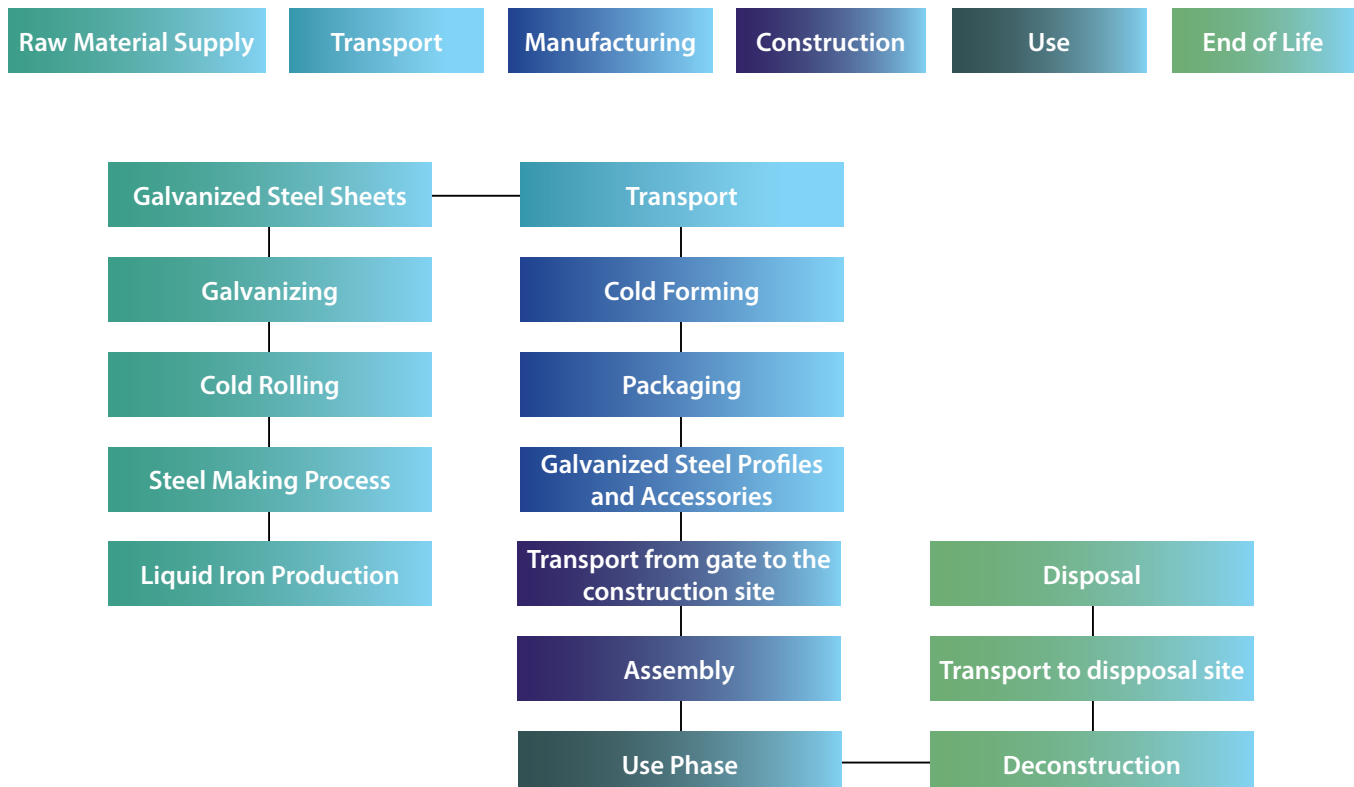
Waste processing for reuse, recovery and/or recycling is not taken into consideration for the current study (C3).

95% of galvanized steel profiles and accessory products are collected to be recycled and the rest end up at landfills as their final fate and modelled as such in the LCA\* (C4).

## Benefits and loads beyond the product system boundary, Module D

No potential benefits of recycling and re-use were taken into account in the current LCA report.

\* European steel recycling statistics for internal light steel 



# ENVIRONMENTAL PERFORMANCE RELATED INFORMATION

<b>Functional Unit/ Declared Unit</b>	The declared unit is the production of 1 ton steel profile and accessories.
<b>Goal and Scope</b>	This EPD evaluates the environmental impacts of 1 ton steel profile and accessories from cradle to grave life cycle perspective.
<b>System Boundary</b>	The system boundary covers A1 - A3 product stages, A4 -A5 construction process, B1 - B7 use stage and C1 - C4 end of life stages.
<b>Estimates and Assumptions</b>	<p>Transport of final product to construction site is taken as the transport of 1 ton of steel profile and accessories from UMS's Ankara plant in Turkey to the construction site as distance value based on weighted average values for 2016 as transport to customers (A4).</p> <p>The product installation do not require additional materials, water or energy use. During the installation, around 1 % of the profile products is assumed to be wasted (A5).</p> <p>Packaging waste for declared products are modelled based on the collection rates enforced by the relevant regulations in Turkey (A5).</p> <p>The use stage (B1-B7) of declared products is assumed to not require any water and energy consumption, maintenance, repair or replacement during their lifetime (50 years).</p> <p>De-construction of products do not require any water and energy consumption (C1).</p> <p>An average of 50 km is taken as a distance from construction site to waste processing and disposal sites (C2).</p> <p>Waste processing for reuse, recovery and/or recycling is not taken into consideration for the current study (C3).</p> <p>At the end of life of the products, 95 % of galvanized steel profiles and accessory products are collected to be recycled and the rest end up at landfills according to European steel recycling statistics (C4).</p> <p>For the requirement of the Norwegian market, an additional product scenario developed for the distribution of declared products to a central warehouse in Oslo, Norway.</p> <p>For more information, please see Section: <a href="#">Additional Information</a></p>
<b>Cut-Off Rules</b>	For this LCA study, no cut-off criteria was applied.
<b>Background Data</b>	For local data specific for Turkey, TLCID developed by SÜRATAM was used. For any other background data the Ecoinvent database (V3.3) was used.
<b>Data Quality</b>	Raw materials, energy and water consumption, waste and material and product transport data is collected from UMS.
<b>Period Under Review</b>	All primary data collected from UMS is for the period year of 2016.
<b>Allocations</b>	<p>There are no co-products in the production of steel profile and accessories manufactured by UMS. Hence, there was no need for co-product allocation.</p> <p>The Company sources raw materials from different locations across Turkey by road transport. For this reason, transport was allocated according to tonnages of raw material purchased.</p> <p>UMS manufactures various steel profiles and accessories with specifications for different applications. The products that are part of this study are steel profiles (ceiling, wall, corner and cladding profiles) and accessories (suspension hanger, suspension wire, clips, connector, L bracket, double spring and agraffe). Raw material production and transport to the gate, energy consumption during manufacturing, packaging, waste and transport to construction site data were allocated for an average declared product using data for each product according to UMS's production tonnages in 2016.</p>

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw Materials Supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction	Transport	Waste processing	Disposal	Reuse-Recycling-Recovery Potential
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	X	X	X	X	X	X	X	X	MNA

Description of the system boundary (X = Included in LCA, MNA= Module Not Assessed)

The results of the LCA with the indicators as per EPD requirement are given in the following tables for product product stage (A1 - A3), construction process (A4, A5), use stage (B1 - B7), and end of life (C1 - C4). The system boundaries in tabular form for all modules are shown in the table above.

All energy calculations were obtained using Cumulative Energy Demand V1.09 methodology, while environmental impacts are calculated with the CML-IA baseline V4.2 within SimaPro LCA Software. The net fresh water use reflect the water consumption during manufacturing processes.



# LCA Results

ENVIRONMENTAL IMPACTS FOR 1 TON																	
Parameter	Unit	PRODUCT STAGE	CONSTRUCTION PROCESS STAGE			USE STAGE							END OF LIFE STAGE				TOTAL
		A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4		
GWP	[kg CO <sub>2</sub> eq.]	2 214	47.9	1.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.34	0.00	26.1	2 297	
ODP	[kg CFC <sup>11</sup> eq.]	127 712 x 10 <sup>-9</sup>	8 852 x 10 <sup>-9</sup>	4.46 x 10 <sup>-9</sup>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1 542 x 10 <sup>-9</sup>	0.00	161 x 10 <sup>-9</sup>	138 271 x 10 <sup>-9</sup>	
AP	[kg SO <sub>2</sub> eq.]	12 475 x 10 <sup>-3</sup>	159 x 10 <sup>-3</sup>	0.277 x 10 <sup>-3</sup>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.7 x 10 <sup>-3</sup>	0.00	7.98 x 10 <sup>-3</sup>	12 670 x 10 <sup>-3</sup>	
EP	[kg PO <sub>4</sub> <sup>3-</sup> eq.]	3 071 x 10 <sup>-3</sup>	35.0 x 10 <sup>-3</sup>	3.65 x 10 <sup>-3</sup>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.09 x 10 <sup>-3</sup>	0.00	132 x 10 <sup>-3</sup>	3 247 x 10 <sup>-3</sup>	
POCP	[kg C <sub>2</sub> H <sub>4</sub> eq.]	1 552 x 10 <sup>-3</sup>	8.00 x 10 <sup>-3</sup>	0.337 x 10 <sup>-3</sup>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.39 x 10 <sup>-3</sup>	0.00	6.983 x 10 <sup>-3</sup>	1 569 x 10 <sup>-3</sup>	
ADPE	[kg Sb eq.]	9 062 x 10 <sup>-6</sup>	129 x 10 <sup>-6</sup>	0.031 x 10 <sup>-6</sup>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.5 x 10 <sup>-6</sup>	0.00	1.12 x 10 <sup>-6</sup>	9 215 x 10 <sup>-6</sup>	
ADPF	[MJ]	23 641	761	0.516	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	133	0.00	17.9	24 553	

Legend

GWP: Global Warming Potential, ODP: Ozone Depletion Potential, AP: Acidification Potential, EP: Eutrophication Potential, POCP: Formation potential of tropospheric ozone photochemical oxidants ADPE: Abiotic depletion potential for non-fossil resources, ADPF: Abiotic depletion potential for fossil resources

RESOURCE USE FOR 1 TON																
PERE	[MJ]	3 141	9.51	0.029	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.66	0.00	0.941	3 153
PERM	[MJ]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERT	[MJ]	3 141	9.51	0.029	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.66	0.00	0.941	3 153
PENRE	[MJ]	23 650	761	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	133	0.00	17.9	24 562
PENRM	[MJ]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PENRT	[MJ]	23 650	761	0.516	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	133	0.00	17.9	24 562
SM	[kg]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RSF	[MJ]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NRSF	[MJ]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FW	[m <sup>3</sup> ]	14.8	0.356	0.0009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.062	0.00	0.038	15.2

Legend

PERE: Use of renewable primary energy excluding 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 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

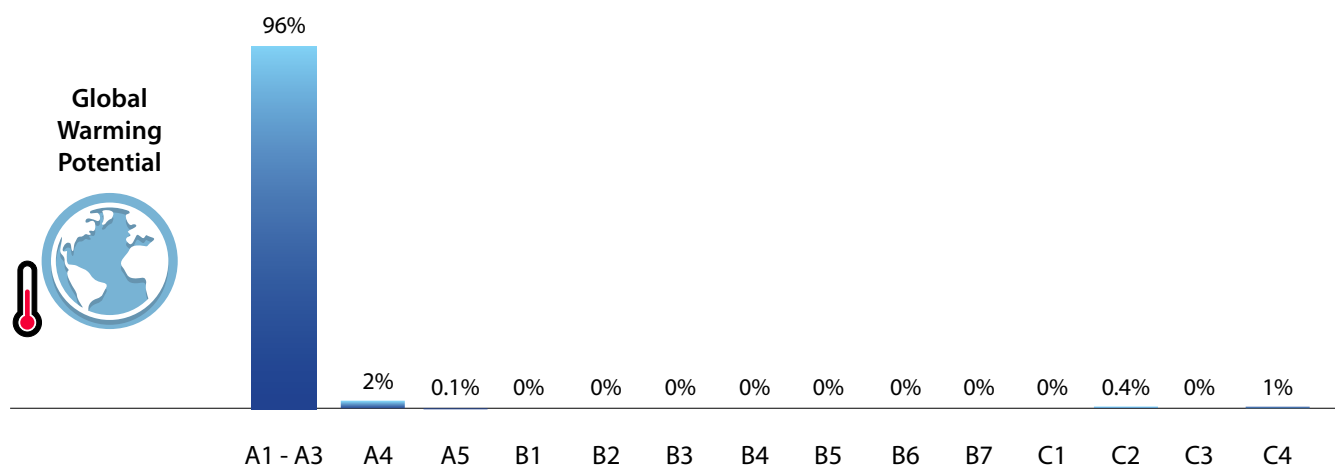
OUTPUT FLOWS AND WASTE CATEGORIES FOR 1 TON																
HWD	[kg]	0.00	-	0.00	-	-	-	-	-	-	-	-	-	-	-	0.00
NHWD	[kg]	16.0	-	1.41	-	-	-	-	-	-	-	-	-	-	50.0	67.4
RWD	[kg]	0.00	-	0.00	-	-	-	-	-	-	-	-	-	-	-	0.00
CRU	[kg]	-	-	49.3	-	-	-	-	-	-	-	-	-	-	-	49.3
MFR	[kg]	-	-	10.5	-	-	-	-	-	-	-	-	-	-	950	960
MER	[kg]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EE [Typ]	[MJ]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Legend

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, EE: Exported Energy

## LCA Results Interpretation

The Product Stage (A1-A3) dominates the global warming potential impact of steel profiles and accessories with having 96% of the impact.



## Additional Information

For the Norwegian market of the product, an additional scenario for module A4 was created. Transport of final product to construction site is taken as the transport of 1 ton of steel profile and accessories from UMS's Ankara plant in Turkey to a central warehouse in Oslo, Norway.

According to this scenario the environmental impacts calculated for the life cycle stage A4: Transport from the gate to the site is as follows:

Parameter	Unit	A4
GWP	[kg CO <sub>2</sub> eq.]	141
ODP	[kg CFC <sup>11</sup> eq.]	24.3 x 10 <sup>-6</sup>
AP	[kg SO <sub>2</sub> eq.]	63.5 x 10 <sup>-3</sup>
EP	[kg PO <sub>4</sub> <sup>3-</sup> eq.]	1.84
POCP	[kg C <sub>2</sub> H <sub>4</sub> eq.]	216 x 10 <sup>-3</sup>
ADPE	[kg Sb eq.]	194 x 10 <sup>-6</sup>
ADPF	[MJ]	2 130

# REFERENCES

**/ISO 9001:2008/** Quality management systems - Requirements

**/TS EN 14195/** Metal framing components for gypsum plasterboard systems - Definitions, requirements and test methods

**/EN 15804/** EN 15804:2012+A1:2013, Sustainability of construction works - Environmental Product Declarations — Core rules for the product category of construction products

**/ISO 14025/** DIN EN ISO 14025:2009-11: Environmental labels and declarations - Type III environmental declarations — Principles and procedures

**/ISO 14040/44/** DIN EN ISO 14040:2006-10, Environmental management - Life cycle assessment - Principles and framework (ISO 14040:2006) and Requirements and guidelines (ISO 14044:2006)

**/PCR for Construction Products and CPC 54 Construction Services/** Prepared by IVL Swedish Environmental Research Institute, Swedish Environmental Protection Agency, SP Trä, Swedish Wood Preservation Institute, Swedisol, SCDA, Svenskt Limträ AB, SSAB, The International EPD System, 2012:01 Version 2.0, DATE 2015-03-03

**/The International EPD® System/** The International EPD® System is a programme for type III environmental declarations, maintaining a system to verify and register EPD®s as well as keeping a library of EPD®s and PCRs in accordance with ISO 14025.[www.environdec.com](http://www.environdec.com)

**/Ecoinvent /** Ecoinvent Centre, [www.Eco-invent.org](http://www.Eco-invent.org)

**/SimaPro/** SimaPro LCA Software, Pré Consultants, the Netherlands, [www.pre-sustainability.com](http://www.pre-sustainability.com)

**/TLCID/** Turkish Life Cycle Inventory Database, Turkish Center for Sustainable Production Research and Design (SÜRATAM), [www.surdurulebiliruretimmerkezi.org](http://www.surdurulebiliruretimmerkezi.org)

## VERIFICATION & REGISTRATION

### Programme Holder



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