

Unica TOP

Two-way Switch screw-less connections with Unica Class Ice
Aluminium cover frame

Product Environmental Profile



Product Environmental Profile – PEP

Product overview

The main function of the Unica TOP product range is to the building of electrical installations surface-mounted or flush-mounted using support frames and cover frames with functions inserts.

The range of functions inserts consists of more than 200 electrical and electronic functions in light and power control, socket-outlets, data sockets, signalling, protection, comfort and energy saving.

The representative product used for the analysis is a Two-way Switch 10A, 2-modules, graphite finishing, with screw-less connections (ref. MGU3.203.12), flush-mounted using the standard accessories for the range zamak support frame (ref. MGU7.002) and a 1-gang Unica Class cover frame in Ice Aluminium finishing (ref. MGU68.002.7A1) in flush-mounted installation.

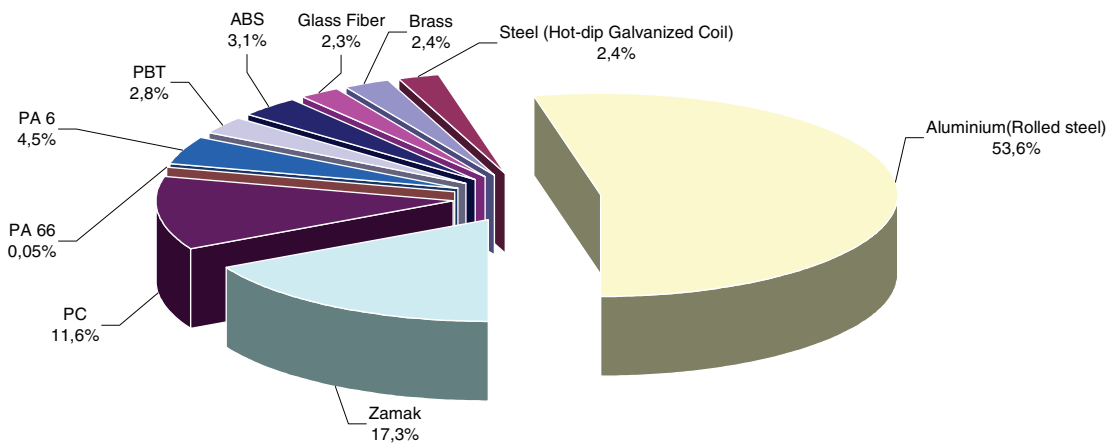
The environmental impacts of these referenced products are representative of the impacts of the other products of the range which are developed with the same technology.

The environmental analysis was performed in conformity with ISO 14040 “Environmental management: Life cycle assessment – Principle and framework”. This analysis takes the stages in the life cycle of the product into account.

Constituent materials

The mass of the referenced products is 159, 09g, packaging excluded.

The constituent materials are distributed as follows:



Material family	Material for PEP declaration	Total (g)	%
Metals	Brass	3,80	2,39%
	Steel (Hot-dip Galvanized Coil)	3,75	2,36%
	Aluminium (Rolled steel)	85,20	53,55%
	Zamak	27,50	17,29%
Plastics	PC (Polycarbonates, Moulded by injection)	18,40	11,57%
	PA 66 (Polyamide resin 66)	0,08	0,05%
	PA 6 (Polyamide resin 6)	7,20	4,53%
	PBT (Polybutylene Terephthalate)	4,45	2,80%
	ABS (Acrylonitrile Butadiene Styrene, moulded by injection)	5,00	3,14%
Various	Glass Fiber	3,72	2,34%
Total		159,09	100,00%

Substance assessment:

Products of this range are designed in conformity with the requirements of the ROHS directive (European Directive 2002/95/EC of 27 January 2003) and do not contain, or in the authorised proportions, lead, mercury, cadmium, chromium hexavalent, flame retardant (*polybromobiphenyles PBB, polybromodiphenylthers PBDE*) as mentioned in the Directive.

Manufacturing

The **Unica TOP** product range is manufactured at a Schneider Electric production site on which an ISO14001 certified environmental management system has been established.

Distribution

The weight and volume of the packaging have been reduced, in compliance with the European Union's packaging directive. The packaging weight for the products involved in the application analysed is 58,3g. It consists of the following materials:

Material	Total (g)	%
PET	3,00	5,15%
Cardboard(kraft)	7,40	12,69%
Paper	0,30	0,51%
Cardboard(5 layer ,80% Recycle)	40,50	69,47%
PSE	6,60	11,32%
LDPE	0,50	0,86%
Total	58,30	100,00%

The weight of recycled materials used is 70% of total packaging mass.

The product distribution flows have been optimised by setting up local distribution centres close to the market areas.

Use

The products of the **Unica TOP** product range do not generate environmental pollution requiring special precautionary measures (noise, emissions, etc.).

The products involved in the application analysed are passive products which do not dissipate any significant heat in the installation.

End of life

At end of life, the products in the **Unica TOP** two-way switch screw-less connections have been optimized to decrease the amount of waste and valorise the components and materials of the product in the usual end of life treatment process. The design has been achieved so as components are able to enter the usual end of life treatment. The product doesn't need any specific depollution process.

The potential of recyclability of the products has been evaluated using the "Codde" recyclability and recoverability calculation method" (version V1, 20 Sep. 2008) and published by ADEME (French Agency for Environment and Energy Management). According this method, the potential recyclability ratio is 66 %.

Environmental impacts

The environmental impacts were analysed for the Manufacturing (M) phases, the Distribution (D) and the Utilisation (U) phases. This product range is included in the category 1 (assumed lifetime service is 20 years and using scenario: Loading 16A and uptime 100%)

The EIME (Environmental Impact and Management Explorer) software, version 4.0, and its database, version 10.0 were used for the life cycle assessment (LCA).

The electrical power model used is European model.

Presentation of the product environmental impacts

Environmental indicators		Unit	For MGU3.059.30 + MGU7.002 + MGU68.002.7A1			
			S = M + D + U	M	D	U
Raw material depletion	RMD	Y-1	9.1101E-16	8.5104E-16	5.9967E-17	0,00E+00
Energy depletion	ED	MJ	31.906	27.937	3.97	0,00E+00
Water depletion	WD	dm ³	4.282	2.001	2.281	0,00E+00
Global warming potential	GW	g~CO ₂	2.1037E3	1.9604E3	1.4332E2	0,00E+00
Ozone depletion	OD	g~CFC-11	1.167E-4	4.7579E-5	6.9121E-5	0,00E+00
Photochemical ozone creation	POC	g~C ₂ H ₄	8.4614E-1	7.2882E-1	1.1732E-1	0,00E+00
Air acidification	AA	g~H ⁺	4.7836E-1	4.5315E-1	2.5212E-2	0,00E+00
Hazardous waste production	HWP	kg	1.5265E-1	1.5238E-1	2.7092E-4	0,00E+00

The life cycle analysis shows that the M phase is the life cycle phase which has the greatest impact on the majority of environmental indicators. The environmental parameters of this phase have been optimized at the design stage.

Product Environmental Profile – PEP

System approach

As the products of the range are designed in accordance with the ROHS Directive (European Directive 2002/95/EC of 27 January 2003), they can be incorporated without any restriction within an assembly or an installation submitted to this Directive. Please note that the environmental impacts of the products depend on the use and installation conditions of the products. Impacts values given above are only valid within the context specified and cannot be directly used to draw up the environmental assessment of the installation.

Glossary

Raw Material Depletion (RMD)	This indicator quantifies the consumption of raw materials during the life cycle of the product. It is expressed as the fraction of natural resources that disappear each year, with respect to all the annual reserves of the material.
Energy Depletion (ED)	This indicator gives the quantity of energy consumed, whether it be from fossil, hydroelectric, nuclear or other sources. This indicator takes into account the energy from the material produced during combustion. It is expressed in MJ.
Water Depletion (WD)	This indicator calculates the volume of water consumed, including drinking water and water from industrial sources. It is expressed in dm ³ .
Global Warming Potential (GWP)	The global warming of the planet is the result of the increase in the greenhouse effect due to the sunlight reflected by the earth's surface being absorbed by certain gases known as "greenhouse-effect" gases. The effect is quantified in gram equivalent of CO ₂ .
Ozone Depletion (OD)	This indicator defines the contribution to the phenomenon of the disappearance of the stratospheric ozone layer due to the emission of certain specific gases. The effect is expressed in gram equivalent of CFC-11.
Photochemical Ozone Creation (POC)	This indicator quantifies the contribution to the "smog" phenomenon (the photochemical oxidation of certain gases which generates ozone) and is expressed in gram equivalent of methane (C ₂ H ₄).
Air Acidification (AA)	The acid substances present in the atmosphere are carried by rain. A high level of acidity in the rain can cause damage to forests. The contribution of acidification is calculated using the acidification potentials of the substances concerned and is expressed in mode equivalent of H ⁺ .
Hazardous Waste Production (HWP)	This indicator calculates the quantity of specially treated waste created during all the life cycle phases (manufacturing, distribution and utilization). For example, special industrial waste in the manufacturing phase, waste associated with the production of electrical power, etc. It is expressed in kg.

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