Product Environmental Profile - PEP

Product overview

Bus X allows communication between TSX57 platform.

This range is composed of many lengths of cables, equipped or not with D-Sub connectors. These cables have electromagnetic screen and polyurethane jacket.

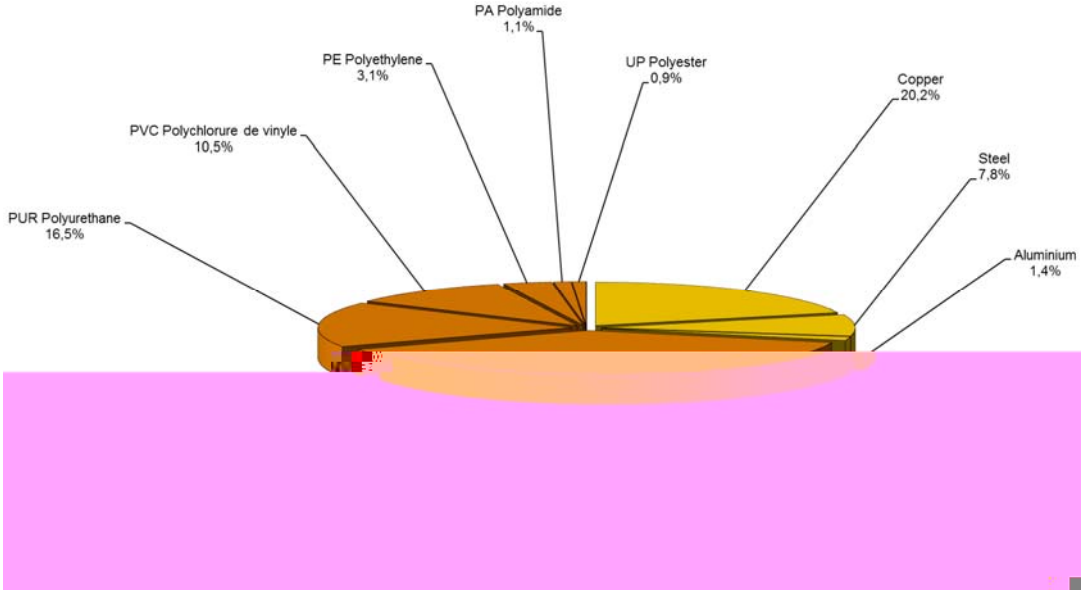
The representative product used for the analysis is TSXCBY010K. (length 1 meter with connectors).

The environmental impacts of this referenced product are representative of the impacts of the other products of the range which are developed with a similar technology.

The environmental analysis was performed in conformity with ISO 14040.

Constituent materials

The mass of the product range is between 260 g and 11 000g including packaging for TSXCBY range. It's 260 g for the TSXCBY010K.
The constituent materials are distributed as follows:



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 only contain in the authorised proportions, lead, mercury, cadmium, hexavalent chromium or flame retardants (polybrominated biphenyls - PBB, polybrominated diphenyl ethers - PBDE) as mentioned in the Directive

Manufacturing

The TSXCBY010K 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 optimized, based on the European Union's packaging directive.
The TSXCBY010K packaging weight is 1*00 g*. It consists of a Polypropylene shrink film.
For cable lengths over 28m, a shrink Polypropylene film and a plywood support are used.

Use

The dissipated power depends on the conditions under which the product is implemented and used. The dissipated power is 1.18 mW for the referenced TSXCBY010K.

End of life

At end of life, the products in the TSXCBY010K have been optimized to decrease the amount of waste and allow recovery of the product components and materials.
This product must be collected and concentrated to special end-of-life treatment.
The recyclability potential of the products has been evaluated using the “Codde- BV recyclability and recoverability calculation method” (version V1, 20 Sep. 2008 presented to the French Agency for Environment and Energy Management: ADEME).
According to this method, the potential recyclability ratio is: **60.5 %.**
As described in the recyclability calculation method this ratio includes only metals and plastics which have proven industrial recycling processes.

Environmental impacts

Life cycle assessment has been performed on the following life cycle phases: Materials and Manufacturing (M), Distribution (D), Installation (I) Use (U), and End of life (E).
Modeling hypothesis and method:
- the calculation was performed on the TSXCBY010K
- product packaging: is included
- installation components : no special components included.
- scenario for the Use phase: this product range is included in the category 1, assumed service life is 10 years and use.

Product dissipation is 1.18 mW and service uptime percentage is 100%
The electrical power model used for calculation is european model.
End of life impacts are based on a worst case transport distance to the recycling plant (1000km)

Presentation of the product environmental impacts

Environmental indicators	Unit	TSXCBY010K					
		S = M + D + I + U + E	M	D	I	U	E
Air Acidification (AA for PEP)	**kg H+ eq**	3,37E-04	3,22E-04	4,19E-06	0,00E+00	8,01E-06	3,36E-06

Product Environmental Profile - PEP

Environmental indicators	Unit	For each TSXCBY additional meter					
		S = M + D + I + U + E	M	D	I	U	E
Air Acidification (AA for PEP)	kg H+ eq	2,43E-04	2,40E-04	1,77E-06	0,00E+00	0,00E+00	1,42E-06
Air toxicity (AT for PEP)	m^3	6,49E+05	6,44E+05	2,63E+03	0,00E+00	0,00E+00	2,11E+03
Energy Depletion (ED for PEP)	MJ	1,07E+01	1,05E+01	1,32E-01	0,00E+00	0,00E+00	1,02E-01
Global Warming Potential (GWP for PEP)	kg CO eq.	5,17E-01	5,00E-01	9,42E-03	0,00E+00	0,00E+00	7,23E-03
Hazardous Waste Production (HWP for PEP)	kg	3,76E-02	3,76E-02	1,16E-08	0,00E+00	0,00E+00	8,94E-09
Ozone Depletion Potential (ODP for PEP)	kg CFC-11 eq.	3,83E-08	3,83E-08	1,78E-11	0,00E+00	0,00E+00	1,37E-11
Photochemical Ozone Creation Potential (POCP for PEP)	kg C H eq.	2,02E-04	1,97E-04	2,43E-06	0,00E+00	0,00E+00	1,80E-06
Raw Material Depletion (RMD for PEP)	Y-1	2,67E-15	2,67E-15	1,92E-19	0,00E+00	0,00E+00	1,48E-19
Water Depletion (WD for PEP)	dm3	1,43E+01	1,43E+01	9,76E-04	0,00E+00	0,00E+00	7,50E-04
Water Eutrophication (WE for PEP)	kg PO ³ eq.	1,48E-04	1,48E-04	1,75E-08	0,00E+00	0,00E+00	1,34E-08
Water Toxicity (WT for PEP)	m^3	3,35E-01	3,28E-01	4,02E-03	0,00E+00	0,00E+00	3,09E-03

Environmental indicators	Unit	For additional packaging (PP shrink film and plywood support)					
		S = M + D + I + U + E	M	D	I	U	E
Air Acidification (AA for PEP)	kg H+ eq	1,38E-03	1,22E-03	8,87E-05	0,00E+00	0,00E+00	7,12E-05
Air toxicity (AT for PEP)	m^3	1,93E+06	1,69E+06	1,32E+05	0,00E+00	0,00E+00	1,06E+05
Energy Depletion (ED for PEP)	MJ	1,49E+02	1,37E+02	6,65E+00	0,00E+00	0,00E+00	5,11E+00
Global Warming Potential (GWP for PEP)	kg CO eq.	7,87E+00	7,04E+00	4,73E-01	0,00E+00	0,00E+00	3,63E-01
Hazardous Waste Production (HWP for PEP)	kg	4,23E-02	4,23E-02	5,84E-07	0,00E+00	0,00E+00	4,49E-07
Ozone Depletion Potential (ODP for PEP)	kg CFC-11 eq.	4,36E-07	4,35E-07	8,94E-10	0,00E+00	0,00E+00	6,87E-10
Photochemical Ozone Creation Potential (POCP for PEP)	kg C H eq.	3,77E-03	3,56E-03	1,22E-04	0,00E+00	0,00E+00	9,03E-05
Raw Material Depletion (RMD for PEP)	Y-1	2,24E-16	2,07E-16	9,64E-18	0,00E+00	0,00E+00	7,41E-18
Water Depletion (WD for PEP)	dm3	2,93E+01	2,92E+01	4,90E-02	0,00E+00	0,00E+00	3,76E-02
Water Eutrophication (WE for PEP)	kg PO ³ eq.	2,89E-04	2,87E-04	8,77E-07	0,00E+00	0,00E+00	6,74E-07
Water Toxicity (WT for PEP)	m^3	2,43E+00	2,07E+00	2,02E-01	0,00E+00	0,00E+00	1,55E-01

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.

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.

This indicator calculates the volume of water consumed, including drinking water and water from industrial sources. It is expressed in dm^3.

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.

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.

This indicator represents the air toxicity in a human environment. It takes into account the usually accepted concentrations for several gases in the air and the quantity of gas released over the life cycle. The indication given corresponds to the air volume needed to dilute these gases down to acceptable concentrations.

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 ethylene (C_2H_4).

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^+.

This indicator represents the water toxicity. It takes into account the usually accept

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Published by: Schneider Electric