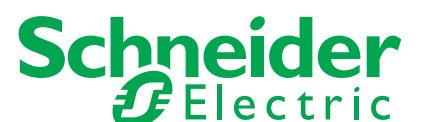


Product Environmental Profile

Mureva Fix Cable tie



Product Environmental Profile - PEP

Product overview

The main function of the Mureva Fix Cable tie product range is permanent fixation of cables or other objects.

This range consists of: 10 sizes of cable ties. This analysis do not include tightening tool.

The representative product used for the analysis is Mureva Fix Cable tie PA12 194 x 9 Ref: ENN47942.

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

The extrapolation rules are described in the following chapters.

The environmental analysis was performed in conformity with ISO14040.

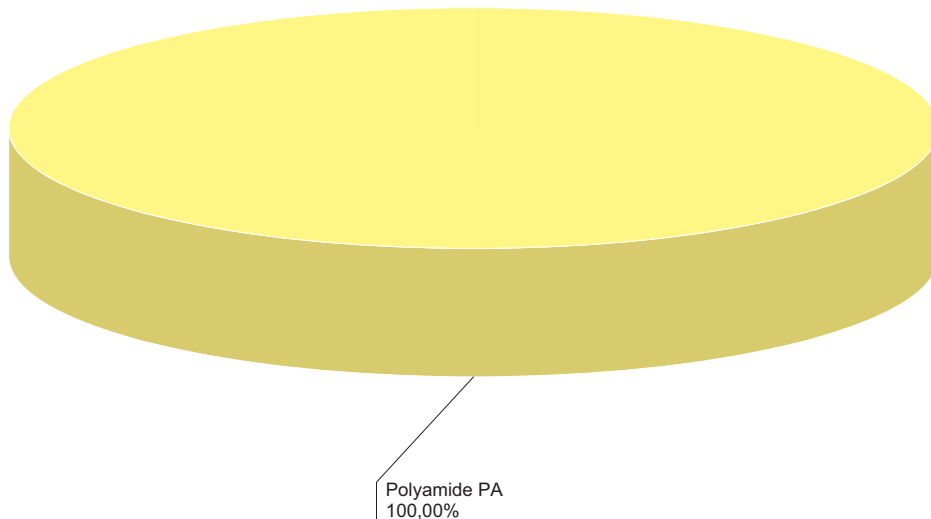
This analysis takes the stages of the life cycle of the product into account.

Constituent materials

The mass of the product range is from 2 g and 5 g not including packaging.

It is 2.4 g for the Mureva Fix Cable tie PA12 194 x 9 Ref: ENN47942.

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 in the authorised proportions, lead, mercury, cadmium, chromium hexavalent, flame retardant (polybromobiphenyles PBB, polybromodiphenylthethers PBDE) as mentioned in the Directive.

Manufacturing

The Mureva Fix Cable tie 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 Mureva Fix Cable tie PA12 194 x 9 packaging weight is 0.55 g. It consists of Cardboard (96 % recycled, grey board) 0.55 g.

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

Product Environmental Profile - PEP

Utilization

The products of the Mureva Fix Cable tie product range do not generate environmental pollution requiring special precautionary measures (noise, emissions, and so on) in using phase.

End of life

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.

At end of life, the products in the Mureva Fix Cable tie product range 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 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).

By this method, this product range doesn't contain recyclable materials as the lack of processes for recycling these plastics types.

Environmental impacts

The environmental impacts were analysed for the Manufacturing (M) phases, the Distribution (D) and the Utilization (U) phases.

This product range is included in the category 3 (assumed lifetime service is 20 years).

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 calculation has been done on Mureva Fix Cable tie PA12 194x9 Ref: ENN47942.

The electrical power model used is EUROPEAN model.

Presentation of the environmental impacts

Environmental indicators	Short	Unit	For 1 Mureva Fix Cable tie PA12 194x9, ENN47942			
			S = M + D + U	M	D	U
Raw material depletion	RMD	Y-1	6.732E ⁻¹⁹	6.3477E ⁻¹⁹	3.843E ⁻²⁰	0.00E ⁺⁰⁰
Energy depletion	ED	MJ	4.3842E ⁻¹	4.102E ⁻¹	2.8225E ⁻²	0.00E ⁺⁰⁰
Water depletion	WD	dm ³	6.7643E ⁻²	6.2674E ⁻²	4.9683E ⁻³	0.00E ⁺⁰⁰
Global warming	GW	g ~CO ₂	29.793	28.348	1.445	0.00E ⁺⁰⁰
Ozone depletion	OD	g ~CFC-11	2.1222E ⁻⁶	1.047E ⁻⁶	1.0753E ⁻⁶	0.00E ⁺⁰⁰
Photochemical ozone creation	POC	m ³	5.0163E ³	4.58E ³	4.3627E ²	0.00E ⁺⁰⁰
Air acidification	AA	g ~C ₂ H ₄	1.1591E ⁻²	1.0287E ⁻²	1.3039E ⁻³	0.00E ⁺⁰⁰
Hazardous waste production	HWP	g ~H ⁺	3.8422E ⁻³	3.5123E ⁻³	3.2987E ⁻⁴	0.00E ⁺⁰⁰
Water eutrophication	WE	dm ³	6.847	6.606	2.4085E ⁻¹	0.00E ⁺⁰⁰
Air toxicity	AT	g ~PO ₄	5.3921E ⁻³	5.3402E ⁻³	5.193E ⁻⁵	0.00E ⁺⁰⁰
Water toxicity	WT	kg	2.2367E ⁻⁴	2.2328E ⁻⁴	3.8952E ⁻⁷	0.00E ⁺⁰⁰

The life cycle analysis shows that the M phase (M, D or U 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. For example optimizing the material thickness and minimizing the use of packaging materials.

The environmental impact is directly proportional to the weight of other products in the range.

Product Environmental Profile - PEP

System approach

As the product 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.

*N.B.: please note that the environmental impacts of the product depend on the use and installation conditions of the product.
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 this material.

Energy Depletion (ED)

This indicator gives the quantity of energy consumed, whether if 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 m³.

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. This effect is quantified in gram equivalent CO₂.

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. This 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 ethylene (C₂H₄).

Air Acidification (AA)

The acid substances present in the atmosphere are carried by the rain. A high level of acidity in rain can cause damage to forests. The contribution of acidification is calculated using the acidification potentials of the substances concerned and is expressed in mole equivalent of H⁺.

Hazardous Waste Production (HWP)

This indicator gives the quantity of waste, produced along the life cycle of the product (manufacturing, distribution, use, including production of energy), that requires special treatments. It is expressed in kg.

Registration No.: SCHN-2011-449-V0

Programme information: www.pep-ecopassport.org

PEP in compliance with PEPECopassport according to PEP-AP0011 rules

ACV rules are available from PEP editor on request

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Published by: Schneider Electric