Product Environmental Profile

Time delay auxiliary contact blocks

Schneider Electric

Product overview

The main function of the time delay auxiliary contact bloc product range is to add pneumatic timer on TeSys D contactors (front mounting).

This range consists of:

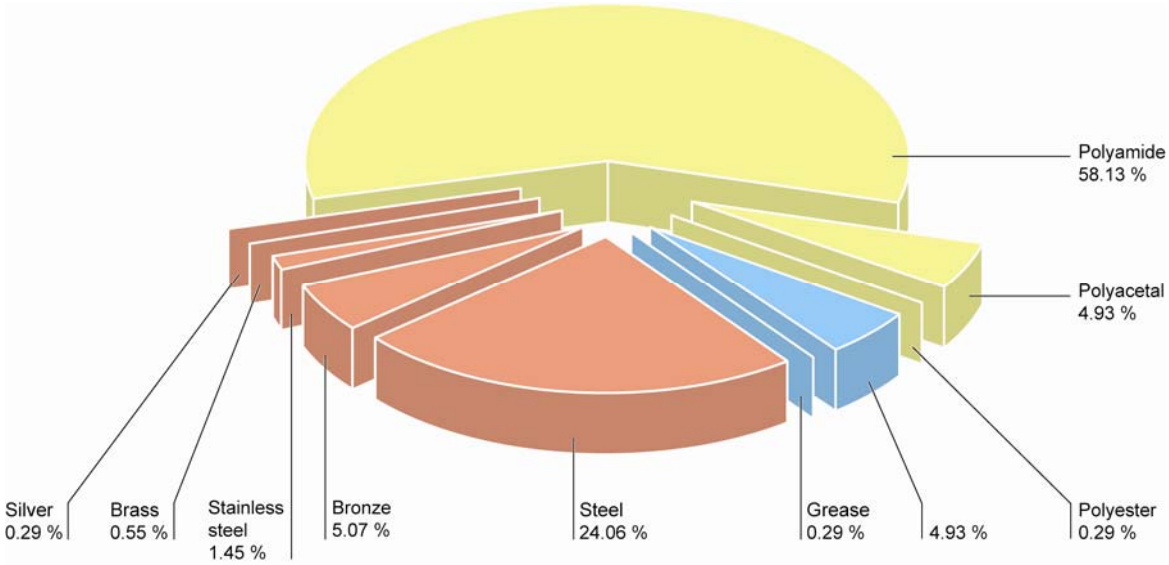
- **On time delays adjustable from 0.1 to 180 s (one model dedicated to star-delta configuration),**
- **Off time delays adjustable from 0.1 to 180 s.**

The representative product used for the analysis is LAD T2.
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 environmental analysis was performed in conformity with ISO 14040.
This analysis takes in account the complete life cycle of the product.

Constituent materials

The mass of all products of the range is 69 g no including packaging. It is 69 g for the analysed LADT2.
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, polybromodiphenylthers PBDE) as mentioned in the Directive.

Manufacturing

The time delay contact block product range is manufactured at a Schneider Electric production site on which an ISO 14001 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 time delay contact block packaging weight is 7.2 g. It consists of cardboard (7 g) and recycled paper (0.2 g).
The product distribution flows have been optimised by setting up local distribution centres close to the market areas.

Use

The products of the time delay contact block range do not generate environmental pollution requiring special precautionary measures (noise, emissions, and so on) in using phase.

The dissipated power depends on the conditions under which the product is implemented and used.
This dissipated power is 0.225 mW for the time delay contact block product range.

End of life

At end of life, the products in the side mounted auxiliary contact block have been optimized to decrease the amount of waste and valorise the components and materials of the product.

The product range doesn't need any specific end of life special treatment. According to the countries practices this product can enter the usual end of life treatment processes.

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: 25 %.
As described in the recyclability calculation method, this ratio includes metals and plastics chosen for their proven industrial recycling processes, but do not include materials which don't have such proven treatment processes (ie most type of plastics which are not recycled…).

Environmental impacts

The life cycle assessment has been achieved on the following life phases: Materials and Manufacturing (M), Distribution (D), Utilization (U).
Modelisation hypothesis and impact results:

- The calculation has been done on **LADT2**,
- Product packaging is included,
- Installation components: no special components included,
- Scenario for the use phase: this product range is included in the category Energy passing product (assumed lifetime service is 20 years and using scenario: 0.225 mW, loading rate is 30 % and uptime percentage is 30 %).
- The electrical power model used is Europe.

Presentation of the product environmental impacts

Environmental indicators	Unit	Side mounted auxiliary contact block			
		S = M + D + U	M	D	U
Raw Material Depletion	**Y-1**	$1.40\ 10^{-14}$	$1.40\ 10^{-14}$	$7.22\ 10^{-19}$	$1.54\ 10^{-19}$
Energy Depletion	**MJ**	10.55	9.89	0.53	0.14
Water depletion	**dm^3**	3.66	3.59	0.05	0.02
Global Warming	**g≈CO_2**	$7.27\ 10^{2}$	$6.78\ 10^{2}$	41.91	6.83
Ozone Depletion	**g≈CFC-11**	$5\ 10^{-5}$	$3\ 10^{-5}$	$2\ 10^{-5}$	$4\ 10^{-6}$
Air Toxicity	**m^3**	$95.73\ 10^{3}$	$84.65\ 10^{3}$	$9.94\ 10^{3}$	$1.34\ 10^{3}$
Photochemical Ozone Creation	**g≈C_2H_4**	0.27	0.23	0.04	0
Air acidification	**g≈H^+**	0.10	0.09	0.01	0
Water Toxicity	**dm^3**	$2.15\ 10^{2}$	$2.08\ 10^{2}$	5.24	1.95
Water Eutrophication	**g≈PO_4**	0.11	0.11	$0.01\ 10^{-1}$	$1.61\ 10^{-5}$
Hazardous waste production	**kg**	0.01	0.01	$1.56\ 10^{-5}$	$1.13\ 10^{-4}$

The life cycle assessment has been achieved with the EIME software (Environmental Impact and Management Explorer), version 4.1, and with its database, version 11.
The manufacturing phase is the life cycle phase which has the greatest impact on the majority of environmental indicators.
Depending on the impact analysis, the environmental indicators of other products in this family are similar.

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.

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 (GW)	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.
Air Toxicity (AT)	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.
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 (C_2H_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^+.
Water Toxicity (WT)	This indicator represents the water toxicity. It takes into account the usually accepted concentrations for several substances in water and the quantity of substances released over the life cycle. The indication given corresponds to the water volume needed to dilute these substances down to acceptable concentrations.
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.

PEP in compliance with Schneider-Electric TT01 V4.8 and TT02 V15 procedures

PEP established according to PCR PEPecopassport 2010:1.0 rules

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