Altivar 71

0.37 to 18 kW

Product Environmental Profile

a brand of Schneider Electric

Telemecanique

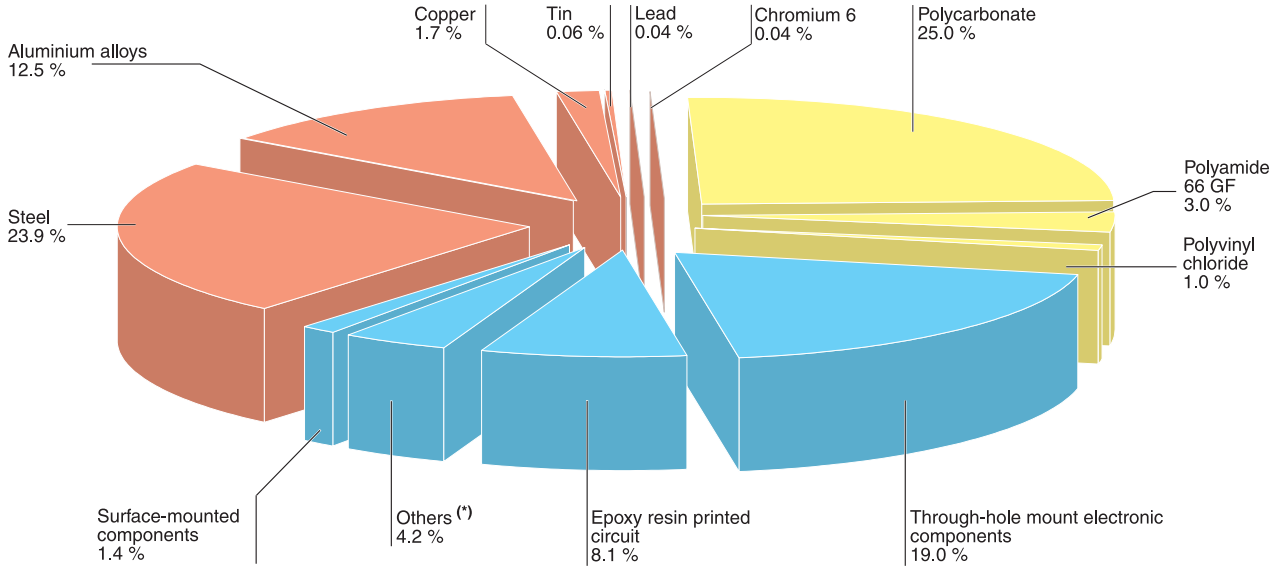
Product Environmental Profile - PEP

Product overview

The main aim of the Altivar 71 product range is to control and vary the rotational speed of an asynchronous electric motor.
This range consists of products ranging from 0.37 to 18 kW operating at single-phase or three-phase voltages of 200 and 500 V.
The representative product used for the analysis is Altivar 71 with a nominal range of 0.75 kW, 500 V (ref ATV71H075N4).
It is representative of the whole range. The same technology and manufacturing process are used for the other products in this range.
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 products in the range is from 2680 g to 9000 g.
It is 2680 g, not including the packaging, for the Altivar 71 - 0.75 kW 500 V product analysed.
The constituent materials are distributed as follows:



(*) *The "Others" category includes all the elements of which less than 1% was found in the product, such as heat shrink tubing, EPDM elastomer, etc.*

All necessary steps have been taken with our services, suppliers and subcontractors to ensure that the materials used in the composition of the products in the Altivar 71 – 0.37 to 18 kW range do not contain any substances prohibited (1) by the legislation that was in force when the product or range was put on the market.
This range was not designed to incorporate batteries or accumulators.
The site where this range of products was designed is certified to ISO 14001 for its eco-design process.

(1) *According to the list available on request.*

Manufacturing

This range is manufactured at a Schneider Electric production site on which an ISO 14001 certified environmental management system has been established.
The processes have been continuously improved to allow the site annual energy consumption to be reduced by an average of 5 %.
A recovery rate of 99 % has been achieved by thoroughly sorting the waste.

Distribution

The weight and volume of the packaging have been reduced, in compliance with the European Union's packaging directive 94/62/EC.
The total weight of the packaging, which consists mainly of cardboard and a recyclable polyethylene bag, is 1080 g. No packing foam or clips are used.
The product distribution flows have been optimised by setting up local distribution centres close to the market areas.

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Utilisation

The products in the Altivar 71 – 0.37 to 18 kW range do not generate environmental pollution requiring special precautionary measures (noise, emissions, and so on).
The electrical power consumed depends on the conditions under which the products are implemented and used.
Their power consumption ranges from 44 W to 620 W. It is 44 W for Altivar 71 - 0.75 kW 500 V and accounts for less than 6 % of the total power passing through the product.

End of life

At end of life, the products in the Altivar 71 – 0.37 to 18 kW range must be dismantled to facilitate the recovery of the various constituent materials.
The recycling potential is more than 80 %.
This percentage includes ferrous metals, copper and aluminium alloys and marked plastics.
The proportion of recyclable material in the representative product is 85 %.
The products in this range include the electronic cards to be extracted from the product and sent to specialised treatment systems.
The end-of-life data appears on the product end-of-life sheet.

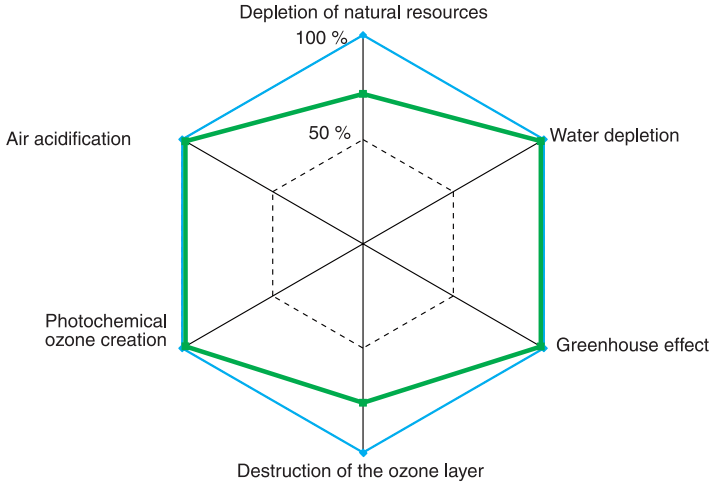
Environmental impacts

The EIME (Environmental Impact and Management Explorer) software, version 1.6, and its database, version 5.4, were used for the life cycle assessment (LCA).
The assumed service life of the product is 10 years and the European electrical power model was used.
The scope of the analysis was limited to an Altivar 71 – 0.75 kW, 500 V product.
The environmental impacts were analysed for the Manufacturing (M) phase, including the processing of raw materials, and for the Distribution (D) and Utilisation (U) phases.The environmental impact assessment compared the impacts of the non eco-designed product with those of the "eco-designed" product currently.

The mass and volume of the "eco-designed" product have the advantage of a reduction of 27 % and 19 % respectively over the previous range.
The plastics used are 100 % recoverable, due to the choice of materials and to the new product architecture.
These modifications have made it possible to reduce the global impact of the product on the environment.

Comparison of LCA impacts between the eco-designed and non eco-designed Altivar 71 - 0.75 kW 500 V

Legend:
- Altivar 71 - 0.75 kW 500 V with eco-design
- Altivar 71 - 0.75 kW 500 V without eco-design



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System approach

The variable speed drive saves energy by optimising the operating cycles of the asynchronous electric motors.
Under transient conditions, the products in the Altivar 71 – 0.37 to 18 kW range can more than halve the energy consumption of an installation.

The environmental impact values given above are only valid within the context specified. They cannot be used directly to compile the environmental report on the installation.

Glossary

Depletion of natural resources - 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.

Water Depletion (WD)

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

Greenhouse effect - Global Warming Potential (GWP)

The global warming of the planet is the result of the increase in the greenhouse effect, a natural phenomenon 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 of CO_2.

Destruction of the ozone layer - 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 methane (C_2H_4).

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^+.

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This product was awarded second prize in the French "sustainable eco-product" competition.

We are committed to safeguarding our planet by "Combining innovation and continuous improvement to meet the new environmental challenges".

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