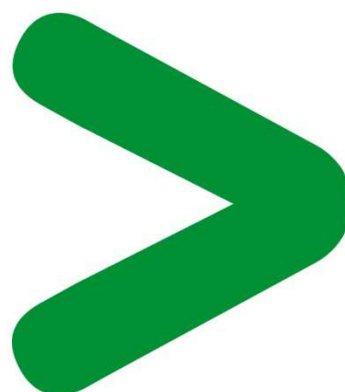


# Product Environmental Profile

Medium Voltage Motor Controllers  
Motorpact™ RVAT



# Product Environmental Profile – PEP

## Product overview

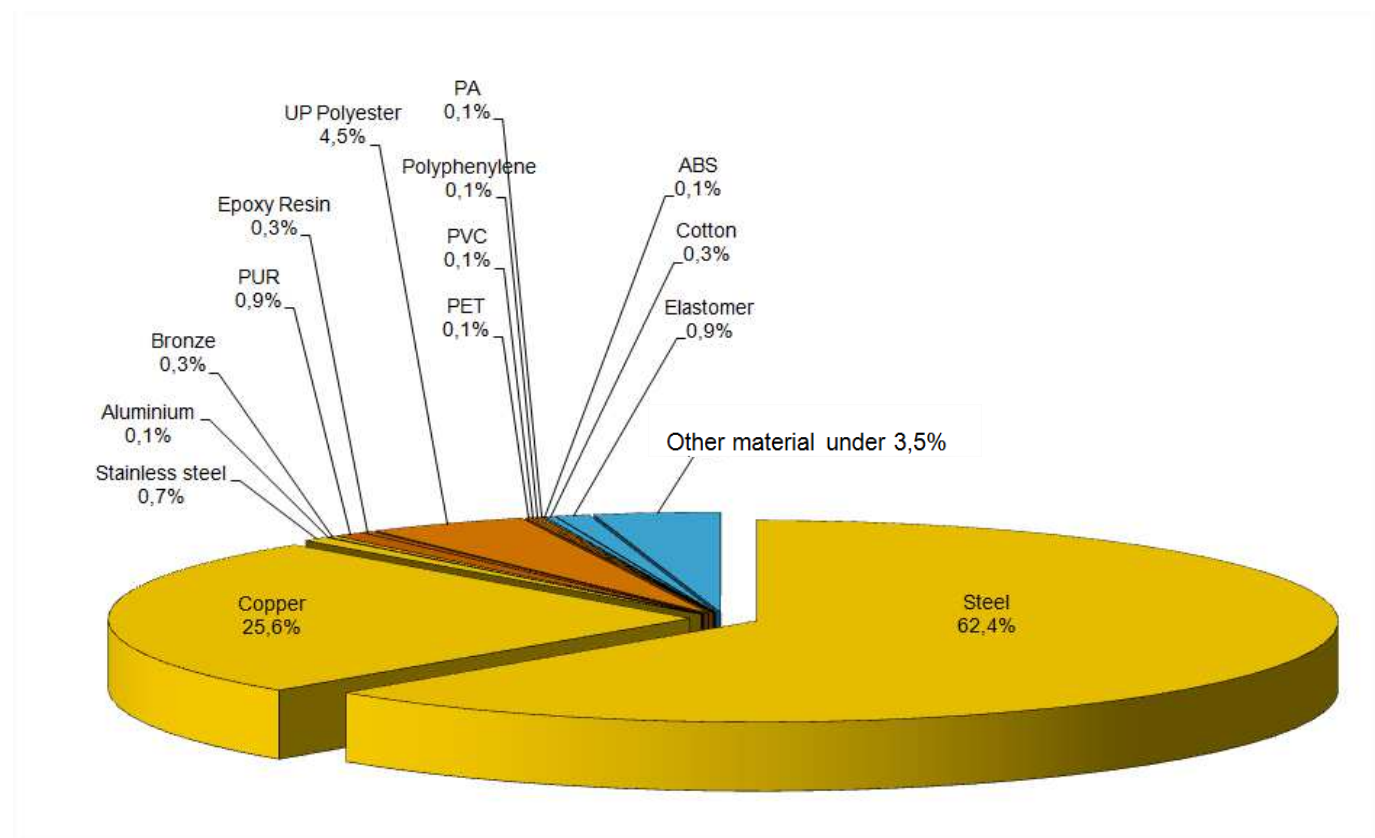
The main purpose of the Motorpact™ Medium Voltage Motor Controllers is to provide the most efficient means to control and protect a wide range of medium voltage applications and may be configured for motor starting, transformers feeders, capacitor feeders, or future spaces, this for 20 years, 24hours per day. The design has fewer losses inside the controller, providing more efficient use of power for the connected load, high reliability and low maintenance. Its compact footprint allows easy retrofiting. The maximum rated voltage for RVAT is up to 7.2 kV (Ur), it's contactor rated operational current is 200/400 A (Ir), 50 kA 3 s (Ik/tk), and 25kA/1s Internal arc withstand at 50/60 Hz.

The representative product used for the analysis is Motorpact RVAT (without fuses and protection relay).

The environmental analysis was performed in conformity with ISO 14040.

## Constituent materials

The weight of the analysed Motorpact RVAT (without Auto-transformer) is 1200kg including packaging. The constituent materials are distributed as follows:



Metals  
Plastics  
Others (including all materials from packaging)

# Product Environmental Profile – PEP

## Substance assessment

Products of this range are designed in conformity with the requirements of the European RoHS Directive 2011/65/EU 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

Details of ROHS and REACH substances information are available on the Schneider-Electric [Green Premium website](http://www2.schneider-electric.com/sites/corporate/en/products-services/green-premium/green-premium.page) .  
(<http://www2.schneider-electric.com/sites/corporate/en/products-services/green-premium/green-premium.page> )

## Manufacturing

The Motorpact™ Medium Voltage Motor Controllers 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 Motorpact RVAT packaging weight is 49-kg. It consists of mainly of wood, cardboard & polyethylene.

## Use

The products of the Motorpact™ Medium Voltage Motor Controllers range do not generate environmental pollution (noise, emissions) requiring special precautionary measures in standard use.

The electrical power consumption depends on the conditions under which the product is implemented and used.

This dissipated power is 96.5W at 30% load for 100% of the time for RVAT.

On a properly managed line, no part replacement is necessary during the 20 years of considered operations.

## End of life

At end of life, the products in the Motorpact™ Medium Voltage Motor Controllers have been optimized to decrease the amount of waste and allow recovery of the product components and materials.

The location of these components and other recommendations are given in the End of Life Instruction document which is available for this

product range on the Schneider-Electric Green Premium website [Green Premium website](http://www2.schneider-electric.com/sites/corporate/en/products-services/green-premium/green-premium.page)  
( <http://www2.schneider-electric.com/sites/corporate/en/products-services/green-premium/green-premium.page> ).

The recyclability potential of the products has been evaluated using the "ECO DEEE 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 without packaging is: 76%.

As described in the recyclability calculation method this ratio includes only metals and plastics which have proven industrial recycling processes.

# Product Environmental Profile – PEP

## Environmental impacts

This product is range is Category 3: Enclosure or Envelop. Assumed lifetime service is 20 years.

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 Motorpact RVAT.

- Product packaging: is included.

- Installation components: no special components included.

- Scenario for the Use phase: this product is range is Category 1: Energy passing product with a specific hypothesis regarding the CPT (Power Control Transformer). The assumed lifetime service is 20 years. The typical scenario for category 1 product is to consider that 30% of the nominal power is dissipated through the product. That represents 96.5W for 100% of the time.

- The geographical representative area for the assessment is North America and the electrical power model used for calculation is American 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	Motorpact RVAT					
		S = M + D + I + U + E	M	D	I	U	E
Air Acidification (AA)	g H+ eq	4,63E+03	2,60E+03	6,45E+00	0*	2,00E+03	1,55E+01
Air toxicity (AT)	m³	7,46E+09	5,06E+09	9,58E+06	0*	2,36E+09	2,31E+07
Energy Depletion (ED)	MJ	3,02E+05	1,48E+05	4,89E+02	0*	1,53E+05	1,11E+03
Global Warming Potential (GWP)	g CO <sub>2</sub> eq.	2,17E+07	9,83E+06	3,47E+04	0*	1,17E+07	7,90E+04
Hazardous Waste Production (HWP)	kg	4,14E+02	1,68E+02	4,30E-05	0*	2,46E+02	9,78E-05
Ozone Depletion Potential (ODP)	g CFC-11 eq.	6,10E-01	3,98E-01	6,58E-05	0*	2,12E-01	1,50E-04
Photochemical Ozone Creation Potential (POCP)	g C <sub>2</sub> H <sub>4</sub> eq.	4,63E+03	2,48E+03	7,74E+00	0*	2,13E+03	1,97E+01
Raw Material Depletion (RMD)	Y-1	1,36E-11	1,34E-11	7,09E-16	0*	1,73E-13	1,61E-15
Water Depletion (WD)	dm <sup>3</sup>	1,07E+05	8,67E+04	3,60E+00	0*	2,07E+04	8,21E+00
Water Eutrophication (WE)	g PO <sub>4</sub> <sup>3-</sup> eq.	2,98E+02	2,60E+02	6,45E-02	0*	3,76E+01	1,47E-01
Water Toxicity (WT)	m³	2,38E+03	1,45E+03	1,48E+01	0*	8,80E+02	3,38E+01

\*0 means less than 0.01% of impact on the Life Cycle


Life cycle assessment has been performed with the EIME software, version 5.3.0.10 and with its database version 2013-02.

The Manufacturing phase is the most impacting in the Life Cycle Assessment of the product.

## Glossary

<b>Air Acidification (AA)</b>	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 <sup>+</sup> .
<b>Air Toxicity (AT)</b>	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.
<b>Energy Depletion (ED)</b>	This indicator gives the quantity of energy consumed, whether it is from fossil, hydroelectric, nuclear or other sources. It takes into account the energy from the material produced during combustion. It is expressed in MJ.
<b>Global Warming (GW)</b>	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 <sub>2</sub> .
<b>Hazardous Waste Production (HWP)</b>	This indicator quantifies 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.
<b>Ozone Depletion (OD)</b>	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.
<b>Photochemical Ozone Creation (POC)</b>	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 <sub>2</sub> H <sub>4</sub> ).
<b>Raw Material Depletion (RMD)</b>	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.
<b>Water Depletion (WD)</b>	This indicator calculates the volume of water consumed, including drinking water and water from industrial sources. It is expressed in dm <sup>3</sup> .
<b>Water Eutrophication (WE)</b>	Eutrophication is a natural process defined as the enrichment in mineral salts of marine or lake waters or a process accelerated by human intervention, defined as the enrichment in nutritive elements (phosphorous compounds, nitrogen compounds and organic matter). This indicator represents the water eutrophication of lakes and marine waters by the release of specific substances in the effluents. It is expressed in grams equivalency of PO43-(phosphate).
<b>Water Toxicity (WT)</b>	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.

PEP achieved with Schneider-Electric TT01 V9 and TT02 V18 procedures in compliance with ISO14040 series standards

Registration N° : <b>SCHN-2014-153-V0</b>		Applicable PCR : PEP-PCR-ed 2.1-EN-2012 12 11	
Verifier accreditation N° : VH18		Program information: <a href="http://www.pep-ecopassport.org">www.pep-ecopassport.org</a>	
Date of issue: 12-2014		Period of validity: 4 years	
Independent verification of the declaration and data, according to ISO 14025:2006			
Internal		External	X
In compliance with ISO 14025:2006 type III environmental declarations			
PCR review was conducted by an expert panel chaired by J. Chevalier (CSTB).			
The elements of the actual PEP cannot be compared with elements from another program.			

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