# Product Environmental profile
## Surge Protective Device T2-T3

The Surge Protective devices protect electrical equipment against directs or indirect effect of lightning or against of transient overvoltage.

The Surge Protective devices designed to limit transient overvoltage and run-off lightning currents.

Main features:

- Phase neutral network
- 5kA rated discharge current In
- 15kA maximum discharge current Imax
- Up tension de protection : 1,1 kV
- Ic courant consum : <6 mW
- Number protected line : 2
- Surge protective device type : T2 ; T2-T3
- Index protection : IP32
- Reference standard : IEC 61643-11


**OVR T2-T3 N1 15-275S SL**

## Reference product and methodology

The product used to conduct this study is the OVR T2-T3 N1 15-275S SL (including its packaging).

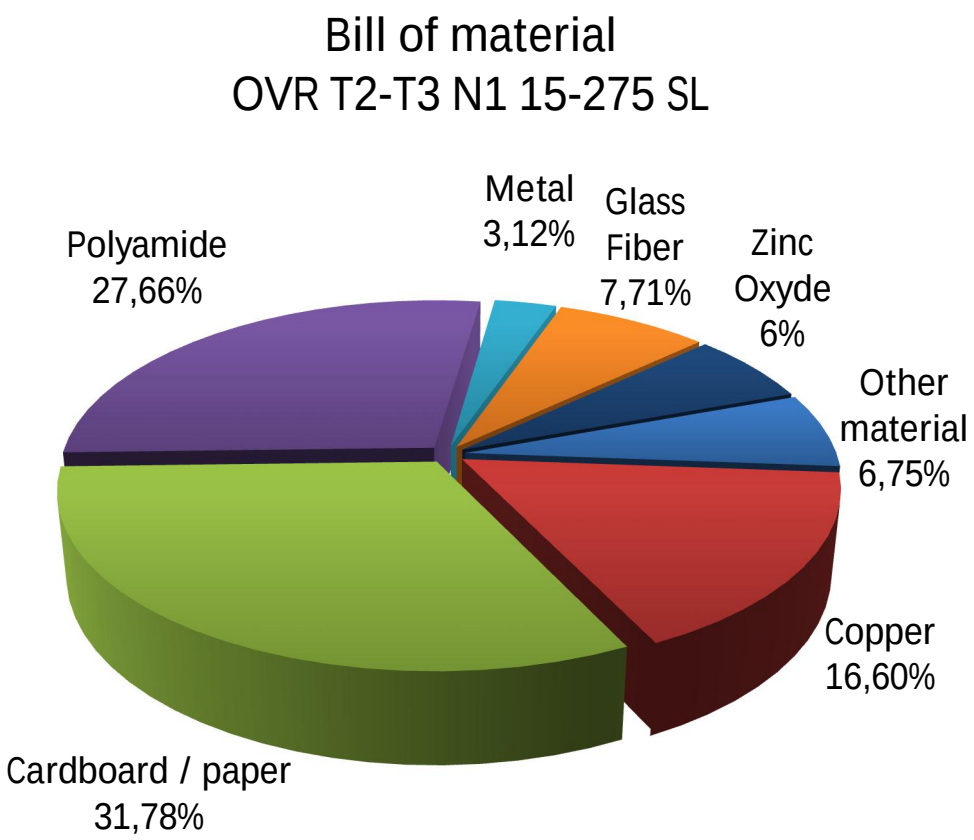
- SPD for phase network
- 230V
- In 5 kA
- Imax 15 kA
- 2 protected lines

The environmental analysis was conducted with EIME software.
The analysis accounts for all the stages in the product life cycle: manufacture, distribution, use and end of life.

## Constituent materials

The weight of the components of the product analysed is 80 grams including the packaging. The main materials used on a percentage basis are plastic and copper.

The SPDs range are designed in compliance with the requirements of the RoHS directive (directive 2011/65/EC of 08 Juin 2011) and do not contain, above the authorised limits, lead, mercury, cadmium, hexavalent chromium, or flame retardants (polybrominated biphenyls PBB, polybrominated diphenyl ethers PBDE) as specified in the directive.




## Additional environmental information

**-Manufacture**
The SPDs range is manufactured on an ABB production site which has implemented an environmental management system.

-**Distribution**
The packaging consists of 100% cardboard, designed in compliance with current regulations.
(French application decree: 98-638).

**-Use**
The SPDs range do not involve any sources of nuisance giving rise to particular precautions for use (noise, emissions…).

**-End of life**
At the end of their service life, the products are suitable for crushing to recycle the various constituent materials.

# Environmental impacts

We have conducted a product life cycle analysis for 11 types of major environmental impacts. This analysis accounts for all the stages in the product life cycle: manufacture, distribution, use and end of life.

The modeling assumptions made are:

**Product category:** Passive
« Passive » products dissipate energy, « active » products use energy.

**Period of use (*):** 20 years

**Use:** Connected between phase, neutral and earth, very low consumption (full time), 6 mW.

**Installation**: Negligible impact. No specific tool is required to install the product.

**Servicing and maintenance:** Under normal conditions of use, this type of product requires no servicing or maintenance.

**Applicable electric standard for this product:** IEC 61 643-11

(*)Period of use identified for the assessment of the environmental impacts.
This period may be different to the service life of the product which is dependent on operating and installation conditions.

## Overview of environmental impacts of product

| Indicators | | Unit | Sum | Manufacture | Distribution | Use | End of life |
|---|---|---|---|---|---|---|---|
| **AA** | Air Acidification | kg H+ eq | 1,25E-04 | 1,06E-04 | 1,93E-05 | 0,00E+00 | 4,53E-07 |
| **AT** | Air Toxicity | $m^3$ | 2,77E+05 | 1,89E+05 | 8,76E+04 | 0,00E+00 | 7,42E+02 |
| **ED** | Energy Depletion | MJ | 1,05E+01 | 7,80E+00 | 2,66E+00 | 0,00E+00 | 5,39E-02 |
| **GWP** | Global Warming Potential | kg $CO_2$ eq. | 5,72E-01 | 4,63E-01 | 1,06E-01 | 0,00E+00 | 3,12E-03 |
| **HWP** | Hazardous Waste Production | kg | 1,43E-02 | 1,36E-02 | 6,57E-04 | 0,00E+00 | 2,80E-05 |
| **ODP** | Ozone Depletion Potential | kg CFC-11 eq. | 8,22E-08 | 3,84E-08 | 4,27E-08 | 0,00E+00 | 1,13E-09 |
| **POC** | Photochemical Ozone Creation Potential | kg $C_2H_4$ eq. | 4,74E-04 | 1,61E-04 | 3,12E-04 | 0,00E+00 | 1,81E-06 |
| **RWD** | Raw Material Depletion | Y-1 | 9,06E-15 | 9,06E-15 | 2,67E-18 | 0,00E+00 | 6,15E-20 |
| **WD** | Water Depletion | $dm^3$ | 6,22E+00 | 4,82E+00 | 1,39E+00 | 0,00E+00 | 6,87E-03 |
| **WE** | Water Eutrophication | kg $PO_4^{3-}$ eq. | 1,60E-03 | 1,59E-03 | 8,76E-06 | 0,00E+00 | 2,79E-08 |
| **WT** | Water Toxicity | $m^3$ | 1,26E+00 | 1,24E+00 | 2,45E-02 | 0,00E+00 | 6,15E-04 |

The life cycle analysis (LCA) was conducted using EIME (Environmental Impact and Management Explorer) software version 5.0.7.8.
Energy model used: Europe.

| | | | |
|---|---|---|---|
| Record No : | **ABB-2014-003-V1-EN** | Drafting rules : **PCR PEP-ed 2.1-FR-2012 12 11**<br>Specific rules : **PSR 0005-ed 1-FR-2012 12 11** | |
| Checker autorisation No : | **VH07** | Programme Information : | www.pep-ecopassport.org |
| Date of issue : | **07-2014** | Lifetime : | 4 ans |

Independant verification of declaration and data, as per ISO 14025 :2006

Internal [X] External [ ]

In conformity with the ISO 14025 standard 2006 Type III environmental declarations

The critical PCR review was conducted by a panel of experts chaired by J.Chevalier (CSTB)

The data from this PEP cannot be compared with the date from another programme

**Site WEB ABB** www.abb.fr

For further information, contact

**ABB France**
**Division Produits Basse Tension**
**Pôle Foudre Soulé & Hélita**
Parc Industriel de Haute Bigorre
1, avenue des Victimes du 11 Juin 1944
65200 Bagnères de Bigorre - France

stv.lpg@fr.abb.com



## Glossary

| | |
|---|---|
| RMD | Raw Materiel Depletion<br>Indicates the depletion of natural resources, by considering the quantity of world reserves (minerals, fossils, etc.) for these resources and the current level of consumption. Expressed as a fraction of the reserves that disappear each year. |
| ED | Energie Depletion<br>Indicates the total primary energy consumption for the whole life cycle of the product. |
| WD | Water Depletion<br>Indicates the total water consumption for the whole life cycle of the product. |
| GW | Global Warming<br>Indicates, for all the life cycle phases of the product, identified greenhouse gas emissions in air as CO2 gram-equivalents. Example of the equivalence principle: 1g of $CO_2$ = 1g~$CO_2$; 1g of CH4 (methane) is equivalent to the effect of 64 g of $CO_2$ |
| GWP | Global Warming Potential<br>Indicates what all the life cycle phases of the product release as CFC-11 gram-equivalents. |
| AT | Air Toxicity<br>Indicates the quantity of air required to dilute the toxic substances emitted into the air for all the life cycle phases of the product. Expressed as $M_3$ of air. |
| POC | Photochemical Ozone Creation<br>Indicates as g~C2H4 the gas emissions having an effect on the creation of photochemical ozone in the lower atmosphere (smog) under the effect of solar radiation. |
| AA | Air Acidification<br>Indicates the potential for acidification of the air caused by the release of certain gases into the atmosphere. Expressed as $H^+$ ion gram-equivalent. |
| WT | Water Toxicity<br>Indicates the quantity of water required to dilute the toxic substances discharged into water for all the life cycle phases of the product. Expressed as $M^3$ of water. |
| WE | Water Eutrophication<br>Indicates as gram-equivalents $PO_4^{3-}$(g~ $PO_4^{3-}$) the contribution to water eutrophication due to enrichments of the aquatic environment with nutrients, for example industrial, household effluents, agriculture, etc. |
| HWP | Hazardous Waste Production<br>Indicates in kg the quantity of hazardous waste produced for the entire life cycle of the product. |