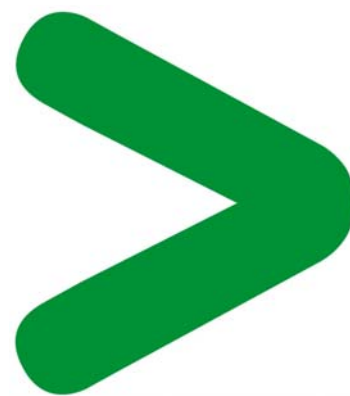


# Product Environmental Profile

**TBS50**



# Product Environmental Profile - PEP

## Product overview

In case of mains failure or closure of the premises the TBS can stop and restart the functioning of the emergency lighting luminaires, saving the battery charge and extending battery life.

Suitable for the major part of the commercialized emergency lighting luminaires and for the fire alarms of type 3 used in some public local.

This range consists of 2 references: 15855, 15856.

The representative product used for the analysis is TBS50 ref: 15855.

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.

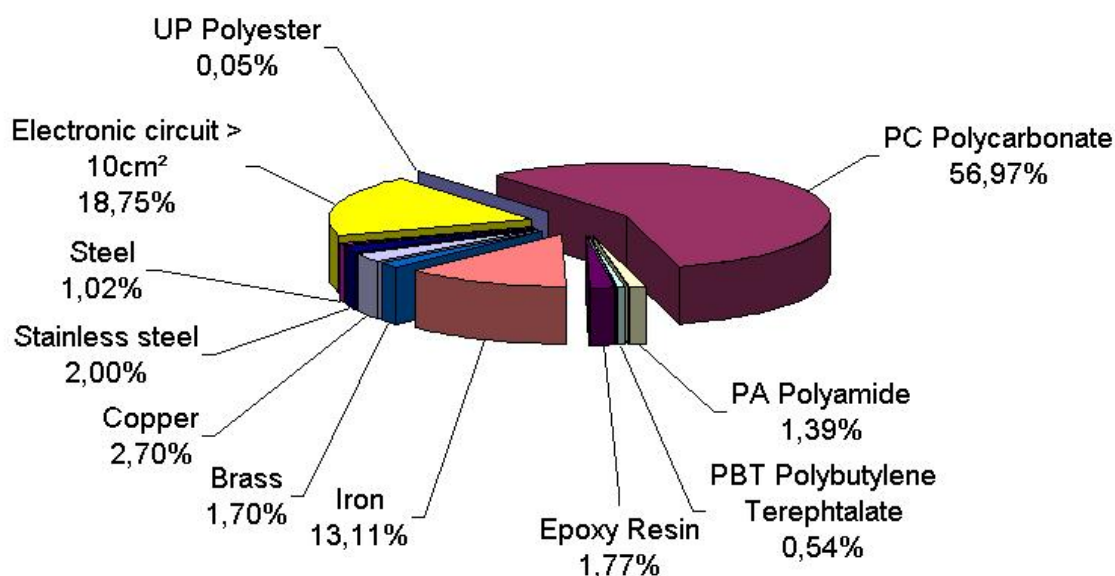
The environmental analysis was performed in conformity with ISO14040.

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

## Constituent materials

The mass of the products of range and of the TBS50 ref: 15855 is 168 g no including packaging.

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 TBS50 is manufactured at a production site which complies with the regulations governing industrial sites.

## Distribution

The weight and volume of the packaging have been reduced, in compliance with the European Union's packaging directive.

The TBS50 packaging weight is 25.87 g.

It consists of Paper (Recycled, With Deinking) 4.87 g, Cardboard (kraft) 21 g.

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

# Product Environmental Profile - PEP

## Use

The products of the TBS 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.

The electrical power consumed by TBS50 is 1.35 W 99 % in active mode.

## End of life

At end of life, the products in the TBS 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 design and information have been achieved so as components are able to enter the usual end of life treatment processes as appropriate: depollution if recommended, reuse and/or dismantling if recommended so as to increase the recycling performances and shredding for separating the rest of materials.

The potential of recyclability of the products has been evaluated using the Code "recyclability and recoverability calculation method" (version V1, 20 Sep. 2008) and published by ADEME (French Agency for Environment and Energy Management).

According to this method, the potential recyclability ratio is: 77 %.

The recommendations to optimize the recycling performance are detailed in the product "End of Life Instructions" of this product range.

## Environmental impacts

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

This product range is included in the category Energy consuming product (assumed lifetime service is 10 years and using scenario: 1.35 W for 99 % uptime).

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 TBS50 ref. 15855.

The electrical power model used is French model.

Presentation of the product environmental impacts.

### Presentation of the product environmental impacts

Environmental indicators	Unit	For TBS50 ref. 15855			
		S = M + D+ U	M	D	U
Raw Material Depletion	Y-1	1.92E-13	4.37E-14	6.82E-18	1.48E-13
Energy Depletion	MJ	1.34E+03	3.52E+01	3.743	1.30E+03
Water depletion	dm <sup>3</sup>	2.97E+02	16.893	1.797	2.79E+02
Global Warming	g≈CO <sub>2</sub>	1.52E+04	2.02E+03	1.20E+02	1.31E+04
Ozone Depletion	g≈CFC-11	1.41E-03	2.25E-04	4.11E-05	1.14E-03
Air Toxicity	m <sup>3</sup>	4.16E+06	6.48E+05	2.50E+04	3.49E+06
Photochemical Ozone Creation	g≈C <sub>2</sub> H <sub>4</sub>	6.112	8.85E-01	6.91E-02	5.158
Air acidification	g≈H <sup>+</sup>	3.462	4.67E-01	1.84E-02	2.977
Water Toxicity	dm <sup>3</sup>	2.51E+03	6.95E+02	52.41	1.76E+03
Water Eutrophication	g≈PO <sub>4</sub>	2.213	4.77E-01	3.00E-02	1.707
Hazardous waste production	kg	2.17E-01	4.33E-02	3.61E-04	1.73E-01

The life cycle analysis shows that the U phase (M, D or U phase) is the life cycle phase which has the greatest impact on the majority of environmental indicators.

Extrapolation rules for product range:

Depending on the analysis of environmental impacts, the parameters of other products in this range may be proportionally extrapolated multiplying the values of the use (U) phase by the ratio of the power consumption values.

The product benefits from design optimisation which allows reducing its impact on environment.

## 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.

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

<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>Energy Depletion (ED)</b>	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.
<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>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>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>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>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>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>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.
<b>Hazardous Waste Production (HWP)</b>	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.

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This document is complying with ISO14020 which relates to the general principles of environmental declarations and to the ISO 14025 relating to life-cycle environmental declarations.

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The version of the Guide used to create the document: Product Environmental Profiles Drafting Guide version V12.

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