



Legrand's environmental commitments

> Incorporate environmental management into our industrial units.

At present, 81 % of units worldwide and 92 % of our European units are ISO 14001-certified.



> Involve the environment in product design.

Provide our customers with all relevant information (composition, consumption, end of life, etc.). Reduce the environmental impact of products over their whole life cycle.

> Offer our customers environmentally friendly solutions.

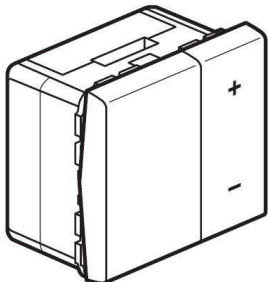


Develop innovative solutions to help our customers design installations that consume less energy, are better managed and more environmentally friendly.



Product description

> Reference products for this environmental profile

The given values are based on the following items.

Function	Dimmer switch 110 – 230 V – 50 Hz – 2 modules		
Reference products	 Cat. No. 078401 Dimmer switch mechanism	 Cat. No. 080251 Support frame 2 modules	 Cat. No. 078802 Mosaic Range Cover Plate – 2 modules

> Products covered by this product environmental profile

Environmental impacts of the reference products are representative of the products covered by this PEP, which therefore constitute a homogeneous environmental family.

Cat. Nos	784 01	802 50/51/52/53/54/59/61/ 64/66/67/68/69	788 01/02/03/04/06/07/08/10/11/ 14/15/16/18/22/23/25/30/32/36/ 37/38/42/43/44/54/56/64/66



Constituent materials

These products contain no substances forbidden by regulations applicable at the time of their market launch, excluding maintenance operations carried out during normal use.

Total weight of reference products: 147 g

Plastics as % of weight		Metals as % of weight		Other as % of weight	
Polycarbonate (PC)	15.80 %	Steel	13.40 %	Glass fibre	2.50 %
ABS	7.90 %	Aluminium (Al)	7.80 %	Aluminium oxide	1.50 %
Polyamide (PA66)	5.80 %	Copper (Cu)	2.70 %	Titanium dioxide	0.70 %
Epoxy resin (DGEBA)	2.60 %	Copper wire	2.20 %		
Polyamide (PA6)	1.10 %	Bronze (Cu, Zn)	1.00 %	Misc. others	0.90 %
		Tin (Sn)	0.90 %	Packaging as % of weight	
		Zinc (Zn)	0.80 %	Paper and cardboard	25.80 %
				Paper (50 % recycled content)	3.60 %
				Polyethylene terephthalate (PET)	1.40 %
Misc. plastics	0.10 %	Misc. metals	1.20 %	Polypropylene (PP)	0.30 %
Total plastics	33.30 %	Total metals	30.00 %	Total other and packaging	36.70 %

Estimated recycled material content: **33 % by weight**

Calculated on the basis of data on recycling in France, source: "Bilan du recyclage 1993-2003, Données et références", 2005 edition, published by the French Agency for the Environment and Energy Control (ADEME)



Manufacture

These products are manufactured by a Legrand Group production unit which has received ISO 14001 environmental certification for manufacturing.



Distribution

Typical transport conditions

- On average this product covers 376 km by road transport from our production site to the nearest distributor to our customer (Basis for calculation: average distance calculated for products sold in France).

Packaging

- The 46 g packaging is composed of: 94.5 % Paper/cardboard; 4.5 % PET; 1 % Polypropylene
- Recycling potential: 100 %
- Energy recovery potential: 100 %

The packaging has been designed in accordance with the current applicable regulations:

- Directive 94/62/EC concerning packaging and packaging waste
- Decree 98-638 transposing the Directive into French law.

Legrand undertakes to:

- Reduce its packaging at source as much as possible in terms of weight and volume, in accordance with its customers' needs.
- Produce packaging with a heavy metal content of <100 ppm and without deliberately introducing N-class environmentally hazardous substances.
- Design and use packaging that is convertible and where possible reusable.



Use

Use scenario

The dimmer switch dissipates 0.4 W of power 22 hours a day, 365 days a year, with the two remaining hours being divided into 3 phases:

- For 20 % of the 2 hours, 2.3 W of power is dissipated at 33 % dimmer level,
- For 20 % of the 2 hours, 4 W of power is dissipated at 66 % dimmer level,
- For the remaining 60 % of the 2 hours, 3.9 W of power is dissipated at 100 % dimmer level.

The period of use is 10 years (total consumption for the period = 45.26 kWh).

Consumables

No consumables are necessary to use the product.

Servicing and maintenance

Normal conditions of use of this type of product require no servicing or maintenance.



End of life

Product management

> Hazardous waste contained in the product:

This product contains no hazardous waste.

> Non-hazardous waste contained in the product:

101.25 g of non-hazardous materials are contained in this product

> Recycling potential:

The recycling potential of a product is the percentage of material that can be recycled using existing techniques. It takes no account of the existence or lack of recycling chains, which are highly dependent on the local situation.

This product contains 88 % by weight of recyclable material (other than packaging):

- Plastic materials: 45 %
- Metal materials: 43 %

> Energy recovery potential:

Energy recovery consists in valorising the calories contained in waste by burning it and recovering the energy produced, for example, to heat buildings or to produce electricity. The process uses the convertible energy embodied in the waste.

This product contains 49 % by weight of materials that can be recovered for energy production (excluding packaging).



Environmental impacts

Methodology

The environmental impacts of the reference product are representative of the products covered by the PEP, which therefore constitute a homogeneous environmental family.

Assessment of the environmental impacts of the reference product concerns the following stages of the life cycle: raw materials, manufacture, distribution, and use.

The modelling assumptions for use are:

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- For 20 % of the 2 hours, 4 W of power is dissipated at 66 % dimmer level,
- For the remaining 60 % of the 2 hours, 3.9 W of power is dissipated at 100 % dimmer level.

The period of use is 10 years (total consumption for the period = 45.26 kWh).

- Unit packaging taken into account.

Indicators (see glossary)	Overall M+D+U	Unit	Manufacture M	Distribution D	Use U
Depletion of natural resources	1.405E-14	years ⁻¹	98.1 %	< 0.5 %	1.9 %
Total energy consumed	659.930	MJ	3.1 %	< 0.5 %	96.6 %
Consumption of water	539.260	dm ³	77.3 %	< 0.5 %	22.5 %
Contribution to the greenhouse effect	7.969E+03	g~CO ₂	16.0 %	0.7 %	83.3 %
Contribution to the depletion of the ozone layer	6.803E-04	g~CFC-11	17.0 %	2.7 %	80.3 %
Contribution to the creation of photochemical ozone	2.966	g~C ₂ H ₄	16.6 %	1.7 %	81.7 %
Potential for acidification of the air	1.440	g~H+	17.2 %	0.9 %	81.9 %
Production of hazardous waste	0.115	Kg	25.7 %	< 0.5 %	74.2 %

*Modelling performed with EIME software, version 2.3 and its database in version 7.8 taken from the original 7.0 database.
Energy consumption modelling: EDF 2000*

(*) Period of use identified for the assessment of the environmental impacts.

This period of use is different from the life expectancy of the product and does not constitute a minimum durability requirement. It is the quantified expression of a unit of service rendered.

The environmental impacts of products other than the reference product are generally proportional to product weight.



Glossary

Consumption of water	Indicates the total water consumption for the whole life cycle of the product.
Contribution to the creation of photochemical ozone	Indicates as g~C ₂ H ₄ the gas emissions having an effect on the creation of photochemical ozone in the lower atmosphere (smog) under the effect of solar radiation.
Contribution to the depletion of the ozone layer	Indicates what all the life cycle phases of the product release as CFC-11 gram-equivalents.
Contribution to the greenhouse effect	Indicates what all the life cycle phases of the product release as CO ₂ gram-equivalents. Example of the equivalence principle: 1 g of CO ₂ = 1 g~CO ₂ ; 1 g of CH ₄ (methane) is equivalent to the effect of 64 g of CO ₂ , etc.
Convertible	Said of a product or packaging capable of being reused, recycled or from which it is possible to recover energy by incineration.
Depletion of natural resources	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.
Eco-solution	Products or services enabling the reduction of a building's environmental impacts.
EIME	Environmental Information and Management Explorer - Product environmental impact modelling software based on the life cycle assessment methodology.
Energy recovery potential	% by weight of the product or packaging from which energy can be recovered. Energy recovery consists in valorising the calories contained in waste by burning it and recovering the energy produced, for example, to heat buildings or to produce electricity. The process uses the convertible energy embodied in the waste.
Hazardous waste	This is specific waste having a certain level of toxicity and requiring special treatment. Its definition is codified by the European community (Annex of Decision 2000/532/EC amended by Decisions 2001/118/EC and 2001/119/EC)
LCA	Compilation and assessment of inputs and outputs, as well as the potential environmental impacts of a product, or a system, during its life cycle, "from the cradle to the grave". This approach is described by standard ISO 14040 and its related standards.
Life cycle approach	Method of taking into account all the life stages of a product (manufacture, installation, use and end of life) in order to determine the consequences for the environment.
Non-hazardous waste	This is made up of non-toxic waste and is of a similar nature to household waste. Its definition is codified by the European community (Annex of Decision 2000/532/EC amended by Decisions 2001/118/EC and 2001/119/EC)
Potential for acidification of the air	Indicates the potential for acidification of the air caused by the release of certain gases into the atmosphere. Expressed as H ⁺ ion gram-equivalent.
Production of hazardous waste	Indicates the weight of ultimate hazardous waste produced for the whole life cycle of the product.
Recycling potential	% by weight of the product or packaging capable of being re-injected into a manufacturing circuit of the same product or another product.
Reference product(s)	Product (or product group) modelled in the presented LCA.
Reusable	Said of a product or packaging capable of being used for the same function provided the product's proper functionality is verified by the person carrying out the operation.
Total energy consumed	Indicates the total energy consumption in megajoules for the whole life cycle of the product.
WEEE (Waste Electrical and Electronic Equipment)	For products in the application area of the European Directive on Waste Electronic and Electrical Equipment (2002/96/EC), part of the product having to be treated selectively in compliance with Annex II of the Directive.