Helvar

Environmental Product Information 2009

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Summary

As a forerunner in lighting product manufacturing Helvar is concerned about the current condition of the environment. Helvar does its part for the environment by paying attention to environmental issues not only regarding the products but also in its own operations. Helvar undertakes ecodesign in its product development process, and is committed to increase the energy efficiency of its own premises.

Helvar acts according to its environmental policy and respects sustainable development. Helvar has an ISO 9001 certified quality management system, and Helvar Oy Ab also ISO 14001 certified environmental management system.

Legislation is the basis for all actions in Helvar. The amount of environmentally related legislation has increased during last few years. By keeping up with the changes in legislation Helvar ensures that the products continue to conform. Helvar aims to exceed the legislative requirements and to be even more environmentally friendly.

Introduction

Environmental issues are increasingly important in all business activities. Especially the energy consumption has become a significant aspect globally. Lighting consumes approximately one fifth of the world's electricity. Helvar as a manufacturer of lighting products wants to contribute to greener environment by providing environmentally friendly energy efficient products.

This leaflet provides information on various environmental aspects of Helvar products. Helvar as a company is briefly introduced. The leaflet includes the environmental policy of Helvar. Applicable EU legislation is handled, including most importantly the RoHS, WEEE and EuP directives. Environmental issues of production, packaging and material content are covered. Customers and end users can benefit from information on the possibilities to save energy in lighting. Information on the structure and end-of-life treatment of products is provided in order for the customers to create suitable waste disposal programs and to enable correct disposal of products. Thus disposal facilities may efficiently recover materials from Helvar products.

Helvar

Helvar is a privately owned company which develops, manufactures and markets ballasts, lighting control solutions and services. The product range includes magnetic ballasts, dimmable and non-dimmable electronic ballasts, ignitors and a variety of lighting control products.

Main customers are luminaire manufacturers and other customers specializing in lighting. Helvar products are used in architectural, commercial and residential applications to provide proper lighting for various needs.

Helvar headquarters and ballast competence centre are located in Karkkila, Finland. Contact information for the headquarters is found at the end of this publication. In addition, there are two factories for manufacturing magnetic and electronic ballasts in Karkkila. The lighting control system competence centre is located in London, England.

Helvar also has offices in Frankfurt, Milan, Stockholm, Paris, Brussels, Moscow and Budapest. In addition Helvar has over 50 representatives all over the world. More information can be found on our web pages, www.helvar.com.

Helvar Policy

Helvar has a combined quality and environmental policy to meet the requirements of ISO 9001 and ISO 14001, presented below.

Helvar is the lighting specialist focusing on development, manufacturing, marketing and services for high quality, energy efficient ballasts and lighting control solutions for commercial and architectural applications.

Helvar is a customer-focused organisation aiming to exceed expectations for quality and delivery, and recognises the importance of energy efficiency and environmental issues as well as adhering to legislation.

Helvar invests in the development and wellbeing of the personnel to ensure that health, safety and sustainability issues are addressed.

Helvar maintains and develops a quality management system that is certified and that fulfils the requirements of ISO 9001:2008. The company develops and maintains an environmental management system according to ISO 14001:2004 standard.

Continuous improvement is applied in all Helvar business areas and employees are empowered to ensure high quality performance whilst striving for excellence in customer satisfaction.

Helvar continuously develops its products and processes in order to reach its goals. The Quality and Environmental Policy, the objectives and the targets are controlled by management reviews.

Legislative requirements in the EU

Environmental issues have increasingly become a concern of legislators during last few years. The European Union has adopted several environmentally related directives and regulations. The most important ones regarding Helvar are the RoHS, WEEE and EuP directives, and the REACH regulation. Helvar is committed to comply with all the relevant legislation including local, national, as well as EU-wide legislation. Naturally, Helvar takes additional customer requirements into consideration wherever they are needed.

RoHS and WEEE

The RoHS directive (2002/95/EC) and the WEEE directive (2002/96/EC) have widely affected the electrical and electronics industry as they apply to many product groups. Both of the directives apply to lighting equipment. According to the directives, lighting equipment includes more specifically:

- luminaires for fluorescent lamps, except luminaires in households
- straight fluorescent lamps
- compact fluorescent lamps
- high intensity discharge lamps including pressure sodium lamps and metal halide lamps
- low pressure sodium lamps
- other lighting or equipment for the purpose of spreading or controlling light, except filament bulbs

Helvar lighting control products are included in another category covered by the directives: monitoring and control instruments. The category includes inter alia other monitoring and control instruments used in industrial installations, e.g. control panels.

Ballasts are not included in the lighting equipment category. Ballasts, ignitors and capacitors are regarded as components of lighting equipment, which makes the requirements apply indirectly to them. The producer of the lighting equipment is responsible for taking the measures required to fulfil the requirements of the directives.

The RoHS directive restricts the use of six hazardous substances in electrical and electronic equipment. The restricted substances and the thresholds values are:

- Lead	0,1 %
- Mercury	0,1 %
- Cadmium	0,01 %
- Hexavalent chromium	0,1 %
- Polybrominated biphenyls (PBB)	0,1 %
- Polybrominated diphenyl ethers (PBDE)	0,1 %

Helvar requires the suppliers of raw materials and components to comply with the RoHS requirements. As the RoHS directive is mandatory in the EU area, Helvar products comply with the requirements of the directive. Though the exemption of decaBDE in polymeric applications in RoHS directive was repealed by the Court of Justice from 1.7.2008, Helvar products continue to comply with the RoHS directive.

The WEEE directive aims at preventing the derivation of electrical and electronic waste and increasing the reuse and recycling of the waste. It makes the producer responsible for the waste. In the lighting sector the luminaire manufacturer is responsible for all the components in the luminaire, including ballasts and lighting control components.

The WEEE directive applies to monitoring and control instruments, and equipment for controlling light. Helvar lighting control products such as dimmers, controllers and panels belong to these categories. However, fixed installations, such as those where the above mentioned products are used, do not fall under the scope. As the WEEE directive is inexact regarding lighting control products, Helvar interprets that lighting control products fall within the scope. This ensures appropriate waste management. Helvar's Lighting Control department in the UK is therefore a member of a producer WEEE compliance scheme. Information concerning construction and recycling of Helvar products is given in the chapter about Helvar products. For further information please contact Helvar headquarters or visit our web pages www.helvar.com.

EuP

The EuP directive (2005/32/EC) is a framework directive for setting ecodesign requirements for energy-using products. Few implementing measures of the EuP directive have already been approved and brought into force; a number of implementing measures are currently under construction. Lighting industry will be affected by three of the implementing measures: one for tertiary sector lighting and two for domestic lighting. As the first regulation on domestic lighting applies to lamps including incandescent lamps, halogen lamps and compact fluorescent lamps with integrated control gear, it does not set requirements on Helvar products.

The upcoming regulation on tertiary sector lighting affects Helvar. There will be requirements for tertiary lighting regarding energy efficiency and standby losses. The regulation sets new requirements for energy efficiency of ballasts, and the ballast stand-by losses are limited under 1 W in 2010 and under 0,5 W in 2012.

Helvar is strongly involved in the process of making the implementing measures within lighting industry. The lighting industry is promoting the use of lighting design which increases the potential energy saving more than just energy efficient products.

Ballast efficiency directive

The energy efficiency of ballasts for fluorescent lighting has already been improved through the directive 2000/55/EC. The ballast directive has banned the most inefficient ballasts on the market. The energy efficiency of ballast is marked with CELMA(*) energy efficiency index (EEI). The EEI categories in the ballast directive are A1, A2, A3, B1, B2, C and D. The ballast directive has banned two of the most inefficient categories, C and D.

The ballast directive is replaced by the tertiary sector regulation. The regulation introduces two new EEI categories: A1 BAT and A2 BAT. Marking the ballasts with an energy efficiency index (EEI) becomes mandatory. Helvar ballasts are already marked with EEI marking.

(*) CELMA = The Federation of National Manufacturers Associations for Luminaires and Electrotechnical Components for Luminaires in the European Union. See www.celma.org for further information.

The requirements for material content of products

Besides the RoHS directive, there are other legal requirements for material content that apply also to electrical and electronic equipment. Environmentally related legislation that Helvar products comply with are listed in annex 1. Hazardous substances restricted or banned by EU legislation are listed in the annex 2. If a directive or a regulation defines a threshold value to a hazardous substance it is included in annex 2.

Directive 76/769/EEC and its amendments cover numerous substances that are restricted or banned in all or only in certain applications or on certain conditions. The directive bans e.g. benzene and phthalates in toys and azo dyes in textile and leather articles. The requirements under 76/769/EEC that apply to Helvar products are included in annex 2.

The production, trade, use, and recovery of substances that deplete the ozone layer are controlled by regulation 2037/2000.

The REACH regulation (1907/2006) is about registration, evaluation, authorisation and restriction of chemicals. The restriction part of the regulation replaced the substance restrictions of the directive 76/769/EEC and its amendments on 1 June 2009. The REACH regulation will harmonize the chemical restriction as member states may not maintain more stringent restrictions from 1 June 2013.

When it comes to the requirements set by the REACH regulation, Helvar is considered as a downstream user. The main responsibilities of a downstream user are to know what substances they use and what are the requirements for them, to follow the instructions in the safety data sheets and in the exposure scenarios, and to comply with the bans and restrictions in force. Downstream users must ensure that the manufacturer or importer registers the substance for the use of a downstream user. Information on safety and use must be communicated upstream and downstream in the supply chain.

In addition, the REACH regulation sets a requirement for suppliers of an article to inform the recipient of the article about the substances of very high concern (SVHC) in the article. European Chemicals Agency publishes the list of SVHC. As the SVHC list is constantly changing, it requires frequent follow-up. The actions concerning the REACH requirements are ongoing at Helvar. SVHCs in the products are being investigated. No SVHCs on the current list are present in Helvar products.

The requirements for batteries

Helvar places on the market also a remote control that includes batteries. Batteries are classified as hazardous waste and have their own legislation regarding substance restrictions and disposal: directives 91/175/EEC, 98/101/EC and 2006/66/EC. Batteries in Helvar products comply with the requirements in these directives.

Helvar Products

Environmental issues are related to Helvar products in many ways. In the production phase, important environmental issues are energy consumption, the use of chemicals and raw materials and the generation of waste. Fluorescent and HID lamps as energy efficient light sources combined with energy efficient Helvar ballasts and lighting control components enable significant reduction in energy consumption during use.

When it comes to disposing of products, appropriate end-of-life treatment is crucial to ensure efficient material recovery. Information on the structure and material content is needed to dispose of the products correctly. In addition to the recycling of the product itself, the reuse and recovery of packaging materials should be considered, since raw materials and energy are bound to packaging.

Production

Helvar products are manufactured in own production facilities or by subcontractors. Subcontractors are assessed on the basis of the same standards and requirements as our own production. Helvar demands the subcontractors of products to have ISO 9001 certification.

The production lines in Karkkila are highly efficient and automated. The efficiency in the manufacturing processes in both factories includes not only fast, energy efficient production, but also the reduction of emissions and waste. The environmental management system aims to reduce emissions and waste. The documented procedures ensure that the generated waste is carefully sorted and recycled.

All the materials and components used in Helvar products are RoHS compliant. Especially when it comes to electronic ballasts, the material requirements of RoHS have significantly influenced the production. Solder was changed to be RoHS compliant in 2006. No-clean fluxes are used in the soldering process in all electronic products of Helvar so that the need for CFC or other dissolvent chemicals is eliminated.

In the electronics factory in Karkkila the waste minimization is taken to a higher level. The dross generated in the soldering process is separated from the used solder by a solder dross recycling machine. The separated solder can be reused. Solder dross separation reduces the need for raw material and the generation of waste.

Manufacturing processes at Helvar factories have low emissions. The only emission to have some significance is the VOC emission from resin and from stamping fluid in the magnetic ballast factory. The amount of VOC emissions is monitored according to environmental permit, and it has been reduced by about half in the last 15 years.

In the disposal of the product at the end-of-life, product weight plays an important role. The lighter the product the less material there is to be disposed of. By the means of product development, the weight and the amount of components in electronic ballasts have been reduced in a new generation of electronic ballasts.

Helvar puts effort into reducing the energy consumption of its own premises. Helvar signed the voluntary energy efficiency agreement in business and industry in 2007. The agreement is part of a program to reach the target of 9% reduction in energy consumption 2008-2016 set by directive 2006/32/EC (Energy End-use Efficiency and Energy Services). Several energy saving projects have been launched in Helvar.

Structure of Helvar products

Helvar products are electrical and electronic equipment, and the waste from them should be treated as such.

Magnetic ballasts
More than 95 % of the weight of magnetic ballasts for linear and compact fluorescent lamps and for high intensity discharge lamps comes from copper and steel. The rest of the weight consists of aluminium, tin and organic insulation materials. Organic insulation materials are mainly polyamides used in the injection moulded parts, polyester, paper and aramide insulation films, polyester and polyamide-imide resins used as the wire insulation and impregnation resin.

Ignitors
An ignitor contains a printed circuit board (PCB), plastic casing, screw terminal and screw. The screw at the bottom of the ignitor is made of aluminium alloy. The casing and the plastic part of screw terminal are made of polyamide. The assembled PCB is inserted into the casing which is then filled with epoxy resin. Thus the ignitor can not be disassembled.

Electronic ballasts
Electronic ballasts consist of a housing lid and case, a PCB and a polyester insulation sheet. The housing lid and case of electronic ballast for fluorescent lamp are made of steel. Helvar's product range includes electronic ballasts for compact fluorescent lamps also with polycarbonate housing. Electronic ballasts for HID lamps have an aluminium case.

Sensors
Helvar manufactures three types of lighting sensors: MIMO2, Minisensor2 and Multisensor. The MIMO2 includes a plastic housing, mounting bracket and a populated PCB.

The Multisensor consists of a plastic housing, two PCBs and a plastic fresnel lens. The Minisensor2 includes a plastic housing, a PCB, a plastic fresnel lens and a wire.

Light dimmers
Helvar dimming products contain a housing (plastic or metal), aluminium heatsinks, copper chokes and one or more PCBs. Where an LCD display is fitted, it may require removal and separate treatment.

Other Lighting Control Products
Other Helvar products, such as routers, controllers, converters, panels and so on, contain mainly a housing (plastic (Halogen Free) metal) and one or more PCBs. Where an LCD display is fitted, it may require removal and separate treatment.

Printed circuit boards in Helvar products
Printed circuit boards are used in electronic ballasts, ignitors and lighting control products. As the PCB and the electronic components attached to it contain a variety of different substances, usually a small amount of each scattered around the PCB, the populated PCB is the most challenging part of Helvar products when it comes to material recovery. Environmentally relevant substances may be difficult to separate and efficiently recover from a PCB.

Helvar and ecodesign

Ecological product design is a method for developing more environmentally friendly products. Ecodesign measures differ depending on which environmental aspects are considered the most important in the particular case. Basic ecodesign principles are to reduce the use of natural resources, to minimize the use of hazardous substances, to reduce the waste and emissions, to optimize the product's working life and to increase recycling and recyclability.

Helvar has undertaken consistent ecodesign and is systematically reducing the use of hazardous substances in its products. Helvar has also studied the most important environmental aspects of ballasts through life cycle assessment in order to be able to address ecodesign measures at the correct design phases.

Environmental aspects of ballasts

A life cycle assessment (LCA) is a method for evaluating the environmental aspects of a product or service during its life cycle. The total life cycle includes all the phases of a product's life from raw material acquisition to end-of-life. An example of life cycle phases is presented in the figure 1.

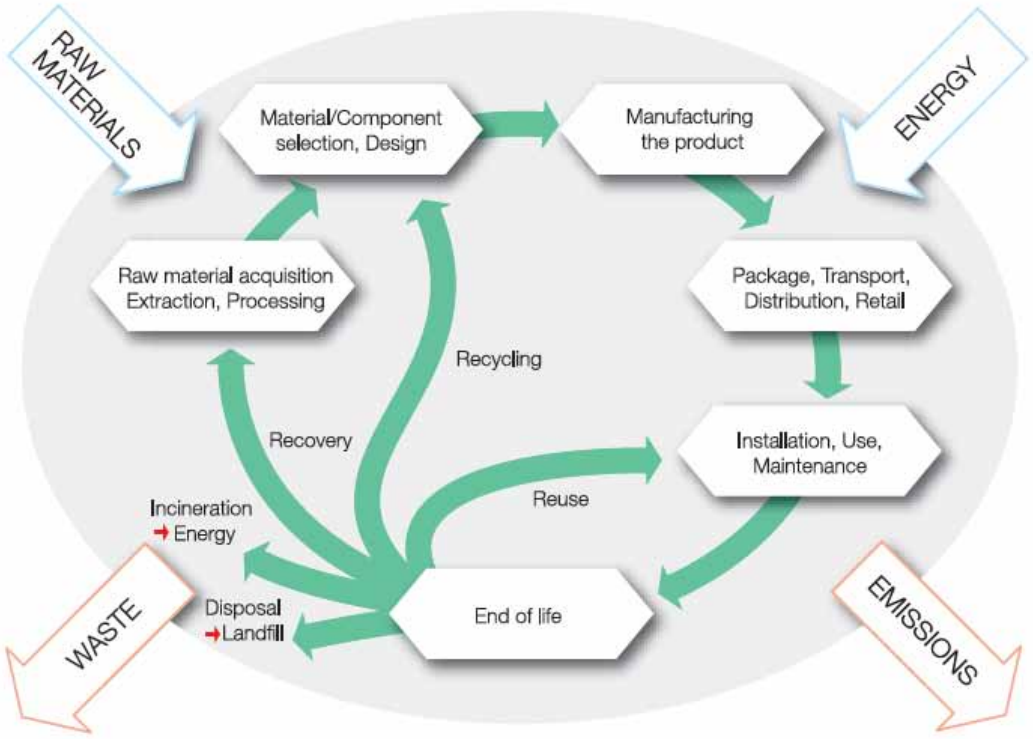


Figure 1. Life cycle phases

The latest LCA of the environmental aspects of magnetic and electronic ballasts has been done in 2007(*). Six environmental impact categories and three single scale indicators were taken into consideration in the LCA. The environmental impact categories were primary energy, global warming, acidification, eutrophication, ozone layer depletion and photochemical ozone creation. The single scale indexes used were EI95, EI99 and CML2001. Single scale indexes emphasize the environmental impact categories in different ways. EI95 emphasizes air releases (SO_2 and CO_2 equivalents), EI99 concentrates on respiratory effects and climate change, and CML2001 considers mainly global warming and acidification.

The LCA of ballasts shows two main results:

1. The energy consumption during use phase accounts for the majority, over 98 %, of the environmental impacts caused during the entire life cycle. This applies to both magnetic and electronic ballasts.

2. Electronic ballasts have about 18% lower total environmental impacts than magnetic ballasts (see figure 2).

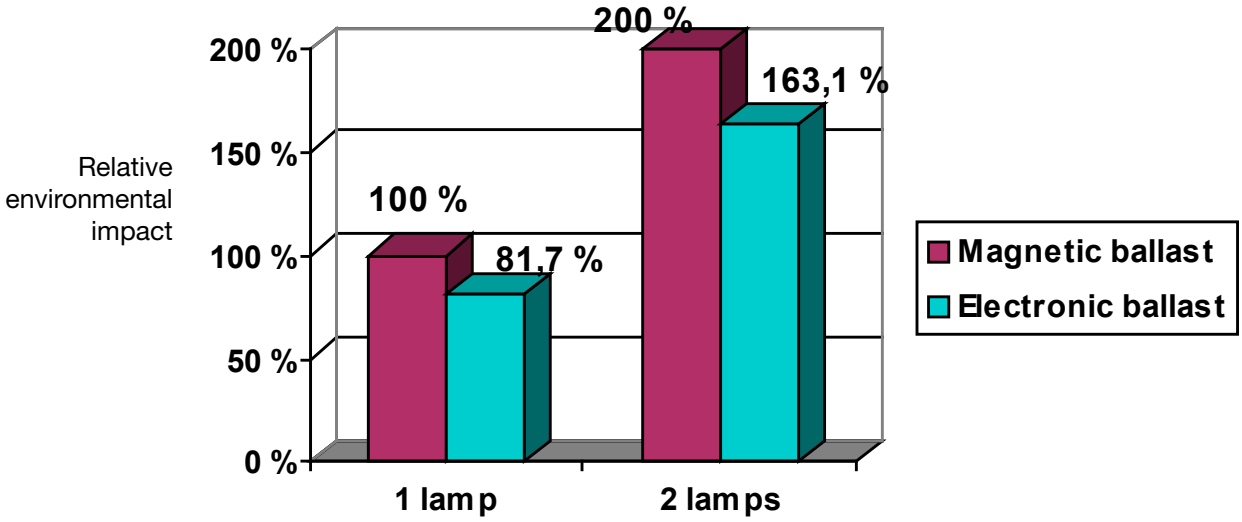


Figure 2. The comparison of environmental impacts of magnetic and electronic ballasts with one or two lamps. 100 % represents the environmental impacts of a magnetic ballast and a T8 lamp (36 W) during the life cycle. The impacts are calculated as an average of six environmental impact categories and three single scale indexes.

(*) Valkama, J. 2007. Life Cycle Assessment for Lighting Systems with Magnetic, Electronic and Adjustable Electronic Ballasts of Helvar. Tampere, Tampere University of Technology, Institute of Electronics. 89 p.

Using controllable electronic ballasts and lighting control devices, such as sensors, lowers the environmental impact of lighting as it reduces the energy consumption in the use phase. Figure 3 shows the difference between the energy consumption of different lamp-ballast circuits. Magnetic ballasts with T8 lamps (2x58W) is the base case with which other options are compared. Standard electronic ballasts with T8 lamps (2x58W) have about 25 % lower energy consumption. Controllable electronic ballasts with T5 lamps (2x49W), occupancy sensor and constant light detector have significantly lower energy consumption, up to 80 % compared to magnetic ballasts with T8 lamps.

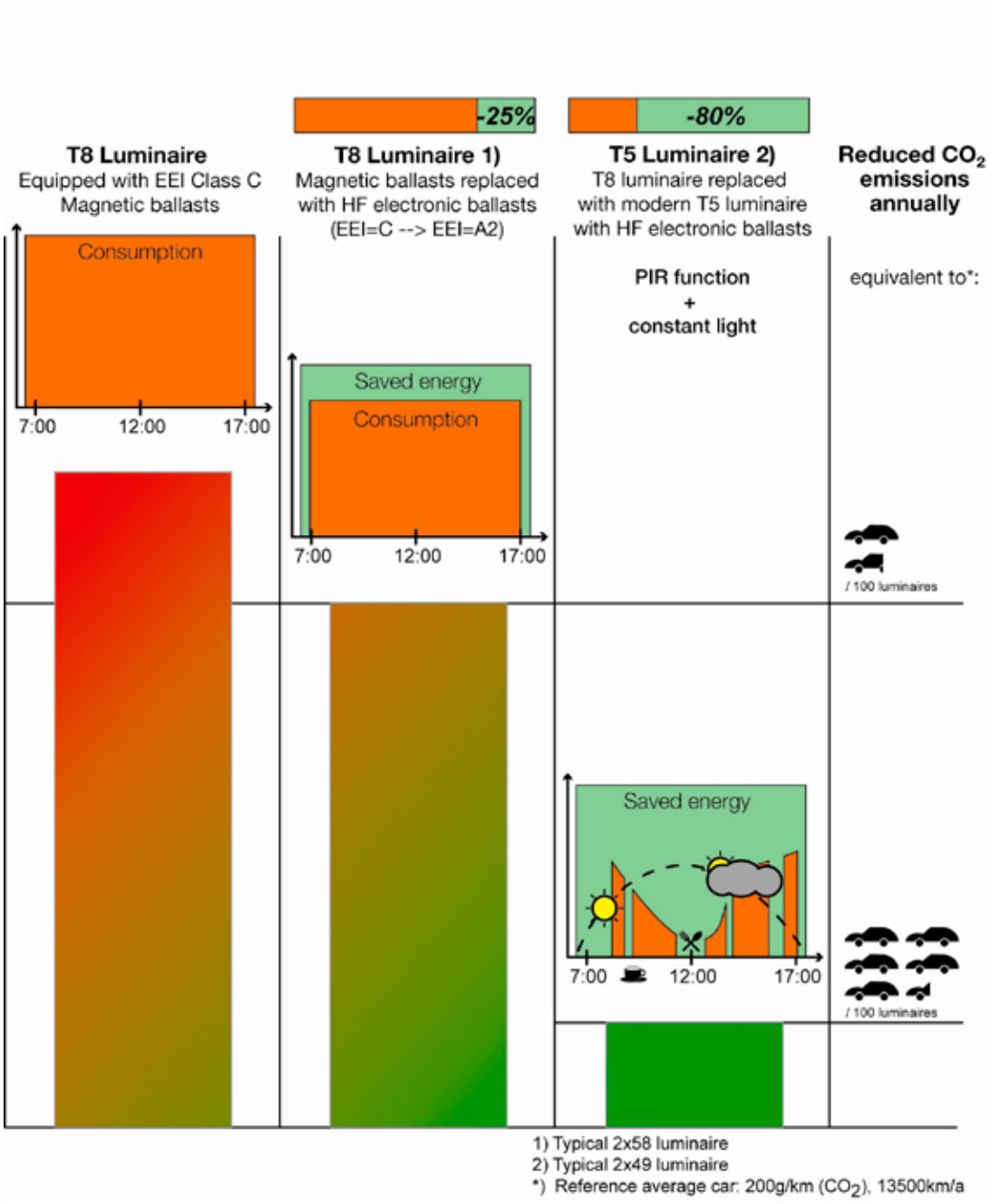


Figure 3. Energy consumption of 3 different lamp ballast circuit.

Energy saving

Energy consumption has diverse impacts on the environment depending on the energy source. Nevertheless, energy consumption is very often the most important environmental aspect of electrical and electronic equipment. Energy efficiency and the reduction of energy consumption have a significant meaning in environmental protection. The energy saving features of Helvar lighting control products help the end user to be more environmentally friendly.

Energy can be saved in many ways in lighting. The cornerstone is energy efficient equipment, for instance energy efficient light sources such as fluorescent or HID lamps. The use of lighting control may significantly reduce the energy consumption.

Lighting can be controlled automatically by timers, according to occupancy or daylight. Helvar manufactures a wide range of lighting control components including presence detectors and constant light sensors both of which can contribute to significant energy savings, for example in office buildings and in production facilities and storage areas.

A presence detector monitors the occupancy of the area and dims or switches the lighting off accordingly. A constant light sensor adjusts the artificial lighting so that the desired light level, for example on the surface of a table, is created by combining artificial lighting and daylight. The reduction in energy consumption gained by daylight depends strongly on architecture, geographical location, direction, windows etc. Figure 4 shows two examples of how artificial lighting can be adjusted in an office room: by timer or by presence detector and constant light sensor.

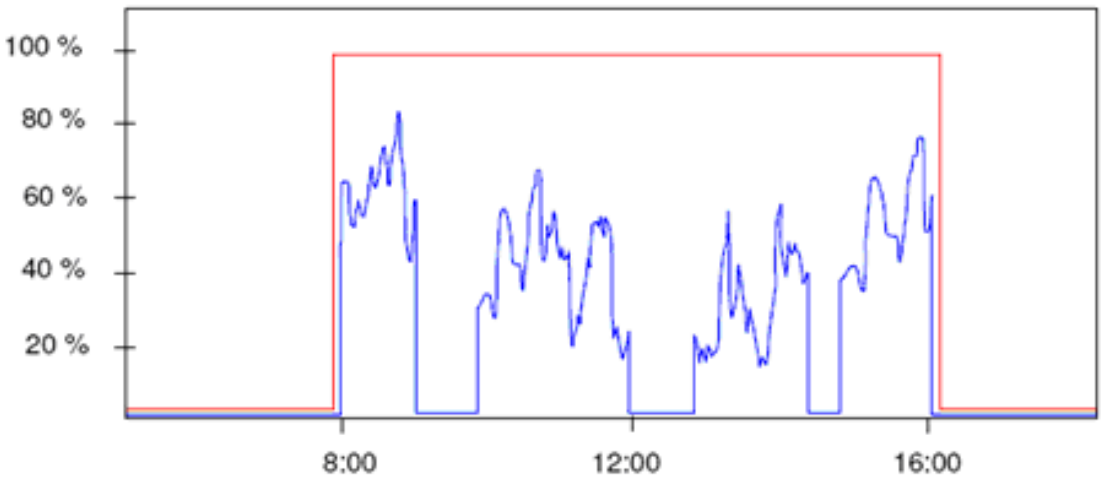


Figure 4. An example of light level created by artificial lighting in an office room. The red line represents the light level when preset time schedule is used. The blue line represents a case where both presence detector and constant light sensor are used. The energy consumption of artificial lighting is reduced as the lights are switched off and dimmed by lighting control products.

The use of lighting controls drops energy consumption significantly. Generally, dimming lighting according to daylight reduces the energy consumption by 10 %, and according to occupancy by 20 %. The savings vary strongly case by case, depending on the lighting design, lighting equipment, the architecture and the use of the space.

In addition to reduced energy consumption, dimming the lights has another benefit: the temperature in a luminaire will decrease. Consequently, the energy needed for air conditioning will drop.

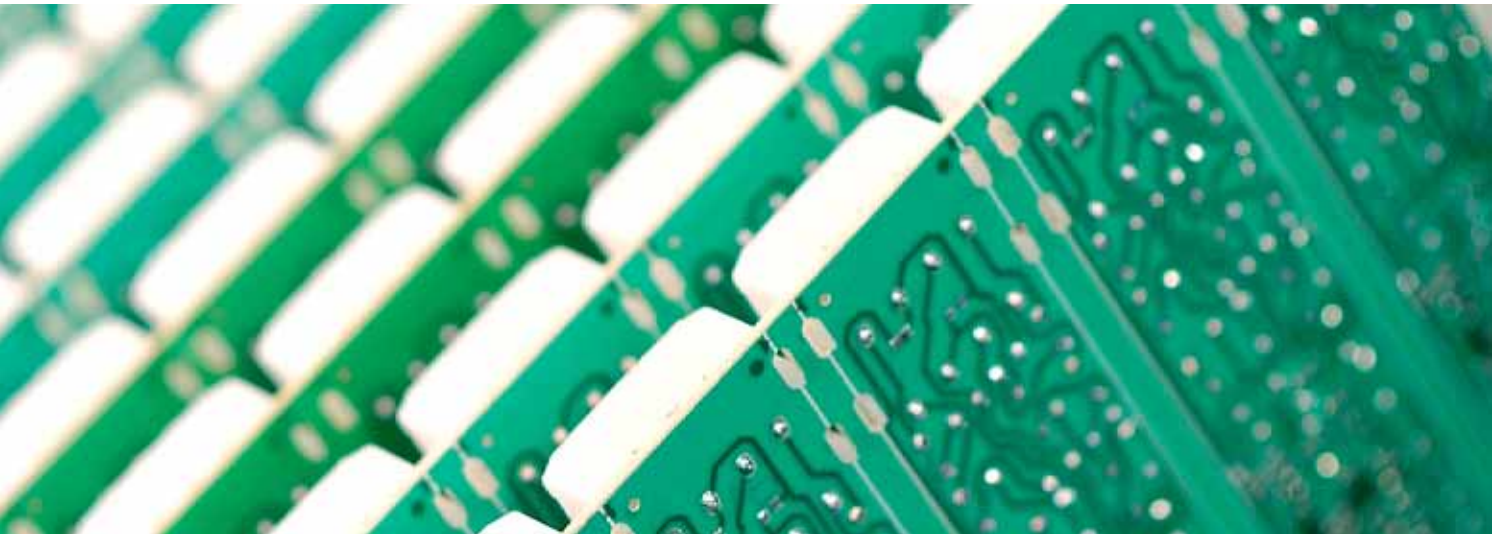
Energy saving contributes to lower environmental impacts: climate change slows down, emissions are reduced, less natural resources are used, and the environment becomes cleaner. In addition to environmental impacts, energy saving has socio-economic impacts. It lowers the operating costs of products and increases the security of energy supplies.

Material contents

The material content of Helvar products is based on legislative requirements. Helvar uses only those components and materials complying with the RoHS directive.

Energy consumption is by far the most important environmental aspect of Helvar products according to LCAs. However, the material content of a product is significant when it comes to the consumption of natural resources. The amount of non-renewable resources is limited. It is important to recycle non-renewable material. The use of material should not be excessive or in vain. Developing products that contain less material and enhancing the recycling of materials both contribute to more efficient use of natural resources.

Helvar products containing printed circuit boards have complex material contents. As it is banned to use lead in solder, the temperature in the soldering process has risen, which challenges the flame retardant substances. Only the allowed flame retardants are used in Helvar products. The magnetic ballast has a very simple material content. It mainly contains metals that are easily separated and efficiently recycled.



Packaging

Packaging is needed for bundling up and protecting the products during transportation, storage and marketing. Packaging materials must be strong enough to protect the products. As packaging materials are discarded after the product is taken into use, the packaging material should be reusable, recyclable or recoverable for the sake of the environment.

Helvar uses reusable, recyclable and recoverable packaging materials. The amount of packaging material is minimized but sufficient protection of the products is still ensured.

Helvar uses reusable and recyclable materials, e.g. wooden pallets and cardboard, in packaging wherever possible. If material can not be reused as such, the material contents may be recovered by recycling, and the energy content can be recovered by incineration. The packaging materials used by Helvar are listed in table 1.

Packaging material	**Material**	**Proposed disposal method**
Packing base	Corrugated board	1. Cardboard recycling 2. Energy recovery
Plastic film	Low density polyethylene	Energy recovery
Shrink-wrap	Low density polyethylene	Energy recovery
Plastic bubble wrap (cushioning material)	Low density polyethylene	Energy recovery
Styrox pieces (cushioning material)	Polystyrene	Energy recovery
Brown paper (cushioning material)	Paper	Energy recovery
Plastic strap, green	Polyethylene terephthalate (polyester)	Energy recovery
Steel band, black	Painted steel	Metal recycling
Plastic strap, black	Polypropylene	Energy recovery
Angle cover	Cardboard	1. Cardboard recycling 2. Energy recovery
Box	Cardboard	1. Cardboard recycling 2. Energy recovery
Plastic-coated board	Cardboard, polyethylene coating	Energy recovery
Board	Corrugated board	1. Cardboard recycling 2. Energy recovery
Tape	Polypropylene	Energy recovery
One-way pallet	Wood	Energy recovery
EURO pallet	Wood	1. Reuse 2. Recycle 3. Energy recovery
Inflatable air pillow (Fill-Air®)	Low density polyethylene (LDPE 4)	1. Reuse 2. Energy recovery
Stratocell®	Polyethene foam	1. Reuse 2. Energy recovery
Plastic strap, Yellow	Polyethylene terephthalate (polyester)	1. Reuse 2. Energy recovery

Table 1. Packaging materials used by Helvar, and proposals for their disposal.

The above proposed disposal methods are recommendations only. Always follow the instructions of the local authorities for packaging disposal in your area!

Packing of volume products

Helvar ballasts are loaded on a Euro-pallet or one way pallet. Polyethylene film is used on the bottom and top layer of products. Polyethylene film or cardboard is used between the layers of ballasts. Cardboard is used as an angle cover. The material that is used to wrap the pallet is polyethylene shrink-wrap. Pallets are bound with a steel packing strap.

Plastic strapping is used to secure the goods to the pallet and where appro-priate polyethylene shrink-wrap is used for protection.

All wooden pallets used conform to the regulations for ISPM15 (Standard for Phytosanitary Measures).

Polyester and polypropylene straps are used to bind ballasts packages together. In some cases ballasts are packed in small cardboard boxes and polystyrene is used as filling material.

Country Code

Unique Registration Number

Forestry Commission Logo

IPPC Logo

Treatment Code

Packing of small volume products

Small amounts of Helvar ballasts and ignitors are packed in cardboard boxes. Paper, styrene pieces or plastic bubble wrap is used as cushioning material.

Inflatable air pillow (Fill-Air®) is used to fill the voids when placing products in to shipping boxes to aid cushioning during transport.

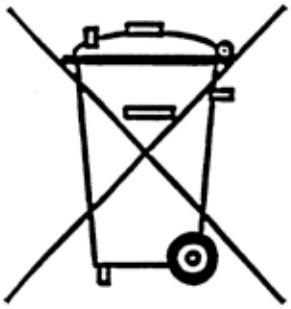
The DIGIDIM range of sensors, controls and din rail mount dimmers are packaged, along with instruction leaflets, in cardboard boxes. Some smaller optional items such as fascias and fixings are packed in low-density polyethylene bags.

DIGIDIM Wall mount dimmers are packed into cardboard boxes which incorporate cardboard end caps for transportation protection.

DIGIDIM rack and Imagine rack enclosures are packed into cardboard boxes along with Stratocell® endcaps for transport protection. Due to the weight of Imagine rack enclosures these are also shipped on wooden pallets.

Treatment of waste from Helvar products

The treatment of waste from Helvar products is subject to national laws and local regulations as well as EU-wide legislation. In order to save natural resources and the environment it is important to focus on recycling of the non-renewable resources. Helvar encourages the recycling of its products. In its own operations, Helvar acts to minimize the generation of waste.



Helvar products are classified as electrical and electronic waste, and they contain environmentally relevant substances. Big volumes of waste from Helvar electronic products should be sent to a company specializing in electronic scrap treatment and recycling, to ensure that the treatment of waste is carried out professionally.

At the end of their useful life, Helvar products should be taken to WEEE collection point. They should not be disposed of as part of mixed municipal waste. For further information on where to place the waste product, please contact the distributor or local Helvar sales office.

Magnetic ballasts
The materials used in the magnetic ballast are almost 100% recyclable. Magnetic ballasts are easy to recycle as they contain only few different materials. Scrap magnetic ballasts should be sent to companies specialized in the treatment of metal scrap.

Ignitors
Ignitors should be shredded and reprocessed. Major metals (Cu, Fe, Ni, Al, Zn and Sn) should be recovered and the rest of the metals chemically bonded to ashes. The plastic casing and plastic part of the screw terminal are suitable for energy recovery.

Electronic products
Different materials from electronic products should be separated. Parts suitable for metal scrap, such as the lid and case, chassis, heatsink, chokes, panel and shield, should be recycled. The aluminium housing lid and case of electronic ballast for HID lamp are suitable for scrap aluminium material.

Plastic parts, such as the insulation sheet, plastic frame and housing, are suitable for energy recovery. The plastic housing of electronic ballasts for compact fluorescent lamps is suitable for melting and reshaping as it is made of thermoplastic polycarbonate.

The printed circuit board must be removed from the electronic device if the surface is greater than 10 cm^2. The PCB with components can be shredded and reprocessed. Major metals should be recovered, and the rest of the metals are chemically bonded to the ashes.

Batteries
The IR remote controller is powered by 2xIEC, LR03/AAA batteries. The batteries should be taken to a battery collection point. Different battery types may require different disposal methods. Please check how your batteries should be disposed of.

Terms

Disposal	Final placement or destruction of waste
Energy recovery	The use of combustible waste to generate energy through incineration and recovering the heat
Environmental aspect	Element or function of a product, service or organization's activities that can have environmental impact
Environmental impact	Any change to the environment wholly or partially resulting from a product, service or organization's activities
EuP	Energy using product, EuP directive 2005/32/EC is about the ecodesign requirements for energy using products
Flux	Chemical composition for removing unwanted oxide film on the surface of the metal and for heat transferring
Hazardous waste	Waste that by reason of its chemical reactivity or toxic, explosive, corrosive, radioactive, intractable, or other characteristics causes or is likely to cause danger to health or the environment
HID	High intensity discharge lamp
Implementing measure	Regarding the EuP directive: a measure laying down ecodesign requirements for defined energy using products or for environmental aspects thereof
Impregnation resin	Material used to protect magnetic ballast against e.g. corrosion
Life cycle	Consecutive and interlinked stages from product's raw material acquisition to final disposal
Life cycle assessment	An evaluation of the environmental impacts of a product or service throughout its life cycle
No-clean flux	A type of flux that does not need to be cleaned after soldering
Non-renewable resources	Natural resources that are finite in quantity and cannot be renewed naturally, e.g. fossil fuels
PCB	Printed circuit board
Producer	Any person who manufactures and sells products under his own brand, resells under his own brand or professionally imports or exports products
Recovery	The extraction of useful materials or energy from waste, e.g. metals, glass and paper
Recycling	Reprocessing of waste material for the original or other purposes excluding energy recovery
Reuse	Any operation by which a product or a component, having reached the end of its first use, is used in its original form for the same purpose for which it was conceived
RoHS	Restriction of certain hazardous substances, directive 2002/95/EC
Scrap	Discarded waste material that contains metals suitable for reprocessing
Shredding	Tearing the material into pieces
VOC	Volatile organic compounds
Waste	Any refuse or waste material which the holder discards or intends or is required to discard
WEEE	Waste electrical and electronic equipment, directive 2002/95/EC

Annex 1
Environmentally related EU legislation that Helvar complies with

Legislation number	Name of the directive or regulation	Additional information
1907/2006	Regulation concerning the registration, evaluation, authorisation and restriction of chemicals (the REACH regulation)	Replaced the material restrictions of 76/769/EEC from 1.6.2009
2005/32/EC	Framework directive for the setting of ecodesign requirements for energy-using products (the EuP directive)	Considers luminaire as a product; ballasts and lighting control electronics are components of a luminaire
2002/96/EC	Waste electrical and electronic equipment (the WEEE directive)	Ballasts and lighting control electronics are considered as components of luminaires
2002/95/EC	Restriction of the use of certain hazardous substances in electrical and electronic equipment (the RoHS directive)	Ballasts and lighting control electronics are considered as components of luminaires
2000/55/EC	Energy efficiency requirements for ballasts for fluorescent lighting	Energy efficiency categories are changed due to tertiary sector regulation under the EuP directive
2037/2000	Regulation on the substances that deplete ozone layer	Applies to production, importation, exportation, placing on the market, use, recovery, recycling and reclamation and destruction of ozone depleting substances
76/769/EEC	Approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations	Amended numerous times by many directives; replaced by REACH regulation (restriction part) from 1.6.2009.
2006/66/EC	Directive on batteries and accumulators and waste batteries and accumulators	Replaced 91/157/EEC from 26.9.2008
91/157/EEC	Directive on batteries and accumulators containing certain dangerous substances	Repealed with effect from 26.9.2008 and replaced by 2006/66/EC
98/101/EC	Directive adapting 91/157/EEC to technical progress	Repealed with effect from 26.9.2008 and replaced by 2006/66/EC

Annex 2
Hazardous substances restricted by EU legislation and complied with by Helvar

Substance	Threshold value (wt%)	Legislation	Specification
Lead	0,1	RoHS	in homogeneous material
Mercury	0,1	RoHS	in homogeneous material
Cadmium	0,01	RoHS, 76/769/EEC*	in homogeneous material
Chromium VI	0,1	RoHS	in homogeneous material
Polybrominated biphenyls (PBBs)	0,1	RoHS	in homogeneous material
Polybrominated diphenyl ethers (PBDEs)	0,1	RoHS	in homogeneous material
Polychlorinated biphenyls (except mono- and dichlorinated biphenyls)	0	76/769/EEC*	Everywhere (not specified)
Polychlorinated terphenyls (PCTs)	0	76/769/EEC*	Everywhere (not specified)
Monomethyl-tetrachloridiphenyl methane (trade name Ugilec 141)	0	76/769/EEC*	Prohibited to market and use of this substance and preparations and products containing it
Monomethyl-dichloro-diphenyl methane (trade name Ugilec 121, Ugilec 21)	0	76/769/EEC*	Prohibited to market and use of this substance and preparations and products containing it
Monomethyl-dibromo-diphenyl methane (trade name DBBT)	0	76/769/EEC*	Prohibited to market and use of this substance and preparations and products containing it
Perfluorooctane sulfonates (PFOS)	0,1	76/769/EEC*	Prohibited to place on the market in semi-finished products or articles, or parts thereof
Asbestos fibres: crocidolite, amosite, anthophyllite, actinolite, tremolite, chrysotile	Banned if intentionally added	76/769/EEC*	Prohibited to place on market and use these fibres and products containing these fibres intentionally added
Mercury in batteries (except button cells)	0,0005	76/769/EEC*	Prohibited to market batteries and accumulators containing mercury more than 0,0005wt%
Cadmium in batteries	0,025	76/769/EEC*	Prohibited to place on the market
Lead in batteries	0,4	76/769/EEC*	Prohibited to place on the market
Chlorofluorocarbons	0	2037/2000	
Other fully halogenated chlorofluorocarbon	0	2037/2000	
Halons	0	2037/2000	
Carbon tetrachloride	0	2037/2000	
1,1,1-trichloroethane	0	2037/2000	
Methyl bromide	0	2037/2000	
Hydrobromofluorocarbons	0	2037/2000	
Hydrochlorofluorocarbons	0	2037/2000	
Bromochloromethane (Halon 1011)	0	2037/2000	

*) and its amendments; this is replaced by REACH regulation from 1.6.2009

Helvar

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