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Life-cycle assessment proves how environmentally friendly LED lamps are

OSRAM Opto Semiconductors shows the results of a complete LCA for LED lamps

A study on the life-cycle assessment (LCA) of LED lamps by OSRAM shows the latest generation of lamps achieves a very high score for environmental friendliness. This study involved a close look at their entire life-cycle – how much energy and raw materials the lamp consumes in terms of production, use and disposal and the environmental impact involved in the process. The result was that today's LED lamps achieve the LCA values of compact fluorescent lights and are far superior to conventional incandescent lamps.

In order to evaluate lamps and how they actually deal with energy and resources, it is not enough just to consider energy consumption while they are in use. The aim of OSRAM Opto Semiconductors' LCA is therefore to analyse the environmental impact of an LED lamp over its entire life and to compare it with a compact fluorescent lamp and an incandescent lamp. The relevant material and energy supplies were determined in detail for all the LED lamp's components and production processes. Apart from a detailed analysis of each individual production stage, for LED chips and lamp housings, for example, these also include all necessary transports such as the transport of an LED lamp from its production site in China to its place of installation in Europe.

Apart from direct input of raw materials, the energy input, materials and emissions associated with the retrieval of resources are recorded. The results allow for conclusions not only on resource consumption and primary energy input but also acidification, eutrophication, the greenhouse effect, ozone depletion and toxicity.

The bottom line is that LED are efficient

In the first LCA, OSRAM Opto Semiconductors show that LED lamps are a genuine alternative to incandescent lamps, even when considering the cumulative energy input and environmental factors.

Often these fundamentally different lamps were compared based on their wattage. Conventional lamps with filaments are way behind diode lamps. A 40 Watt incandescent lamp, for example, can either be replaced by an 8W compact fluorescent light or, for some applications, by an 8W LED lamp, which means an energy saving of 80 percent.

In order to guarantee the comparability of results in the LCA, a lifetime of 25,000 hours was chosen as reference. The latest LED lamp generation (Parathom Classic A55 with Golden Dragon Plus LED) achieves precisely this rating. Therefore, 25 incandescent lamps (OSRAM Classic A 40W) with a lifetime of 1,000 hours and 2.5 fluorescent lamps (Dulux Superstar Classic A 8W) lasting 10,000 hours have to be used for a comparison.

Over 98 percent of the energy used to produce light

The study was done in collaboration with experts at Siemens Corporate Technology, Centre for Eco Innovations and shows that similar to compact fluorescent lamps with LED-based lamps over 98% of the energy used is consumed to generate light. Less than two percent is allocated to production. This has dismissed any concern that manufacturing of LED particularly might be very energy-intensive. In contrast to the primary energy consumption of incandescent lamps of around 3,300kWh, LED lamps use less than 700kWh. The bottom line is that LED lamps are therefore definitely more efficient than conventional incandescent lamps. Apart from this, the ratings that indicate the lamps' effects on the environment are consistently better than those for incandescent lamps. As the efficiency of LED continues to increase, LED lamps will be capable of achieving even better LCA results in future. Three independent experts are currently verifying the findings of the internal study. A summary of the study will be available in October at www.osram-os.com/life-cycle-assessment.

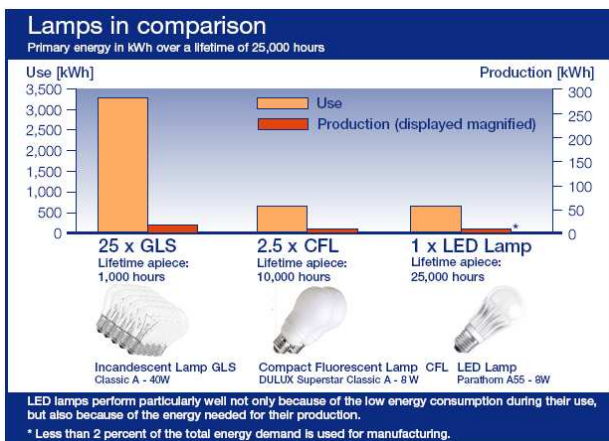


Image: OSRAM

http://www.osram.com/osram_com/News/index.html

www.osram-os.com/life-cycle-assessment

LEDs are not only forward-looking when it comes to power consumption. The total LCA also shows that the LED lamp is one of the most environmentally friendly lighting products.



Image: OSRAM

http://www.osram.com/osram_com/News/index.html

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The latest LED lamp generation (Parathom Classic A55 with Golden Dragon Plus LED) achieves a lifetime of 25,000 hours which equals 25 incandescent lamps.

ABOUT OSRAM

OSRAM is part of Siemens' Industry sector and is one of the world's two leading lighting manufacturers. In FY 2008 (to 30 September 2008) it generated business worth €4.6 billion, of which 88% was in other countries. OSRAM is a high-tech business in the lighting industry – over 65% of its business is in energy-efficient products today. This globally oriented company employs over 43,500 people worldwide, supplies customers in around 150 countries and manufactures at 46 production facilities in 17 countries.

About OSRAM Opto Semiconductors

OSRAM is part of the Industry sector of Siemens and one of the two leading lighting manufacturers in the world. Its subsidiary, OSRAM Opto Semiconductors GmbH in Regensburg (Germany), offers its customers solutions based on semiconductor technology for lighting, sensor and visualization applications. OSRAM Opto Semiconductors has production sites in Regensburg (Germany) and Penang (Malaysia). Its headquarters for North America is in Sunnyvale (USA), and for Asia in Hong Kong. OSRAM Opto Semiconductors also has sales offices throughout the world. In the 2008 fiscal year (to the end of September) OSRAM Opto Semiconductors employed more than 4600 people and achieved sales totaling 529 million euros. For more information go to www.osram-os.com.

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