

Statement of Verification

BREG EN EPD No.: 000382

Issue 02

This is to verify that the

Environmental Product Declaration

provided by:

Dialight

is in accordance with the requirements of:

EN 15804:2012+A1:2013

and

BRE Global Scheme Document SD207

This declaration is for:

Vigilant High Bay Light



Company Address

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Signed for BRE Global Ltd

Emma Baker

Operator

17 December 2021

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11 October 2021

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Expiry Date



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Environmental Product Declaration

EPD Number: 000382

General Information

EPD Programme Operator	Applicable Product Category Rules
BRE Global Watford, Herts WD25 9XX United Kingdom	BRE Environmental Profiles 2013 Product Category Rules for Type III environmental product declaration of construction products to EN 15804:2012+A1:2013
Commissioner of LCA study	LCA consultant/Tool
Dialight plc Leaf C, Level 36, Tower 42 25 Old Broad Street London EC2N 1HQ	Pat Hermon / BRE
Declared Unit	Applicability/Coverage
1 x Vigilant High Bay light unit weighing 11.1kg	Manufacturer specific product.
EPD Type	Background database
Cradle to Gate	ecoinvent v3.2
Demonstration of Verification	
CEN standard EN 15804 serves as the core PCR ^a	
Independent verification of the declaration and data according to EN ISO 14025:2010 <input type="checkbox"/> Internal <input checked="" type="checkbox"/> External	
(Where appropriate ^b)Third party verifier: Nigel Jones	
a: Product category rules b: Optional for business-to-business communication; mandatory for business-to-consumer communication (see EN ISO 14025:2010, 9.4)	
Comparability	
Environmental product declarations from different programmes may not be comparable if not compliant with EN 15804:2012+A1:2013. Comparability is further dependent on the specific product category rules, system boundaries and allocations, and background data sources. See Clause 5.3 of EN 15804:2012+A1:2013 for further guidance	

Information modules covered

Product			Construction		Use stage							End-of-life				Benefits and loads beyond the system boundary
					Related to the building fabric					Related to the building						
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Raw materials supply	Transport	Manufacturing	Transport to site	Construction – Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse, Recovery and/or Recycling potential
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: Ticks indicate the Information Modules declared.

Manufacturing site

Lirios S/N, Col. Carlos Pacheco,
Ensenada,
Baja California,
22830,
Mexico

Construction Product

Product Description

Dialight's Vigilant LED High Bay is a lighting unit used within heavy industry, manufacturing, power generation and cold storage. The Vigilant High Bay is durable, has corrosion-resistant housing, high CRI LEDs, has a purpose-built power supply and is backed by a 10-year warranty. It is designed for mounting heights up to 12m and comes with a wide range of mounting options, lenses and beam distributions.

Technical Information

Standard	Value, Unit
IEC 60509:1989 Rating IP66	Rated as "dust tight" and protected against heavy seas or powerful jets of water.
IEC 60509:1989 Rating IP67	Rated as "dust tight" and protected against immersion for 30 minutes at depths 150mm - 1000mm.
IEC 62262:2002 Rating IK05	Shell body can withstand the drop of a load of 0.25 kg from a height of 28 cm.
Certification Mark	CE, UL, RCM (depending on target market)
IES Rating L70	150,000 hours at 65 degrees C ambient.



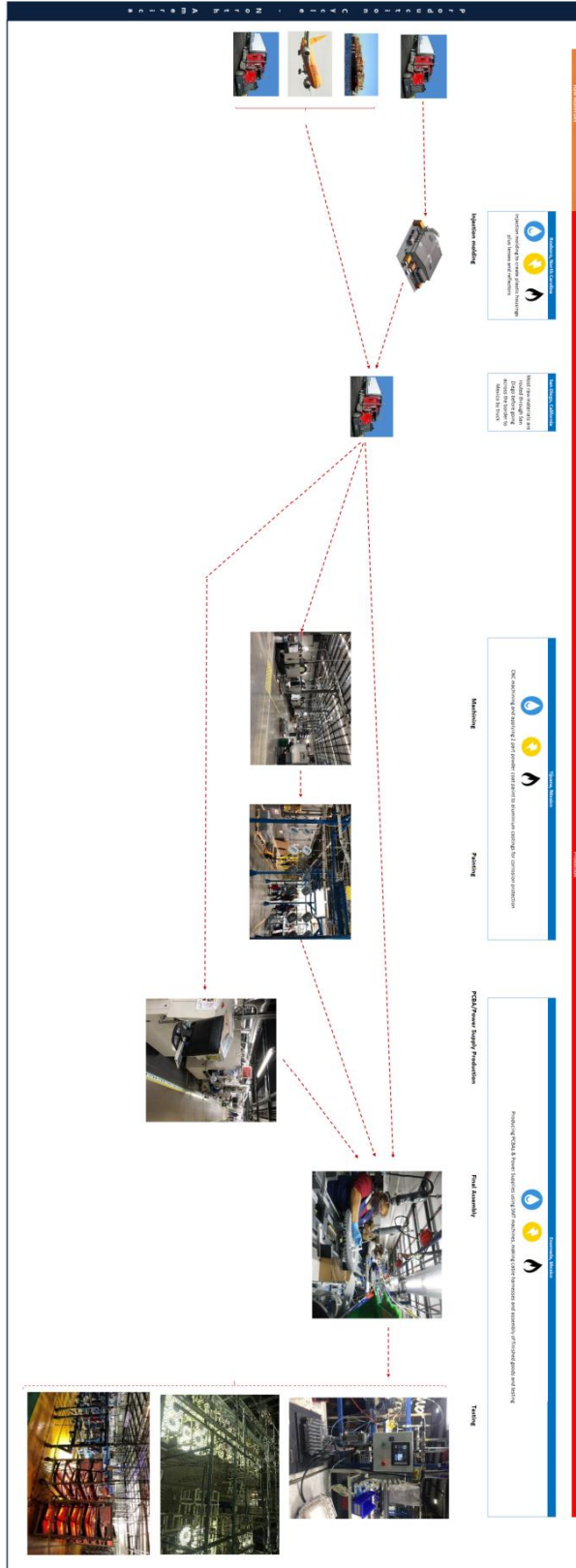
Main Product Contents

Material/Chemical Input	%
Aluminium Machined Housing	69.4
Power Supply	12.4
Lens	6.44
Light Engine	2.66
Cables	4.52
Other	4.58

Manufacturing Process

This is an assembly process where major sub-components that are pre-built (by 3rd parties) to Dialight specifications are assembled and tested to ensure compliance with the relevant electrical standard for the applicable target market.

Process flow diagram



Construction Installation

Dialight recommends that all installations should use secondary retention / netting (appropriate to the installation environment) as applicable. Dialight products are intended for ultimate purchase, installation and operation by knowledgeable persons trained in the functional assessment, installation, use and maintenance of such products and all customers (including but not limited to end customers) are responsible for assessing the suitability of Dialight products for any given installation requirement. It is the exclusive responsibility of the contractor, installer and/or end-user to:

- (a) Determine the suitability of the product for its intended application;
- (b) Ensure that the product is safely installed (with secondary retention / netting as appropriate) and in compliance with all applicable laws and regulations.

Use Information

Vigilant LED High Bay is an industrial LED light for use in heavy industry, power generation and stairwells, subways, escape routes. It carries no specific maintenance requirements and is expected to last beyond its 10 year life expectancy.

End of Life

The Vigilant High Bay products are warranted for 10 years but in reality, they are likely to continue to operate for considerably longer. The main avenue for recycling would be smelting and recasting of the aluminium body and this is available in most geographies today. Depending on the geographic location of the product, there are other recycling possibilities today. Using the WEEE scheme in Europe, we are also seeing electronic components being recycled today and it is likely that we will see similar availability in the US, Australia and Asia in the next few years.

Life Cycle Assessment Calculation Rules

Declared unit description

1 x Vigilant LED High Bay light unit weighing 11.1 kg

System boundary

This is a cradle-to-gate LCA, reporting all production life cycle stages of modules A1 to A3 in accordance with EN 15804:2012+A1:2013.

Data sources, quality and allocation

Vigilant LED High Bay is an industrial LED light system weighing 11.1 kg model (including packaging).

The product is manufactured in Ensenada Mexico from sub-assemblies made at Dialight feeder plants in Roxboro, North Carolina and Tijuana Mexico and also sub-assemblies made in the Ensenada plant. The product consists of five main sub-assemblies

- 1) The housing – this is aluminium and purchased from China pre-machined to c.95% of requirements. In the Tijuana plant, the final 5% of machining is done based on the specific SKU being produced. It is also painted in the Tijuana plant using a two-coat powder-coating process and this adds corrosive protection to the aluminium.
- 2) The lens/reflectors are normally manufactured at the Dialight facility in Roxboro using injection

- molding and metalising. For this product variation, the lens is glass so purchased but the reflectors are made in Roxboro.
- 3) Light Engine – this is a series of LEDs on a board made by using an SMT machine in Ensenada.
 - 4) Power Supply – this is an amalgam of dozens of electrical components that is manufactured using an SMT process in Ensenada.
 - 5) Cable harness – the internal wiring looms are assembled in Ensenada for each type of light by cutting wiring to specified lengths and applying requisite connectors.

Once these elements are available, the final process is assembly and testing which is largely a manual process.

The data supplied relates to the Ensenada Mexico site and covers a 12 month period – 1st January to 31st December 2020. The site manufactures other products in addition to Vigilant LED High Bay and values for energy, water, waste and wastewater have been allocated on mass basis as a percentage of total site production according to the provisions of the BRE PCR PN514 and EN 15804.

Secondary data has been drawn from the LCI datasets based on ecoinvent v3.2 (2015) cut-off.

Power supply components utilise the dataset “Electronic component, passive, unspecified {GLO}| market for | Alloc Def, S” as considered the most representative. All other chosen datasets represent direct matches to the materials specified

Cut-off criteria

All raw materials and energy input to the manufacturing process have been included, except for direct emissions to air, water and soil, which are not measured. The inventory process in this LCA includes all data related to raw material, packaging material and consumable items, and the associated transport to the manufacturing site. Process energy, water use and general waste are included. As the process is an assembly line, there is no direct production waste as faulty components are returned to the supplier.

LCA Results

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts

			GWP	ODP	AP	EP	POCP	ADPE	ADPF
			kg CO ₂ equiv.	kg CFC 11 equiv.	kg SO ₂ equiv.	kg (PO ₄) ³⁻ equiv.	kg C ₂ H ₄ equiv.	kg Sb equiv.	MJ, net calorific value.
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG	AGG	AGG	AGG
	Total (of product stage)	A1-3	358.16	2.66E-05	2.78	1.98	0.33	0.05	4837

GWP = Global Warming Potential;
 ODP = Ozone Depletion Potential;
 AP = Acidification Potential for Soil and Water;
 EP = Eutrophication Potential;

POCP = Formation potential of tropospheric Ozone;
 ADPE = Abiotic Depletion Potential – Elements;
 ADPF = Abiotic Depletion Potential – Fossil Fuels;

Parameters describing resource use, primary energy

			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG	AGG	AGG
	Total (of product stage)	A1-3	392	0.01	392	5114	0.00	5114

PERE = Use of renewable primary energy excluding renewable primary energy used as raw materials;
 PERM = Use of renewable primary energy resources used as raw materials;
 PERT = Total use of renewable primary energy resources;

PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials;
 PENRM = Use of non-renewable primary energy resources used as raw materials;
 PENRT = Total use of non-renewable primary energy resource

Parameters describing resource use, secondary materials and fuels, use of water

			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m ³
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG
	Total (of product stage)	A1-3	0.00E+00	0.00E+00	0.00E+00	7.18

SM = Use of secondary material;
 RSF = Use of renewable secondary fuels;

NRSF = Use of non-renewable secondary fuels;
 FW = Net use of fresh water

LCA Results (continued)

Other environmental information describing waste categories

			HWD	NHWD	RWD
			kg	kg	kg
Product stage	Raw material supply	A1	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG
	Total (of product stage)	A1-3	13.33	3.40	0.0022

HWD = Hazardous waste disposed;
 NHWD = Non-hazardous waste disposed;
 RWD = Radioactive waste disposed

Other environmental information describing output flows – at end of life

			CRU	MFR	MER	EE
			kg	kg	kg	MJ per energy carrier
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG
	Total (of product stage)	A1-3	0.00E+00	0.00	0.00E+00	0.00E+00

CRU = Components for reuse;
 MFR = Materials for recycling

MER = Materials for energy recovery;
 EE = Exported Energy

References

BSI. Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products. BS EN 15804:2012+A1:2013. London, BSI, 2013.

BSI. Environmental labels and declarations – Type III Environmental declarations – Principles and procedures. BS EN ISO 14025:2010 (exactly identical to ISO 14025:2006). London, BSI, 2010.

BSI. Environmental management – Life cycle assessment – Principles and framework. BS EN ISO 14040:2006. London, BSI, 2006.

BSI. Environmental management – Life cycle assessment – requirements and guidelines. BS EN ISO 14044:2006. London, BSI, 2006.

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Ecoinvent Centre. Swiss Centre for Life Cycle Inventories. <http://www.ecoinvent.org>