Statement of Verification

BREG EN EPD No.: 000408 Issue 01

This is to verify that the

Environmental Product Declaration

provided by:

Dialight

BRE Global Verified EPD

is in accordance with the requirements of:

EN 15804:2012+A1:2013

and

BRE Global Scheme Document SD207

This declaration is for:

Durosite Floodlight

Company Address

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Signed for BRE Global Ltd	Emma Baker Operator	27 January 2022 Date of this Issue
27 January 2022 Date of First Issue		26 January 2027 Expiry Date

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Environmental Product Declaration

EPD Number: 000408

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 / BRE LINA v2
Declared/Functional Unit	**Applicability/Coverage**
1 x Dialight Durosite Floodlight 13.6kg	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 ☐Internal ☒ 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
☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		☐

Note: Ticks indicate the Information Modules declared.

Manufacturing site(s)

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

Construction Product

Product Description

Dialight Durosite Floodlight LED light for use in warehouses, manufacturing, power generation and cold storage.

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 IK07	Shell body can withstand the drop of a load of 0.5 kg from a height of 40 cm.
Certification mark	CE, UL, RCM (depending on target market)
IES Rating L70	100,000 hours at 25 degrees C ambient

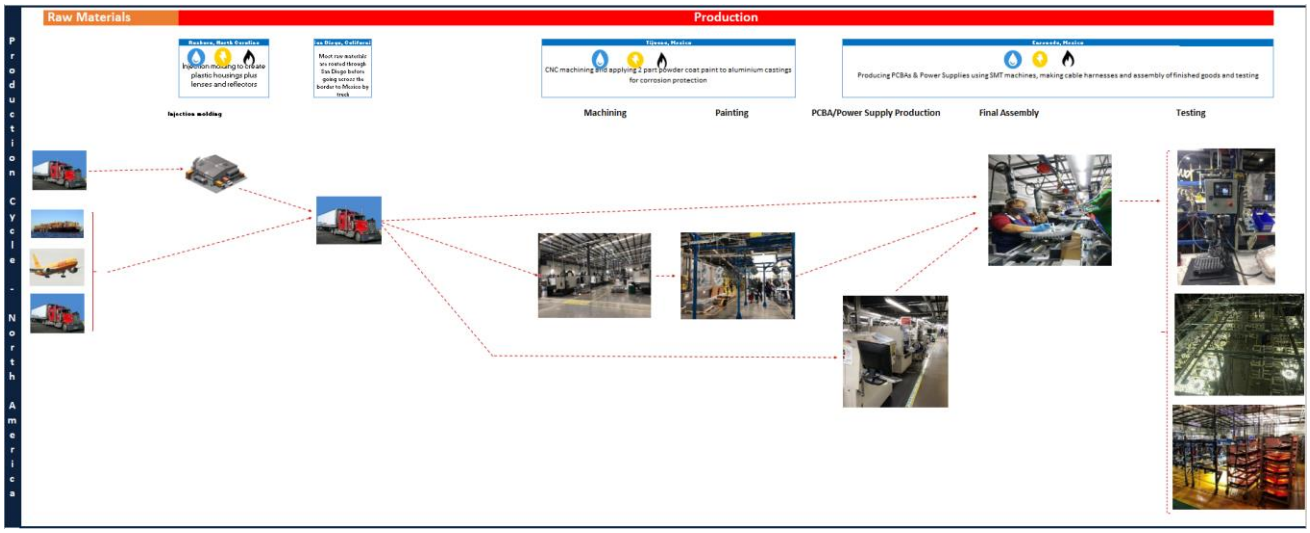
Main Product Contents

Material/Chemical Input	%
Aluminium Housing	60
Stainless steel bracket	13
Power supply	10
Lens Glass	10
Reflector	1.7
Cables	0.7
Light Engine	0.7
Electrical Various	3.7

Manufacturing Process

The lenses and reflectors are made in our plant in Roxboro, NC. When the product has a glass lens, this is purchased from a 3rd party. The aluminium castings are purchased part-machined and final machining and application of two coat protective powder coating is applied at the Tijuana facility. Wiring looms are made in Ensenada and all final assembly and testing also takes place in Ensenada.

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

The Durosite Floodlight is an industrial LED lighting fixture ideal for applications including Oil & Gas, Petrochemical, Chemical, Metals, Mining and Heavy Industrial operations requiring superior lighting for indoor and outdoor safety and security.

End of Life

The Durosite Floodlight is warranted for 10 years but in reality is likely to operate for considerably longer. This is up to five longer than some of the comparable legacy (non-led) fixtures sold by competitors. The options for recycling depend on the geographic location of the end user. Fixtures sold in Europe can be recycled under the Waste Electrical and Electronic Equipment (WEEE). There are no similar schemes in our other main markets but we have recyclers for aluminium in North America and Australia. Options for recycling of electrical components are not as widespread and currently are only available in Europe. Given the life of the product, we expect these options to be broader by the end of the fixture's life.

Life Cycle Assessment Calculation Rules

Declared unit description

1 x Dialight Durosite Floodlight weighing 13.6kg

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

Durosite industrial LED light system weighing 13.6 kg model (excl. packaging).

The product is manufactured in Ensenada, Mexico from both fully and part completed sub-assemblies and raw materials that have been fully or partly completed.

Once these elements are fully completed, the final product is assembled and tested which is largely a manual process.

The data supplied relates to the Ensenada site and covers a 12 month period – 1st January to 31st December 2020. The material data is based on individual Bill of Materials and components taken from the technical specification documents and drawings. The site manufactures other products in addition and values for energy, water, waste and wastewater have been allocated on mass basis as a percentage of total site production volume according to the provisions of the BRE PCR PN514 and EN 15804.

Secondary data has been drawn from the BRE LINA database v2.0.75 and the background LCI datasets are based on ecoinvent v3.2.

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_2H_4 equiv.	kg Sb equiv.	MJ, net calorific value.
Product stage	Raw material supply	A1	287	3.77E-05	2.45E+00	2.41E+00	3.55E-01	7.98E-02	4.01E+03
	Transport	A2	3.55	6.39E-07	2.53E-02	5.73E-03	2.57E-03	7.84E-06	5.31E+01
	Manufacturing	A3	23.9	1.99E-06	1.33E-01	2.57E-03	9.95E-03	2.51E-05	3.60E+02
	Total (of product stage)	A1-3	314	4.03E-05	2.61E+00	2.42E+00	3.68E-01	7.98E-02	4.42E+03

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	4.48E+02	1.55E-02	4.48E+02	4.35E+03	1.06E+01	4.36E+03
	Transport	A2	8.33E-01	2.42E-06	8.33E-01	5.31E+01	0.00E+00	5.31E+01
	Manufacturing	A3	3.99E+01	1.67E-05	3.99E+01	3.40E+02	0.00E+00	3.40E+02
	Total (of product stage)	A1-3	4.89E+02	1.55E-02	4.89E+02	4.74E+03	1.06E+01	4.75E+03

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	0.00E+00	0.00E+00	0.00E+00	5.05E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	1.19E-02
	Manufacturing	A3	0.00E+00	0.00E+00	0.00E+00	8.27E-02
	Total (of product stage)	A1-3	0.00E+00	0.00E+00	0.00E+00	5.14E+00

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	1.86E+01	6.25E+00	3.47E-03
	Transport	A2	2.29E-02	2.04E+00	3.65E-04
	Manufacturing	A3	8.64E-02	8.71E-01	1.10E-03
	Total (of product stage)	A1-3	1.87E+01	9.16E+00	4.94E-03

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	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Manufacturing	A3	0.00E+00	2.21E+00	0.00E+00	0.00E+00
	Total (of product stage)	A1-3	0.00E+00	2.21E+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.

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