

## Statement of Verification

BREG EN EPD No.: 000480

Issue 01

This is to verify that the  
**Environmental Product Declaration**  
provided by:  
**Philip Payne Ltd**



is in accordance with the requirements of:  
**EN 15804:2012+A1:2013**  
and  
**BRE Global Scheme Document SD207**

This declaration is for:  
**1 Unit of TYKA860DS emergency luminaire**

### Company Address

Philip Payne Ltd  
Thornhill House,  
Thornhill Road,  
Solihull,  
B91 2HB



Signed for BRE Global Ltd

Emma Baker  
Operator

03 April 2023  
Date of this Issue

03 April 2023  
Date of First Issue

02 April 2028  
Expiry Date



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## Environmental Product Declaration

EPD Number: 000480

### 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
Philip Payne Ltd Thornhill House, Thornhill Road, Solihull, B91 2HB	LCA consultant: Bala Subramanian Tool: BRE LINA v2.0
Declared/Functional Unit	Applicability/Coverage
1 Unit of TYKA860DS emergency luminaire	Product Specific.
EPD Type	Background database
Cradle to Gate	ecoinvent
Demonstration of Verification	
CEN standard EN 15804 serves as the core PCR <sup>a</sup>	
Independent verification of the declaration and data according to EN ISO 14025:2010 <input type="checkbox"/> Internal <input checked="" type="checkbox"/> External	
(Where appropriate <sup>b</sup> )Third party verifier: Pat Hermon	
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
A1	A2	A3	A4	A5	Related to the building fabric					Related to the building		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(s)

Philip Payne Ltd,  
Thornhill House,  
Thornhill Road,  
Solihull,  
B91 2HB

## Construction Product:

### Product Description

The TYKA860DS is an emergency luminaire, plays a critical role in building safety, particularly in an evacuation scenario. It is designed to provide prompt, automatic lighting in an emergency where the main power supply is cut, and the normal mains lighting fails. It can be switch on automatically when there is a power outage (known as non-maintained or standby lighting). Installation of TYKA860DS is very simple that fits discreetly through a minimal cut-out with the head on a flexible lead. The driver and the batteries are compactly contained within an articulated enclosure simplifying installation.

TYKE 860—Standard emergency luminaire (wired). Under the standard luminaire, three different variants are available, which are TYKE, TYKA, and TYKC, all of which are used for different applications. The only difference between the three products is the lens which can be changed based on usage and project requirements. In this EPD, TYKA860DS has been covered, which is used for covering "Area" with a lumen output of 200 lms.

### Technical Information

Properties/ Standards	Value, Unit
Weight	0.55 kg
Wattage	2 Watts
Drive current	600MA
TYKA lumen output	200lms

Properties/ Standards	Value, Unit
EN 60598-1	It is the definitive safety standard for luminaires. It specifies the essential electrical safety and performance requirements for all types of electrical luminaires with requirements for their design, construction, test, and performance.
EN 60598-2-22	It is the standard for luminaires for emergency lighting. Specifies requirements for emergency luminaires for use with electrical lamps on emergency power supplies not exceeding 1000 V. It gives general requirements for emergency lighting equipment. Gives technical specifications such as related terms and definitions, general test requirements, classification of luminaires, marking, construction, creepage distances and clearances, provisions for earthing, external and internal wiring, endurance test, thermal test, test devices for emergency operation, etc., for luminaires for emergency lighting.
EN 55015	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment.
EN 61547	Electromagnetic immunity requirements apply to lighting equipment such as lamps, auxiliaries, and luminaires, intended either for connecting to a low voltage electricity supply or for battery operation.
EN 61000-3-2	Applies to all electrical and electronic equipment that has an input current of up to 16A per phase, suitable for connection to the low-voltage AC public mains distribution network.



### Main Product Contents

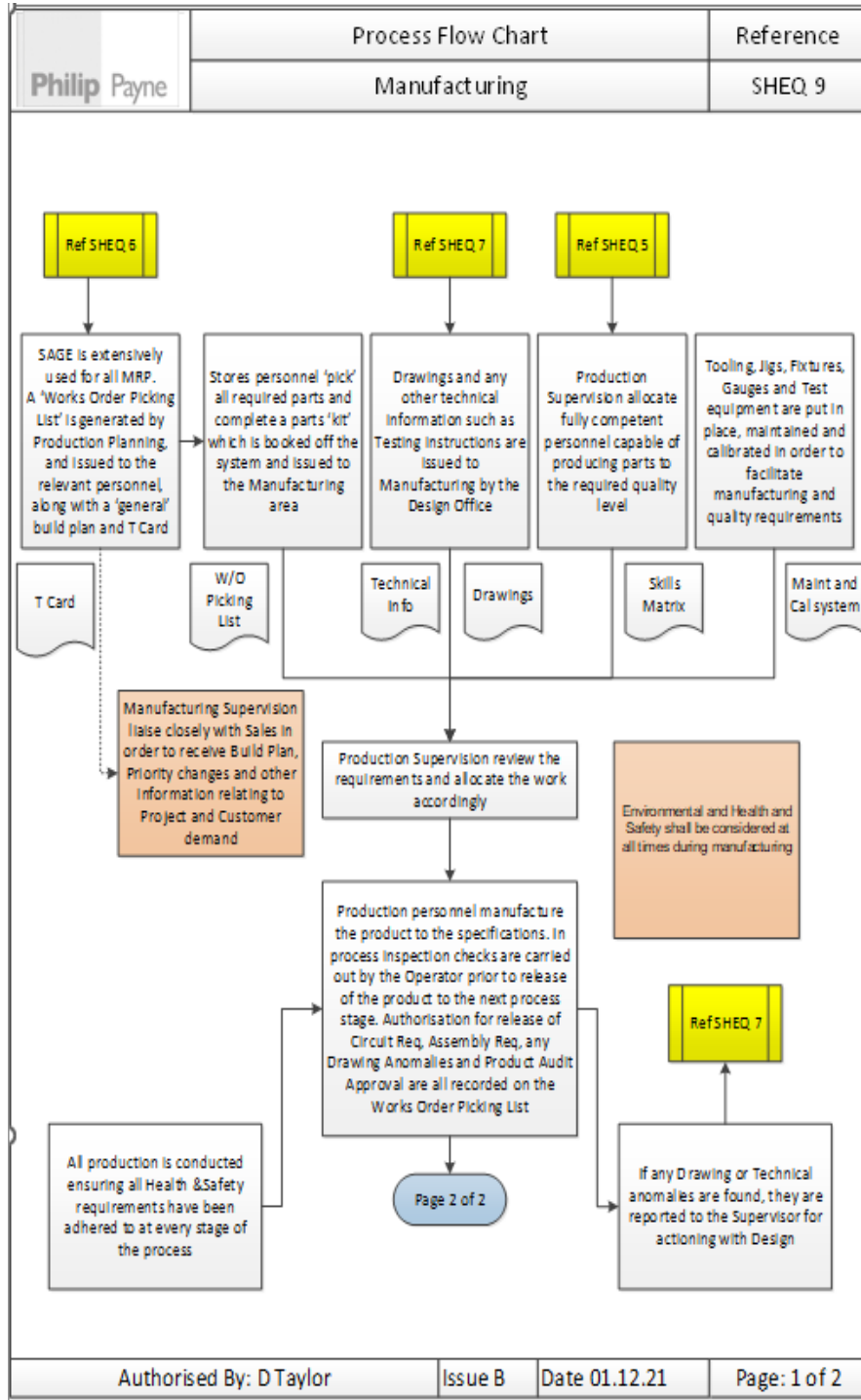
Material/Chemical Input	%
Plastic gear housing	25-30
Electronic Components	10-15
Electronic Components - LED	0.5
Rechargeable NIMH battery	55-60

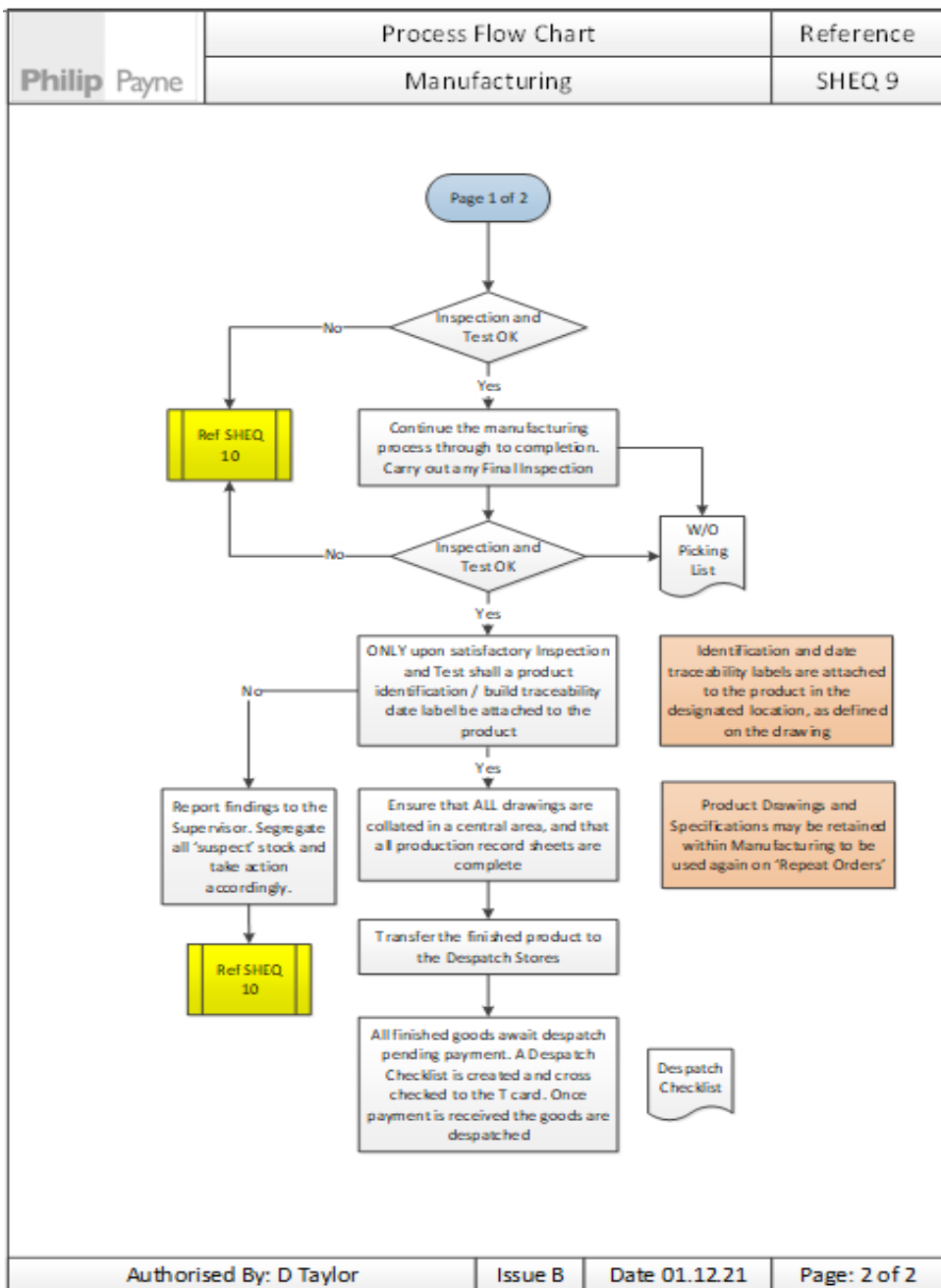
### Manufacturing Process

The TYKA860DS emergency lights are assembled with the LED, emergency module, plastic gear housing, and rechargeable NIMH battery. These components have been manufactured by third parties to Philip Payne standards are put together and tested to see if they comply with the applicable electrical standard for the target market.

The assembly process is labour intensive and requires little specialist equipment to make a completed unit. Production supervision allocate fully competent personnel capable of producing parts to the required quality level. The operator places the relevant (and tested) sub-components into the plastic housing in accordance with the product specification. All completed units must undergo a series of testing procedures to ensure unit quality and to ensure it meets the requirements of the relevant electrical standard for the target market. Once they have passed all quality checks, the units are packed and shipped.

Process flow diagram





### Construction Installation

Supplied as a single assembly, installation is simple. The TYKA860DS fits discretely through a minimal cut-out with the head on a flexible lead. The driver and the batteries are compactly contained within an articulated enclosure.

### End of Life

The warranty period of TYKA860DS is 6 years. After 6 years, 25% of the materials will be recovered and the 60% of the materials will be recycled at the End of Life.

## Life Cycle Assessment Calculation Rules

### Declared / Functional unit description

1 Unit of TYKA860DS emergency luminaire

### System boundary

This is a cradle-to-gate LCA study that follows the modular design defined in EN 15804:2012+A1:2013.

### Data sources, quality and allocation

Datasets are derived from ecoinvent v3.2 (2015) and the LCA tool used was BRE LINA v2.0. The LCA models and reports the production stage modules, A1 to A3. No inputs or outputs have been excluded and all raw materials, transport, energy, water use and wastes, are included. The only exceptions are direct emissions to water and soil, which are not measured.

The Philip Payne site produces other products in addition to TYKA860DS, therefore an allocation of fuel consumption, water consumption & discharge, and waste emissions was required. So, the allocation has made according to the provisions of the BRE PCR PN514 and EN 15804. The quantity used in the data collection for this EPD is therefore an average value, based on the total quantity of TYKA860DS produces during the data collection period (01/02/21 - 31/1/22). The original data collection form has been used while doing an LCA analysis, there was a no uplift in the given data. Philip Payne Ltd have confirmed that the quantity of wastewater to sewer was not monitored during the data collection period. Therefore a 5% natural loss on the water consumption quantity has been assumed, which is in line with the assumption many water utility companies take wherever monitoring is unavailable.

ISO14044 guidance. <b>Quality Level</b>	<b>Geographical representativeness</b>	<b>Technical representativeness</b>	<b>Time representativeness</b>
Very Good	Data from area under study.	Data from processes and products under study. Same state of technology applied as defined in goal and scope (i.e., identical technology).	n/a
Fair	n/a	n/a	There is approximately 5-6 years between the Ecoinvent LCI reference year, and the time period for which the LCA was undertaken.

Specific European and the UK datasets have been selected from the ecoinvent LCI for this LCA. For grid electricity, the following dataset was used: "Electricity, GB (kWh) (Ecoinvent 3.6). The quality level of geographical and technical representativeness is therefore Very Good. The quality level of time representativeness is Fair as the background LCI datasets are based on ecoinvent v3.2 which was compiled in 2015. Therefore, there is approximately 5-6 years between the ecoinvent LCI reference year and the time period for which the LCA was undertaken.

### Cut-off criteria

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. Direct emissions to air, water, and soil, which are not measured.



## 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 <sub>2</sub> equiv.	kg CFC 11 equiv.	kg SO <sub>2</sub> equiv.	kg (PO <sub>4</sub> ) <sup>3-</sup> equiv.	kg C <sub>2</sub> H <sub>4</sub> equiv.	kg Sb equiv.	MJ, net calorific value.
Product stage	Raw material supply	A1	6.02E+00	5.75E-07	4.96E-01	6.48E-02	2.56E-02	1.79E-03	8.22E+01
	Transport	A2	1.15E-01	1.93E-08	1.63E-03	2.03E-04	1.27E-04	2.37E-07	1.67E+00
	Manufacturing	A3	1.98E+00	1.66E-07	9.34E-03	4.90E-03	6.19E-04	2.52E-06	3.05E+01
	Total (of product stage)	A1-3	8.12E+00	7.61E-07	5.07E-01	6.99E-02	2.64E-02	1.79E-03	1.14E+02

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	8.79E+00	4.33E-04	8.79E+00	8.41E+01	3.79E+00	8.79E+01
	Transport	A2	3.54E-02	7.89E-08	3.54E-02	1.69E+00	0.00E+00	1.69E+00
	Manufacturing	A3	2.21E+00	5.57E-06	2.21E+00	3.80E+01	0.00E+00	3.80E+01
	Total (of product stage)	A1-3	1.10E+01	4.38E-04	1.10E+01	1.24E+02	3.79E+00	1.28E+02

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 <sup>3</sup>
Product stage	Raw material supply	A1	0.00E+00	0.00E+00	0.00E+00	8.87E-02
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	4.07E-04
	Manufacturing	A3	0.00E+00	0.00E+00	0.00E+00	-1.77E-01
	Total (of product stage)	A1-3	0.00E+00	0.00E+00	0.00E+00	-8.75E-02

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	1.33E+00	1.30E-01	7.55E-05
	Transport	A2	8.25E-04	2.03E-02	1.12E-05
	Manufacturing	A3	1.37E-02	1.62E-01	1.82E-04
	Total (of product stage)	A1-3	1.34E+00	3.13E-01	2.68E-04

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	5.74E-04	4.94E-05	0.00E+00	0.00E+00
	Total (of product stage)	A1-3	5.74E-04	4.94E-05	0.00E+00	0.00E+00

CRU = Components for reuse;  
 MFR = Materials for recycling

MER = Materials for energy recovery;  
 EE = Exported Energy

## Interpretation of results

The bulk of the environmental impacts and primary energy demand are attributed to the upstream manufacturing process, covered by information modules A1-A3 of EN15804:2012+A1:2013.

## 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.

Pre-Consultants by. SimaPro 9 LCA Software 2021. <http://www.pre-sustainability.com>.

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