

looper

(Pre-verified)

ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:



Darney Block from Hutton Stone Ltd.



Programme:	<i>Looper EPD System</i>
Programme operator:	<i>TBD</i>
EPD registration number:	<i>/</i>
Publication date:	<i>/</i>
Revision date:	<i>/</i>
Revision version:	<i>/</i>
Geographical scope:	Global

Programme Information

Programme

Looper Universal EPD
System

TBD

Product Category Rules (PCR): 2019:14 Version 1.0. 2019-12-20. EN 15804

Independent third-party verification of the declaration and data, according to ISO

14025:2006: *TBD*

EPD process certification: *TBD*

Third party verifier: *TBD*

Approved by: *TBD*

Procedure for follow-up of data during EPD validity involves third party verifier: Yes/No

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD:

Hutton Stone Ltd, Stoneyard West Fishwick, Berwick Upon Tweed, TD15 1XQ, UK

Contact:

Marcus Paine

Description of the organisation:

Having launched Hutton Stone Co Ltd in June 1994 in the Scottish Borders we have steadily and carefully grown the Business starting back then with just one employee (that being Marcus, the Managing Director) to a staff now totalling 40 and we are proud to say that very many of those original staff we took on in the early years are still part of our highly skilled and experienced Team today. Initially working reclaimed stone from our West Fishwick base and buying in block and slab from other suppliers we saw our opportunity to reopen our first exclusive source, Swinton Quarry in 1999 and this has organically developed into 3 exclusive Quarries, Swinton, Hazeldean & Darney and two Production Sites at West Fishwick and at Darney producing everything Natural Stone from large scale Masonry and Bulk Walling supplies to bespoke Carving and hand cut lettering.

With 11 Masonry saws ranging from 3 metre down to 800mm diameter, Multiwires, Single Wires, Profilers, 5 Axis CNC and Milling & Routing machines we have the production machinery to deal with any project. We have four Walling production lines between our two Production Sites producing around 80m² of Coursed or Random Walling per day and are able to offer bulk supply to larger developments with scheduled site call off or bespoke one-off projects with no issue. With 5 fulltime Banker Masons, 2 permanent Carvers/Letter Cutters, 7 Walling masons, 11 Sawyers plus full Office back up including 2 permanent Pricers and AutoCad facilities we are able to provide a full Masonry supply service and with our own specialist remote crane offload vehicle plus tippers and flat artic options all available we are able to offer a full delivery service to suit any need. Our Quarries all have current planning permissions running from between 15 to 25 years with good reserves plus each site is equipped with a Quarrying Team with modern large-scale excavators, drill rigs and other necessary extraction equipment.

Product-related or management system-related certifications:

None

Name and location of production site(s):

Hutton Stone Co Ltd., Darney Quarry & Factory, East Woodburn, Northumberland, NE48 2TU.

Product Information

Product name:

Darney Block

Product identification:

BS EN 771-6:2011 Natural Stone Masonry Units

Product description:

Darney sandstone is quarried near Hexham in Northumberland, England. The quarry records for Darney date back to 1918. Darney is a beautiful carboniferous sandstone known for its light gold through to blonde Colouration.



Essential characteristics	Performance	Harmonised technical specification
Apparent density	Mean 2190kg/m ³	BE EN 1936: 2006
Compressive strength (mean)	Mean 50MPa	BS EN 772-1: 20011 + A1 : 2015
Flexural strength: 3point	Mean 3.8MPa	BS EN 12372: 2006
Reaction to fire:	Euroclass A1	Without testing (see decision 96/603/EC as amended)
Open porosity:	Mean 16.6%	BE EN 1936: 2006
Water absorption by capillarity:	23.82 g/m ² .0.5sec	BS EN 1925: 1999
Shear bond strength	Fixed value	BS EN 998-2: 2010
Frost Resistance Identification. Max 56 cycles	56 cycles	BS EN 14156: 2004
Thermal Conductivity	NPD	BS EN 1745
Acid Immersion Test	PASS	BRE141:1989

Typical Usage: Darney sandstone is a lower carboniferous fine to medium pale gold, through light buff to almost blonde in colour. It is suitable for most aspects of construction including load bearing masonry and cladding projects. With extensive reserves readily available, Darney sandstone is the stone of choice for both new build and conservation projects across Scotland and the North of England.

Bulk Density: 2190 kg/m³

Block Size: Average of 1m – 3m long x 1m – 2m high

Geological Type: Lower Carboniferous Fine to medium grained. Delicate tonal variation. Extensive reserves available. Suitable for most aspects of construction including load bearing masonry and cladding.

Geographical scope: North of England

LCA Information

Declared Unit	1 tonne of Darney Block
Time Representativeness	2022
Database(s) and LCA Software Used	Ecoinvent 3.8, openLCA 1.11
Description of system boundaries	Cradle to gate with modules C1-C4 and module D

The inventory for the LCA study is based on the 2022 product figures for Darney Sandstone by the Hutton Stone production factory in North Northumberland, United Kingdom.

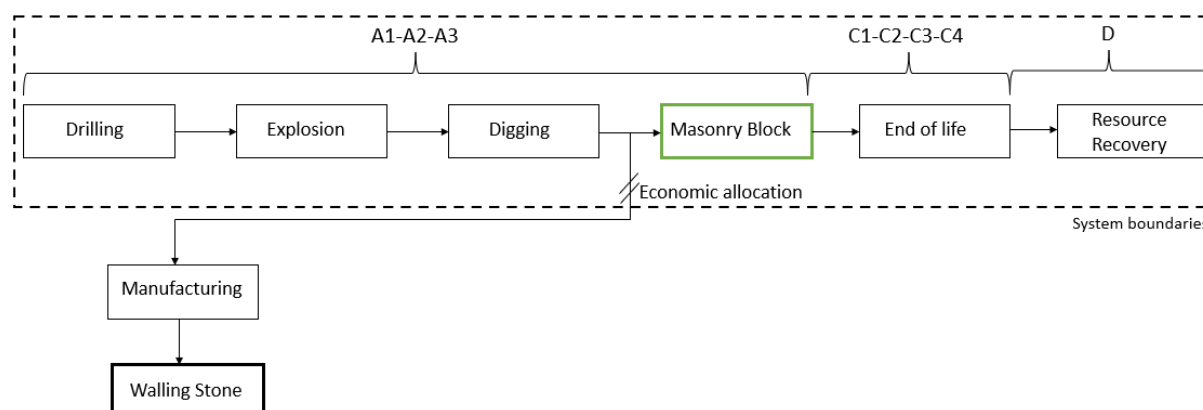


Figure 1: System boundary for Darney sandstone products

A1: Raw Material Supply

Hutton Stone's productions start from mining. The company supplies its raw materials necessary from the stone quarry at Darney. Raw material supply includes raw material extraction/preparation and pre-treatment processes before production. A combination of drilling, controlled explosion, and digging is performed to extract the raw stone from the quarries. Depending on the quality of the extraction outcome, the extracted stone is either allocated for use as a Masonry Block product or is forwarded to the on-site Darney factory for further processing to be used as a Walling Stone product.

A2: Transportation

Transport is relevant for delivery of raw materials and other materials to the plant and the transport of materials within the plant. Transport of raw materials to the production site is taken as the weight average values for transport from raw materials supplier in 2021-22. This includes a combination of on-site fork-trucks.

A3: Manufacturing

Manufacturing with regard to Masonry Block ends at this point, the blocks may then be sawn into slabs with optimal resource efficiency to create alternative products. However, in terms of Darney Masonry block the material is deemed to have completed its process at this point.

C1: Deconstruction and Demolition

There is no energy use during deconstruction, it is performed with manual work.

C2: Transport

Average distance from the demolition site to the final disposal site is assumed to be 100 km. A >32 tonne truck was assumed to transport the stone.

C3: Waste Processing

There is no waste processing

C4: Disposal

Material at the end of life is expected to be reclaimed and used again in construction projects in the future. We have assumed that 20% of the blocks cannot be reclaimed and are disposed of in an inert landfill.

D: Resource Recovery Stage

Because of the large durability of the rock, blocks are assumed to be reclaimed at the end of the first use to be used in other construction projects. We have assumed that 80% of the blocks can be reclaimed, substituting new stone blocks. The system is credited with the avoided burden of extracting new rock. Unprocessed sandstone blocks were selected for the substitute material.

More information:

Economic allocation was used to distribute the impacts of mining between masonry blocks and walling stones. Data is thought to have high quality because the largest impact originated from diesel consumption, from which primary activity data was available.

The stages excluded from the calculations are A4 (transport to construction site), A5 (construction activities), the use stages, B1-B7.

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	UK	UK	UK	-	-	-	-	-	-	-	-	-	UK	UK	UK	UK	UK
Specific data used	>90%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	One Product			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	One Site			-	-	-	-	-	-	-	-	-	-	-	-	-	-

LCA Results

Mandatory impact category indicators according to EN 15804

Results per tonne of Masonry Block							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ eq.	3.5E+01	0	1.7E+01	0	5.4E-01	-1.7E+00
GWP-biogenic	kg CO ₂ eq.	5.0E-03	0	2.9E-02	0	1.6E-03	3.5E-03
GWP-luluc	kg CO ₂ eq.	6.3E-03	0	6.5E-03	0	5.9E-05	-5.7E-04
GWP-total	kg CO ₂ eq.	3.5E+01	0	1.7E+01	0	5.4E-01	-1.7E+00
ODP	kg CFC 11 eq.	7.2E-06	0	3.8E-06	0	1.1E-07	-3.0E-07
AP	mol H ⁺ eq.	1.6E-01	0	6.7E-02	0	5.4E-03	-4.2E-02
EP-freshwater	kg P eq.	3.1E-03	0	1.1E-03	0	2.8E-05	-1.3E-04
EP-marine	kg N eq.	5.4E-02	0	2.0E-02	0	2.3E-03	-1.5E-02
EP-terrestrial	mol N eq.	6.0E-01	0	2.2E-01	0	2.5E-02	-2.1E-01
POCP	kg NMVOC eq.	1.7E-01	0	6.7E-02	0	6.9E-03	-4.3E-02
ADP-minerals&metals*	kg Sb eq.	6.7E-04	0	5.5E-05	0	2.5E-07	-6.5E-06
ADP-fossil*	MJ	3.7E+01	0	1.9E+01	0	7.1E-01	-2.9E+00
WDP*	m ³	2.0E+00	0	1.2E+00	0	1.8E-02	-9.1E-01
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption						

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Additional mandatory and voluntary impact category indicators

Results per tonne of Masonry Block							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-GHG ¹	kg CO ₂ eq.	3.5E+01	0	1.7E+01	0	5.4E-01	-1.7E+00

¹ This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO₂ is set to zero.

Resource use indicators

Results per tonne of Masonry Block							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	3.6E+00	0	2.7E+00	0	3.4E-02	-2.2E-01
PERM	MJ	1.3E+00	0	8.7E-01	0	2.5E-02	-1.8E-01
PERT	MJ	4.9E+00	0	3.5E+00	0	5.8E-02	-4.0E-01
PENRE	MJ	4.2E+01	0	2.4E+01	0	7.6E-01	-3.2E+00
PENRM	MJ	4.4E+02	0	2.3E+02	0	6.5E+00	-1.9E+01
PENRT	MJ	4.8E+02	0	2.5E+02	0	7.2E+00	-2.2E+01
SM	kg	4.3E-01	0	2.5E-01	0	5.5E-03	-5.1E-02
RSF	MJ	5.0E-02	0	7.6E-02	0	7.1E-04	-1.8E-02
NRSF	MJ	8.0E-02	0	3.1E-01	0	8.9E-04	-4.1E-03
FW	m ³	4.8E-02	0	2.9E-02	0	4.4E-04	-2.2E-02
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources 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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water						

Waste indicators

Results per tonne of Masonry Block							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1.9E+01	0	5.6E+00	0	1.4E-01	-7.0E-01
Non-hazardous waste disposed	kg	6.3E+02	0	1.3E+01	0	2.1E-01	-4.8E-02
Radioactive waste disposed	kg	6.6E-03	0	5.0E-03	0	8.2E-05	-3.0E-04

Output flow indicators

Results per tonne of Masonry Block							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Components for re-use	kg	0.0E+00	0	0.0E+00	0	0.0E+00	8.0E+02
Material for recycling	kg	5.3E-01	0	2.1E-01	0	3.5E-03	0.0E+00
Materials for energy recovery	kg	0.0E+00	0	0.0E+00	0	0.0E+00	0.0E+00
Exported energy, electricity	MJ	0.0E+00	0	0.0E+00	0	0.0E+00	0.0E+00
Exported energy, thermal	MJ	0.0E+00	0	0.0E+00	0	0.0E+00	0.0E+00

References

General Programme: Instructions of the International EPD ® System. Version 3.0

EN ISO 9001/ Quality Management Systems - Requirements

EN ISO 14001/ Environmental Management Systems - Requirements

ISO 45001/ Occupational Health & Safety Management System - Requirements

ISO 14020:2000/ Environmental Labels and Declarations - General principles

EN 15804:2012+A2:2019/ Sustainability of construction works - Environmental Product Declarations - Core rules for the product category of construction products

ISO 14025/ DIN EN ISO 14025:2009-11: Environmental labels and declarations - Type III environmental declarations - Principles and procedures

ISO 14040/44/ DIN EN ISO 14040:2006-10, Environmental management - Life cycle assessment - Principles and framework (ISO 14040:2006) and Requirements and guidelines (ISO 14044:2006)

PCR for Construction Products and CPC 54 Construction Services/ Prepared by IVL Swedish Environmental Research Institute, Swedish Environmental Protection Agency, SP Tra, Swedish Wood Preservation Institute, Swedisol, SCDA, Svenskt Limtra AB, SS AB, The International EPD System, 2019 :14 Version 1.1 DATE 2019-12-20

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