

Statement of Verification

BREG EN EPD No.: 000615

Issue 01

This is to verify that the
Environmental Product Declaration
provided by:
GCP Applied Technologies



is in accordance with the requirements of:
EN 15804:2012+A2:2019

and

BRE Global Scheme Document SD207

This declaration is for:
1kg of Safetrack Crack Infill, Safetrack Overbanding, Safetrack Inlaid Road Repair or Safetrack MTI system

Company Address

GCP Applied Technologies,
Gate Street,
Dukinfield,
SK16 4RU



gcp applied technologies

Emma Baker
Operator

15 July 2024
Date of this Issue

15 July 2024
Date of First Issue

14 July 2029
Expiry Date



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Environmental Product Declaration

EPD Number: 000615

General Information

EPD Programme Operator	Applicable Product Category Rules
BRE Global Watford, Herts WD25 9XX United Kingdom	BRE 2023 Product Category Rules (PN 514 Rev 3.1) for Type III environmental product declaration of construction products to EN 15804:2012+A2:2019
Commissioner of LCA study	LCA consultant/Tool
GCP Applied Technologies, Gate Street, Dukinfield, SK16 4RU	Bala Subramanian/ BRE LINA A2
Declared/Functional Unit	Applicability/Coverage
1kg of Safetrack Crack Infill, Safetrack Overbanding, Safetrack Inlaid Road Repair or Safetrack MTI system	Other (please specify). Product Specific
EPD Type	Background database
Cradle to Gate with options	Ecoinvent 3.8
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: Jiacheng (Francis) Yu	
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+A2:2019. 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+A2:2019 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 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 checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Note: Ticks indicate the Information Modules declared.

Manufacturing site(s)

GCP Applied Technologies,
Gate Street,
Dukinfield,
SK16 4RU

Construction Product:

Product Description

GCP's range of SAFETRACK® crack & joint products is intended for the repair and reinstatement of asphalt or concrete surfaces.

The products in the range are based on GCP Applied Technologies' unique ESSELAC advanced resin technology.

SAFETRACK® Crack Infill has been developed for the filling of open cracks in asphalt and concrete substrates. The system is ideally suited for the following applications:

- Infilling cracks over 5mm
- Filling and supporting weak fretted joints in asphalt.
- Kerb sealing
- Manhole and gully repairs
- Filling cat's eyes / road stud holes
- Refreshing existing installations of SAFETRACK® Crack Infill to reseal and maintain performance indefinitely.

SAFETRACK® Overbanding has been developed for the Overbanding of cracks in asphalt substrates. The system is ideally suited for the following applications:

- Sealing cracks (up to 5mm wide)
- Sealing joints between reinstatement materials and the existing road
- Refreshing existing SAFETRACK® Overbanding to reseal and maintain performance indefinitely.
- Providing a skid/slip resistance surface to manhole covers and road plates.

SAFETRACK® IRR has been developed for filling and sealing a recess in asphalt and concrete surfaces. The system is ideally suited for a range of applications, including:

- Inlaid crack, slot and joint repair, of any width
- Filling and supporting open or fretted joints in asphalt.
- Repair of multiple cracks
- Remote traffic signal installation
- Re-instatement of Cross Carriageway Ducts (CCD's)

- Light Rail (Tram) seal, support, and insulation
- Asphalt surface regulation prior to surfacing

SAFETRACK® MTI has been designed for the infill and final reinstatement of micro-trenches in asphalt. The material is installed in a two-step process: the first to infill the micro-trench to within 10mm of the running surface; the second to produce an over band to seal the surface.

This EPD covers the products Safetrack Crack Infill, Safetrack Overbanding, Safetrack Inlaid Road Repair and Safetrack MTI and is calculated from a production weighted average of all products.

Technical Information

Safetrack Crack Infill, Safetrack Overbanding, Safetrack Inlaid Road Repair:

Temperature ^{2/} Material	Typical Working Life	Typical Cure Time ³
Standard Grade		
25°C	5 minutes	10 minutes
20°C	7 minutes	20 minutes
15°C	10 minutes	35 minutes
10°C	13 minutes	50 minutes
Low Temperature Grade		
15°C	7 minutes	23 minutes
10°C	10 minutes	30 minutes
5°C	13 minutes	35 minutes
0°C	15 minutes	40 minutes

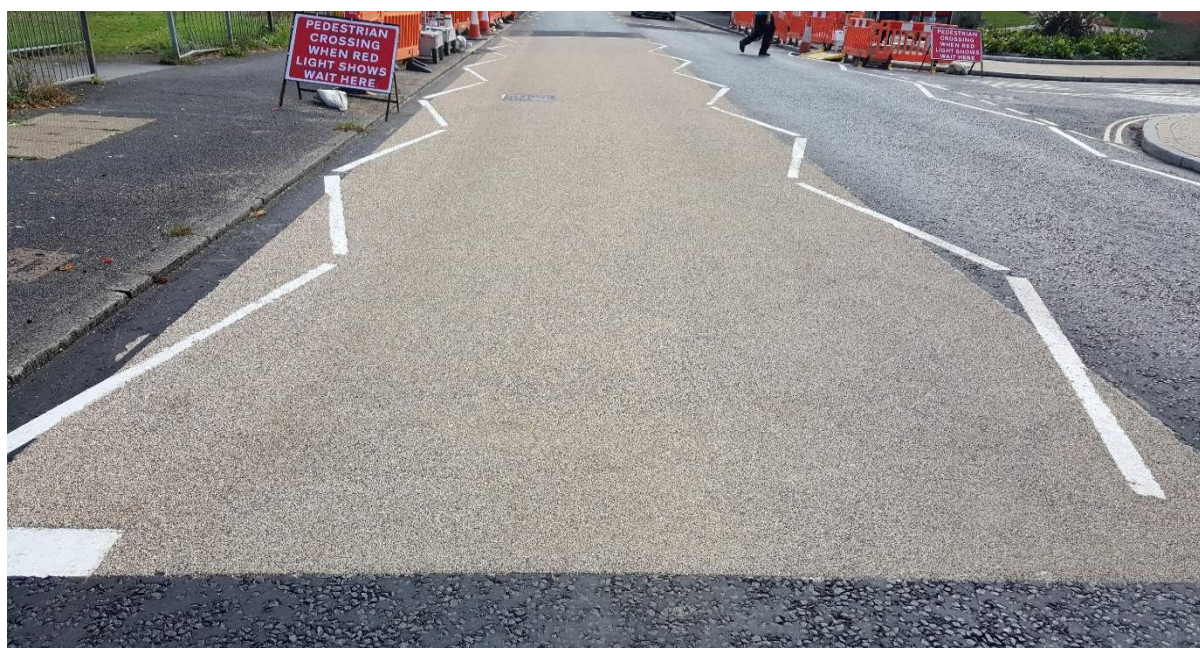
Safetrack MTI

Temperature ^{2/} Material	Typical Working Life	Typical Cure Time ³
Standard Grade		
25°C	5 minutes	10 minutes
20°C	7 minutes	20 minutes
15°C	10 minutes	35 minutes
10°C	13 minutes	50 minutes
High Temperature Grade		
35°C	7 minutes	10 minutes
30°C	10 minutes	20 minutes
25°C	13 minutes	35 minutes
20°C	25 minutes	50 minutes
15°C	12 minutes	40 minutes
Low Temperature Grade		
15°C	7 minutes	23 minutes
10°C	10 minutes	30 minutes
5°C	13 minutes	35 minutes

Temperature ² / Material	Typical Working Life	Typical Cure Time ³
0°C	15 minutes	40 minutes
-5°C	9 minutes	40 minutes

Industry Standards:

- SAFETRACK® Crack Infill: BBA HAPAS Certificate No. 10/H160, Product Sheets 2 & 6
- SAFETRACK® Overbanding: BBA HAPAS Certificate 20/H297 Product Sheets 1 & 5
- SAFETRACK® IRR: BBA HAPAS Certificate No.10/H160, Product Sheet 3 & 7
- SAFETRACK® MTI: BBA HAPAS Certificate No.20/H297, Product Sheets 4 & 8, meets requirements of SROH 4th Edition.



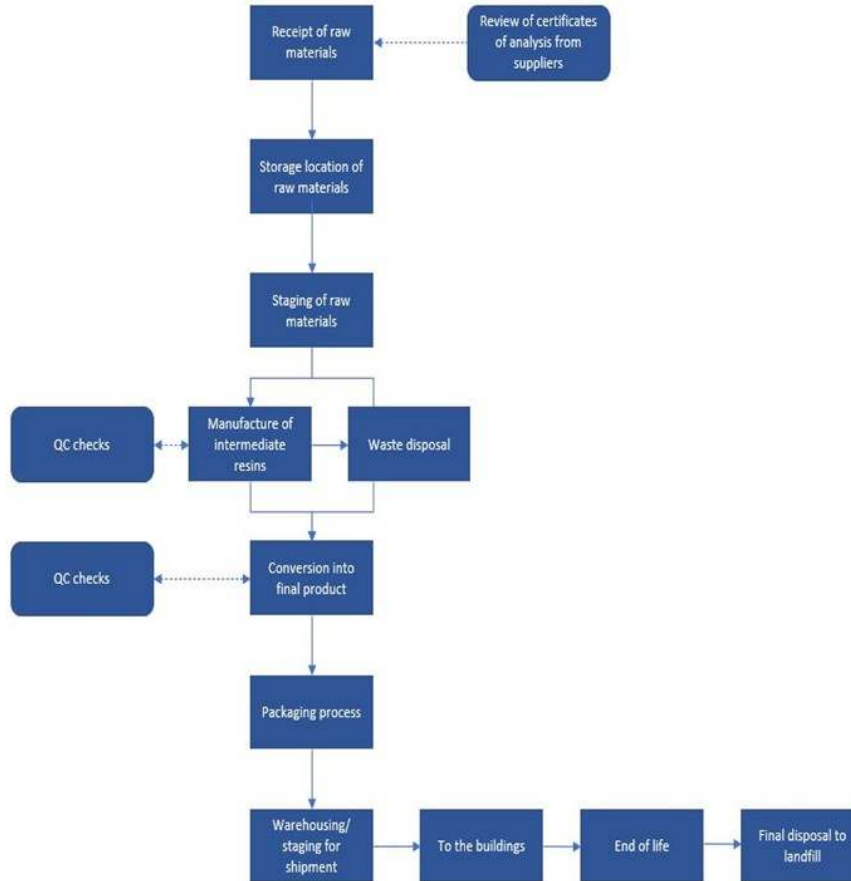
Main Product Contents

Material/Chemical Input	%
Aggregates and inorganic powders	60-80
Organic liquids and powders	20-40

Manufacturing Process

Ingredients are mixed in a vessel to produce intermediate masterbatch formulations. Masterbatch formulations are then mixed with additional ingredients to produce end products.

Process flow diagram



Construction Installation

The catalyst is mixed with the SAFETACK Crack and Joint resins which are then applied, typically using a drawbox. Aggregate is then broadcast into the resin to provide skid resistance.

Use Stage

Use: After application and curing, the Safetrack Crack and Joint products are chemically inert and provide long lasting repair and reinstatement of the asphalt/concrete surface.

Replacement: Once installed, the Safetrack Crack and Joint products typically remain in situ until the asphalt/concrete surfacing is deconstructed. They are not replaced at any point.

End of Life

C1- Deconstruction: At the end asphalt/concrete pavement's life, the Safetrack Crack and Joint products are removed by a road planer machine as part of the process of removing the asphalt/concrete pavement.

C2 – Transportation: 50km by road has been modelled for module C2 as a typical distance from the demolition site to the disposal unit. However, end-users of the EPD can use this information to calculate the impacts of a bespoke transport distance for module C2 if required.

C3 – Waste Processing: Safetrack waste will be sent to disposal sector without any further processing therefore no impacts from C3.

C4 – Disposal: Safetrack wastes are cured resins so they are considered as non-hazardous therefore it is assumed as 100% of the product waste will be landfilled at the end of life.

Life Cycle Assessment Calculation Rules

Declared / Functional unit description.

1kg of Safetrack Crack Infill, Safetrack Overbanding, Safetrack Inlaid Road Repair or Safetrack MTI system.

System boundary

This is a Cradle to Gate with C and D and Options EPD, reporting all production life cycle stages of modules A1 to A3, Construction and Installation A4-A5, and end of life stages C1-C4, and D in accordance with EN 15804:2012+A2:2019 and BRE 2023 Product Category Rules (PN 514 Rev 3.1).

Data sources, quality and allocation

Safetrack Crack & Joint products are intended for the repair and reinstatement of asphalt or concrete surfaces. The Safetrack product is available in four different types: Safetrack Crack Infil, Overbanding, Inlaid Road Repair (IRR), and MTI. Each product has the same design mix and is manufactured through the same production process. Therefore, in this EPD, Safetrack IRR is taken as a representative of the Safetrack product group, as it is the most sold product. The LCA analysis has been performed using Safetrack IRR as a representative of the product group.

The quantity used in the data collection for this EPD is the total quantity of Safetrack IRR product manufactured as a proportion of the total manufactured during the data collection period (01/01/2021 - 31/12/2021). Other products are manufactured in addition to the Safetrack IRR; therefore, the allocation of electricity, water consumption, and discharge is required. This allocation has been done by “mass” according to the provisions of the BRE PCR PN514 and EN 15804.

Upon data review, it was noted that the input quantity is less than the production output; therefore, a data uplift has been made. During the LCA modelling, some of the chemical datasets were missing in the background database; therefore, the appropriate proxy datasets have been selected. Site-wide values for energy, water, and wastewater have been taken from bills. Figures for the raw materials, ancillary materials, and packaging were based on actual usage. Secondary data has been obtained for all other upstream and downstream processes that are beyond the control of the manufacturer (i.e., raw material production) from the ecoinvent 3.8 database. All ecoinvent datasets are complete within the context used and conform to the system boundary and the criteria for the exclusion of inputs and outputs, according to the requirements specified in EN15804 A2.

ISO14044 guidance. Quality Level	Geographical representativeness	Technical representativeness	Time representativeness
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
Very Good	n/a	n/a	There is approximately 1-2 years between the Ecoinvent LCI reference year, and the time period for which the LCA was undertaken.

Specific European datasets have been selected from the ecoinvent LCI for this LCA. Manufacturer uses the national grid electricity for production, therefore the national grid electricity dataset “Electricity – GB (kWh)” has been used for the LCA modelling (Ecoinvent 3.8). The GWP carbon footprint for using 1 kWh of Electricity – GB is 0.311 in kgCO₂e/kWh. The quality level of time representativeness is also Very Good as the background LCI datasets are based on ecoinvent v3.8 which was compiled in 2021. Therefore, there is less than 5 years between the ecoinvent LCI reference year and the time period for which the LCA was undertaken..

Cut-off criteria

No inputs or outputs have been excluded. All raw materials and packaging inputs, plus their transport, process and general energy and water use, production and non-production waste, have been included where appropriate, except for 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-total	GWP-fossil	GWP-biogenic	GWP-luluc	ODP	AP	EP-freshwater
			kg CO ₂ eq	kg CO ₂ eq	kg CO ₂ eq	kg CO ₂ eq	kg CFC11 eq	mol H ⁺ eq	kg (PO ₄) ³⁻ eq
Product stage	Raw material supply	A1	1.43E+00	1.42E+00	1.05E-02	7.84E-04	1.12E-07	7.30E-03	2.41E-04
	Transport	A2	4.42E-02	4.41E-02	3.89E-05	1.76E-05	1.02E-08	1.85E-04	2.90E-06
	Manufacturing	A3	1.22E-01	1.15E-01	6.88E-03	1.23E-04	7.80E-09	4.19E-04	3.14E-05
	Total (Consumption grid)	A1-3	1.60E+00	1.58E+00	1.74E-02	9.24E-04	1.30E-07	7.91E-03	2.75E-04
Construction process stage	Transport	A4	5.33E-02	5.32E-02	4.53E-05	2.09E-05	1.23E-08	2.16E-04	3.43E-06
	Construction	A5	1.96E-01	1.93E-01	3.18E-03	1.09E-04	1.63E-07	1.58E-03	4.23E-05
Use stage	Use	B1	MND	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND	MND
100% - Landfill									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	8.32E-03	8.31E-03	7.08E-06	3.26E-06	1.92E-09	3.37E-05	5.35E-07
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	1.06E-02	1.05E-02	8.10E-05	1.07E-05	3.20E-09	8.88E-05	3.06E-06
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

GWP-total = Global warming potential, total;
 GWP-fossil = Global warming potential, fossil;
 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; and
 EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment

LCA Results (continued)

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

Parameters describing environmental impacts			EP-marine	EP-terrestrial	POCP	ADP-mineral & metal	ADP-fossil	WDP	PM
			kg N eq	mol N eq	kg NMVOC eq	kg Sb eq	MJ, net calorific value	m ³ world eq deprived	disease incidence
Product stage	Raw material supply	A1	1.61E-03	1.22E-02	4.80E-03	8.12E-06	2.44E+01	8.79E-01	1.12E-07
	Transport	A2	5.54E-05	6.06E-04	1.85E-04	1.53E-07	6.66E-01	3.04E-03	3.80E-09
	Manufacturing	A3	1.15E-04	1.03E-03	3.08E-04	5.28E-07	2.68E+00	6.79E-02	4.90E-09
	Total (Consumption grid)	A1-3	1.78E-03	1.38E-02	5.29E-03	8.80E-06	2.77E+01	9.50E-01	1.21E-07
Construction process stage	Transport	A4	6.50E-05	7.10E-04	2.18E-04	1.85E-07	8.04E-01	3.62E-03	4.59E-09
	Construction	A5	3.56E-04	3.41E-03	1.07E-03	2.47E-06	2.97E+00	6.66E-02	2.01E-08
Use stage	Use	B1	MND	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND	MND
100% - Landfill									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.02E-05	1.11E-04	3.40E-05	2.89E-08	1.26E-01	5.65E-04	7.17E-10
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	3.06E-05	3.33E-04	9.64E-05	3.44E-08	2.47E-01	1.11E-02	1.78E-09
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment;
 EP-terrestrial = Eutrophication potential, accumulated exceedance;
 POCP = Formation potential of tropospheric ozone;
 ADP-mineral&metals = Abiotic depletion potential for non-fossil resources;

ADP-fossil = Depletion potential of the stratospheric ozone layer;
 WDP = Water (user) deprivation potential, deprivation-weighted water consumption; and
 PM = Particulate matter.

LCA Results (continued)

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

			Parameters describing environmental impacts				
			IRP	ETP-fw	HTP-c	HTP-nc	SQP
			kBq U ²³⁵ eq	CTUe	CTUh	CTUh	dimensionless
Product stage	Raw material supply	A1	7.07E-02	5.73E+01	7.54E-09	8.47E-08	2.86E+00
	Transport	A2	3.45E-03	5.20E-01	1.70E-11	5.45E-10	4.56E-01
	Manufacturing	A3	5.88E-02	1.54E+00	1.12E-09	1.27E-09	9.38E-01
	Total (Consumption grid)	A1-3	1.33E-01	5.93E+01	8.67E-09	8.66E-08	4.25E+00
Construction process stage	Transport	A4	4.13E-03	6.28E-01	2.03E-11	6.58E-10	5.52E-01
	Construction	A5	1.19E-02	1.88E+02	2.07E-10	7.31E-09	5.63E-01
Use stage	Use	B1	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND
100% - Landfill							
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	6.46E-04	9.81E-02	3.18E-12	1.03E-10	8.63E-02
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	1.17E-03	1.76E-01	7.58E-12	1.18E-10	5.92E-01
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

IRP = Potential human exposure efficiency relative to U235;
 ETP-fw = Potential comparative toxic unit for ecosystems;
 HTP-c = Potential comparative toxic unit for humans;

HTP-nc = Potential comparative toxic unit for humans; and
 SQP = Potential soil quality index.

LCA Results (continued)

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

			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	8.24E-01	0.00E+00	8.24E-01	1.78E+01	6.39E+00	2.42E+01
	Transport	A2	9.33E-03	0.00E+00	9.33E-03	6.51E-01	0.00E+00	6.51E-01
	Manufacturing	A3	2.68E-01	9.75E-02	3.65E-01	2.07E+00	5.39E-01	2.61E+00
	Total (Consumption grid)	A1-3	1.10E+00	9.75E-02	1.20E+00	2.05E+01	6.93E+00	2.75E+01
Construction process stage	Transport	A4	1.13E-02	0.00E+00	1.13E-02	7.90E-01	0.00E+00	7.90E-01
	Construction	A5	9.79E-02	9.75E-05	9.80E-02	2.30E+00	6.43E-01	2.94E+00
Use stage	Use	B1	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND
100% - Landfill								
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.77E-03	0.00E+00	1.77E-03	1.23E-01	0.00E+00	1.23E-01
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	4.22E-03	0.00E+00	4.22E-03	2.43E-01	0.00E+00	2.43E-01
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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

LCA Results (continued)

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

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	1.60E-03	0.00E+00	0.00E+00	2.07E-02
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	7.54E-05
	Manufacturing	A3	4.54E-02	0.00E+00	0.00E+00	1.63E-03
	Total (Consumption grid)	A1-3	4.70E-02	0.00E+00	0.00E+00	2.24E-02
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	8.96E-05
	Construction	A5	2.33E-04	0.00E+00	0.00E+00	1.59E-03
Use stage	Use	B1	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND
100% - Landfill						
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	1.40E-05
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	2.62E-04
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+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)

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

Other environmental information describing waste categories			HWD	NHWD	RWD
			kg	kg	kg
Product stage	Raw material supply	A1	5.01E-02	9.51E-01	3.03E-05
	Transport	A2	7.32E-04	1.30E-02	4.49E-06
	Manufacturing	A3	1.97E-02	1.37E-01	1.54E-05
	Total (Consumption grid)	A1-3	7.06E-02	1.10E+00	5.02E-05
Construction process stage	Transport	A4	8.86E-04	1.57E-02	5.44E-06
	Construction	A5	2.20E-02	1.54E-01	2.94E+00
Use stage	Use	B1	MND	MND	MND
	Maintenance	B2	MND	MND	MND
	Repair	B3	MND	MND	MND
	Replacement	B4	MND	MND	MND
	Refurbishment	B5	MND	MND	MND
	Operational energy use	B6	MND	MND	MND
	Operational water use	B7	MND	MND	MND
100% - Landfill					
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.39E-04	2.46E-03	8.50E-07
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	4.80E-04	1.01E+00	1.48E-06
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00

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

LCA Results (continued)

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

Other environmental information describing output flows – at end of life								
			CRU	MFR	MER	EE	Biogenic carbon (product)	Biogenic carbon (packaging)
			kg	kg	kg	MJ per energy carrier	kg C	kg C
Product stage	Raw material supply	A1	0.00E+00	0.00E+00	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	0.00E+00	0.00E+00
	Manufacturing	A3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.52E-04
	Total (Consumption grid)	A1-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.52E-04
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	0.00E+00	5.00E-02	0.00E+00	0.00E+00	0.00E+00	-6.52E-07
Use stage	Use	B1	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND
100% - Landfill								
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

CRU = Components for reuse;
MFR = Materials for recycling

MER = Materials for energy recovery;
EE = Exported Energy

Scenarios and additional technical information

Scenarios and additional technical information			
Scenario	Parameter	Units	Results
A4 – Transport to the building site	Transportation of Safetrack Crack and Joint products from GCP manufacturing site to the customer unit		
	Fuel type / Vehicle type	Road transport	16–32-ton lorry
	Distance: GCP manufacturing unit to customer site	km	320
	Capacity utilisation (incl. empty returns)	%	49
	Bulk density of transported products	kg/m ³	1.68
A5 – Installation in the building	The catalyst is mixed with the SAFETACK Crack and Joint resins which are then applied, typically using a drawbox. Aggregate is then broadcast into the resin to provide skid resistance.		
	Installation waste percentage	< 0.1% left in Tin	
Installation wastages	<0.1% left in pail/drum - Landfill	kg	0.01
Packaging waste	Storage Pail - Recycling	kg	0.05
	Pallets - Incineration	kg	0.0017
C1 – End of life	At the end asphalt/concrete pavement's life, the Safetrack Crack and Joint products are removed by a road planer machine as part of the process of removing the asphalt/concrete pavement.		
C2- Transportation	50km by road has been modelled for module C2 as a typical distance from the demolition site to the disposal unit. However, end-users of the EPD can use this information to calculate the impacts of a bespoke transport distance for module C2 if required.		
	Fuel type / Vehicle type	Road transport	16–32-ton lorry
	Deconstruction site to the disposal unit	km	50
C3 – Pre-Processing	It is assumed that the waste membranes can't be recycled at the end of life, so therefore they will be sent to landfill without any pre-processing. Therefore, no impacts from C3		
C4 – Disposal	Safetrack Crack and Joint product wastes are cured resins so they are considered as non-hazardous therefore it is assumed as 100% of the product waste will be landfilled at the end of life. Therefore, no module D benefits.		
	Safetrack Crack and Joint products - Landfill	kg	1

Interpretation of results:

The bulk of the environmental impacts are attributed to the manufacturing of Safetrack Crack and Joint product covered by information modules A1-A3 of EN15804:2012+A2:2019.

References

BSI. Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products. BS EN 15804:2012+A2:2019. London, BSI, 2019.

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.

BBA HAPAS Certification for Highway Products and Systems

Specification for the Reinstatement of Openings in Highways