Statement of Verification

BREG EN EPD No.: 000586 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:

1m2 of Eliminator, Integritank or Silcor 1100 waterproofing membrane system

Company Address

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

gcp applied technologies

Signed for BRE Global Ltd	Emma Baker Operator	16 May 2024 Date of this Issue
16 May 2024 Date of First Issue		15 May 2029 Expiry Date

Environmental Product Declaration

EPD Number: 000586

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**
1m2 of Eliminator, Integritank or Silcor 1100 waterproofing membrane system.	Other (please specify). Product specific
EPD Type	**Background database**
Cradle to Gate with Module C and D 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 ☐Internal ☒ 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
☑	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☑	☑	☑	☑		☑

Note: Ticks indicate the Information Modules declared.

Manufacturing site(s)

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

Construction Product:

Product Description

ELIMINATOR®: a high-performance waterproofing membrane for the protection of concrete and steel bridge decks based on GCP's, unique ESSELAC® advanced resin technology and extensive experience in the development of coatings for specialist waterproofing. It cures rapidly to provide a tough, flexible seamless membrane. ELIMINATOR® has an extensive track record with thousands of structures waterproofed successfully throughout the world.
The ELIMINATOR® system includes a primer, the ELIMINATOR® membrane, and an optional Tack/Bond Coat.
Typical applications include:
• Concrete Bridge Decks
• Steel Bridge Decks
• Bridge Piers and Backwalls
• Bridge Service Ducts
• Culverts

INTEGRITANK®: a high performance, structural waterproofing membrane for the protection of concrete structures based on GCP's unique ESSELAC® resin technology and extensive experience in the development of coatings for specialist waterproofing. It cures rapidly to provide a tough, flexible seamless membrane, available in both spray and hand grades.

The INTEGRITANK® system includes a primer and the INTEGRITANK® membrane.
Typical applications include:
• Tunnels
• Balconies
• Podium Decks
• Basement tanking
• Roofs - including Green and Bio-Diverse roofs
• Storage tanks and silos
• Sewage and sludge tanks

SILCOR® 1100: a tough while flexible, seamless, fast and easy to apply structural waterproofing membrane designed for buried application and the protection of concrete structures based on GCP's unique ESSELAC® advanced resin technology and extensive experience in the development of coatings for specialist waterproofing. SILCOR® 1100 enables fast return to service and provides long term protection.
Typical applications include:

- Podium Decks including Green and Bio-Diverse landscaping.
- Basement retaining walls.
- Balconies
- Roofs - including Green and Bio-Diverse roofs.
- Concrete, masonry, suitable asphalt, or steel substrates requiring a chemical and/or abrasion resistant coating.
- Sewage and sludge tanks

In this EPD the Eliminator, Integritank, and Silcor 1100 products have been modelled and the results are enclosed for 1m2. In order to enable the impacts for each system with the different design mix, the end user table have provided with the generic design mix of each system.

Technical Information

Property	Value
Application Temperature Range	
Standard Grade	0°C to +30°C
Tropical Grade	15°C to 50°C
Standard Grade with Arctic Additives	-10°C to 0°C
Typical Overcoating Time	60 Minutes

Note: Technical information for all the products assessed in this EPD.

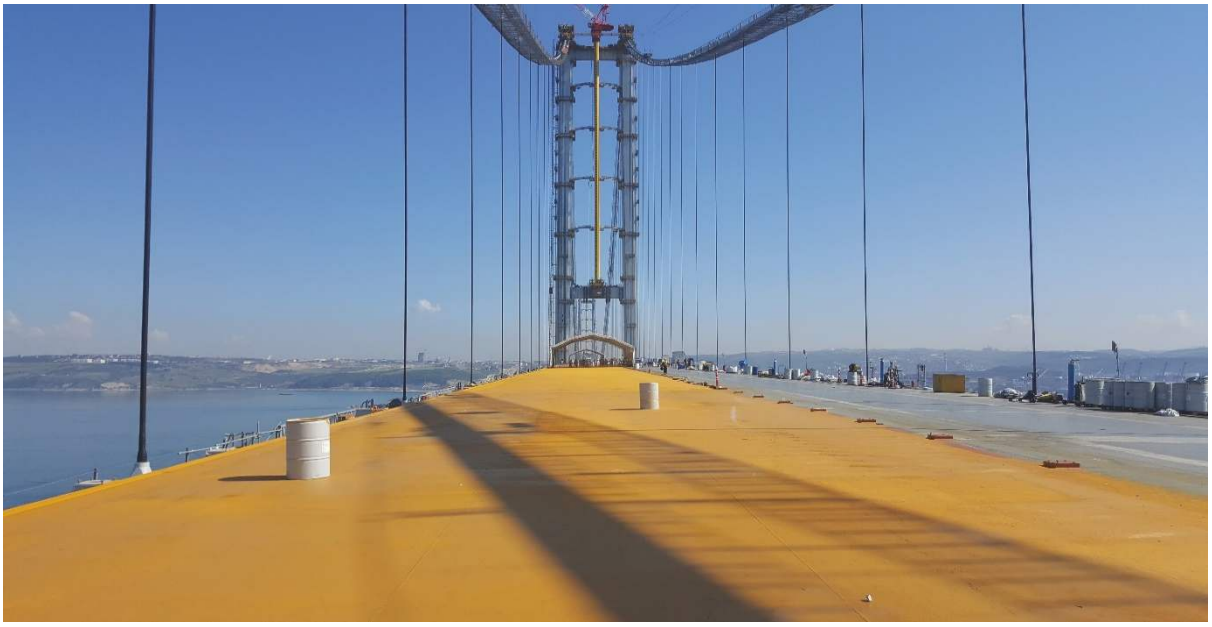
Industry Standards:

Integritank:

- Approved by British Board of Agrément for new and existing zero pitched roofs. See Agrément Certificate 19/5664 PS1.
- Approved by British Board of Agrément for use on solid concrete floors and underground structures, and for internally and externally applied tanking below ground. See Agrément Certificate 19/5663 PS1.
- CE Marked under EN1504-2

Eliminator:

- European Technical Assessment: ETA - 22/0897 issued in accordance with EAD 030675-00-0107: Liquid Applied Bridge Deck Waterproofing Kits.
- British Board of Agreement (UK) - HAPAS Certificates No.20-H305 PS1 & PS2, for Highways England Road bridges.
- Network Rail (UK) - Railway bridges – Certificate of conformity No. CC/0046 - Tested to Network Rail Specification NR/L3/CIV/041 Issue 3.
- ELIMINATOR® has been approved and used on road and rail bridges by agencies worldwide, please contact GCP Applied technologies for more information.



Main Product contents

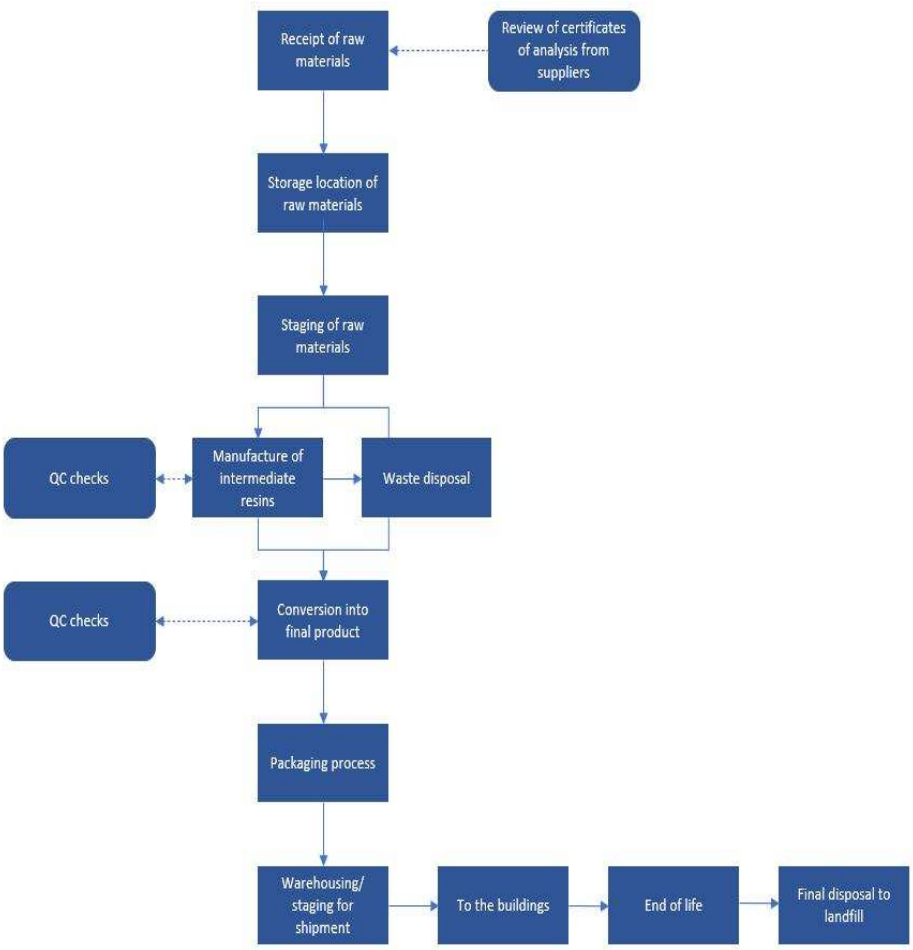
Material/Chemical Input	%
Organic liquids and powders	65-85
Aggregates and inorganic powders	15-35

Note: Main Product contents for all the products assessed in this EPD.

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

Primer: The substrate must be primed with an appropriate GCP primer prior to application of the ELIMINATOR, INTEGRITANK or SILCOR 1100 membranes. A choice of primers is available depending on the type of substrate and weather conditions. They are usually applied using spray, brush or roller. Please consult the appropriate datasheets.

Waterproofing: The waterproofing membranes are applied by airless spray or by hand. The thickness and number of coats is dependent upon the specific system specification. For ELIMINATOR and INTEGRITANK the standard total thickness once cured is 2mm; for SILCOR 1100 the standard total thickness is 1.5mm.

Tack Coat/Bond Coat:
A tack coat or bond coat must be applied to ELIMINATOR® when it is being used as a waterproofing membrane on road bridges underneath asphalt or macadam surfacing. A range of tack coats and bond coats is available depending upon the pavement specification.

End of Life

C1- Deconstruction: The membrane lasts for the design life of the structure/ asphalt pavement. Deconstruction of the system would only happen when the structure is demolished or the asphalt pavement is replaced., and it would stay bonded to the substrate. It is not removed separately. It can be safely assumed that the energy attributed to deconstructing the system compared to the overall demolition will be effectively negligible. As a

result, no impacts are attributed to module C1. Removed membranes will be send to the disposal unit, along with any attached substrate or asphalt materials.

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: Membrane waste will be sent to disposal sector without any further processing therefore no impacts from C3.

C4 – Disposal: Membrane 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.

1m^2 of Eliminator, Integritank or Silcor 1100 waterproofing membrane system

System boundary

This is a cradle-to-gate with modules C and D with options LCA, reporting all production life cycle stages of modules A1 to A3, construction installation A4 to 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

In this EPD, Eliminator, Integritank, and Silcor 1100 system have been calculated for 1m^2 and the results are enclosed. Each waterproofing membrane system is made up of the individual components like primer, membrane, and bond coat. Initially, the LCA analysis has been conducted for individual components keeping the declared unit as 1 kg and each system impacts have been calculated by multiplying the weight of each component that goes into the system and added them all to get the total result of the entire system. The quantity used in the data collection for all the components in this EPD is the total quantity of a number of individual product components manufactured as a proportion of the total manufacturing during the data collection period (01/01/2021 - 31/12/2021).

Other products are manufactured in addition to all components therefore, the allocation of electricity and water consumption and discharge are required, and this has been done using ‘mass’ allocation according to the provisions of the BRE PCR PN514 and EN 15804. Upon the data review it was noted that the input quantity is less than the production output therefore the data uplift has been made. During the LCA modelling some of the chemical dataset was missing in the background database therefore the appropriate proxy dataset has 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 from actual usages. 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	n/a

		and scope (i.e., identical technology).	
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: Eliminator with Bond coat system with the coverage rate of 3.65 kg/m^2

(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	1.86E+01	1.85E+01	1.56E-01	1.63E-03	3.43E-07	9.74E-02	1.62E-03
	Transport	A2	6.66E-01	6.63E-01	6.07E-04	2.68E-04	1.53E-07	2.72E-03	4.48E-05
	Manufacturing	A3	4.73E-01	4.40E-01	2.97E-02	4.46E-04	2.72E-08	1.69E-03	1.06E-04
	Total (Consumption grid)	A1-3	1.98E+01	1.96E+01	1.86E-01	2.33E-03	5.25E-07	1.02E-01	1.77E-03
Construction process stage	Transport	A4	1.95E-01	1.94E-01	1.65E-04	7.63E-05	4.49E-08	7.88E-04	1.25E-05
	Construction	A5	4.34E+02	4.34E+02	1.22E+00	4.28E-01	8.26E-04	5.07E+00	1.49E-01
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	3.04E-02	3.03E-02	2.58E-05	1.19E-05	7.01E-09	1.23E-04	1.95E-06
	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	3.87E-02	3.83E-02	2.96E-04	3.91E-05	1.17E-08	3.24E-04	1.12E-05
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 &metals	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	1.90E-02	1.43E-01	6.46E-02	4.89E-05	3.13E+02	8.14E+00	1.32E-06
	Transport	A2	8.22E-04	8.99E-03	2.74E-03	2.32E-06	1.00E+01	4.65E-02	5.74E-08
	Manufacturing	A3	4.62E-04	4.03E-03	1.34E-03	3.12E-06	9.80E+00	1.82E-01	1.83E-08
	Total (Consumption grid)	A1-3	2.03E-02	1.56E-01	6.84E-02	5.44E-05	3.33E+02	8.36E+00	1.40E-06
Construction process stage	Transport	A4	2.37E-04	2.59E-03	7.96E-04	6.75E-07	2.93E+00	1.32E-02	1.68E-08
	Construction	A5	7.48E-01	5.46E+00	1.85E+00	1.07E-02	7.00E+03	2.13E+02	3.70E-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	3.72E-05	4.05E-04	1.24E-04	1.05E-07	4.60E-01	2.06E-03	2.62E-09
	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	1.12E-04	1.22E-03	3.52E-04	1.26E-07	9.02E-01	4.05E-02	6.50E-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	2.33E-01	4.27E+02	1.95E-08	3.14E-07	6.13E+00
	Transport	A2	5.23E-02	7.86E+00	2.58E-10	8.23E-09	6.91E+00
	Manufacturing	A3	2.08E-01	7.32E+00	1.80E-09	4.83E-09	3.26E+00
	Total (Consumption grid)	A1-3	4.92E-01	4.43E+02	2.15E-08	3.27E-07	1.63E+01
Construction process stage	Transport	A4	1.51E-02	2.29E+00	7.41E-11	2.40E-09	2.01E+00
	Construction	A5	3.22E+01	1.05E+06	6.69E-07	3.47E-05	1.32E+03
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	2.36E-03	3.58E-01	1.16E-11	3.76E-10	3.15E-01
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	4.27E-03	6.42E-01	2.77E-11	4.31E-10	2.16E+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

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)

Parameters describing resource use, primary energy								
			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	6.61E+00	0.00E+00	6.61E+00	2.33E+02	7.78E+01	3.10E+02
	Transport	A2	1.40E-01	0.00E+00	1.40E-01	9.78E+00	0.00E+00	9.78E+00
	Manufacturing	A3	1.01E+00	3.62E-01	1.37E+00	7.66E+00	1.90E+00	9.56E+00
	Total (Consumption grid)	A1-3	7.77E+00	3.62E-01	8.14E+00	2.50E+02	7.97E+01	3.30E+02
Construction process stage	Transport	A4	4.12E-02	0.00E+00	4.12E-02	2.88E+00	0.00E+00	2.88E+00
	Construction	A5	3.98E+02	3.62E-04	3.98E+02	6.27E+03	6.72E+02	6.95E+03
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	6.46E-03	0.00E+00	6.46E-03	4.49E-01	0.00E+00	4.49E-01
	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

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	4.65E-03	0.00E+00	0.00E+00	1.90E-01
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	1.15E-03
	Manufacturing	A3	1.13E-02	0.00E+00	0.00E+00	4.52E-03
	Total (Consumption grid)	A1-3	1.60E-02	0.00E+00	0.00E+00	1.96E-01
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	3.27E-04
	Construction	A5	4.97E-03	0.00E+00	0.00E+00	5.15E+00
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	5.11E-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	9.56E-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	3.84E-01	3.36E+00	9.53E-05
	Transport	A2	1.10E-02	1.95E-01	6.74E-05
	Manufacturing	A3	8.60E-02	4.82E-01	5.40E-05
	Total (Consumption grid)	A1-3	4.79E-01	4.02E+00	2.17E-04
Construction process stage	Transport	A4	3.23E-03	5.73E-02	1.99E-05
	Construction	A5	3.25E+01	6.47E+02	2.57E-02
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	5.07E-04	8.98E-03	3.10E-06
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	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

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	8.90E-10	3.05E-13	1.18E-07	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	-4.69E-06
	Total (Consumption grid)	A1-3	0.00E+00	8.90E-10	3.05E-13	1.18E-07	0.00E+00	-4.69E-06
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	1.96E-01	2.19E-10	1.18E-10	0.00E+00	-4.69E-09
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

LCA Results: Eliminator no Bond Coat system with the coverage rate of 3.05 kg/m^2

(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	1.51E+01	1.50E+01	1.47E-01	1.45E-03	3.06E-07	8.05E-02	1.44E-03
	Transport	A2	6.26E-01	6.23E-01	5.65E-04	2.50E-04	1.44E-07	2.55E-03	4.18E-05
	Manufacturing	A3	3.52E-01	3.25E-01	2.49E-02	3.37E-04	2.28E-08	1.25E-03	7.86E-05
	Total (Consumption grid)	A1-3	1.61E+01	1.59E+01	1.73E-01	2.03E-03	4.75E-07	8.44E-02	1.56E-03
Construction process stage	Transport	A4	1.63E-01	1.62E-01	1.38E-04	6.37E-05	3.75E-08	6.59E-04	1.05E-05
	Construction	A5	4.34E+02	4.34E+02	1.22E+00	4.28E-01	8.26E-04	5.07E+00	1.49E-01
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	2.54E-02	2.53E-02	2.16E-05	9.94E-06	5.86E-09	1.03E-04	1.63E-06
	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	3.23E-02	3.20E-02	2.47E-04	3.26E-05	9.76E-09	2.71E-04	9.33E-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 &metals	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	1.60E-02	1.19E-01	5.33E-02	4.38E-05	2.58E+02	7.26E+00	1.11E-06
	Transport	A2	7.70E-04	8.43E-03	2.57E-03	2.18E-06	9.43E+00	4.35E-02	5.39E-08
	Manufacturing	A3	3.54E-04	3.07E-03	9.35E-04	2.57E-06	6.48E+00	1.20E-01	1.38E-08
	Total (Consumption grid)	A1-3	1.71E-02	1.30E-01	5.65E-02	4.86E-05	2.74E+02	7.42E+00	1.17E-06
Construction process stage	Transport	A4	1.98E-04	2.17E-03	6.65E-04	5.64E-07	2.45E+00	1.10E-02	1.40E-08
	Construction	A5	7.48E-01	5.46E+00	1.85E+00	1.07E-02	7.00E+03	2.13E+02	3.70E-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	3.11E-05	3.39E-04	1.04E-04	8.81E-08	3.84E-01	1.72E-03	2.19E-09
	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	9.33E-05	1.02E-03	2.94E-04	1.05E-07	7.53E-01	3.39E-02	5.43E-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	2.18E-01	3.98E+02	1.87E-08	2.88E-07	5.43E+00
	Transport	A2	4.90E-02	7.38E+00	2.42E-10	7.73E-09	6.49E+00
	Manufacturing	A3	1.67E-01	6.14E+00	1.75E-09	3.96E-09	2.68E+00
	Total (Consumption grid)	A1-3	4.33E-01	4.12E+02	2.07E-08	3.00E-07	1.46E+01
Construction process stage	Transport	A4	1.26E-02	1.92E+00	6.19E-11	2.01E-09	1.68E+00
	Construction	A5	3.22E+01	1.05E+06	6.69E-07	3.47E-05	1.32E+03
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	1.97E-03	2.99E-01	9.70E-12	3.14E-10	2.63E-01
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	3.57E-03	5.37E-01	2.31E-11	3.60E-10	1.81E+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

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)

Parameters describing resource use, primary energy								
			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	6.16E+00	0.00E+00	6.16E+00	1.93E+02	6.26E+01	2.56E+02
	Transport	A2	1.32E-01	0.00E+00	1.32E-01	9.20E+00	0.00E+00	9.20E+00
	Manufacturing	A3	8.07E-01	2.98E-01	1.10E+00	5.69E+00	5.70E-01	6.26E+00
	Total (Consumption grid)	A1-3	7.10E+00	2.98E-01	7.41E+00	2.08E+02	6.32E+01	2.72E+02
Construction process stage	Transport	A4	3.45E-02	0.00E+00	3.45E-02	2.41E+00	0.00E+00	2.41E+00
	Construction	A5	3.98E+02	2.98E-04	3.98E+02	6.27E+03	6.70E+02	6.94E+03
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	5.40E-03	0.00E+00	5.40E-03	3.75E-01	0.00E+00	3.75E-01
	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

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	4.65E-03	0.00E+00	0.00E+00	1.70E-01
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	1.08E-03
	Manufacturing	A3	1.11E-02	0.00E+00	0.00E+00	3.03E-03
	Total (Consumption grid)	A1-3	1.57E-02	0.00E+00	0.00E+00	1.74E-01
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	2.73E-04
	Construction	A5	4.89E-03	0.00E+00	0.00E+00	5.15E+00
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	4.27E-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	7.99E-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	3.33E-01	3.00E+00	8.72E-05
	Transport	A2	1.03E-02	1.83E-01	6.34E-05
	Manufacturing	A3	8.06E-02	3.47E-01	4.35E-05
	Total (Consumption grid)	A1-3	4.22E-01	3.52E+00	1.94E-04
Construction process stage	Transport	A4	2.70E-03	4.79E-02	1.66E-05
	Construction	A5	3.25E+01	6.47E+02	2.37E-02
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	4.24E-04	7.50E-03	2.59E-06
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	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

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	8.90E-10	3.05E-13	1.18E-07	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	-3.60E-06
	Total (Consumption grid)	A1-3	0.00E+00	8.90E-10	3.05E-13	1.18E-07	0.00E+00	-3.60E-06
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	1.69E-01	3.05E-16	1.18E-10	0.00E+00	-3.60E-09
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

LCA Results: Integritank with the coverage rate of 3.05 kg/m^2

(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	1.55E+01	1.53E+01	1.51E-01	1.34E-03	3.03E-07	8.33E-02	1.42E-03
	Transport	A2	6.25E-01	6.25E-01	5.64E-04	2.51E-04	1.44E-07	2.55E-03	4.16E-05
	Manufacturing	A3	3.01E-01	2.74E-01	2.40E-02	3.09E-04	2.06E-08	9.56E-04	6.40E-05
	Total (Consumption grid)	A1-3	1.64E+01	1.62E+01	1.76E-01	1.90E-03	4.67E-07	8.69E-02	1.53E-03
Construction process stage	Transport	A4	1.63E-01	1.62E-01	1.38E-04	6.37E-05	3.75E-08	6.59E-04	1.05E-05
	Construction	A5	7.79E-01	7.76E-01	1.80E-03	5.64E-04	1.00E-06	7.48E-03	2.16E-04
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	2.54E-02	2.53E-02	2.16E-05	9.94E-06	5.86E-09	1.03E-04	1.63E-06
	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	3.23E-02	3.20E-02	2.47E-04	3.26E-05	9.76E-09	2.71E-04	9.33E-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 &metals	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	1.62E-02	1.20E-01	5.38E-02	4.05E-05	2.59E+02	7.43E+00	1.14E-06
	Transport	A2	7.72E-04	8.43E-03	2.58E-03	2.18E-06	9.43E+00	4.36E-02	5.39E-08
	Manufacturing	A3	3.03E-04	2.51E-03	7.25E-04	1.01E-06	6.22E+00	1.18E-01	1.01E-08
	Total (Consumption grid)	A1-3	1.72E-02	1.31E-01	5.71E-02	4.36E-05	2.75E+02	7.60E+00	1.20E-06
Construction process stage	Transport	A4	1.98E-04	2.17E-03	6.65E-04	5.64E-07	2.45E+00	1.10E-02	1.40E-08
	Construction	A5	1.42E-03	1.21E-02	3.87E-03	1.30E-05	1.16E+01	3.09E-01	7.59E-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	3.11E-05	3.39E-04	1.04E-04	8.81E-08	3.84E-01	1.72E-03	2.19E-09
	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	9.33E-05	1.02E-03	2.94E-04	1.05E-07	7.53E-01	3.39E-02	5.43E-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	2.16E-01	4.03E+02	1.87E-08	2.96E-07	5.61E+00
	Transport	A2	4.90E-02	7.37E+00	2.42E-10	7.71E-09	6.48E+00
	Manufacturing	A3	1.70E-01	4.04E+00	1.45E-09	2.65E-09	2.49E+00
	Total (Consumption grid)	A1-3	4.34E-01	4.15E+02	2.04E-08	3.07E-07	1.46E+01
Construction process stage	Transport	A4	1.26E-02	1.92E+00	6.19E-11	2.01E-09	1.68E+00
	Construction	A5	4.85E-02	1.24E+03	1.05E-09	4.30E-08	2.05E+00
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	1.97E-03	2.99E-01	9.70E-12	3.14E-10	2.63E-01
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	3.57E-03	5.37E-01	2.31E-11	3.60E-10	1.81E+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

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)

Parameters describing resource use, primary energy								
			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	6.16E+00	0.00E+00	6.16E+00	1.95E+02	6.29E+01	2.58E+02
	Transport	A2	1.32E-01	0.00E+00	1.32E-01	9.20E+00	0.00E+00	9.20E+00
	Manufacturing	A3	6.49E-01	3.07E-01	9.55E-01	4.92E+00	7.49E-01	5.66E+00
	Total (Consumption grid)	A1-3	6.94E+00	3.07E-01	7.25E+00	2.09E+02	6.34E+01	2.72E+02
Construction process stage	Transport	A4	3.45E-02	0.00E+00	3.45E-02	2.41E+00	0.00E+00	2.41E+00
	Construction	A5	5.23E-01	3.07E-04	5.23E-01	6.72E+00	4.59E+00	1.13E+01
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	5.40E-03	0.00E+00	5.40E-03	3.75E-01	0.00E+00	3.75E-01
	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

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	7.87E-03	0.00E+00	0.00E+00	1.74E-01
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	1.08E-03
	Manufacturing	A3	7.80E-04	0.00E+00	0.00E+00	2.86E-03
	Total (Consumption grid)	A1-3	8.63E-03	0.00E+00	0.00E+00	1.78E-01
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	2.73E-04
	Construction	A5	4.56E-04	0.00E+00	0.00E+00	7.42E-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	4.27E-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	7.99E-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	3.72E-01	3.62E+00	9.62E-05
	Transport	A2	1.03E-02	1.83E-01	6.34E-05
	Manufacturing	A3	1.21E-02	2.13E-01	4.18E-05
	Total (Consumption grid)	A1-3	3.95E-01	4.01E+00	2.01E-04
Construction process stage	Transport	A4	2.70E-03	4.79E-02	1.66E-05
	Construction	A5	9.03E-02	8.55E-01	1.60E-02
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	4.24E-04	7.50E-03	2.59E-06
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	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

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	2.21E-05	1.11E-06	1.05E-02	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	-4.27E-06
	Total (Consumption grid)	A1-3	0.00E+00	2.21E-05	1.11E-06	1.05E-02	0.00E+00	-4.27E-06
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	2.14E-01	1.11E-09	1.05E-05	0.00E+00	-4.27E-09
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

LCA Results: Silcor 1100 with the coverage rate of 2.1 kg/m^2

(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	1.05E+01	1.03E+01	1.01E-01	1.02E-03	2.14E-07	5.69E-02	1.01E-03
	Transport	A2	4.29E-01	4.29E-01	3.87E-04	1.72E-04	9.87E-08	1.75E-03	2.85E-05
	Manufacturing	A3	2.00E-01	1.82E-01	1.66E-02	2.04E-04	1.41E-08	6.30E-04	4.25E-05
	Total (Consumption grid)	A1-3	1.11E+01	1.10E+01	1.18E-01	1.39E-03	3.27E-07	5.94E-02	1.08E-03
Construction process stage	Transport	A4	1.12E-01	1.12E-01	9.51E-05	4.39E-05	2.58E-08	4.54E-04	7.20E-06
	Construction	A5	4.66E-01	4.64E-01	1.10E-03	3.24E-04	5.80E-07	4.44E-03	1.27E-04
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	1.75E-02	1.75E-02	1.49E-05	6.85E-06	4.03E-09	7.08E-05	1.12E-06
	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	2.23E-02	2.21E-02	1.70E-04	2.25E-05	6.72E-09	1.86E-04	6.43E-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 &metals	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	1.10E-02	8.20E-02	3.68E-02	3.06E-05	1.78E+02	5.05E+00	7.63E-07
	Transport	A2	5.29E-04	5.79E-03	1.77E-03	1.49E-06	6.47E+00	2.99E-02	3.70E-08
	Manufacturing	A3	2.04E-04	1.68E-03	4.78E-04	7.29E-07	4.06E+00	7.66E-02	6.79E-09
	Total (Consumption grid)	A1-3	1.18E-02	8.95E-02	3.90E-02	3.27E-05	1.88E+02	5.16E+00	8.05E-07
Construction process stage	Transport	A4	1.37E-04	1.49E-03	4.58E-04	3.89E-07	1.69E+00	7.60E-03	9.64E-09
	Construction	A5	8.64E-04	7.53E-03	2.38E-03	7.51E-06	6.93E+00	1.81E-01	4.67E-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	2.14E-05	2.33E-04	7.14E-05	6.07E-08	2.65E-01	1.19E-03	1.51E-09
	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	6.43E-05	6.99E-04	2.02E-04	7.22E-08	5.19E-01	2.33E-02	3.74E-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	1.55E-01	2.73E+02	1.29E-08	1.96E-07	4.12E+00
	Transport	A2	3.36E-02	5.05E+00	1.66E-10	5.29E-09	4.44E+00
	Manufacturing	A3	1.14E-01	2.75E+00	1.02E-09	1.80E-09	1.69E+00
	Total (Consumption grid)	A1-3	3.01E-01	2.82E+02	1.41E-08	2.04E-07	1.02E+01
Construction process stage	Transport	A4	8.67E-03	1.32E+00	4.26E-11	1.38E-09	1.16E+00
	Construction	A5	2.85E-02	7.13E+02	6.19E-10	2.48E-08	1.14E+00
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	1.36E-03	2.06E-01	6.68E-12	2.16E-10	1.81E-01
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	2.46E-03	3.70E-01	1.59E-11	2.48E-10	1.24E+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

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)

Parameters describing resource use, primary energy								
			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	4.26E+00	0.00E+00	4.26E+00	1.33E+02	4.33E+01	1.77E+02
	Transport	A2	9.04E-02	0.00E+00	9.04E-02	6.31E+00	0.00E+00	6.31E+00
	Manufacturing	A3	4.45E-01	2.10E-01	6.55E-01	3.33E+00	4.29E-01	3.76E+00
	Total (Consumption grid)	A1-3	4.80E+00	2.10E-01	5.01E+00	1.43E+02	4.35E+01	1.87E+02
Construction process stage	Transport	A4	2.37E-02	0.00E+00	2.37E-02	1.66E+00	0.00E+00	1.66E+00
	Construction	A5	3.05E-01	2.10E-04	3.05E-01	5.17E+00	1.68E+00	6.86E+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	3.72E-03	0.00E+00	3.72E-03	2.58E-01	0.00E+00	2.58E-01
	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

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	4.98E-03	0.00E+00	0.00E+00	1.18E-01
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	7.39E-04
	Manufacturing	A3	7.12E-04	1.93E-07	0.00E+00	1.90E-03
	Total (Consumption grid)	A1-3	5.67E-03	1.93E-07	0.00E+00	1.21E-01
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	1.88E-04
	Construction	A5	3.14E-04	1.93E-10	0.00E+00	4.35E-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	2.94E-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	5.50E-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	2.53E-01	2.47E+00	6.51E-05
	Transport	A2	7.08E-03	1.26E-01	4.34E-05
	Manufacturing	A3	9.38E-03	1.39E-01	2.80E-05
	Total (Consumption grid)	A1-3	2.70E-01	2.73E+00	1.37E-04
Construction process stage	Transport	A4	1.86E-03	3.30E-02	1.14E-05
	Construction	A5	5.75E-02	4.97E-01	1.10E-02
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	2.92E-04	5.17E-03	1.79E-06
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	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

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	4.69E-06	2.47E-08	3.16E-03	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	3.34E-06	1.42E-09	1.54E-04	0.00E+00	-2.91E-06
	Total (Consumption grid)	A1-3	0.00E+00	8.03E-06	2.61E-08	3.31E-03	0.00E+00	-2.91E-06
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	1.14E-01	2.61E-11	3.31E-06	0.00E+00	-2.91E-09
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 Eliminator, Integritank or Silcor 1100 system components from GCP manufacturing site to the customer unit. Average transportation distance has been used for the LCA analysis		
	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	1.1
A5 – Installation in the building	Installation of Eliminator/Integritank/Silcor 1100 follows a number of steps depending on the specific application. The primer is applied initially, followed by the waterproofing membrane and finally the tack/bond coat if required.		
	Installation waste percentage	< 0.1% left in Tin	
Installation wastages	Storage Pail	kg	0.01
	Storage Drum	kg	0.05
Packaging waste	Wood pallet waste	kg	0.0017
C1 - End of life	The membrane lasts for the design life of the structure / asphalt pavement. Deconstruction of the system would only happen when the structure is demolished, or the asphalt pavement is replaced. It is not removed separately. It can be safely assumed that the energy attributed to deconstructing the system compared to the overall demolition will be effectively negligible. As a result, no impacts are attributed to module C1. Removed membranes will be send to the disposal unit, along with any attached substrate or asphalt 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 – Deconstruction	No preprocessing of waste at the waste processing unit		
C4 – Disposal	100% of the waste eliminator system will be landfilled	%	100
100% to landfill	Eliminator with Bond Coat	Kg/m2	3.65
	Eliminator without bond coat system	Kg/m2	3.05
	Integritank	Kg/m2	3.05
	Silcor 1100	Kg/m2	2.1
Module D	All the membrane 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.		

Interpretation of results:

The majority of environmental impacts are attributed to the manufacturing of all systems covered by information modules A1-A3 of EN15804:2012+A2:2019. In the eliminator system, the eliminator water membrane comprises most of the composition and is responsible for the environmental impacts. In the Integritank/Silcor 1100 system, most of the environmental impacts are attributed to the Integritank component.

Individual Product calculation

The LCA results listed in the tables above are for the Eliminator, Integritank, and Silcor 1100 systems. The LCA results for each system were calculated for 1m2 based on the most common components and typical coverage rates of each system, the details of which are shown in table below.

Component	System	Eliminator with Bond Coat	Eliminator no Bond Coat	Integritank	Silcor 1100
	Unit	Kg/m2	Kg/m2	Kg/m2	Kg/m2
Primer	PAR1, PA1 or ZEDS94	0.25	0.25	0.25	0.2
Membrane	Eliminator, Integritank or Silcor 1100	2.8	2.8	2.8	1.9
Bond Coat	Bond Coat 3 or Tack Coat No. 2	0.6	-	-	-
Total		3.65	3.05	3.05	2.1

Note: If a different coverage rate has been used, the end-user of this EPD can calculate the impact of the system as used by applying a factor to the published LCA results.

References

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