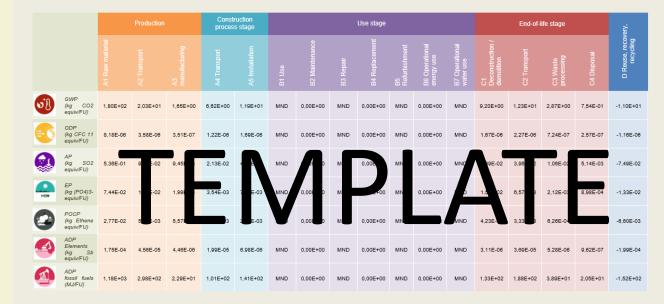# B-EPD

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POTENTIAL ENVIRONMENTAL IMPACTS PER REFERENCE FLOW

| | Production | | | Construction process stage | | Use stage | | | | | | | End-of-life stage | | | | D Reuse, recovery, recycling |
	A1 Raw material	A2 Transport	A3 manufacturing	A4 Transport	A5 Installation	B1 Use	B2 Maintenance	B3 Repair	B4 Replacement	B5 Refurbishment	B6 Operational energy use	B7 Operational water use	C1 Deconstruction / demolition	C2 Transport	C3 Waste processing	C4 Disposal	
GWP (kg CO_2 equiv/FU)	1,80E+02	2,03E+01	1,65E+00	6,62E+00	1,19E+01	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	9,20E+00	1,23E+01	2,87E+00	7,54E-01	-1,10E+01
ODP (kg CFC 11 equiv/FU)	8,18E-06	3,58E-06	3,51E-07	1,22E-06	1,69E-06	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	1,67E-06	2,27E-06	7,24E-07	2,57E-07	-1,16E-06
AP (kg SO_2 equiv/FU)	5,36E-01		9,45	2,13E-02		MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	,9E-02	3,96	1,06E-02	5,14E-03	-7,49E-02
EP (kg (PO4)3- equiv/FU)	7,44E-02		1,99	3,54E-03		MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	,02	6,57	2,12E-03	8,98E-04	-1,33E-02
POCP (kg Ethene equiv/FU)	2,77E-02	5,	5,57		E-03	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	4,23E	3,33	6,26E-03		-6,60E-03
ADP Elements (kg Sb equiv/FU)	1,75E-04	4,56E-05	4,46E-06	1,99E-05	6,98E-06	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	3,11E-06	3,69E-05	5,28E-06	9,62E-07	-1,99E-04
ADP fossil fuels (MJ/FU)	1,18E+03	2,98E+02	2,29E+01	1,01E+02	1,41E+02	MND	0,00E+00	MND	0,00E+00	MND	0,00E+00	MND	1,33E+02	1,88E+02	3,89E+01	2,05E+01	-1,52E+02

GWP = Global Warming Potential (Climate Change); ODP = Ozone Depletion Potential; AP = Acidification Potential for Soil and Water; EP = Eutrophication Potential; POCP = Photochemical Ozone Creation; ADPE = Abiotic Depletion Potential – Elements; ADPF = Abiotic Depletion Potential – Fossil Fuels;

- … It is a legal obligation when putting an environmental message on your product or its packaging Presently, TOTEM is working with generic data. As from 2021, it will also use specific data through B-EPD.

Number of published B.EPD

29 different companies

TOTEM
rules clear

2020: published or in final phase.

2017   2018   2019   2020

Possibility to declare circularity: reversibility

Simplicity of disassembly	- simple - no specific dismantling tools required
	- simple - use of dismantling tools required
	- complex - requires specific tools and/or several workers
	- complexe - requires specific know-how, tools and/or several workers
Speed of disassembly	- very speedy disassembly
	- speedy disassembly
	- rather slow disassembly
	- slow disassembly
Ease of handling (size and weight)	- easy to handle manually, one workers is usually sufficient
	- can be handled manually, but size and/or weight may require more than one worker
	- can be handled manually, but size and/or weight requires two or more workers
	- handling requires mechnical devices
Robustness of material (material resistance to disassembly)	- the material resists well during disassembly
	- disassembly is possible but should be done carefully in order not to generate any damage
	- disassembly is possible but generates inevitable damage to the material
	- n/a: the element is not reversible

Reversibility	non reversible fixing	cast in mass
		projected
		coated
		plaster and filler
		cold or hot bonding, foam bonding
		glue
		sticky or adhesive tape
		welding
		glue mortar for masonry joints (Rjoint ≥ Rmat)
		cement mortar for masonry joints (R joint ≥ Rmat)
		hybrid mortar (cement / lime) for masonry joints (Rjoint ≥ Rmat)
	reversible with non repairable damage	lime mortar for masonry joints (Rjoint < Rmat)
		clay mortar for masonry joints (Rjoint < Rmat)
		sand joints (Rjoint < Rmat)
		mastic (window, sanitary elements…) for joints (Rjoint < Rmat)
		nails and staples
	reversible with light repairable damage	screws, bolts and dowels
	reversible fixing	brackets, hooks, hooves, clips…
	reversible fixing	nesting, interlocking, superposition, juxtaposition
	non reversible fixing	nesting / interlocking , under screed (example: concrete slab elements)
	reversible fixing	loose laying
	reversible fixing	loose laying without weighting
	reversible fixing	loose laying with weighting
	non reversible fixing	loose laying with weighting, under the screed
	non reversible fixing	multilayer composite material (layers are always glued)

Corr	Scenario	Naam	Beschrijving
✎	A4	Levering (NL)	- Brandstoftype [l/100km] → 1 liter diesel per 3 km, 1/9 km, vrachtwagen - Capaciteitsbenuttingsgraad [%] → diesel consumptie is voor een gemiddeld belading, 30% komt leeg terug, 70% wordt benut voor andere lading/transport. - Dichtheid [kg/m3] → Volumegebaseerd, gemiddeld 105 m3 per vrachtwagen - Volume capaciteit → Sommige producten zijn gecompacteerd, dit is niet meegenomen, derhalve is een factor 1 toegepast voor alle producten. "scenario voor Nederland"	✖
✎	A5	Installatie	- Materiaal nodig voor de installatie → Niet gedeclareerd - Directe emissions naar lucht, grond en water → Geen - Andere hulpmiddelen → Geen - Benodigde energie → Handmatige installatie, dus geen electriciteitsverbruik - Installatieafval → Snijafval is gedeclareerd - Afval dat de bouwplaats verlaat voor verbranding als afval → Verpakking en snijafval	✖
✎	C2	Transport afval (NL)	- 90% recycling, - 10% stort "scenario voor Nederland"	✖
✎	C3	Afval verwerking (NL)	De verwerking van gerecycled materiaal is meegenomen bij de inzet van gerecycled materiaal bij de productie, economische allocatie is toegepast.	✖
✎	C4	Afval (NL)	Stort van minerale wol, inert materiaal	✖
✎	D	Recycling (NL)	Recycling van verpakkingsmateriaal op de bouwplaats, substitutie toegepast, opwerking tot granulaat/grondstof met 90% materiaal-efficiëntie	✖

Core impact categories and indicators

Parameter	Unit - Method
Global warming potential	kg CO2 equiv - EN 15804:2012 ▼
GWP_biogenic	kg CO2 eq - EN 15804 ▼
Depletion of the stratospheric ozone layer	kg CFC 11 equiv ▼
Acidification of soil and water	kg SO2 equiv ▼
Eutrophication	kg (PO4)3- equiv ▼
Tropospheric ozone formation	kg Ethene equiv ▼
Depletion of non fossil resources	kg Sb equiv ▼
Depletion of fossil resources	MJ, net calorific value ▼

A1-A3, Productiefase

Parameter	Abbreviation	Unit	A1	A2	A3	A1 - A3
Global warming potential	GWP	kg CO2 equiv				4,10E+00
GWP_biogenic	GWP_bio	kg CO2 eq				-6,60E+00
Depletion of the stratospheric ozone layer	ODP	kg CFC 11 equiv				2,80E-07
Acidification of soil and water	AP	kg SO2 equiv				3,40E-02
Eutrophication	EP	kg (PO4)3- equiv				5,40E-03
Tropospheric ozone formation	POCP	kg Ethene equiv				1,40E-03
Depletion of non fossil resources	ADPE	kg Sb equiv				4,00E-06
Depletion of fossil resources	ADPF	MJ, net calorific value				3,00E-02

A4-A5, Bouwfase

Parameter	Abbreviation	Unit	A4 Levering (NL)	A5 Installatie
Global warming potential	GWP	kg CO2 equiv	2,80E-01	4,30E-01
GWP_biogenic	GWP_bio	kg CO2 eq	0,00E+00	0,00E+00
Depletion of the stratospheric ozone layer	ODP	kg CFC 11 equiv	4,70E-08	-9,40E-08
Acidification of soil and water	AP	kg SO2 equiv	9,80E-04	5,30E-04
Eutrophication	EP	kg (PO4)3- equiv	1,70E-04	9,70E-05
Tropospheric ozone formation	POCP	kg Ethene equiv	4,30E-05	1,80E-05
Depletion of non fossil resources	ADPE	kg Sb equiv	9,40E-07	1,20E-07
Depletion of fossil resources	ADPF	MJ, net calorific value	1,90E-03	-2,70E-04

C, Eindlevensfase (EOL)

Parameter	Abbreviation	Unit	C2 Transport afval (NL)	C3 Afval verwerking (NL)	C4 Afval (NL)
Global warming potential	GWP	kg CO2 equiv	1,00E-01	1,90E-01	5,90E-03
GWP_biogenic	GWP_bio	kg CO2 eq	0,00E+00	0,00E+00	0,00E+00
Depletion of the stratospheric ozone layer	ODP	kg CFC 11 equiv	2,20E-08	2,70E-08	1,60E-09
Acidification of soil and water	AP	kg SO2 equiv	5,20E-04	5,90E-04	3,30E-05
Eutrophication	EP	kg (PO4)3- equiv	9,30E-05	2,80E-05	6,30E-06
Tropospheric ozone formation	POCP	kg Ethene equiv	2,10E-05	2,60E-05	1,30E-06
Depletion of non fossil resources	ADPE	kg Sb equiv	5,40E-07	1,20E-06	1,20E-08
Depletion of fossil resources	ADPF	MJ, net calorific value	8,70E-03	1,70E-03	6,20E-05

D, Voordelen en lasten buiten de systeemgrenzen

Parameter	Abbreviation	Unit	D Recycling (NL)
Global warming potential	GWP	kg CO2 equiv	-2,90E-03
GWP_biogenic	GWP_bio	kg CO2 eq	0,00E+00
Depletion of the stratospheric ozone layer	ODP	kg CFC 11 equiv	-6,70E-10
Acidification of soil and water	AP	kg SO2 equiv	-1,90E-04
Eutrophication	EP	kg (PO4)3- equiv	-1,90E-05
Tropospheric ozone formation	POCP	kg Ethene equiv	-1,00E-05
Depletion of non fossil resources	ADPE	kg Sb equiv	-1,20E-08
Depletion of fossil resources	ADPF	MJ, net calorific value	-7,00E-04

Other parameters describing resources and waste

Additional impact categories and indicators

www.**b-epd**.be

- Reference documents
- One address for all your questions on B-EPD: epd@health.fgov.be
- The database is available on www.environmentalproductdeclarations.eu
- Stay informed via epdnews@environment.belgium.be