

Miljøvaredeklarationer - EPD

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- Hvad er en EPD – og hvad bliver den brugt til?
- Hvor kommer krav til EPD'er fra?
- Hvordan laves en EPD?
- Hvad kræves af producenten?
- EPD Danmark og andre europæiske/internationale programoperatører

Hvad er en EPD?

En EPD er en produktdeklaration, med hvilken en producent kan dokumentere en række egenskaber for sit produkt.

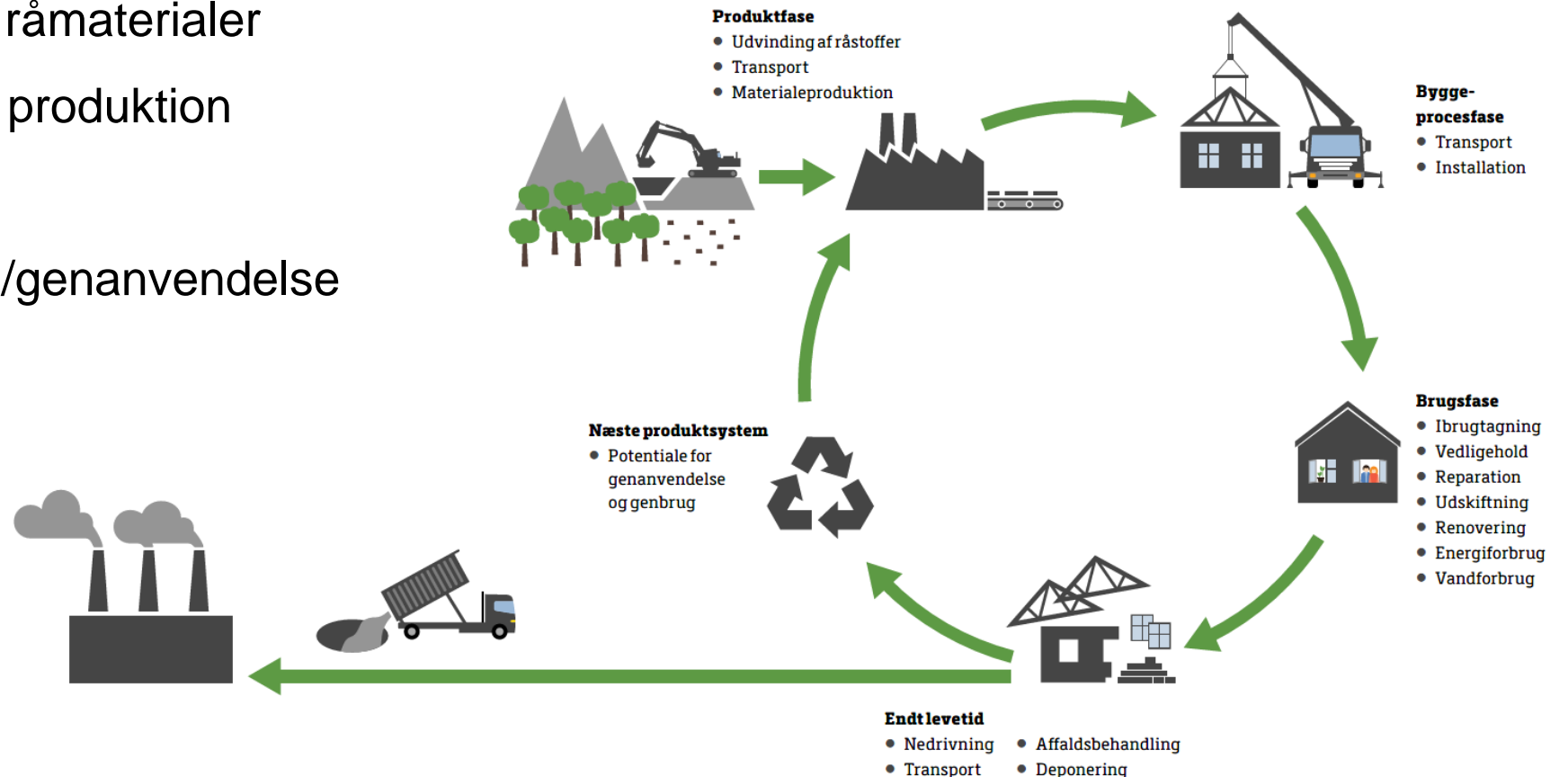
Hvilke egenskaber deklarerer?

Produktets miljøegenskaber baseret på de samlede udledninger og ressourceforbrug beregnet over produktets livscyklus:

- CO₂-udledning
- Energiforbrug
- Vandforbrug
- Affaldsgenerering
- ...

Produktets livscyklus dækker over de processer som finder sted i forbindelse med...

- Udvinning af råmaterialer
- Transport og produktion
- Brug
- Bortskaffelse/genanvendelse



MiljøvaredeklARATIONER - EPD



CEMIBRIT



Owner of declaration
Cembit Holding A/S
Sohngårdsholmsvej 2
9000 Aalborg



Issued: 25-04-2016 Valid to: 25-04-2021

Programme operator
Danish Technological Institute
www.dti.dk



Programme
EPD Danmark
www.epddanmark.dk



Declared products
Cembit Construction, coated
Cembit Multi Force
Cembit Aqua Block
Cembit Windstopper Extreme
Cembit Windstopper Basic

Basis of calculation
This EPD is developed in accordance with the requirements in EN 15804. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database.

Comparability
EPDs of construction products may not be comparable if they do not comply with the requirements in EN 15804. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database.

Validity
This EPD has been verified in accordance with ISO 14025 and is valid for 5 years from the date of issue.

Use
The intended use of an EPD is to communicate scientifically based environmental information for construction products, for the purpose of assessing the environmental performance of buildings.

EPD type
☑ Cradle-to-gate
☐ Cradle-to-gate with options
☐ Cradle-to-grave

Production site
Mineralintie
FIN-08681 Lohja
Finland

CEN standard EN 15804 serves as the core PCR

Independent verification of the declaration and data, according to EN ISO 14025

☐ Internal ☑ External

Third party verifier:

Susanne Vedel Jørgensen
Susanne Vedel Jørgensen

Mathias Hoeg
Mathias Hoeg
EPD Danmark

Life cycle stages and modules (MND = module not declared)

Product	Construction process					Use				End of life				Beyond the system boundary			
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1		C2	C3	C4
Raw material supply																	
Transport																	
Manufacturing																	
Installation process																	
Use																	
Maintenance																	
Repair																	
Replacement																	
Refurbishment																	
Operational energy use																	
Operational water use																	
Deconstruction																	
Demolition																	
Transport																	
Waste processing																	
Disposal																	
Re-use, recovery and recycling potential																	
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

CEMIBRIT



LCA results

Parameter	Unit	ENVIRONMENTAL IMPACTS PER TONNE					
		Construction		Multi Force	Aqua Block	Windstopper Extreme	Windstopper Basic
		A1+A3	A1+A3	A1+A3	A1+A3	A1+A3	A1+A3
GWP	[kg CO ₂ -eq.]	6,54E+02	6,79E+02	5,82E+02	5,57E+02	5,41E+02	3,85E+02
ODP	[kg CFC11-eq.]	2,65E-07	2,70E-07	2,63E-07	2,61E-07	2,61E-07	2,52E-07
AP	[kg SO ₂ -eq.]	1,54E+00	1,69E+00	1,32E+00	1,44E+00	1,28E+00	9,48E+01
EP	[kg PO ₄ -eq.]	2,30E-01	2,38E-01	2,16E-01	2,10E-01	2,07E-01	1,59E-01
POCP	[kg etheneq.]	1,83E-01	1,99E-01	1,33E-01	1,45E-01	1,41E-01	8,81E-02
ADPE	[kg Sb-eq.]	8,49E-04	8,82E-04	6,87E-04	9,03E-04	6,79E-04	4,87E-04
ADPF	[MJ]	6,14E+03	6,79E+03	5,46E+03	5,15E+03	5,28E+03	3,32E+03

GWP = Global warming potential; ODP = Ozone depletion potential; AP = Acidification potential of soil and water; EP = Eutrophication potential; POCP = Photochemical ozone creation potential; ADPE = Abiotic depletion potential for non fossil resources; ADPF = Abiotic depletion potential for fossil resources

Parameter	Unit	RESOURCE USE PER TONNE					
		Construction		Multi Force	Aqua Block	Windstopper Extreme	Windstopper Basic
		A1+A3	A1+A3	A1+A3	A1+A3	A1+A3	A1+A3
PERE	[MJ]	3,96E+03	4,00E+03	4,31E+03	4,29E+03	4,32E+03	3,80E+03
PERM*	[MJ]	8,22E+02	8,02E+02	1,10E+03	1,08E+03	1,10E+03	8,22E+02
PERT	[MJ]	4,78E+03	4,80E+03	5,41E+03	5,37E+03	5,42E+03	4,62E+03
PENRE	[MJ]	6,74E+03	7,42E+03	6,39E+03	5,95E+03	6,06E+03	4,33E+03
PENRM**	[MJ]	4,02E+02	4,02E+02	5,10E+01	2,07E+02	1,56E+02	5,10E+01
PENRT	[MJ]	7,15E+03	7,83E+03	6,40E+03	6,16E+03	6,22E+03	4,38E+03
SM	[g]	*	*	*	*	*	*
RSF	[MJ]	5,89E+02	9,46E+02	5,25E+02	4,84E+02	5,25E+02	4,06E+02
NRSF	[MJ]	5,40E+02	5,30E+02	4,50E+02	4,46E+02	4,31E+02	3,15E+02
FW	[m ³]	3,04E+00	3,20E+00	2,28E+00	2,44E+00	2,48E+00	2,05E+00

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non renewable primary energy excluding non renewable primary energy resources used as raw materials; PENRM = Use of non renewable primary energy resources used as raw materials; PENRT = Total use of non renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Use of jet fresh water

*Contribution from packaging material per product type: 2,70E+02 MJ **Contribution from packaging material per product type: 5,10E+01 MJ

Parameter	Unit	OUTPUT FLOWS AND WASTE CATEGORIES PER TONNE					
		Construction		Multi Force	Aqua Block	Windstopper Extreme	Windstopper Basic
		A1+A3	A1+A3	A1+A3	A1+A3	A1+A3	
MWD	[g]	1,13E+04	1,15E+04	1,48E+04	1,38E+04	1,40E+04	1,07E+04
NHWD	[g]	2,48E+01	3,69E+01	2,44E+01	2,42E+01	2,44E+01	2,34E+01
RWD	[g]	3,94E-01	4,16E-01	3,69E-01	3,63E-01	3,68E-01	3,32E-01
CRU	[g]	*	*	*	*	*	*
MFR	[g]	*	*	*	*	*	*
MER	[g]	*	*	*	*	*	*
EEE	[MJ]	*	*	*	*	*	*
EET	[MJ]	*	*	*	*	*	*

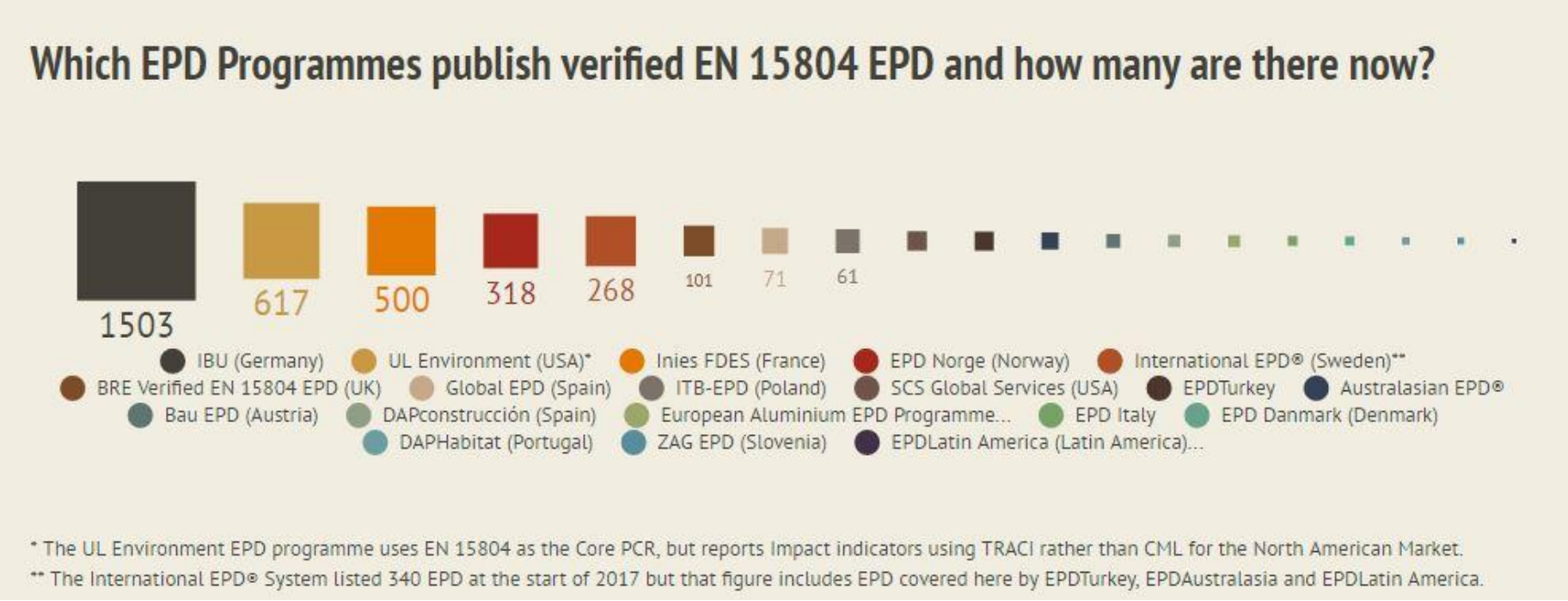
MWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

Miljøvaredeklarationer - EPD

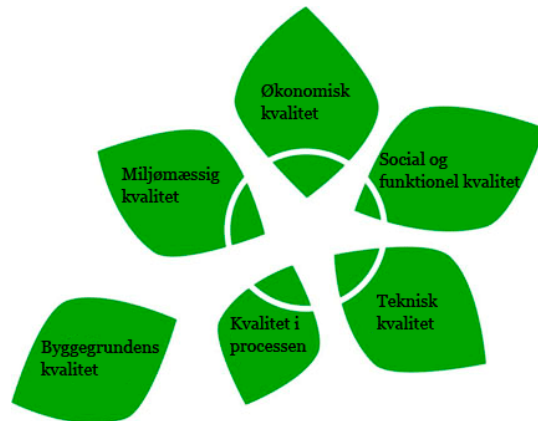
ENVIRONMENTAL IMPACTS PER TONNE							
Parameter	Unit	Construction	Construction, coated	Multi Force	Aqua Block	Windstopper Extreme	Windstopper Basic
		A1-A3	A1-A3	A1-A3	A1-A3	A1-A3	A1-A3
GWP	[kg CO ₂ -eq.]	6,54E+02	6,79E+02	5,82E+02	5,57E+02	5,41E+02	3,85E+02
ODP	[kg CFC11-eq.]	2,65E-07	2,70E-07	2,63E-07	2,61E-07	2,61E-07	2,52E-07
AP	[kg SO ₂ -eq.]	1,54E+00	1,69E+00	1,32E+00	1,44E+00	1,28E+00	9,48E-01
EP	[kg PO ₄ ³⁻ -eq.]	2,30E-01	2,38E-01	2,16E-01	2,10E-01	2,07E-01	1,56E-01
POCP	[kg ethene-eq.]	1,83E-01	1,99E-01	1,33E-01	1,45E-01	1,41E-01	9,81E-02
ADPE	[kg Sb-eq.]	8,49E-04	8,82E-04	6,87E-04	9,03E-04	6,79E-04	4,87E-04
ADPF	[MJ]	6,14E+03	6,76E+03	5,46E+03	5,15E+03	5,28E+03	3,53E+03
Caption	GWP = Global warming potential; ODP = Ozone depletion potential; AP = Acidification potential of soil and water; EP = Eutrophication potential; POCP = Photochemical ozone creation potential; ADPE = Abiotic depletion potential for non fossil resources; ADPF = Abiotic depletion potential for fossil resources						

Antal globalt

Beginning of 2017 (in total 3600+) [2000+ in 2015]



(Jane Anderson, Thinkstep)



DGNB KRITERIE TEC1.8

MILJØVAREDEKLARATIONER (EPD)

(ENV1.1: LCA – miljøpåvirkninger

ENV2.1: LCA – primærenergi)

EPD'erne kan hentes fra forskellige EPD-udbydere (se eksempler nedenfor), men det skal sikres at EPD'erne er gældende for de byggevarer, der anvendes i det pågældende byggeri og at EPD'erne er udarbejdet i henhold til EN 15804.

Eksempler på EPD-udbydere:

- EPD Danmark (www.epddanmark.dk)
- EPD Norge (www.epd-norge.no)
- IBU i Tyskland (www.bau-umwelt.de)
- International EPD system (www.environdec.com)

Herudover kan næves ECO platform (www.eco-platform.org), som er en paraplyorganisation der repræsenterer en sammenslutning af EPD-udbydere.

Fokus i udlandet



breeam





Byggevarer med miljøvaredeklaration (MVD) kan sammenlignes mht. miljøbelastning og foretrakkes derfor.

2.01 LIVSCYKLUSVURDERING

Der skal ved nybyggeri udføres livscyklusvurderinger, LCA, af bygningsdele til at kvalificere valg af konstruktioner med den mindste negative miljøpåvirkning.



Krav om at undgå skadelig kemi, mærkning og livscyklusvurdering reducerer miljøbelastningen og styrker viden om de enkelte produkters miljøpåvirkning.

Miljøvaredeklarationer

En miljøvaredeklaration eller EPD (Environmental Product Declaration) dokumenterer en byggevars miljømæssige egenskaber og udvikles iht. anerkendte Europæiske og internationale standarder.

Det er altså en standardiseret metode til at levere informationer om energi- og ressourceforbruget samt miljøpåvirkningerne fra produktionen, anvendelsen og bortskaffelsen af en byggevarer.

Miljøvaredeklarationer kan bl.a. ses på:

- EPD Danmarks hjemmeside: (www.epd.dk)

Uddannelses- og Forskningsministeriet: FORSK2025: Strategiske fokusområder vedr. byggeriet:

- Digitalisering, Teknologier (robotter/droner, 3D print, Big Data)
- Cirkulær ressourceøkonomi
- Indeklima
- Energi
- Materialer
- Klima

[\[https://ufm.dk/publikationer/2017/filer/forsk2025.pdf\]](https://ufm.dk/publikationer/2017/filer/forsk2025.pdf)

Uddrag af anbefalede indsatser vedr. bl.a. Bygningsreglementet (ROADMAP: Energifonden)

Nye bygninger:	2020	2025	2030
Energi	-	LCA på indlejret energi (baseret på EPD'er)	Krav til LCA på indlejret energi
Miljømæssig bæredygtighed	Introduktion af frivillig bæredygtighedsklasse	LCA'er baseret på EPD'er	Krav om opfyldelse af bæredygtighedsklasse
Eksisterende bygninger (renovering)			LCA vedr. miljømæssig betydning af renovering

[\[https://www.innobyg.dk/media/75132/roadmap-rapport_final.pdf\]](https://www.innobyg.dk/media/75132/roadmap-rapport_final.pdf)



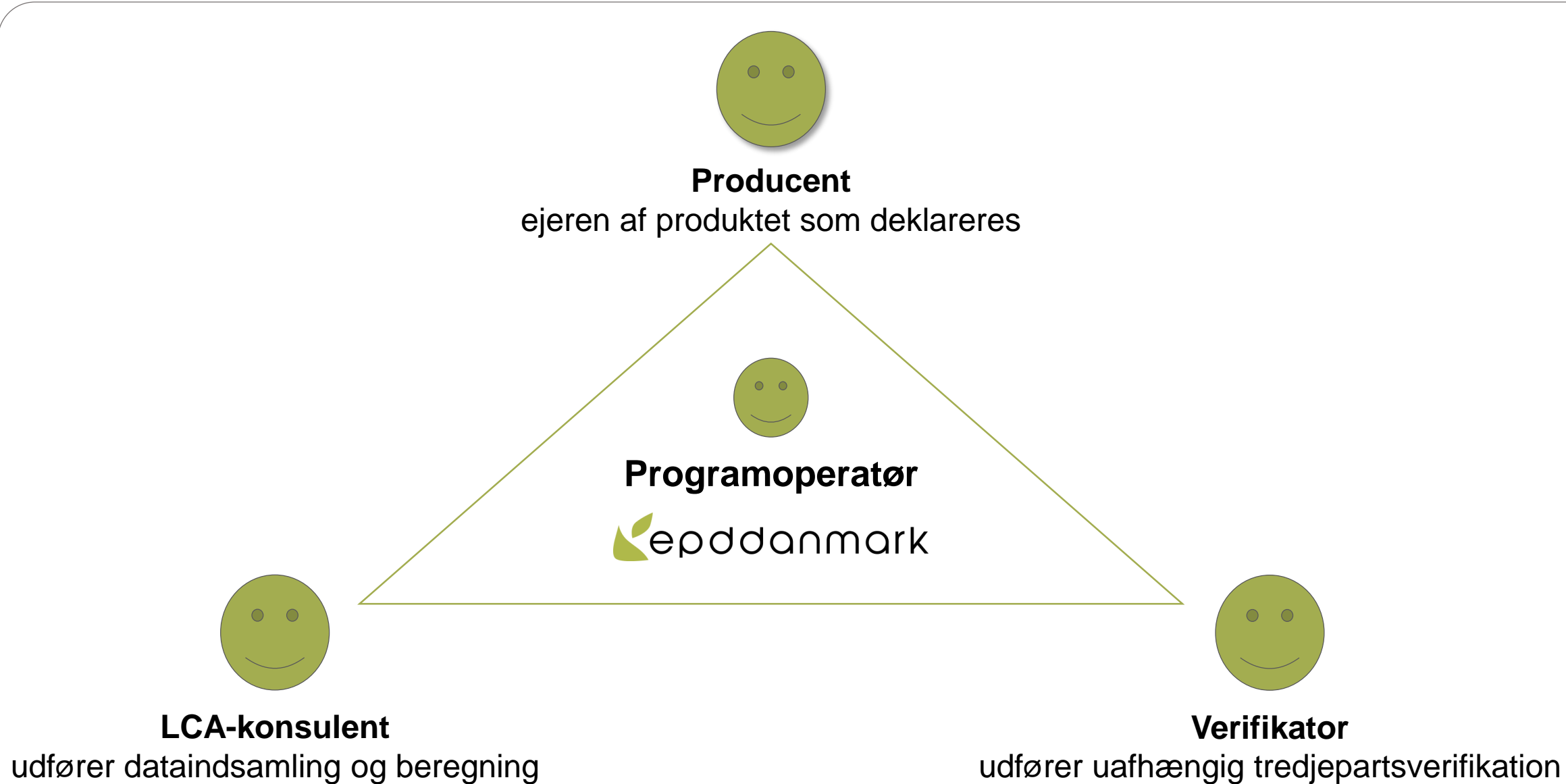
CPR stiller ikke direkte produktkrav, men en række grundlæggende krav til bygværker, som omsættes til væsentlige egenskaber i produktstandarderne

1. Mekanisk modstandsdygtighed og stabilitet
2. Brandsikring
3. Hygiejne, sundhed og miljø
4. Sikkerhed og adgangsforhold ved anvendelsen
5. Beskyttelse mod støj
6. Energibesparelser og varmeisolering
7. **Bæredygtig udnyttelse af naturressourcer**

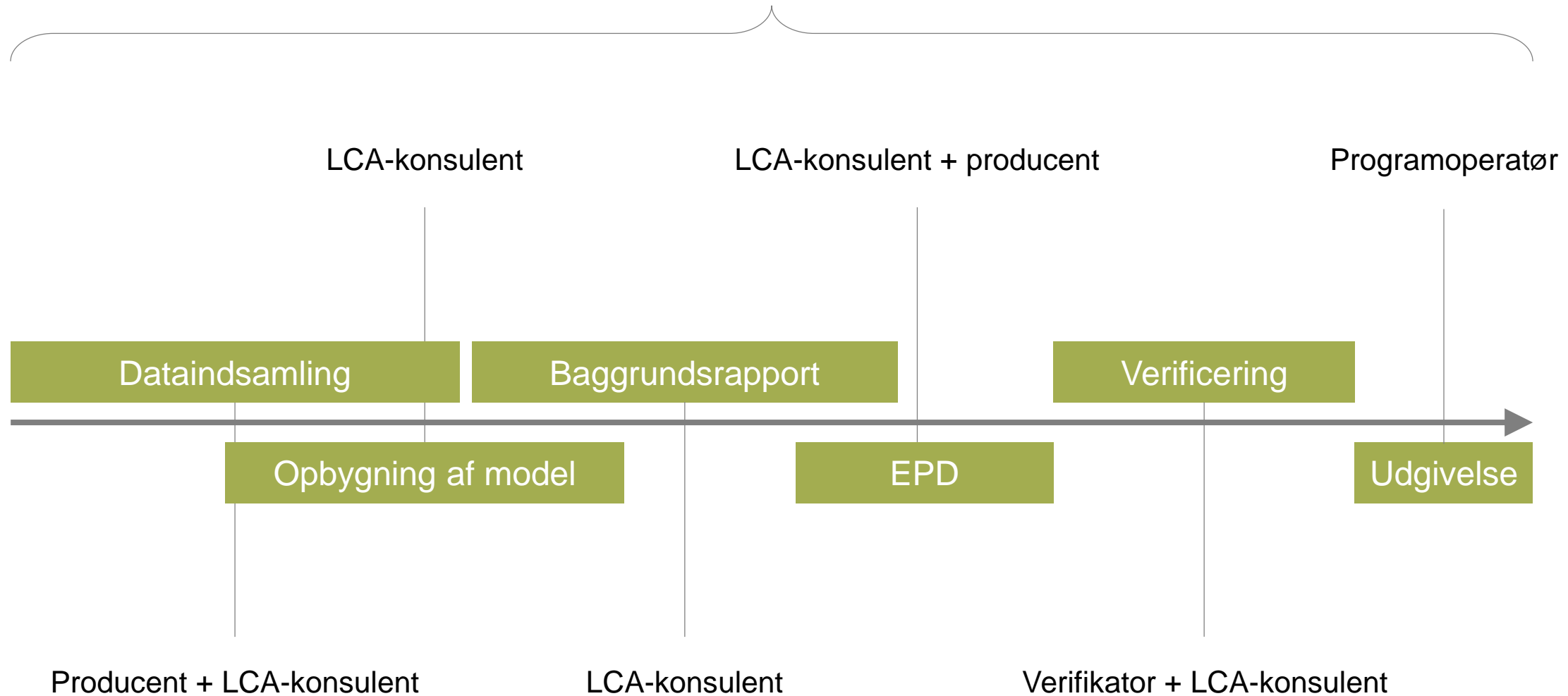
”Til vurdering af bæredygtig anvendelse af ressourcer og af bygværkers miljøpåvirkning bør der anvendes miljøvaredeklARATIONER, hvis de foreligger”



Hvordan laves en EPD



6 måneder (vejledende)



Eksempel på inputs leveret af producenten (forsimplet)

År for indsamling: 2016

Konstruktionstræ	15.563	kg	Materiale
Aluminium	9.875	kg	Materiale
EPDM gummi	3.157	kg	Materiale
Smøremiddel	492	kg	Hjælpestof
Destilleret vand	3,69	m ³	Hjælpestof
Elektricitet	200.000	kWh	Energiforbrug
Termisk energi (natur gas)	550.000	MJ	Energiforbrug
PE folie	1.125	kg	Pakkemateriale

Eksempel på outputs leveret af producenten (forsimplet)

År for indsamling: 2016

Færdigt produkt	45.000	m ²	Produkt
Aluminiumsaffald	2.800	kg	Affald til genanv.
Træspåner	3.560	kg	Affald til genanv.
Spildolie	550	kg	Affald til bortskaf.
Spildevand fra produktion	12	m ³	Udledning til vand

- Hvilken type EPD ønskes?
 - Vugge-til-port
 - Vugge-til-port med tilvalg
 - Vugge-til-grav

- Hvilke(t) produkt(er) skal deklarereres og hvordan?
 - Et produkt i en EPD
 - Flere produkter i en EPD
 - Flere produkter i flere EPD'er

- Hvordan er data tilgængelig og hvem skal fremskaffe disse?

- Hvilken produktenhed anvendes i EPDen (screening af eksisterende PCR/EPD)
 - kg
 - m²
 - stk.
 - ...

Serien af standarder fra CEN/TC 350

	EN 15643-1 Assessment of buildings – Part 1: General framework		
Framework level	EN 15643-2 Assessment of buildings – Part 2: framework for the assessment of environmental performance	EN 15643-3 Assessment of buildings – Part 3: framework for the assessment of social performance	EN 15643-4 Assessment of buildings – Part 4: framework for the assessment of economic performance
Building level	EN 15978 Assessment of environmental performance of buildings – Calculation method	EN 16309 Assessment of social performance of buildings – Calculation methodology	EN 16627 Assessment of economic performance of buildings – Calculation method
Product level	EN 15804 Environmental product declarations – Core rules for the product category of construction products		
	EN 15942 Environmental product declarations – Communication format – Business to Business		
	CEN/TR 15941 Environmental product declarations – Methodology for selection and use of generic data		

Krav til EPD format og indhold



Verificeringsprocessen

- Kompetencekrav
- Tjeklister
- Styring af processen



Styregruppen

- Aalborg Universitet
- Dansk Green Building Council
- Dansk Byggeri
- DTU
- NCC
- Søren Jensen Rådg. Ing.
- Arkitema
- Kalk- og Teglværksforeningen
- Vinduesindustrien



- EPD database
- Gældende programinstruktioner
- Information og kontakt
- ...


ECO Platform – markedsdrevet harmonisering



ECO Platform – markedsdrevet harmonisering



Aftale om gensidig anerkendelse med Tyskland epddanmark



AGREEMENT

between

Institut Bauen und Umwelt e.V. (IBU)

and

Danish Technological Institute (DTI)

regarding

Mutual Recognition of Environmental Declarations Type III (EPD)

e.V. (IBU) and Danish
ment in a state of mutual

ding services in accordance
n of EN 15804 including
EN/TC 350 WG III and the
uct TCs concerning the imple-
mized product standards.

plies
hin the scope of agreement
regarded as mutually

parties are considered to be

ollowed to
EPD and
th parties' logotypes and

o is part of this agreement
DTI-logo cannot be used

d by a co-publication of EPDs
e respective PO's website for
lidity of the EPD on request of
t should be transferred must
will get a new front page in
with both PO logos on it).
hall be specified in a separate

on of a mutual recognised
for is obliged to inform the
ill replace the EPD on its

ognition as a process.
tained and when necessary

the mutual recognition process
(ONPAN) is established. The
sons representing each party.
I work plan and initially
e condition and status of the
I suggest development or
cess and working procedures.

two internal reports "REPORT
F EPD RELEASED BY THE EPD
ary 2015 and "Mutual Recog-
the EPD programs "DTI" and
referenced documents below).

Conditions
This agreement is based upon the following referenced documents and additional issues not covered in the recent current, valid versions of ISO 14025 or EN 15804.

Referenced documents

- ISO 14025: Environmental labels and declarations – Type III environmental declarations – Principles and procedures.
- EN 15804: Sustainability of construction works – Environmental product declarations – Product category rules.
- The internal report "REPORT FOR THE MUTUAL RECOGNITION OF EPD RELEASED BY THE EPD PROGRAMS OF DTI AND IBU" of January 2015, Commissioned by DTI, Aarhus, Denmark; IBU, Berlin, Germany, Prepared by Mathias Sehested Heeg Kemner for DTI and Dr. Eva Schmincke for IBU.
- The internal report "Mutual Recognition Procedure for the operators of the EPD programs "EPD Danmark" and "IBU" of January 2015, Commissioned by DTI, Aarhus, Denmark by IBU, Berlin, Germany, Prepared by Mathias Sehested Heeg Kemner for DTI and Dr. Eva Schmincke for IBU.

Additional issues that not covered in ISO 14025 or EN 15804

Additional information not covered in ISO 14025
Additional information will be handled outside of the MR, however in the MR-process an exchange about additional information which might be of interest to the construction sector will be added mutually over time.

Product categories not covered in EN 15804
The product category of "Building services" is covered under this agreement.
By building service under this agreement is meant: "in buildings installed energy using and maintenance needing facilities necessary for the use of the building and that not are covered in EN 15804, and that directly or indirectly provides a function by internal energy turnover and or adequate maintenance and where the installed facility is the tangible prerequisite for the function", e.g. lighting systems, elevators, building automation etc.
NOTE: Most building services are considered to be construction products in accordance with EN 15804, others e.g. elevators and escalators, are not. Under this agreement elevators and escalators are regarded as building services.

Cancellation of this MR agreement between IBU and DTI
This MR agreement will be cancelled within 3 months after one of the parties has submitted a written declaration requesting cancellation, or if both parties in unification wish to do so. The MR agreement's remaining time of validity shall safeguard any clients that already are undertaking an EPD under this MR agreement. Already earlier accepted EPD under MR shall still be valid under MR until their respective period of validity has expired.

For DTI

Peter Hølm Ishøj

- I praksis et mere smidigt system
- Producenter kan få deres danske EPD på den tyske hjemmeside, og omvendt.

Kontakt



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Tlf.: +45 7220 3674