

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Tec-Flex 5G6 0,6/1,0kV RV-K



TECCON

The Norwegian EPD Foundation

Owner of the declaration:
TECCON Norge AS

Tec-Flex 5G6 0,6/1,0kV RV-K

Declared unit:
1 m

This declaration is based on Product Category Rules:
CEN Standard EN 15804:2012+A1:2013 serves as core PCR
NPCR 027:2020 Part B for Electrical cables and wires

Program operator:
The Norwegian EPD Foundation

Declaration number:
NEPD-9733-9646

Registration number:
NEPD-9733-9646

Issue date:
10.04.2025

Valid to:
10.04.2030

EPD software:
LCAno EPD generator ID: 864071

General information

Product

Tec-Flex 5G6 0,6/1,0kV RV-K

Program operator:

The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Phone: +47 977 22 020
web: www.epd-norge.no

Declaration number:

NEPD-9733-9646

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A1:2013 serves as core PCR
NPCR 027:2020 Part B for Electrical cables and wires

Statement of liability:

The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

Declared unit:

1 m Tec-Flex 5G6 0,6/1,0kV RV-K

Declared unit with option:

A1-A3, A4, A5, B6, C1, C2, C3, C4, D

Functional unit:

General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Verification of each EPD is made according to EPD-Norway's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD-Norway, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools

Verification of EPD tool:

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPDNorway's procedures and guidelines for verification and approval of EPD tools.

Third party verifier:

Fredrik Moltu Johnsen, Vestlandsforskning

(no signature required)

Owner of the declaration:

TECCON Norge AS
Contact person: Jan Vestergaard
Phone: 51 73 37 00
e-mail: jan.vestergaard@teccon.no

Manufacturer:

TECCON Norge AS
Mekjarvik 18
4072 Randaberg, Norway

Place of production:

Teccon production site Léon (Spain)

, Spain

Management system:

Eco-lighthouse: 4247

Organisation no:

986 452 125

Issue date:

10.04.2025

Valid to:

10.04.2030

Year of study:

2024

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

Development and verification of EPD:

The declaration is created using EPD tool lca.tools ver EPD2022.03, developed by LCA.no. The EPD tool is integrated in the company's management system, and has been approved by EPD Norway. NEPDT155

Collected/registered by: Jan Vestergaard, Teccon Norge AS

Reviewer of company-specific input data and EPD: Jorulv Søbstad

Approved:

Sign



Håkon Hauan, CEO EPD-Norge

Product

Product description:

Tec Flex RV-K 0,6/1 kV power cables are specially indicated for its use in distribution networks, power stations, industries or buildings, and electrical installations in steel ships.

For electrical energy transport and distribution, distribution networks, protected or not. For indoor and outdoor installations. Non-suitable for facilities of feeding of submerged pumps

Surface mounted (directly installed or on cable trays, cable ladders, cleats, brackets or in cable ducting (conduit, pipes or similar closed systems)).

Embedded (directly or in cable ducting).

In building voids and cavities (directly or on cable trays, cable ladders, in cable ducting).

Buried in ground (directly or in conduit)

Product specification

General: UNE 21-123-91; IEC 60502-21-123-91/1; HD 603-1

Flexible installation cable 0,6/1,0kV

Materials	kg	%
Copper conductor	0,23	59,73
Plastic - Polyethylene	0,040	10,19
Plastic - Polyvinyl chloride (PVC)	0,11	30,071
Total	0,39	100,00

Packaging	kg	%
Packaging - Wood	0,05	100,00
Total incl. packaging	0,44	100,00

Technical data:

Cable

Standard IEC 60502-1

Conductor Annealed electrolytic flexible multi-stranded copper conductor, class 5, IEC 60228

Insulation XLPE – according to standard IEC 60502-1

Coloured According to HD 308 S2

Colour code Cenelec. Yellow/Green; Blue, brown, Black, Grey

Bedding PVC

Jacket PVC, White or Grey. UV stabilized. (PVC type ST2 according to IEC 60502-1)

Marking RV-K 0,6/1,0kV xx G mm² Year/lot

Rated Voltage U₀/U 0,6/1,0kV

Volatge test 3500V

Service temp 90° C

Short circuit temp 250° C

Fire performance EN 50575:2014+A1:2016

Flame retardant EN 60332-1-2

CPR EN50575 Eca

Temperature – service -25- 60°

Temperature – installation 0 - 50°

Bending radius 10 x D

Marking – Approvals – directives

RohS

Low Voltage Directive

CPR compliant

Marine approval

Registered for use in Swan Buildings

Market:

Nordic

Reference service life, product

30Y+

Reference service life, construcion

30Y+

LCA: Calculation rules

Declared unit:

1 m Tec-Flex 5G6 0,6/1,0kV RV-K

Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

All major materials have been included. Substance representing <1% have not been included. This include folio film for packaging!

Allocation:

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis. The allocation is made in accordance with the guidelines given in EN 15804.

Raw material - Information derived from manufactory and from a LCA generator

Processing: Derived from actual measurements during production of the individual units/stages

Data quality:

Specific data for the product composition are provided by the manufacturer. They represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on registered EPDs according to EN 15804, Ostfold Research databases, ecoinvent and other LCA databases. The data quality of the raw materials in A1 is presented in the table below.

Data from material supplier and the LCA generator has been accepted "As-Is"

Data from processing TECCON in-house has been repeated ongoingly without major deviations. Figures given in document are worst case values.

Materials	Source	Data quality	Year
Copper conductor	ecoinvent 3.6	Database	2019
Packaging - Wood	Modified ecoinvent 3.6	Database	2019
Plastic - Polyethylene	ecoinvent 3.6	Database	2019
Plastic - Polyvinyl chloride (PVC)	ecoinvent 3.6	Database	2019

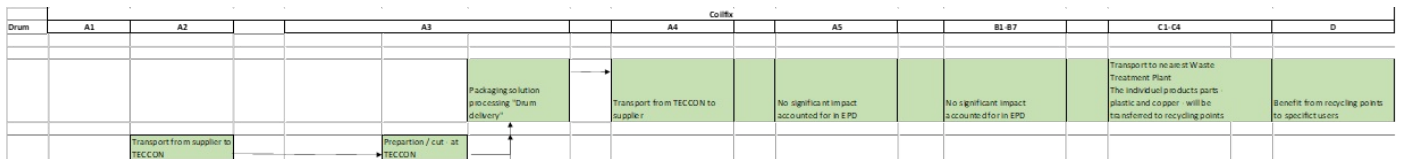
System boundaries (X=included, MND=module not declared, MNR=module not relevant)

Product stage			Construction installation stage		Use stage							End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	MND	MND	MND	MND	MND	X	MND	X	X	X	X	X

System boundary:

Cradle to Gate.

The following stages have been declared: A1-A4



Additional technical information:

Article 1010499 Tec-Flex 5G6 0,6/1,0kV RV-K cable represent the maximum energy consumption from the product family below - from a production volume perspective as follow:

Tec-Flex 3G1,5 RV-K Black 1010480

Tec-Flex 3G1,5 RV-K White 1010465

Tec-Flex 3G2,5 RV-K Black 1010481

Tec-Flex 3G2,5 RV-K White 1010468

Tec-Flex 3G4 RV-K Black 1010496

Tec-Flex 3G4 RV-K White 1010471

Tec-Flex 3G6 RV-K Black 1010497

Tec-Flex 3G6 RV-K White 1010485

Tec-Flex 4G1.5 RV-K Black 1010487

Tec-Flex 4G1.5 RV-K White 1010466

Tec-Flex 4G2.5 RV-K Black 1010488

Tec-Flex 4G2.5 RV-K White 1010469

Tec-Flex 4G4 BV-K Black 1010495

Tec-Flex 4G4 RV-K White 1010472

Tec-Flex 4G6 RV-K Black 1010498

Tec-Flex 4G6 RV-K White 1010475

Tec-Flex 4G1 5 BV-K Black 1010487

Tec-Flex 5G1.5 BV-K White 1010949

Tec-Flex 5G2.5 BV-K Black 1010950

Tec-Flex 5G2.5 RV-K White 1010469

Tec-Flex 5G4 BV-K Black 1010494

Tec-Flex 5G4 RV-K White 1010472

Tec-Flex 5G6 RV-K Black 1010499

Tec-Flex 5G6 RV-K White 1010475

If required individual EPD may be c

It required individual EPD may be conducted accordingly!














LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonn)
Truck, 16-32 tonnes, EURO 6 (km)	36,7 %	988	0,043	l/tkm	42,48
Assembly (A5)	Unit	Value			
Waste, wood, to average treatment - A5 including transport (kg)	kg	0,045			
Operational energy (B6) and water consumption (B7)	Unit	Value			
Electricity, Norway (kWh)	kWh/DU	0,56			
Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonn)
Truck, 16-32 tonnes, EURO 6 (km)	36,7 %	300	0,043	l/tkm	12,90
Waste processing (C3)	Unit	Value			
Copper to recycling (kg)	kg	0,14			
Waste treatment of polyethylene (PE), incineration with energy recovery and fly ash extraction (kg)	kg	0,020			
Waste treatment of plastic mixture, incineration with energy recovery and fly ash extraction (kg)	kg	0,059			
Disposal (C4)	Unit	Value			
Landfilling of copper (kg)	kg	0,093			
Landfilling of plastic mixture (kg)	kg	0,079			
Landfilling of ashes from incineration of Polyethylene (PE), process per kg ashes and residues (kg)	kg	0,00070			
Landfilling of ashes from incineration of Plastic mixture, process per kg ashes and residues (kg)	kg	0,0020			
Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of primary copper with net scrap (kg)	kg	0,096			
Substitution of electricity, in Norway (MJ)	MJ	0,12			
Substitution of thermal energy, district heating, in Norway (MJ)	MJ	1,95			

LCA: Results

LCA results according to the indicators of EN 15804:2013+A1:2013 are presented in the following tables, for the declared unit defined on page 2 of the EPD document. All potential environmental impacts might not be covered by the EN 15804 indicators. This concerns indicators such as noise, electromagnetic radiation, electromagnetic fields and treatment brominated flame retardants.

Environmental impact											
Indicator	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D	
 GWP-total	kg CO ₂ -eq	1,80E+00	7,06E-02	6,94E-02	1,38E-02	0	2,15E-02	2,00E-01	1,04E-02	-2,44E-01	
 GWP-fossil	kg CO ₂ -eq	1,84E+00	7,06E-02	1,21E-03	1,34E-02	0	2,14E-02	2,00E-01	1,04E-02	-2,42E-01	
 GWP-biogenic	kg CO ₂ -eq	-4,04E-02	2,92E-05	6,82E-02	3,69E-04	0	8,87E-06	3,52E-06	8,28E-07	-1,10E-03	
 GWP-luluc	kg CO ₂ -eq	2,52E-03	2,51E-05	3,11E-07	5,51E-05	0	7,63E-06	6,38E-07	7,07E-07	-6,34E-04	
 ODP	kg CFC11 -eq	2,32E-07	1,60E-08	1,93E-10	9,16E-10	0	4,86E-09	3,49E-10	6,27E-10	-8,27E-04	
 AP	mol H ⁺ -eq	6,37E-02	2,03E-04	9,74E-06	1,04E-04	0	6,16E-05	3,82E-05	1,67E-05	-3,88E-02	
 EP-FreshWater	kg P -eq	5,16E-04	5,64E-07	1,45E-08	9,61E-07	0	1,71E-07	3,16E-08	3,31E-08	-2,62E-04	
 EP-Marine	kg N -eq	4,46E-03	4,01E-05	4,18E-06	1,15E-05	0	1,22E-05	1,83E-05	1,54E-05	-1,62E-03	
 EP-Terrestrial	mol N -eq	6,39E-02	4,49E-04	4,47E-05	1,49E-04	0	1,36E-04	1,89E-04	6,71E-05	-2,50E-02	
 POCP	kg NMVOC -eq	1,67E-02	1,72E-04	1,15E-05	4,02E-05	0	5,22E-05	4,56E-05	2,09E-05	-6,79E-03	
 ADP-minerals&metals ¹	kg Sb-eq	3,79E-03	1,95E-06	1,96E-08	9,96E-07	0	5,92E-07	1,74E-08	1,65E-08	-2,17E-04	
 ADP-fossil ¹	MJ	3,04E+01	1,07E+00	1,42E-02	1,82E-01	0	3,24E-01	2,31E-02	4,96E-02	-2,22E+00	
 WDP ¹	m ³	7,02E+01	1,03E+00	2,19E-02	3,18E+01	0	3,13E-01	1,47E-01	9,62E-01	1,06E+01	

GWP Global warming potential; ODP Depletion potential of the stratospheric ozone layer; POCP Formation potential of tropospheric photochemical oxidants; AP Acidification potential of land and water; EP Eutrophication potential; ADPM Abiotic depletion potential for non fossil resources; ADPE Abiotic depletion potential for fossil resources







*Reading example: 9,0 E-03 = 9,0*10⁻³ = 0,009"

*INA Indicator Not Assessed

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator
3. Eutrophication aquatic freshwater shall be in kg P-eq., there is a typo in EN 15804:2012+A2:2019 regarding this unit. Eutrophication calculated as PO₄-eq is presented on page 11

Remarks to environmental impacts

Additional environmental impact indicators



Indicator		Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
	PM	Disease incidence	1,92E-07	4,32E-09	1,19E-10	7,48E-10	0	1,31E-09	1,64E-10	3,06E-10	-8,31E-08
	IRP ²	kgBq U235 -eq	1,35E-01	4,66E-03	5,16E-05	3,31E-03	0	1,42E-03	5,50E-05	2,98E-04	-3,59E-03
	ETP-fw ¹	CTUe	7,34E+02	7,91E-01	1,62E-02	8,31E-01	0	2,40E-01	3,07E-01	5,81E+01	-3,57E+02
	HTP-c ¹	CTUh	1,27E-08	0,00E+00	2,00E-12	4,00E-11	0	0,00E+00	9,00E-12	3,00E-12	-5,04E-09
	HTP-nc ¹	CTUh	9,64E-07	8,64E-10	8,60E-11	9,34E-10	0	2,62E-10	4,19E-10	6,20E-11	-4,32E-07
	SQP ¹	dimensionless	1,75E+01	7,47E-01	7,98E-03	9,19E-02	0	2,27E-01	3,98E-03	1,24E-01	-5,60E+00

PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Potential Soil Quality Index (dimensionless)

"Reading example: 9,0 E-03 = 9,0*10⁻³ = 0,009"

*INA Indicator Not Assessed

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator
2. This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.




Resource use										
Indicator	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
 PERE	MJ	5,03E+00	1,53E-02	2,92E-04	2,36E+00	0	4,64E-03	1,18E-03	5,21E-03	-1,83E+00
 PERM	MJ	6,25E-01	0,00E+00	-6,25E-01	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
 PERT	MJ	5,65E+00	1,53E-02	-6,24E-01	2,36E+00	0	4,64E-03	1,18E-03	5,21E-03	-1,83E+00
 PENRE	MJ	2,64E+01	1,07E+00	1,42E-02	1,83E-01	0	3,24E-01	2,32E-02	4,96E-02	-2,22E+00
 PENRM	MJ	4,17E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	-4,17E+00	0,00E+00	0,00E+00
 PENRT	MJ	3,06E+01	1,07E+00	1,42E-02	1,83E-01	0	3,24E-01	-4,15E+00	4,96E-02	-2,22E+00
 SM	kg	4,68E-02	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0,00E+00	4,77E-04	6,74E-02
 RSF	MJ	1,37E-01	5,47E-04	8,53E-06	1,86E-03	0	1,66E-04	2,62E-05	1,08E-04	6,24E-03
 NRSF	MJ	1,47E-02	1,95E-03	9,71E-05	4,62E-03	0	5,93E-04	0,00E+00	6,54E-05	-4,56E-02
 FW	m ³	2,87E-02	1,14E-04	1,04E-05	1,76E-02	0	3,47E-05	1,74E-04	6,37E-05	-6,85E-03

RPEE Renewable primary energy resources used as energy carrier; RPEM Renewable primary energy resources used as raw materials; TPE Total use of renewable primary energy; NRPE Non renewable primary energy resources used as energy carrier; NRPM Non renewable primary energy resources used as materials; TRPE Total use of non renewable primary energy; SM Use of secondary materials; RSF Use of renewable secondary fuels; NRSF Use of non renewable secondary fuels; W Use of net fresh water

"Reading example: 9,0 E-03 = 9,0*10⁻³ = 0,009"

*INA Indicator Not Assessed

End of life - Waste






Indicator	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
 HWD	kg	1,85E-02	5,50E-05	0,00E+00	1,17E-04	0	1,67E-05	0,00E+00	4,17E-03	-2,62E-03
 NHWD	kg	5,69E-01	5,19E-02	4,50E-02	1,41E-02	0	1,58E-02	0,00E+00	1,75E-01	-1,15E-01
 RWD	kg	1,25E-04	7,27E-06	0,00E+00	1,63E-06	0	2,21E-06	0,00E+00	3,39E-07	-3,16E-06

HW Hazardous waste disposed; NHW Non hazardous waste disposed; RW Radioactive waste disposed

"Reading example: 9,0 E-03 = $9,0 \times 10^{-3}$ = 0,009"

*INA Indicator Not Assessed

End of life - Output flow

Indicator	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
 CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0,00E+00	0,00E+00	0,00E+00	0,00E+00
 MFR	kg	5,05E-05	0,00E+00	1,06E-06	0,00E+00	0	0,00E+00	1,41E-01	7,96E-06	-2,64E-03
 MER	kg	1,18E-04	0,00E+00	4,50E-02	0,00E+00	0	0,00E+00	7,90E-02	1,20E-05	-3,48E-04
 EEE	MJ	2,20E-04	0,00E+00	3,13E-02	0,00E+00	0	0,00E+00	1,29E-01	1,16E-04	-8,52E-04
 EET	MJ	3,33E-03	0,00E+00	4,73E-01	0,00E+00	0	0,00E+00	1,96E+00	1,76E-03	-1,29E-02

CR Components for reuse; MR Materials for recycling; MER Materials for energy recovery; EEE Exported electric energy; ETE Exported thermal energy

"Reading example: 9,0 E-03 = $9,0 \times 10^{-3}$ = 0,009"

*INA Indicator Not Assessed

Biogenic Carbon Content

Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	0,00E+00
Biogenic carbon content in accompanying packaging	kg C	1,86E-02

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO₂

Additional requirements

Greenhouse gas emissions from the use of electricity in the manufacturing phase

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

Electricity mix	Source	Amount	Unit
Electricity, Spain (kWh)	ecoinvent 3.6	337,33	g CO ₂ -eq/kWh

Dangerous substances

The product contains no substances given by the REACH Candidate list or the Norwegian priority list.

Indoor environment

No effect on in-door environment

Additional Environmental Information

Additional environmental impact indicators required in NPCR Part A for construction products										
Indicator	Unit	A1-A3	A4	A5	B6	C1	C2	C3	C4	D
GWPIOBC	kg CO ₂ -eq	1,87E+00	7,06E-02	1,21E-03	1,38E-02	0	2,14E-02	2,00E-01	1,83E-03	-1,21E-01

GWP-IOBC: Global warming potential calculated according to the principle of instantaneous oxidation. In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

Bibliography

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ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines.






EN 15804:2012+A1:2013 Environmental product declaration - Core rules for the product category of construction products.

ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products.

ecoinvent v3, Allocation, cut-off by classification, Swiss Centre of Life Cycle Inventories.

Iversen et al., (2018) eEPD v3- Background information for EPD generator system. LCA.no report 04.18. Iversen et al., (2020) EPD generator for Elektroskandia and Prysmian Group - Background information and LCA data, LCA.no report 01.20

NPCR Part A: Construction products and services. Ver. 1.04.2017 EPD-Norge. NPCR 27 Part B for electrical cables and wires or NPCR 28 Part B for cable pipes Ver. 1.02.2020 EPD-Norge.

 epd-norge Global program operator	Program operator and publisher The Norwegian EPD Foundation Post Box 5250 Majorstuen, 0303 Oslo, Norway	Phone: +47 977 22 020 e-mail: post@epd-norge.no web: www.epd-norge.no
	Owner of the declaration: TECCON Norge AS Mekjarvik 18, 4072 Randaberg, Norway	Phone: 51 73 37 00 e-mail: jan.vestergaard@teccon.no web: teccon.no
	Author of the Life Cycle Assessment LCA.no AS Dokka 6A, 1671 Kråkerøy, Norway	Phone: +47 916 50 916 e-mail: post@lca.no web: www.lca.no
	Developer of EPD generator LCA.no AS Dokka 6A, 1671 Kråkerøy, Norway	Phone: +47 916 50 916 e-mail: post@lca.no web: www.lca.no
	ECO Platform ECO Portal	web: www.eco-platform.org web: ECO Portal