epddanmark

ECO PLATFORM EPD VERIFIED

Owner:	Elverdal A/S
No.:	MD-23017-EN_rev1
Issued:	31-03-2023
Revision date:	21-04-2023
Valid to:	31-03-2028

3rd PARTY **VERIFIED**

EPD

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | **ISO 14025 & EN 15804**

Owner of declaration
Elverdal
Risbyvej 28, 2765 Smørum
30732596

Programme
EPD Danmark
www.epddanmark.dk

☐ Industry EPD
☒ Product EPD

Declared product(s)
Playground carrousels. Number of declared products: 22

Product Name	Elverdal product number
Carrousel - pirouette larch and steel	ORG2601BY
Carrousel - pirouette HPL and steel	ORG2601HY
Carrousel - pirouette steel	ORG2601FY
Carrousel - pirouette EPDM and steel	ORG2601SY
Carrousel - pirouette cork and steel	ORG2601TY
Carrousel - stand larch and steel	ORG2701BY
Carrousel - stand HPL and steel	ORG2701HY
Carrousel - stand steel	ORG2701FY
Carrousel - stand EPDM and steel	ORG2701SY
Carrousel - stand cork and steel	ORG2701TY
Carrousel - sit with hand bar larch and steel	ORG2801BY
Carrousel - sit with hand bar HPL and steel	ORG2801HY
Carrousel - sit with hand bar steel	ORG2801FY
Carrousel - sit with hand bar EPDM and steel	ORG2801SY
Carrousel - sit with hand bar cork and steel	ORG2801TY
Carrousel - sit larch and steel Ø 1m	ORG2802BY
Carrousel - sit HPL and steel Ø 1m	ORG2802HY
Carrousel - sit steel Ø 1m	ORG2802FY
Carrousel - sit EPDM and steel Ø 1m	ORG2802SY
Carrousel - sit cork and steel Ø 1m	ORG2802TY
Carrousel - hang H 1,5m	ORG2901Y
Carrousel - hang H 1,8m	ORG2902Y

Production site
Industriestraße 8, 63674 Altenstadt, Germany

Product(s) use
The declared products are carrousels for outdoor playgrounds

Declared/ functional unit
1 kg carrousel

Year of production site data (A3)
2022

EPD version
Version 2 (2023-04-19)

Issued: 21-04-2023
Valid to: 31-03-2028

Basis of calculation
This EPD is developed in accordance with the European standard EN 15804+A2.

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 with modules C1-C4 and D
☐Cradle-to-gate with options, modules C1-C4 and D
☐Cradle-to-grave and module D
☐Cradle-to-gate
☐Cradle-to-gate with options

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:

Kim Christiansen

Martha Katrine Sørensen
EPD Danmark

Life cycle stages and modules (MND = module not declared)																
Product			Construction process		Use							End of life				Beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport	Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction 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	X	X	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

Product information

Product description

The carrousels are playground equipment for public outdoor spaces e.g., parks and schoolyards or institutions. They are installed using concrete and applied on ground in connection with schools, kindergartens etc.

Carrousels is supplied in a variety of models. Elverdal offers a full range from standing carrousels and hanging carrousels to turning platforms of all sizes and shapes.

The carrousels declared in this EPD are mainly for 1-4 children at a time.

The material contents declare 100 weight percent of the products and are declared in the table below.

Material	Weight-% of declared product
Stainless Steel	37-81
Steel S235	4-33
Plywood	0-20
Larch	0-22
HPL	0-28
Cork	0-10
EPDM	0-16

Product packaging:

The composition of the sales- and transport packaging of the product is described in the table below.

Material	Weight-% of packaging
Cardboard	1
PVC-tape	1
PE-foil	4
Pallets	95

Representativity

The data is from 2022 and based on average data from Elverdal and suppliers.

Background data is from EcoInvent 3.8.

Hazardous substances

The products contain no REACH substances listed on the ”Candidate List of Substances of Very High Concern for authorisation”

(http://echa.europa.eu/candidate-list-table)

Reference Service Life (RSL)

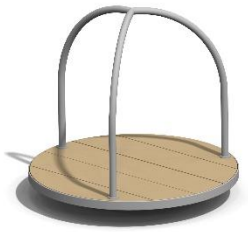
The products have an estimated service life of 25 years.

Pirouette

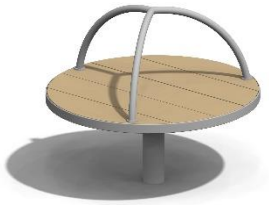




Stand



Sit

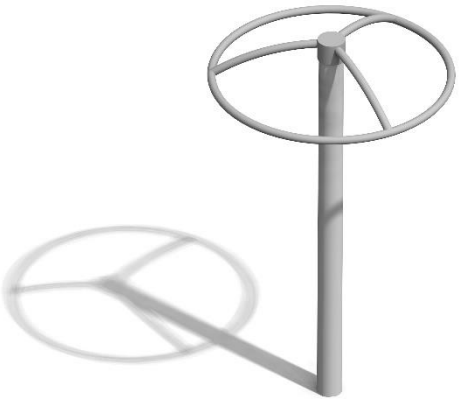


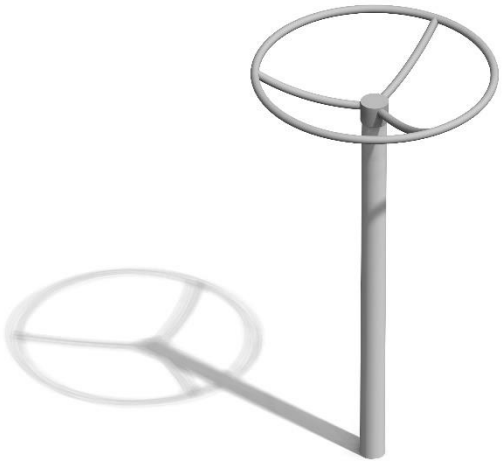







Hang





LCA background

Declared unit

The LCI and LCIA results in this EPD relates to declared unit of 1 kg carrousel.

Name		Value	Unit
Declared unit		1	Kg
Density	Larch	5004	Kg/m^3
	HPL	5871	
	Cork	5551	
	EPDM	5271	
	Steel	6316	
	Hanger	7552	
Conversion factor to 1 kg		1	-

Guarantee of Origin – certificates

Foreground system:

Functional unit

Not declared

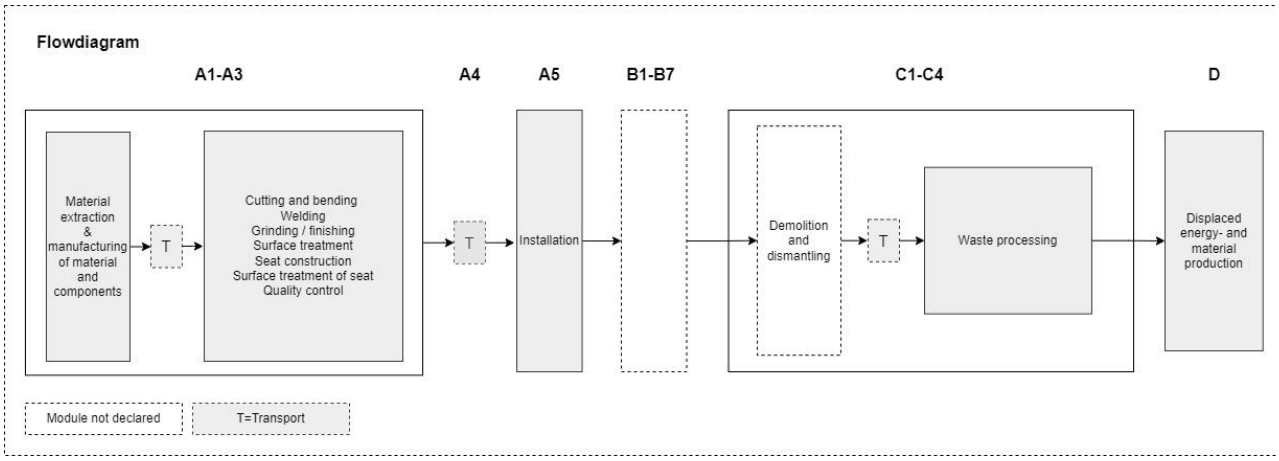
PCR

There is no PCR for this product category.

Energy data

Electricity has been modelled using electricity mix from EcoInvent 3.8.

Flowdiagram



System boundary

This EPD is based on a cradle-to-gate LCA with modules A1-A5, C1-C4 and D.

The general rules for the exclusion of inputs and outputs follows the requirements in EN 15804, 6.3.5, where the total of neglected input flows per module shall be a maximum of 5 % of energy usage and mass and 1 % of energy usage and mass for unit processes.

Product stage (A1-A3) includes:

A1 – Extraction and processing of raw materials

This product stage comprises the acquisition of all raw materials included in the products and the packaging.

A2 – Transport to the production site

This product stage includes all transport by road between A1 and A3.

A3 – Manufacturing processes

The manufacturing process is as follows:

1. cutting and bending steel units for construction
2. sampling and welding
3. grinding/finishing
4. surface treatment with oil/wax
5. construction of top layer for some models (EPDM, larch, cork)
6. surface treatment/finishing the top layer (larch)
7. quality control of final product

Construction process stage (A4-A5) includes:

A4+A5 – transport and installation

The products are transported from the production site to the customer. The product is installed using 25-30mPa concrete.

Use stage (B1-B7) includes:

Not declared

End of Life (C1-C4) includes:

C1 – De-construction demolition

The de-construction process of the carrousels is a simple dismantling process and do not require any energy or material use related to the product handling.

C2 – Transport

This product stage include transport from the end user to the disposal facility.

C3 – Waste processing

The carrousels are shredded and the materials are sent to recycling and/or incineration.

C4 – Disposal

The materials in the carousel reach "end of waste" after being processed for recycling in the C3 module. As such, none of the materials reaches C4.

Re-use, recovery and recycling potential (D) includes:

This module includes displacement of materials and energy flows from module C3.

LCA results

LCA Results for 1 kg Carrousel – Larch

ENVIRONMENTAL IMPACTS PER KG LARCH											
Indicator	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO2 eq.	2.76E+00	2.06E-01	8.55E-01	1.46E-01	1.02E+00	0.00E+00	1.07E-02	7.65E-01	0.00E+00	-3.38E+00
GWP-fossil	kg CO2 eq.	3.62E+00	2.06E-01	8.87E-01	1.46E-01	1.01E+00	0.00E+00	1.07E-02	2.35E-01	0.00E+00	-3.29E+00
GWP-biogenic	kg CO2 eq.	-8.63E-01	4.24E-04	-3.32E-02	2.59E-04	9.54E-03	0.00E+00	2.19E-05	5.30E-01	0.00E+00	-9.08E-02
GWP-luluc	kg CO2 eq.	2.77E-03	9.71E-05	1.13E-03	5.85E-05	5.55E-04	0.00E+00	5.03E-06	3.20E-04	0.00E+00	-1.81E-03
ODP	kg CFC 11 eq.	1.50E-07	4.64E-08	5.37E-08	3.38E-08	5.25E-08	0.00E+00	2.40E-09	1.85E-08	0.00E+00	-1.14E-07
AP	mol H+ eq.	2.05E-02	5.82E-04	2.32E-03	4.14E-04	3.32E-03	0.00E+00	3.02E-05	1.11E-03	0.00E+00	-1.79E-02
EP-freshwater	kg P eq.	1.07E-03	1.56E-05	9.55E-04	9.64E-06	1.19E-04	0.00E+00	8.09E-07	1.56E-04	0.00E+00	-9.17E-04
EP-marine	kg N eq.	3.65E-03	1.14E-04	7.59E-04	8.44E-05	1.01E-03	0.00E+00	5.91E-06	2.54E-04	0.00E+00	-2.95E-03
EP-terrestrial	mol N eq.	3.91E-02	1.24E-03	6.31E-03	9.18E-04	1.13E-02	0.00E+00	6.41E-05	2.51E-03	0.00E+00	-3.19E-02
POCP	kg NMVOC eq.	1.18E-02	4.61E-04	1.67E-03	3.43E-04	2.90E-03	0.00E+00	2.39E-05	6.52E-04	0.00E+00	-9.61E-03
ADPm[1]	kg Sb eq.	7.48E-05	9.05E-07	1.69E-06	4.99E-07	6.13E-06	0.00E+00	4.69E-08	6.47E-07	0.00E+00	-6.94E-05
ADPf[1]	MJ	4.26E+01	2.66E-01	7.56E+00	2.18E+00	2.64E+00	0.00E+00	1.38E-02	1.72E+00	0.00E+00	-3.95E+01
WDP[1]	m3 world eq. deprived	1.80E+00	1.68E-02	1.15E-01	1.08E-02	4.61E-01	0.00E+00	8.68E-04	1.85E-01	0.00E+00	-1.46E+00
Caption	GWP-total = Global Warming Potential - total; GWP-fossil = Global Warming Potential - fossil fuels; GWP-biogenic = Global Warming Potential - biogenic; GWP-luluc = Global Warming Potential - land use and land use change; ODP = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water use										
Disclaimer	[1] The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.										

ADDITIONAL ENVIRONMENTAL IMPACTS PER KG LARCH											
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM	[Disease incidence]	2.59E-07	1.12E-08	1.38E-08	9.24E-09	3.48E-08	0.00E+00	5.79E-10	3.07E-08	0.00E+00	-2.16E-07
IRP[2]	[kBq U235 eq.]	1.72E-01	1.64E-02	1.43E-01	1.14E-02	3.14E-02	0.00E+00	8.48E-04	7.45E-02	0.00E+00	-1.27E-01
ETP-fw[1]	[CTUe]	1.72E+00	8.75E-02	2.35E-01	7.40E-02	8.47E-02	0.00E+00	4.53E-03	1.57E-01	0.00E+00	-1.50E+00
HTP-c[1]	[CTUh]	6.52E-08	7.58E-11	1.00E-09	4.71E-11	2.63E-10	0.00E+00	3.93E-12	6.98E-09	0.00E+00	-5.98E-08
HTP-nc[1]	[CTUh]	1.67E-07	4.22E-09	5.14E-08	2.75E-09	1.60E-08	0.00E+00	2.19E-10	2.13E-07	0.00E+00	-1.51E-07
SQP[1]	-	9.11E+00	2.12E+00	7.10E-01	1.88E+00	6.28E+00	0.00E+00	1.10E-01	4.17E-01	0.00E+00	-8.02E+00
Caption	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 = Soil Quality										
Disclaimers	[1] The results of this environmental 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 PER KG LARCH											
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	[MJ]	6.97E+00	3.89E-02	1.23E+00	3.16E-02	2.28E-01	0.00E+00	2.01E-03	4.18E-01	0.00E+00	-6.74E+00
PERM	[MJ]	1.49E+01	1.32E-02	2.98E+00	0.00E+00	8.71E-02	0.00E+00	6.84E-04	7.97E-02	0.00E+00	-2.05E-01
PERT	[MJ]	2.19E+01	5.21E-02	4.21E+00	3.16E-02	3.16E-01	0.00E+00	2.70E-03	4.97E-01	0.00E+00	-6.95E+00
PENRE	[MJ]	4.51E+01	3.44E-01	1.02E+01	2.23E+00	2.92E+00	0.00E+00	1.78E-02	2.99E+00	0.00E+00	-4.12E+01
PENRM	[MJ]	3.09E+00	2.77E+00	5.96E+00	0.00E+00	3.73E+00	0.00E+00	1.44E-01	1.84E+00	0.00E+00	-8.86E-01
PENRT	[MJ]	4.82E+01	3.12E+00	1.62E+01	2.23E+00	6.65E+00	0.00E+00	1.61E-01	4.83E+00	0.00E+00	-4.21E+01
SM	[kg]	5.11E-01	3.78E-03	3.95E-01	0.00E+00	1.44E-02	0.00E+00	1.96E-04	3.80E-02	0.00E+00	-4.13E-01
RSF	[MJ]	1.50E-02	1.16E-03	2.29E-01	0.00E+00	2.27E-03	0.00E+00	5.99E-05	1.97E-02	0.00E+00	-1.44E-02
NRSF	[MJ]	1.47E-02	5.02E-03	2.11E-02	0.00E+00	3.40E-03	0.00E+00	2.60E-04	1.33E-02	0.00E+00	-3.73E-03
FW	[m^3]	4.38E-02	3.99E-04	2.77E-03	2.56E-04	1.14E-02	0.00E+00	2.07E-05	4.32E-03	0.00E+00	-3.56E-02
Caption	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 = Net use of fresh water										

WASTE CATEGORIES AND OUTPUT FLOWS PER KG LARCH											
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	[kg]	6.18E-01	8.12E-02	4.30E+00	0.00E+00	6.34E-01	0.00E+00	4.21E-03	7.48E-01	0.00E+00	-2.99E-01
NHWD	[kg]	6.19E-02	1.29E-01	5.46E-02	0.00E+00	7.07E-02	0.00E+00	6.70E-03	4.46E-01	0.00E+00	-1.83E-02
RWD	[kg]	6.02E-04	6.90E-05	1.65E-03	0.00E+00	1.93E-04	0.00E+00	3.58E-06	7.86E-04	0.00E+00	-2.09E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.73E-02	3.21E-03	3.79E-01	0.00E+00	5.46E-03	0.00E+00	1.66E-04	3.52E-02	0.00E+00	-2.45E-02
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Caption	HWD = 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 electric energy; EET = Exported thermal energy										

BIOGENIC CARBON CONTENT PER KG LARCH		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in product	kg C	0.1661
Biogenic carbon content in accompanying packaging	kg C	0.0820

LCA Results for 1 kg Carrousel – HPL

ENVIRONMENTAL IMPACTS PER KG HPL											
Indicator	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO_2 eq.	2.96E+00	1.15E-01	8.55E-01	1.46E-01	1.15E+00	0.00E+00	1.07E-02	6.63E-01	0.00E+00	-2.53E+00
GWP-fossil	kg CO_2 eq.	3.47E+00	1.15E-01	8.87E-01	1.46E-01	1.13E+00	0.00E+00	1.07E-02	2.48E-01	0.00E+00	-2.47E+00
GWP-biogenic	kg CO_2 eq.	-5.15E-01	2.36E-04	-3.32E-02	2.59E-04	1.07E-02	0.00E+00	2.19E-05	4.15E-01	0.00E+00	-6.71E-02
GWP-luluc	kg CO_2 eq.	2.35E-03	5.42E-05	1.13E-03	5.85E-05	6.22E-04	0.00E+00	5.03E-06	3.61E-04	0.00E+00	-1.47E-03
ODP	kg CFC 11 eq.	1.04E-07	2.59E-08	5.37E-08	3.38E-08	5.89E-08	0.00E+00	2.40E-09	2.08E-08	0.00E+00	-8.86E-08
AP	mol H^+ eq.	1.69E-02	3.25E-04	2.32E-03	4.14E-04	3.73E-03	0.00E+00	3.02E-05	1.24E-03	0.00E+00	-1.33E-02
EP-freshwater	kg P eq.	8.29E-04	8.71E-06	9.55E-04	9.64E-06	1.34E-04	0.00E+00	8.09E-07	1.76E-04	0.00E+00	-7.36E-04
EP-marine	kg N eq.	3.50E-03	6.36E-05	7.59E-04	8.44E-05	1.13E-03	0.00E+00	5.91E-06	2.74E-04	0.00E+00	-2.21E-03
EP-terrestrial	mol N eq.	3.31E-02	6.90E-04	6.31E-03	9.18E-04	1.27E-02	0.00E+00	6.41E-05	2.72E-03	0.00E+00	-2.38E-02
POCP	kg NMVOC eq.	1.02E-02	2.57E-04	1.67E-03	3.43E-04	3.26E-03	0.00E+00	2.39E-05	7.10E-04	0.00E+00	-7.14E-03
ADPm[1]	kg Sb eq.	5.56E-05	5.05E-07	1.69E-06	4.99E-07	6.87E-06	0.00E+00	4.69E-08	7.28E-07	0.00E+00	-4.95E-05
ADPf[1]	MJ	4.50E+01	1.48E-01	7.56E+00	2.18E+00	2.95E+00	0.00E+00	1.38E-02	1.94E+00	0.00E+00	-2.89E+01
WDP[1]	m^3 world eq. deprived	1.26E+00	9.34E-03	1.15E-01	1.08E-02	5.17E-01	0.00E+00	8.68E-04	2.10E-01	0.00E+00	-1.15E+00
Caption	GWP-total = Global Warming Potential - total; GWP-fossil = Global Warming Potential - fossil fuels; GWP-biogenic = Global Warming Potential - biogenic; GWP-luluc = Global Warming Potential - land use and land use change; ODP = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water use										
Disclaimer	[1] The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.										

ADDITIONAL ENVIRONMENTAL IMPACTS PER KG HPL											
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM	[Disease incidence]	1.84E-07	6.24E-09	1.38E-08	9.24E-09	3.92E-08	0.00E+00	5.79E-10	3.46E-08	0.00E+00	-1.64E-07
IRP[2]	[kBq U235 eq.]	1.43E-01	9.13E-03	1.43E-01	1.14E-02	3.52E-02	0.00E+00	8.48E-04	8.44E-02	0.00E+00	-1.30E-01
ETP-fw[1]	[CTUe]	1.31E+00	4.88E-02	2.35E-01	7.40E-02	9.50E-02	0.00E+00	4.53E-03	1.77E-01	0.00E+00	-1.14E+00
HTP-c[1]	[CTUh]	5.06E-08	4.23E-11	1.00E-09	4.71E-11	2.95E-10	0.00E+00	3.93E-12	7.91E-09	0.00E+00	-4.61E-08
HTP-nc[1]	[CTUh]	1.35E-07	2.35E-09	5.14E-08	2.75E-09	1.79E-08	0.00E+00	2.19E-10	2.40E-07	0.00E+00	-1.24E-07
SQP[1]	-	6.86E+00	1.18E+00	7.10E-01	1.88E+00	7.04E+00	0.00E+00	1.10E-01	4.67E-01	0.00E+00	-6.01E+00
Caption	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 = Soil Quality										
Disclaimers	[1] The results of this environmental 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 PER KG HPL											
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	[MJ]	7.66E+00	2.17E-02	1.23E+00	3.16E-02	2.56E-01	0.00E+00	2.01E-03	4.73E-01	0.00E+00	-5.01E+00
PERM	[MJ]	7.59E+00	7.37E-03	2.98E+00	0.00E+00	9.77E-02	0.00E+00	6.84E-04	9.03E-02	0.00E+00	-1.96E-01
PERT	[MJ]	1.53E+01	2.90E-02	4.21E+00	3.16E-02	3.54E-01	0.00E+00	2.70E-03	5.64E-01	0.00E+00	-5.21E+00
PENRE	[MJ]	4.43E+01	1.92E-01	1.02E+01	2.23E+00	3.27E+00	0.00E+00	1.78E-02	3.38E+00	0.00E+00	-3.09E+01
PENRM	[MJ]	4.81E+00	1.55E+00	5.96E+00	0.00E+00	4.19E+00	0.00E+00	1.44E-01	2.07E+00	0.00E+00	-1.35E+00
PENRT	[MJ]	4.91E+01	1.74E+00	1.62E+01	2.23E+00	7.46E+00	0.00E+00	1.61E-01	5.45E+00	0.00E+00	-3.22E+01
SM	[kg]	7.02E-01	2.11E-03	3.95E-01	0.00E+00	1.62E-02	0.00E+00	1.96E-04	4.29E-02	0.00E+00	-6.17E-01
RSF	[MJ]	2.75E-02	6.45E-04	2.29E-01	0.00E+00	2.54E-03	0.00E+00	5.99E-05	2.23E-02	0.00E+00	-2.05E-02
NRSF	[MJ]	1.24E-02	2.80E-03	2.11E-02	0.00E+00	3.81E-03	0.00E+00	2.60E-04	1.51E-02	0.00E+00	-9.65E-03
FW	[m^3]	3.35E-02	2.22E-04	2.77E-03	2.56E-04	1.28E-02	0.00E+00	2.07E-05	4.90E-03	0.00E+00	-2.78E-02
Caption	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 = Net use of fresh water										

WASTE CATEGORIES AND OUTPUT FLOWS PER KG HPL											
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	[kg]	7.21E-01	4.53E-02	4.30E+00	0.00E+00	7.11E-01	0.00E+00	4.21E-03	8.47E-01	0.00E+00	-6.56E-01
NHWD	[kg]	2.73E-01	7.21E-02	5.46E-02	0.00E+00	7.92E-02	0.00E+00	6.70E-03	3.70E-01	0.00E+00	-7.39E-02
RWD	[kg]	8.20E-04	3.85E-05	1.65E-03	0.00E+00	2.17E-04	0.00E+00	3.58E-06	8.91E-04	0.00E+00	-5.65E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.10E-02	1.79E-03	3.79E-01	0.00E+00	6.13E-03	0.00E+00	1.66E-04	3.99E-02	0.00E+00	-3.77E-02
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Caption	HWD = 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 electric energy; EET = Exported thermal energy										

BIOGENIC CARBON CONTENT PER KG HPL		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in product	kg C	0.1057
Biogenic carbon content in accompanying packaging	kg C	0.0820

LCA Results for 1 kg Carrousel – Cork

ENVIRONMENTAL IMPACTS PER KG CORK											
Indicator	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO_2 eq.	3.13E+00	2.12E-01	8.55E-01	1.46E-01	1.33E+00	0.00E+00	1.07E-02	6.81E-01	0.00E+00	-3.81E+00
GWP-fossil	kg CO_2 eq.	4.70E+00	2.11E-01	8.87E-01	1.46E-01	1.32E+00	0.00E+00	1.07E-02	2.92E-01	0.00E+00	-3.71E+00
GWP-biogenic	kg CO_2 eq.	-1.58E+00	4.35E-04	-3.32E-02	2.59E-04	1.24E-02	0.00E+00	2.19E-05	3.88E-01	0.00E+00	-9.93E-02
GWP-luluc	kg CO_2 eq.	3.66E-03	9.97E-05	1.13E-03	5.85E-05	7.23E-04	0.00E+00	5.03E-06	3.61E-04	0.00E+00	-2.02E-03
ODP	kg CFC 11 eq.	2.36E-07	4.77E-08	5.37E-08	3.38E-08	6.84E-08	0.00E+00	2.40E-09	2.09E-08	0.00E+00	-1.28E-07
AP	mol H^+ eq.	2.65E-02	5.98E-04	2.32E-03	4.14E-04	4.33E-03	0.00E+00	3.02E-05	1.24E-03	0.00E+00	-2.03E-02
EP-freshwater	kg P eq.	1.38E-03	1.60E-05	9.55E-04	9.64E-06	1.56E-04	0.00E+00	8.09E-07	1.75E-04	0.00E+00	-1.03E-03
EP-marine	kg N eq.	5.09E-03	1.17E-04	7.59E-04	8.44E-05	1.32E-03	0.00E+00	5.91E-06	2.78E-04	0.00E+00	-3.34E-03
EP-terrestrial	mol N eq.	5.04E-02	1.27E-03	6.31E-03	9.18E-04	1.47E-02	0.00E+00	6.41E-05	2.76E-03	0.00E+00	-3.60E-02
POCP	kg NMVOC eq.	1.54E-02	4.74E-04	1.67E-03	3.43E-04	3.79E-03	0.00E+00	2.39E-05	7.17E-04	0.00E+00	-1.09E-02
ADPm[1]	kg Sb eq.	9.64E-05	9.29E-07	1.69E-06	4.99E-07	7.99E-06	0.00E+00	4.69E-08	7.30E-07	0.00E+00	-7.88E-05
ADPf[1]	MJ	5.13E+01	2.73E-01	7.56E+00	2.18E+00	3.43E+00	0.00E+00	1.38E-02	1.94E+00	0.00E+00	-4.47E+01
WDP[1]	m^3 world eq. deprived	2.58E+00	1.72E-02	1.15E-01	1.08E-02	6.01E-01	0.00E+00	8.68E-04	2.13E-01	0.00E+00	-1.63E+00
Caption	GWP-total = Global Warming Potential - total; GWP-fossil = Global Warming Potential - fossil fuels; GWP-biogenic = Global Warming Potential - biogenic; GWP-luluc = Global Warming Potential - land use and land use change; ODP = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water use										
Disclaimer	[1] The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.										

ADDITIONAL ENVIRONMENTAL IMPACTS PER KG CORK											
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM	[Disease incidence]	3.43E-07	1.15E-08	1.38E-08	9.24E-09	4.54E-08	0.00E+00	5.79E-10	3.46E-08	0.00E+00	-2.44E-07
IRP[2]	[kBq U235 eq.]	2.37E-01	1.68E-02	1.43E-01	1.14E-02	4.09E-02	0.00E+00	8.48E-04	8.43E-02	0.00E+00	-1.39E-01
ETP-fw[1]	[CTUe]	8.07E+00	8.99E-02	2.35E-01	7.40E-02	1.10E-01	0.00E+00	4.53E-03	1.77E-01	0.00E+00	-1.70E+00
HTP-c[1]	[CTUh]	7.94E-08	7.79E-11	1.00E-09	4.71E-11	3.42E-10	0.00E+00	3.93E-12	7.90E-09	0.00E+00	-6.79E-08
HTP-nc[1]	[CTUh]	2.19E-07	4.33E-09	5.14E-08	2.75E-09	2.08E-08	0.00E+00	2.19E-10	2.40E-07	0.00E+00	-1.70E-07
SQP[1]	-	1.11E+01	2.18E+00	7.10E-01	1.88E+00	8.19E+00	0.00E+00	1.10E-01	4.68E-01	0.00E+00	-9.09E+00
Caption	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 = Soil Quality										
Disclaimers	[1] The results of this environmental 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 PER KG CORK											
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	[MJ]	8.25E+00	3.99E-02	1.23E+00	3.16E-02	2.98E-01	0.00E+00	2.01E-03	4.73E-01	0.00E+00	-7.53E+00
PERM	[MJ]	2.37E+01	1.36E-02	2.98E+00	0.00E+00	1.14E-01	0.00E+00	6.84E-04	9.02E-02	0.00E+00	-1.69E-01
PERT	[MJ]	3.20E+01	5.35E-02	4.21E+00	3.16E-02	4.11E-01	0.00E+00	2.70E-03	5.63E-01	0.00E+00	-7.70E+00
PENRE	[MJ]	5.53E+01	3.53E-01	1.02E+01	2.23E+00	3.80E+00	0.00E+00	1.78E-02	3.38E+00	0.00E+00	-4.66E+01
PENRM	[MJ]	1.18E+01	2.85E+00	5.96E+00	0.00E+00	4.87E+00	0.00E+00	1.44E-01	2.07E+00	0.00E+00	-7.51E-01
PENRT	[MJ]	6.71E+01	3.20E+00	1.62E+01	2.23E+00	8.67E+00	0.00E+00	1.61E-01	5.45E+00	0.00E+00	-4.74E+01
SM	[kg]	5.81E-01	3.88E-03	3.95E-01	0.00E+00	1.88E-02	0.00E+00	1.96E-04	4.29E-02	0.00E+00	-4.53E-01
RSF	[MJ]	2.47E-02	1.19E-03	2.29E-01	0.00E+00	2.95E-03	0.00E+00	5.99E-05	2.23E-02	0.00E+00	-1.21E-02
NRSF	[MJ]	2.66E-02	5.16E-03	2.11E-02	0.00E+00	4.43E-03	0.00E+00	2.60E-04	1.51E-02	0.00E+00	-3.33E-03
FW	[m^3]	6.22E-02	4.10E-04	2.77E-03	2.56E-04	1.49E-02	0.00E+00	2.07E-05	4.97E-03	0.00E+00	-3.98E-02
Caption	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 = Net use of fresh water										

WASTE CATEGORIES AND OUTPUT FLOWS PER KG CORK											
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	[kg]	1.55E+00	8.34E-02	4.30E+00	0.00E+00	8.26E-01	0.00E+00	4.21E-03	8.46E-01	0.00E+00	-2.63E-01
NHWD	[kg]	1.05E-01	1.33E-01	5.46E-02	0.00E+00	9.21E-02	0.00E+00	6.70E-03	3.71E-01	0.00E+00	-1.75E-02
RWD	[kg]	1.09E-03	7.09E-05	1.65E-03	0.00E+00	2.52E-04	0.00E+00	3.58E-06	8.90E-04	0.00E+00	-1.88E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	4.54E-02	3.30E-03	3.79E-01	0.00E+00	7.12E-03	0.00E+00	1.66E-04	3.99E-02	0.00E+00	-2.09E-02
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Caption	HWD = 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 electric energy; EET = Exported thermal energy										

BIOGENIC CARBON CONTENT PER KG CORK		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in product	kg C	0.0980
Biogenic carbon content in accompanying packaging	kg C	0.0820

LCA Results for 1 kg Carrousel – EPDM

ENVIRONMENTAL IMPACTS PER KG EPDM											
Indicator	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO_2 eq.	3.70E+00	1.73E-01	8.55E-01	1.46E-01	9.59E-01	0.00E+00	1.07E-02	9.12E-01	0.00E+00	-3.55E+00
GWP-fossil	kg CO_2 eq.	4.27E+00	1.72E-01	8.87E-01	1.46E-01	9.50E-01	0.00E+00	1.07E-02	6.78E-01	0.00E+00	-3.44E+00
GWP-biogenic	kg CO_2 eq.	-5.78E-01	3.55E-04	-3.32E-02	2.59E-04	8.96E-03	0.00E+00	2.19E-05	2.34E-01	0.00E+00	-1.01E-01
GWP-luluc	kg CO_2 eq.	3.22E-03	8.14E-05	1.13E-03	5.85E-05	5.21E-04	0.00E+00	5.03E-06	3.31E-04	0.00E+00	-1.92E-03
ODP	kg CFC 11 eq.	2.72E-07	3.89E-08	5.37E-08	3.38E-08	4.93E-08	0.00E+00	2.40E-09	1.97E-08	0.00E+00	-1.21E-07
AP	mol H^+ eq.	2.41E-02	4.88E-04	2.32E-03	4.14E-04	3.12E-03	0.00E+00	3.02E-05	1.21E-03	0.00E+00	-1.87E-02
EP-freshwater	kg P eq.	1.27E-03	1.31E-05	9.55E-04	9.64E-06	1.12E-04	0.00E+00	8.09E-07	1.60E-04	0.00E+00	-9.67E-04
EP-marine	kg N eq.	4.34E-03	9.56E-05	7.59E-04	8.44E-05	9.49E-04	0.00E+00	5.91E-06	2.99E-04	0.00E+00	-3.09E-03
EP-terrestrial	mol N eq.	4.49E-02	1.04E-03	6.31E-03	9.18E-04	1.06E-02	0.00E+00	6.41E-05	2.89E-03	0.00E+00	-3.33E-02
POCP	kg NMVOC eq.	1.43E-02	3.87E-04	1.67E-03	3.43E-04	2.73E-03	0.00E+00	2.39E-05	7.44E-04	0.00E+00	-1.00E-02
ADPm[1]	kg Sb eq.	8.77E-05	7.59E-07	1.69E-06	4.99E-07	5.76E-06	0.00E+00	4.69E-08	6.94E-07	0.00E+00	-7.22E-05
ADPf[1]	MJ	5.62E+01	2.23E-01	7.56E+00	2.18E+00	2.48E+00	0.00E+00	1.38E-02	1.78E+00	0.00E+00	-4.11E+01
WDP[1]	m^3 world eq. deprived	2.31E+00	1.40E-02	1.15E-01	1.08E-02	4.33E-01	0.00E+00	8.68E-04	2.20E-01	0.00E+00	-1.55E+00
Caption	GWP-total = Global Warming Potential - total; GWP-fossil = Global Warming Potential - fossil fuels; GWP-biogenic = Global Warming Potential - biogenic; GWP-luluc = Global Warming Potential - land use and land use change; ODP = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water use										
Disclaimer	[1] The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.										

ADDITIONAL ENVIRONMENTAL IMPACTS PER KG EPDM											
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM	[Disease incidence]	3.01E-07	9.37E-09	1.38E-08	9.24E-09	3.27E-08	0.00E+00	5.79E-10	3.17E-08	0.00E+00	-2.23E-07
IRP[2]	[kBq U235 eq.]	2.58E-01	1.37E-02	1.43E-01	1.14E-02	2.95E-02	0.00E+00	8.48E-04	7.67E-02	0.00E+00	-1.37E-01
ETP-fw[1]	[CTUe]	3.95E+00	7.34E-02	2.35E-01	7.40E-02	7.95E-02	0.00E+00	4.53E-03	1.65E-01	0.00E+00	-1.55E+00
HTP-c[1]	[CTUh]	6.92E-08	6.36E-11	1.00E-09	4.71E-11	2.47E-10	0.00E+00	3.93E-12	7.18E-09	0.00E+00	-6.17E-08
HTP-nc[1]	[CTUh]	1.97E-07	3.54E-09	5.14E-08	2.75E-09	1.50E-08	0.00E+00	2.19E-10	2.24E-07	0.00E+00	-1.58E-07
SQP[1]	-	1.00E+01	1.78E+00	7.10E-01	1.88E+00	5.90E+00	0.00E+00	1.10E-01	4.45E-01	0.00E+00	-8.32E+00
Caption	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 = Soil Quality										
Disclaimers	[1] The results of this environmental 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 PER KG EPDM											
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	[MJ]	7.79E+00	3.26E-02	1.23E+00	3.16E-02	2.15E-01	0.00E+00	2.01E-03	4.31E-01	0.00E+00	-7.20E+00
PERM	[MJ]	1.16E+01	1.11E-02	2.98E+00	0.00E+00	8.19E-02	0.00E+00	6.84E-04	8.27E-02	0.00E+00	-3.16E-01
PERT	[MJ]	1.94E+01	4.37E-02	4.21E+00	3.16E-02	2.96E-01	0.00E+00	2.70E-03	5.13E-01	0.00E+00	-7.52E+00
PENRE	[MJ]	6.00E+01	2.88E-01	1.02E+01	2.23E+00	2.74E+00	0.00E+00	1.78E-02	3.08E+00	0.00E+00	-4.30E+01
PENRM	[MJ]	5.52E+00	2.32E+00	5.96E+00	0.00E+00	3.51E+00	0.00E+00	1.44E-01	1.93E+00	0.00E+00	-1.27E+00
PENRT	[MJ]	6.56E+01	2.61E+00	1.62E+01	2.23E+00	6.25E+00	0.00E+00	1.61E-01	5.02E+00	0.00E+00	-4.43E+01
SM	[kg]	5.19E-01	3.17E-03	3.95E-01	0.00E+00	1.36E-02	0.00E+00	1.96E-04	3.91E-02	0.00E+00	-4.24E-01
RSF	[MJ]	1.53E-02	9.70E-04	2.29E-01	0.00E+00	2.13E-03	0.00E+00	5.99E-05	2.02E-02	0.00E+00	-2.10E-02
NRSF	[MJ]	1.60E-02	4.21E-03	2.11E-02	0.00E+00	3.19E-03	0.00E+00	2.60E-04	1.37E-02	0.00E+00	-4.72E-03
FW	[m^3]	5.57E-02	3.34E-04	2.77E-03	2.56E-04	1.07E-02	0.00E+00	2.07E-05	5.14E-03	0.00E+00	-3.78E-02
Caption	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 = Net use of fresh water										

WASTE CATEGORIES AND OUTPUT FLOWS PER KG EPDM											
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	[kg]	8.26E-01	6.81E-02	4.30E+00	0.00E+00	5.96E-01	0.00E+00	4.21E-03	7.76E-01	0.00E+00	-3.99E-01
NHWD	[kg]	7.03E-02	1.08E-01	5.46E-02	0.00E+00	6.64E-02	0.00E+00	6.70E-03	4.31E-01	0.00E+00	-1.88E-02
RWD	[kg]	6.50E-04	5.79E-05	1.65E-03	0.00E+00	1.82E-04	0.00E+00	3.58E-06	8.08E-04	0.00E+00	-2.61E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.84E-02	2.69E-03	3.79E-01	0.00E+00	5.13E-03	0.00E+00	1.66E-04	3.62E-02	0.00E+00	-3.55E-02
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Caption	HWD = 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 electric energy; EET = Exported thermal energy										

BIOGENIC CARBON CONTENT PER KG EPDM		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in product	kg C	0.0742
Biogenic carbon content in accompanying packaging	kg C	0.0820

LCA Results for 1 kg Carrousel – Steel

ENVIRONMENTAL IMPACTS PER KG STEEL											
Indicator	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO_2 eq.	4.44E+00	1.79E-01	8.55E-01	1.46E-01	1.02E+00	0.00E+00	1.07E-02	5.43E-01	0.00E+00	-4.39E+00
GWP-fossil	kg CO_2 eq.	5.01E+00	1.79E-01	8.87E-01	1.46E-01	1.01E+00	0.00E+00	1.07E-02	2.82E-01	0.00E+00	-4.28E+00
GWP-biogenic	kg CO_2 eq.	-5.70E-01	3.68E-04	-3.32E-02	2.59E-04	9.54E-03	0.00E+00	2.19E-05	2.60E-01	0.00E+00	-1.10E-01
GWP-luluc	kg CO_2 eq.	3.52E-03	8.44E-05	1.13E-03	5.85E-05	5.55E-04	0.00E+00	5.03E-06	4.14E-04	0.00E+00	-2.30E-03
ODP	kg CFC 11 eq.	1.93E-07	4.03E-08	5.37E-08	3.38E-08	5.26E-08	0.00E+00	2.40E-09	2.37E-08	0.00E+00	-1.46E-07
AP	mol H^+ eq.	2.81E-02	5.06E-04	2.32E-03	4.14E-04	3.33E-03	0.00E+00	3.02E-05	1.39E-03	0.00E+00	-2.35E-02
EP-freshwater	kg P eq.	1.47E-03	1.36E-05	9.55E-04	9.64E-06	1.19E-04	0.00E+00	8.09E-07	2.00E-04	0.00E+00	-1.18E-03
EP-marine	kg N eq.	4.88E-03	9.91E-05	7.59E-04	8.44E-05	1.01E-03	0.00E+00	5.91E-06	3.02E-04	0.00E+00	-3.85E-03
EP-terrestrial	mol N eq.	5.23E-02	1.08E-03	6.31E-03	9.18E-04	1.13E-02	0.00E+00	6.41E-05	3.00E-03	0.00E+00	-4.16E-02
POCP	kg NMVOC eq.	1.58E-02	4.01E-04	1.67E-03	3.43E-04	2.91E-03	0.00E+00	2.39E-05	7.84E-04	0.00E+00	-1.26E-02
ADPm[1]	kg Sb eq.	1.04E-04	7.86E-07	1.69E-06	4.99E-07	6.13E-06	0.00E+00	4.69E-08	8.29E-07	0.00E+00	-9.16E-05
ADPf[1]	MJ	5.91E+01	2.31E-01	7.56E+00	2.18E+00	2.64E+00	0.00E+00	1.38E-02	2.22E+00	0.00E+00	-5.18E+01
WDP[1]	m^3 world eq. deprived	2.41E+00	1.46E-02	1.15E-01	1.08E-02	4.61E-01	0.00E+00	8.68E-04	2.42E-01	0.00E+00	-1.86E+00
Caption	GWP-total = Global Warming Potential - total; GWP-fossil = Global Warming Potential - fossil fuels; GWP-biogenic = Global Warming Potential - biogenic; GWP-luluc = Global Warming Potential - land use and land use change; ODP = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water use										
Disclaimer	[1] The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.										

ADDITIONAL ENVIRONMENTAL IMPACTS PER KG STEEL											
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM	[Disease incidence]	3.51E-07	9.72E-09	1.38E-08	9.24E-09	3.50E-08	0.00E+00	5.79E-10	3.95E-08	0.00E+00	-2.84E-07
IRP[2]	[kBq U235 eq.]	2.32E-01	1.42E-02	1.43E-01	1.14E-02	3.14E-02	0.00E+00	8.48E-04	9.68E-02	0.00E+00	-1.55E-01
ETP-fw[1]	[CTUe]	2.38E+00	7.61E-02	2.35E-01	7.40E-02	8.47E-02	0.00E+00	4.53E-03	2.03E-01	0.00E+00	-1.97E+00
HTP-c[1]	[CTUh]	9.19E-08	6.59E-11	1.00E-09	4.71E-11	2.63E-10	0.00E+00	3.93E-12	9.06E-09	0.00E+00	-7.90E-08
HTP-nc[1]	[CTUh]	2.35E-07	3.67E-09	5.14E-08	2.75E-09	1.60E-08	0.00E+00	2.19E-10	2.73E-07	0.00E+00	-1.96E-07
SQP[1]	-	1.26E+01	1.85E+00	7.10E-01	1.88E+00	6.28E+00	0.00E+00	1.10E-01	5.31E-01	0.00E+00	-1.06E+01
Caption	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 = Soil Quality										
Disclaimers	[1] The results of this environmental 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 PER KG STEEL											
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	[MJ]	9.71E+00	3.38E-02	1.23E+00	3.16E-02	2.28E-01	0.00E+00	2.01E-03	5.43E-01	0.00E+00	-8.56E+00
PERM	[MJ]	1.20E+01	1.15E-02	2.98E+00	0.00E+00	8.71E-02	0.00E+00	6.84E-04	1.03E-01	0.00E+00	-1.01E-01
PERT	[MJ]	2.18E+01	4.53E-02	4.21E+00	3.16E-02	3.16E-01	0.00E+00	2.70E-03	6.46E-01	0.00E+00	-8.66E+00
PENRE	[MJ]	6.25E+01	2.99E-01	1.02E+01	2.23E+00	2.92E+00	0.00E+00	1.78E-02	3.87E+00	0.00E+00	-5.39E+01
PENRM	[MJ]	3.29E+00	2.41E+00	5.96E+00	0.00E+00	3.74E+00	0.00E+00	1.44E-01	2.36E+00	0.00E+00	-4.96E-01
PENRT	[MJ]	6.58E+01	2.71E+00	1.62E+01	2.23E+00	6.66E+00	0.00E+00	1.61E-01	6.23E+00	0.00E+00	-5.44E+01
SM	[kg]	7.90E-01	3.28E-03	3.95E-01	0.00E+00	1.44E-02	0.00E+00	1.96E-04	4.91E-02	0.00E+00	-5.07E-01
RSF	[MJ]	1.93E-02	1.01E-03	2.29E-01	0.00E+00	2.27E-03	0.00E+00	5.99E-05	2.56E-02	0.00E+00	-7.88E-03
NRSF	[MJ]	1.78E-02	4.37E-03	2.11E-02	0.00E+00	3.40E-03	0.00E+00	2.60E-04	1.73E-02	0.00E+00	-2.57E-03
FW	[m^3]	5.88E-02	3.47E-04	2.77E-03	2.56E-04	1.14E-02	0.00E+00	2.07E-05	5.66E-03	0.00E+00	-4.54E-02
Caption	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 = Net use of fresh water										

WASTE CATEGORIES AND OUTPUT FLOWS PER KG STEEL											
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	[kg]	8.10E-01	7.06E-02	4.30E+00	0.00E+00	6.34E-01	0.00E+00	4.21E-03	9.70E-01	0.00E+00	-1.92E-01
NHWD	[kg]	8.85E-02	1.12E-01	5.46E-02	0.00E+00	7.07E-02	0.00E+00	6.70E-03	2.77E-01	0.00E+00	-1.58E-02
RWD	[kg]	7.84E-04	6.00E-05	1.65E-03	0.00E+00	1.93E-04	0.00E+00	3.58E-06	1.02E-03	0.00E+00	-1.47E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	3.59E-02	2.79E-03	3.79E-01	0.00E+00	5.46E-03	0.00E+00	1.66E-04	4.57E-02	0.00E+00	-1.38E-02
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Caption	HWD = 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 electric energy; EET = Exported thermal energy										

BIOGENIC CARBON CONTENT PER KG STEEL		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in product	kg C	0.0819
Biogenic carbon content in accompanying packaging	kg C	0.0820

LCA Results for 1 kg Carrousel – Hanger

ENVIRONMENTAL IMPACTS PER KG HANGER											
Indicator	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO_2 eq.	4.63E+00	1.15E-01	8.55E-01	1.46E-01	4.52E+00	0.00E+00	1.07E-02	3.46E-01	0.00E+00	-4.69E+00
GWP-fossil	kg CO_2 eq.	4.89E+00	1.15E-01	8.87E-01	1.46E-01	4.47E+00	0.00E+00	1.07E-02	3.38E-01	0.00E+00	-4.57E+00
GWP-biogenic	kg CO_2 eq.	-2.67E-01	2.36E-04	-3.32E-02	2.59E-04	4.22E-02	0.00E+00	2.19E-05	7.09E-03	0.00E+00	-1.12E-01
GWP-luluc	kg CO_2 eq.	2.98E-03	5.41E-05	1.13E-03	5.85E-05	2.46E-03	0.00E+00	5.03E-06	5.00E-04	0.00E+00	-2.47E-03
ODP	kg CFC 11 eq.	1.77E-07	2.59E-08	5.37E-08	3.38E-08	2.32E-07	0.00E+00	2.40E-09	2.85E-08	0.00E+00	-1.56E-07
AP	mol H^+ eq.	2.70E-02	3.25E-04	2.32E-03	4.14E-04	1.47E-02	0.00E+00	3.02E-05	1.65E-03	0.00E+00	-2.52E-02
EP-freshwater	kg P eq.	1.40E-03	8.71E-06	9.55E-04	9.64E-06	5.28E-04	0.00E+00	8.09E-07	2.41E-04	0.00E+00	-1.27E-03
EP-marine	kg N eq.	4.50E-03	6.36E-05	7.59E-04	8.44E-05	4.47E-03	0.00E+00	5.91E-06	3.48E-04	0.00E+00	-4.12E-03
EP-terrestrial	mol N eq.	4.83E-02	6.90E-04	6.31E-03	9.18E-04	5.00E-02	0.00E+00	6.41E-05	3.46E-03	0.00E+00	-4.44E-02
POCP	kg NMVOC eq.	1.46E-02	2.57E-04	1.67E-03	3.43E-04	1.29E-02	0.00E+00	2.39E-05	9.07E-04	0.00E+00	-1.34E-02
ADPm[1]	kg Sb eq.	1.03E-04	5.04E-07	1.69E-06	4.99E-07	2.71E-05	0.00E+00	4.69E-08	9.96E-07	0.00E+00	-9.74E-05
ADPf[1]	MJ	5.85E+01	1.48E-01	7.56E+00	2.18E+00	1.17E+01	0.00E+00	1.38E-02	2.68E+00	0.00E+00	-5.53E+01
WDP[1]	m^3 world eq. deprived	2.15E+00	9.34E-03	1.15E-01	1.08E-02	2.04E+00	0.00E+00	8.68E-04	2.95E-01	0.00E+00	-1.98E+00
Caption	GWP-total = Global Warming Potential - total; GWP-fossil = Global Warming Potential - fossil fuels; GWP-biogenic = Global Warming Potential - biogenic; GWP-luluc = Global Warming Potential - land use and land use change; ODP = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water use										
Disclaimer	[1] The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.										

ADDITIONAL ENVIRONMENTAL IMPACTS PER KG HANGER											
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PM	[Disease incidence]	3.30E-07	6.23E-09	1.38E-08	9.24E-09	1.54E-07	0.00E+00	5.79E-10	4.74E-08	0.00E+00	-3.07E-07
IRP[2]	[kBq U235 eq.]	1.99E-01	9.13E-03	1.43E-01	1.14E-02	1.39E-01	0.00E+00	8.48E-04	1.17E-01	0.00E+00	-1.75E-01
ETP-fw[1]	[CTUe]	2.33E+00	4.88E-02	2.35E-01	7.40E-02	3.75E-01	0.00E+00	4.53E-03	2.45E-01	0.00E+00	-2.13E+00
HTP-c[1]	[CTUh]	9.08E-08	4.23E-11	1.00E-09	4.71E-11	1.16E-09	0.00E+00	3.93E-12	1.10E-08	0.00E+00	-8.58E-08
HTP-nc[1]	[CTUh]	2.29E-07	2.35E-09	5.14E-08	2.75E-09	7.08E-08	0.00E+00	2.19E-10	3.29E-07	0.00E+00	-2.14E-07
SQP[1]	-	1.23E+01	1.18E+00	7.10E-01	1.88E+00	2.78E+01	0.00E+00	1.10E-01	6.35E-01	0.00E+00	-1.13E+01
Caption	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 = Soil Quality										
Disclaimers	[1] The results of this environmental 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 PER KG HANGER											
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	[MJ]	9.53E+00	2.17E-02	1.23E+00	3.16E-02	1.01E+00	0.00E+00	2.01E-03	6.56E-01	0.00E+00	-9.00E+00
PERM	[MJ]	5.42E+00	7.36E-03	2.98E+00	0.00E+00	3.86E-01	0.00E+00	6.84E-04	1.25E-01	0.00E+00	-2.87E-02
PERT	[MJ]	1.49E+01	2.90E-02	4.21E+00	3.16E-02	1.40E+00	0.00E+00	2.70E-03	7.81E-01	0.00E+00	-9.03E+00
PENRE	[MJ]	6.13E+01	1.92E-01	1.02E+01	2.23E+00	1.29E+01	0.00E+00	1.78E-02	4.68E+00	0.00E+00	-5.77E+01
PENRM	[MJ]	1.52E+00	1.55E+00	5.96E+00	0.00E+00	1.65E+01	0.00E+00	1.44E-01	2.83E+00	0.00E+00	-4.62E-01
PENRT	[MJ]	6.28E+01	1.74E+00	1.62E+01	2.23E+00	2.94E+01	0.00E+00	1.61E-01	7.51E+00	0.00E+00	-5.82E+01
SM	[kg]	7.66E-01	2.11E-03	3.95E-01	0.00E+00	6.39E-02	0.00E+00	1.96E-04	5.91E-02	0.00E+00	-6.70E-01
RSF	[MJ]	1.06E-02	6.45E-04	2.29E-01	0.00E+00	1.00E-02	0.00E+00	5.99E-05	3.10E-02	0.00E+00	-6.63E-03
NRSF	[MJ]	8.89E-03	2.80E-03	2.11E-02	0.00E+00	1.50E-02	0.00E+00	2.60E-04	2.09E-02	0.00E+00	-4.65E-03
FW	[m^3]	5.27E-02	2.22E-04	2.77E-03	2.56E-04	5.05E-02	0.00E+00	2.07E-05	6.89E-03	0.00E+00	-4.85E-02
Caption	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 = Net use of fresh water										

WASTE CATEGORIES AND OUTPUT FLOWS PER KG HANGER											
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	[kg]	5.00E-01	4.53E-02	4.30E+00	0.00E+00	2.81E+00	0.00E+00	4.21E-03	1.17E+00	0.00E+00	-2.93E-01
NHWD	[kg]	7.19E-02	7.21E-02	5.46E-02	0.00E+00	3.13E-01	0.00E+00	6.70E-03	1.23E-01	0.00E+00	-4.09E-02
RWD	[kg]	4.33E-04	3.85E-05	1.65E-03	0.00E+00	8.56E-04	0.00E+00	3.58E-06	1.24E-03	0.00E+00	-2.77E-04
CRU	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	2.11E-02	1.79E-03	3.79E-01	0.00E+00	2.42E-02	0.00E+00	1.66E-04	5.53E-02	0.00E+00	-1.31E-02
MER	[kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Caption	HWD = 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 electric energy; EET = Exported thermal energy										

Table 42 – Biogenic carbon content at factory gate

BIOGENIC CARBON CONTENT PER KG HANGER		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in product	kg C	0
Biogenic carbon content in accompanying packaging	kg C	0.0820

Additional information

LCA interpretation

The extraction of raw materials (A1) is the module that contributes the most to the overall results. The materials that contribute the most to this module are steel and stainless steel.

Technical information on scenarios

Transport to the building site (A4)

Scenario information	Value	Unit
Fuel type	Diesel	L
Vehicle type	16-32 metric tons	-
Transport distance	896	Km
Capacity utilisation (including empty runs)	n/a	%
Gross density of products transported	n/a	kg/m^3
Capacity utilisation volume factor	n/a	-

Installation of the product in the building (A5)

Scenario information	Value	Unit
Concrete	7-33	kg
Diesel	0,007-0,3	litre

Reference service life

RSL information	
Reference service Life	25
Declared product properties	As appropriate
Design application parameters	
Assumed quality of work	
Outdoor environment	
Indoor environment	
Usage conditions	
Maintenance	

Indoor air

The EPD does not give information on release of dangerous substances to indoor air because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.1.

Soil and water

The EPD does not give information on release of dangerous substances to soil and water because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.2

References

Publisher	epddanmark www.epddanmark.dk
Programme operator	Danish Technological Institute Buildings & Environment Gregersensvej DK-2630 Taastrup www.teknologisk.dk
LCA-practitioner	*Tomas Sander Poulsen, Jonatan Hoffmann Bohr* Provice ApS Havnevej 45A 4000 Roskilde
LCA software /background data	*OpenLCA 1.11.0* *EcoInvent 3.8*
3rd party verifier	*Kim Christiansen* *kimconsult.dk* *Marienborg Alle 91C* *2860 Søborg*

General programme instructions
Version 2.0
www.epddanmark.dk

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