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ECO PLATFORM EPD VERIFIED

Owner:	Knudsen Kilen A/S
No.:	MD-25147-EN_rev1
Issued:	19-09-2025
Revision:	16-01-2026
Valid to:	19-09-2030

3rd PARTY **VERIFIED**

EPD

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



Owner of declaration
Knudsen Kilen A/S
Industrivej 21,
DK 3300 Frederiksværk
VAT no. 87 43 28 15
Knudsenkilen.dk

Programme
EPD Danmark
www.epddanmark.dk

☐ Industry EPD
☒ Product EPD

☐ Product specific
☒ Average
☐ Worst Case

Declared product(s)

K-Block 45 and K-Block 45C

Number of declared datasets/product variations: 10

Production site

Knudsen Plast s.r.o
Herlianska 547
SK 093 03 Vranov nad Topľou

Use of Guarantees of Origin
☐ No certificates used
☒ Electricity covered by GoO
☐ Biogas covered by GoO

Declared/ functional unit
1 kg of Knudsen Kilen K-Block 45/45C

Year of production site data (A3)
2024

EPD version
Version 2, 16-01-2026: Correction in conversion factor to 1 kg

Issued: 19-09-2025
Valid to: 19-09-2030

Basis of calculation
This EPD is developed and verified 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:

Guangli Du

Martha Katrine Sørensen
EPD Danmark

Life cycle stages and modules (ND = 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	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

Product information

Product description

This EPD covers the product group of Knudsen Kilen K-Block 45 and K-Block 45C which is mainly made of HDPE plastic. The HDPE in the product is both new virgin material and pre- and post-consumer regrind material. The declared unit is 1 kg.
In this declaration an overview of the weight per piece of various K-Block elements are shown. The EPD covers all the production of the K-Block 45 and K-Block 45C in Slovakia, which are made for the Danish market. The main material components for the declared product are listed in the table below.

Material	Weight-% of declared product
HDPE granulate (virgin material)	15.0
HDPE granulate, regrind (pre-consumer)	84.7
Masterbatch, LDPE	0.2
Stabilizer, LDPE	0.2

Product packaging:

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

Material	Weight of packaging material (kg)	Weight-% of packaging
Plastic (PP)	0.294	77.0
Wooden pallet	0.087	22.8
Plastic (PE)	0.001	0.3
Total	0.382	100

Representativity

This declaration, including data collection and the modeled foreground system including results, represents the production of Knudsen Kilen K-Block 45 and K-Block 45C at Knudsen Kilens own manufacturing site located in Slovakia. Product specific data are based on average values collected of the production of the product in the year 2024. Background data are based on datasets from Ecoinvent 3.10 and are in general less than 10 years old. Generally, the used background datasets are of high quality, and the majority of the datasets are only a couple of years old. The data also has good presentiveness geographically with many of the processes being on a national specific basis or matching the region.

Hazardous substances

The Knudsen Kilen K-Block 45 and K-Block 45C does not contain substances listed on the "Candidate List of Substances of Very High Concern for authorisation"

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

Product(s) use

The K-Blocks can be clicked together to form a block of the desired thickness. The K-Blocks are suitable for the blocking up and adjustment of heavy subjects e.g. concrete elements. The products are permanently integrated in the building as a part of the building. Thus, the declared product is fulfilling the definition of a construction product and the LCA can be calculated according to EN15804+A2 and is in compliance with EPD Denmark's general program instructions (EPD Danmark, 2020).

Essential characteristics

Further technical information can be obtained by contacting the manufacturer or on the manufacturer's website:

https://knudsenkilen.dk/en/products/k-block-45-spacer-block

https://knudsenkilen.dk/en/products/k-block-45c-2t-spacer-block

Reference Service Life (RSL)

Since the life cycle modules for the use phase are not included in this EPD, a reference service life (RSL) for the product is not relevant or applicable in this case and is therefore not specified.

Picture of product(s)



Weight and conversion factor of Knudsen Kilen K-Block 45 and K-Block 45C

Product and product no.	Weight per piece [g]	Conversion factor to 1 kg
Product type: K-Block 45		
K-Block 45 2 mm - *product no. 985004054S*	5.45	0.00545
K-Block 45 3 mm - *product no. 985004055S*	7.48	0.00748
K-Block 45 5 mm - *product no. 985004056S*	12.93	0.01293
K-Block 45 10 mm - *product no. 985004057S*	20.53	0.02053
K-Block 45 20 mm - *product no. 985004058S*	35.71	0.03571
Product type: K-Block 45C		
K-Block 45C, brown 2 mm - *product no. 985004070*	5.06	0.00506
K-Block 45C, red 3 mm - *product no. 985004071*	7.6	0.00760
K-Block 45C, orange 5 mm - *product no. 985004072*	13.05	0.01305
K-Block 45C, yellow 10 mm - *product no. 985004073*	20.71	0.02071
K-Block 45C, blue 20 mm - *product no. 985004074*	36.08	0.03608

The table above shows the weight in grams per individual piece for each product in the range of K-Block that is covered in the EPD.

The values in the later results tables are all per 1 kg of product, and as such they are the same for all the products listed in the table above when considering a sum of 1 kg.

To calculate the environmental impacts attributed to a single K-Block piece, the value for 'Conversion factor to 1 kg', that can be found for each piece individually, is multiplied to the values in the later results tables.

LCA background

Declared unit

The LCI and LCIA results in this EPD relates to the declared unit of 1 kg of the product Knudsen Kilen K-Block. The K-Blocks are suitable for the blocking up and adjustment of heavy subjects e.g. concrete elements.

Name	Value	Unit
Declared unit	1	kg
Density	960	kg/m³

Functional unit

Not defined.

PCR

This EPD is developed according to the core rules for the product category of construction products in EN 15804:2012+A2:2019.

Conversion factors

The declared product comes in different product types, sizes and shapes as described. Thus, the declared unit (DU) is 1 kg of Knudsen Kilen K-Block. In the declaration an overview table is provided to show the weight per piece for various types of Knudsen Kilen K-Blocks. In addition, there are also provided conversion factors from number of pieces to 1 kg of K-Block 45 and K-Block 45C.

Energy modelling principles

Foreground system:

The product is produced using a mix of renewable energy sources with GO's for the internal manufacturing in Slovakia: Biomass, Hydro, Gaseous fuel, and Wind power.

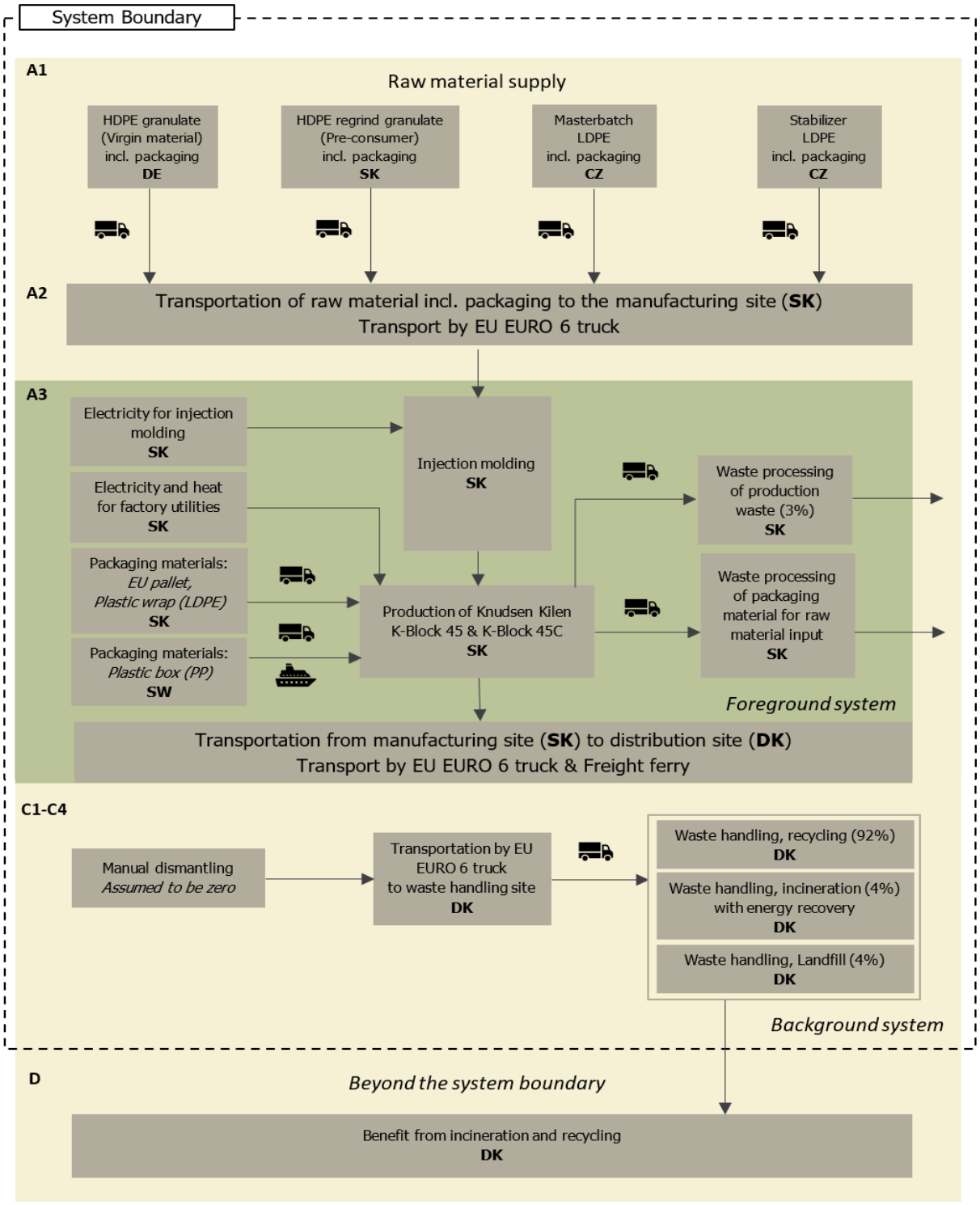
Information about the energy mix in the foreground system:

Energy mix	EF	Unit
GO's for internal mix	0.119	kg CO_2e/kWh

Background system:

Upstream processes are modelled using national energy mixes. Downstream processes are modelled using national energy mixes.

Flowdiagram



System boundary

This EPD is based on a cradle-to-gate LCA, in which 100 weight-% has been accounted for.

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

A2 – Transport to the production site

A3 – Manufacturing processes

The product stage includes raw materials as input material, transport of the raw material to the manufacturer's production site in Slovakia, electricity for plastic injection molding machines and utilities at the factory sites, packaging materials for the finished declared product as well as waste processing of the material waste in production and the raw materials' packaging materials up to the "end-of-waste" state or final disposal, according to EN15804+A2 §6.3.5.2. In the production of 1 kg Knudsen Kilen K-Block waste of 3% occurs in the production in module A3. Once the products have been injection molded, the products are packaged with packaging materials consisting of plastic boxes (PP), EU pallets (wood), cardboard, and plastic wrap (PE). All these packaging materials are also included in the product stage in module A3. The EU pallets (wood) are assumed reused 25 times before disposal. Thus, the modelling has been done accordingly with 1/25 virgin material input and 24/25 secondary input material. For the packaging materials in A3 the biogenic carbon content from renewable materials (cardboard and wood), is calculated based on the standard EN16485 as 0.5 kg C/kg dry matter. The cardboard has a moisture content of 7.5% and the wood has a moisture content of 15%. The biogenic carbon content is calculated from 100% of the material weight input. There is no biogenic carbon content in the declared product leaving the system boundary.

In the production stage the transportation from the manufacturing site in Slovakia to the distribution facility in Frederiksværk, Denmark is also included. The production of the declared products, Knudsen Kilen K-Block 45 and K-Block 45C, is in Slovakia at Knudsen Kilen's own facilities. At the internal manufacturing site, the electricity is with green electricity certificates (GoO = Guarantee of Origin).

The product consists of various plastic material input with both virgin and pre-consumer HDPE granulate.

Construction process stage (A4-A5) includes:

Modules not declared.

Use stage (B1-B7) includes:

Modules not declared.

End of Life (C1-C4) includes:

Module C1 is assumed to be zero using manual dismantling. In C2, the transport distance scenario is set to 50 km by truck based on a Danish national scenario. In module C3-C4 the plastic is modelled with a waste treatment of 92% recycling, 4% incineration and 4% landfill which is the general assumption for the K-Block. This waste scenario is based on national Danish waste statistics.

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

To calculate the amount of net-scrap for credit in module D, the secondary input material in A1 has been deducted from the amount of material for recycling and incineration credit in module D.
Some of the raw material inputs are pre-consumer scrap material. For the pre-consumer plastic material, a monetary cost factor has been used to allocate the share of new material assumed in the regrind granulate. This cost factor applies in the material input in A1 but also in the material input in the D module which can achieve credit. The crediting only applies for the 92% of recycled material and the energy recovery of the 4% which get incinerated in C3.

LCA results

ENVIRONMENTAL IMPACTS PER 1 kg of Knudsen Kilen K-Block 45/45C										
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO_2 eq.	1,97E+00	8,13E-02	1,52E+00	3,57E+00	0,00E+00	9,51E-03	2,12E-01	4,76E-03	-1,76E+00
GWP-fossil	kg CO_2 eq.	1,93E+00	8,12E-02	1,36E+00	3,36E+00	0,00E+00	9,50E-03	2,06E-01	4,75E-03	-1,75E+00
GWP-biogenic	kg CO_2 eq.	4,00E-02	5,62E-05	1,40E-01	1,80E-01	0,00E+00	6,58E-06	5,56E-03	4,46E-06	-8,63E-03
GWP-luluc	kg CO_2 eq.	1,04E-03	2,69E-05	2,60E-02	2,71E-02	0,00E+00	3,15E-06	3,67E-04	7,94E-08	-1,01E-03
ODP	kg CFC 11 eq.	8,68E-08	1,61E-09	4,80E-08	1,36E-07	0,00E+00	1,89E-10	1,65E-09	1,34E-11	-7,89E-08
AP	mol H^+ eq.	5,94E-03	1,69E-04	3,53E-03	9,65E-03	0,00E+00	1,98E-05	3,84E-04	2,63E-06	-5,41E-03
EP-freshwater	kg P eq.	4,08E-05	6,34E-07	1,97E-05	6,11E-05	0,00E+00	7,41E-08	6,18E-06	3,19E-09	-3,79E-05
EP-marine	kg N eq.	1,10E-03	3,96E-05	7,82E-04	1,92E-03	0,00E+00	4,63E-06	8,05E-05	1,43E-06	-1,00E-03
EP-terrestrial	mol N eq.	1,20E-02	4,38E-04	8,33E-03	2,08E-02	0,00E+00	5,13E-05	1,09E-03	1,19E-05	-1,10E-02
POCP	kg NMVOC eq.	1,05E-02	2,81E-04	6,04E-03	1,68E-02	0,00E+00	3,29E-05	2,63E-04	5,72E-06	-9,43E-03
ADPm[1]	kg Sb eq.	1,68E-05	2,64E-07	7,95E-06	2,50E-05	0,00E+00	3,09E-08	7,42E-07	8,72E-10	-1,57E-05
ADPf[1]	MJ	6,03E+01	1,14E+00	3,13E+01	9,27E+01	0,00E+00	1,34E-01	1,36E+00	9,35E-03	-5,43E+01
WDP[1]	m^3 world eq. deprived	1,05E+00	4,74E-03	4,61E-01	1,51E+00	0,00E+00	5,55E-04	1,74E-02	-2,09E-04	-9,35E-01
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 = Acidifcation; 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 1 kg of Knudsen Kilen K-Block 45/45C										
Parameter	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
PM	[Disease incidence]	4,61E-08	5,95E-09	5,11E-08	1,03E-07	0,00E+00	6,96E-10	2,80E-09	6,41E-11	-4,17E-08
IRP[2]	[kBq U235 eq.]	5,10E-02	5,27E-04	2,00E-02	7,15E-02	0,00E+00	6,17E-05	1,38E-02	5,33E-06	-4,88E-02
ETP-fw[1]	[CTUe]	6,92E+00	3,11E-01	4,57E+00	1,18E+01	0,00E+00	3,64E-02	4,16E-01	2,60E-03	-6,29E+00
HTP-c[1]	[CTUh]	7,59E-09	5,76E-10	6,64E-09	1,48E-08	0,00E+00	6,74E-11	3,59E-10	2,43E-12	-6,88E-09
HTP-nc[1]	[CTUh]	1,59E-08	7,17E-10	1,04E-08	2,70E-08	0,00E+00	8,39E-11	1,34E-09	1,43E-11	-1,49E-08
SQP[1]	-	5,54E+00	6,90E-01	6,07E+00	1,23E+01	0,00E+00	8,07E-02	2,41E+00	2,28E-02	-5,45E+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 1 kg of Knudsen Kilen K-Block 45/45C										
Parameter	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	[MJ]	1,61E+00	1,90E-02	4,92E+00	6,55E+00	0,00E+00	2,22E-03	1,98E+00	2,55E-04	-1,95E+00
PERM	[MJ]	6,08E-01	0,00E+00	9,42E-01	1,55E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	[MJ]	2,22E+00	1,90E-02	5,86E+00	8,10E+00	0,00E+00	2,22E-03	1,98E+00	2,55E-04	-1,95E+00
PENRE	[MJ]	6,03E+01	1,14E+00	3,13E+01	9,27E+01	0,00E+00	1,34E-01	1,36E+00	9,35E-03	-5,43E+01
PENRM	[MJ]	8,76E+01	0,00E+00	1,05E+01	9,81E+01	0,00E+00	0,00E+00	-4,08E+01	0,00E+00	0,00E+00
PENRT	[MJ]	1,48E+02	1,14E+00	4,18E+01	1,91E+02	0,00E+00	1,34E-01	-3,94E+01	9,35E-03	-5,43E+01
SM	[kg]	2,58E-01	0,00E+00	8,33E-02	3,41E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	[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
NRSF	[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
FW	[m^3]	8,01E-03	1,72E-04	6,04E-03	1,42E-02	0,00E+00	2,01E-05	3,95E-04	1,10E-05	-7,27E-03
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 1 kg of Knudsen Kilen K-Block 45/45C										
Parameter	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	[kg]	1,66E-03	2,86E-05	9,56E-04	2,65E-03	0,00E+00	3,35E-06	1,37E-03	9,04E-07	-1,54E-03
NHWD	[kg]	9,07E-02	5,51E-02	3,51E-01	4,97E-01	0,00E+00	6,45E-03	8,47E-03	4,00E-02	-8,37E-02
RWD	[kg]	3,94E-05	3,68E-07	1,51E-05	5,49E-05	0,00E+00	4,31E-08	7,08E-06	3,29E-09	-3,69E-05
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
MFR	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,20E-01	0,00E+00	0,00E+00
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
EEE	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,74E-02	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	1,82E-02	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 electrical energy; EET = Exported thermal energy								

BIOGENIC CARBON CONTENT PER 1 kg of Knudsen Kilen K-Block 45/45C		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in product	[kg C]	0,00E+00
Biogenic carbon content in accompanying packaging	[kg C]	3,74E-02
Note		1 kg biogenic carbon is equivalent to 44/12 kg of CO_2

Additional information

LCA interpretation

The results in accordance with DS/EN 15804+A2 show that the life cycle modules A1-A3 have the largest contribution to all of the 13 core environmental impact categories. For the product, the results shows that pre-consumer material input of HDPE granulate is the most dominant process for the environmental impact in 11 out of 13 core environmental impact indicators for modules A1-A3. For the remaining two core environmental impact indicators, the biggest emissions origins from the EU pallets packaging material (A3) when it comes to biogenic carbon and the injection moulding (A3) for land use and land use change. The EoL has a low impact due to the high share of recycling instead of incineration.

Technical information on scenarios

Reference service life

RSL information		Unit
Reference service Life	-	Years

End of life (C1-C4)

Scenario information	Value	Unit
Collected separately	1	kg
Collected with mixed waste	-	kg
For reuse	-	kg
For recycling	0.92	kg
For energy recovery	0.04	kg
For final disposal	0.04	kg
Assumptions for scenario development	-	As appropriate

Re-use, recovery and recycling potential (D)

Scenario information/Material	Value	Unit
Displaced material	0.709	kg
Waste material incinerated	0.031	kg
Energy recovery from waste incineration, electricity	0.525	MJ
Energy recovery from waste incineration, heat	0.549	MJ

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 Template version 2025.1
Programme operator	Danish Technological Institute Gregersensvej DK-2630 Taastrup www.teknologisk.dk
LCA-practitioner	Michael Granby-Larsen Asger Wendt Karl Nana Lin Rasmussen Sweco Danmark A/S Ørestads Blvd. 41, DK-2300 København S SWECO
LCA software /background data	*SimaPro v. 9.6.0.1* *Ecoinvent database Version 3.10* *LCA-method: Cut-off by classification* *EF 3.1 is used.* *EN 15804 reference package 3.1*
3rd party verifier	Guangli Du BUILD – Institut for Byggeri, By og Miljø, Aalborg Universitet København Verified according to Verification Checklist 1 v. 2.8

General programme instructions
General Programme Instructions, version 3.0, spring 2025
www.epddanmark.dk

Technical Rules and Guidelines
Technical Rules and Guidelines, version 1.0, spring 2025
www.epddanmark.dk

EN 15804
DS/EN 15804 + A2:2019 - "Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products"

EN 15942
DS/EN 15942:2011 – " Sustainability of construction works – Environmental product declarations – Communication format business-to-business"

ISO 14025
DS/EN ISO 14025:2010 – " Environmental labels and declarations – Type III environmental declarations – Principles and procedures"

ISO 14040
DS/EN ISO 14040:2008 – " Environmental management – Life cycle assessment – Principles and framework"

ISO 14044
DS/EN ISO 14044:2008 – " Environmental management – Life cycle assessment – Requirements and guidelines"