Report for review

According ISO 14025 and EN 15804

Owner of the Declaration	**Save Plastics**
Publisher	NIBE Research bv
Calculation number	EPD-NIBE-20181031-3172
Issue date	01-11-2018
Valid until	01-11-2023

Nature-line Brown

Save Plastics

www.epdnibe.com

1. VERIFICATION OF THE LIFE CYCLE ASSESSMENT

CEN standard EN 15804:2012 serves as the core PCR
Independent verification of the declaration. according to EN ISO 14025:2010. ☐ Internal ☑ External

1.1 STATEMENT EXTERNAL REVIEWER NIBE'S EPD APPLICATION

IVAM performed the review of the NIBE 'EPD online' calculation tool.
The documents concerned are:

- 25011.16.03.015 - Protocol EPD online - NMD v1.2.docx
- 25.011.150923 - Calculation Rules LCA application NIBE v2.4.docx
- 25.011.150923 - Validation calculation rules v2.7.xlsx
- 25011.16.03.014 - SBK Verification Protocol version 2.0 TIC version – NIBE EPD tool online version 1.1.docx
- 25.011.161124 - Procedure review applicatie en berekeningen.docx

The tool itself is tested by checking the environmental profiles that serve as basis and three validation checks that cover all relevant functionality of the tool.

The conclusion of the review is that the tool meets the requirements of the Dutch Assessment Method Environmental Performance Construction and Civil Engineering Works(GWW) 2014. Using the tool for EPD-calculations will only need a 'light' additional review since the core (the tool itself) is reviewed already.

Harry van Ewijk, IVAM UvA BV, 30 november 2016

1.2 STATEMENT EXTERNAL REVIEWER EPD PRODUCT CALCULATION

De methodologie en dataverzameling zoals beschreven in dit rapport voldoet aan de eisen van normen ISO 14040/44, ISO 21930 en tevens aan de eisen van de "Bepalingsmethode Milieuprestatie Gebouwen en GWW-werken versie 2.0 van november 2014, inclusief wijziging 1 juni 2017"

Daarmee wordt voldaan aan de eisen uit toetsingsprotocol versie 2.0 van november 2014, inclusief wijziging 1 juni 2017.

Third party verifier: Kamiel Jansen [reviewer], NIBE

2. GENERAL

2.1 INTRODUCTION

This report for review is a result of a life cycle analysis (LCA) made by using NIBE's EPD application. The report is based on the following chapters which correspond to the phases of a LCA.

- Goal and scope definition
- Life cycle inventory
- Impact assessment
- Interpretation

The application of NIBE is third party verified. As a result, many of the criteria that needs to be reviewed for an LCA according to EN15804 have already been verified. The operation and prescribed use of NIBE's EPD application are stated in the protocol which can be download at www.epdnibe.com

2.2 COMPANY INFORMATION / DECLARATION OWNER

Manufacturer:	Save Plastics
Production Location:	Save Plastics
Address:	Westervoortsedijk 73-FC NL-6827 AV Arnhem
E-mail:	info@saveplastics.nl
Website:	www.saveplastics.nl

2.3 EPD INFORMATION

EPD for:	Nature-line Brown
Calculation number:	EPD-NIBE-20181031-3172
Date of issue:	01-11-2018
End of validity:	01-11-2023
Version NIBE's EPD Application:	1.0
Version Environmental Profile database:	v2.73 (2018-10-30)
PCR:	SBK bepalingsmethode v2.0 incl. Wijzingingsblad overgang naar EcoInvent v3.3 of 1th June 2017

2.4 CALCULATION BASIS

LCA Method	SBK
LCA Software	Simapro 8.2.3
characterization method	SBK Bepalingsmethode, 20 September 2016 (NMD 2.0) v3.03
LCA database profiles	EcoInvent versie 3.3
Used protocol	25.011.16.03.015 - Protocol EPD online - NMD, version 1.2, November 2016
Version database	v2.73 (2018-10-30)

2.5 PROJECT TEAM

The project team for the drafting this LCA consists the following persons:

Pieter Stadhouders, EcoReview
Bram Peters, Save Plastics
Teresa Kasper

2.6 USED ABBREVIATIONS

EPD	Environmental Product Declaration
SBK	Stichting Bouwkwaliteit
NMD	Nationale Milieu Database (Dutch National Environmental Profile Database)
Sp	Shadow price / Environmental Cost Indicator
RSL	Reference service life
LCA	Life Cycle Assesment

3. GOAL AND SCOPE DEFINITION

3.1 PURPOSE AND TARGET GROUPS

The purpose of this LCA is to compile environmental data of materials and products used in the built environment. So that the environmental data can be used in calculations of buildings and / or civil works. The purpose of this report is to draw up a review dossier for the product based on the SBK Assessment Method Environmental Performances Constructions and Civil Engineering Works (GWW) v2.0 of November 2014 incl. Wijzingingsblad overgang naar EcoInvent v3.3 of 1th June 2017. This document defines a standardized method for a LCA in the Netherlands, of a product used in the build environment, in accordance with EN 15084.

The target groups of this LCA study are: Users of the NMD or programs that use this database, such as BREEAM-NL, GPR gebouw and GPR bouwbesluit, MRPI freetool, DuboCalc, etc. With these tools and certification systems the environmental impact of a building or civil work can be calculated and possibly be certified.

3.2 DECLARED UNIT

1 kg of gerecyclede kunststoffen voor de openbare ruimte

Unit: No functional unit specified

Wordt toegepast in verschillende toepassingen zoals: palen, planken, balken en meubilair voor de openbare ruimte

3.3 ENVIRONMENTAL PROFILE AND RATINGS REPRESENTIVE

The input data are representative for Nature-line Brown, a product of Save Plastics. The data are representative for Netherlands.

3.4 SCOPE OF DECLARATION

This is a cradle to grave EPD. The life cycle stages included are as shown below:
(X = included, MND = module not declared)

A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	X	MND	MND	MND	MND	X	X	X	X	X

3.5 CUT-OFF CRITERIA

In the Life cycle assessment the following is included in this study:

Product stage (A1-A3)
The production phase consists of the extraction of raw materials, transportation of the raw materials, processing the raw materials into materials and the production of the product. The required energy for production, external treatments, ancillary materials, packaging material and production emissions are included.

Construction process stage (A4-A5)
This stage consists of the transport of the product from production gate to the construction site. It also includes wastage of construction products (additional production processes to compensate for the loss of wastage of products) and waste processing of the waste from product packaging and product wastage during the construction processes up to the end-of-waste state or disposal of final residues. The installation of the product into the building including manufacture and transportation of ancillary materials and any energy or water required for installation or operation of the construction site are taken into account. It also includes on-site operations to the product.

Use stage (B1-B3)
This stage consists of the impacts arising from components of the building and construction works during their use.
The stage also covers the combination of all planned technical and associated administrative maintenance actions during the service life to maintain the product installed in a building, in a construction works or its parts in a state in which it can perform its required functional and technical performance, as well as preserve the aesthetic qualities of the product. This will include preventative and regular maintenance activities.

End of life stage (C1-C4)
When the end of the life of the building is reached, the de-construction/demolition begins. The de-construction/demolition is not included in the system boundaries, because they go beyond the responsibility of the producer. This EPD does include the necessary transport (C2) from the demolition site to the sorting location and final disposal. In addition, the prescribed waste

scenarios from the SBK Bepalingsmethode v2.0 have been used for the various materials in the product. The end of life stage includes the disposal to landfill and incineration. Recycling, re-use and exported energy are part of 'supplementary information' beyond the building life cycle.

The Combustion emissions and emissions from waste treatment for recovery and / or recycling are included in C4 instead of declaring separately at the module C3.

Supplementary information outside the building life cycle (D)
This stage contains the environmental costs and benefits of recycling and re-use of material released during demolition, and the environmental benefits of recycled or re-used materials used as raw material in the product. In addition, the environmental benefits of saving energy due to incineration where energy is generated, are granted at this stage. The amount of avoid energy is based on the Lower Heating Values of the materials and the efficiencies of the incinerators as mentioned in the SBK Bepalingsmethode v2.0

3.6 ALLOCATION

Environmental profile	Explanation of used allocation method
Save Plastics C3+C4	Economic allocation is used. 25% of energy use is allocated to C3 Waste Processing
Secondary raw material, Economic allocation = 0	Waste material has no economic value and therefore economic allocation is €0,00

4. PRODUCT

4.1 PRODUCT DESCRIPTION

Nature-line products for urban constructions. The Nature-line is made from Post-Consumer waste plastics, produced into products for Light poles, sheetpiling, timbering, cladding, marina decks, jetty's and parkbenches. The Nature-Line products are an alternative for wood, steel or concrete products.

4.2 DESCRIPTION PRODUCTION PROCESS

Preparation Process of Save Plastics

The raw material is delivered to HK in the shape of cuboid pressed bales.

At first, the bales, both film, and mixed plastics run through a shredder, where the material gets reduced to small pieces.

Due to a band-conveyor, the crushed plastics pass a magnetic separator on their way to the wind sifter. At this point, the first two waste streams arise – metal and heavy plastics.

The remaining good material is carried to a dryer by air. A heating machine that is run by natural gas delivers a warm airflow into the dryer. Having humidity eliminated paper parts are the next to be removed. A so-called Mechanical-dry-Cleaner, equipped with a certain kind of paddles, whips the plastic pieces. Paper fabrics, which sit on the plastics, fray and disengage themselves from the plastics.

The dry and clean plastic shreds now arrive at the pelletizer, where they become plastic pellets. These pellets can be fed into an extruder to produce a variety of end products.

Based on economic allocation the cut-off is determined. The impacts of the production process are partially allocated to the waste processing of the plastic in the previous life cycle and partially onto the life cycle of the Nature-line products based on economic allocation.

4.3 DESCRIPTION CONSTRUCTION PROCESS

Nature-line products are usually installed outside like bridging, flood management, jetty's and park benches. Normal tooling equipment is required.

4.4 REFERENCE SERVICE LIFE

RSL of the product

Product	RSL [yr]
Nature-line Brown	40

RSL of the product parts / Raw materials

Description	Material	RSL [yr]
Raw Materials		
	Polyethylene, LDPE, granulate	50
Recycled Plastic	Secondary raw material, Economic allocation = 0	50
External treatments		
N.A.		
Maintenance		
N.A.		

Substantiation RSL Product
The RSL has been confirmed on 40 years in a Study by Tauw "Levensduur van Kunststof, Kenmerk N001-0000000OEL-V01, 28-08-2012
Substantiation RSL Product parts / Raw Matterials
The RSL has been confirmed on 40 years in a Study by Tauw "Levensduur van Kunststof, Kenmerk N001-0000000OEL-V01, 28-08-2012

5. LIFE CYCLE INVENTORY

5.1 RAW MATERIALS SUPPLY (A1)

Description	Material	Amount [kg]	Amount of production waste [kg]	Comments
	Polyethylene, LDPE, granulate	0.030	0.000	Main constituent is Polyethylene, No further information provided
Recycled Plastic	Secondary raw material, Economic allocation = 0	0.970	0.000	No emissions allocated to A1 and A2 due to economic allocation described in the provided excel - sheet
		1.000 kg	**0.000 kg**	

5.2 TRANSPORT TO MANUFACTURER (A2)

Transport distances suppliers to destination

Supplier	Transport Conveyance 1	Distance 1 [km]	Transport Conveyance 2	Distance 2 [km]	Transport Conveyance 3	Distance 3 [km]
Poly-IQ GmbH	Lorry (Truck), unspecified (default)	216				
Toeleveranciers Plastic	Lorry (Truck), unspecified (default)	0				

Transport movements

Transport Movement	Transport Conveyance	Weight x distance [TKM]
Transport from suppliers and indirect suppliers to Save Plastics	Multiple Transport Conveyance	0.01
Transport to external treament	Multiple Transport Conveyance	0

5.3 PRODUCTION PROCESS (A3)

Production waste
The generated waste during production is shown by 5.1 Raw Materials Supply. The applicable waste scenarios for the generated production waste are listed at 5.9 to 5.11.

Energy Consumption

Description	Energy	Amount	Unit	Comments
	Heat production, natural gas, at industrial furnace >100kW (Europe)	0.398	MJ	
Electricity Production Process	Electricity (DE) - low voltage	0.527	kWh	Electricity used in the different processes as described in the process diagram (75% based on the economic allocation)

Emissions

Description	Emission(s) to air/soil/water	Amount	Unit	Comments
N.A.				

Packaging Materials

Description	Material	Amount	Unit	Comments
N.A.				

Ancillary Materials

Description	Material	Amount	Unit	Comments
N.A.				

External Treatments

Description	Material	Amount	Unit	Comments
N.A.				

5.4 TRANSPORT TO BUILDING SITE (A4)

Transport movement	Transport conveyance	Distance [km]	Weight x distance [TKM]
Transport to building site	Lorry (Truck), unspecified (default)	150	0.15

5.5 CONSTRUCTION STAGE (A5)

Material / energy use during the construction stage

Description	Material / Energy	Amount	Unit	Comments
N.A.				

Waste generated during the construction stage

Output materials as result of waste processing at the building site is 3% of Nature-line Brown. The waste scenario's as stated in 5.9 to 5.11 are applicable for the processed waste.

Packaging Material	End of life scenario	Amount [kg]	% landfill	% incineration	% recycling	% reuse
N.A.						

Transport during construction stage

Transport movement	Transport conveyance	Weight x distance [TKM]
Transport to during construction stage	Multiple Transport conveyance	0

5.6 USE STAGE (B1)

There are no direct emissions during the use stage of the product. This is confirmed by Dekra during tests on "Migratie van bepaalde elementen conform EN 71-3:2013 +A1: 2014 Ftalaat REACH Annex XVII + DIBP, Keuringsrapportnr: 55256536, 03-05-2017"

Description	Emission(s) to air/soil/water	service cycle (yr)	number of service cycles	Total amount	Unit
N.A.					

5.7 MAINTENANCE (B2)

Description	Material/Energy	service cycle (yr)	number of service cycles	Total amount	Unit
N.A.					

5.8 REPAIR (B3)

Description	Material	Service cycle (yr)	Number of service cycles	Total amount incl. waste [kg]	Total amount of waste [kg]
N.A.					

5.9 TRANSPORT END LIFE STAGE (C2)

Material	End of life scenario	Landfill [km]	Incineration [km]	Recycling [km]	Reuse [km]
Raw Materials					
Polyethylene, LDPE, granulate	Save Plastics	100	150	50	0
Secondary raw material, Economic allocation = 0	Save Plastics	100	150	50	0

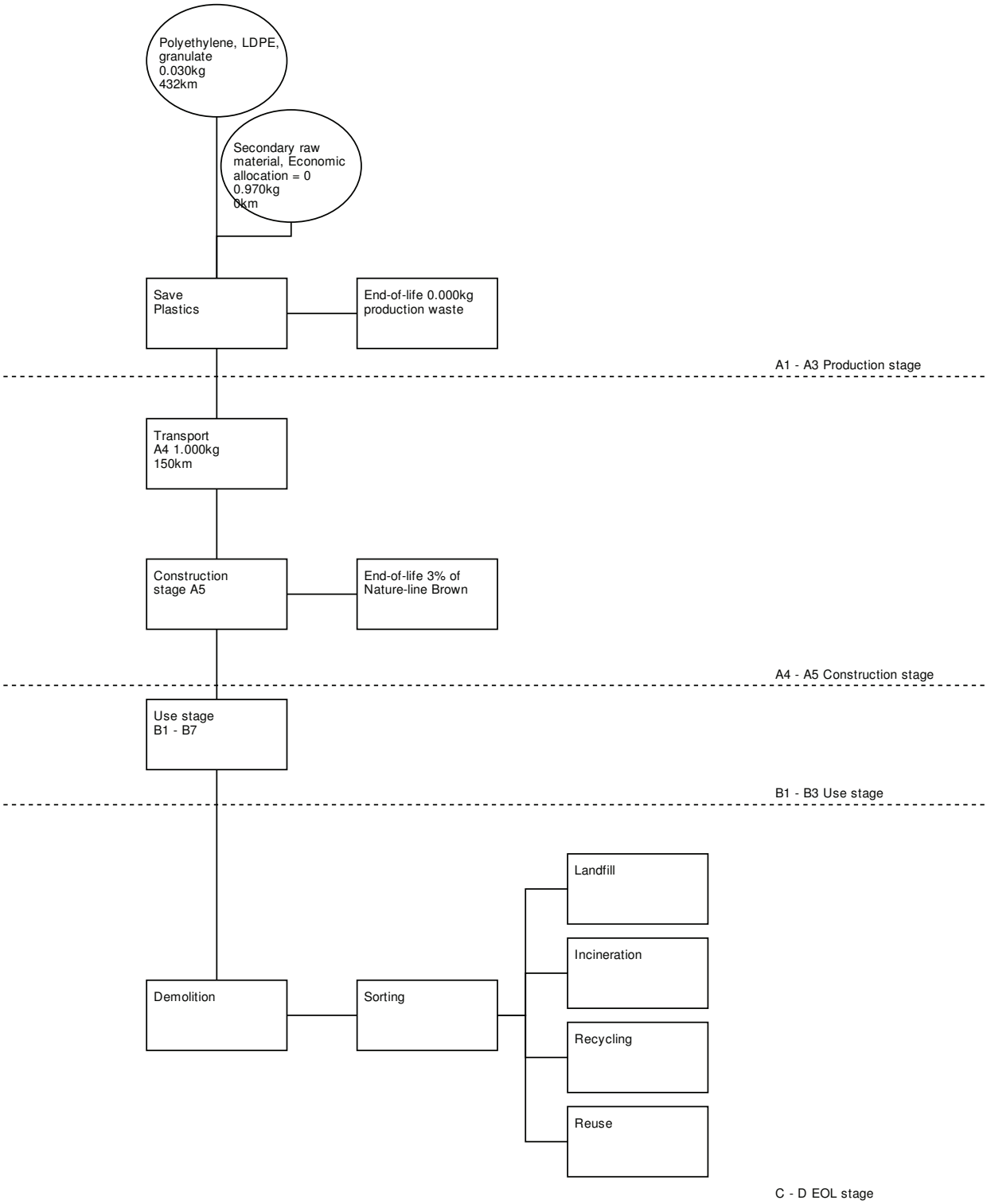
5.10 FINAL DISPOSAL (C1+C3+C4)

Material	End of life scenario	gewicht [kg]	% landfill	% incineration
Raw Materials				
Polyethylene, LDPE, granulate	Save Plastics	0.030	0%	0%
Secondary raw material, Economic allocation = 0	Save Plastics	0.970	0%	0%
		1.000		

5.11 ENVIRONMENTAL COSTS AND BENEFITS OF RECYCLING AND REUSE (D)

Material	End of life scenario	gewicht [kg]	% recycling	% reuse
Raw Materials				
Polyethylene, LDPE, granulate	Save Plastics	0.030	100%	0%
Secondary raw material, Economic allocation = 0	Save Plastics	0.970	100%	0%
		1.000		

5.12 PRODUCT FLOW DIAGRAM



6. RESULTS

6.1 ENVIRONMENTAL EFFECTS PER

Impact category	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C2	C1+C3+C4	D	Total
ADPE	Kg Sb	6.47E-9	2.41E-9	4.10E-7	5.59E-8	1.89E-8	0.00E+0	0.00E+0	0.00E+0	1.86E-8	1.37E-7	0.00E+0	6.49E-7
ADPF	Kg Sb	9.94E-4	6.30E-6	2.68E-3	1.46E-4	1.43E-4	0.00E+0	0.00E+0	0.00E+0	4.86E-5	8.94E-4	0.00E+0	4.91E-3
GWP	Kg CO2 Equiv.	6.30E-2	8.52E-4	3.72E-1	1.97E-2	1.76E-2	0.00E+0	0.00E+0	0.00E+0	6.57E-3	1.24E-1	0.00E+0	6.04E-1
ODP	Kg CFC-11 Equiv.	3.13E-11	1.59E-10	2.37E-8	3.69E-9	1.10E-9	0.00E+0	0.00E+0	0.00E+0	1.23E-9	7.90E-9	0.00E+0	3.78E-8
POCP	Kg Ethene Equiv.	8.05E-5	5.15E-7	5.83E-5	1.19E-5	5.24E-6	0.00E+0	0.00E+0	0.00E+0	3.97E-6	1.95E-5	0.00E+0	1.80E-4
AP	Kg SO2 Equiv.	2.39E-4	3.76E-6	6.14E-4	8.71E-5	3.53E-5	0.00E+0	0.00E+0	0.00E+0	2.90E-5	2.05E-4	0.00E+0	1.21E-3
EP	Kg PO43- Equiv.	1.52E-5	7.41E-7	1.99E-4	1.71E-5	9.13E-6	0.00E+0	0.00E+0	0.00E+0	5.72E-6	6.64E-5	0.00E+0	3.14E-4
HTP	kg 1.4 DB	1.49E-3	3.70E-4	5.56E-2	8.55E-3	2.62E-3	0.00E+0	0.00E+0	0.00E+0	2.85E-3	1.85E-2	0.00E+0	9.00E-2
FAETP	kg 1.4 DB	9.67E-5	1.09E-5	1.48E-3	2.52E-4	7.26E-5	0.00E+0	0.00E+0	0.00E+0	8.39E-5	4.94E-4	0.00E+0	2.49E-3
MAETP	kg 1.4 DB	1.90E-1	4.13E-2	5.57E+0	9.55E-1	2.68E-1	0.00E+0	0.00E+0	0.00E+0	3.18E-1	1.86E+0	0.00E+0	9.21E+0
TETP	kg 1.4 DB	4.10E-6	2.95E-6	2.30E-3	6.84E-5	9.49E-5	0.00E+0	0.00E+0	0.00E+0	2.28E-5	7.66E-4	0.00E+0	3.26E-3
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**C2**	**C1+C3+C4**	**D**	**Total**
PERE	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PERM	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PERT	MJ	4.04E-2	1.82E-4	6.61E-1	4.21E-3	2.78E-2	0.00E+0	0.00E+0	0.00E+0	1.40E-3	2.20E-1	0.00E+0	9.55E-1
PENRE	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PENRM	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PENRT	MJ	2.39E+0	1.41E-2	5.62E+0	3.26E-1	3.10E-1	0.00E+0	0.00E+0	0.00E+0	1.09E-1	1.87E+0	0.00E+0	1.06E+1
SM	Kg	9.70E-1	0.00E+0	0.00E+0	0.00E+0	2.91E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	9.99E-1
RSF	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	M3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
HWD	Kg	1.35E-8	9.85E-8	3.72E-5	2.28E-6	1.58E-6	0.00E+0	0.00E+0	0.00E+0	7.60E-7	1.24E-5	0.00E+0	5.44E-5
NHWD	Kg	9.42E-4	8.03E-4	1.51E-2	1.86E-2	1.40E-3	0.00E+0	0.00E+0	0.00E+0	6.20E-3	5.05E-3	0.00E+0	4.81E-2
RWD	Kg	8.40E-9	9.06E-8	2.05E-5	2.10E-6	9.08E-7	0.00E+0	0.00E+0	0.00E+0	6.99E-7	6.85E-6	0.00E+0	3.12E-5
CRU	Kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	Kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.00E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.00E+0	1.03E+0
MER	Kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EE	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0

Impact categories: ADPE=Depletion of abiotic resources-elements | **ADPF**=Depletion of abiotic resources-fossil fuels | **GWP**=Global warming | **ODP**=Ozone layer depletion | **POCP**=Photochemical oxidants creation | **AP**=Acidification of soil and water | **EP**=Eutrophication | **HTP**=Human toxicity | **FAETP**=Ecotoxicity. fresh water | **MAETP**=Ecotoxicity. marine water (MAETP) | **TETP**=Ecotoxicity. terrestric

Parameters: PERE=renewable primary energy ex. raw materials | **PERM**=renewable primary energy used as raw materials | **PERT**=renewable primary energy total | **PENRE**=non-renewable primary energy ex. raw materials | **PENRM**=non-renewable primary energy used as raw materials | **PENRT**=non-renewable primary energy total | **SM**=use of secondary material | **RSF**=use of renewable secondary fuels | **NRSF**=use of non-renewable secondary fuels | **FW**=use of net fresh water | **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 | **EE**=Exported energy

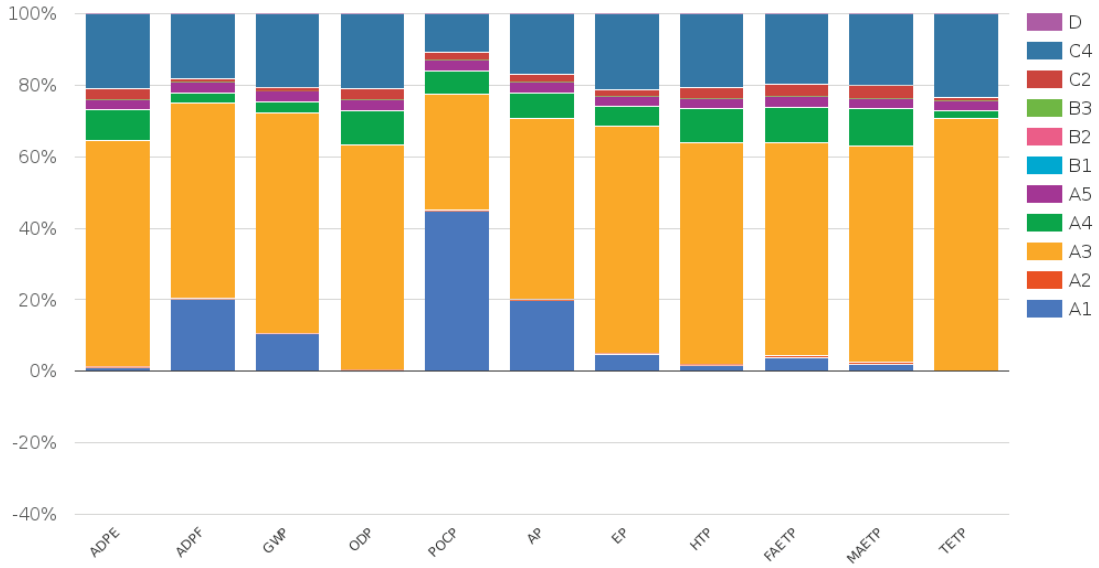
Combustion emissions and emissions from waste treatment for recovery and / or recycling are included in C4.

6.2 SHADOWPRICES PER FUNCTIONAL UNIT ()

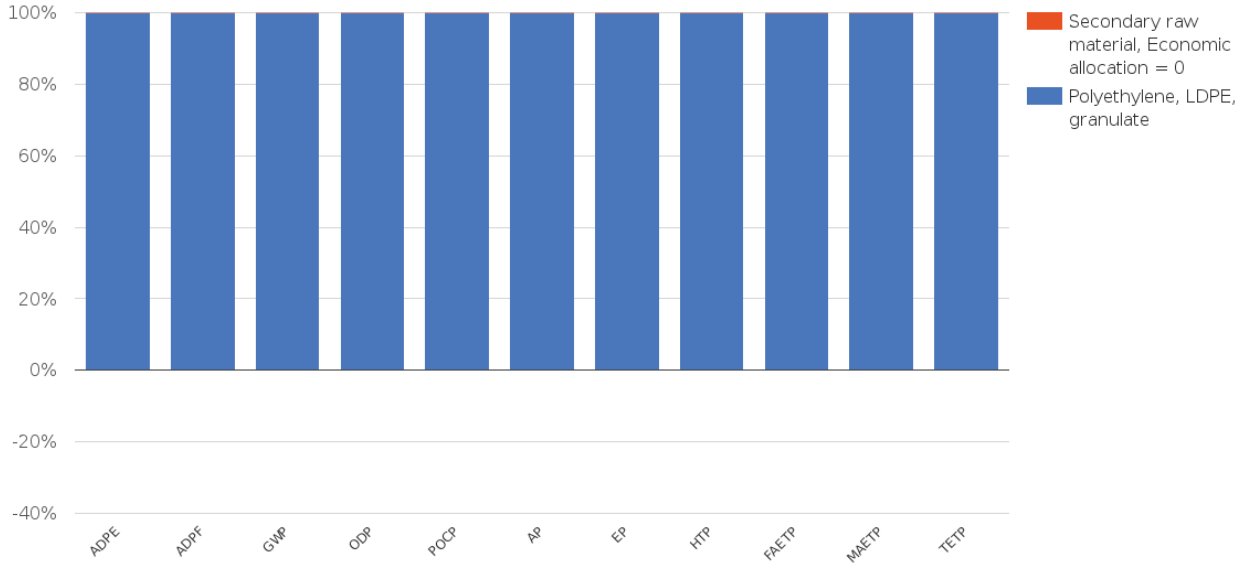
Phase EN15804	Shadow price per phase	Share in total
A1 Raw Materials Supply	s€ 0,00	9.8 %
A2 Transport	s€ 0,00	0.2 %
A3 Manufacturing	s€ 0,03	60.3 %
A4 Transport from the gate to the site	s€ 0,00	5.0 %
A5 Assembly	s€ 0,00	2.9 %
B1 Use	s€ 0,00	0.0 %
B2 Maintenance	s€ 0,00	0.0 %
B3 Replacements	s€ 0,00	0.0 %
C2 Transport	s€ 0,00	1.7 %
C4 Disposal	s€ 0,01	20.1 %
D Reuse/Reovery/Recycling potential	s€ 0,00	0.0 %
Shadowprice per functional unit	**s€ 0,05**	

7. INTERPRETATION

7.1 CONTRIBUTION ANALYSIS OF THE STAGES

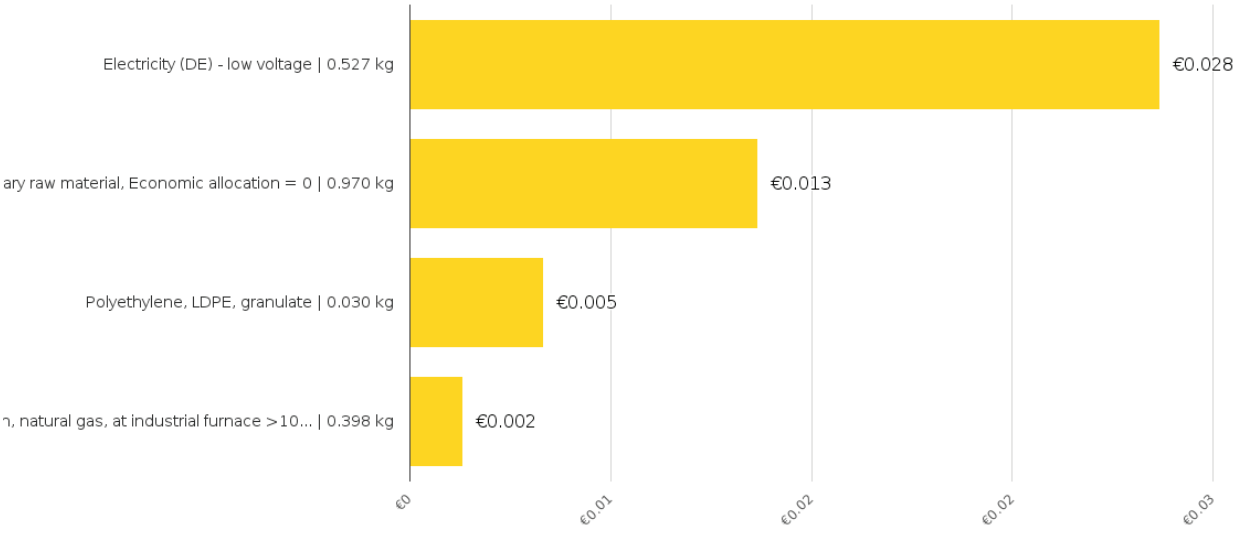


7.2 CONTRIBUTION ANALYSIS OF THE RAW MATERIALS (A1)



7.3 CONTRIBUTION ANALYSIS OF THE RAW MATERIAL (A1-D)

The following diagram shows the contribution of the raw materials, expressed in schadowprice / Environmental Cost Indicator.



ANNEX 1: DATA QUALITY

A1.1 TIME PERIOD DATA COLLECTION

2017

A1.2 DATA QUALITY QUANTITIES

Description	Material	Data quality	Data source
	Polyethylene, LDPE, granulate	average product	Sicherheitsdatenblatt Poly-IQ
Recycled Plastic	Secondary raw material, Economic allocation = 0	measured	Save Plastics
	Heat production, natural gas, at industrial furnace >100kW (Europe)	measured	Internal
Electricity Production Process	Electricity (DE) - low voltage	measured	Internal

A1.3 APPROACH OF SUPPLIERS FOR LCA DATA

Supplier	supplier approached for company-specific environmental data?	manner in which the supplier is approached	Received document type
Poly-IQ GmbH	yes	by letter/email	Sicherheitsdatenblatt
Toeleveranciers Plastic	no		Not relevant

A1.4 USED SOURCES FOR THIS EPD

Material	Processes used	Source	Third-party verified	Comments
Raw Materials profiles				
Polyethylene, LDPE, granulate	Polyethylene, low density, granulate {RER}| production | Alloc Rec, U	NIBE/EcoInvent 3.3	yes	
Secondary raw material, Economic allocation = 0	NIBE Secondary raw material, Economic allocation = 0	NIBE	no	
Energy profiles				
Electricity (DE) - low voltage	Electricity, low voltage {DE}| market for | Alloc Rec, U	EcoInvent 3.3	no	
Heat production, natural gas, at industrial furnace >100kW (Europe)	Heat, district or industrial, natural gas {Europe without Switzerland}| heat production, natural gas, at industrial furnace >100kW | Alloc Rec, U	EcoInvent 3.3	no	
Waste profiles				
Save Plastics C3+C4	WNL0001C4-062 - Save Plastics	EcoReview	no	0,133 MJ 'heat production, natural gas, at industrial furnace >100kW' and 0,175652kWh Electricity, low voltage DE
Save Plastics D	WNL0001D-062 - Save Plastics	EcoReview	no	100% sec. material and therefore no benefits are applicable

ANNEX 2: REFERENCES

ISO 14040
DIN EN ISO 14040:2006-10, Environmental management - Life cycle assessment - Principles and framework; EN ISO 14040:2006

ISO 14044
DIN EN ISO 14044:2006-10, Environmental management - Life cycle assessment - Requirements and guidelines; EN ISO 14040:2006

ISO 14025
DIN EN ISO 14025:2011-10: Environmental labels and declarations — Type III environmental declarations — Principles and procedures

EN 15804
EN 15804:2012-04+A1 2013: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

SBK-verification protocol
SBK-verification protocol – inclusion data in the Dutch environmental database, Final Version 2.0, November 2014, SBK

SBK-Assessment Method
Assessment Method Environmental Performance Construction and Civil Engineering Works (GWW), Version 2.0 Definitive November 2014, SBK

Protocol EPD-online
25011.16.03.015 - Protocol EPD online - NMD, version 1.2, November 2016, NIBE