

Environmental Product Declaration

 **EPD**®
THE INTERNATIONAL EPD® SYSTEM



EPD of multiple products, based on worst-case results in accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Waste container 360L

from

AVK Plast A/S



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Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	EPD-IES-0002639
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An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.environdec.com



General information

Programme information

Programme:	The International EPD [®] System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804:2012+A2:2019 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): <i>PCR 2019:14 Construction Products version 1.3.4, UN CPC code: 3639</i>
PCR review was conducted by: <i>The Technical Committee of the International EPD[®] System</i>
Life Cycle Assessment (LCA)
LCA accountability: <i>Jesper Kokborg Lassen, NRGi Rådgivning A/S</i>
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: <input checked="" type="checkbox"/> EPD verification by individual verifier Third-party verifier: Hudai Kara PhD, Metsims Sustainability Consulting, Oxford, U.K., www.metsims.com Approved by: The International EPD [®] System Procedure for follow-up of data during EPD validity involves third party verifier: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: AVK Plast A/S

Contact: Michael Kragh, MK@avkplast.dk

Description of the organisation: AVK Plast A/S is a manufacturer of injection moulded plastics

Product-related or management system-related certifications: ISO 9001, ISO 14001

Name and location of production site(s): AVK Plast A/S, Øster Vedstedvej 26A, 6760 Ribe, Denmark

Product information

Product name: Waste container 360L

Product identification: Waste container 360L

Product description: 360L capacity waste container manufactured in polyethylene.

UN CPC code: 3639

Geographical scope: Raw materials are sourced from Europe, with production being situated in Denmark. The market for the EPD is considered Europe.

LCA information

Declared unit: 1 piece of waste container with a capacity of 360L

Reference service life: Not applicable

Time representativeness: Covers production data from 2023, with data, with background data from Ecoinvent primarily being from 2023.

Database(s) and LCA software used: SimaPro 9.6.0.1, Ecoinvent 3.10 – Allocation, cut-off, EN 15804

Description of system boundaries: Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D)

Calculation method and version: EF 3.1

Module A1-A3:

A1: Raw materials are sourced from Europe, with packaging being sourced from Denmark.

Approximately 27% of raw materials utilized are recycled materials.

A2: Transport is done by lorry with EURO6 classification, utilizing default load factors present in the ecoinvent data.

A3: Raw materials are injection moulded into finished products with a 0.6% loss/kg produced polyethylene. AVK Plast A/S utilize GO-certified electricity, guaranteeing electricity by Danish wind turbines.

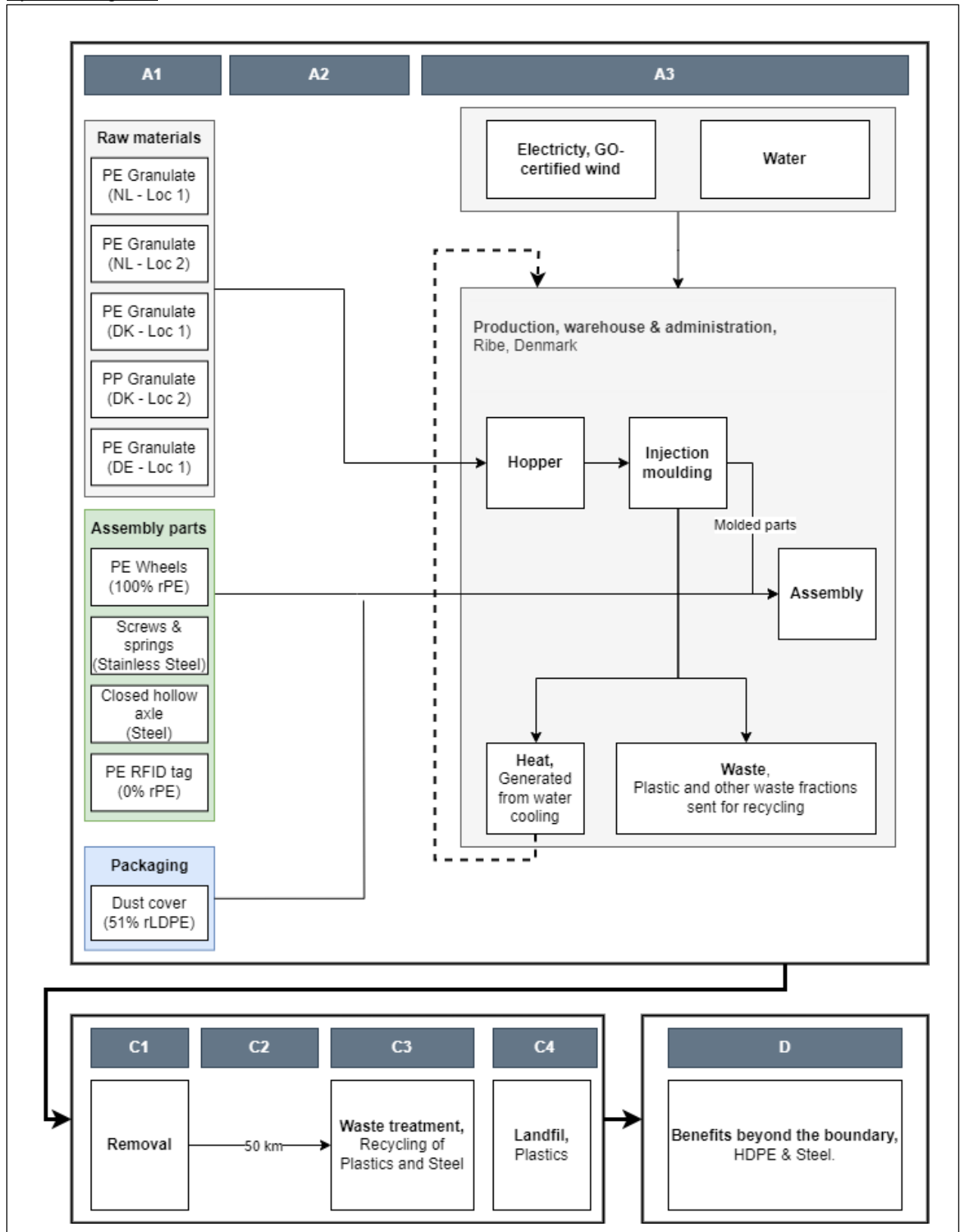
Module A4-A5: Are optional and not included.

Module B1-B7 are assessed as not relevant, and therefore not covered by the EPD

Module C1-C4: No activities are present in C1. For C2, transport is considered 50 km for waste sent for recycling or energy recovery, whereas 100 km is considered for landfill. Transport in C2 utilize lorry with EURO5 classification. A conservative waste scenario has been applied based on EuroStat waste statistics for polyethylene, where 71% of the material is sent for recycling, 23% for energy recovery in C3, and the remaining 6% is sent for landfill in C4.

Module D: For the material sent for energy recovery at a CHP-plant, 75% of the energy recovered is thermal energy, whereas 25% is electrical energy. A 25% loss is factored into the energy recovered at the CHP-plant.

System diagram:



Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	EU	EU	DK										EU	EU	EU	EU	EU
Specific data used	69%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	<1%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%					-	-	-	-	-	-	-	-	-	-	-	-

Content information

Product components	Weight, kg	Post-consumer recycled material, weight-% of product	Biogenic material weight-% of product	Biogenic material, kg C/product or declared unit
rPolyethylene (rPE)	<0.1	100	0	0
Polyethylene (PE)	16.65	0	0	0
Polypropylene (rPP)	1.72	100	0	0
Wheels (rPE)	4.63	100	0	0
Misc assembly parts (PE)	<0.1	0	0	0
Screws and springs	<0.01	0	0	0
Closed hollow axle	0.74	0	0	0

Additives	<0.001	0	0	0
TOTAL	23.98	26.80	0	0
Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg	
Dust Cover (LDPE)	0.07	0.30	0	
TOTAL	0.07	0.30	0	

The product does not contain dangerous substances from the candidate list of SVHC for Authorisation.

Results of the environmental performance indicators

Mandatory impact category indicators according to EN 15804

Results per 1 piece of waste container with 360L capacity

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ eq.	5.45E+01	0.00E+00	2.43E-01	1.55E+01	1.11E-01	-3.17E+01
GWP-biogenic	kg CO ₂ eq.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP-luluc	kg CO ₂ eq.	3.49E-02	0.00E+00	7.94E-05	1.52E-03	2.42E-06	-2.32E-02
GWP-total	kg CO ₂ eq.	5.45E+01	0.00E+00	2.43E-01	1.55E+01	1.11E-01	-3.17E+01
ODP	kg CFC 11 eq.	2.32E-06	0.00E+00	4.83E-09	1.16E-08	4.03E-10	-1.65E-06
AP	mol H ⁺ eq.	1.85E-01	0.00E+00	7.60E-04	7.09E-03	8.27E-05	-9.58E-02
EP-freshwater	kg P eq.	1.21E-02	0.00E+00	1.62E-05	3.12E-04	8.29E-07	-6.46E-03
EP-marine	kg N eq.	3.51E-02	0.00E+00	2.56E-04	4.38E-03	2.51E-03	-1.96E-02
EP-terrestrial	mol N eq.	3.62E-01	0.00E+00	2.79E-03	2.74E-02	3.67E-04	-2.05E-01
POCP	kg NMVOC eq.	2.75E-01	0.00E+00	1.19E-03	7.56E-03	1.65E-04	-1.70E-01
ADP-minerals&metals*	kg Sb eq.	5.20E-04	0.00E+00	7.77E-07	1.03E-05	2.64E-08	-2.58E-04
ADP-fossil*	MJ	1.44E+03	0.00E+00	0.00E+00	1.04E+01	2.82E-01	-1.04E+03
WDP*	m ³	1.61E+01	0.00E+00	3.77E-03	9.24E-01	-2.32E-01	-1.26E+01
Acronyms	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 = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption						

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Additional mandatory and voluntary impact category indicators

Results per 1 piece of waste container with 360L capacity

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-GHG ¹	kg CO ₂ eq.	5.46E+01	0.00E+00	2.43E-01	1.55E+01	1.11E-01	-3.20E+01

¹ This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO₂ is set to zero.

Resource use indicators

Results per 1 piece of waste container with 360L capacity

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	1.45E+02	0.00E+00	5.79E-02	1.22E+00	8.72E-03	-6.76E+01
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.45E+02	0.00E+00	5.79E-02	1.22E+00	8.72E-03	-6.76E+01
PENRE	MJ	1.44E+03	0.00E+00	2.85E-04	1.04E+01	2.82E-01	-1.04E+03
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	1.44E+03	0.00E+00	2.85E-04	1.04E+01	2.82E-01	-1.04E+03
SM	kg	6.43E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.86E-01
RSF	MJ	7.78E-02	0.00E+00	0.00E+00	5.21E-04	1.90E-06	-1.35E-03
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m ³	4.02E-01	0.00E+00	2.13E-04	2.20E-02	-5.39E-03	-3.06E-01
Acronyms	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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water						

Waste indicators

Results per 1 piece of waste container with 360L capacity

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	5.76E+00	0.00E+00	3.32E-03	3.36E-01	4.19E-04	-1.23E+00
Non-hazardous waste disposed	kg	3.92E+02	0.00E+00	3.70E-02	1.18E+01	6.94E+00	-2.54E+02
Radioactive waste disposed	kg	1.30E-03	0.00E+00	0.00E+00	2.02E-05	1.10E-07	-7.17E-04

Output flow indicators

Results per 1 piece of waste container with 360L capacity							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	2.32E-01	0.00E+00	0.00E+00	1.66E+01	0.00E+00	0.00E+00
Materials for energy recovery	kg	3.65E-01	0.00E+00	0.00E+00	5.39E+00	0.00E+00	0.00E+00
Exported energy, electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, thermal	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Other environmental performance indicators

Results per 1 piece of waste container with 360L capacity							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Particulate matter	Disease incidences	1.75E-06	0.00E+00	1.55E-08	8.30E-08	1.95E-09	-7.62E-07
Ionising radiation, human health	kBq U235eq.	5.23E+00	0.00E+00	4.38E-03	7.92E-02	4.70E-04	-2.89E+00
Ecotoxicity, freshwater	CTUe	2.43E+02	0.00E+00	9.16E-01	4.62E+01	3.52E-01	-1.14E+02
Human toxicity, cancer	CTUh	3.27E-07	0.00E+00	1.70E-09	3.61E-08	7.47E-11	-1.32E-07
Human toxicity, non-cancer	CTUh	5.38E-07	0.00E+00	2.13E-09	5.27E-08	6.69E-10	-2.75E-07
Land Use	Pt	2.13E+02	0.00E+00	2.03E+00	1.65E+01	6.84E-01	-1.30E+02

Additional environmental information

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

The modeled electricity mix applied for the manufacturing process (A3) is modelled as GO-certified power generated by Danish wind turbines, covering 100% of AVK Plast A/S electricity utilized in the reporting year (2023).

Applied electricity mix	Kg CO2 eq/kWh
Danish GO-certified wind, medium voltage	0.0221

Cut-off criteria:

The general rules apply for the exclusion of inputs and outputs in the LCA which complies with 15804:2012+A2:2019. 6.3.6. In cases of insufficient input data or data gaps for a unit process, the cut-off criteria shall be 1 % of renewable and non-renewable primary energy usage and 1 % of the total mass input of that. The total neglected input flows, e.g., per module A1-A3, A4-A5, and B1-B5, B6-B7, C1-C4, and module D shall be a maximum of 5 % of energy usage and mass.

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

References

General Programme Instructions of the International EPD® System. Version 4.0.

General Programme Instructions of the International EPD® System. Version 5.0.

PCR 2019:14. Construction Products. Version 1.3.4

ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures

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

EN 15804:2012+A2:2019 Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products

SimaPro 9.6, ecoinvent 3.10 - allocation. cut-off by classification database

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EeBGuide Project, 2012, Transport of waste to landfill, incineration, and recycling facilities – Screening and simplified LCA.
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