

Environmental Product Declaration



In accordance with ISO 14025:2006 for:

Plastic recycled pallet EP 08

from

Stabilplastik spol. s r. o.



STABILPLASTIK

Programme:	The International EPD® System, www.environdec.com
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Programme information

Programme:	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com
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Accountabilities for PCR, LCA and independent, third-party verification

Product Category Rules (PCR)

PCR: 2019:13 PACKAGING, version 1.1.2

PCR review was conducted by: ApE-PACKAGING WORKING GROUP (Università degli Studi di Milano - Department of Chemistry -- <http://www.ape.unimi.it/lca-studies/>), QUOTA SETTE Srl

Life Cycle Assessment (LCA)

LCA accountability: LCA Studio s.r.o.

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Third-party verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:

EPD verification by individual verifier

Third-party verifier: prof. Ing. Silvia Vilčeková, PhD., Silcert, s.r.o.

Approved by: The International EPD® System

Procedure for follow-up of data during EPD validity involves third-party verifier:

Yes No

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

Company information

Owner of the EPD: Stabilplastik, spol. s r.o., 5. května 457, 250 64 Měšice, Czech Republic
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Description of the organisation:

Stabilplastik is a pioneering company located in the Czech Republic, specialized in recycling mixed plastic waste through innovative zero-waste technology powered partly by renewable energy sources. Stabilplastik has been active in its field of business for more than 25 years. The company is a recognized leader in the field of circular economy. The company is one of the world leaders in the field both domestically and internationally, as evidenced by a number of awards (Packaging of the Year 2021, Sustainability Award 2021, Coca-Cola TOP10 Challenge 2022, 2nd place in the Generali - Sustainable SME business model competition,....), as well as the fact that the company was the only representative of the Czech Republic to accompany the Minister of the Environment of the Czech Republic to the EU Environment Ministers' Congress in Stockholm, Sweden in April 2023, where it had the opportunity to present its waste management concept to all EU Member States. Last but not least, Stabilplastik won 1st place in the Enterprise Europe Network - "Inspiring client journey" competition in Bilbao, Spain in November 2023. The competition involved companies from more than 60 countries.

The core product consists of a range of plastic pallets, including 11 distinct types, as well as versatile plastic mobile barriers. These products are crafted entirely from recycled plastic waste and are 100% recyclable.

Recyclable Plastic Pallet:

The recyclable plastic pallet is a versatile and environmentally responsible solution designed to meet the demands of modern supply chain and logistics operations.

Sustainable Design: It's designed with a focus on sustainability, offering a durable and eco-friendly alternative to traditional wooden pallets.

Durability: This pallet is built to withstand the rigors of industrial use, with a sturdy and robust construction that ensures long-lasting performance. It won't splinter, warp, or decay like wooden pallets, making it an excellent choice for repeated use indoors and outdoors.

Hygienic and Easy to Clean: The smooth surface of the plastic pallet is easy to clean and maintain, making it ideal for industries with strict hygiene standards, such as the food and pharmaceutical sectors. It resists moisture, mold, and bacteria, further enhancing its suitability for these environments.

Recyclability: After its useful life cycle, it can be efficiently recycled, contributing to a more sustainable and closed-loop approach to materials. This helps reduce waste and minimizes the environmental impact. Some pallets are equipped with smart trackers which significantly increase lifespan of pallets and at the same time guarantee that broken pallets will be returned for recycling. Stabilplastik as the only company on the market offers recycling of its broken pallets completely free of charge.

Compatibility: The plastic pallet is designed to be compatible with various handling equipment, including forklifts, pallet jacks, and conveyors. Its standard dimensions ensure ease of integration into existing logistics systems.

Zero-Waste Technology: The production process is rooted in a cutting-edge zero-waste technology. Any production scraps are meticulously recycled by crushing and melting, serving as valuable input material for future production cycles. Additionally, broken products collected from our customers are also recycled to achieve a 100% recycling rate.

Environmental Impact: Use of the recyclable plastic pallet is contributing to a greener and more sustainable supply chain. This product reduces deforestation and waste while promoting the

responsible use of resources. Based on LCA study (LCA Studio, 2021), this plastic pallet has 74% lower environmental impacts compare to wooden pallets, per 1000 kg of transported materials.

Customization Options: Depending on the specific needs, these plastic pallets come in various sizes and designs. Customization options are available to tailor the pallet to unique requirements.

In summary, the recyclable plastic pallet is an environmentally conscious and highly functional solution that meets the evolving demands of the modern logistics industry. With a focus on sustainability, durability, and compatibility, it offers a reliable and eco-friendly alternative to traditional pallets while significantly reducing the environmental footprint.

Stabilplastik is dedicated to closing the loop on mixed plastic waste, ensuring that no plastic goes to waste. The commitment to sustainability is at the forefront of company's mission.

Name and location of production site: Stabilplastik, spol. s r.o., Měšice, Czech Republic

Product information

Product name: Plastic pallet EP 08

Product identification: Plastic pallet type EURO (1200x800x150 mm)

Product description: Plastic pallets produced from mixed plastic waste are durable and resistant to moisture, suitable for rigorous industrial use. They maintain consistent dimensions over time, ensuring uniformity in supply chain operations and compatibility with automated handling systems. They are easy to clean and sanitize, meeting strict hygiene standards in food and pharmaceutical industry. Resistance to pests and mold eliminates the need for chemical treatments.

Parameters:

- Dimensions: 1200x800x150 mm
- Weight: 25 kg
- Material: Mixed plastic waste
- Static load: 10 000 kg
- Dynamic load: 1200 kg
- Load in rack: 1000 kg.

UN CPC code: 36490 Other articles for the conveyance or packing of goods, of plastics; stoppers, lids, caps and other closures, of plastics

Geographical scope: Europe

LCA information

Functional unit / declared unit: 1 piece of plastic pallet

Time representativeness: Site specific data from producer are based on 1 year average for process data (reference period 10/2022 – 9/2023). Time scope less than 10-years were applied for background data. Time scope less than 2-years were applied for specific data.

Database(s) and LCA software used: LCA for Experts (Sphere), databases Sphere and ecoinvent 3.8

Description of system boundaries:

The system boundary is Cradle-to-grave according to EN 15804+A2. It covers the production of raw materials, all relevant transport down to factory gate, manufacturing by Stabilplastik, transport to the loading

operation, loading, distribution of loaded pallet, transport to reloading and transport to EOL.

The review framework comprises the following stages:

- A1) Raw material supply
- A2) Transport
- A3) Manufacturing
- A4) Transport to forming or filling
- A5) Forming
- B1) Filling operation
- B2) Distribution of filled packaging
- B3) Transport to reconditioning
- B4) Reconditioning
- B5) Transport to re-filling point
- C1) Disassembling / sorting
- C2) Transport to recovery/disposal
- C3) Final disposal

Modules A5, B3, B4 and C1 are included in the study, but their value is 0 or was evaluated as negligible.

Excluded lifecycle stages: No lifestages were excluded.

More information:

Cut off rules: The cut-off criterion was chosen based on the used PCR. According to the used PCR, more than 99 % of flows were included.

Allocations: All materials and energy flows were modelled based on real tracked consumption of material and production balances of energies. For subcontractors, data

about their consumption of materials and energies for the particular operation were included as well. VOC emissions and waste were allocated based on the weight of the final product across the whole production. No secondary fuels or materials are used in production. Generic and specific process data for production of input materials and components were used.

Electricity consumption: Generation of electricity consumed from public sources within Stabilplastik s.r.o. production was based on the Czech residual electricity grid mix from Sphera database.

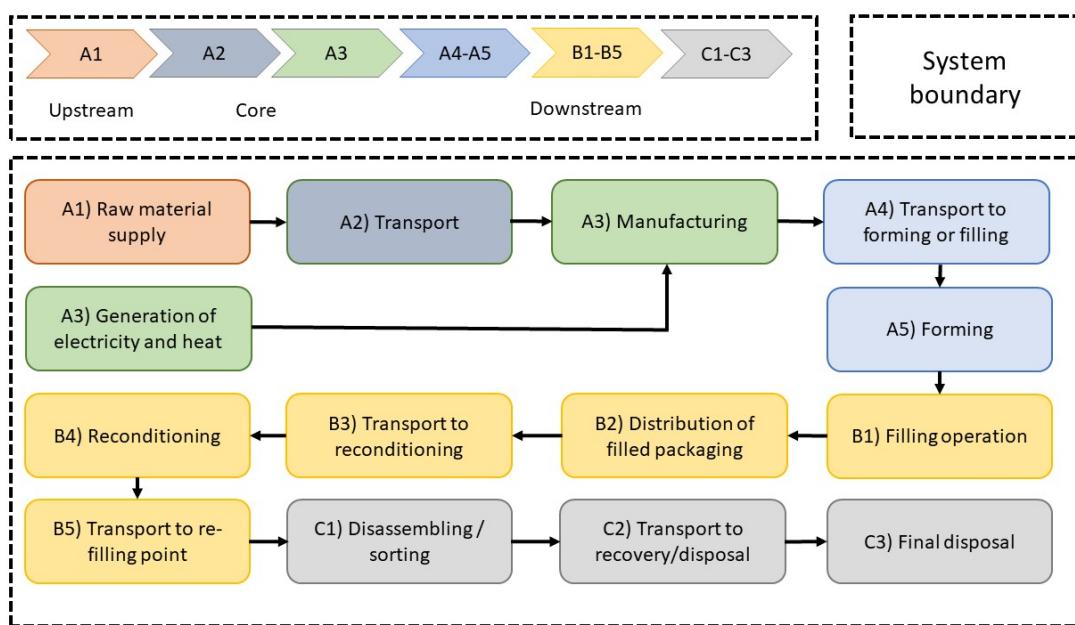


Figure 1: System diagram

Content declaration

Product

Product components	Weight / kg	%	Environmental / hazardous properties
Post-consumer mixed plastic	25	100	0
TOTAL	25	100	0

Packaging

Distribution packaging: Not applicable

Consumer packaging: Not applicable

Recycled material

Provenience of recycled materials (pre-consumer or post-consumer) in the product:

100% post-consumer recycled material

Results of the environmental performance indicators

Impact category indicators

PARAMETER		UNIT	Upstream	Core	Downstream	TOTAL
Global warming potential (GWP)	Fossil	kg CO ₂ eq.	2,69E+00	5,48E+00	1,42E+00	9,58E+00
	Biogenic	kg CO ₂ eq.	1,28E-03	-1,17E-02	-1,72E-02	-2,77E-02
	Land use and land transformation	kg CO ₂ eq.	1,77E-04	8,11E-03	1,08E-02	1,91E-02
	TOTAL	kg CO ₂ eq.	2,69E+00	5,48E+00	1,41E+00	9,58E+00
Ozone layer depletion (ODP)		kg CFC 11 eq.	2,69E-11	2,98E-11	1,70E-12	5,84E-11
Acidification potential (AP)		mol H ⁺ eq.	4,00E-03	1,17E-02	2,17E-03	1,79E-02
Eutrophication potential (EP)	Aquatic freshwater	kg P eq.	1,22E-06	6,87E-06	4,45E-06	1,26E-05
	Aquatic marine	kg N eq.	1,09E-03	2,36E-03	6,82E-04	4,13E-03
	Aquatic terrestrial	mol N eq.	1,17E-02	2,52E-02	7,96E-03	4,48E-02
Photochemical oxidant creation potential (POCP)		kg NMVOC eq.	3,09E-03	7,44E-03	1,70E-03	1,22E-02
Abiotic depletion potential (ADP)	Metals and minerals	kg Sb eq.	3,24E-07	3,35E-07	9,08E-08	7,50E-07
	Fossil resources	MJ, net calorific value	5,77E+01	9,66E+01	2,04E+01	1,75E+02
Water deprivation potential (WDP)		m ³ world eq. deprived	2,03E-01	7,65E-02	1,70E-02	2,97E-01

Resource use indicators

PARAMETER		UNIT	Upstream	Core	Downstream	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	8,34E+00	9,29E+00	1,58E+00	1,92E+01
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	TOTAL	MJ, net calorific value	8,34E+00	9,29E+00	1,58E+00	1,92E+01
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	5,77E+01	9,66E+01	2,05E+01	1,75E+02
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	TOTAL	MJ, net calorific value	5,77E+01	9,66E+01	2,05E+01	1,75E+02
Secondary material (optional)	kg	2,50E+01	0,00E+00	0,00E+00	0,00E+00	2,50E+01
Net use of fresh water (optional)	m ³	1,26E-02	2,51E-02	2,54E-03	4,03E-02	

Waste indicators (optional)

PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
Hazardous waste disposed	kg	4,13E-09	4,42E-09	2,94E-10	8,84E-09
Non-hazardous waste disposed	kg	1,23E-02	2,26E-02	3,42E-03	3,83E-02
Radioactive waste disposed	kg	9,59E-03	1,42E-02	7,80E-04	2,45E-02

Output flow indicators (optional)

PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	2,50E+01	2,50E+01
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ per energy carrier	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ per energy carrier	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Other environmental performance indicators

PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
GWP-GHG	kg CO2 eq.	2,58E+00	5,09E+00	1,33E+00	9,00E+00
Particulate matter	Disease incidences	3,57E-08	8,83E-08	1,68E-08	1,41E-07
Ionising radiation, human health	kBq U235 eq.	1,40E+00	9,19E-01	5,22E-02	2,38E+00
Ecotoxicity fresh water	CTUe	5,67E+00	2,88E+01	1,23E+01	4,67E+01
Human toxicity, cancer	CTUh	3,25E-10	5,95E-10	2,48E-10	1,17E-09
Human toxicity, non-cancer	CTUh	1,05E-08	3,46E-08	1,14E-08	5,66E-08
Land Use	Pt	5,30E+00	2,38E+01	7,63E+00	3,67E+01

Additional environmental information

Plastic recycled pallet EP 08 is made of homogenous post-consumer recyclate as well as other 11 types of pallets and other products of the company. Conversion factor has been calculated to enable conversion of results per 1 kg.

The conversion factor to obtain results per 1kg of weight is 0,04 – to obtain results per 1kg of pallet, the presented results of impacts shall be multiplied by this factor.

More information can be found on the website <https://stabilplastik.cz>.

Stabilplastik takes pride in its environmentally responsible product and production processes. All Stabilplastik products are produced from mixed recycled plastic waste, ensuring they are 100% recyclable. The company also offers material recycling services to its customers, embracing a zero-waste technology approach. This commitment to resource efficiency not only reduces waste but also prolongs the lifespan of Stabilplastik's products, making them nearly indefinite and more efficient than traditional alternatives, such as wooden pallets.

Stabilplastik further minimizes its carbon footprint by exclusively using electricity-powered devices in its production, allowing the company in the future to fully leverage its photovoltaic system for 100% of its energy requirements. The integration of solar energy significantly contributes to the company's sustainability efforts while reducing its environmental impact. Its own photovoltaic system on the facility's rooftop covers more than 30% of its energy needs.

In addition to sustainable electricity, Stabilplastik adopts a closed-loop water cooling system for its molding forms, utilizing filtered sewage water from the company's sewage root system.

Additional social and economic information

Stabilplastik operates a dormitory on its production site, currently for refugees, particularly women and their children. The sewage water generated by the dormitory undergoes filtration through Stabilplastik's sewage root system. This treated water is subsequently utilized for the cooling system in the production of Stabilplastik's products.

Furthermore, the company actively participates in various events and competitions to educate the public about the benefits of a circular economy and plastic material recycling.

References

General Programme Instructions of the International EPD® System. Version 4.1.

PCR: 2019:13 PACKAGING, version 1.1.2

ISO 14020:2000 Environmental labels and declarations — General principles, 2000-09

ISO 14025::2006: Environmental labels and declarations - Type III environmental declarations — Principles and procedures

ISO 14040:2006 Environmental management — Life cycle assessment — Principles and framework

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

EN 15804+A2:2019/AC:2021 European Committee for Standardization: Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products, 2021

ecoinvent: www.ecoinvent.org, ecoinvent database 3.8.

Sphera: software LCA for Experts. www.sphera.com, Sphera database



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