Environmental Product Declaration

In accordance with ISO 14025:2006 for:

TENOLAN® - transparent

from

Fatra, a.s.

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-10516
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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

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
PCR: PCR 2021:01 Multi-purpose films (version 1.0.2) UN CPC 36330, 36390
PCR review was conducted by: The Technical Committee of the International EPD® System. Chair of the PCR review is Paola Borla. The review panel may be contacted via info@environdec.com.
Life Cycle Assessment (LCA)
LCA accountability: LCA Studio s.r.o. Ing. Eliška Purkarová, Ph.D., Ing. et Ing. Tatiana Trecáková, Ph.D., prof. Ing. Vladimír Kočí, Ph.D., MBA Šárecká 1962/5, 16000 Prague 6, Czech Republic www.lcastudio.cz
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: Hüdai Kara, PhD., Metsims Sustainability Consulting, United Kingdom www.metsims.com Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third-party verifier: ☐ Yes ☒ No

Company information

Owner of the EPD:

Fatra, a.s., třída Tomáše Bati 1541, 763 61 Napajedla, Czech Republic
Registration No./VAT No. 27465021/CZ27465021
The company is recorded in the Companies Register kept by the Regional Court in Brno, Section B, File 4598.
Tel: +420 577 501 111
Email: info@fatra.cz

Description of the organisation:

Fatra, a.s. is one of the world most significant plastic processing companies (PVC, PE, and PET). More than 75% of the production is exported. Fatra, a.s. operates modern plastic processing technologies in its production plants in Napajedla and Chropyně in Czech Republic.
Fatra, a.s. company offers top products and specialized customer-tailored solutions that include not only the production but also development activities and consulting services.
Product range: vinyl floor coverings, waterproofing membranes, foils and sheets from PE/EVAC/PET, PVC granulate, extruded profiles, technical and special PVC-P foils, BO PET films, injection-moulded products (floor tiles, crate), re-granulate, toys and welded products.
Fatra a.s. sells its products to 50 countries worldwide. Materials processed include PVC-P, PVC-U, LDPE, LLDPE, HDPE, EVA, PP, PET, and ABS.

Segment – BO PET

- Development of new products with an emphasis on recyclability (choosing suitable raw materials for surface treatment, etc.).
- Development of films and laminates for special packaging to increase food shelf life.
- Development of special films customised according to customer requirements (developed to order) – coloured, metallised, coated.
- Development of products with special properties for specific applications (baking, sterilisation, freezing, barrier packaging films, technical applications).
- We are always searching for ecological materials – based on bioPET or PEF (polyethylene furanoate). We are looking for opportunities to use recycled materials – RPET (recycled material from PET bottles).

Product-related or management system-related certifications:

Bureau Veritas

Environmental protection has long been a major focus of our attention. We have a certified quality system according to ČSN EN ISO 9001:2016 and an environmental management system according to ČSN EN ISO 14001:2016.

Responsible Care

We are guided by the principles of the Responsible Care programme, in which, as a member of the Chemical Industry Association of the Czech Republic, we undertake to manage our activities in such a way as to ensure a high level of sustainable development by responsibly improving the safety of our facilities, product transportation, human health and environmental protection.

Name and location of production site:

Fatra, a.s., - Chropyně plant, Komenského 75, 768 11 Chropyně, Czech Republic

Product information

Product name: TENOLAN® - transparent
Product identification: TENOLAN® transparent is biaxially oriented polyethylene terephthalate film (further BO PET film) with thickness 12 µm. Product TENOLAN® - transparent is the most produced representative from group of products, that vary especially in thickness.
Product description: BO PET film is assigned for packaging production, for electrical insulation, for decorative purposes, for special applications etc.
UN CPC code: 3633 – Plates, sheets, film, foil and strip, of plastics, not self-adhesive, non-cellular and not reinforced, laminated, supported or similarly combined with other materials
Geographical scope: Global, Europe

LCA information

Functional unit / declared unit: 1m^2 of TENOLAN® - transparent
Time representativeness: 2021
Database(s) and LCA software used: LCA for Experts (former Gabi), LCA for Experts and EcoInvent database
System diagram:

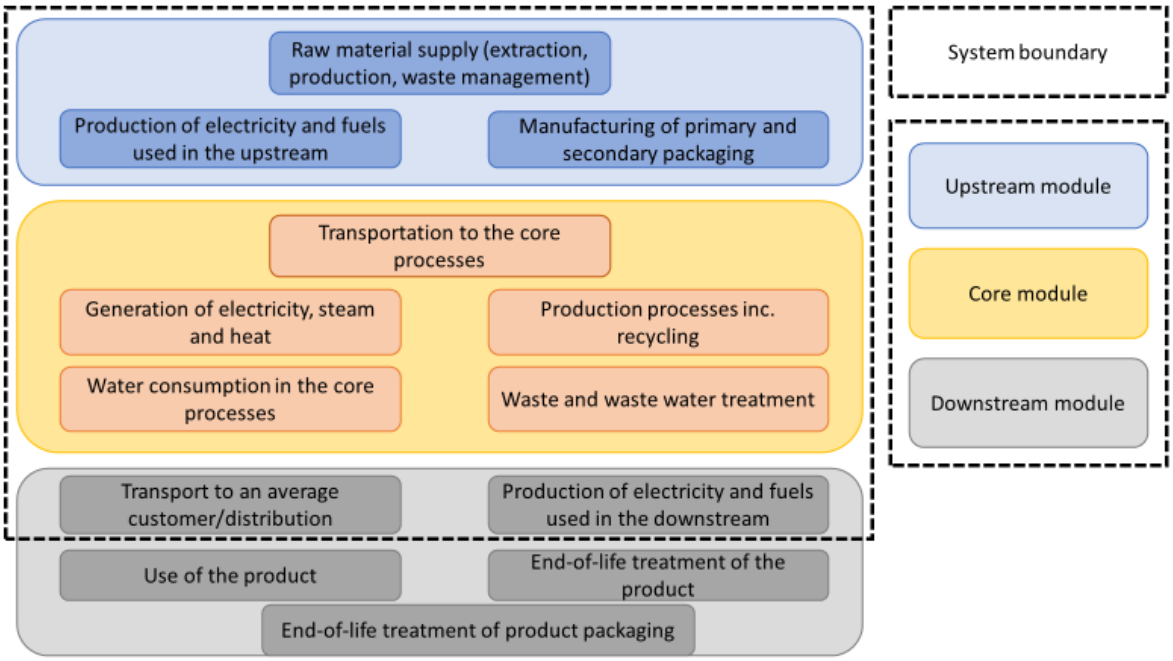

Figure 1 System boundary of the LCA study conducted on FATRA BO PET films.

Description of system boundaries: TENOLAN® transparent is intermediate product thus, according to given PCR cradle-to-gate with transport to retailer/distribution platform system boundaries were chosen.
Excluded lifecycle stages: Use, End-of-life and End-of-life of product packaging were excluded according to PCR.
More information: More information can be found on the website https://www.fatra.cz/. The cut-off criterion was chosen based on the used PCR. According to the used PCR, more than 99 % of flows were included. Within the production, streams are allocated based on the product. Subsequently all the streams are related to the functional unit of each product (1 m^2).

Content declaration

Product

Product components	[kg/m^2]	%	Environmental / hazardous properties
Polyethylene terephthalate	0.0167	99.40	This raw material is not a hazardous substance.
Other (Additive)	0.0001	0.60	This raw material is not a hazardous mixture.
TOTAL	0.0168	100.00	

Packaging

Distribution packaging:

BO PET film is delivered in rolls on in sheets. Product is rolled onto a paper core and wrapped in our BO PET film. Plastic/wooden endwalls of the appropriate size are fitted to the roll core and a cut-out (intermediate ring) of multi-layer cardboard is inserted between the roll and each endwall. Rolls are positioned on a wooden pallet of the appropriate size which is covered with the cut-out of the multilayer cardboard.

Subsequently, the rolls are strapped to the pallet and to each other with plastic strapping band. Our BO PET film covers the top of the packaging unit to protect the rolls from dust and moisture. Finally, the entire packaging unit is fixed by stretchable plastic foil which is wrapped around it. The amount of packaging in kg per 1 m^2 is for paper 0.00030, for plastic 0.00024 and for wood 0.00016.

Recycled material

Provenience of recycled materials (pre-consumer or post-consumer) in the product: This product does not contain any pre-consumer or post-consumer material

Results of the environmental performance indicators

Impact category indicators for 1m² of TENOLAN® - transparent

PARAMETER		UNIT	Upstream	Core	Downstream	TOTAL
Global warming potential (GWP)	Fossil	kg CO_2 eq.	4.01E-02	1.63E-02	1.14E-03	5.75E-02
	Biogenic	kg CO_2 eq.	-5.91E-04	5.80E-05	-1.38E-05	-5.46E-04
	Land use and land transformation	kg CO_2 eq.	1.10E-04	1.66E-06	9.15E-06	1.21E-04
	TOTAL	kg CO_2 eq.	3.97E-02	1.63E-02	1.13E-03	5.71E-02
Ozone layer depletion (ODP)		kg CFC 11 eq.	2.14E-11	9.68E-14	3.46E-16	2.15E-11
Acidification potential (AP)		mol H^+ eq.	6.22E-05	4.73E-05	3.33E-06	1.13E-04
Eutrophication potential (EP)	Aquatic freshwater	kg P eq.	7.88E-08	1.52E-08	3.66E-09	9.76E-08
	Aquatic marine	kg N eq.	1.76E-05	1.22E-05	1.30E-06	3.11E-05
	Aquatic terrestrial	mol N eq.	1.91E-04	1.30E-04	1.47E-05	3.36E-04
Photochemical oxidant creation potential (POCP)		kg NMVOC eq.	6,63E-05	3.96E-05	3.41E-06	1.09E-05
Abiotic depletion potential (ADP)	Metals and minerals	kg Sb eq.	1.96E-09	9.79E-10	6.70E-11	3.00E-09
	Fossil resources	MJ, net calorific value	1.18E+00	2.88E-01	1.54E-02	1.48E+00
Water deprivation potential (WDP)		m^3 world eq. deprived	1.51E-02	3.10E-04	1.21E-05	1.55E-02

Resource use indicators for 1m² of TENOLAN® - transparent

PARAMETER		UNIT	Upstream	Core	Downstream	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	7.68E-02	3.04E-02	1.03E-03	1.08E-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	7.68E-02	3.04E-02	1.03E-03	1.08E-01
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	1.18E+00	2.88E-01	1.54E-02	1.48E+00
	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	1.18E+00	2.88E-01	1.54E-02	1.48E+00
Secondary material		kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renewable secondary fuels		MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-renewable secondary fuels		MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water		m^3	3.94E-04	7.77E-05	1.26E-06	4.73E-04

Waste indicators for 1m² of TENOLAN® - transparent

PARAMETER	UNIT	Upstream	Core	Downstream	TOTAL
Hazardous waste disposed	kg	1.31E-07	1.66E-11	9.09E-14	1.31E-07
Non-hazardous waste disposed	kg	3.77E-04	2.21E-04	2.23E-06	6.00E-04
Radioactive waste disposed	kg	1.66E-05	4.41E-05	1.39E-07	6.08E-05

Output flow indicators for 1m² of TENOLAN® - transparent

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	9.43E-07	0.00E+00	9.43E-07
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

Additional environmental information

The production of products in accordance with the principles of sustainability is based on our own research and development department. Fatra, a.s. is equipped with state-of-the-art production facility and continuously extends and innovates its assortment for various industry fields. Applying the latest scientific and technical knowledge with focus on the quality, ecology. In the development of new products, Fatra, a.s. collaborates with universities and research centers. Our BO PET films are designed not only to meet the requirements of the relevant standards for physical, mechanical and other properties, but also to be fit for demanding applications with an emphasis on extending the shelf life of food and thus saving food resources.

TENOLAN® transparent can be sold under these trade names:

TENOLAN® OAN 0001,	TENOLAN® OAKN 0001,	TENOLAN® PIN 0020,
TENOLAN® OAN 0006,	TENOLAN® OAKN 0006,	TENOLAN® UV 0001,
TENOLAN® OAN 0008,	TENOLAN® OAKN 0008,	TENOLAN® IA 0001,
TENOLAN® OAN 0011,	TENOLAN® OAKN 0011,	TENOLAN® IAK 0013,
TENOLAN® OAN 0012,	TENOLAN® OAKN 0012,	TENOLAN® IAF 0001,
TENOLAN® OAN 0402,	TENOLAN® OAKN 0013,	TENOLAN® SA 0001,
TENOLAN® OAN 0404,	TENOLAN® MAN 0005,	TENOLAN® SAK 0001.

Food Contact - TENOLAN® OAN, OAKN, PIN, MAN - transparent intended for direct contact with food and foodstuffs comply with the applicable hygiene regulations.

Conversion factors

If it is necessary to calculate the results to mass in kg, conversion factor is 0.0168.

If it is necessary to calculate the results for a different thickness of the product, the following conversion factors related to functional unit (1 m^2) must be used.

Thickness (µm)	Conversion factor
6	0.500
7	0.583
8	0.667
9	0.750
10	0.833
15	1.250
19	1.583
23	1.917
30	2.500
36	3.000
44	3.667
50	4.167
60	5.000
62.5	5.208
70	5.833
75	6.250
100	8.333
125	10.417
150	12.500

References

General Programme Instructions of the International EPD® System. Version 4.0.
Product Category Rules (PCR) document for Multi-purpose films (PCR 2021:01 Version 1.0.2, 2022-02-22)
ISO 14020:2000 Environmental labels and declarations — General principles, 2000-09
ISO 14025: EN ISO 14025:2006-11: Environmental labels and declarations - Type III environmental declarations — Principles and procedures
ISO 14040:2006 Environmental management — Life cycle assessment — Principles and framework, 2006-07
ISO 14044:2006 Environmental management — Life cycle assessment — Requirements and guidelines, 2006-07
Ecoinvent: Ecoinvent Centre, www.Eco-invent.org
Sphera: LCA for Experts software, 2023, Sphera solutions.

EPD®

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