Designed to be different

ENVIRONMENTAL
PRODUCT
DECLARATION

EPD®

Multilayer PET/PE/EVOH/PE peel film for packaging applications

(MY-230, MY-280, MY-500)

BASED ON	CERTIFICATION N°	PROGRAMME	DATE OF ISSUE
PCR 2019:13 version 1.11, 2020-12-17 ISO 14025	S-P-05785	The International EPD System www.environdec.com	2022/05/31
CPC CODE	**PROGRAMME OPERATOR**	**REFERENCE YEAR**	**DATE OF VALIDITY**
36390	EPD International AB	2020	2027/05/10

An EPD should provide current information, and may be updated if conditions change.
The stated validity is therefore subject to the continued registration and publication at www.environdec.com.

EPD REFERENCES

EPD OWNER: AMB Spa, Via San Martino 28, 33038, San Daniele del Friuli, Udine (Italy)

PROGRAMME OPERATOR: EPD INTERNATIONAL AB, BOX 21060, SE-100 31 STOCKHOLM, SWEDEN; INFO@ENVIRONDEC.COM

INDEPENDENT VERIFICATION

The declaration has been developed referring to the International EPD® System, following the General Programme Instructions v.3.01. Further information and the document itself are available at: www.environdec.com. EDP document valid within the following geographical area: Global according to sales market conditions

PCR 2019:13 version 1.1, 2020-12-17
PCR review was conducted by: The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepciòn, Chile.
The review panel may be contacted via the Secretariat www.environdec.com/contact.

Independent third-party verification of the declaration and data, according to EN ISO 14025:2010

☐ EPD process certification (Internal) ☑ EPD verification (External)

Third-party verifier:
SGS Italia S.p.A (accreditation number of SGS Italy: 006H), Via Caldera 21, 20153, Milano (MI), Italy
Accredited by: Accredia

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

☑ YES ☐ NO

The EPD owner has the sole ownership, liability and responsibility of the EPD.
EPDs published within the same product category but from different programmes may not be comparable. The environmental impacts of different EPDs can be compared only taking into account all the technical information supporting the declared/functional unit definition as requested by the PCR.

CONTACTS

For additional information relative to the activities of AMB Spa or in regard to this environmental declaration, please contact sustainability@ambpackaging.com or visit the website www.ambpackaging.com

amb® Designed to be different

Technical support to AMB Spa was provided by Life Cycle Engineering, Italy (info@studiolce.it, www.lcengineering.eu).

LCE

AMB in a nutshell

LEADER in UE
in form-fill-seal (FFS)

LEADER in UK
in thermoforming

+378
employees (UK and IT division)

4
production sites through Italy and UK

1
design & tooling center

~30,000
smq dedicated to production activities

~16,000
smq dedicated to warehouse/logistic activities

AMB is an international leader in food packaging industry, making a unique contribution to the industry.

Geographical plants

AMB in the UK

EXTRUSION, GATESHEAD, UK
3 Princes Park, Princesway North,
Team Valley Trading Estate,
Gateshead, Tyne & Wear, NE11 0NF

AMB in the UK

DESIGN & TOOLING, GATESHEAD, UK
Unit 232 Dukesway,
Team Valley Trading Estate,
Gateshead, NE11 0PZ

AMB in Germany

SALES, GAUTING, GERMANY
Ledererstraße e 11
D-82131 Gauting

AMB in Italy

EXTRUSION, PRINTING, SAN DANIELE DEL FRIULI (UD), ITALY
Via San Martino, 28
33038 San Daniele del Friuli (UD)

AMB in Italy

EXTRUSION, AMARO (UD), ITALY
Via Cooperativa Carnica, 2
33020 Amaro (UD) Italy

AMB Milestones

1969
Founded by Clotilde Manfrin-Polano and Renata Polano Marin producing LDPE bags.

1982
AMB installs the first blown technology coextrusion machine

1988
Installation of the first multi-layer coextrusion line for the production of food packaging.

1993
The first solventless laminator.

1997
The first 8-colour C.I. printer is produced

1998
Certification ISO 9001:2015

2005
The Marin family acquires 100% of the company. Start up line 3.

2006
Start up of PET Coex Lines number 4&5. Construction of the new blown technology department begins.

2008
Installation of the new 7-layer coextrusion blown film machine.

2009
Commissioning of PET Coex Lines number 6.

How we got where we are

This is our journey, starting over 50 years ago we have never stopped moving. This energy continues within the business.

2010
Certification BRC Packaging. Commissioning of PET Coex Lines number 7.

2013
The ethical code is introduced.

2014
AMB becomes the first company at European level to start a water based production.

2016
The new 9-layers blown film extruder is installed.

2017
Acquires and opens its second production plant in AMARO (UD) making AMB closer to the main traffic routes connecting all Europe. EUR 12 million investment in production and logistic.

2019
AMB acquires TDX (Europe) Limited, leader in the UK market for the design, prototyping, tooling and film supply for thermoformed packaging.
This creates a complete food packaging solution with a one-supplier relationship with all customers.

2020
AMB acquires PTS Verpackungen, Bavaria (Germany). Second print line in San Daniele and installation of a new extrusion line in the UK (B4).

2021
AMB reached an agreement for a majority controlling investment from private equity funds managed by Peak Rock Capital.
New extrusion line installed in Amaro (line 10).

2022
Set up of a new line in the UK (B5).

AMB end-to-end partner

Different to the rest.
A unique offering all in one place

From packaging design through to film production under one roof, a complete end2end process for our customers. In this context, AMB has developed a one-stop shop for packaging, providing everything in from film production to packaging design under one roof:

Design | Prototyping | Tooling | Rigid PET Films | Flexible Films | Printed & Laminated Films

DESIGN: expert design team dedicated to customers tooling needs

PROTOTYPING: CNC machining centres dedicated to rapid mould prototyping

TOOLING: sampling machines – thermoforming service

BLOWN EXTRUSION: lines up to 9 layers to guarantee food shelf life and maximizing gas barrier according to customer specification and legal requirements.

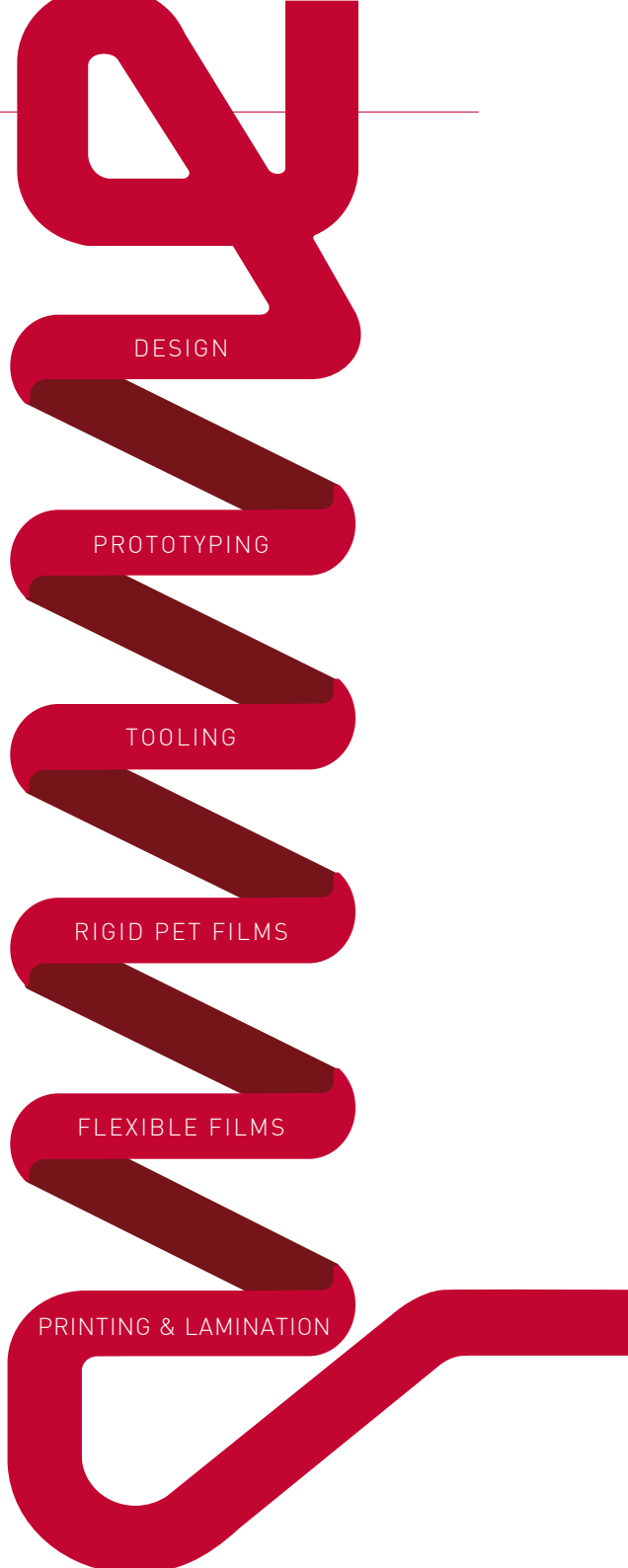
CAST EXTRUSION LINES: in UK and IT - manufacturing coextruded or thermo laminated sheets.

RECYCLING PROCESSES: in-house recycling processes

PRINTING: Fully in-house printing on both flexible films and rigid sheets.

Flexo 8 colour water based printing, delivering rich colour tones & photographic detail with precise registration. In house design department for experience based understand on design articulation for printing.

LAMINATION: water based adesives & coating



AMB sustainability path

In our world where the environment and our place in the sustainable circular economy have become more important than ever, we have an active agenda to meet expectations of our customers and help solve some of the most complex sustainability challenges within packaging production.
We're committed to minimising our environmental impact and supporting our customer's needs. Our goals are described in our sustainability report that is under develop and is beeing published in 2022. We expect the highest ethical standards throughout our business, supply chain, products & services. Sustainability progress isn't just the right thing to do for the planet — it's also good for all of us.

"LESS IS MORE" sustainability pillars

Circularity, eco-design, and attention to product lifecycle:

- **Reduce** packaging material through an intelligent downgauging
- **Simplify** unrecyclable products through innovation and eco-design
- **Eliminate** problematic or unnecessary plastic packaging

Reduce the use of natural resources: recycled materials

Reduce environmental impacts: emissions, waste, scraps

Zero workers injuries and take actions to eliminate hazards and minimize the risk of Incidents

Zero food safety incidents

The Products

AMBAR 38/503BA
TS MY230

AMBAR 38/503BA
TS MY280

AMBAR 38/503BA
TS MY500

Product information

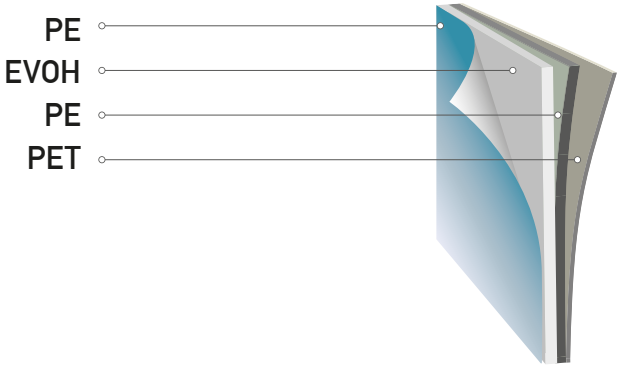
Multilayer APET film: APET film laminated with polyolefin film is the main application used on the market for PET high gas barrier trays. The presence of EVOH barrier-polyolefin layers guarantee the shelf life of the most sensitive food products that need a high protection against external agents such as Gas Volatile Organic Compound - VOC, Water Vapor Transmission Rate - WVTR and UV light.

Product name	Multilayer PET/PE/EVOH/PE peel film
Product description	The product is a PET film laminated with flexible PE film with EVOH barrier. The PET film is without barrier. The oxygen barrier provided by EVOH allows for a longer shelf life products packed in vacuum packaging or modified atmosphere.
Product classification	The product examined in this study has an industrial function and falls into the category of «industrial type packaging» because it is sold in the form of reels without branded printing. The product is designed to be converted into trays and used for packaging food products.
Product identification	The multilayer PET/PE/EVOH/PE peel film is manufactured according to the scheme described at page 17 in different thicknesses varying within the range 200-800 µm. This EPD covers multilayer PET/PE/EVOH/PE film of 280 and 500 µm thickness: • PET/PE/EVOH/PE PEEL-MY280 (AMBAR 38/503BA TS MY280); • PET/PE/EVOH/PE PEEL-MY500 (AMBAR 38/503BA TS MY500). The product PET/PE/EVOH/PE PEEL-MY230 (AMBAR 38/503BA TS MY230) is also included as none of the environmental performance indicators differ by more than 10% compared to the product PET/PE/EVOH/PE PEEL-MY280 and therefore adequately represented by the environmental profile of PET/PE/EVOH/PE PEEL-MY280.
Application and intended use	This material is easily thermoformable for the production of modified atmosphere gases (MAP) food packaging trays. The PET/PE/EVOH/PE PEEL-MY280 is suitable for use as packaging for example to pack sliced ham. The product PET/PE/EVOH/PE PEEL-MY500 is ideal for packaging pasta and meat applications.
Production site	The manufacturing stage is divided into two production sites, as described at page 17: the extrusion of the PET and PE rolls, the thermal lamination of the two films and the primary cutting are located in San Daniele (Udine, Italy), while the secondary cutting and the packaging of the finished products are located in Amaro (Udine, Italy). The production process can also be carried out according to the following alternative scheme: the extrusion of the PE roll takes place in San Daniele, while the extrusion of the PET roll, the thermal lamination of the two films, the primary cutting, the secondary cutting and the packaging of the finished products take place in Amaro.

Scope and type of EPD

Declared Unit: The declared unit is **1 m² of film**, having as reference flows the products **PET/PE/EVOH/PE-MY280** and **PET/PE/EVOH/PE-MY500** manufactured through the process scheme described at page 17.

As explained at page 11, the product PET/PE/EVOH/PE-MY280 is also considered representative of the article PET/PE/EVOH/PE-MY280 showing differences between the values of the environmental indicators within ±10%.



Type of EPD: Multilayer PET/PE/EVOH/PE peel film for packaging applications.

Geographical scope of the EPD: World according to sales market conditions.

Reference year: 2020

Software: Simapro 9.3.0.2

Main Database: Ecoinvent 3.8, PlasticsEurope

Environmental impacts: The characterisation models and factors used for the declared impact categories are consistent with what is requested in the reference PCR 2019:13 v.1.1 and The General Programme Instructions v.3.0. The characterisation factors used to calculate the results reported in this EPD are: CML-IA 2001 baseline method January 2016 (GWP, EP, ADP-e, ADP-f). CML-IA 2001 non-baseline method January 2016 (AP). Lotos-Euros as applied in ReCiPe 2008 (POPF). WULCA model for WDP 2015-2017.

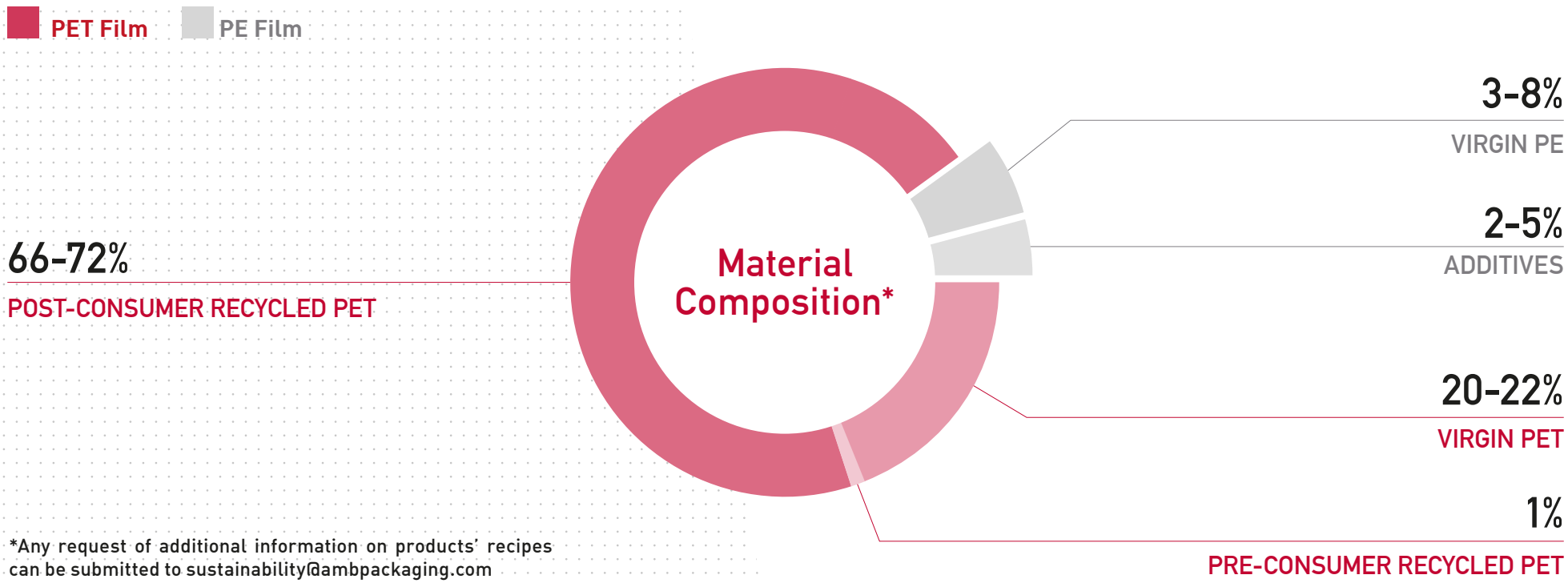
Report LCA: Life Cycle Assessment (LCA) applied to multilayer and monolayer plastic films (multilayer PET/PE/EVOH/PE peel film and monolayer PET HB film) to be used for packaging applications, v.4, 2022-04-27.

Information	PET/PE/EVOH/PE-MY230	PET/PE/EVOH/PE-MY280	PET/PE/EVOH/PE-MY500
Base/rigid film	PET film laminated with flexible PE film	PET film laminated with flexible PE film	PET film laminated with flexible PE film
Oxygen barrier	EVOH	EVOH	EVOH
Thickness	230 µm	280 µm	500 µm
Unit weight	293 g/m²	320 g/m²	656 g/m²
Color	Transparent	Transparent	Transparent
OTR (23°C / 0% RH)	2,0 cc/m²/day	2,0 cc/m²/day	< 2,0 cc/m²/day
WVTR 38°C / 90% RH)	2,5 cc/m²/day	2,5 cc/m²/day	< 2,5 cc/m²/day

Content declaration

All the materials in direct contact with food comply with existing legislation (EU 10/2011). Compliance to Regulation (EC) no. 1907/2006 of 18/12/2006 (REACH) and to Regulation (EC) no.1272/2008 of 16/12/2018 (CLP): the materials used for the investigated item do not contain:

- **Restricted substances designated in Annex XVII of REACH Regulation**
- **Substances designated in REACH candidate list**
- **Substances listed in Annex XIV of REACH Regulation**



*Any request of additional information on products' recipes can be submitted to sustainability@ambpackaging.com

Recycled content

The investigated products contain a percentage of recyled content ranging **from 67 to 73%**, calculated in accordance with ISO 14021:2016 principles.

Secondary packaging

Different palletization scenarios apply to the products under study. In the LCA study the two most representative scenarios (about the 73% of the whole sale in 2020) have been analyzed to determine an average palletization scenario. The film is supplied on a reel (with cardboard or plastic core) which is placed on top of a wooden or plastic pallet. Wooden or plastic wedges are also used to facilitate safe and secure handling of the reel. Stretch wrapping film, pluriball film and plastic bags are used to cover and protect the items from external pollutant during transport.

The system boundaries

According to the PCR Packaging, as the products selected for this EPD are considered as industrial packaging, a cradle-to-gate with options life cycle assessment study has been performed with a declared unit. Modules which are not declared are marked as "Module Not Declared, (MND)".

Life cycle stages	Life cycle modules	Products covered by this EPD
Upstream	A1) Raw material supply	x
Core	A2) Transport	x
	A3) Manufacturing	x
Downstream	A4) Transport	x
	A5) Forming	MND
	B1) Filling operations	MND
	B2) Distribution final packaging	MND
	B3) Trasnport to reconditioning	MND
	B4) Reconditioning	MND
	B5) Transport to re-filling point	MND
	C1) Disassembling/sorting	x
	C2) Transport to recovery/disposal	x
	C3) Final disposal	x

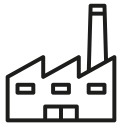
Life Cycle Stages

Upstream

The upstream process includes:

- The extraction, production and supply of virgin PET pellets and additives used in the manufacturing process of the PET film;
- The extraction, production and supply of virgin PE pellets, EVOH and additives used in the manufacturing process of the PE film;
- Post-consumer and pre-consumer PET recycling processes;
- Production of auxiliary materials;
- Manufacturing of intermediate and secondary packaging.

Core



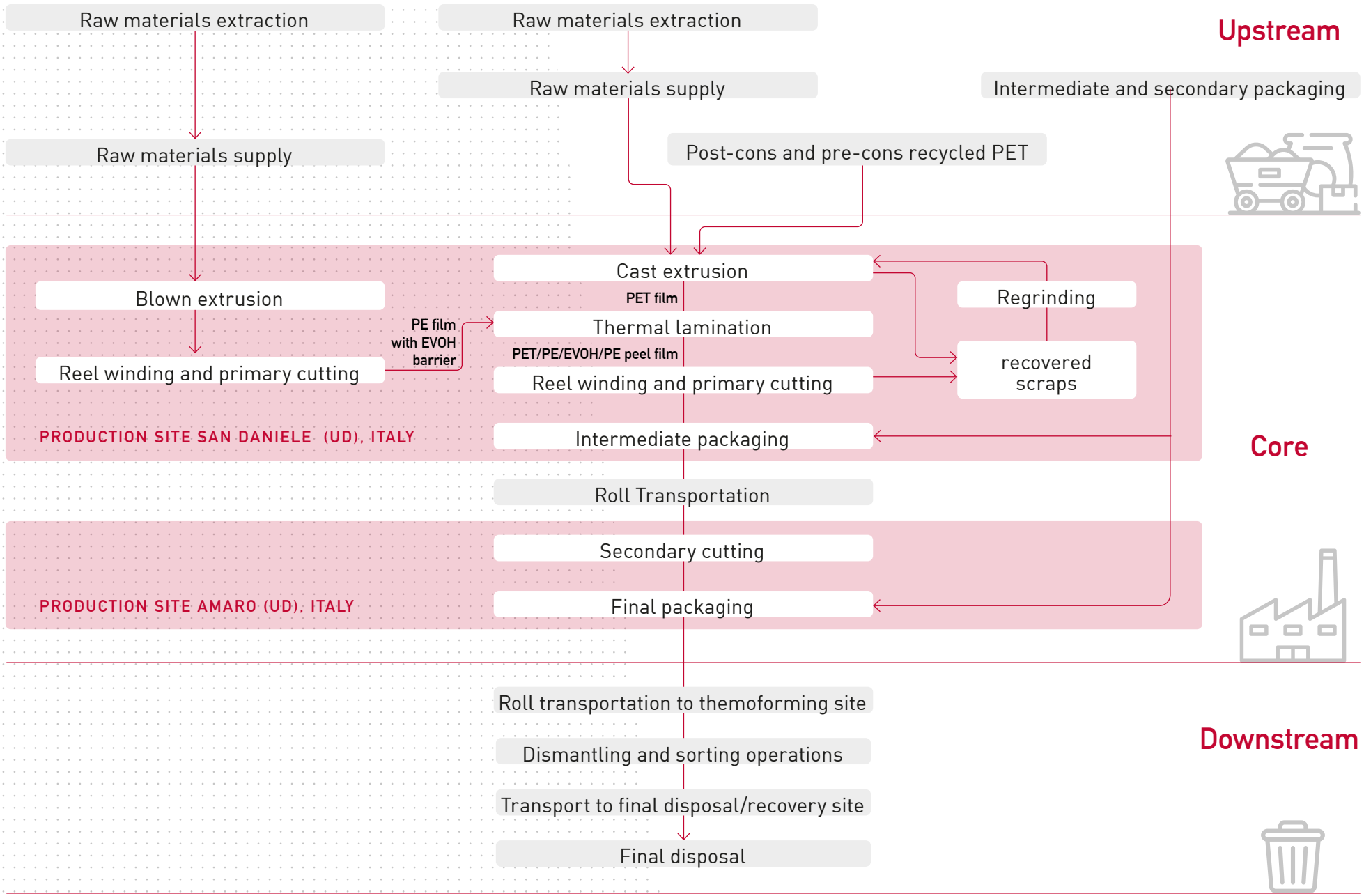
The core process includes:

- Transportation of raw materials and packaging materials from production or collection facilities to the plants located in San Daniele (Udine, Italy) and Amaro (Udine, Italy);
- Manufacturing of the product;
- Storage and handling of materials;
- Maintenance activities;
- Treatment of waste generated from the manufacturing process;
- Production and consumption of electricity and fuels associated to the core module.

Downstream

The downstream process includes:

- Transport of the finished product to thermoforming sites;
- Operations for the separation of packaging product components and subsequent sorting;
- Transportation of the discarded products as part of the waste processing (to recovery or final disposal site);
- Final disposal.


Raw materials extraction
Raw materials extraction
Upstream
Raw materials supply
Intermediate and secondary packaging
Raw materials supply
Post-cons and pre-cons recycled PET
Cast extrusion
Blown extrusion
PET film
Regrinding
PE film with EVOH barrier
Thermal lamination
PET/PE/EVOH/PE peel film
Reel winding and primary cutting
recovered scraps
Reel winding and primary cutting
PRODUCTION SITE SAN DANIELE (UD), ITALY
Intermediate packaging
Core
Roll Transportation
Secondary cutting
PRODUCTION SITE AMARO (UD), ITALY
Final packaging
Roll transportation to themoforming site
Dismantling and sorting operations
Downstream
Transport to final disposal/recovery site
Final disposal

Calculation Rules

Secondary data from **Ecoinvent and PlasticsEurope** database have been used to model the raw materials used in the film production.

During PET/PE/EVOH/PE film production, process scraps are recovered and reused as material input in the manufacturing process of the same product system or different product systems. The products under study are made from internally recovered scraps for a certain percentage of the declared amount, which can be internally regrinded before being reused. This material does not contribute to the recycled content of the finished products in compliance with ISO 14021:2016.

The manufacturing process of the products covered by this EPD is divided into two production sites. **Primary data from both production sites have been collected and refer to the year 2020**. Allocation based on the mass of the finished products from the individual production lines, the specific departments or the overall site has been used depending on data availability.

The intermediate packaging used for the semi-finished products (truck transport of the rolls from San Daniele to Amaro) has been assumed to be the same as the one used for the delivery of the finished products to customers.

The transport of the products to customers reflect the actual 2020 distribution scenario.

The end-of-life environmental impacts related to the investigated product and the secondary packaging reflect the actual average scenarios from the European and non-European countries in which the product under study is sold.

End-of-life sources are:

- Italy (monomaterial and multimaterial plastic-based packaging): "Corepla's sustainability report, 2018-2020"
- Italy (wood-based packaging): "Rilegno's annual prevention specific plan, 2018-2019 "
- Italy (paper-based and coreboard packaging): "Comieco's annual report 2018-2019"
- Switzerland: "Switzerland Federal Office for the environment, 2021"
- Other european countries: "Eurostat's statistics, 2017-2018"
- Australia: "Packaging consumption and recycling data 2018-2019, APCO, v.1".

In accordance with general PCR requirements the LCA study used specific, generic and proxy data.
The packaging of the incoming raw materials is under the 1% cut-off threshold.

Proxy data contributes to the environmental indicators less than 10%.

LCA Methodology

The environmental burden of the product has been calculated according to PCR 2019:13 version 1.1, 2020-12-17. This declaration is a cradle to gate with options EPD type, based on the application of Life Cycle Assessment (LCA) methodology to the whole life cycle system.

In the whole LCA model, infrastructures and production equipment are not considered.
Customized LCA questionnaires were used to gather in-depth information about all aspects of the production system, in order to provide a complete picture of the environmental burden of the system for example, raw materials specifications, process efficiencies, air emissions, waste management. According to the PCR, processes contributing greater than 1% of the total environmental impact indicator for each impact are included in the inventory.

No data gaps were allowed which were expected to significantly affect the outcome of the indicator results.

Environmental Performance

PET/PE/EVOH/PE-**MY280***	Thickness	Unit weight
	280 µm	320 g/m^2

The detailed environmental performance (in terms of potential environmental impacts, use of resources and waste generations) are declared per **1 m² of film** and reported for life cycle stage, according to the PCR, and in aggregated form in the column «Total».

INDICATORS DESCRIBING POTENTIAL ENVIRONMENTAL IMPACTS

Indicator	Units/D.U.	Upstream	Core	Downstream	TOTAL
GWP	kg CO_2 eq	3,56E-01	1,62E-01	9,72E-02	6,16E-01
GWP,f	kg CO_2 eq	3,55E-01	1,62E-01	9,69E-02	6,14E-01
GWP,b	kg CO_2 eq	1,12E-03	1,89E-05	3,01E-04	1,44E-03
GWP,luluc	kg CO_2 eq	5,19E-04	5,61E-06	1,88E-06	5,26E-04
AP	kgSO_2 eq	1,14E-03	5,58E-04	1,93E-04	1,89E-03
EP	kg PO_4^{3-} eq	2,21E-04	5,77E-05	3,10E-05	3,10E-04
POCP	kg NMVOC eq	9,68E-04	3,98E-04	2,20E-04	1,59E-03
ADP-e	kg Sb eq	2,42E-05	3,79E-09	4,70E-09	2,42E-05
ADP-f	MJ	9,20E+00	2,54E+00	5,39E-01	1,23E+01
WDP	m^3 eq	1,58E-01	1,18E-02	3,88E-03	1,74E-01

*The results also refer to the product **PET/PE/EVOH/PE-MY230**

GWP Global warming potential, total

GWP,f Global warming potential, fossil

GWP,b Global warming potential, biogenic

GWP,luluc Global warming potential, land use and land use change

AP Acidification Potential

EP Eutrophication Potential

POCP Photochemical oxidant formation potential

ADP-e Abiotic depletion potential - Elements

ADP-f Abiotic depletion potential – Fossil fuels

WDP Water scarcity potential

Environmental Performance

PET/PE/EVOH/PE-**MY280***	Thickness	Unit weight
	280 µm	320 g/m^2

The detailed environmental performance (in terms of potential environmental impacts, use of resources and waste generations) are declared per **1 m² of film** and reported for life cycle stage, according to the PCR, and in aggregated form in the column «Total».

INDICATORS DESCRIBING USE OF PRIMARY AND SECONDARY RESOURCES

Indicator	Units/D.U.	Upstream	Core	Downstream	TOTAL
PERE	MJ	2,22E-01	9,63E-02	2,31E-03	3,20E-01
PERM	MJ	4,05E-01	0,00E+00	0,00E+00	4,05E-01
PERT	MJ	6,27E-01	9,63E-02	2,31E-03	7,25E-01
PENRE	MJ	5,52E+00	2,84E+00	5,42E-01	8,90E+00
PENRM	MJ	4,37E+00	0,00E+00	0,00E+00	4,37E+00
PENRT	MJ	9,90E+00	2,84E+00	5,42E-01	1,33E+01
SM	kg	2,39E-01	0,00E+00	0,00E+00	2,39E-01
RSF	MJ	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
FW	m^3	5,21E-03	3,70E-04	1,37E-04	5,72E-03

*The results also refer to the product **PET/PE/EVOH/PE-MY230**

PERE Primary energy resources renewable – use as energy carrier

PERM Primary energy resources renewable – used as raw materials

PERT Primary energy resources renewable – total

PENRE Primary energy resources non renewable – use as energy carrier

PENRM Primary energy resources non renewable – used as raw materials

PENRT Primary energy resources non renewable – total

SM Secondary material

RSF Renewable secondary fuels

NRSF Non-renewable secondary fuels

FW Net use of freshwater

Environmental Performance

PET/PE/EVOH/PE-**MY280***	Thickness	Unit weight
	280 µm	320 g/m^2

The detailed environmental performance (in terms of potential environmental impacts, use of resources and waste generations) are declared per **1 m² of film** and reported for life cycle stage, according to the PCR, and in aggregated form in the column «Total».

INDICATORS DESCRIBING WASTE PRODUCTION AND OUTPUT FLOWS

Indicator	Units/D.U.	Upstream	Core	Downstream	TOTAL
HWD	kg	1,11E-07	3,24E-05	0,00E+00	3,26E-05
NHWD	kg	3,98E-06	1,21E-03	0,00E+00	1,21E-03
RWD	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	0,00E+00	2,29E-02	9,96E-03	3,29E-02
MER	kg	0,00E+00	0,00E+00	1,90E-01	1,90E-01
EE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ET	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00

*The results also refer to the product **PET/PE/EVOH/PE-MY230**

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, electricity

ET Exported energy, thermal

Environmental Performance

PET/PE/EVOH/PE-**MY500**	Thickness	Unit weight
	500 µm	656 g/m^2

The detailed environmental performance (in terms of potential environmental impacts, use of resources and waste generations) are declared per **1 m² of film** and reported for life cycle stage, according to the PCR, and in aggregated form in the column «Total».

INDICATORS DESCRIBING POTENTIAL ENVIRONMENTAL IMPACTS

Impact category	Units/D.U.	Upstream	Core	Downstream	TOTAL
GWP	kg CO_2 eq	6,69E-01	3,31E-01	1,79E-01	1,18E+00
GWP,f	kg CO_2 eq	6,65E-01	3,31E-01	1,79E-01	1,17E+00
GWP,b	kg CO_2 eq	2,34E-03	3,84E-05	6,30E-04	3,01E-03
GWP,luluc	kg CO_2 eq	1,08E-03	1,14E-05	4,04E-06	1,10E-03
AP	kgSO_2 eq	2,21E-03	1,14E-03	1,32E-03	4,68E-03
EP	kg PO_4^{3-} eq	4,04E-04	1,18E-04	1,49E-04	6,71E-04
POCP	kg NMVOC eq	1,72E-03	8,18E-04	1,15E-03	3,69E-03
ADP-e	kg Sb eq	5,29E-05	7,79E-09	9,60E-09	5,29E-05
ADP-f	MJ	1,60E+01	5,17E+00	1,56E+00	2,28E+01
WDP	m^3 eq	3,13E-01	2,38E-02	4,83E-03	3,42E-01

GWP Global warming potential, total

GWP,f Global warming potential, fossil

GWP,b Global warming potential, biogenic

GWP,luluc Global warming potential, land use and land use change

AP Acidification Potential

EP Eutrophication Potential

POCP Photochemical oxidant formation potential

ADP-e Abiotic depletion potential - Elements

ADP-f Abiotic depletion potential – Fossil fuels

WDP Water scarcity potential

Environmental Performance

PET/PE/EVOH/PE-**MY500**	Thickness	Unit weight
	500 µm	656 g/m²

The detailed environmental performance (in terms of potential environmental impacts, use of resources and waste generations) are declared per **1 m² of film** and reported for life cycle stage, according to the PCR, and in aggregated form in the column «Total».

INDICATORS DESCRIBING USE OF PRIMARY AND SECONDARY RESOURCES

Indicator	Units/D.U.	Upstream	Core	Downstream	TOTAL
PERE	MJ	4,54E-01	1,95E-01	5,00E-03	6,53E-01
PERM	MJ	8,30E-01	0,00E+00	0,00E+00	8,30E-01
PERT	MJ	1,28E+00	1,95E-01	5,00E-03	1,48E+00
PENRE	MJ	9,71E+00	5,78E+00	1,57E+00	1,71E+01
PENRM	MJ	7,65E+00	0,00E+00	0,00E+00	7,65E+00
PENRT	MJ	1,74E+01	5,78E+00	1,57E+00	2,47E+01
SM	kg	5,25E-01	0,00E+00	0,00E+00	5,25E-01
RSF	MJ	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
FW	m³	1,05E-02	7,50E-04	1,73E-04	1,14E-02

PERE Primary energy resources renewable – use as energy carrier

PERM Primary energy resources renewable – used as raw materials

PERT Primary energy resources renewable – total

PENRE Primary energy resources non renewable – use as energy carrier

PENRM Primary energy resources non renewable – used as raw materials

PENRT Primary energy resources non renewable – total

SM Secondary material

RSF Renewable secondary fuels

NRSF Non-renewable secondary fuels

FW Net use of freshwater

Environmental Performance

PET/PE/EVOH/PE-**MY500**	Thickness	Unit weight
	500 µm	656 g/m²

The detailed environmental performance (in terms of potential environmental impacts, use of resources and waste generations) are declared per **1 m² of film** and reported for life cycle stage, according to the PCR, and in aggregated form in the column «Total».

INDICATORS DESCRIBING WASTE PRODUCTION AND OUTPUT FLOWS

Indicator	Unit	Upstream	Core	Downstream	TOTAL
HWD	kg	2,28E-07	6,65E-05	0,00E+00	6,67E-05
NHWD	kg	8,16E-06	2,47E-03	0,00E+00	2,48E-03
RWD	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	0,00E+00	9,79E-02	2,06E-02	1,18E-01
MER	kg	0,00E+00	0,00E+00	2,01E-01	2,01E-01
EE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ET	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00

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, electricity

ET Exported energy, thermal

Additional information

Our sustainability pillars support all those activities addressed to closing the loop and move forward the EU action plan for the Circular Economy.

Cooperation with stakeholders and strategic organizations

We cannot achieve that goal on our owns, so it's important to make ongoing cooperation skills with all our stakeholders dealing with production, consumption, waste management & market for secondary raw materials and regulatory aspects.

We intend to work together along the plastics value chains, including all relevant public and private actors across Europe, to reach sustainable objective whilst ensuring the functionalities of plastic products and packaging, not compromising on consumer protection and safety and hygiene. Moreover, to achieve sustainable development, we believe that it is important to foster ongoing collaboration with strategic organisations.

In that regard, AMB has undertaken a series of voluntary commitments, collaborative initiatives and trade association memberships:

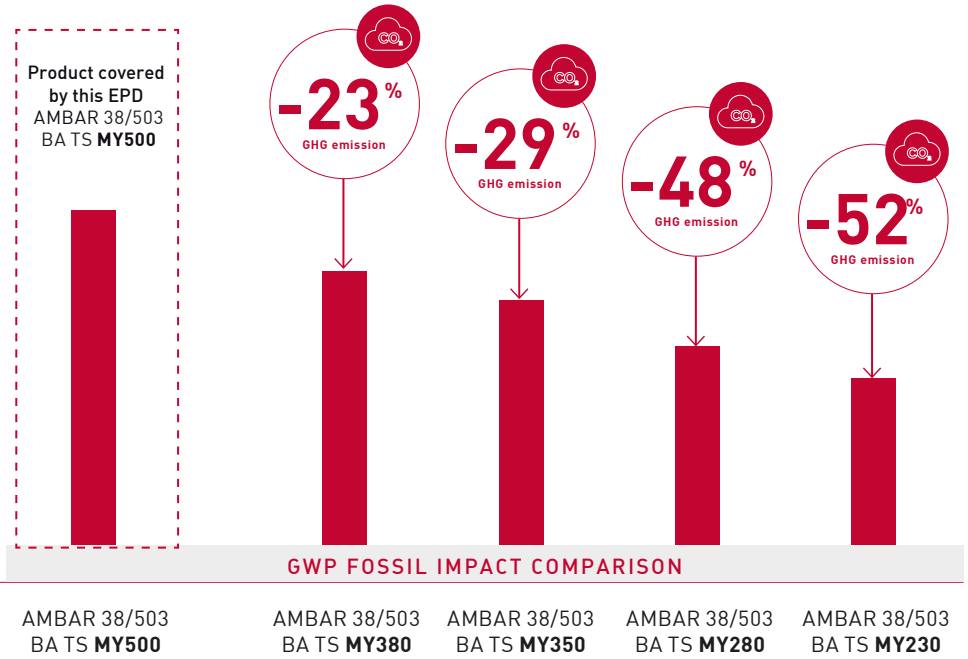
- **Operation Clean Sweep®** (www.opcleansweep.org)
- **Sedex** (www.sedex.com)
- **Petcore Europe** (www.petcore-europe.org)
- **Ceflex** (ceflex.eu)
- **Ecosense** (fundacionplasticsense.eu)
- **PET Sheet Europe** (www.petsheeteurope.eu)
- **CONAI** (www.conai.org)
- **Unionplast** (www.federazionegommaplastica.it)

Efforts to reduce the GWP

We can reduce the GWP of our multilayer PET/PE/EVOH/PE film thanks to a downgauging process and/or increasing the amount of recycled plastic.

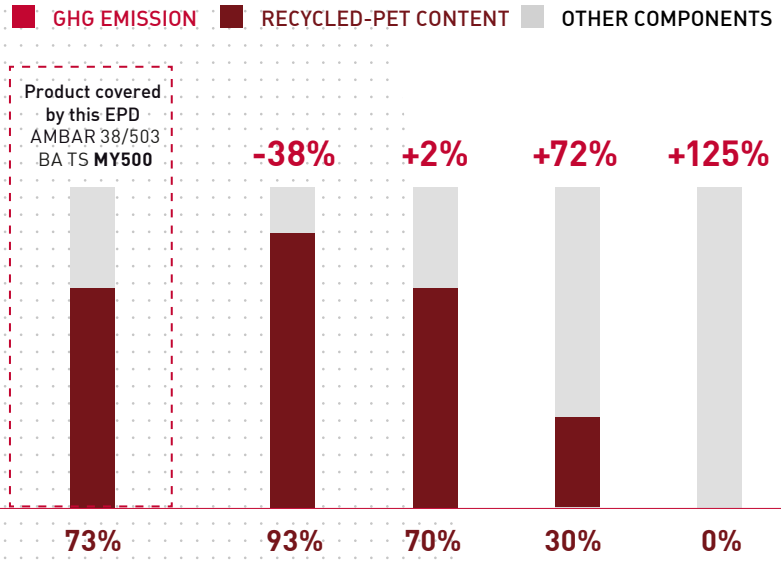
Intelligent Downgauging

Thanks to our Intelligent Downgauging process we are going to reduce the quantity of plastic necessary for the final packaging and their related fossil carbon emissions, without compromising the level of safety performances requested by the customer: the same barrier and structural properties are guaranteed even after the lightweighting.



Estimation of benefits increasing recycled-PET content

Increasing the rate of the recycled PET **we have estimated that we can reduce the GWP, fossil** up to **38% for** AMBAR 38/503BA TS **MY500.**

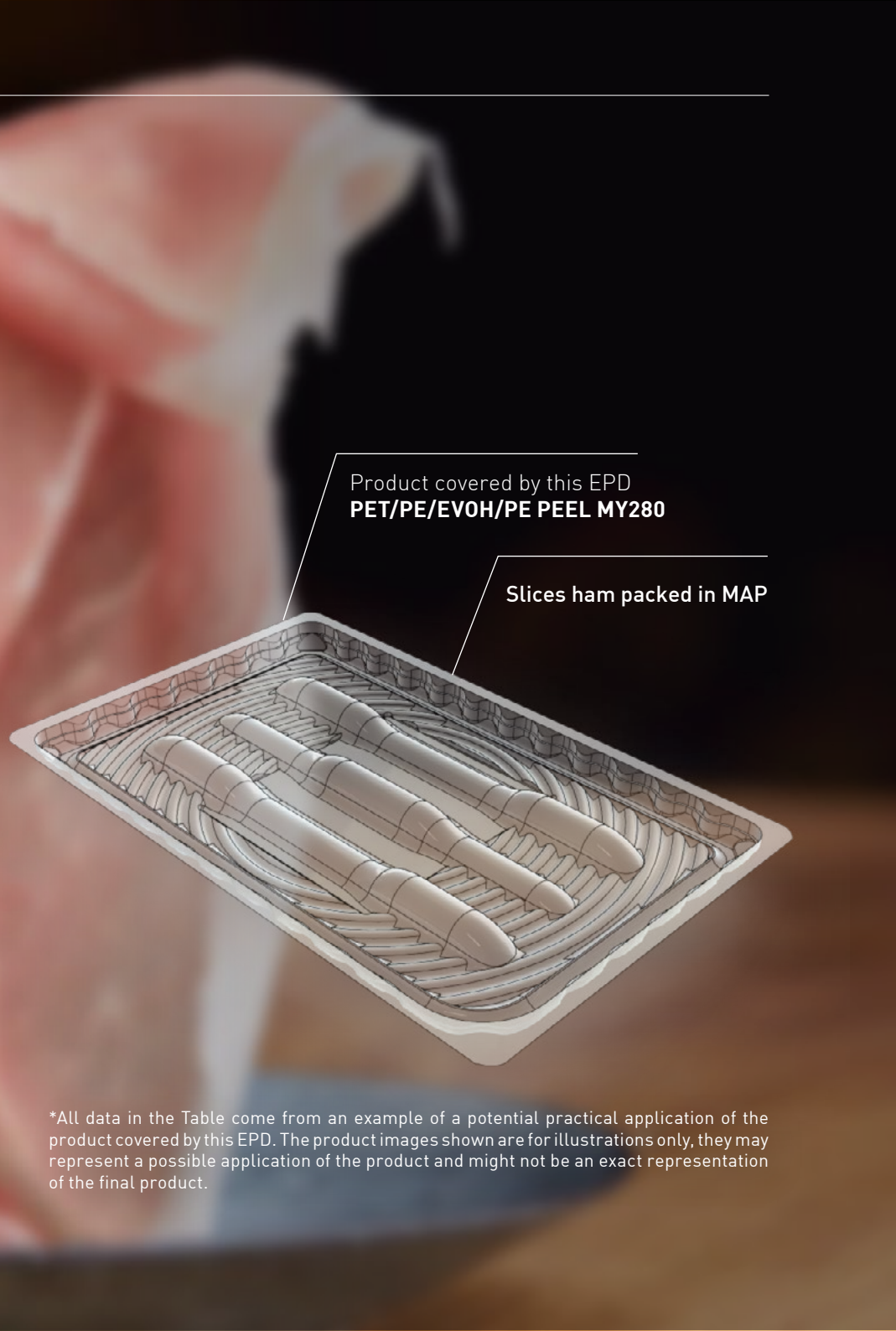


Testing of the existing pack to establish areas of improvement and develop new pack geometry to enable a reduction in the film gauge

*AMB in-house tooling process

Example of application of PET/PE/EVOH/ PE PEEL-MY280

Product	Multilayer PET/PE tray
External size (mm)	300X190,5X13
Internal volume (L)	0,86
Weight (g)	18,2
Packaging material	PET/PE/EVOH/PE
Thickness (µm)	280
OTR (23°C / 0% RH)	2,0 cc/m²/day
PET recycled content	68%
Food Application	Slices ham packed in MAP (Modified Atmosphere Packaging)
Shelf life of the packed product	30/90 days depending on the ham (cooked or seasoned)



*All data in the Table come from an example of a potential practical application of the product covered by this EPD. The product images shown are for illustrations only, they may represent a possible application of the product and might not be an exact representation of the final product.

Example of application of PET/PE/EVOH/ PE PEEL-MY500

Product	Multilayer PET/PE tray
External size (mm)	187x137x85
Internal volume (L)	1,9
Weight (g)	16,8
Packaging material	PET/PE/EVOH/PE
Thickness (µm)	500
OTR (23°C / 0% RH)	< 2,0 cc/m²/day
PET recycled content	73%
Food Application	Fresh pasta/fresh tortellini packed in MAP (Modified Atmosphere Packaging)
Shelf life of the packed product	Depending on the food packed (40/60 days)

*All data in the Table come from an example of a potential practical application of the product covered by this EPD. The product images shown are for illustrations only, they may represent a possible application of the product and might not be an exact representation of the final product.

Main References

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