Plastic Packaging by Thrace Plastics Pack S.A.

POLYPROPYLENE PACKAGING FOR FOOD APPLICATIONS
PRODUCTS: ART898, T-IML200, ART285s, T-IML300, ART300, ART302, ART385

ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025

Programme operator

The International EPD® System: more information is available on www.environdec.com, email: info@environdec.com

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THRACE PACK
MEMBER OF THRACE GROUP

EPD®
THE INTERNATIONAL EPD® SYSTEM

Determining the environmental performance of our products is the foundation for continuous improvement

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EPDs within the same product category but from different programmes may not be comparable. The EPD owner has the sole ownership, liability and responsibility of the EPD.

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Location of production site:

Ioannina 45500, Greece

Product category rules (PCR):

PCR 2019:13 Packaging; Version 1.1; 2021-12-17

PCR review was conducted by:

The Technical Committee of the International EPD® System.

UN CPC code(s):

36490

Independent verification of the declaration and data, according to ISO 14025:2006:

EPD® verification (external)

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

☐Yes ☒No

Third party verifier:

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LCA Developer

ENVIROMETRICS
Business Consultants & Engineers

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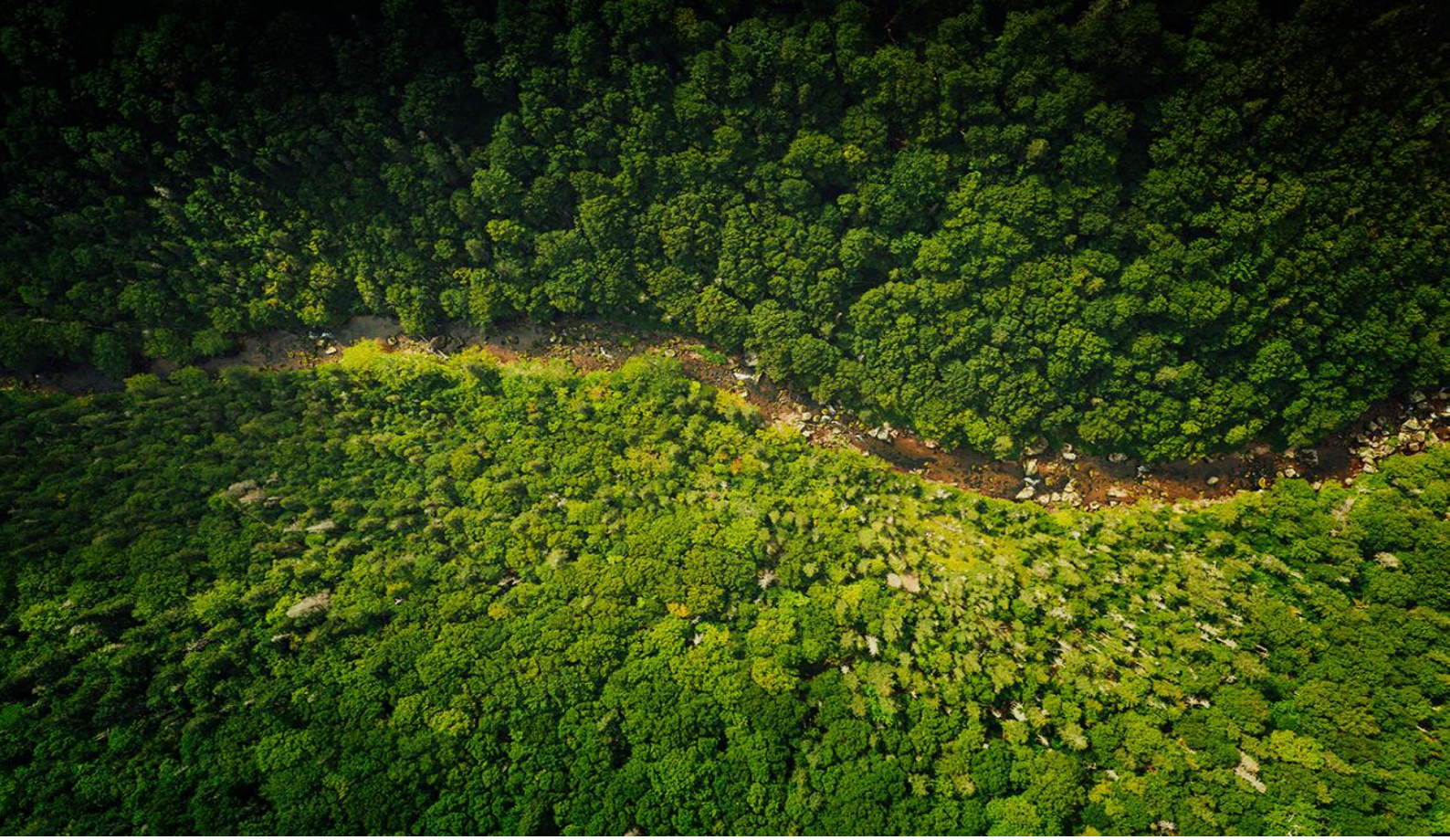


ABOUT THIS EPD

Introduction

At Thrace Plastics Pack S.A., we have a strong sense of responsibility towards our customers, employees, society and the environment. Our aim is always to expand solutions that go far beyond the industry standards in all these areas.

Within the context of sustainability, we want to understand the environmental performance of our products. That is why we develop Life Cycle Assessments (LCAs) to evaluate the environmental impact of a product or service through its life cycle.

Our aim is to minimize the environmental impact of our products. The benefit for our customers is solutions that fulfill the highest demands in terms of efficiency and product responsibility.

What is an EPD?

An Environmental Product Declaration (EPD) provides information about the environmental performance of a product. In the case of this publication, the results refer to Plastic Packaging by Thrace Plastics Pack S.A..

Development of this EPD®

Both the EPD® and the underlying LCA study have been developed and third party-verified in accordance with the product category rules (PCRs) for packaging within the framework of the International EPD® system and its general program instructions for type III environmental declarations according to ISO 14025.

Key terms

- **Environmental product declaration** according to ISO 14025: Type III environmental declarations provide quantified environmental data using predetermined parameters.
- **Life cycle assessment (LCA)** according to ISO 14040: “Compilation and evaluation of the inputs, outputs and the potential environmental impact of a product system throughout its life cycle.”
- **Product category rules (PCR)** according to ISO 14025: “A set of specific rules, requirements and guidelines for developing Type III environmental declarations.”

About us

Thrace Group has been converting polypropylene to performance materials for over 35 years. Having established a global presence through strategic growth, the Group nowadays operates in 9 countries, with a workforce of over 2.100 professionals, serving 1800 customers in 80 countries.

Thrace Plastics Pack was founded in 1997, with the establishment of a new Thrace Group plant in Ioannina, Greece, focusing entirely on packaging solutions.

The company offers its business associates years of consolidated experience in designing packaging solutions for different applications and sectors. Specifically, the areas of application are Industrial packaging for the Paint/Chemical Industry and Consumer Packaging for the Food industry

The main market of Thrace Plastics Pack S.A. has traditionally been Southeast Europe, but over the past decade it has become a considerable player in Northern and Western Europe. Lately has expanded its activities towards new markets, such as Africa and the Gulf based areas.

What makes us different

Thrace Pack offers its business associates years of consolidated experience in designing packaging solutions for different applications and sectors. In order to meet the ongoing demands for logistics` optimization, Thrace Pack continuously presents new ideas and innovations, often in close collaboration with its customers. Our wide customer base tangibly proves that we have what it takes in terms of products, technologies and know-how to work side by side with big multinational groups but also with local companies. Moreover, our focus on cost-effectiveness, customization, and sustainability along with our flexible and highly responsive attitude towards our clients are the added-value assets that make us an ideal partner.

Product Information

Cups are produced by Polypropylene in grades approved for food packaging in accordance with European Regulation 10/2011, 1935/2004, 2023/2006 (and their modifications).

Overall and specific migration controls are carried out in accordance with European Regulation 10/2011.

Thrace Plastics Pack Co S.A. is also certified in accordance with the requirements of standard ISO 9001, ISO 22000, BRC/IoP Global Standard for Packaging & Packaging Materials and HALAL.

Big range of plastic packaging

100% Recyclable

- ✓ Volume range: 0.115 lt - 1.0 lt. Customized sizes available upon request
- ✓ Broad range of shapes and dimensions
- ✓ High performance - Fit for purpose
- ✓ Optimal pallet utilization
- ✓ Major decoration potential: 8-colour Offset Printing, Shrink Sleeving, Adhesive Labeling
- ✓ Rich color palette
- ✓ Advanced hot fill properties
- ✓ Regular Lid Line, for regular closure
- ✓ Seal Lid Line, for membrane sealing compatibility

Product Information

Declared unit

The declared unit of this study is a packaging unit. Data for the inventory and impact assessment in this report is expressed in the basis of the declared unit. This EPD covers 7 products produced in Ioannina plant, Greece.

Application

For food applications

Production site

The production of all seven products takes place in plant located in Ioannina city, Greece.

Cup	Characteristics	Units	Value	Weight (gr)
art898	Ext. Size	mm	95X58.6	7,1
	Int. Volume	ml	273	
t-iml200	Ext. Size	mm	95X58.8	5,8
	Int. Volume	ml	272	
art285s	Ext. Size	mm	95X58.2	7,6
	Int. Volume	ml	285	
t-iml300	Ext. Size	mm	95X110.2	9
	Int. Volume	ml	443	
art300	Ext. Size	mm	95X110	7,1
	Int. Volume	ml	445	
art302	Ext. Size	mm	95X92	6,5
	Int. Volume	ml	375	
art385	Ext. Size	mm	95X101	10,5
	Int. Volume	ml	455	

Life Cycle Approach

Data quality

Data on raw materials, transportation of raw materials and products, emissions, waste along with energy and water consumption in manufacturing stage are collected by Thrace Plastics Pack S.A..

Time representativeness

All primary data used in this study is for the entire year 2020.

Geographical scope

Worldwide

Allocations

Allocations in the LCA datasets used are documented accordingly in the datasets by Ecoinvent. Concerning the manufacturing stage, when needed, an allocation based on the mass of the finished products from the site has been applied.

Data collection

The data used in the present study is a combination of measured, calculated, and estimated data. The main data sources are Thrace Plastics Pack S.A. internal data and generic databases such as Ecoinvent 3.7.1..

Cut off criteria

This EPD follows the cut-off rules stated in the PCR, section 4.5. Data for elementary flows to and from the product system contributing to a minimum of 99% of the declared environmental impacts have been included.

LCA calculation

Microsoft Excel is used to perform the LCA. Background data is sourced from Ecoinvent 3.7.1 Cut-off lci.

Life Cycle Approach

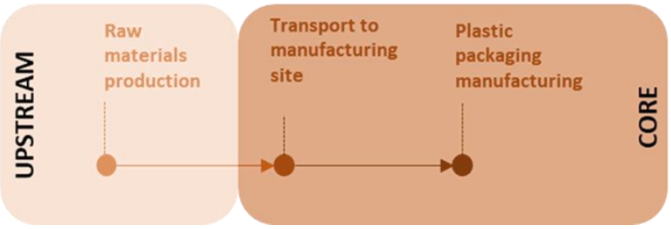
We produce our plastic packaging with a life-cycle approach and ensure continual improvements by reducing their potential environmental impacts at each life cycle stage.

The study scope is a typical ”**cradle to gate**” assessment, from the raw material needed to produce plastic packaging up to its manufacture. The plastic packaging’s life cycle has been staged into two life cycle stages:

1. Raw materials that constitute the products or named **Upstream**, which includes raw material production.

2. When all materials and components are received, the in-house manufacturing is happening. This is the **Core** part of the life cycle which includes the transportation of raw materials to the manufacturing site and manufacturing of the product.

System diagram



System Boundaries

X= Included, MND= Module Not Declared												
Upstream	Core		Downstream									
Raw Materials Supply	**Transport**	**Manufacturing**	Transport to forming or filling	Forming	Filling (lidding)	Distribution of filled package	Transport to reconditioning	Reconditioning	Transport to refilling point	Disassembling / sorting	Transport to disposal	Final disposal
A1	**A2**	**A3**	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

Table 1: Life cycle stages included

Environmental Performance

The following section contains the results of the underlying LCA study according to the PCRs. The disclosure of results is structured in three categories: potential environmental impacts, use of resources, waste production and output flows. The tables show results 1 unit of plastic packaging.

Assumptions are presented in the verified LCA Background report.

ART898

POTENTIAL ENVIRONMENTAL IMPACTS

Parameter	Unit	UPSTREAM	CORE	TOTAL
GWP-total	kg CO2 eq	1,85E-02	4,56E-03	2,31E-02
GWP-fossil	kg CO2 eq	1,84E-02	4,54E-03	2,30E-02
GWP-biogenic	kg CO2 eq	5,40E-05	1,63E-05	7,03E-05
GWP-luluc	kg CO2 eq	1,41E-05	6,46E-06	2,06E-05
AP	kg SO2 eq	5,07E-05	2,11E-05	7,19E-05
EP	kg PO4-3 eq	1,50E-05	1,94E-05	3,44E-05
POFP	kg NMVOC eq	5,21E-05	1,05E-05	6,26E-05
ADPe	kg Sb eq	1,14E-07	4,63E-09	1,19E-07
ADPf	MJ	5,70E-01	8,24E-02	6,52E-01
WSP	m^3 eq	8,37E-03	6,23E-03	1,46E-02

USE OF PRIMARY AND SECONDARY RESOURCES

Parameter	Unit	UPSTREAM	CORE	TOTAL
PERE	MJ	3,30E-02	1,05E-02	4,34E-02
PERM	MJ	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	3,30E-02	1,05E-02	4,34E-02
PENRE	MJ	5,70E-01	8,24E-02	6,52E-01
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	5,70E-01	8,24E-02	6,52E-01
SM	kg	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00
FW	m^3	1,95E-04	5,42E-05	2,49E-04

OUTPUT FLOWS

Parameter	Unit	UPSTREAM	CORE	TOTAL
CRU	kg	0,00E+00	0,00E+00	0,00E+00
MFR	kg	0,00E+00	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00
EEe	MJ	0,00E+00	0,00E+00	0,00E+00
EEt	MJ	0,00E+00	0,00E+00	0,00E+00

WASTE PRODUCTION

Parameter	Unit	UPSTREAM	CORE	TOTAL
HWD	kg	9,58E-08	4,57E-08	1,42E-07
NHWD	kg	2,37E-03	4,93E-04	2,86E-03
RWD	kg	3,79E-07	4,68E-07	8,47E-07

T-IML200

POTENTIAL ENVIRONMENTAL IMPACTS

Parameter	Unit	UPSTREAM	CORE	TOTAL
GWP-total	kg CO2 eq	1,61E-02	5,46E-03	2,16E-02
GWP-fossil	kg CO2 eq	1,61E-02	5,43E-03	2,15E-02
GWP-biogenic	kg CO2 eq	4,37E-05	1,99E-05	6,36E-05
GWP-luluc	kg CO2 eq	1,10E-05	7,85E-06	1,89E-05
AP	kg SO2 eq	4,41E-05	2,53E-05	6,95E-05
EP	kg PO4-3 eq	1,26E-05	2,36E-05	3,62E-05
POFP	kg NMVOC eq	4,58E-05	1,22E-05	5,80E-05
ADPe	kg Sb eq	1,01E-07	5,25E-09	1,06E-07
ADPf	MJ	5,08E-01	9,90E-02	6,07E-01
WSP	m^3 eq	7,26E-03	7,61E-03	1,49E-02

USE OF PRIMARY AND SECONDARY RESOURCES

Parameter	Unit	UPSTREAM	CORE	TOTAL
PERE	MJ	3,30E-02	1,28E-02	4,57E-02
PERM	MJ	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	3,30E-02	1,28E-02	4,57E-02
PENRE	MJ	5,70E-01	9,90E-02	6,69E-01
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	5,70E-01	9,90E-02	6,69E-01
SM	kg	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00
FW	m^3	1,95E-04	6,61E-05	2,61E-04

OUTPUT FLOWS

OUTPUT FLOWS	Unit	UPSTREAM	CORE	TOTAL
CRU	kg	0,00E+00	0,00E+00	0,00E+00
MFR	kg	0,00E+00	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00
EEe	MJ	0,00E+00	0,00E+00	0,00E+00
EEt	MJ	0,00E+00	0,00E+00	0,00E+00

WASTE PRODUCTION

WASTE PRODUCTION	Unit	UPSTREAM	CORE	TOTAL
HWD	kg	1,27E-08	5,14E-08	6,41E-08
NHWD	kg	2,34E-04	5,19E-04	7,54E-04
RWD	kg	3,35E-08	5,60E-07	5,94E-07

POTENTIAL ENVIRONMENTAL IMPACTS

Parameter	Unit	UPSTREAM	CORE	TOTAL
GWP-total	kg CO2 eq	3,05E-02	5,25E-02	8,30E-02
GWP-fossil	kg CO2 eq	3,04E-02	5,24E-02	8,29E-02
GWP-biogenic	kg CO2 eq	7,01E-05	2,00E-05	9,01E-05
GWP-luluc	kg CO2 eq	2,01E-05	7,91E-06	2,80E-05
AP	kg SO2 eq	1,58E-04	2,57E-05	1,84E-04
EP	kg PO4-3 eq	2,95E-05	2,38E-05	5,32E-05
POFP	kg NMVOC eq	1,30E-04	1,25E-05	1,42E-04
ADPe	kg Sb eq	1,32E-07	5,45E-09	1,37E-07
ADPf	MJ	1,48E+00	1,00E-01	1,58E+00
WSP	m^3 eq	9,66E-03	7,65E-03	1,73E-02

USE OF PRIMARY AND SECONDARY RESOURCES

RESOURCE USE	Unit	UPSTREAM	CORE	TOTAL
PERE	MJ	4,30E-02	1,28E-02	5,59E-02
PERM	MJ	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	4,30E-02	1,28E-02	5,59E-02
PENRE	MJ	1,47E+00	1,00E-01	1,58E+00
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	1,47E+00	1,00E-01	1,58E+00
SM	kg	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00
FW	m^3	2,25E-04	6,65E-05	2,91E-04

OUTPUT FLOWS

OUTPUT FLOWS	Unit	UPSTREAM	CORE	TOTAL
CRU	kg	0,00E+00	0,00E+00	0,00E+00
MFR	kg	0,00E+00	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00
EEe	MJ	0,00E+00	0,00E+00	0,00E+00
EEt	MJ	0,00E+00	0,00E+00	0,00E+00

WASTE PRODUCTION

WASTE PRODUCTION	Unit	UPSTREAM	CORE	TOTAL
HWD	kg	1,71E-06	5,36E-08	1,77E-06
NHWD	kg	3,45E-03	5,58E-04	4,00E-03
RWD	kg	6,70E-06	5,68E-07	7,27E-06

POTENTIAL ENVIRONMENTAL IMPACTS

ENVIRONMENTAL IMPACTS	Unit	UPSTREAM	CORE	TOTAL
GWP-total	kg CO2 eq	2,80E-02	8,11E-03	3,61E-02
GWP-fossil	kg CO2 eq	2,79E-02	8,07E-03	3,60E-02
GWP-biogenic	kg CO2 eq	8,68E-05	2,97E-05	1,16E-04
GWP-luluc	kg CO2 eq	2,43E-05	1,17E-05	3,60E-05
AP	kg SO2 eq	8,41E-05	3,77E-05	1,22E-04
EP	kg PO4-3 eq	2,66E-05	3,52E-05	6,18E-05
POFP	kg NMVOC eq	8,67E-05	1,80E-05	1,05E-04
ADPe	kg Sb eq	1,73E-07	7,70E-09	1,81E-07
ADPf	MJ	8,61E-01	1,47E-01	1,01E+00
WSP	m^3 eq	1,49E-02	1,14E-02	2,63E-02

USE OF PRIMARY AND SECONDARY RESOURCES

RESOURCE USE	Unit	UPSTREAM	CORE	TOTAL
PERE	MJ	5,37E-02	1,91E-02	7,28E-02
PERM	MJ	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	5,37E-02	1,91E-02	7,28E-02
PENRE	MJ	8,61E-01	1,47E-01	1,01E+00
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	8,61E-01	1,47E-01	1,01E+00
SM	kg	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00
FW	m^3	3,48E-04	9,86E-05	4,47E-04

OUTPUT FLOWS

OUTPUT FLOWS	Unit	UPSTREAM	CORE	TOTAL
CRU	kg	0,00E+00	0,00E+00	0,00E+00
MFR	kg	0,00E+00	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00
EEe	MJ	0,00E+00	0,00E+00	0,00E+00
EEt	MJ	0,00E+00	0,00E+00	0,00E+00

WASTE PRODUCTION

WASTE PRODUCTION	Unit	UPSTREAM	CORE	TOTAL
HWD	kg	1,58E-07	7,52E-08	2,33E-07
NHWD	kg	2,67E-03	7,47E-04	3,41E-03
RWD	kg	6,55E-07	8,33E-07	1,49E-06

POTENTIAL ENVIRONMENTAL IMPACTS

ENVIRONMENTAL IMPACTS	Unit	UPSTREAM	CORE	TOTAL
GWP-total	kg CO2 eq	1,71E-02	4,42E-03	2,15E-02
GWP-fossil	kg CO2 eq	1,71E-02	4,39E-03	2,15E-02
GWP-biogenic	kg CO2 eq	4,39E-05	1,58E-05	5,97E-05
GWP-luluc	kg CO2 eq	1,07E-05	6,25E-06	1,70E-05
AP	kg SO2 eq	4,67E-05	2,05E-05	6,72E-05
EP	kg PO4-3 eq	1,30E-05	1,88E-05	3,18E-05
POFP	kg NMVOC eq	4,89E-05	1,02E-05	5,91E-05
ADPe	kg Sb eq	1,08E-07	4,49E-09	1,13E-07
ADPf	MJ	5,47E-01	7,98E-02	6,26E-01
WSP	m^3 eq	7,68E-03	6,03E-03	1,37E-02

USE OF PRIMARY AND SECONDARY RESOURCES

RESOURCE USE	Unit	UPSTREAM	CORE	TOTAL
PERE	MJ	2,49E-02	1,01E-02	3,50E-02
PERM	MJ	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	2,49E-02	1,01E-02	3,50E-02
PENRE	MJ	5,46E-01	7,98E-02	6,26E-01
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	5,46E-01	7,98E-02	6,26E-01
SM	kg	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00
FW	m^3	1,79E-04	5,25E-05	2,31E-04

OUTPUT FLOWS

OUTPUT FLOWS	Unit	UPSTREAM	CORE	TOTAL
CRU	kg	0,00E+00	0,00E+00	0,00E+00
MFR	kg	0,00E+00	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00
EEe	MJ	0,00E+00	0,00E+00	0,00E+00
EEt	MJ	0,00E+00	0,00E+00	0,00E+00

WASTE PRODUCTION

WASTE PRODUCTION	Unit	UPSTREAM	CORE	TOTAL
HWD	kg	7,97E-08	4,44E-08	1,24E-07
NHWD	kg	1,90E-03	4,79E-04	2,38E-03
RWD	kg	3,28E-07	4,53E-07	7,81E-07

POTENTIAL ENVIRONMENTAL IMPACTS

ENVIRONMENTAL IMPACTS	Unit	UPSTREAM	CORE	TOTAL
GWP-total	kg CO2 eq	1,63E-02	4,29E-03	2,06E-02
GWP-fossil	kg CO2 eq	1,63E-02	4,26E-03	2,05E-02
GWP-biogenic	kg CO2 eq	4,41E-05	1,54E-05	5,94E-05
GWP-luluc	kg CO2 eq	1,11E-05	6,08E-06	1,72E-05
AP	kg SO2 eq	4,47E-05	1,99E-05	6,46E-05
EP	kg PO4-3 eq	1,27E-05	1,83E-05	3,10E-05
POFP	kg NMVOC eq	4,65E-05	9,83E-06	5,63E-05
ADPe	kg Sb eq	1,03E-07	4,33E-09	1,07E-07
ADPf	MJ	5,16E-01	7,75E-02	5,93E-01
WSP	m^3 eq	7,36E-03	5,88E-03	1,32E-02

USE OF PRIMARY AND SECONDARY RESOURCES

RESOURCE USE	Unit	UPSTREAM	CORE	TOTAL
PERE	MJ	2,57E-02	9,86E-03	3,56E-02
PERM	MJ	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	2,57E-02	9,86E-03	3,56E-02
PENRE	MJ	5,15E-01	7,75E-02	5,93E-01
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	5,15E-01	7,75E-02	5,93E-01
SM	kg	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00
FW	m^3	1,71E-04	5,11E-05	2,22E-04

OUTPUT FLOWS

OUTPUT FLOWS	Unit	UPSTREAM	CORE	TOTAL
CRU	kg	0,00E+00	0,00E+00	0,00E+00
MFR	kg	0,00E+00	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00
EEe	MJ	0,00E+00	0,00E+00	0,00E+00
EEt	MJ	0,00E+00	0,00E+00	0,00E+00

WASTE PRODUCTION

WASTE PRODUCTION	Unit	UPSTREAM	CORE	TOTAL
HWD	kg	7,92E-08	4,27E-08	1,22E-07
NHWD	kg	1,89E-03	4,58E-04	2,34E-03
RWD	kg	3,21E-07	4,40E-07	7,61E-07

POTENTIAL ENVIRONMENTAL IMPACTS

ENVIRONMENTAL IMPACTS	Unit	UPSTREAM	CORE	TOTAL
GWP-total	kg CO2 eq	2,65E-02	7,41E-03	3,39E-02
GWP-fossil	kg CO2 eq	2,64E-02	7,38E-03	3,38E-02
GWP-biogenic	kg CO2 eq	7,06E-05	2,67E-05	9,73E-05
GWP-luluc	kg CO2 eq	1,77E-05	1,06E-05	2,82E-05
AP	kg SO2 eq	7,24E-05	3,44E-05	1,07E-04
EP	kg PO4-3 eq	2,05E-05	3,17E-05	5,22E-05
POFP	kg NMVOC eq	7,54E-05	1,69E-05	9,22E-05
ADPe	kg Sb eq	1,67E-07	7,39E-09	1,74E-07
ADPf	MJ	8,37E-01	1,34E-01	9,71E-01
WSP	m^3 eq	1,19E-02	1,02E-02	2,21E-02

USE OF PRIMARY AND SECONDARY RESOURCES

RESOURCE USE	Unit	UPSTREAM	CORE	TOTAL
PERE	MJ	4,10E-02	1,71E-02	5,81E-02
PERM	MJ	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	4,10E-02	1,71E-02	5,81E-02
PENRE	MJ	8,36E-01	1,34E-01	9,71E-01
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	8,36E-01	1,34E-01	9,71E-01
SM	kg	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00
FW	m^3	2,77E-04	8,87E-05	3,66E-04

OUTPUT FLOWS

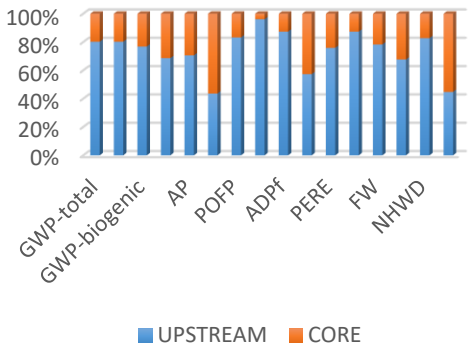
OUTPUT FLOWS	Unit	UPSTREAM	CORE	TOTAL
CRU	kg	0,00E+00	0,00E+00	0,00E+00
MFR	kg	0,00E+00	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00
EEe	MJ	0,00E+00	0,00E+00	0,00E+00
EEt	MJ	0,00E+00	0,00E+00	0,00E+00

WASTE PRODUCTION

WASTE PRODUCTION	Unit	UPSTREAM	CORE	TOTAL
HWD	kg	1,27E-07	7,28E-08	2,00E-07
NHWD	kg	3,11E-03	7,69E-04	3,88E-03
RWD	kg	5,18E-07	7,61E-07	1,28E-06

Graphic results

ART898



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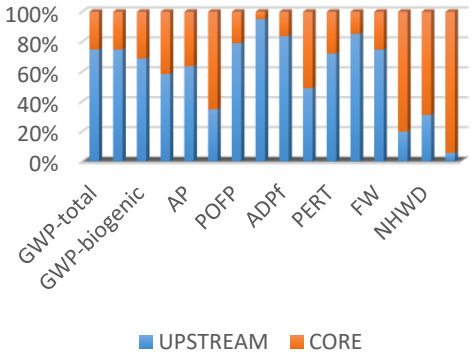

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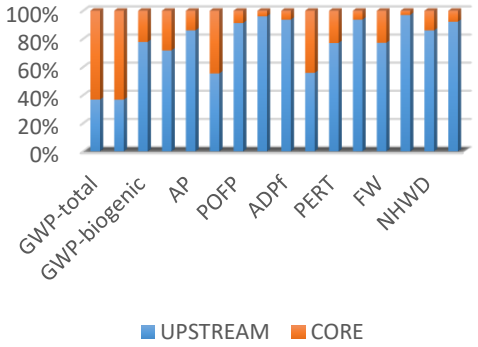

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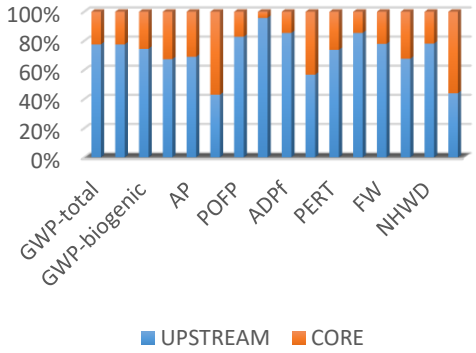

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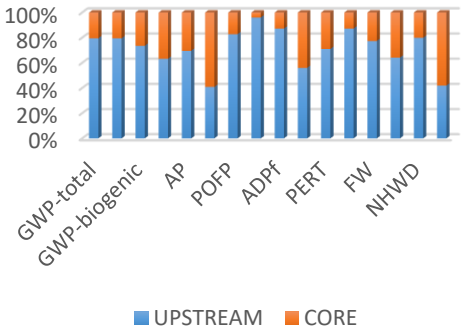
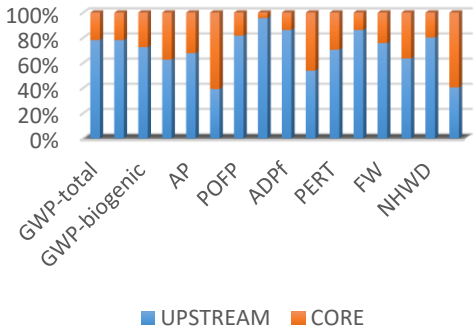
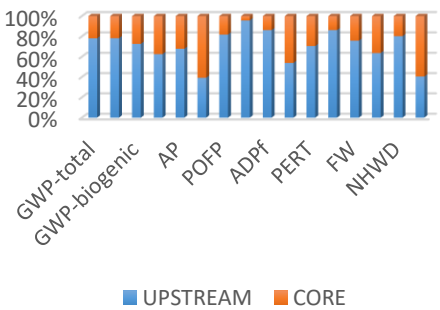


ART302



ART385



Analysis of results/conclusion

General observations

The upstream activities are the ones which contribute the most to all impact categories for the seven products. Upstream activities (raw materials supply A1) are the dominant stage for the majority of the impacts. For Global Warming potential-biogenic, Global Warming potential-fossil, Global Warming potential (total) (GWP) and Global Warming potential-luluc, upstream activities contribution for the most of the products, ranges from 58% to 80%, while in core activities (i.e., the transport of raw materials to production site and the manufacturing process of the product), the corresponding contribution does not exceed 42%. For Acidification potential (AP), Photochemical oxidant formation (POFP), Abiotic depletion potential for non-fossil resources (ADPe), Abiotic depletion potential for fossil resources (ADPf), Use of non-renewable primary energy excluding **resources used** as raw materials (PENRE), Use of net fresh water (FW), the upstream activities contribution ranges from 64% to 96%, while the corresponding contribution of those indicators in core stage ranges from 4% to 36%. The impact categories Eutrophication potential (EP) and Radioactive waste disposed (RWD) are contributing the most to the core activities (i.e., the transport of raw materials to production site and the manufacturing process of the product).

References

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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

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