ENVIRONMENTAL PRODUCT DECLARATION

Injection Food Packaging

ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 for:
Plastic polypropylene Packaging for food and non food applications

EPD®
THE INTERNATIONAL EPD SYSTEM

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-06855
Publication date:	2022-09-23
Validity date:	2027-09-22
Geographical Scope:	Worldwide

Environmental Product Declarations (EPD) present transparent, verified and comparable information about the life-cycle environmental impact of our products.

Environmental Sustainability Vision 2050

At Kotronis Packaging we are looking forward to a sustainable future by promoting the well-being of the community and natural environment.

KOTRONIS PACKAGING

PROGRAMME INFORMATION

PROGRAMME

The International EPD® System

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

PRODUCT CATEGORY RULES (PCR)

Name: Packaging Product Category Classification
Product category rules (PCR):
PCR 2019:13 Packaging
Version 1.1, 2021-12-17
UN CPC code(s): 36490

PCR review was conducted by:
The Technical Committee of the International EPD® System.
Independent verification of the declaration and data, according to ISO 14025:2006:
EPD® verification (external)

Independent third-party verification of the declaration and data, according to ISO 14025:2006
☐EPD process certification ☑EPD verification

Third party verifier:
Prof. Ing. Vladimír Kočí

Approved by: The International EPD® System

Procedure for follow-up of data during EPD validity involves third party verifier:
☐Yes ☑No

LCA Developer: ENVIROMETRICS Business Consultants & Engineers

COMPANY INFORMATION

Kotronis Packaging has been trading since 1971 as a medium-sized family business based in Malamata, Fokida, near the town of Nafpaktos.

With half a century of experience in the field of manufacturing food packaging, Kotronis Packaging has been using injection moulding machines for the past 24 years, specializing in the design of decorative polypropylene (PP) label with In-Mould-Labeling (IML) technology.

The company operates exclusively in the manufacturing of fully recyclable plastic containers and caps suitable for food packaging.

The company employs approximately 234 employees, investing continuously in their professional and personal development with a modern working environment, competitive benefits, and a high-potential education programme.

COMPANY AT A GLANCE

180 men

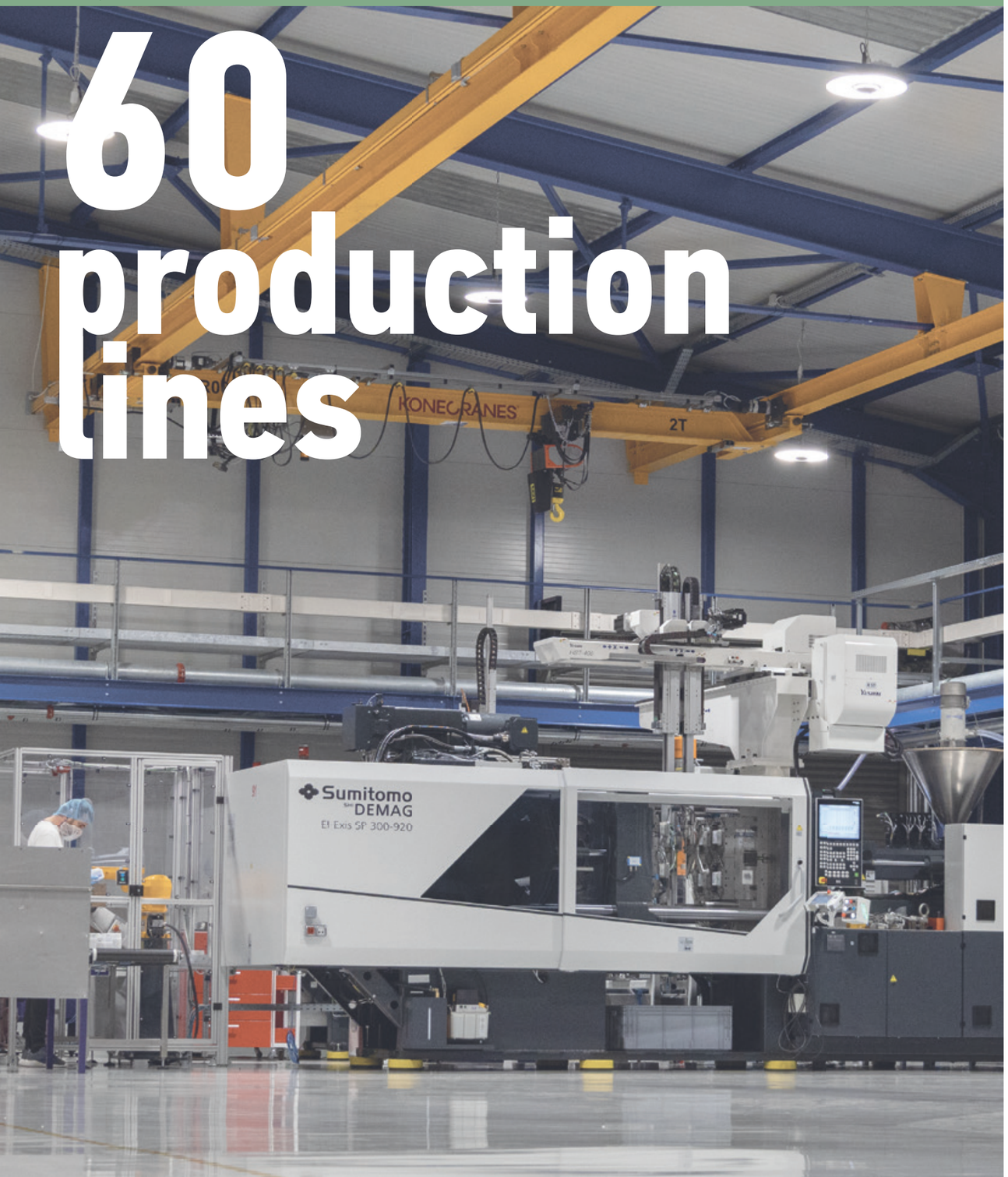
54 women

234 employees

Main Target Markets

COMPANY AT A GLANCE

Operation



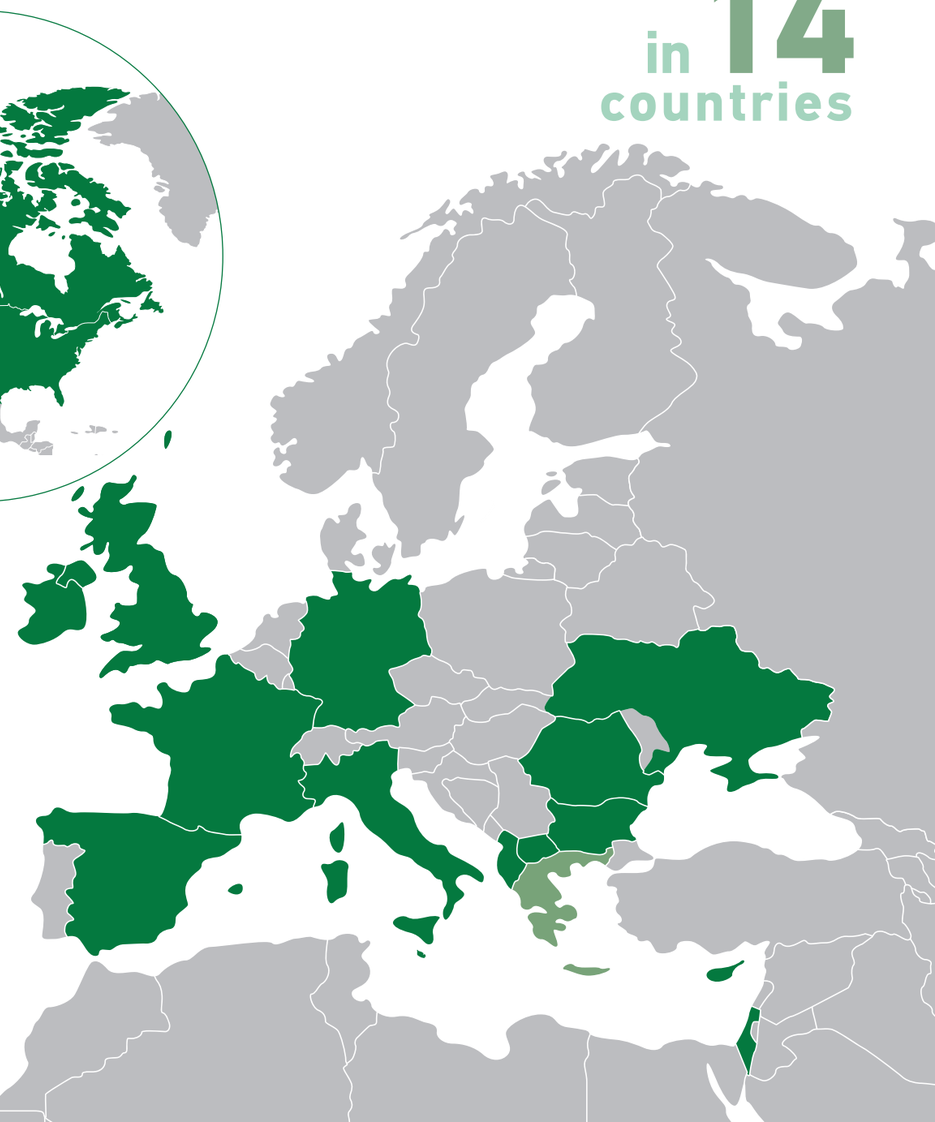
60 production lines

27 mil. €

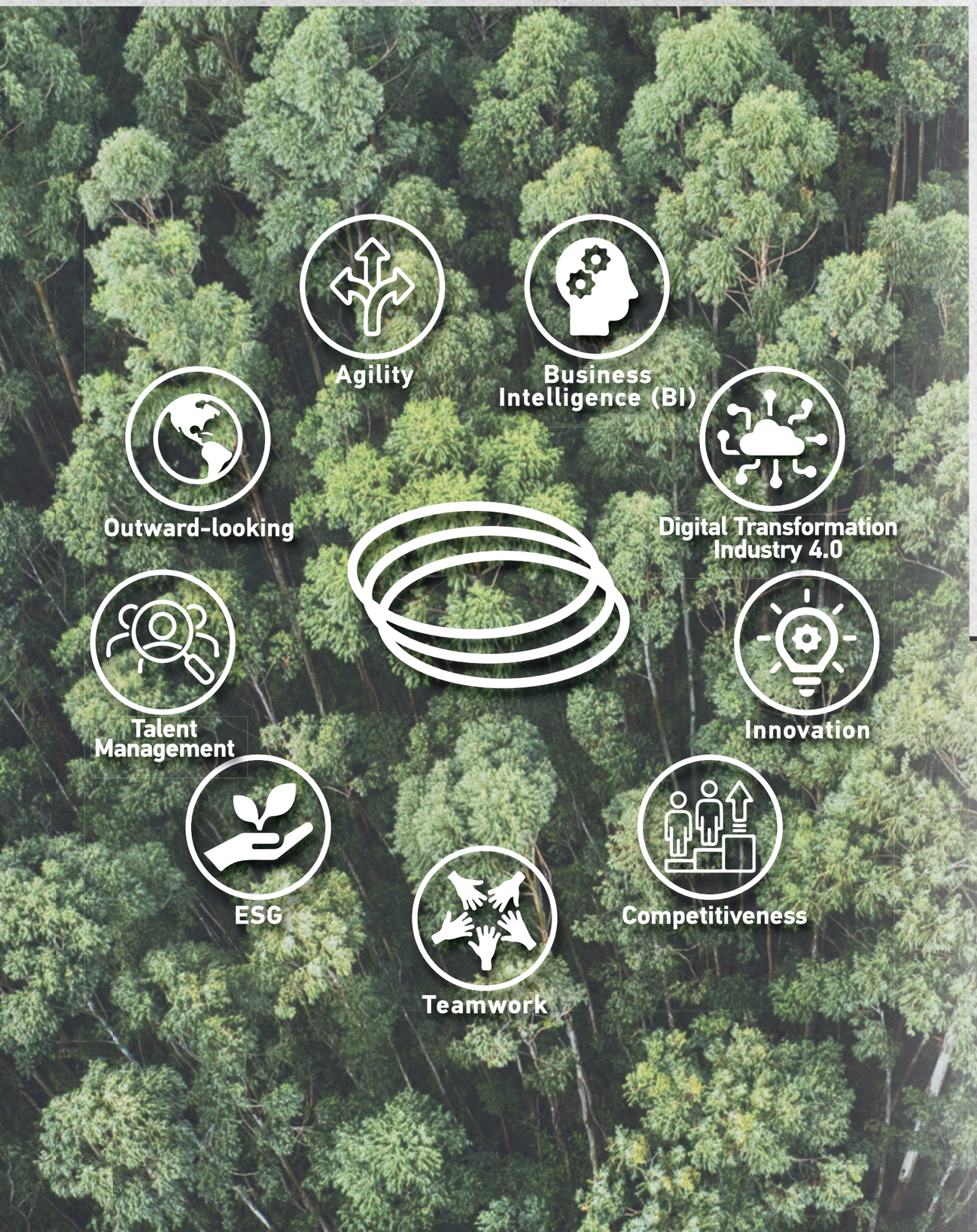
Annual Revenue

Presence

in 14 countries



OUR STRATEGIC KEYWORDS



COMMITMENT TO SUSTAINABILITY

"To us, sustainability is the key factor for corporate success. We are committed to a sustainable future and to improving the social, economic and environmental well being of the community. All our actions and processes have been adjusted based on this philosophy and we will keep on creating long-term value for our business stakeholders."

states Mr Augustinos Kotronis, Managing Director of Kotronis Packaging

At Kotronis Packaging we continuously invest in **sustainable development** and adopt **best practices** in order to achieve our **mission for the future**:

- Establishing "Green Team", a sustainability team, responsible for the planning and implementation of our sustainable strategy.
- Redesigning packaging and processes to achieve reduction of our Carbon Footprint
- Investing in state-of the art equipment focusing on energy efficiency
- Focusing on personal growth of our employees and ensuring their safety and health
- Supporting the local community by prioritizing hiring local labour and purchasing from local suppliers
- Protecting the local environment by reducing the environmental impact of our company

PRODUCT INFORMATION

Volume range: 200 ml up to 1300ml

Decoration: In Mould Labeling

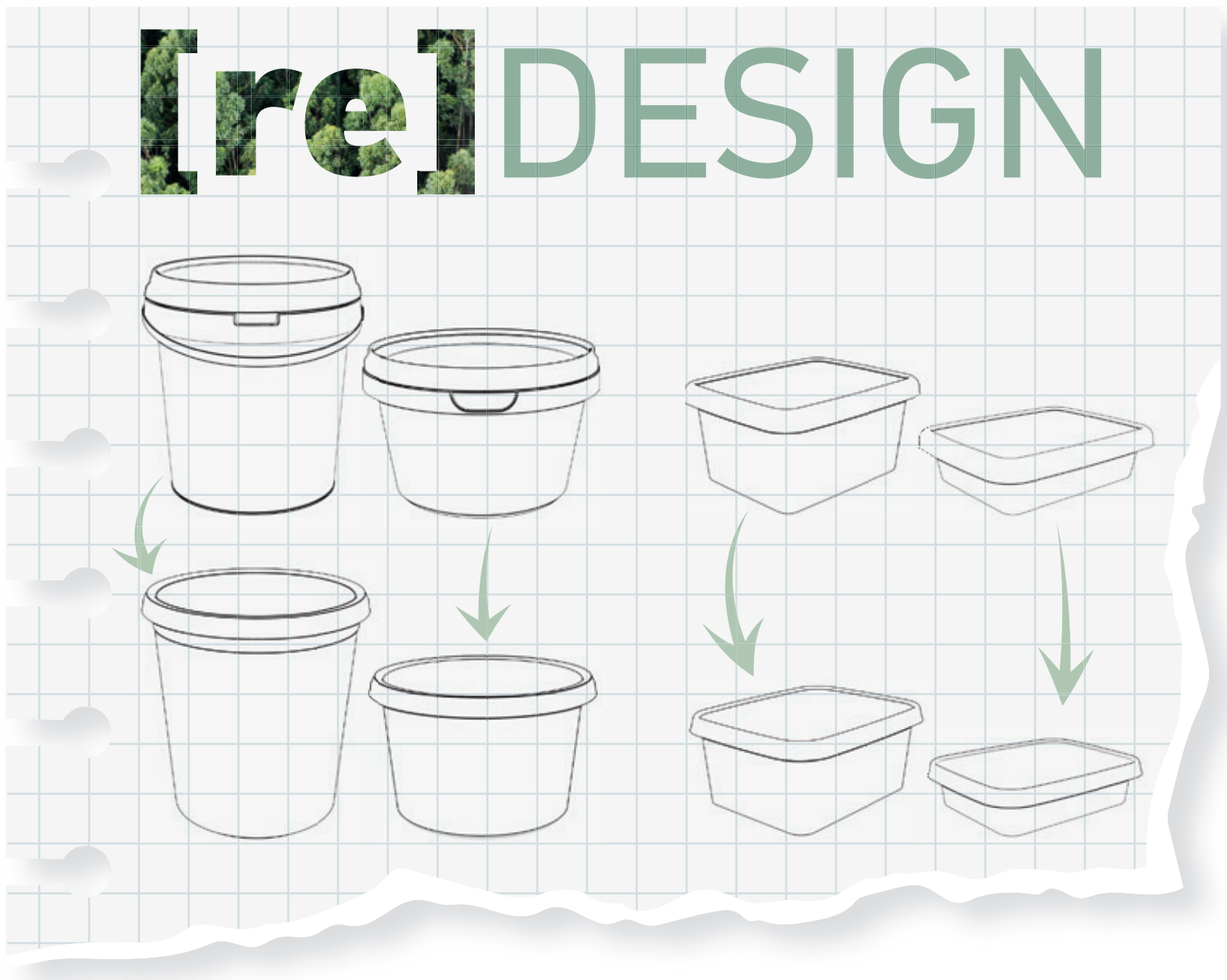
Rich color palette

Microwave, dishwasher and freezer safe

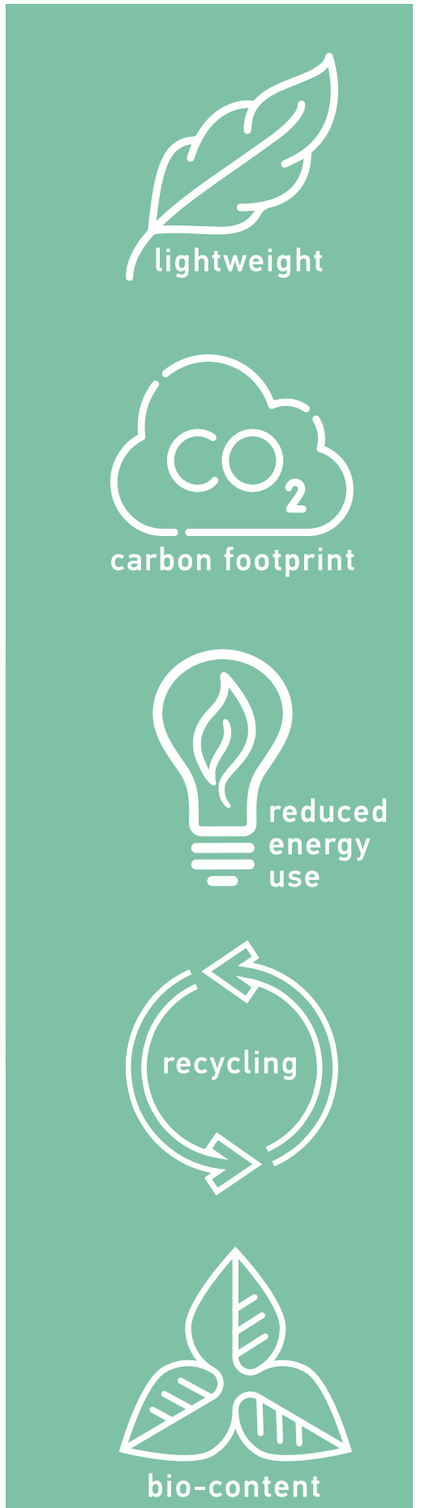
Optimal pallet utilization

Ergonomically designed

Monomaterial



PRODUCT INFORMATION



Containers and lids are produced by Polypropylene in grades approved for food packaging in accordance with European Regulation 10/2011, 1935/2004, 2023/2006 (and their modifications). According to the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) Regulation, the product does not contain any substance included in the Candidate List of Substances of Very High Concern (SVHCs) for authorization with concentrations higher than 0.1% weight by weight (w/w).

They are produced by IML injection molding. Decoration of the product takes place in the mold. An IML label is inserted into the mold. During the injection process, the injected molten polymer fuses with the in-mold label. The result is a decorated packaging, produced in one step.

The material used is polypropylene, one of the lightest plastics, in the range of 95%-99%. PP is known for its excellent strength properties - addressing key sustainability issues of waste reductionand lower energy consumption. Also is considered dominant polymer in the recycling stream.

•The company operates according to food industry standards and is certified according to ISO 9001, ISO 22000 (including HACCP plan), the highlydemanding BRC / IoP and the IMS/FDA (USA Interstate Milk Shippers / Food & Drug Administration).

•The Company is registered on the SEDEX (Supplier Ethical Data Exchange Database) international platform.

•It has also been certified by SMETA (Sedex Members Ethical Trading Audit) to ensure workplace compliance and compliance with ethical and socially sustainable production principles.

PRODUCT IDENTIFICATION

yogurt cups

	Type	Pr No.	Weight (g)	Total Weight (g)	Capacity (ml)	Diameter (mm) x Height (mm)
	Cup	175	7,70		200	Φ75 x 73,5
	Lid for Cup	266	4,80		-	Φ95 x 11
	Round Container	565B	17,50		600	Φ122,8 x 73
SET	Pail	1201	35,50	43,98	1280	Φ131,5 x 130
SET	Lid	1202	8,48		-	Φ128 x 15,2
SET	Pail	1069	28,60	35,00	1200	Φ123 x 138
SET	Lid	566	6,40		-	Φ126 x 9

feta cheese containers

	Type	Pr No.	Weight (g)	Total Weight (g)	Capacity (ml)	Length (mm) x Weight (mm) x Height (mm)
SET	Rectangular Container	281	12,45	24,42	300	140,3 x 113,8 x 32,1
SET	Lid	582	11,97		-	141,99 x 116,09 x 12
SET	Rectangular Container	581B	21,00	32,97	600	140,1 x 114,3 x 62
SET	Lid	582	11,97		-	141,99 x 116,09 x 12

salad containers

	Type	Pr No.	Weight (g)	Total Weight (g)	Capacity (ml)	Length (mm) x Weight (mm) x Height (mm)
SET	Rectangular Container	213B	9,45	18,45	250	137,3 x 125,7 x 37,5
SET	Lid	214B	9,00		-	139,8 x 98,8 x 12
SET	Rectangular Container	261	9,95	18,25	250	132,5 x 88,5 x 43
SET	Lid	262	8,30		-	135 x 93 x 12

LCA INFORMATION
LIFE CYCLE ASSESSMENT

Declared unit

The declared unit of this study is one packaging unit.
Data for the inventory and impact assessment in this report is expressed based on the declared unit. This EPD report covers 9 products.

Goal and Scope of the study

Goal of the present LCA study has been to calculate environmental impact values for one packaging unit from Cradle to gate. Creation of this Environment Product Declaration assesses the environmental performance of our products and will raise action for improvement where is necessary.

Geographical Scope

Worldwide

Allocation

Wherever possible allocation was avoided. In processes belong to Core phase, allocation based on production masses for most data has been applied. For electricity consumption, the allocation was based on cycle time and the weight of each press.

Data collection

The data used in the present study is a combination of measured, calculated, and estimated data provided by Kotronis Packaging S.A. The data were collected for Year 2021. The LCA model was completed in the OpenLCA version 1.10.3 with the Ecoinvent 3.8 database.

LCA INFORMATION
LIFE CYCLE ASSESSMENT

Cut-off rules

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.

Additional information about the LCA study

Time representativeness: 2021

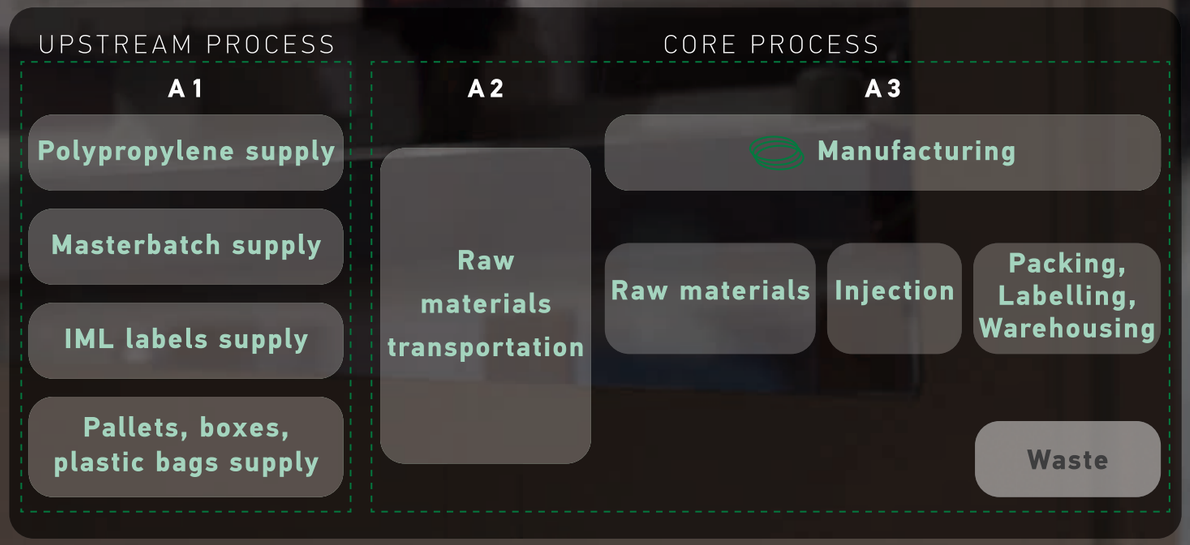
Database and LCA software used:
The LCA model was completed in the OpenLCA version 1.10.3 with the Ecoinvent 3.8 database.

System diagram

The EPD takes into account all the impacts generated by the product over its life cycle, “from cradle to gate” as presented in the following overview of the system:

LCA INFORMATION
LIFE CYCLE ASSESSMENT

Description of System boundaries



UPSTREAM PROCESS

A1: Raw Material Supply

The production starts with the material supply. This module includes the acquisition of raw and packaging materials used to manufacture and ship the products. Polypropylene is the main raw material.

LCA INFORMATION
LIFE CYCLE ASSESSMENT

CORE PROCESS

A2: Transportation

This life cycle stage includes the transport of raw materials to the Kotronis Packaging production factory gate.

A3: Manufacturing

Polypropylene and masterbatch are injected into the mold, inside which the labels already placed, and the product is manufactured. Then is checked for defectives and packed into carton boxes and plastic bags, placed on pallets, and stored at the warehouse. Processing of raw materials, generation of electricity and fuels required for the manufacturing.
During the cycle of manufacturing, waste from plastic, cartons and bags is generated. They are gathered separately and send for recycling outsourcing.

ENVIRONMENTAL PERFORMANCE

[cup #175]

Potential Environmental Impact

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Fossil	kg CO_2 eq.	2,20E-02	3,64E-03	2,56E-02
Biogenic	kg CO_2 eq.	1,49E-04	2,14E-04	3,63E-04
Land use and land transformation	kg CO_2 eq.	5,87E-05	6,00E-06	6,47E-05
TOTAL	kg CO_2 eq.	2,22E-02	3,87E-03	2,61E-02
Acidification potential (AP)	kg SO_2 eq.	8,22E-05	2,29E-05	1,05E-04
Eutrophication potential (EP)	kg PO_4^{3-} eq.	2,54E-05	1,37E-05	3,91E-05
Photochemical oxidant formation Potential (POFP)	kg NMVOC eq.	7,59E-05	1,46E-05	9,05E-05
Abiotic depletion potential – Elements	kg Sb eq.	1,26E-07	4,87E-09	1,31E-07
Abiotic depletion potential – Fossil resources	MJ, net calorific value	6,41E-01	6,73E-02	7,09E-01
Water scarcity potential	m^3 eq.	1,01E-02	1,92E-03	1,20E-02

Use of resources

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Primary energy resources - Renewable: Use as energy carrier	MJ, net calorific value	5,89E-02	9,33E-03	6,82E-02
Primary energy resources - Renewable: Used as raw materials	MJ, net calorific value	9,31E-02	2,34E-01	3,27E-01
Primary energy resources - Renewable: **TOTAL**	MJ, net calorific value	1,52E-01	2,43E-01	3,95E-01
Primary energy resources - Non-Renewable: Use as energy carrier	MJ, net calorific value	6,41E-01	6,73E-02	7,09E-01
Primary energy resources - Non-Renewable: Used as raw materials	MJ, net calorific value	9,31E-02	2,34E-01	3,27E-01
Primary energy resources - Non-Renewable: **TOTAL**	MJ, net calorific value	7,35E-01	3,01E-01	1,04E+00
Secondary Material	kg	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
Non-renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water	m^3	2,35E-04	4,46E-05	2,80E-04

Waste Production and Output flows

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Hazardous waste disposed	kg	1,91E-07	4,38E-08	2,35E-07
Non-hazardous waste disposed	kg	2,51E-03	6,63E-04	3,17E-03
Radioactive waste disposed	kg	4,77E-07	4,35E-07	9,12E-07
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL PERFORMANCE

[lid for cup #266]

Potential Environmental Impact

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Fossil	kg CO_2 eq.	1,39E-02	3,21E-03	1,71E-02
Biogenic	kg CO_2 eq.	7,12E-05	2,94E-04	3,65E-04
Land use and land transformation	kg CO_2 eq.	2,84E-05	5,49E-06	3,39E-05
TOTAL	kg CO_2 eq.	1,40E-02	3,51E-03	1,75E-02
Acidification potential (AP)	kg SO_2 eq.	5,18E-05	1,88E-05	7,05E-05
Eutrophication potential (EP)	kg PO_4^{3-} eq.	1,56E-05	1,27E-05	2,83E-05
Photochemical oxidant formation Potential (POFP)	kg NMVOC eq.	4,82E-05	1,13E-05	5,95E-05
Abiotic depletion potential – Elements	kg Sb eq.	8,10E-08	4,04E-09	8,50E-08
Abiotic depletion potential – Fossil resources	MJ, net calorific value	4,06E-01	6,00E-02	4,66E-01
Water scarcity potential	m^3 eq.	6,54E-03	1,79E-03	8,33E-03

Use of resources

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Primary energy resources - Renewable: Use as energy carrier	MJ, net calorific value	6,46E-02	8,69E-03	7,33E-02
Primary energy resources - Renewable: Used as raw materials	MJ, net calorific value	9,04E-02	1,65E-01	2,56E-01
Primary energy resources - Renewable: **TOTAL**	MJ, net calorific value	1,55E-01	1,74E-01	3,29E-01
Primary energy resources - Non-Renewable: Use as energy carrier	MJ, net calorific value	4,06E-01	6,00E-02	4,66E-01
Primary energy resources - Non-Renewable: Used as raw materials	MJ, net calorific value	9,04E-02	1,65E-01	2,56E-01
Primary energy resources - Non-Renewable: **TOTAL**	MJ, net calorific value	4,96E-01	2,25E-01	7,22E-01
Secondary Material	kg	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
Non-renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water	m^3	1,52E-04	4,16E-05	1,94E-04

Waste Production and Output flows

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Hazardous waste disposed	kg	1,17E-07	3,49E-08	1,52E-07
Non-hazardous waste disposed	kg	1,47E-03	5,69E-04	2,04E-03
Radioactive waste disposed	kg	2,92E-07	3,86E-07	6,78E-07
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL PERFORMANCE

[round container #565B]

Potential Environmental Impact

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Fossil	kg CO_2 eq.	5,00E-02	1,06E-02	6,06E-02
Biogenic	kg CO_2 eq.	2,90E-04	3,22E-04	6,12E-04
Land use and land transformation	kg CO_2 eq.	1,10E-04	1,82E-05	1,29E-04
TOTAL	kg CO_2 eq.	5,04E-02	1,09E-02	6,13E-02
Acidification potential (AP)	kg SO_2 eq.	1,83E-04	6,30E-05	2,46E-04
Eutrophication potential (EP)	kg PO_4^{3-} eq.	5,40E-05	4,04E-05	9,45E-05
Photochemical oxidant formation Potential (POFP)	kg NMVOC eq.	1,68E-04	3,80E-05	2,06E-04
Abiotic depletion potential – Elements	kg Sb eq.	2,86E-07	1,30E-08	2,99E-07
Abiotic depletion potential – Fossil resources	MJ, net calorific value	1,49E+00	1,99E-01	1,69E+00
Water scarcity potential	m^3 eq.	2,16E-02	5,87E-03	2,75E-02

Use of resources

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Primary energy resources - Renewable: Use as energy carrier	MJ, net calorific value	6,37E-02	2,87E-02	9,25E-02
Primary energy resources - Renewable: Used as raw materials	MJ, net calorific value	1,06E-01	5,59E-01	6,65E-01
Primary energy resources - Renewable: **TOTAL**	MJ, net calorific value	1,70E-01	5,88E-01	7,58E-01
Primary energy resources - Non-Renewable: Use as energy carrier	MJ, net calorific value	1,49E+00	1,99E-01	1,69E+00
Primary energy resources - Non-Renewable: Used as raw materials	MJ, net calorific value	1,06E-01	5,59E-01	6,65E-01
Primary energy resources - Non-Renewable: **TOTAL**	MJ, net calorific value	1,59E+00	7,58E-01	2,35E+00
Secondary Material	kg	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
Non-renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water	m^3	5,03E-04	1,37E-04	6,40E-04

Waste Production and Output flows

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Hazardous waste disposed	kg	3,76E-07	1,17E-07	4,93E-07
Non-hazardous waste disposed	kg	5,25E-03	1,55E-03	6,80E-03
Radioactive waste disposed	kg	9,51E-07	1,28E-06	2,23E-06
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL PERFORMANCE

[pail #1201 with lid #1202]

Potential Environmental Impact

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Fossil	kg CO_2 eq.	1,17E-01	2,06E-02	1,37E-01
Biogenic	kg CO_2 eq.	5,19E-04	5,75E-04	1,09E-03
Land use and land transformation	kg CO_2 eq.	1,96E-04	3,41E-05	2,30E-04
TOTAL	kg CO_2 eq.	1,18E-01	2,12E-02	1,39E-01
Acidification potential (AP)	kg SO_2 eq.	4,23E-04	1,31E-04	5,54E-04
Eutrophication potential (EP)	kg PO_4^{3-} eq.	1,19E-04	7,61E-05	1,95E-04
Photochemical oxidant formation Potential (POFP)	kg NMVOC eq.	3,93E-04	8,31E-05	4,76E-04
Abiotic depletion potential – Elements	kg Sb eq.	6,75E-07	2,70E-08	7,02E-07
Abiotic depletion potential – Fossil resources	MJ, net calorific value	3,51E+00	3,82E-01	3,90E+00
Water scarcity potential	m^3 eq.	4,96E-02	1,09E-02	6,04E-02

Use of resources

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Primary energy resources - Renewable: Use as energy carrier	MJ, net calorific value	2,11E-01	5,31E-02	2,64E-01
Primary energy resources - Renewable: Used as raw materials	MJ, net calorific value	1,79E-01	1,35E+00	1,52E+00
Primary energy resources - Renewable: **TOTAL**	MJ, net calorific value	3,91E-01	1,40E+00	1,79E+00
Primary energy resources - Non-Renewable: Use as energy carrier	MJ, net calorific value	3,51E+00	3,82E-01	3,90E+00
Primary energy resources - Non-Renewable: Used as raw materials	MJ, net calorific value	1,79E-01	1,35E+00	1,52E+00
Primary energy resources - Non-Renewable: **TOTAL**	MJ, net calorific value	3,69E+00	1,73E+00	5,42E+00
Secondary Material	kg	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
Non-renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water	m^3	1,15E-03	2,53E-04	1,41E-03

Waste Production and Output flows

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Hazardous waste disposed	kg	7,95E-07	2,47E-07	1,04E-06
Non-hazardous waste disposed	kg	1,14E-02	3,37E-03	1,48E-02
Radioactive waste disposed	kg	2,02E-06	2,47E-06	4,49E-06
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL PERFORMANCE

[pail #1069 with lid #566]

Potential Environmental Impact

	PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
	Fossil	kg CO_2 eq.	9,76E-02	1,80E-02	1,16E-01
	Biogenic	kg CO_2 eq.	4,48E-04	6,35E-04	1,08E-03
	Land use and land transformation	kg CO_2 eq.	1,70E-04	3,00E-05	2,00E-04
	TOTAL	kg CO_2 eq.	9,82E-02	1,87E-02	1,17E-01
	Acidification potential (AP)	kg SO_2 eq.	3,54E-04	1,13E-04	4,67E-04
	Eutrophication potential (EP)	kg PO_4^{3-} eq.	1,00E-04	6,73E-05	1,68E-04
	Photochemical oxidant formation Potential (POFP)	kg NMVOC eq.	3,29E-04	7,11E-05	4,00E-04
	Abiotic depletion potential – Elements	kg Sb eq.	5,63E-07	2,34E-08	5,87E-07
	Abiotic depletion potential – Fossil resources	MJ, net calorific value	2,93E+00	3,35E-01	3,26E+00
	Water scarcity potential	m^3 eq.	4,17E-02	9,59E-03	5,13E-02

Use of resources

	PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Primary energy resources - Renewable	Use as energy carrier	MJ, net calorific value	1,90E-01	4,69E-02	2,37E-01
	Used as raw materials	MJ, net calorific value	1,95E-01	1,13E+00	1,33E+00
	TOTAL	MJ, net calorific value	3,86E-01	1,18E+00	1,57E+00
Primary energy resources - Non-Renewable	Use as energy carrier	MJ, net calorific value	2,93E+00	3,35E-01	3,26E+00
	Used as raw materials	MJ, net calorific value	1,95E-01	1,13E+00	1,33E+00
	TOTAL	MJ, net calorific value	3,12E+00	1,47E+00	4,59E+00
	Secondary Material	kg	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
	Non-renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00
	Net use of fresh water	m^3	9,71E-04	2,23E-04	1,19E-03

Waste Production and Output flows

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Hazardous waste disposed	kg	6,79E-07	2,12E-07	8,92E-07
Non-hazardous waste disposed	kg	9,65E-03	2,95E-03	1,26E-02
Radioactive waste disposed	kg	1,72E-06	2,17E-06	3,88E-06
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00

yogurt cups

ENVIRONMENTAL PERFORMANCE

[rectangular container #281 with lid #582]

Potential Environmental Impact

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Fossil	kg CO_2 eq.	6,78E-02	1,37E-02	8,16E-02
Biogenic	kg CO_2 eq.	3,27E-04	4,94E-04	8,21E-04
Land use and land transformation	kg CO_2 eq.	1,26E-04	2,33E-05	1,49E-04
TOTAL	kg CO_2 eq.	6,83E-02	1,43E-02	8,25E-02
Acidification potential (AP)	kg SO_2 eq.	2,46E-04	8,35E-05	3,29E-04
Eutrophication potential (EP)	kg PO_4^{3-} eq.	6,85E-05	5,21E-05	1,21E-04
Photochemical oxidant formation Potential (POFP)	kg NMVOC eq.	2,30E-04	5,13E-05	2,81E-04
Abiotic depletion potential – Elements	kg Sb eq.	3,92E-07	1,73E-08	4,09E-07
Abiotic depletion potential – Fossil resources	MJ, net calorific value	2,05E+00	2,57E-01	2,30E+00
Water scarcity potential	m^3 eq.	2,87E-02	7,48E-03	3,62E-02

Use of resources

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Use as energy carrier	MJ, net calorific value	1,08E-01	3,66E-02	1,45E-01
Used as raw materials	MJ, net calorific value	1,52E-01	7,83E-01	9,35E-01
TOTAL	MJ, net calorific value	2,61E-01	8,20E-01	1,08E+00
Use as energy carrier	MJ, net calorific value	2,05E+00	2,57E-01	2,30E+00
Used as raw materials	MJ, net calorific value	1,52E-01	7,83E-01	9,35E-01
TOTAL	MJ, net calorific value	2,20E+00	1,04E+00	3,24E+00
Secondary Material	kg	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
Non-renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water	m^3	6,69E-04	1,74E-04	8,43E-04

Waste Production and Output flows

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Hazardous waste disposed	kg	4,64E-07	1,56E-07	6,19E-07
Non-hazardous waste disposed	kg	6,87E-03	2,14E-03	9,01E-03
Radioactive waste disposed	kg	1,16E-06	1,66E-06	2,82E-06
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL PERFORMANCE

[rectangular container #581B with lid #582]

Potential Environmental Impact

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Fossil	kg CO_2 eq.	8,87E-02	1,60E-02	1,05E-01
Biogenic	kg CO_2 eq.	4,21E-04	4,60E-04	8,81E-04
Land use and land transformation	kg CO_2 eq.	1,62E-04	2,66E-05	1,88E-04
TOTAL	kg CO_2 eq.	8,93E-02	1,65E-02	1,06E-01
Acidification potential (AP)	kg SO_2 eq.	3,18E-04	1,01E-04	4,19E-04
Eutrophication potential (EP)	kg PO_4^{3-} eq.	8,61E-05	5,94E-05	1,45E-04
Photochemical oxidant formation Potential (POFP)	kg NMVOC eq.	2,99E-04	6,38E-05	3,63E-04
Abiotic depletion potential – Elements	kg Sb eq.	5,11E-07	2,09E-08	5,32E-07
Abiotic depletion potential – Fossil resources	MJ, net calorific value	2,70E+00	2,98E-01	3,00E+00
Water scarcity potential	m^3 eq.	3,62E-02	8,49E-03	4,47E-02

Use of resources

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Use as energy carrier	MJ, net calorific value	7,52E-02	4,15E-02	1,17E-01
Used as raw materials	MJ, net calorific value	1,35E-01	1,02E+00	1,16E+00
TOTAL	MJ, net calorific value	2,11E-01	1,06E+00	1,27E+00
Use as energy carrier	MJ, net calorific value	2,70E+00	2,98E-01	3,00E+00
Used as raw materials	MJ, net calorific value	1,35E-01	1,02E+00	1,16E+00
TOTAL	MJ, net calorific value	2,84E+00	1,32E+00	4,16E+00
Secondary Material	kg	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
Non-renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water	m^3	8,44E-04	1,98E-04	1,04E-03

Waste Production and Output flows

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Hazardous waste disposed	kg	5,65E-07	1,91E-07	7,56E-07
Non-hazardous waste disposed	kg	8,98E-03	2,60E-03	1,16E-02
Radioactive waste disposed	kg	1,40E-06	1,92E-06	3,33E-06
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL PERFORMANCE

[rectangular container #213B with lid #214B]

Potential Environmental Impact

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Fossil	kg CO_2 eq.	4,93E-02	9,20E-03	5,85E-02
Biogenic	kg CO_2 eq.	1,91E-04	5,98E-04	7,89E-04
Land use and land transformation	kg CO_2 eq.	7,44E-05	1,53E-05	8,97E-05
TOTAL	kg CO_2 eq.	4,95E-02	9,82E-03	5,94E-02
Acidification potential (AP)	kg SO_2 eq.	1,78E-04	5,76E-05	2,35E-04
Eutrophication potential (EP)	kg PO_4^{3-} eq.	4,61E-05	3,49E-05	8,10E-05
Photochemical oxidant formation Potential (POFP)	kg NMVOC eq.	1,68E-04	3,64E-05	2,05E-04
Abiotic depletion potential – Elements	kg Sb eq.	2,89E-07	1,22E-08	3,02E-07
Abiotic depletion potential – Fossil resources	MJ, net calorific value	1,51E+00	1,70E-01	1,68E+00
Water scarcity potential	m^3 eq.	2,06E-02	4,88E-03	2,55E-02

Use of resources

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Primary energy resources - Renewable: Use as energy carrier	MJ, net calorific value	1,06E-01	2,38E-02	1,30E-01
Primary energy resources - Renewable: Used as raw materials	MJ, net calorific value	1,81E-01	5,83E-01	7,64E-01
Primary energy resources - Renewable: **TOTAL**	MJ, net calorific value	2,87E-01	6,07E-01	8,93E-01
Primary energy resources - Non-Renewable: Use as energy carrier	MJ, net calorific value	1,51E+00	1,70E-01	1,68E+00
Primary energy resources - Non-Renewable: Used as raw materials	MJ, net calorific value	1,81E-01	5,83E-01	7,64E-01
Primary energy resources - Non-Renewable: **TOTAL**	MJ, net calorific value	1,69E+00	7,53E-01	2,45E+00
Secondary Material	kg	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
Non-renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water	m^3	4,79E-04	1,14E-04	5,93E-04

Waste Production and Output flows

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Hazardous waste disposed	kg	3,11E-07	1,09E-07	4,19E
Non-hazardous waste disposed	kg	4,79E-03	1,66E-03	6,45E-03
Radioactive waste disposed	kg	7,60E-07	1,10E-06	1,86E-06
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL PERFORMANCE

[rectangular container #261 with lid #262]

Potential Environmental Impact

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Fossil	kg CO_2 eq.	4,77E-02	1,24E-02	6,01E-02
Biogenic	kg CO_2 eq.	1,61E-04	6,14E-04	7,75E-04
Land use and land transformation	kg CO_2 eq.	5,93E-05	2,15E-05	8,08E-05
TOTAL	kg CO_2 eq.	4,79E-02	1,30E-02	6,10E-02
Acidification potential (AP)	kg SO_2 eq.	1,71E-04	7,25E-05	2,43E-04
Eutrophication potential (EP)	kg PO_4^{3-} eq.	4,28E-05	4,83E-05	9,11E-05
Photochemical oxidant formation Potential (POFP)	kg NMVOC eq.	1,60E-04	4,32E-05	2,04E-04
Abiotic depletion potential – Elements	kg Sb eq.	2,80E-07	1,50E-08	2,95E-07
Abiotic depletion potential – Fossil resources	MJ, net calorific value	1,48E+00	2,33E-01	1,72E+00
Water scarcity potential	m^3 eq.	1,96E-02	6,96E-03	2,66E-02

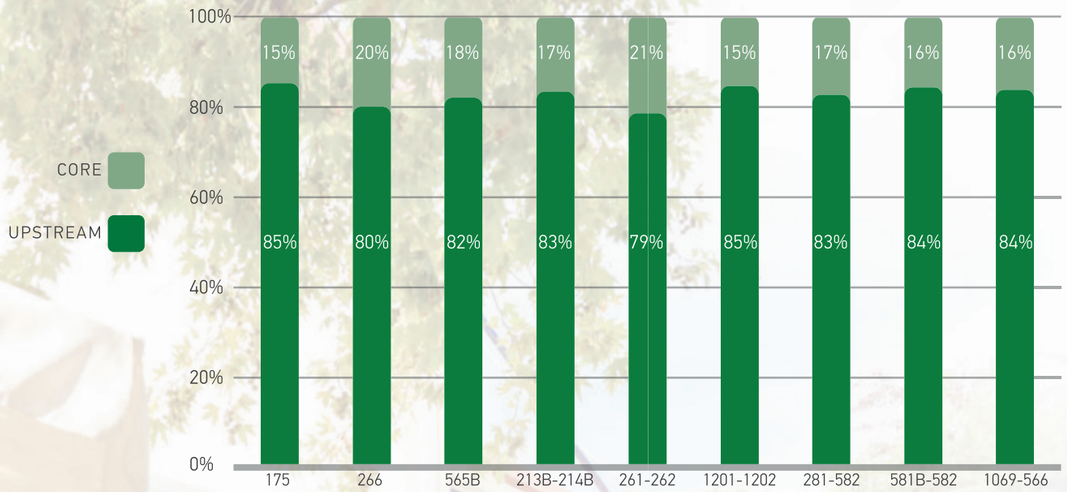
Use of resources

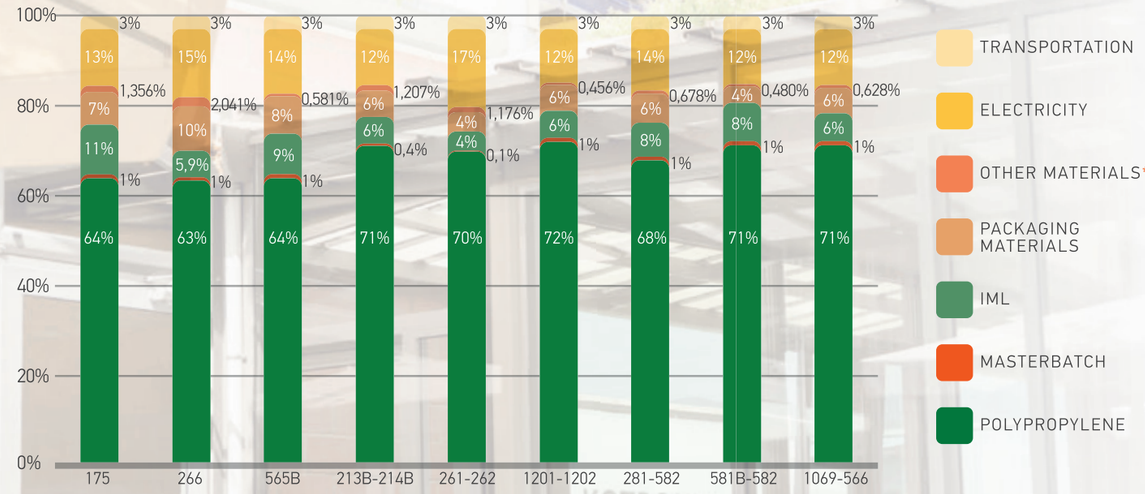
PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Primary energy resources - Renewable: Use as energy carrier	MJ, net calorific value	4,66E-02	3,41E-02	8,06E-02
Primary energy resources - Renewable: Used as raw materials	MJ, net calorific value	1,78E-01	6,23E-01	8,01E-01
Primary energy resources - Renewable: **TOTAL**	MJ, net calorific value	2,25E-01	6,57E-01	8,81E-01
Primary energy resources - Non-Renewable: Use as energy carrier	MJ, net calorific value	1,48E+00	2,33E-01	1,72E+00
Primary energy resources - Non-Renewable: Used as raw materials	MJ, net calorific value	1,78E-01	6,23E-01	8,01E-01
Primary energy resources - Non-Renewable: **TOTAL**	MJ, net calorific value	1,66E+00	8,56E-01	2,52E+00
Secondary Material	kg	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
Non-renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water	m^3	4,57E-04	1,62E-04	6,19E-04

Waste Production and Output flows

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL
Hazardous waste disposed	kg	2,68E-07	1,33E-07	4,01E-07
Non-hazardous waste disposed	kg	4,30E-03	1,87E-03	6,16E-03
Radioactive waste disposed	kg	6,76E-07	1,50E-06	2,18E-06
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00

CONCLUSIONS





Category "other materials" includes motor oil, nitrogen gas, water (0.003%-0.02%) and waste management (0.45%-2.03%).

As presented at the figures, the upstream activities (raw materials supply A1) contribute the most to Global Warming potential (total) (GWP) indicator for all the nine products. The contribution of upstream activities ranges from 79% to 85%. Core activities (i.e., the transport of raw materials to production site and the manufacturing process of the product), are responsible for the rest of the impact which does not exceed 21%.

Deeper analysis for the contribution of all the raw materials and flows to the Global Warming potential (total) (GWP) indicator show that, polypropylene as raw material, seems to contribute the most for all products up to 72%. The second most important effect is derived by the generation of electricity with a contribution of up to 17%.

IML labelling (6%-11%), packaging materials (4%-10%), transportation (3%), waste management (0,6%-2%) and masterbatch (1%) have the less impact to the GWP indicator.

REFERENCES

General Programme Instructions of the International EPD® System. Version 3.01, 2019-09-18

PCR 2019:13 v.1.1 Packaging. EPD System. Date 2020-12-17. Valid until 2023-11-8

ISO 14020:2000 Environmental labels and declarations — General principles

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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