VOG PRODUCTS

Environmental Product Declaration

APPLE PUREE

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214 Prepared and preserved fruits and nuts
2022 production

Programme
The International EPD® System
www.environdec.com

Programme operator
EPD International AB

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EPD®
ENVIRONMENTAL PRODUCT DECLARATION

VOG Products is an innovative company located in Laives in the Northern Italy specialising in the processing of apples and other fruit. It is owned by 18 cooperatives in South Tyrol and Trentino and four producers organisations comprising over 13,000 family-run enterprises. Every year, VOG Products process more than 300,000 tonnes of raw goods to create healthy, safe products for the international market. Its product portfolio includes fruit juices, fruit pulp and purees, concentrated juice, natural flavourings, cooked fruit, frozen fruit and sliced fresh cut fruit.

Respectful handling of resources, corresponding management and intervention are important to give a contribute to outline the environmental impacts along the value chain and increase our transparency towards our stakeholders.

EPD®
ENVIRONMENTAL PRODUCT DECLARATION

The apple puree

Apple puree is produced from ripe and health apples, grown with the method of integrated and organic production. The cleaned apples are transported to the cold sieving, the method assure particular gently raw material processing.
Straining and sieves extract the skin, stalks and cores of the apple and the fruit pulp become hot sieved and gently refinement to a humogen puree.
The pasteurisation process guarantee that our puree is well preserved and that top quality is maintained also in storage.

The quality of the raw materials is ensured by careful selection of varieties, cultivation areas, agronomic techniques and harvesting methods and times.

VOG Products has established strong relationships of deep trust with producers, who are able to guarantee freshness and quality that respect our very high standards.

Trentino - South Tyrol has perfect conditions for apple cultivation. It is home to the largest enclosed area in Europe for apple cultivation. The result is a rich harvest, a wide range of varieties and apples with a splendid colour and unique flavour.

One in five apples picked in Trentino-South Tyrol is processed by VOG Products to be made into apple puree or other products successfully exported all around the world.

PRODUCT CONTENTS

The puree is made from **100% apples** from different varieties, to prevent the naturally oxidation process ascorbic acid is added (<0.1%).

Apples contain many vitamins and minerals, especially **vitamin C** and **potassium**. They are rich in **pectin**, a food fiber very important for a good digestion and for an extended sensation of satiety.

ENERGY VALUE	NUTRIZIONAL INFORMATION (PER 100 G)
54 kcal	**Fat <0.1 g** of which saturates <0.1 g
	Carbohydrate 12.8 g of which sugars 12.3 g
	Food fibers 2.4 g
	Proteins 0.6 g
	Salt <0.1 g

FUNCTIONAL UNIT

The data presented are referred to **1 kg of apple puree produced in VOG Products plant in Laives, Italy, and sold in several countries:**

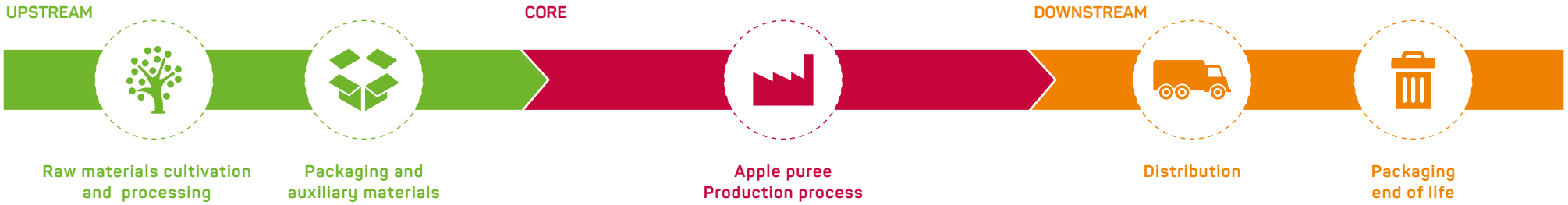
- **in a 200 kg steel drum,** relating to one steel drum containing an aseptic PE bag with 200 kg of product;
- **in a 1200 kg steel goodpack,** relating to one galvanized steel container containing an aseptic PE bag with 1200 kg of product;
- **in a 4,2 kg tinplate can,** relating to one can by tinplate with 4,2 kg of products;
- **in a 1000 kg bag-in-box**, relating to one PP box containing an aseptic PE bag with 1000 kg of product;
- **Unpacked**, **in bulk**.

The apple puree, subject of the declaration, are intended as beverage compounds. For this reason, the study is conducted up to the VOG Products customer, excluding any additional processing and repackaging of the product.

This EPD refers to the average values for the **2022 production**:

Agricultural phase: 01/01/2022 - 31/10/2022
Production process phase: 01/07/2022 - 30/06/2022

The methodology for the calculation

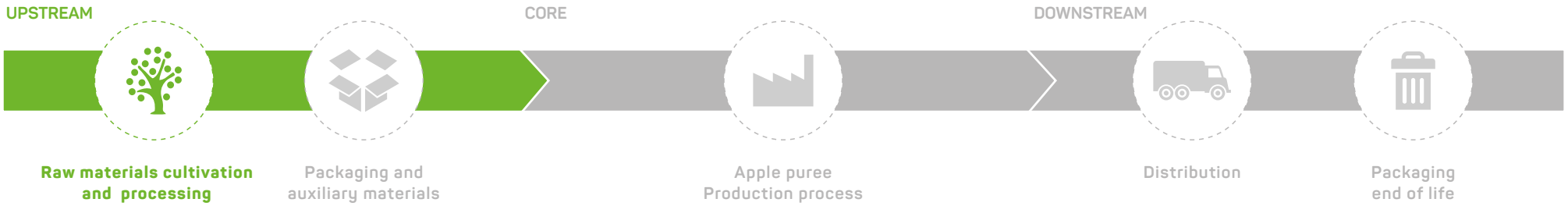


The Environmental performance of the product was calculated using the LCA (life cycle analysis) methodology, by analyzing the impacts of the activities carried out during all the phases from the orchard until the delivery of the finished product to the client and the Packaging end of life.

The study was conducted following the specific product rules published for the "CPC code 2149 - Other prepared and preserved fruit and nuts".

The contribution to the environmental impacts brought by generic data is less than 10% in all impact categories.

UPSTREAM RAW MATERIALS CULTIVATION AND PROCESSING



All the apples used for the apple puree come from the **cooperatives of Trentino - South Tyrol** (Italy).

10% of the apples used came directly from the field, the remaining **90% is conferred to VOG Products** after a preliminary selection process by the cooperatives' plants. The percentages of the apple varieties used are presented in the graph.

The main environmental factors for the field phase concern fuels and water consumption, together with the use of pesticides and fertilizers. Data related to inputs used for the apples cultivation are primary and came directly from the farmers and then validated with the regulation of the interested areas.

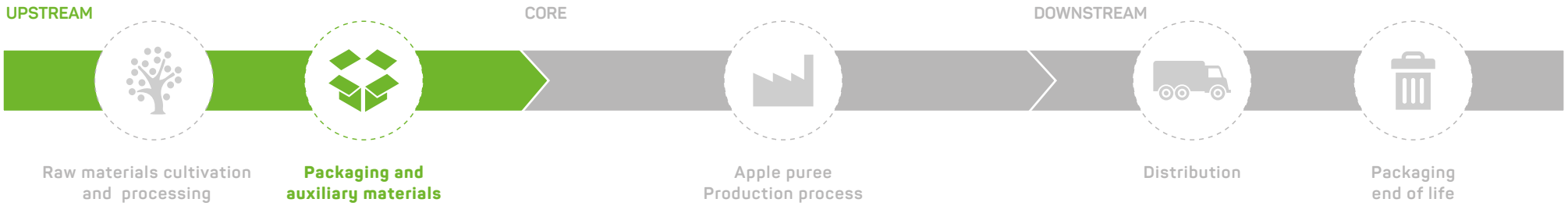
Electricity and **water** are the main impacts of the first storage and preliminary processing phase. Data came from a sample of production plants and are primary.

The land use change was not included in the calculation since almost all the orchards are in the areas subject of the study for over 20 years.

- **79% GOLDEN DELICIOUS**
- **9% OTHER VARIETIES**
- **8% GALA**
- **3% GRANNY SMITH**

*Environmental performances related to apples **transport** from the field and the cooperatives' plants to VOG Products plant were evaluated considering road transport (truck) using 2022 primary data. Secondary data, mainly from Ecoinvent database, are used for transport means.*

UPSTREAM PACKAGING AND AUXILIARY MATERIALS



PACKAGING

The apple puree is delivered with five different solutions:

43% 200 KG STEEL DRUM
one steel drum containing an aseptic PE bag with 200 kg of product

22% 1200 KG STEEL GOODPACK
one galvanized steel container containing an aseptic PE bag with 1200 kg of product

10% 1000 KG BAG-IN-BOX
one PP box containing an aseptic PE bag with 1000 kg of product

10% 4,2 KG TINPLATE CAN
one can by tinplate with 4,2 kg of products

15% UNPACKED, IN BULK

Primary data from the technical data sheet have been used.
Secondary data (Ecoinvent) are used for environmental aspects associated with the production and processing of the materials.

Environmental performances related to packaging transport have been calculated considering road transport (truck) using 2022 primary data. The auxiliary materials transport from the suppliers to VOG Products plant has been estimated considering road transport (truck) for 200 km.

Secondary data, mainly from Ecoinvent database, are used for transport means.

PACKAGING FOR DISTRIBUTION

For the products shipped in the steel drum and in the tinplate can, the packaging for transport consists in a wooden pallet.
The reuse of the pallet for 20 times has been considered.

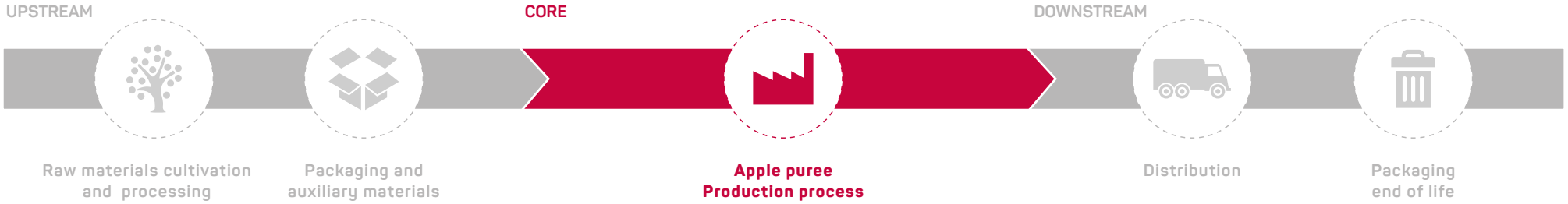
The data used have been collected by LCA database (mainly Ecoinvent).

AUXILIARY MATERIALS

Auxiliary materials (such as detergents and lubrificant oil) environmental performances are evaluated by using primary data from the plant of the consumption during 2022year.

Secondary data (Ecoinvent) are used for environmental aspects associated to materials production.

CORE PRODUCTION PROCESS



GENERAL INFORMATION

The environmental performances related to the production process are evaluated considering primary data for energy and water consumption and the waste production. Secondary data (Ecoinvent) are used for the environmental aspects related to the production of energy and water.

Unless otherwise specified, the overall value is attributed to the product using the mass allocation procedure, because the plant produces other products beyond apple puree.

Data are referred to year 2022 and are country specific (Italy), where available.

ELECTRICITY

Electricity consumption has been divided using mass allocation on the overall prodcuts of the department.

Electric energy production is related to hydropower and to photovoltaic technology.

COGENERATOR

Electric and termical energy products by the cogenerator has been evaluated using primary data about natural gas consumption and energy production.

NATURAL GAS

The consumption of natural gas used of heat purpose is evaluated using primary data.

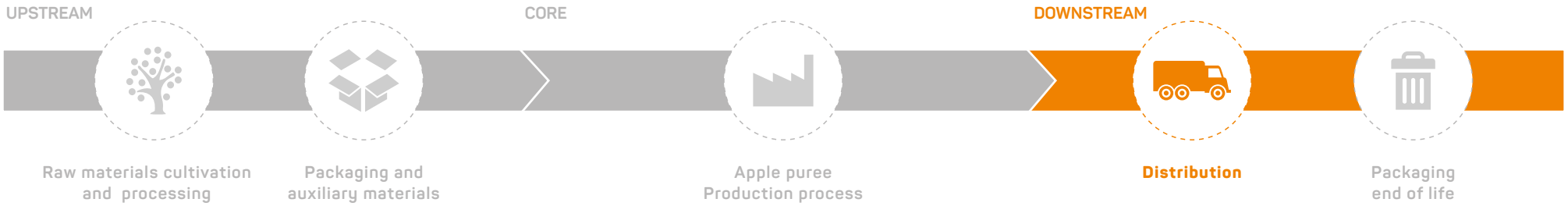
WATER

The well and tap water consumption is evaluated using primary data.

WASTE

The primary data are collected by the plant registrations. The overall value is attributed to the product using the mass allocation procedure.

DOWNSTREAM DISTRIBUTION



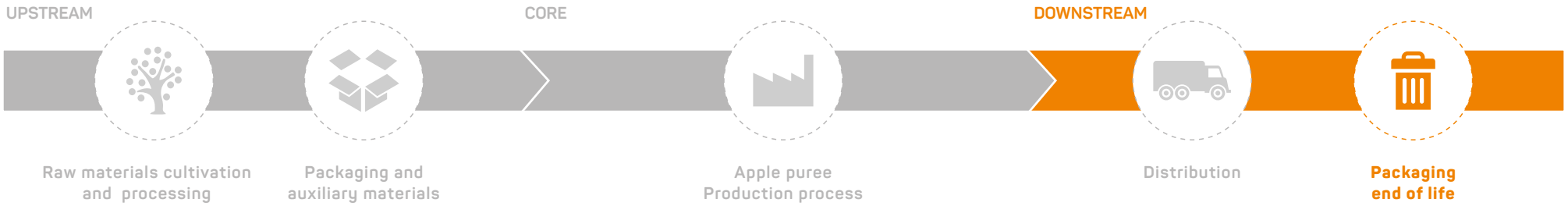
The apple puree is delivered in 24 countries from the VOG Products production plant based in Laives, Italy.

Primary data were used for distances covered by truck, ship and train for each packaging tipology. Secondary data (Ecoinvent database) were used for transport means.

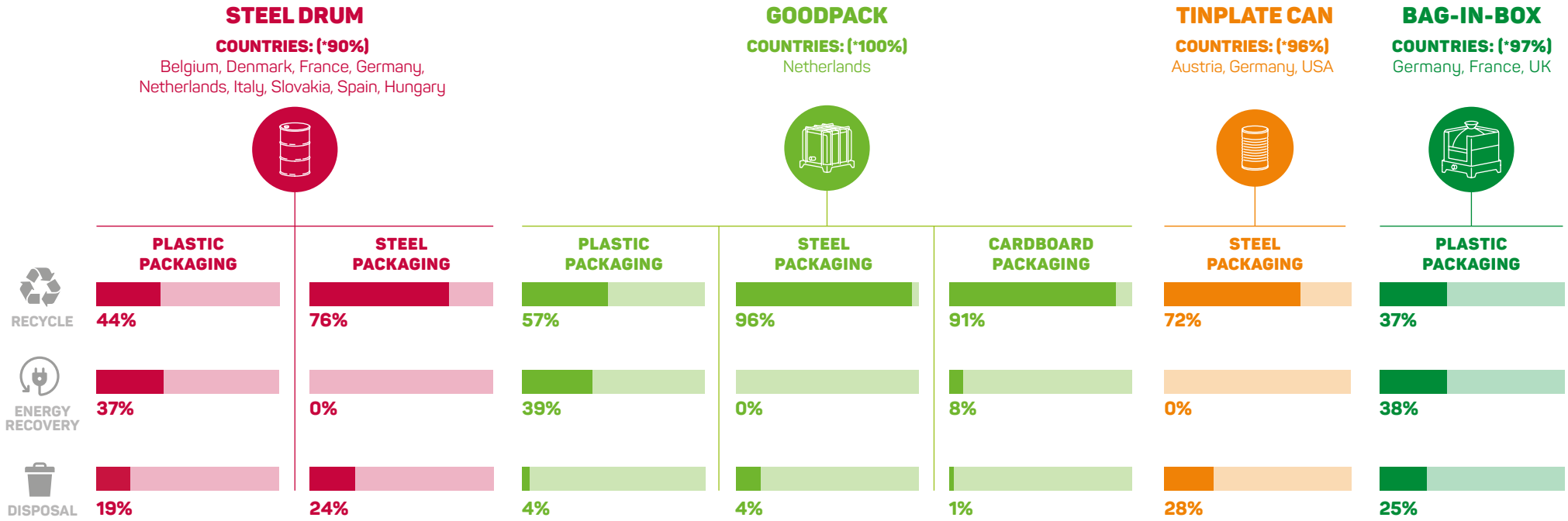
Data refers to 2022.

The Puree does not need any particular condition (such as refrigeration) during distribution.

DOWNSTREAM PACKAGING END OF LIFE



Due to the complexity of the system, the environmental performances of Packaging end of life are elaborated not on the primary packaging (unknown) but on the packaging used for delivery as **an average of the end of life scenarios** of the most representative distribution countries for each type of packaging, covering at least **90%** of the total volume delivered*.



Environmental results

STEEL DRUM

ENVIRONMENTAL IMPACT INDICATORS		UNIT OF MEASURE	UPSTREAM		CORE	DOWNSTREAM		TOTAL
			Raw materials cultivation and processing	Packaging and auxiliary materials	Transport and Production process	Distribution	Packaging end of life	
Global Warming Potential (GWP)	fossil	kg CO_2 eq	9,05E-02	1,61E-01	1,72E-01	1,67E-01	1,88E-03	**5,93E-01**
	biogenic	kg CO_2 eq	1,40E-03	1,85E-04	2,53E-05	9,37E-06	4,61E-08	**1,62E-03**
	land use and land use change	kg CO_2 eq	8,32E-05	9,53E-03	7,54E-06	3,35E-06	6,40E-09	**9,62E-03**
	TOTAL	kg CO_2 eq	9,20E-02	1,71E-01	1,72E-01	1,67E-01	1,88E-03	**6,05E-01**
Acidification potential, AP		kg SO_2 eq	4,32E-04	6,16E-04	1,45E-04	5,96E-04	6,09E-07	**1,79E-03**
Eutrophication potential, EP		kg PO_4^{---} eq	6,62E-05	1,45E-04	2,25E-05	9,44E-05	1,15E-07	**3,28E-04**
Photochemical oxidation potential, POFP		kg NMVOC eq	4,40E-04	4,99E-04	1,83E-04	7,25E-04	8,23E-07	**1,85E-03**
Abiotic impoverishment potential - elements		kg Sb eq	1,49E-07	7,83E-07	1,73E-09	5,83E-09	1,01E-11	**9,39E-07**
Abiotic impoverishment potential - fossil fuels		MJ, net calorific value	1,35E+00	2,42E+00	2,73E+00	2,20E+00	7,65E-04	**8,70E+00**
Water scarcity		m^3 eq	2,23E+00	2,61E-02	7,33E-01	1,92E-03	2,07E-06	**2,99E+00**

The values reported are the result of rounding. That is why the results might be slightly different from the sum of the individual components.
Transports to the plant are included in the production process phase.

Environmental results

STEEL DRUM

USE OF RESOURCE		UNIT OF MEASURE	UPSTREAM		CORE	DOWNSTREAM		TOTAL
			Raw materials cultivation and processing	Packaging and auxiliary materials	Transport and Production process	Distribution	Packaging end of life	
Renewable energy resources	Use as energy carrier	MJ, net calorific value	2,59E-01	5,94E-01	1,25E-01	5,91E-03	5,73E-06	9,84E-01
	Use as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	TOTAL	MJ, net calorific value	2,59E-01	5,94E-01	1,25E-01	5,91E-03	5,73E-06	9,84E-01
Non renewable energy resources	Use as energy carrier	MJ, net calorific value	1,47E+00	2,09E+00	2,76E+00	2,21E+00	7,71E-04	8,54E+00
	Use as raw materials	MJ, net calorific value	0,00E+00	4,89E-01	0,00E+00	0,00E+00	0,00E+00	4,89E-01
	TOTAL	MJ, net calorific value	1,47E+00	2,58E+00	2,76E+00	2,21E+00	7,71E-04	9,03E+00
Secondary material		kg	0,00E+00	0,00E+00	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	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	0,00E+00	0,00E+00
Net use of fresh water		m^3	5,00E-02	1,46E-03	1,64E-02	4,24E-05	1,31E-07	6,79E-02

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Transports to the plant are included in the production process phase.

Environmental results

STEEL DRUM

WASTE*	UNIT OF MEASURE	UPSTREAM		CORE	DOWNSTREAM		TOTAL
		Raw materials cultivation and processing	Packaging and auxiliary materials	Trasnport and Production process	Distribution	Packaging end of life	
Hazardous waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
OUTPUT FLOWS	**UNIT OF MEASURE**						**TOTAL**
Component for reuse	kg	0,00E+00	2,69E-03	0,00E+00	0,00E+00	0,00E+00	2,69E-03
Material for recycling	kg	3,26E-03	8,31E-05	6,06E-03	0,00E+00	5,24E-02	6,18E-02
Material for energy recovery	kg	0,00E+00	0,00E+00	4,41E-02	0,00E+00	1,15E-03	4,52E-02
Exported energy, electricity	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,40E-05	4,40E-05
Exported energy, thermal	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,20E-05	9,20E-05
LAND USE	**UNIT OF MEASURE**						**TOTAL**
Land use	m2a	9,47E-01	2,79E-02	3,51E-04	1,18E-04	1,33E-05	9,75E-01

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Transports to the plant are included in the production process phase.
* Radioactive waste is negligible and therefore is set to zero.
**The scrap to animal feed has been evaluated with an economic allocation and, due to its negligible value, has been here reported as output flow.

Environmental results

GOODPACK

ENVIRONMENTAL IMPACT INDICATORS		UNIT OF MEASURE	UPSTREAM		CORE	DOWNSTREAM		TOTAL
			Raw materials cultivation and processing	Packaging and auxiliary materials	Transport and Production process	Distribution	Packaging end of life	
Global Warming Potential (GWP)	fossil	kg CO_2 eq	9,05E-02	4,28E-02	1,71E-01	1,69E-01	1,77E-03	**4,75E-01**
	biogenic	kg CO_2 eq	1,40E-03	1,73E-04	2,52E-05	9,48E-06	3,41E-05	**1,65E-03**
	land use and land use change	kg CO_2 eq	8,32E-05	9,46E-03	7,52E-06	3,37E-06	3,38E-09	**9,56E-03**
	TOTAL	kg CO_2 eq	9,20E-02	5,24E-02	1,71E-01	1,69E-01	1,80E-03	**4,86E-01**
Acidification potential, AP		kg SO_2 eq	4,32E-04	2,12E-04	1,40E-04	5,69E-04	2,20E-07	**1,35E-03**
Eutrophication potential, EP		kg PO_4^{---} eq	6,62E-05	8,48E-05	2,17E-05	9,24E-05	6,16E-08	**2,65E-04**
Photochemical oxidation potential, POFP		kg NMVOC eq	4,40E-04	1,55E-04	1,77E-04	7,09E-04	3,09E-07	**1,48E-03**
Abiotic impoverishment potential - elements		kg Sb eq	1,49E-07	1,68E-06	1,69E-09	5,93E-09	8,25E-12	**1,84E-06**
Abiotic impoverishment potential - fossil fuels		MJ, net calorific value	1,35E+00	7,41E-01	2,72E+00	2,22E+00	1,78E-04	**7,03E+00**
Water scarcity		m^3 eq	2,23E+00	2,70E-02	7,33E-01	1,94E-03	1,21E-06	**2,99E+00**

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Transports to the plant are included in the production process phase.

Environmental results

GOODPACK

USE OF RESOURCE		UNIT OF MEASURE	UPSTREAM		CORE	DOWNSTREAM		TOTAL
			Raw materials cultivation and processing	Packaging and auxiliary materials	Transport and Production process	Distribution	Packaging end of life	
Renewable energy resources	Use as energy carrier	MJ, net calorific value	2,59E-01	4,21E-01	1,25E-01	5,99E-03	2,69E-06	8,11E-01
	Use as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	TOTAL	MJ, net calorific value	2,59E-01	4,21E-01	1,25E-01	5,99E-03	2,69E-06	8,11E-01
Non renewable energy resources	Use as energy carrier	MJ, net calorific value	1,47E+00	3,18E-01	2,75E+00	2,24E+00	1,81E-04	6,77E+00
	Use as raw materials	MJ, net calorific value	0,00E+00	4,89E-01	0,00E+00	0,00E+00	0,00E+00	4,89E-01
	TOTAL	MJ, net calorific value	1,47E+00	8,07E-01	2,75E+00	2,24E+00	1,81E-04	7,26E+00
Secondary material		kg	0,00E+00	7,24E-04	0,00E+00	0,00E+00	0,00E+00	7,24E-04
Renewable secondary fuels		MJ, net calorific value	0,00E+00	4,26E-04	0,00E+00	0,00E+00	0,00E+00	4,26E-04
Non-renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water		m^3	5,00E-02	1,11E-03	1,64E-02	4,31E-05	1,16E-07	6,76E-02

The values reported are the result of rounding. That is why the results might be slightly different from the sum of the individual components.
Transports to the plant are included in the production process phase.

Environmental results

GOODPACK

WASTE*	UNIT OF MEASURE	UPSTREAM		CORE	DOWNSTREAM		TOTAL
		Raw materials cultivation and processing	Packaging and auxiliary materials	Trasnport and Production process	Distribution	Packaging end of life	
Hazardous waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
OUTPUT FLOWS	**UNIT OF MEASURE**						**TOTAL**
Component for reuse	kg	0,00E+00	1,07E-02	0,00E+00	0,00E+00	0,00E+00	1,07E-02
Material for recycling	kg	3,26E-03	5,28E-04	6,06E-03	0,00E+00	1,25E-02	2,23E-02
Material for energy recovery	kg	0,00E+00	0,00E+00	4,41E-02	0,00E+00	1,20E-03	4,53E-02
Exported energy, electricity	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,01E-05	1,01E-05
Exported energy, thermal	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,11E-05	2,11E-05
LAND USE	**UNIT OF MEASURE**						**TOTAL**
Land use	m2a	8,64E-01	3,22E-02	8,35E-04	8,73E-05	1,18E-06	8,98E-01

The values reported are the result of rounding. That is why the results might be slightly different from the sum of the individual components.
Transports to the plant are included in the production process phase.
* Radioactive waste is negligible and therefore is set to zero.
**The scrap to animal feed has been evaluated with an economic allocation and, due to its negligible value, has been here reported as output flow.

Environmental results

TINPLATE CAN

ENVIRONMENTAL IMPACT INDICATORS		UNIT OF MEASURE	UPSTREAM		CORE	DOWNSTREAM		TOTAL
			Raw materials cultivation and processing	Packaging and auxiliary materials	Transport and Production process	Distribution	Packaging end of life	
Global Warming Potential (GWP)	fossil	kg CO_2 eq	9,05E-02	3,50E-01	1,72E-01	2,81E-01	6,32E-05	**8,94E-01**
	biogenic	kg CO_2 eq	1,40E-03	4,15E-03	2,53E-05	1,54E-05	6,27E-09	**5,60E-03**
	land use and land use change	kg CO_2 eq	8,32E-05	9,60E-03	7,54E-06	6,14E-06	3,29E-09	**9,70E-03**
	TOTAL	kg CO_2 eq	9,20E-02	3,64E-01	1,72E-01	2,81E-01	6,32E-05	**9,10E-01**
Acidification potential, AP		kg SO_2 eq	4,32E-04	8,87E-04	1,46E-04	1,81E-03	5,43E-07	**3,28E-03**
Eutrophication potential, EP		kg PO_4^{---} eq	6,62E-05	1,76E-04	2,26E-05	2,33E-04	9,14E-08	**4,98E-04**
Photochemical oxidation potential, POFP		kg NMVOC eq	4,40E-04	6,95E-04	1,84E-04	1,81E-03	7,15E-07	**3,13E-03**
Abiotic impoverishment potential - elements		kg Sb eq	1,49E-07	3,31E-07	1,73E-09	8,96E-09	2,53E-12	**4,90E-07**
Abiotic impoverishment potential - fossil fuels		MJ, net calorific value	1,35E+00	4,21E+00	2,74E+00	3,66E+00	8,15E-04	**1,20E+01**
Water scarcity		m^3 eq	2,23E+00	4,68E-01	7,33E-01	3,20E-03	1,12E-06	**3,44E+00**

The values reported are the result of rounding. That is why the results might be slightly different from the sum of the individual components.
Transports to the plant are included in the production process phase.

Environmental results

TINPLATE CAN

USE OF RESOURCE		UNIT OF MEASURE	UPSTREAM		CORE	DOWNSTREAM		TOTAL
			Raw materials cultivation and processing	Packaging and auxiliary materials	Transport and Production process	Distribution	Packaging end of life	
Renewable energy resources	Use as energy carrier	MJ, net calorific value	2,59E-01	6,50E-01	1,25E-01	9,41E-03	3,64E-06	1,04E+00
	Use as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	TOTAL	MJ, net calorific value	2,59E-01	6,50E-01	1,25E-01	9,41E-03	3,64E-06	1,04E+00
Non renewable energy resources	Use as energy carrier	MJ, net calorific value	1,47E+00	4,24E+00	2,76E+00	3,68E+00	8,18E-04	1,22E+01
	Use as raw materials	MJ, net calorific value	0,00E+00	4,89E-01	0,00E+00	0,00E+00	0,00E+00	4,89E-01
	TOTAL	MJ, net calorific value	1,47E+00	4,72E+00	2,76E+00	3,68E+00	8,18E-04	1,26E+01
Secondary material		kg	0,00E+00	0,00E+00	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	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	0,00E+00	0,00E+00
Net use of fresh water		m^3	5,00E-02	2,74E-02	1,64E-02	6,58E-05	1,73E-08	9,39E-02

The values reported are the result of rounding. That is why the results might be slightly different from the sum of the individual components.
Transports to the plant are included in the production process phase.

Environmental results

TINPLATE CAN

WASTE*	UNIT OF MEASURE	UPSTREAM		CORE	DOWNSTREAM		TOTAL
		Raw materials cultivation and processing	Packaging and auxiliary materials	Trasnport and Production process	Distribution	Packaging end of life	
Hazardous waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
OUTPUT FLOWS	**UNIT OF MEASURE**						**TOTAL**
Component for reuse	kg	0,00E+00	6,51E-01	0,00E+00	0,00E+00	0,00E+00	6,51E-01
Material for recycling	kg	3,26E-03	0,00E+00	6,06E-03	0,00E+00	6,15E-02	7,08E-02
Material for energy recovery	kg	0,00E+00	0,00E+00	4,41E-02	0,00E+00	0,00E+00	4,41E-02
Exported energy, electricity	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
LAND USE	**UNIT OF MEASURE**						**TOTAL**
Land use	m2a	9,47E-01	2,21E-02	3,51E-04	1,91E-04	1,70E-05	9,69E-01

The values reported are the result of rounding. That is why the results might be slightly different from the sum of the individual components.
Transports to the plant are included in the production process phase.
* Radioactive waste is negligible and therefore is set to zero.
**The scrap to animal feed has been evaluated with an economic allocation and, due to its negligible value, has been here reported as output flow.

Environmental results

BAG-IN-BOX

ENVIRONMENTAL IMPACT INDICATORS		UNIT OF MEASURE	UPSTREAM		CORE	DOWNSTREAM		TOTAL
			Raw materials cultivation and processing	Packaging and auxiliary materials	Transport and Production process	Distribution	Packaging end of life	
Global Warming Potential (GWP)	fossil	kg CO_2 eq	9,05E-02	4,37E-02	1,71E-01	1,80E-01	8,49E-03	**4,94E-01**
	biogenic	kg CO_2 eq	1,40E-03	9,09E-05	2,52E-05	1,10E-05	2,37E-07	**1,53E-03**
	land use and land use change	kg CO_2 eq	8,32E-05	9,45E-03	7,51E-06	4,06E-06	2,09E-08	**9,54E-03**
	TOTAL	kg CO_2 eq	9,20E-02	5,32E-02	1,71E-01	1,81E-01	8,49E-03	**5,05E-01**
Acidification potential, AP		kg SO_2 eq	4,32E-04	1,67E-04	1,39E-04	6,10E-04	1,08E-06	**1,35E-03**
Eutrophication potential, EP		kg PO_4^{---} eq	6,62E-05	8,51E-05	2,15E-05	9,91E-05	2,42E-07	**2,72E-04**
Photochemical oxidation potential, POFP		kg NMVOC eq	4,40E-04	1,45E-04	1,75E-04	7,60E-04	1,53E-06	**1,52E-03**
Abiotic impoverishment potential - elements		kg Sb eq	1,49E-07	3,02E-08	1,68E-09	6,33E-09	3,87E-11	**1,87E-07**
Abiotic impoverishment potential - fossil fuels		MJ, net calorific value	1,35E+00	1,38E+00	2,71E+00	2,37E+00	9,48E-04	**7,81E+00**
Water scarcity		m^3 eq	2,23E+00	2,49E-02	7,33E-01	2,11E-03	0,00E+00	**2,99E+00**

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Transports to the plant are included in the production process phase.

Environmental results

BAG-IN-BOX

USE OF RESOURCE		UNIT OF MEASURE	UPSTREAM		CORE	DOWNSTREAM		TOTAL
			Raw materials cultivation and processing	Packaging and auxiliary materials	Transport and Production process	Distribution	Packaging end of life	
Renewable energy resources	Use as energy carrier	MJ, net calorific value	2,59E-01	4,35E-01	1,25E-01	7,40E-03	1,62E-05	8,26E-01
	Use as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	TOTAL	MJ, net calorific value	2,59E-01	4,35E-01	1,25E-01	7,40E-03	1,62E-05	8,26E-01
Non renewable energy resources	Use as energy carrier	MJ, net calorific value	1,47E+00	1,02E+00	2,74E+00	2,39E+00	9,66E-04	7,62E+00
	Use as raw materials	MJ, net calorific value	0,00E+00	4,89E-01	0,00E+00	0,00E+00	0,00E+00	4,89E-01
	TOTAL	MJ, net calorific value	1,47E+00	1,51E+00	2,74E+00	2,39E+00	9,66E-04	8,11E+00
Secondary material		kg	0,00E+00	0,00E+00	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	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	0,00E+00	0,00E+00
Net use of fresh water		m^3	5,00E-02	1,07E-03	1,64E-02	4,99E-05	3,56E-07	6,75E-02

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Transports to the plant are included in the production process phase.

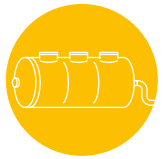
Environmental results

BAG-IN-BOX

WASTE*	UNIT OF MEASURE	UPSTREAM		CORE	DOWNSTREAM		TOTAL
		Raw materials cultivation and processing	Packaging and auxiliary materials	Trasnport and Production process	Distribution	Packaging end of life	
Hazardous waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
OUTPUT FLOWS	**UNIT OF MEASURE**						**TOTAL**
Component for reuse	kg	0,00E+00	1,29E-02	0,00E+00	0,00E+00	0,00E+00	1,29E-02
Material for recycling	kg	3,26E-03	1,47E-04	6,06E-03	0,00E+00	5,53E-03	1,50E-02
Material for energy recovery	kg	0,00E+00	0,00E+00	4,41E-02	0,00E+00	5,74E-03	4,98E-02
Exported energy, electricity	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,68E-04	8,68E-04
Exported energy, thermal	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,81E-03	1,81E-03
LAND USE	**UNIT OF MEASURE**						**TOTAL**
Land use	m2a	8,64E-01	3,36E-02	8,36E-04	1,10E-04	5,13E-06	8,99E-01

The values reported are the result of rounding. That is why the results might be slightly different from the sum of the individual components.
Transports to the plant are included in the production process phase.
* Radioactive waste is negligible and therefore is set to zero.
**The scrap to animal feed has been evaluated with an economic allocation and, due to its negligible value, has been here reported as output flow.

Environmental results

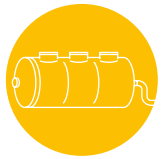


BULK

ENVIRONMENTAL IMPACT INDICATORS		UNIT OF MEASURE	UPSTREAM		CORE	DOWNSTREAM		TOTAL
			Raw materials cultivation and processing	Packaging and auxiliary materials	Transport and Production process	Distribution	Packaging end of life	
Global Warming Potential (GWP)	fossil	kg CO_2 eq	9,05E-02	6,42E-03	1,69E-01	1,13E-01	0,00E+00	**3,79E-01**
	biogenic	kg CO_2 eq	1,40E-03	4,62E-05	2,51E-05	6,35E-06	0,00E+00	**1,48E-03**
	land use and land use change	kg CO_2 eq	8,32E-05	9,43E-03	7,48E-06	2,26E-06	0,00E+00	**9,52E-03**
	TOTAL	kg CO_2 eq	9,20E-02	1,59E-02	1,69E-01	1,13E-01	0,00E+00	**3,90E-01**
Acidification potential, AP		kg SO_2 eq	4,32E-04	6,13E-05	1,34E-04	3,81E-04	0,00E+00	**1,01E-03**
Eutrophication potential, EP		kg PO_4^{---} eq	6,62E-05	6,16E-05	2,06E-05	6,19E-05	0,00E+00	**2,10E-04**
Photochemical oxidation potential, POFP		kg NMVOC eq	4,40E-04	3,44E-05	1,68E-04	4,75E-04	0,00E+00	**1,12E-03**
Abiotic impoverishment potential - elements		kg Sb eq	1,49E-07	2,78E-08	1,63E-09	3,97E-09	0,00E+00	**1,82E-07**
Abiotic impoverishment potential - fossil fuels		MJ, net calorific value	1,35E+00	7,82E-02	2,69E+00	1,49E+00	0,00E+00	**5,61E+00**
Water scarcity		m^3 eq	2,23E+00	1,99E-02	7,33E-01	1,30E-03	0,00E+00	**2,99E+00**

The values reported are the result of rounding. That is why the results might be slightly different from the sum of the individual components.
Transports to the plant are included in the production process phase.

Environmental results



BULK

USE OF RESOURCE		UNIT OF MEASURE	UPSTREAM		CORE	DOWNSTREAM		TOTAL
			Raw materials cultivation and processing	Packaging and auxiliary materials	Transport and Production process	Distribution	Packaging end of life	
Renewable energy resources	Use as energy carrier	MJ, net calorific value	2,59E-01	3,81E-01	1,25E-01	4,01E-03	0,00E+00	7,69E-01
	Use as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	TOTAL	MJ, net calorific value	2,59E-01	3,81E-01	1,25E-01	4,01E-03	0,00E+00	7,69E-01
Non renewable energy resources	Use as energy carrier	MJ, net calorific value	1,47E+00	9,75E-02	2,72E+00	1,50E+00	0,00E+00	5,79E+00
	Use as raw materials	MJ, net calorific value	0,00E+00	1,13E-03	0,00E+00	0,00E+00	0,00E+00	1,13E-03
	TOTAL	MJ, net calorific value	1,47E+00	9,86E-02	2,72E+00	1,50E+00	0,00E+00	5,79E+00
Secondary material		kg	0,00E+00	0,00E+00	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	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	0,00E+00	0,00E+00
Net use of fresh water		m^3	5,00E-02	8,65E-04	1,64E-02	2,89E-05	0,00E+00	6,73E-02

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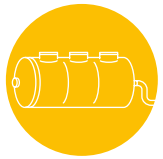
Environmental results



BULK

WASTE*	UNIT OF MEASURE	UPSTREAM		CORE	DOWNSTREAM		TOTAL
		Raw materials cultivation and processing	Packaging and auxiliary materials	Trasnport and Production process	Distribution	Packaging end of life	
Hazardous waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
OUTPUT FLOWS	**UNIT OF MEASURE**						**TOTAL**
Component for reuse	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	3,26E-03	0,00E+00	6,06E-03	0,00E+00	0,00E+00	9,32E-03
Material for energy recovery	kg	0,00E+00	0,00E+00	4,41E-02	0,00E+00	0,00E+00	4,41E-02
Exported energy, electricity	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
LAND USE	**UNIT OF MEASURE**						**TOTAL**
Land use	m2a	8,64E-01	3,08E-02	8,34E-04	9,08E-05	0,00E+00	8,96E-01

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EPD®
ENVIRONMENTAL PRODUCT DECLARATION

REFERENCE

VOG Products, as EPD owner, has the sole owership, liability and responsabbility of this EPD.

PROGRAM OPERATOR: EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden info@environdec.com

THIRD PARTY EPD VERIFICATION

Product category rules (PCR):
Prepared and preserved vegetable and fruit products, including juice
2019:10 Version 1.01
UN CPC group: 214 Prepared and preserved fruits and nuts

PCR review was conducted by:
The Technical Committee of the International EPD® System.
Chair: Filippo Sessa.
Contact via info@environdec.com

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

- ☐ EPD process verification
- ☑ EPD verification - Third party verifier

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

- ☑ Yes
- ☐ No

Third party verifier: Maurizio Fieschi – fieschi@studiofieschi.it www.studiofieschi.it

Approved by: "The International EPD® System Technical Committee, supported by Secretariat

EPDs within the same product category but from different programmes may not be comparable

CONTACTS

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Technical support and grafic design: Life Cycle Engineering srl – Italy www.lcengineering.eu

Glossary and references

ACIDIFICATION

It is a phenomenon for which precipitation is unusually acidic, meaning that it has substandard levels of pH. It can have harmful effects on plants, aquatic animals and infrastructure. Acid rain is caused by emissions of SO_2, di NOx e di NH_3. The acidification potential is measured in mass of sulfur dioxide equivalent (SO_2-eq).

EUTROPHICATION

It is an excessive proliferation of vegetation in the aquatic ecosystems caused by the addition of nutrients into rivers, lakes or ocean, which determinates a lack of oxygen. The utrophication potential is mainly influenced by emission into water of phosphates and nitrates. It is expressed in mass of PO_4^{3-} equivalent.

CARBON FOOTPRINT

A product carbon footprint is the total amount of greenhouse gases produced along the entire life cycle. It is expressed in equivalent mass of carbon dioxide (CO_2-eq).

LAND USE CHANGE

The land use change is the change of the destination of use of a soil that modifies its ability to absorb atmospheric CO_2.

PHOTOCHEMICAL OXIDANTS CREATION

Chemical reaction brought about by the light energy of the sun. The reaction of nitrogen oxides with hydrocarbons in the presence of sunlight forms the ozone in the troposphere. The indicator is mainly influenced by VOCs (Volatile organic compounds) is usually expressed in mass of non-metallic organic compounds (NMVOC).

REFERENCES

International EPD® System; General Programme Instructions (EPD); Ver 3.0.1 del 2019/09/18

PCR for Fruits and nuts. Version 1.01 of 2019-7-10

Life Cycle Assessment (LCA) applicata al succo di mela e alla purea di mela prodotti da VOG Products - rev. 2023/05/04

DIFFERENCES BETWEEN THE PREVIOUS VERSION

All the primary data have been updated to the their latest version.

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