Environmental Product Declaration

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:

Acoustic Bands
Fonodan Danosa: FONODAN 50, FONODAN 70, FONODAN 130, FONODAN 900, FONODAN 900 HS and FONODAN BJ

Danosa, Derivados Asfálticos Normalizados, S.A.

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

General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
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CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): Construction Products, PCR 2019:14, 2020-09-14 (version 1.1).
PCR review was conducted by: The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact
Independent third-party verification of the declaration and data, according to ISO 14025:2010: ☐ EPD process certification ☒ EPD verification
Third party verifier:TECNALIA R&I Certificación S.L. Auditor: Cristina Gazulla Santos Accredited by: ENAC. Accreditation no.125/C-PR283
Procedure for follow-up of data during EPD validity involves third party verifier: ☒ Yes ☐ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

The verifier and the program operator have no responsibility for the legality of the product, with the technical support provided by ISOLANA Ahorro Energético.

Company information

Owner of the EPD: DANOSA

Contact: DANOSA ESPAÑA - +34 949 888 210 - info@danosa.com

Description of the organisation: **DANOSA, Derivados Asfálticos Normalizados, S.A.** has an experience of more than four decades of work, during which it has developed a constant activity of improvement and diversification of its activity.

His first activity was the manufacture of waterproofing materials. Today he meets the needs of construction and civil engineering in waterproofing, acoustic insulation, drainage and geotextiles and skylights, being the leader in the Spanish market and sixth in Europe.

In the field of acoustics he has extensive experience in research and has carried out more than 5,000 acoustic insulation projects in homes, public buildings, classrooms and audiovisual studios.
Its technology allows exports to five continents, with factories in Spain, Portugal and India and subsidiaries in France, Portugal, Morocco, Colombia, Mexico and the United Kingdom.

Its products have prestigious certificates that guarantee compliance with the most demanding quality standards, such as the CE marking, «Avis Techniques» from CSTB (France), the «Documentos de Aplicação» from LNEC (Portugal), the «Agréments Techniques Européens »From EOTA (systèmes FM in Europe), British Board Accord certificates and DIT and DITE by I.E.T.C.C.

In turn, the company has been ISO 9001 Quality Management Systems certified since 2012 (registration number: ES044036-1) and ISO 14001 Environmental Management Systems certification (registration number ES069274-1).

This document will be used for B2B communication, and may be considered a global scope.

DANOSA's commitment to sustainability
DANOSA is committed to continuously improving the productivity of its facilities through the rational use of natural resources and energy, reducing, whenever possible, the waste generated in all operations and facilitating its recycling.

It is a pioneer company in communicating the environmental performance of the life cycle of its products through the publication of DAPs for a large part of its products. In addition, it participates in the online materials platform of the Green Building Council Spain (http://materiales.gbce.es/) making available to the public all the information necessary to verify compliance in its products with the different criteria established in the main environmental certifications of currently existing buildings (LEED, BREEAM and VERDE), thus contributing to sustainability in the construction sector.

Production center location: Poligono Industrial Sector 9, 19290 Fontanar, Guadalajara (Spain).

Product information

Product Name: The product includes six types of adhesive acoustic insulation strips for the construction industry: Fonodan 50, Fonodan 70, Fonodan 130, Fonodan 900, Fonodan 900 HS and Fonodan BJ.

FONODAN belts are a bilayer product made up of a high-density self-adhesive membrane and a chemically cross-linked polyethylene thermowelded to the previous one.

Fonodan 900 HS is a bilayer product formed by a high density membrane and a chemically cross-linked polyethylene thermo-welded to the previous finish in a geotextile.

Acoustically, the FONODAN 50 works as a damper for the rigid union between laminated plasterboard and profile, also providing a plasticity to the steel profile that minimizes its resonance.

Acoustically the FONODAN 70 works by adding acoustic mass to the body of the tube and removing resonance frequencies.

Acoustically, the FONODAN 130 works by creating a mass, spring, mass system together with the Fonodan BJ.

Acoustically, the FONODAN 900 works by providing acoustic mass to the surface where it is attached, removing the resonance frequencies.

Acoustically the FONODAN BJ works by adding acoustic mass to the tube body and removing resonance frequencies.

Product identification: Danosa Fonodan acoustic bands are products specifically designed for acoustic insulation in construction.

Product description: They consist of bilayer bands formed by a high-density self-adhesive membrane and a chemically cross-linked polyethylene heat-sealed to the previous one. Acoustically, it works by adding acoustic mass to the body of the tube, thus removing resonant frequencies.

Fonodan 50, 70 y 130

Fonodan 900 HS

Fonodan 900 y BJ

These products can be installed in music venues, in tertiary buildings or located in commercial basements of residential buildings. It is used in the acoustic treatment of machine rooms in residential buildings or any other room that has the need to behave well to impulsive low-frequency noise. It is also used in the rehabilitation of walls between different users and, in new construction, to increase the insulation in party walls.

Regarding the emissions of **VOCs (volatile organic compounds)**, tests have been carried out where it is concluded that both Fonodan 50, Fonodan 70, Fonodan 130, Fonodan BJ, Fonodan 900 and Fonodan 900 HS, meet the requirements of Class A + of decree No. 2011-321 of March 23, 2011 of the French Ministry of Ecology, Sustainable Development, Transport and Housing. Therefore, based on the results obtained, the product is classified with the following distinctive corresponding to the A + classification according to the aforementioned legislation:

UN CPC code: 54790 Other Building completion and finishing services.

LCA information

Functional unit:
- 1 ml of 3.9 mm thick Acoustic Band installed for 50 years and with unclassified acoustic absorption.

Reference useful life: The useful life of the product is considered to be the same as that of the building because it is a product that is incorporated into the building's facilities, that is, 50 years.-

Temporal representativeness: The primary data have been obtained from the production center and correspond to the year 2019.

Databases and software used: Ecoinvent v3.6 (allocation, cut-off by classification) and SimaPro 9.1. The calculation methodologies are in accordance with the UNE 15804: A2 standard.

Description of system limits: From cradle to grave or “Cradle to grave and module D”. The EPD covers modules A1-A3, A4-A5, B1-B7, C1 – C4 and D.

The principles of modularity and "polluter payer principles" have been followed. The following processes have been excluded:
• Manufacture of equipment used in production, buildings or any other capital good;
• Transportation of personnel to the plant;
• Transportation of personnel within the plant;
• Research and development activities.
• Long-term emissions.

Have been included 95% of all central system mass and energy inputs and outputs, identified in the life cycle inventory included in this report. Those inputs and outputs, for which no data are available, which together represent less than 5% of the mass, such as auxiliary materials packaging waste, have not been considered.

Assignment has been avoided whenever possible. For general energy and waste data, they have been assigned physically, based on the linear meters of the product. The consumption of the specific process has been measured with specific meters.

All primary data have been obtained from Danosa. Secondary data have been obtained from the Ecoinvent 3.6 database.

The included scenarios are currently in use and are representative of one of the most likely alternatives..

A1. Raw material extraction

Extraction and processing of natural resources and manufacture of raw materials: modified bitumen, polyethylene foam, filler, fiberglass armor and polyethylene film.
The main raw material for acoustic insulation bands is modified bitumen and its recycling percentage comes from asphalt recycling.

For polyethylene foam, the energy consumption of its production has been considered within the production process.

The production of the energy consumed in the manufacturing stage (A3) is included in this stage.

A2. Transport
Transport of all raw materials considered in module A1, from the place of extraction, production and treatment to the factory gate.

A3. Manufacturing
This module considers all the manufacturing processes of the acoustic bands, including the consumption of materials for the packaging, as well as the treatment of the waste generated and its losses.

The bands are distributed packed in plastic bags.
The primary data used has been obtained from the production plant itself and is representative of the production of Danosa acoustic sheets.

A4. Distribution
The included scenarios are currently in use and are representative of one of the most likely alternatives. An additional statement of representative mixtures for the corresponding region is allowed.

Transport of the product, from the production plant to the installation site.

PARAMETER	VALUE (expressed in functional unit)	
Type of fuel and consumption of the vehicle or type of means of transport used	National distribution: Truck with trailer with an average load of 7.5-16 Tn	International distribution: Truck of 16-32 tn Euro 4 and a diesel consumption of 0.38 liters per km and Transoceanic Ship
Distance	National distribution: 250 km / ml (road)	International distribution: 3373.33 km / ml (ship) 450 km / ml (road)
Usable capacity (include return from unloaded transport)	% assumed in Ecoinvent	
Apparent density of the transported product	850 kg/m³	
Volume usability factor	1 (default)	

A5. Installation:
This module includes the consumption of auxiliary materials (in addition to the product), as well as the management of possible waste generated during this information module.

PARAMETER	VALUE (expressed in functional unit)		
Secondary materials for the installation of Fonodan 900 HS (specified by type)	Glue: 1,5 kg/ml		
Consumption of other resources	None		
Quantitative description of the type of energy (regional mix) and its consumption during the installation process	It is considered despicable		
Waste of materials at the work site, before processing waste, generated during the installation of the product (Packaging and installation losses)	Fonodan 50: 0,001 kg/ml	Fonodan 70: 0,0017 kg/ml	Fonodan 130: 0,003 kg/ml
	Fonodan 900: 0,024 kg/ml	Fonodan BJ: 0,011 kg/ml	Fonodan 900hs: 0,024 kg/ml
Direct emissions to air, soil or water	It is considered despicable		

B. Stage of use

Being a passive product within a construction, the use stage (including modules B1 to B7) is considered negligible.

Demolition (C1)

A joint demolition of the building is considered, so the contribution of the concrete demolition of the evaluated sheets is considered not relevant.

Transport (C2)

Once the product (sheet and auxiliary installation material) has been removed, it is transported 50km in 7.5-16 tn trucks from the construction site to the landfill.

Treatment of waste for reuse, recovery or recycling (C3)

System waste is considered not to be processed prior to disposal.

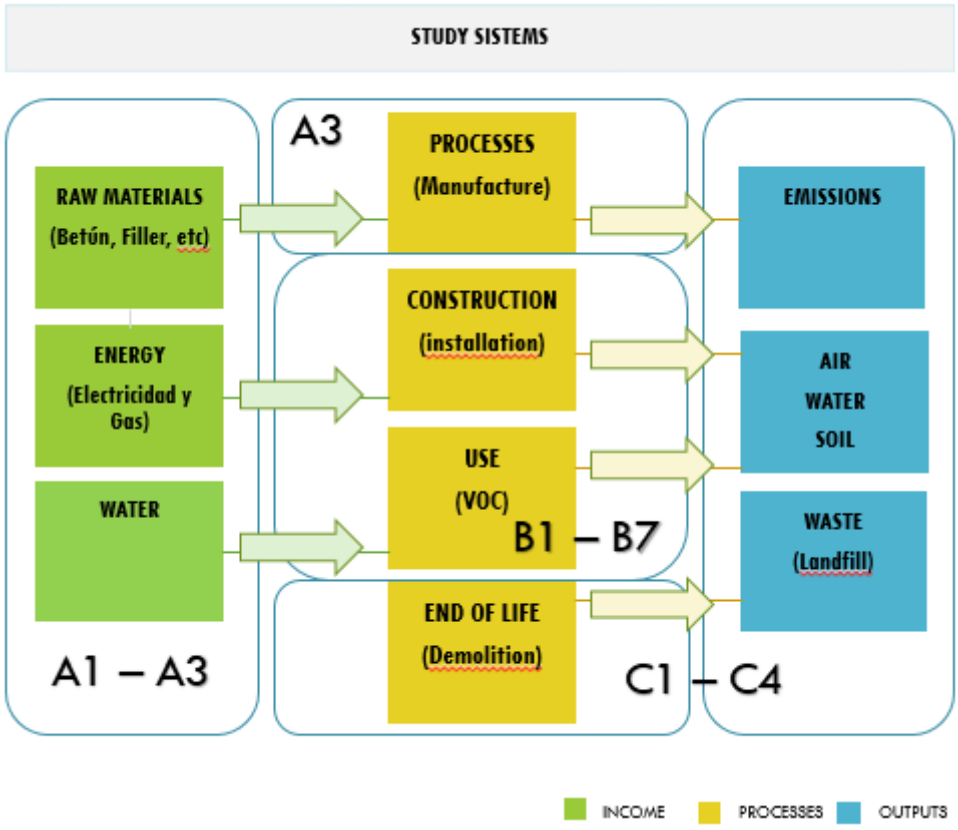
Final elimination (C4)

All the waste in the system (product and auxiliary material) are deposited in a landfill.

PARAMETER	VALUE (expressed in functional unit)
Waste collection process specified by type	100% to landfill, collected and mixed with the rest of the construction waste
Recovery system specified by type	0% recycling of bands.
Discharge specified by type	100% landfill
Assumptions for the development of the scenario	The waste from the demolition of the products is transported 50 km by trucks of 7.5-16 tn Euro 4, to the place of final treatment or deposit.

Benefits of recycling (module D)

Despite the fact that module D has been considered, there are no recycling benefits since all the product is disposed of in a landfill as a mixture of construction products. 100% of the weight is sent to landfill.



Additional Information

• The life cycle analysis study has been carried out by DANOSA with the technical support of ISOLANA Ahorro Energético.
• The study covers a minimum of 95% of the materials and energy for each module evaluated, and at least 99% of the total use of materials and energy for each unit process.
• More information about the product: www.danosa.es.
• The quality of the input data has been evaluated according to its technological, temporal and geographical coverage. The representativeness of the selected processes is considered to be good, resulting in a value of 3.9 out of 5.

Declared modules, geographic scope, specific data and data variation

	Product stage					Construction process stage	Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Geography	ES	EU	ES	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU
Specific data	>90% GWP-GHG					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	Variation of the impact products declared< 10% - for each product group					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	-					-	-	-	-	-	-	-	-	-	-	-	-

Content information

Fonodan 50

Product components	Weight, kg / linear meter	Post consumer recycled material (%)	Pre-consumer recycled material (%)
Polyethylene	0,01	-	-
Textile, knit cotton	0,00	-	-
Bitumen seal (kg/ml)	0,07	10-25%	-
Packaging film	0,00	-	-
Filler	0,06	-	-
Glass fibre	0,00	-	-
Total weight per linear meter	0,14	-	-
Packaging materials	**Weight, kg**	**Weight (% with respect to the product)**	
Wooden pallets	0,004	12%	
Corrugated board box	0,006		
Film PE	0,006		

Fonodan 70

Product components	Weight, kg / linear meter	Post consumer recycled material (%)	Pre-consumer recycled material (%)
Polyethylene	0,01	-	-
Textile, knit cotton	0,00	-	-
Bitumen seal (kg/ml)	0,09	10-25%	-
Packaging film	0,00	-	-
Filler	0,09	-	-
Glass fibre	0,00	-	-
Total weight per linear meter	0,19	-	-

Packaging materials	Weight, kg	Weight (% with respect to the product)
Wooden pallets	0,006	10%
Corrugated board box	0,011	
Film PE	0,003	

Fonodan 130

Product components	Weight, kg / linear meter	Post consumer recycled material (%)	Pre-consumer recycled material (%)
Polyethylene	0,02	-	-
Textile, knit cotton	0,00	-	-
Bitumen seal (kg/ml)	0,19	10-25%	-
Packaging film	0,00	-	-
Filler	0,17	-	-
Glass fibre	0,01	-	-
Total weight per linear meter	0,39	-	-
Packaging materials	**Weight, kg**	**Weight (% with respect to the product)**	
Wooden pallets	0,013	7%	
Corrugated board box	0,000		
Film PE	0,013		

Fonodan 900

Product components	Weight, kg / linear meter	Post consumer recycled material (%)	Pre-consumer recycled material (%)
Polyethylene	0,12	-	-
Textile, knit cotton	0,00	-	-
Bitumen seal (kg/ml)	1,29	10-25%	-
Packaging film	0,02	-	-
Filler	1,21	-	-
Glass fibre	0,05	-	-
Total weight per linear meter	2,70	-	-
Packaging materials	**Weight, kg**	**Weight (% with respect to the product)**	
Wooden pallets	0,009	4%	
Corrugated board box	0,001		
Film PE	0,095		

Fonodan 900 HS

Product components	Weight, kg / linear meter	Post consumer recycled material (%)	Pre-consumer recycled material (%)
Polyethylene	0,12	-	-
Textile, knit cotton	0,14	-	-
Bitumen seal (kg/ml)	0,65	10-25%	-
Packaging film	0,00	-	-
Filler	1,21	-	-
Glass fibre	0,05	-	-
Total weight per linear meter	2,17	-	-

Packaging materials	Weight, kg	Weight (% with respect to the product)
Wooden pallets	0,090	9%
Corrugated board box	0,000	
Film PE	0,095	

Fonodan BJ

Product components	Weight, kg / linear meter	Post consumer recycled material (%)	Pre-consumer recycled material (%)
Polyethylene	0,06	-	-
Textile, knit cotton	0,00	-	-
Bitumen seal (kg/ml)	0,59	10-25%	-
Packaging film	0,01	-	-
Filler	0,55	-	-
Glass fibre	0,02	-	-
Total weight per linear meter	1,23	-	-
Packaging materials	**Weight, kg**	**Weight (% with respect to the product))**	
Wooden pallets	0,041	7%	
Corrugated board box	0,000		
Film PE	0,044		

No substance in the product is greater than 0.10% by weight and is present on the "List of potentially dangerous substances (SVHC) that are candidates for authorization by REACH legislation.

Environmental information

The results are relative expressions and do not predict impacts on endpoint categories, exceedance of levels, safety margins, or risks.

Fonodan 50

Environmental impacts

Results per functional unit															
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	1,72E-01	1,68E-02	3,29E-04	0,00E+00	0	0	0	0	0	0	0	1,45E-03	0	1,45E-03	0
GWP-biogenic	kg CO_2 eq.	7,24E-04	7,63E-06	7,75E-07	0,00E+00	0	0	0	0	0	0	0	4,81E-07	0	5,16E-06	0
GWP- luluc	kg CO_2 eq.	1,03E-04	6,86E-06	1,51E-07	0,00E+00	0	0	0	0	0	0	0	5,09E-07	0	5,90E-07	0
GWP-total	kg CO_2 eq.	1,73E-01	1,68E-02	3,30E-04	0,00E+00	0	0	0	0	0	0	0	1,45E-03	0	1,45E-03	0
ODP	kg CFC 11 eq.	3,73E-08	2,86E-09	6,57E-11	0,00E+00	0	0	0	0	0	0	0	2,57E-10	0	3,86E-10	0
AP	mol H^+ eq.	8,74E-04	2,44E-04	1,69E-06	0,00E+00	0	0	0	0	0	0	0	5,82E-06	0	1,26E-05	0
EP-freshwater	kg PO_4^{3-} eq.	8,13E-05	1,95E-05	1,75E-07	0,00E+00	0	0	0	0	0	0	0	7,47E-07	0	1,65E-06	0
EP- marine	kg N eq.	1,42E-04	5,11E-05	3,59E-07	0,00E+00	0	0	0	0	0	0	0	1,62E-06	0	4,08E-06	0
EP-terrestrial	mol N eq.	1,94E-03	5,75E-04	4,36E-06	0,00E+00	0	0	0	0	0	0	0	1,81E-05	0	4,54E-05	0
POCP	kg NMVOC eq.	5,65E-04	1,56E-04	1,28E-06	0,00E+00	0	0	0	0	0	0	0	5,51E-06	0	1,31E-05	0
ADP-minerals&metals *	kg Sb eq.	1,16E-07	2,71E-08	5,59E-10	0,00E+00	0	0	0	0	0	0	0	5,71E-09	0	1,87E-09	0
ADP-fossil*	MJ	4,68E+00	2,41E-01	7,02E-03	0,00E+00	0	0	0	0	0	0	0	2,13E-02	0	3,53E-02	0
WDP	m^3	7,63E-02	1,65E-03	9,25E-05	0,00E+00	0	0	0	0	0	0	0	1,51E-04	0	1,57E-03	0
EP-freshwater	kg PO^- eq.	2,55E-06	2,65E-07	4,89E-09	0,00E+00	0	0	0	0	0	0	0	2,57E-08	0	3,51E-08	0
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

** Disclaimer: The results of this environmental impact Indicador shall be used with care as the uncertainties of these results are high or as there is limited experience with the Indicador.*

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG	kg CO2 eq.	1,68E-01	1,66E-02	3,24E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,43E-03	0,00E+00	1,42E-03	0,00E+00

Use of resources

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	4,44E-01	4,07E-03	4,71E-04	0,00E+00	0	0	0	0	0	0	0	2,54E-04	0	5,63E-04	0
PERM	MJ	7,82E-02	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
PERT	MJ	5,22E-01	4,07E-03	4,71E-04	0,00E+00	0	0	0	0	0	0	0	2,54E-04	0	5,63E-04	0
PENRE	MJ	5,65E+00	2,63E-01	8,18E-03	0,00E+00	0	0	0	0	0	0	0	2,30E-02	0	3,86E-02	0
PENRM	MJ.	2,42E-01	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
PENRT	MJ	5,89E+00	2,63E-01	8,18E-03	0,00E+00	0	0	0	0	0	0	0	2,30E-02	0	3,86E-02	0

SM	kg	9,80E-03	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
FW	m^3	2,09E-03	4,78E-05	2,53E-06	0,00E+00	0	0	0	0	0	0	0	4,04E-06	0	3,75E-05	0
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water															

Waste production and output flows

Waste production

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2,08E-06	1,52E-07	3,57E-09	0,00E+00	0	0	0	0	0	0	0	1,55E-08	0	2,79E-08	0
Non-hazardous waste disposed	kg	1,27E-02	6,31E-03	1,19E-04	0,00E+00	0	0	0	0	0	0	0	8,44E-04	0	1,35E-01	0
Radioactive waste disposed	kg	2,24E-05	1,65E-06	3,84E-08	0,00E+00	0	0	0	0	0	0	0	1,45E-07	0	2,21E-07	0

Output flows

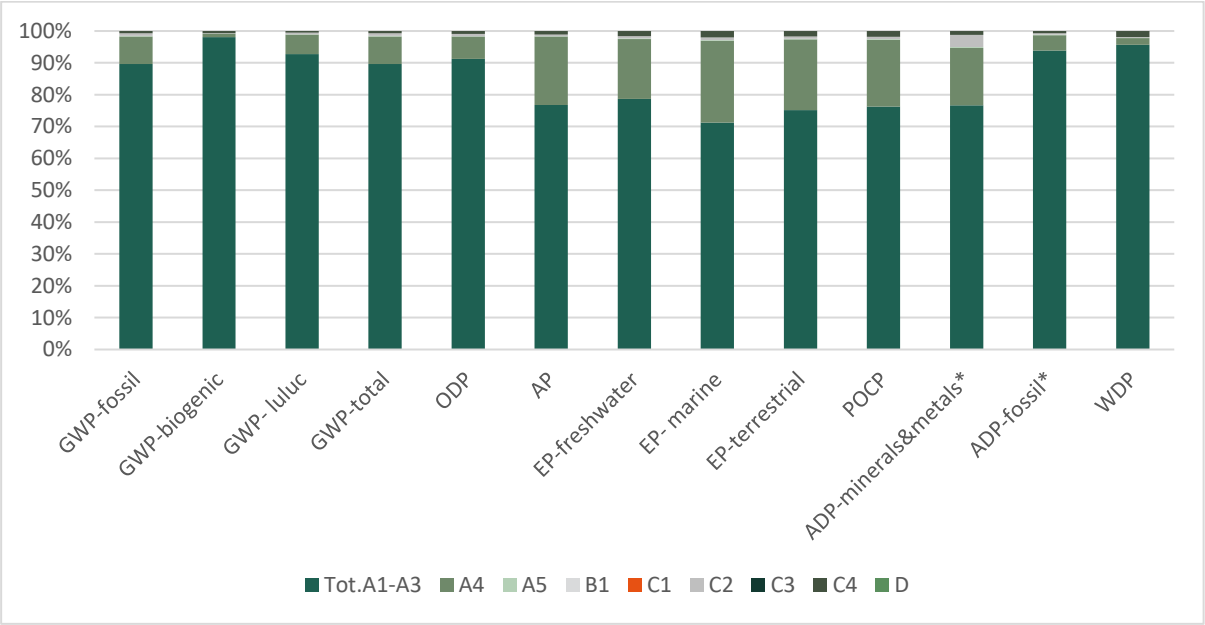
Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	7,18E-03	0,00E+00	1,58E-02	0,00E+00	0	0	0	0	0	0	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Information on biogenic carbon content

Results per functional unit		
BIOGENIC CARBON CONTENT	**Unidad**	**Cantidad**
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging	kg C	8,20E-03

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

Most of the impacts occur during the product stage. In fact, during this stage there are 90% of the impacts associated with global warming, 98% of the impacts associated with the consumption of non-renewable resources, 94% of the impacts associated with energy consumption and 84% of the impacts associated with water consumption.



For the rest of the acoustic bands, the impact results maintain the same trend.

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Environmental impacts

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	2,27E-01	3,58E-02	6,28E-04	0,00E+00	0	0	0	0	0	0	0	2,07E-03	0	2,07E-03	0
GWP-biogenic	kg CO_2 eq.	9,89E-04	1,74E-05	1,77E-06	0,00E+00	0	0	0	0	0	0	0	6,88E-07	0	7,37E-06	0
GWP- luluc	kg CO_2 eq.	1,45E-04	1,56E-05	3,26E-07	0,00E+00	0	0	0	0	0	0	0	7,28E-07	0	8,44E-07	0
GWP-total	kg CO_2 eq.	2,28E-01	3,58E-02	6,30E-04	0,00E+00	0	0	0	0	0	0	0	2,07E-03	0	2,08E-03	0
ODP	kg CFC 11 eq.	5,16E-08	6,01E-09	1,31E-10	0,00E+00	0	0	0	0	0	0	0	3,67E-10	0	5,53E-10	0
AP	mol H^+ eq.	1,14E-03	6,05E-04	3,70E-06	0,00E+00	0	0	0	0	0	0	0	8,32E-06	0	1,80E-05	0
EP-freshwater	kg PO_4^{3-} eq.	1,09E-04	4,67E-05	3,60E-07	0,00E+00	0	0	0	0	0	0	0	1,07E-06	0	2,35E-06	0
EP- marine	kg N eq.	1,91E-04	1,24E-04	7,49E-07	0,00E+00	0	0	0	0	0	0	0	2,31E-06	0	5,83E-06	0
EP-terrestrial	mol N eq.	2,51E-03	1,39E-03	9,02E-06	0,00E+00	0	0	0	0	0	0	0	2,59E-05	0	6,49E-05	0
POCP	kg NMVOC eq.	7,48E-04	3,74E-04	2,63E-06	0,00E+00	0	0	0	0	0	0	0	7,88E-06	0	1,88E-05	0
ADP-minerals&metals*	kg Sb eq.	1,67E-07	4,71E-08	9,02E-10	0,00E+00	0	0	0	0	0	0	0	8,16E-09	0	2,67E-09	0
ADP-fossil*	MJ	6,28E+00	5,08E-01	1,43E-02	0,00E+00	0	0	0	0	0	0	0	3,05E-02	0	5,05E-02	0
WDP	m^3	1,01E-01	3,48E-03	1,97E-04	0,00E+00	0	0	0	0	0	0	0	2,16E-04	0	2,24E-03	0
EP-freshwater	kg PO^- eq.	3,41E-06	5,73E-07	9,45E-09	0,00E+00	0	0	0	0	0	0	0	3,67E-08	0	5,02E-08	0
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

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Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG	kg CO2 eq.	2,22E-01	3,55E-02	6,17E-04	0	0	0	0	0	0	0	0	2,05E-03	0	2,03E-03	0

Use of resources

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	5,91E-01	9,35E-03	1,05E-03	0,00E+00	0	0	0	0	0	0	0	3,63E-04	0	8,05E-04	0
PERM	MJ	1,12E-01	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
PERT	MJ	7,03E-01	9,35E-03	1,05E-03	0,00E+00	0	0	0	0	0	0	0	3,63E-04	0	8,05E-04	0
PENRE	MJ	7,47E+00	5,57E-01	1,66E-02	0,00E+00	0	0	0	0	0	0	0	3,29E-02	0	5,52E-02	0
PENRM	MJ.	1,41E-01	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
PENRT	MJ	7,61E+00	5,57E-01	1,66E-02	0,00E+00	0	0	0	0	0	0	0	3,29E-02	0	5,52E-02	0
SM	kg	1,41E-02	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0

RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
FW	m^3	2,80E-03	1,03E-04	5,43E-06	0,00E+00	0	0	0	0	0	0	0	5,78E-06	0	5,36E-05	0
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water															

Waste production and output flows

Waste production

Results per functional unit																
Indicator	Unit	Tot.A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	2,70E-06	3,19E-07	6,88E-09	0,00E+00	0	0	0	0	0	0	0	2,22E-08	0	3,99E-08	0
Non-hazardous waste disposed	kg	1,95E-02	1,07E-02	1,81E-04	0,00E+00	0	0	0	0	0	0	0	1,21E-03	0	1,93E-01	0
Radioactive waste disposed	kg	3,03E-05	3,48E-06	7,60E-08	0,00E+00	0	0	0	0	0	0	0	2,07E-07	0	3,15E-07	0

Output flows

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	7,18E-03	0,00E+00	2,01E-02	0,00E+00	0	0	0	0	0	0	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Information on biogenic carbon content

Results per functional unit		
BIOGENIC CARBON CONTENT	**Unidad**	**Cantidad**
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging	kg C	1,18E-02

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

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Environmental impacts

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	4,11E-01	5,55E-03	1,48E-03	0,00E+00	0	0	0	0	0	0	0	4,14E-03	0	4,14E-03	0
GWP-biogenic	kg CO_2 eq.	1,18E-03	1,73E-06	3,61E-06	0,00E+00	0	0	0	0	0	0	0	1,38E-06	0	1,47E-05	0
GWP- luluc	kg CO_2 eq.	1,39E-04	1,62E-06	4,89E-07	0,00E+00	0	0	0	0	0	0	0	1,46E-06	0	1,69E-06	0
GWP-total	kg CO_2 eq.	4,13E-01	5,56E-03	1,48E-03	0,00E+00	0	0	0	0	0	0	0	4,14E-03	0	4,15E-03	0
ODP	kg CFC 11 eq.	9,47E-08	1,02E-09	3,29E-10	0,00E+00	0	0	0	0	0	0	0	7,34E-10	0	1,11E-09	0
AP	mol H^+ eq.	2,02E-03	2,27E-05	7,07E-06	0,00E+00	0	0	0	0	0	0	0	1,66E-05	0	3,60E-05	0
EP-freshwater	kg PO_4^{3-} eq.	1,75E-04	2,94E-06	6,56E-07	0,00E+00	0	0	0	0	0	0	0	2,14E-06	0	4,71E-06	0
EP- marine	kg N eq.	3,17E-04	6,57E-06	1,24E-06	0,00E+00	0	0	0	0	0	0	0	4,63E-06	0	1,17E-05	0
EP-terrestrial	mol N eq.	4,19E-03	7,33E-05	1,58E-05	0,00E+00	0	0	0	0	0	0	0	5,18E-05	0	1,30E-04	0
POCP	kg NMVOC eq.	1,38E-03	2,22E-05	5,12E-06	0,00E+00	0	0	0	0	0	0	0	1,58E-05	0	3,75E-05	0
ADP-minerals&metals*	kg Sb eq.	2,60E-07	1,65E-08	1,51E-09	0,00E+00	0	0	0	0	0	0	0	1,63E-08	0	5,34E-09	0
ADP-fossil*	MJ	1,21E+01	8,33E-02	4,00E-02	0,00E+00	0	0	0	0	0	0	0	6,09E-02	0	1,01E-01	0
WDP	m^3	2,01E-01	5,76E-04	6,30E-04	0,00E+00	0	0	0	0	0	0	0	4,31E-04	0	4,48E-03	0

EP-freshwater	kg PO $_4^{3-}$ eq.	4,88E-06	8,23E-08	1,83E-08	0,00E+00	0	0	0	0	0	0	0	7,35E-08	0	1,00E-07	0
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption														

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Results per functional unit															
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG	kg CO2 eq.	4,01E-01	5,50E-03	1,45E-03	0,00E+00	0	0	0	0	0	0	0	4,10E-03	0	4,07E-03	0

Use of resources

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	8,85E-01	8,91E-04	2,69E-03	0,00E+00	0	0	0	0	0	0	0	7,26E-04	0	1,61E-03	0
PERM	MJ	2,25E-01	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
PERT	MJ	1,11E+00	8,91E-04	2,69E-03	0,00E+00	0	0	0	0	0	0	0	7,26E-04	0	1,61E-03	0
PENRE	MJ	1,42E+01	8,99E-02	4,65E-02	0,00E+00	0	0	0	0	0	0	0	6,58E-02	0	1,10E-01	0

PENRM	MJ.	5,50E-01	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
PENRT	MJ	1,47E+01	8,99E-02	4,65E-02	0,00E+00	0	0	0	0	0	0	0	6,58E-02	0	1,10E-01	0
SM	kg	2,81E-02	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
FW	m^3	5,50E-03	1,54E-05	1,72E-05	0,00E+00	0	0	0	0	0	0	0	1,16E-05	0	1,07E-04	0
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water															

Waste production and output flows

Waste production

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**

Hazardous waste disposed	kg	4,37E-06	5,34E-08	1,55E-08	0	0	0	0	0	0	0	0	4,44E-08	0	7,98E-08	0
Non-hazardous waste disposed	kg	3,05E-02	3,99E-03	2,68E-04	0	0	0	0	0	0	0	0	2,41E-03	0	3,87E-01	0
Radioactive waste disposed	kg	5,49E-05	5,72E-07	1,90E-07	0	0	0	0	0	0	0	0	4,13E-07	0	6,31E-07	0

Output flows

Results per functional unit																
Indicator	Unit	Tot.A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	7,18E-03	0	2,55E-02	0	0	0	0	0	0	0	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Information on biogenic carbon content

Results per functional unit		
BIOGENIC CARBON CONTENT	Unidad	QUANTITY
Biogenic carbon content in product	kg C	0

Biogenic carbon content in packaging	kg C	2,36E-02

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

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Environmental impacts

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	2,76E+00	3,12E-01	7,55E-02	0	0	0	0	0	0	0	0	2,89E-02	0	2,89E-02	0
GWP-biogenic	kg CO_2 eq.	7,27E-03	1,06E-04	1,78E-04	0	0	0	0	0	0	0	0	9,61E-06	0	1,03E-04	0
GWP- luluc	kg CO_2 eq.	8,30E-04	9,84E-05	2,28E-05	0	0	0	0	0	0	0	0	1,02E-05	0	1,18E-05	0
GWP-total	kg CO_2 eq.	2,77E+00	3,12E-01	7,57E-02	0	0	0	0	0	0	0	0	2,89E-02	0	2,90E-02	0
ODP	kg CFC 11 eq.	6,33E-07	5,63E-08	1,69E-08	0	0	0	0	0	0	0	0	5,12E-09	0	7,72E-09	0
AP	mol H^+ eq.	1,34E-02	1,93E-03	3,74E-04	0	0	0	0	0	0	0	0	1,16E-04	0	2,52E-04	0
EP-freshwater	kg PO_4^{3-} eq.	1,14E-03	2,05E-04	3,33E-05	0	0	0	0	0	0	0	0	1,49E-05	0	3,29E-05	0

EP- marine	kg N eq.	2,12E-03	4,85E-04	6,47E-05	0	0	0	0	0	0	0	0	3,23E-05	0	8,14E-05	0
EP-terrestrial	mol N eq.	2,68E-02	5,43E-03	7,97E-04	0	0	0	0	0	0	0	0	3,62E-04	0	9,06E-04	0
POCP	kg NMVOC eq.	9,45E-03	1,58E-03	2,71E-04	0	0	0	0	0	0	0	0	1,10E-04	0	2,62E-04	0
ADP-minerals&metals *	kg Sb eq.	1,87E-06	8,43E-07	7,03E-08	0	0	0	0	0	0	0	0	1,14E-07	0	3,73E-08	0
ADP-fossil*	MJ	8,33E+01	4,64E+00	2,14E+00	0	0	0	0	0	0	0	0	4,25E-01	0	7,05E-01	0
WDP	m^3	1,41E+00	3,20E-02	3,47E-02	0	0	0	0	0	0	0	0	3,01E-03	0	3,13E-02	0
EP-freshwater	kg PO_4^{-} eq.	3,23E-05	4,69E-06	9,13E-07	0	0	0	0	0	0	0	0	5,13E-07	0	7,01E-07	0
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

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Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG	kg CO2 eq.	2,69E+00	3,09E-01	7,37E-02	0,00E+00	0	0	0	0	0	0	0	2,86E-02	0	2,84E-02	0

Use of resources

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	5,56E+00	5,52E-02	1,35E-01	0	0	0	0	0	0	0	0	5,07E-03	0	1,12E-02	0

PERM	MJ	1,57E-01	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
PERT	MJ	5,72E+00	5,52E-02	1,35E-01	0	0	0	0	0	0	0	0	5,07E-03	0	1,12E-02	0
PENRE	MJ	9,61E+01	5,02E+00	2,45E+00	0	0	0	0	0	0	0	0	4,59E-01	0	7,70E-01	0
PENRM	MJ.	4,17E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
PENRT	MJ	1,00E+02	5,02E+00	2,45E+00	0	0	0	0	0	0	0	0	4,59E-01	0	7,70E-01	0
SM	kg	1,96E-01	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
FW	m^3	3,84E-02	8,70E-04	9,48E-04	0	0	0	0	0	0	0	0	8,07E-05	0	7,49E-04	0
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water															

Waste production and output flows

Waste production

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2,72E-05	2,97E-06	7,40E-07	0,00E+00	0	0	0	0	0	0	0	3,10E-07	0	5,57E-07	0
Non-hazardous waste disposed	kg	2,19E-01	2,03E-01	1,14E-02	0,00E+00	0	0	0	0	0	0	0	1,69E-02	0	2,70E+00	0
Radioactive waste disposed	kg	3,59E-04	3,19E-05	9,57E-06	0,00E+00	0	0	0	0	0	0	0	2,89E-06	0	4,40E-06	0

Output flows

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	7,18E-03	0,00E+00	1,05E-01	0,00E+00	0	0	0	0	0	0	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Information on biogenic carbon content

Results per functional unit		
BIOGENIC CARBON CONTENT	**Unidad**	**Cantidad**
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging	kg C	1,65E-02

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

Fonodan 900 HS

Environmental impacts

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	5,42E+00	9,00E-02	2,29E+00	0,00E+00	0	0	0	0	0	0	0	2,32E-02	0	2,32E-02	0

GWP-biogenic	kg CO_2 eq.	1,19E-02	2,80E-05	1,39E-02	0,00E+00	0	0	0	0	0	0	0	7,73E-06	0	8,28E-05	0
GWP- luluc	kg CO_2 eq.	6,33E-02	2,63E-05	3,04E-03	0,00E+00	0	0	0	0	0	0	0	8,17E-06	0	9,47E-06	0
GWP-total	kg CO_2 eq.	5,49E+00	9,01E-02	2,31E+00	0,00E+00	0	0	0	0	0	0	0	2,33E-02	0	2,33E-02	0
ODP	kg CFC 11 eq.	7,13E-06	1,65E-08	3,71E-07	0,00E+00	0	0	0	0	0	0	0	4,12E-09	0	6,20E-09	0
AP	mol H^+ eq.	3,04E-02	3,69E-04	1,41E-02	0,00E+00	0	0	0	0	0	0	0	9,34E-05	0	2,02E-04	0
EP-freshwater	kg PO_4^{3-} eq.	4,36E-03	4,76E-05	1,43E-03	0,00E+00	0	0	0	0	0	0	0	1,20E-05	0	2,64E-05	0
EP- marine	kg N eq.	6,46E-03	1,06E-04	2,29E-03	0,00E+00	0	0	0	0	0	0	0	2,60E-05	0	6,55E-05	0
EP-terrestrial	mol N eq.	7,40E-02	1,19E-03	2,56E-02	0,00E+00	0	0	0	0	0	0	0	2,91E-04	0	7,28E-04	0
POCP	kg NMVOC eq.	1,58E-02	3,60E-04	8,25E-03	0,00E+00	0	0	0	0	0	0	0	8,84E-05	0	2,11E-04	0
ADP-minerals&metals *	kg Sb eq.	8,37E-06	2,67E-07	1,10E-05	0,00E+00	0	0	0	0	0	0	0	9,16E-08	0	3,00E-08	0
ADP-fossil*	MJ	8,77E+01	1,35E+00	3,08E+01	0,00E+00	0	0	0	0	0	0	0	3,42E-01	0	5,67E-01	0
WDP	m^3	1,51E+01	9,34E-03	1,60E+00	0,00E+00	0	0	0	0	0	0	0	2,42E-03	0	2,51E-02	0
EP-freshwater	**kg P**	3,17E-04	1,33E-06	1,36E-04	0,00E+00	0	0	0	0	0	0	0	4,12E-07	0	5,64E-07	0
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

** Disclaimer: The results of this environmental impact Indicador shall be used with care as the uncertainties of these results are high or as there is limited experience with the Indicador.*

Results per functional unit															
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG	kg CO2 eq.	5,33E+00	8,92E-02	2,24E+00	0,00E+00	0	0	0	0	0	0	0	2,30E-02	0	2,28E-02	0

Use of resources

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1,61E+01	1,44E-02	2,12E+00	0,00E+00	0	0	0	0	0	0	0	4,08E-03	0	9,04E-03	0
PERM	MJ	1,57E+00	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
PERT	MJ	1,77E+01	1,44E-02	2,12E+00	0,00E+00	0	0	0	0	0	0	0	4,08E-03	0	9,04E-03	0
PENRE	MJ	1,06E+02	1,46E+00	3,53E+01	0,00E+00	0	0	0	0	0	0	0	3,69E-01	0	6,20E-01	0
PENRM	MJ.	4,17E+00	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
PENRT	MJ	1,10E+02	1,46E+00	3,53E+01	0,00E+00	0	0	0	0	0	0	0	3,69E-01	0	6,20E-01	0
SM	kg	1,38E-01	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
FW	m^3	4,03E-01	2,49E-04	4,06E-02	0,00E+00	0	0	0	0	0	0	0	6,49E-05	0	6,02E-04	0

Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water																

Waste production and output flows

Waste production

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	8,20E-05	8,66E-07	3,61E-05	0,00E+00	0	0	0	0	0	0	0	2,49E-07	0	4,48E-07	0
Non-hazardous waste disposed	kg	4,39E-01	6,46E-02	7,38E-01	0,00E+00	0	0	0	0	0	0	0	1,36E-02	0	2,17E+00	0
Radioactive waste disposed	kg	3,33E-04	9,28E-06	9,04E-05	0,00E+00	0	0	0	0	0	0	0	2,32E-06	0	3,54E-06	0

Output flows

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**

Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	7,18E-03	0,00E+00	1,84E-01	0,00E+00	0	0	0	0	0	0	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Information on biogenic carbon content

Results per functional unit		
BIOGENIC CARBON CONTENT	**Unidad**	**Cantidad**
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging	kg C	1,65E-01

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

Fonodan BJ

Environmental impacts

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	1,28E+00	6,10E-02	1,55E-02	0,00E+00	0	0	0	0	0	0	0	1,32E-02	0	1,32E-02	0
GWP-biogenic	kg CO_2 eq.	3,42E-03	1,96E-05	3,81E-05	0,00E+00	0	0	0	0	0	0	0	4,39E-06	0	4,70E-05	0
GWP- luluc	kg CO_2 eq.	3,92E-04	1,83E-05	4,75E-06	0,00E+00	0	0	0	0	0	0	0	4,64E-06	0	5,38E-06	0
GWP-total	kg CO_2 eq.	1,28E+00	6,10E-02	1,55E-02	0,00E+00	0	0	0	0	0	0	0	1,32E-02	0	1,32E-02	0
ODP	kg CFC 11 eq.	2,92E-07	1,11E-08	3,48E-09	0,00E+00	0	0	0	0	0	0	0	2,34E-09	0	3,52E-09	0
AP	mol H^+ eq.	6,18E-03	2,97E-04	7,45E-05	0,00E+00	0	0	0	0	0	0	0	5,30E-05	0	1,15E-04	0
EP-freshwater	kg PO_4^{3-} eq.	5,31E-04	3,51E-05	6,65E-06	0,00E+00	0	0	0	0	0	0	0	6,80E-06	0	1,50E-05	0
EP- marine	kg N eq.	9,81E-04	8,05E-05	1,26E-05	0,00E+00	0	0	0	0	0	0	0	1,47E-05	0	3,72E-05	0
EP-terrestrial	mol N eq.	1,25E-02	9,00E-04	1,58E-04	0,00E+00	0	0	0	0	0	0	0	1,65E-04	0	4,13E-04	0
POCP	kg NMVOC eq.	4,35E-03	2,68E-04	5,39E-05	0,00E+00	0	0	0	0	0	0	0	5,02E-05	0	1,20E-04	0
ADP-minerals&metals*	kg Sb eq.	8,48E-07	1,75E-07	1,36E-08	0,00E+00	0	0	0	0	0	0	0	5,20E-08	0	1,70E-08	0
ADP-fossil*	MJ	3,82E+01	9,11E-01	4,43E-01	0,00E+00	0	0	0	0	0	0	0	1,94E-01	0	3,22E-01	0
WDP	m^3	6,44E-01	6,30E-03	7,24E-03	0,00E+00	0	0	0	0	0	0	0	1,37E-03	0	1,43E-02	0
EP-freshwater	kg PO^- eq.	1,50E-05	9,08E-07	1,86E-07	0,00E+00	0	0	0	0	0	0	0	2,34E-07	0	3,20E-07	0
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP =															

	Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption

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Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG	kg CO2 eq.	1,24E+00	6,04E-02	1,51E-02	0,00E+00	0	0	0	0	0	0	0	1,31E-02	0	1,30E-02	0

Use of resources

Results per functional unit																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	2,60E+00	1,02E-02	2,88E-02	0,00E+00	0	0	0	0	0	0	0	2,31E-03	0	5,13E-03	0
PERM	MJ	7,16E-01	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
PERT	MJ	3,32E+00	1,02E-02	2,88E-02	0,00E+00	0	0	0	0	0	0	0	2,31E-03	0	5,13E-03	0
PENRE	MJ	4,43E+01	9,84E-01	5,11E-01	0,00E+00	0	0	0	0	0	0	0	2,10E-01	0	3,52E-01	0
PENRM	MJ.	1,92E+00	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0

PENRT	MJ	4,62E+01	9,84E-01	5,11E-01	0,00E+00	0	0	0	0	0	0	0	2,10E-01	0	3,52E-01	0
SM	kg	8,94E-02	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0	0	0	0	0	0	0	0,00E+00	0	0,00E+00	0
FW	m^3	1,76E-02	1,69E-04	1,98E-04	0,00E+00	0	0	0	0	0	0	0	3,68E-05	0	3,42E-04	0
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water														

Waste production and output flows

Waste production

Results per functional unit															
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1,27E-05	5,84E-07	1,54E-07	0,00E+00	0	0	0	0	0	0	0	1,41E-07	0	2,54E-07	0
Non-hazardous waste disposed	kg	9,94E-02	4,22E-02	2,13E-03	0,00E+00	0	0	0	0	0	0	0	7,69E-03	0	1,23E+00	0
Radioactive waste disposed	kg	1,66E-04	6,26E-06	1,98E-06	0,00E+00	0	0	0	0	0	0	0	1,32E-06	0	2,01E-06	0

Output flows

Results per functional unit															
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	7,18E-03	0,00E+00	8,51E-02	0,00E+00	0	0	0	0	0	0	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

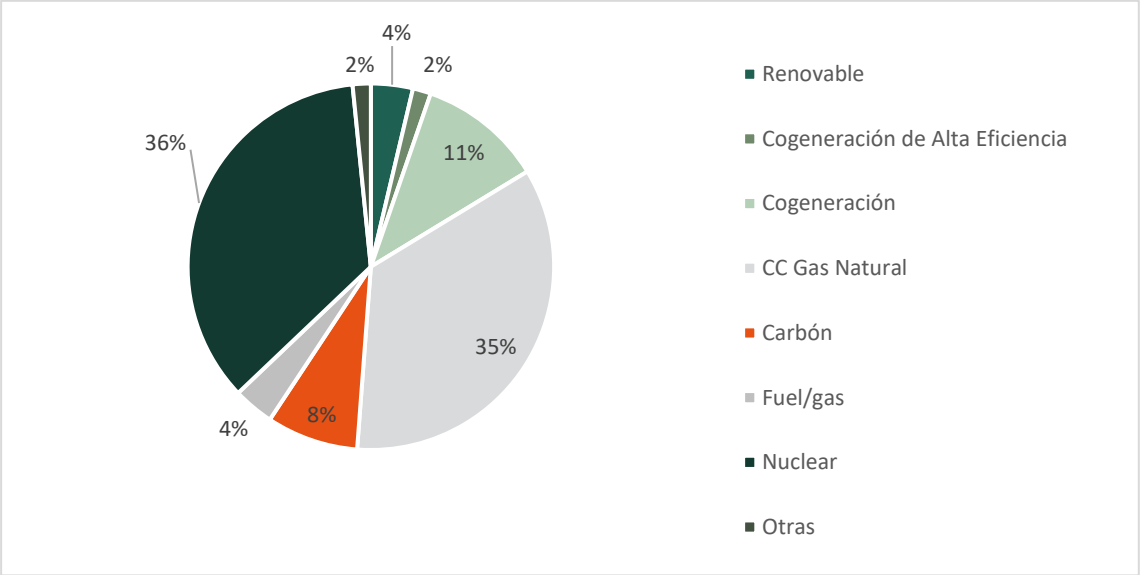
Information on biogenic carbon content

Results per functional unit		
BIOGENIC CARBON CONTENT	**Unidad**	**Cantidad**
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging	kg C	7,52E-02

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

Additional information

The electricity mix used corresponds to the residual mix in Spain for the year 2019. The emissions associated with the production of electricity are 0.32kg of CO2 / kWh.



Information related to sector EPD

This is an individual EPD®.

References

- General Programme Instructions of the International EPD® System. Version 3.01.
- PCR 2019:14 Construction products - version 1.1
- CEN (2019): EN 15804:2012+A2:2019, Sustainability of construction works – Environmental product declarations – Core rules for product category of construction products.
- ISO 14040:2006: Environmental Management-Life Cycle Assessment-Principles and framework.
- ISO 14044:2006: Environmental Management-Life Cycle Assessment-Requirements and guidelines.
- ISO 14025:2006: Environmental labels and declarations-Type III Environmental Declarations-Principles and procedures.
- ISO 14020:2000: Environmental labels and declarations — General principles.
- LCA acoustic sheets DANOSA V1.

VERIFICATION STATEMENT CERTIFICATE

CERTIFICADO DE DECLARACIÓN DE VERIFICACIÓN

Certificate No. / Certificado nº: EPD00416

TECNALIA R&I CERTIFICACION S.L., confirms that independent third-party verification has been conducted of the Environmental Product Declaration (EPD) on behalf of:
TECNALIA *R&I CERTIFICACION S.L., confirma que se ha realizado verificación de tercera parte independiente de la Declaración Ambiental de Producto (DAP) en nombre de:*

DERIVADOS ASFALTICOS NORMALIZADOS, S.A. (DANOSA)
Pol. Ind. Sector, 9
19290 - FONTANAR (Guadalajara) SPAIN

for the following product(s):
para el siguiente(s) producto(s):

ACOUSTIC BANDS FONODAN DANOSA: FONODAN 50, FONODAN 70, FONODAN 130, FONODAN 900, FONODAN 900 HS and FONODAN BJ.

BANDAS ACÚSTICAS FONODAN DANOSA: FONODAN 50, FONODAN 70, FONODAN 130, FONODAN 900, FONODAN 900 HS y FONODAN BJ.

with registration number **S-P-04340** in the International EPD® System *(www.environdec.com).*
*con número de registro **S-P-04340** en el Sistema International EPD® (www.environdec.com).*

it´s in conformity with:
es conforme con:

- **ISO 14025:2010 Environmental labels and declarations. Type III environmental declarations.**
- **EN 15804:2012+A2:2019 Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products.**
- **General Programme Instructions for the International EPD® System v.3.01.**
- **PCR 2019:14 Construction products v1.1.**
- **CPC Code: 54790 Other Building completion and finishing services.**

Issued date / *Fecha de emisión:*	27/07/2021
Update date / *Fecha de actualización:*	27/07/2021
Valid until / *Válido hasta:*	25/07/2026
Serial Nº / *Nº Serie:*	EPD0041600-E

Carlos Nazabal Alsua
Manager

ENAC CERTIFICACIÓN
Nº 125/C-PR283

This certificate is not valid without its related EPD.
Este certificado no es válido sin su correspondiente EPD.

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This certificate is subject to modifications, temporary suspensions and withdrawals by TECNALIA R&I CERTIFICACION.

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The validity of this certificate can be checked through consultation in www.tecnaliacertificacion.com.

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