ENVIRONMENTAL PRODUCT DECLARATION
In accordance with ISO 14025:2010

Para:

PAPER PULP ENCELL TOTALLY CHLORINE FREE (TCF)

ENCE ENERGÍA Y CELULOSA, S.A.

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An EPD must provide current information and can be updated if conditions change. The indicated validity is, therefore, subject to the continuation of registration and publication on www.environdec.com

Summary


EN PONTEVEDRA
CELL PW TCF Spain E.U.
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Programme information

Programme:	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com

Product Category Rules - PCR:	PCR 2022:02: PULPS OF WOOD OR OTHER FIBROUS CELLULOSIC MATERIAL PRODUCT CATEGORY CLASSIFICATION: UN CPC 3211. 2022-03-25 de The International EPD® System
Reviewed by:	The technical Committee of the international EPD® System Chair of the PCR review: Paola Borla
Verification by an independent third party of the declaration and the data contained in it, according to the ISO 14025: 2006 standard: ☐ EPD process certification ☒ EPD verification**:**	
Third party verifier:: *TECNALIA R&I Certification, S.L.* **Auditor***:* Cristina Gazulla **Accredited by:** *ENAC acreditación nº125/C-PR283*	
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EPD Geographical scope:	Global

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

EPDs within the same product category but from different programmes may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison.

Background and objectives

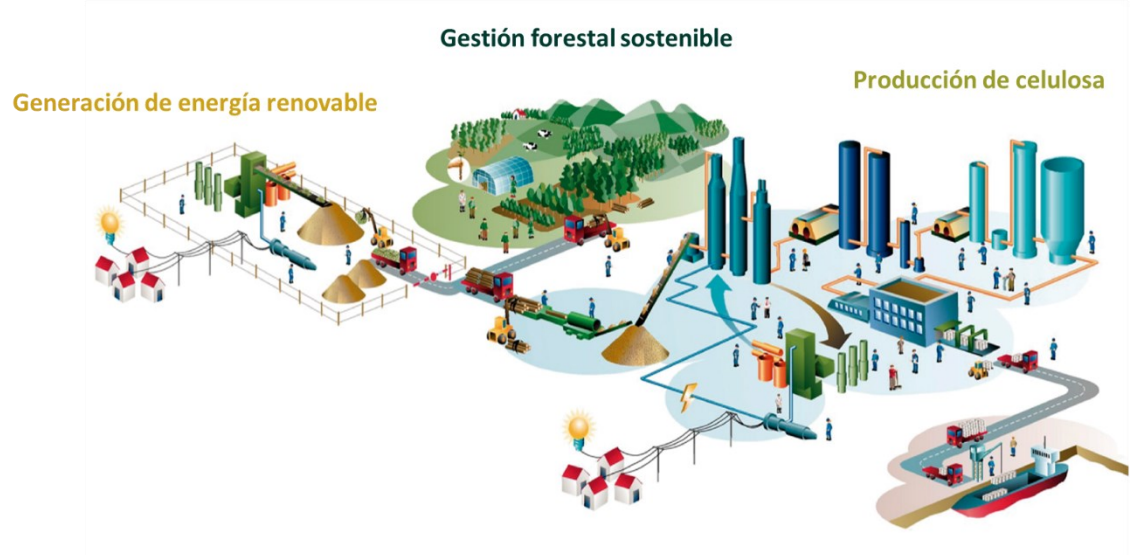
This document contains the Environmental Product Declaration for Ence's unbleached pulp Encell TCF. The EPD discloses the results of the environmental impact assessment for Encell TCF, in order to make this information available for Ence's clients and other stakeholders.

The environmental impact assessment was conducted considering the life cycle of the product, from production to delivery to the clients (a "cradle-to-gate" scope). Steps following the delivery to the clients were not included, since Encell TCF is an intermediate product for the manufacturing of various end-products, over which Ence has no control.

By performing this analysis, Ence pursues the following goals:

- Quantify Encell TCF's environmental impacts, following an established, standardized, and comparable analysis framework that allows Ence's clients to evaluate Encell TCF's environmental advantages in relation to other products.
- Understand the environmental impacts of the products throughout its life cycle, using these results as inputs for continuous improvement, which stands at the base of Ence's sustainability commitment.
- Ensure Ence's commitment with transparency, publicly disclosing information about the environmental performance of our facilities and products through these EPDs.

Information about the organization



A sustainable business model

The business model of Ence Energía y Celulosa combines three activities based on the **sustainable use of renewable natural resources**, with a special focus on wood and biomass.

Ence Energía y Celulosa sets the benchmark in the production on eucalyptus pulp in Europe. It is also the first Spanish renewable energy producer with agro-forestry biomass. Ence is as well-known Spain's largest sustainable forest owner.

With its activity, Ence contributes to responding to other **global and local challenges** in the areas in which it operates, thus supporting the achievement of the Sustainable Development Goals (SDG) of the UN Agenda 2020 for Sustainable Development:

Fight against climate change and decarbonization of the energy model: Ence contributes to the decarbonization of the energy sector, generating renewable energy in its bio-factories and independent energy plants. In addition, the forest areas that Ence manages directly, or from which it obtains wood, contribute to absorbing CO_2 from the atmosphere, mitigating the effects of climate change.

Fighting against deforestation and sustainable forest management: Ence is committed to sustainable forest certification, not only in its forest properties, but also by actively promoting it throughout its supply chain.

Transition from a linear model to a circular economy: Ence's value generation model represents an example of circular economy, since it is based on the use of renewable resources, such as wood and biomass. With its activity, Ence also contributes to the circularization of other value chains in the agricultural and forestry sector, using the by-products of its activities to generate energy and reducing the environmental impacts derived from their uncontrolled disposal.

Responsible consumption: with its special pulp production activity, Ence contributes to changing society's consumption model, offering low-carbon and renewable alternatives to other products, such as plastics and other oil-based materials.

Fair transition and the fight against the depopulation of the rural environment: with its pulp production activity and throughout its wood supply chain, Ence is responsible for creating jobs and providing value for contractors, suppliers, and forest owners in Spain.

Sustanability as a strategic priority

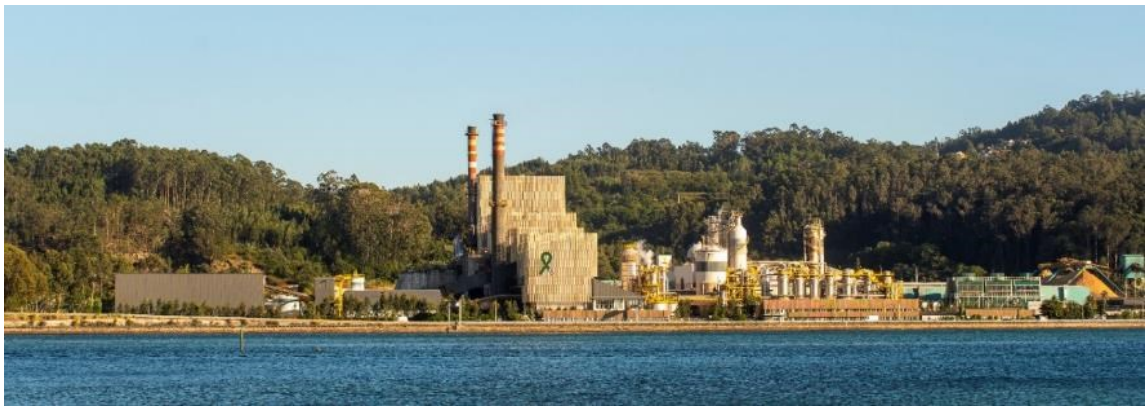
Besides contributing to sustainable development with its activities, sustainability is a strategic priority for Ence. The company has defined a Sustainability Master Plan 2019-2023 which contains 7 focus action areas.

More specifically, in the sustainable products action line, Ence's goal is to develop products with lower environmental footprint and with a potential to replace synthetic materials such as plastics. In line with this goal, **Encell TCF** was designed and developed: an unbleached pulp product that entails important improvements in most of the environmental parameters analyzed in this declaration.

More information about Ence's sustainability objectives and milestones can be found in the company's sustainability reports: https://ence.es/en/sustainability/

Priority	Goal
Safe and ecologically efficient operations	**Safely development** of our activities **with exemplary environmental performance**
Climate action	**Combat climate change** and define adaptation measures to **increase the resilience** of our business
Sustainable agro-forestry management	Promote **responsible forest and agricultural management** as a driver for **sustainable socio-economic development in rural areas**
Sustainable products	Develop **sustainable products** as a key for **generating value**
People & values	Promote **talent development, ensure equal opportunities** and **commitment to sustainability** in the entire Ence team
Commitment to communities	Proactively contribute to the **economic and social development** of the environment in which we operate
Governance	**Robust corporate governance** with **long-term vision**

Facility information



Production facility: Ence Pontevedra Biofactory,
Address: Marismas de Lourizán s/n
Location: Pontevedra (Spain)
ZIP Code: 36153
NACE Code: 1711

Ence Pontevedra Bio-factory produces totally-chlorine free (TCF) pulp, being one of only two the facilities in Europe that produce TCF pulp from eucalyptus wood. The bio-factory has a production capacity of 515.000 t/year.

For the pulp production, Ence Pontevedra uses local raw materials (wood from the north-western Iberian Peninsula), contributing to the development of the local forestry sector and reducing the carbon footprint of their products. In 2019, the number of forestry suppliers of the bio-factory of Pontevedra was 1,218. Most of the wood used in the process is certified according to both strictest sustainable forestry schemes (FSC® and PEFC).

The production process at the Pontevedra bio-factory is also an example of sustainability and circular economy. Bark and lignin coming from the same wood that is used to produce pulp serve as fuel to generate renewable energy, making the bio-factory almost self-sufficient in terms of energy use. Moreover, most or the chemicals used are recovered and circulated back into the process, minimizing the consumption of raw materials.

Ence Pontevedra Bio-factory has implemented an integrated management system in accordance with internationally recognized standards and certifications that prove its commitment with the protection of the environment and the promotion of sustainable forestry practices:

- Quality management system ISO 9001
- Environmental management system ISO 14001
- Health and safety management system ISO 45001
- Energy management system ISO 50001
- Zero Waste certificate AENOR
- Chain of Custody (wood) PEFC - PEFC ST 2002:2013
- Chain of Custody (wood) FSC® (FSC® C081854)
    - FSC-STD-40-005
    - FSC-STD-40-004
    - FSC-STD-40-003

- Nordic Swan – Nordic Ecolabel
- EU Ecolabel
- SURE-EU/ES-001/Z20221002

The Pontevedra bio-factory is also adhered since 1999 to the EMAS - European Eco-Management and Audit Scheme (Commission Regulation 2017/1505). As part of this commitment, the bio-factory publishes its environmental statements on a yearly basis. These statements contain all the relevant information regarding the environmental performance of the facility, as well as the continuous improvement objectives established. The statements are publicly available on Ence's website (https://ence.es/en/sustainability/environmental-statements/)

As part of its commitment with transparency, the Pontevedra bio-factory is one of the few facilities in the world that discloses information about its environmental performance in real time on this website: http://encepontevedra.com/

Product information

Name of product: Paper pulp Encell TCF

TARIC code ENCELL: 4703 29

Descripción del producto: ENCELL TCF is a cellulose pulp developed by Ence based on the most demanding and innovative criteria in terms of Sustainability.

Final products for which Encell TCF pulp can be used include, but are not limited to, tissue paper, specialty papers, paper solutions for packaging, bags, and printing papers.

The distinguishing properties of Encell TCF include its outstanding physical characteristics such as the tensile index of the refined pulp and the fact that the pulp making process is free of elemental chlorine.

UN CPC code: UN CPC 3211

Geographical scope: Global

Hazardous substances: During the life cycle of the product, no hazardous substances found on the "List of Substances of High Concern (SVHC)" have been used in a percentage higher than 0.1% of the weight of the product.

LCA Information

Declared Unit

The declared unit (DU) quantifies the amount of product to which all inputs and outputs of the studied system refer.

In the studied system, the Declared Unit (DU) is: **1 Air Dry Ton of paper pulp Encell TCF (ADT)**. One Air Dry Ton or Air Dry is equivalent to one ton of cellulose pulp with a humidity of 10%.

Useful life

This term is not applicable to Encell TCF because it is an intermediate product, and its useful life depends on the final use that the customers give to it in their transformation process, as evidenced by the possibility of being used in the manufacture of, among others, tissue paper, special papers, paper solutions for containers and packaging, bags and printing papers. For this

reason, the stage of useful life is not included in the LCA, since it depends on the product that is manufactures from Encell TCF.

Therefore, this EPD will not be used to communicate environmental information about the product to final consumers.

Time representativeness

The period covered by the LCA corresponds the period from January 1 to December 31, 2019.

Database and LCA software used

Specific data (also called site-specific data) has been used for raw and auxiliary materials, energy consumption, waste production, and emissions to air, water and soil.

The LCA Simapro 9.0 software has been used to determine the environmental impacts per ADT of Encell paper pulp, kWh of energy or transported tkm, the Ecoinvent database v. 3.8, internationally renowned Life Cycle Analysis database.

Cut-off criteria

As a cut-off rule, the inventory data must comprise at least 99% of the material and energy use of the product life cycle, as well as at least 99% of the consumption of raw materials and energy per module.

Based on our own experience and on the reference regulations, the following processes have not been considered, once their impact are negligible (impact less than 1% for each stage of the life cycle):

- Maintenance activities in the production center carried out more frequently than 3 years
- Maintenance activities carried out less frequently than 3 years
- Workers daily commute
- Production of seeds for forest exploitation
- Ink used in the packaging
- Auxiliary materials that represent less than 1% of the total

System Boundaries

In this LCA, the scope from cradle-to-gate with options is considered, covering the stages of forestry exploitation (wood), production of other raw materials and their packaging, transport of wood to the plant, manufacturing of raw materials and paper pulp, and transport to the clients' facilities. The use stage and end-of-life stage are not included as it is an intermediate product.

The processes included in the system limits the inputs and outputs of material and energy, as well as the processes that make up the system under study, are illustrated in the Figure 1 below.

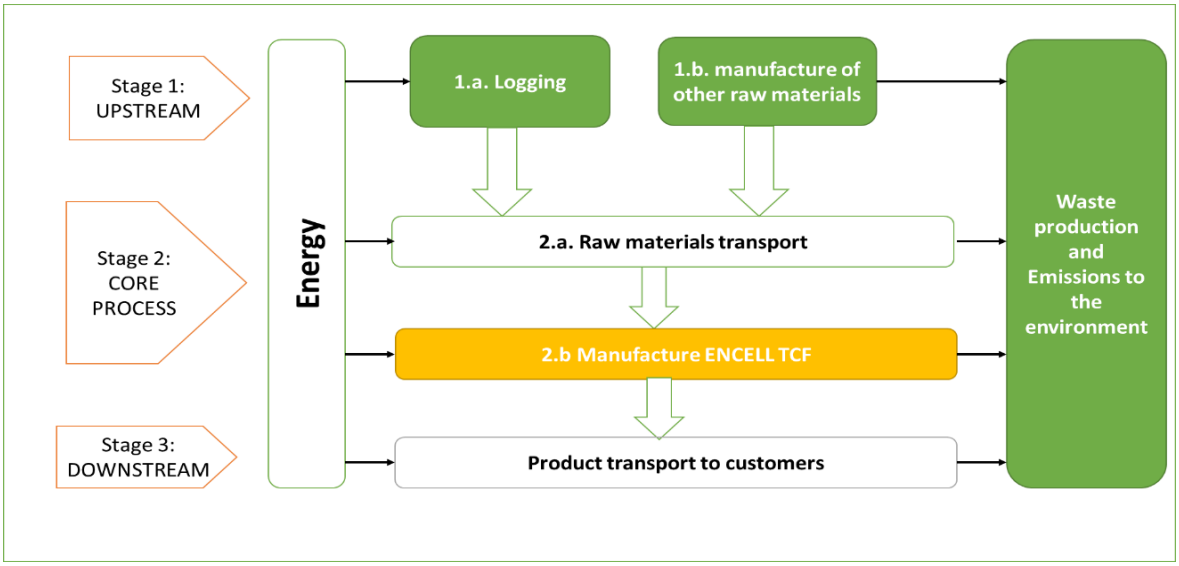


Figure 1 System boundaries

Each of the stages considered is explained below.

Stage 1: UPSTREAM. Obtaining and manufacturing of raw materials. Wood and others

1.a. Logging activity (Wood)

This module comprehends the forestry phase to obtain the necessary wood (Eucalyptus globulus, Eucalyptus nitens and Eucalyptus regnans) for the manufacture of paper pulp. In this phase, the fuel and energy consumption of forestry activities carried out prior to the pulp manufacturing process are considered.

1.b. Manufacture of raw materials

This module takes into account the manufacture of other raw materials and the energy that is produced prior to the pulp manufacturing process.

It also includes the production of packaging materials used during the manufacturing process (wrapping paper and wire).

Stage 2: CORE. Manufacturing of paper pulp

This module includes the transport of wood and the different raw and auxiliary materials, from the forestry operations and the manufacturing points of the materials to the Pontevedra Bio-factory, as well as the pulp manufacturing process itself in the bio-factory and the treatment of its waste.

2.a. Transportation of raw and auxiliary materials to the ENCE Bio-factory in Pontevedra

Regarding the transport of wood from the collection points, an average distance of 119 km from each supplier to the factory has been considered.

For raw and auxiliary materials, data provided by each of the suppliers from ENCE's purchasing area has been considered. To calculate the impacts of transport, the distance and type of means of transport for each raw material have been used.

This module also includes emissions derived from energy use.

2.b. Paper pulp manufacturing process

This module includes the emissions derived from the use of energy and the auxiliary materials necessary to produce the paper pulp. It also includes transport and waste management originated in the Pontevedra bio-factory. For each type of waste, the corresponding treatment system has been considered.

Stage 3: DOWNSTREAM. Transportation to customer facilities

In this stage, the transport of the product to the customer facilities is taken into account for its subsequent transformation into the final product. The product is transported in "units" (packages of approximately 2 TAD)

Average distances to customer facilities are:

Truck: 125,6 km.

Boat: 3.214 km.

LCA stages excluded

The use and end-of-life stages of the product have been excluded since Encell TCF is an intermediate product and its final use, as well as its end of life, is unknown, as there are multiple options.

Allocation

The allocation was based on the TAD of pulp produced in which mass criteria were applied to the amount of waste generated in production, the consumption of auxiliary materials and energy consumption (fuels and electricity).

In the case of inventory data obtained from commercial LCA databases (Ecoinvent v 3.5), the criteria “polluter pays" principle was applied to the waste treatment. Information from the database is mainly regarding different raw materials, transport models, energy sources and specific waste treatments.

The principle of modularity has been followed, assigning environmental loads to those stages of the life cycle where they have occurred.

Regarding co-products, it should be noted that the only product that is marketed is cellulose pulp, which is why no co-product are considered in this declaration.

Content Declaration

The declaration of the contents of the Encell TCF product is shown in the table below:

Material	% on the total content
Cellulose y hemicellulose	>99%
Chemical additives (for cooking, bleaching, delignification, drying)	<1%

Cellulose from wood constitutes more than 99% of the raw material. The rest of the inputs correspond to the chemical additives necessary to obtain the final product.

Packaging

The main materials used in packaging are steel wire and wrapping paper, all of them are recyclable or reusable after delivery. The scope of this LCA has included the packaging of the product for its transportation to the customer facilities. However, the end of life for the product and the raw material packaging were excluded.

The product is grouped in units ("units" are packages of approximately 2tAD). These are the minimum units of charge.

The type of packaging material and the quantities per 1tAD are specified in the table below:

Material	Unit	Amount
Steel wire	kg/tAD	2,40
Wrapping paper	kg/tAD	1,70

Biogenic carbon content contained in paper pulp

Biogenic carbon content	Unit	Amount
In product	kg C/tAD	3,56E+02
In distribution packaging	kg C/tAD	6,73E-01

Environmental performance

Environmental Impact[1]

The environmental impact for 1 Air Dry Ton of product **Encell TCF** is shown in the table below:

Indicador		Unidad	Upstream	Core	Downstream	Total
Global warming potential (GWP)	**CO_2 fossil**	Kg CO_2-eq	1,40E+02	3,13E+02	4,79E+01	5,01E+02
	CO_2 biogenic	Kg CO_2-eq	-2,98E+03	2,17E+03	1,31E+03	4,96E+02
	CO_2 Land use and land use change (luluc)	Kg CO_2-eq	9,21E-02	1,34E-01	2,37E-02	2,50E-01
Total Global warming potential (GWP)[2]		Kg CO_2-eq	-2,84E+03	2,48E+03	1,36E+03	9,97E+02
Abiotic depletion potential for minerals and metals (non-fossil resources) (ADP)[3]		kg Sb eq	9,05E-04	1,84E-04	3,49E-05	1,12E-03
Abiotic depletion potential for fossil resources (ADP)[4]		MJ	2,34E+03	4,02E+03	7,03E+02	7,06E+03
Ozone depletion potential (ODP)		Kg CFC 11-eq	2,07E-05	5,28E-05	9,84E-06	8,34E-05
Photochemical ozone creation potential (POCP)		kg NMVOC eq	9,58E-01	3,24E+00	5,74E-01	4,77E+00
Acidification potential (AP)		mol H+ eq	1,14E+00	2,63E+00	9,65E-01	4,74E+00
Eutrophication potential (EP)	**Fresh water**	kg P eq	4,47E-03	2,53E-02	7,10E-04	3,05E-02
	Aquatic marine	kg N eq	3,15E-01	1,01E+00	1,90E-01	1,52E+00
	Terrestrial	mol N eq	3,30E+00	9,70E+00	2,14E+00	1,51E+01
Water deprivation potential (WDP)[5]		m^3	2,69E+03	-1,91E+03	4,09E+00	7,92E+02

[3,4,5] The results of these environmental impact indicators will be used with care as the uncertainties of the results are high and there is limited experience with these indicators.

[1] The list of environmental impact indicators has been used for the calculation. V2 of March 2022 contemplated in https://www.environdec.com/resources/indicators

[2] In accordance with the provisions of the PCR on which this EPD is based, the absorbed biogenic CO_2 emissions are added to the GWP indicator in the downstream stage, since it is an intermediate product that will be used in another system.

Use of resources

Use of natural resources in the life cycle of 1 ADT of product **Encell TCF**:

Parameter		Unit	Upstream	Core	Downstream	TOTAL
Primary energy resources Renewable	**Use as energy carrier (PERE)**	MJ, net calorific value	2,33E+02	2,86+02	1,40E+01	5,33+E02
	Used as raw materials (PERM)	MJ, net calorific value	0.00E+00	3,05E+01	0.00E+00	3,05E+01
	TOTAL (PERT)	MJ, net calorific value	2,33E+02	3,16E+02	1,40E+01	5,63E+02
Primary energy resources – Non-renewable	**Use as energy carrier (NPERE)**	MJ, net calorific value	2,29E+03	4,24E+03	7,46E+02	7,48E+03
	Used as raw materials (NPERM)	MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TOTAL (NEPERT)	MJ, net calorific value	2,29E+03	4,24E+03	7,46E+02	7,48E+03
Use of secondary materials (SM)		kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of Renewable secondary fuels (RSF)		MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of Non-renewable secondary fuels (NRSF)		MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water		m^3	3,42E+01	-2,37E+01	1,30E-01	1,06E+01

Waste generation

Life cycle waste production of 1 ADT of product **Encell TCF**:

Parameter	Unit	Upstream	Core	Downstream	TOTAL
Hazardous waste disposed ((HWD)	**kg**	4,52E-02	1,05E-02	7,51E-04	5,65E-02
Non-hazardous waste disposed (NHWD)	**kg**	8,66E+00	2,63E+01	1,75E+01	5,24E+01
Radioactive waste disposed (RWD)	**kg**	1,078E-02	2,69E-02	4,60E-03	4,22E-02

Other environmental indicators

Other life cycle outflows of 1 ADT of product **Encell TCF:**

Parameter	Unit	Upstream	Core	Downstream	TOTAL
Components for reuse (CRU)	**kg**	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling (MFR)	**kg**	0,00E+00	1,30+00	0,00E+00	1,30E+00
Materials for energy recovery (Energy recovery) (MER)	**kg**	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity (electric, thermal....) (EE)	**MJ**	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Additional information

Additional information is provided below regarding the sustainability of Encell TCF along its life cycle, from the harvesting of the main raw materials (certified wood) to the substitution potential of the end product.

Legal compliance and row material traceability

Ence's pulp products are manufactured from wood with a guarantee of legal compliance and traceability.

Ence follows a wood legal compliance policy, which sets out the company's operational principles regarding the purchase of these materials and complies with Spanish legislation (RD 1088/2015 on the legality of wood) and international regulations (EUTR Due Diligence regulation). This policy includes, among other principles, the company's resolve to buy wood from forests or agricultural areas where all the requirements of the regulations in force are met, in addition to those voluntarily adopted by Ence. The policy also establishes that all the wood with which Ence is supplied must comply with the legal requirements established by Community, State and regional regulations regarding **due diligence**, including obtaining all the necessary permits established by the applicable legislation.

In addition, the policy includes Ence's commitment to reject any material that is proven to have been illegally harvested or to have affected protected natural, archaeological, cultural, or social assets. The policy also establishes Ence's pledge to acquire only raw materials from **traceable sources**.

In order to ensure compliance with this commitment, Ence has established a traceability system based on identification mechanisms that trace wood from its origin using delivery notes, QR and geolocation. This guarantees that all the wood purchased by Ence is identified and accompanied by information regarding its origin, volume, and forest management certificate.

Sustainable forest management

Most of the wood used as a raw material for the manufacturing of Ence's pulp products is certified according to sustainable forestry schemes.

Ence does not only complain with legal requirements regarding forest management, but also implements internationally recognized sustainable forestry schemes. In fact, Ence has been a pioneer in the implementation in Spain of standards on Sustainable Forest Management and Chain of Custody of FSC® (Forest Stewardship Council®, with license code FSC-C099970, and FSC-C081854 respectively) and PEFC (Programme for the Endorsement of Forest Certification schemes). In 2019, more than 85% of the forest land managed by Ence was certified according to one or both schemes.

Ence also promotes these sustainable forestry certifications among its suppliers to give small landowners the tools to implement sustainable forest management practices. The company also promotes the creation of certification groups for small owners and suppliers so they too can access FSC® and PEFC certification schemes. Ence's goal is to promote double certification (FSC® + PEFC) among forest owners so they can access certified wood markets. The company also sets annual double-certified wood purchase targets.

Ence's efforts to increase its certified managed land and to promote certification among its suppliers, 82% of the wood consumed in its bio-factories in 2019 was certified according to at least one of the aforementioned sustainable forestry schemes.

Fair Trade

Ence's pulp products are manufactured using fair trade certified wood.

Besides sustainable forestry, Ence is since 2018 certified according to COPADE Madera Justa (Fair Wood), the world's first fair trade certification for the forestry sector. The Fair Wood certification has as its initial reference the FSC®-certified wood used in the pulp production process, and takes it further analyzing additional social and commercial indicators, such as the generation of wealth in rural areas or the company's labor policies.

Positive climatic effect

The wood that is used as a raw material to produce Encell TCF is harvested from forest land that has a positive climate effect, since it acts as a carbon sink, taking CO2 from the atmosphere and capturing it in form of biomass as the trees grow. In the case of eucalyptus forests in Spain, an estimated 0.57 ton of CO2 is captured ad stored per tree in 20 years (source: Guía para la estimación de las absorciones de dióxido de carbono – Oficina Española de Cambio Climático, Mayo 2019).

Circular economy and waste prevention

Ence's pulp products are manufactured in bio-factories that operate with advanced waste prevention and management systems, in order to minimize the amount of waste that is sent to landfills. Both bio-factories are certified according to AENOR Zero Waste rule (RP-CSG-057), thus making Ence one of the first companies in Spain to obtain this certification and the first one in its industry. In Ence's bio-factories, over 95% of waste are recycled or valorized. Most of the waste that is generated in Ence's bio-factories can be used to replace other types of materials, such as lime sludge that can be used as a substitute for chemical compounds to neutralize effluents or ash that can be used to manufacture techno-soils or fertilizers.

In addition, the characteristics of Encell TCF make them suitable to be used in the manufacturing of end products that meet the requirements specified in the EU's waste management hierarchy within the EU Waste Framework Directive 2008/98/EC and the updating Directive 2018/851.

SURE Sustainable Resources

In 2021, Ence has also worked on the implementation of the SURE biomass sustainability certification. This certification system is one of the tools developed to ensure compliance with the requirements of the Renewable Energy Directive (EU) 2018/2001, a European standard that establishes demanding criteria that biomass used in energy generation must meet. In this way, Ence is at the forefront, adapting in a pioneering way to the requirements of the European directive and anticipating, once again, the future of the sustainability of biomass as an energy source.

Recyclability and recovery potential

Naturcell is a pulp-based product suitable to manufacture packaging materials that can be recovered through material recycling in accordance with the material requirements in EN 13430:2004 and through energy recovery in accordance with EN 13431:2004.

Biodegradability

Naturcell is a pulp-based product made from natural materials consisting of cellulose, hemicellulose and traces of lignin. All these materials can be degraded by microorganisms in nature. Therefore, Naturcell are suitable for the manufacture of biodegradable products.

In order to be classified as biodegradable in accordance with norm EN 13432:2000 (UNE-EN 13432:2001) - Requirements for packaging recoverable through composting and biodegradation, the end product must be biodegradable up to at least 90% in aerobic conditions. The biodegradability potential will depend on the end product composition, as well as on external factor such as temperature, humidity, microbial activity and pH.

Substitution potential

Using pulp-based products such as Naturcell for the manufacture of paper and board products, especially in packaging, contributes to replace or substitute other products based on fossil materials. Therefore, using products like Naturcell contributes to reduce the demand for non-renewable raw materials.

Water consumption

The water that Ence uses in its biofactories and power plants comes from authorized surface or underground sources, always in accordance with the corresponding environmental authorizations. The facilities with the highest consumption by Ence are located in areas at risk of low water stress, according to the WRI (World Resources Institute) Aqueduct map.

References

- General Programme Instructions of the International EPD® System. Version 3.01
- *Guía para la estimación de las absorciones de dióxido de carbono – Oficina Española de Cambio Climático, Mayo 2019*

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Dirección: www.ence.es

VERIFICATION STATEMENT CERTIFICATE

CERTIFICADO DE DECLARACIÓN DE VERIFICACIÓN

Certificate No. / Certificado nº: EPD04704

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:*

ENCE Energía y Celulosa, S.A.
C/Beatriz de Bobadilla, 14 Planta 4ª
28040-MADRID (SPAIN)

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

PAPER PULP ENCELL TOTALLY CHLORINE FREE (TCF)
PASTA DE PAPEL ENCELL TOTALLY CHLORINE FREE (TCF)

with registration number **S-P-06639** in the International EPD® System *(www.environdec.com).*
*con número de registro **S-P-06639** 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.**
- **General Programme Instructions for the International EPD® System (v.4.0).**
- **PCR 2022:02 Pulps of wood or other fibrous cellulosic material (v.1.0)**
- **UN CPC 3211 Pulps of wood or other fibrous cellulosic material.**

Issued date / *Fecha de emisión:*	05/08/2022
Update date / *Fecha de actualización:*	05/08/2022
Valid until / *Válido hasta:*	03/08/2027
Serial Nº / *Nº Serie:*	EPD0470400-E

Carlos Nazabal Alsua
Manager

CERTIFICACIÓN ISO 17065 Nº125 / C-PR283

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

El presente certificado está sujeto a modificaciones, suspensiones temporales y retiradas por TECNALIA R&I CERTIFICACION.
This certificate is subject to modifications, temporary suspensions and withdrawals by TECNALIA R&I CERTIFICACION.

El estado de vigencia del certificado puede confirmarse mediante consulta en www.tecnaliacertificacion.com.
The validity of this certificate can be checked through consultation in www.tecnaliacertificacion.com.