

# Environmental Product Declaration



In accordance with ISO 14025:2006 for:

## **BULB FLAT**

from  
**LAMINADOS LOSAL**



Programme:	The International EPD® System, <a href="http://www.environdec.com">www.environdec.com</a>
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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](http://www.environdec.com)*

## Programme information

<b>Programme:</b>	The International EPD <sup>®</sup> System
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### Accountabilities for PCR, LCA and independent, third-party verification

#### Product Category Rules (PCR)

PCR 2015:03 version 2.1.0. Basic Iron or Steel Products & Special Steels, except construction products (UN CPC 4112 and 412)

PCR review was conducted by: *The Technical Committee of the International EPD System. Chair: Massimo Marino. Contact via: [info@environdec.com](mailto:info@environdec.com)*

#### Life Cycle Assessment (LCA)

LCA accountability: *Ondoan, S. Coop.*

#### Third-party verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:

EPD verification by individual verifier

Third-party verifier:

*Marcel Gómez Ferrer*

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Approved by: The International EPD<sup>®</sup> System

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 registered in different EPD 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. For further information about comparability, see ISO 14025.

## Company information

### Owner of the EPD:

LAMINADOS LOSAL S.A. (Rugui Group)  
Bekoibarra, 9, 48300, Gernika, Vizcaya, Spain

### Contact:

Amaury Dechance  
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### Description of the organisation:

With over 50 years of experience, Laminados Losal provides innovative and state-of-the-art solutions in the production of highly complex profiles, ensuring the highest quality standards. Our hot-rolling system offers more competitive solutions compared to other alternative manufacturing processes, producing semi-finished steel products in various formats, including special steel profiles and bulb flats. With the automotive sector being one of its main customers, hot-rolled special profiles can be adapted to all types of industries/sectors, including machinery, automation, aeronautics, shipbuilding, construction, handling machinery and the transport sector.

Laminados Losal is committed to excellence in our products and services through rigorous planning, meticulous measurement, detailed analysis and continuous improvement. All our processes are aligned with international quality standards to guarantee the satisfaction of our clients. We have a quality management system

certified in accordance with ISO 9001:2015 (Certificate of registration no. 01 100 6739) and IATF 16949:2016 (Certificate number 0385812) regulations, the latter specific for the automotive industry. These certifications guarantee to meet the expectations of our clients, always in line with environmental regulations and ensure the safety of our employees.

Since 2017, Laminados Losal has become part of the Rugui Group. Rugui Group has an important experience in steel production, integrate steel mill, three hot rolling facilities and two cold drawn factories. Following a business strategy similar to Laminados Losal, Rugui Group aims to offer its customers flexibility, quality, adaptability, and personalized service.

This integration into the Rugui Group allows Laminados Losal to provide any steel quality and maintain control over the process from raw material to the final product, adding value for our customers.



## Product information

Product name:

Bulb flats

Product identification:

The results in this EPD are an average representative of all bulb flats manufactured at the hot rolling process of LAMINADOS LOSAL. Averages are obtained through the total production, total consumption of raw materials and total generation of waste and emissions in LAMINADOS LOSAL facilities.

Product description:

Our special profiles, made of 98% recycled steel, are produced through a hot rolling process. Billets previously produced in the melting shop of the group, Rugui Melt, are heated in a gas furnace turning them to malleable steel which we convert to steel profiles tailored for our customer needs through some process in our rolling "boxes". Our rolling box consist of cylinders previously machined in our tooling workshop. Subsequently, the profiles are subjected to different cold processes such as straightening, deburring and packaging.

The product presented in this EPD is the special steel profile of bulb flat, essential in the naval sector to strengthen ship and offshore platform structures (wind, oil platforms). We have a wide range of flexible measurements and lengths, with widths between 60 and 200 mm and thicknesses from 4 to 12 mm. Also, different quality grades as grade A, grade AH36, grade DH36 and grade EH36. Other grades as S355J2 or S355K2 also available. We offer different standard and customized lengths up to 16,000 mm to adapt to various needs.



Technical information:

Widths from 60 to 200 mm

Thicknesses from 4 to 12 mm

Delivery lengths:

European standard (12.000 mm -0+100 mm)

American standard (12.200 -0+100 mm)

Other lengths up to 16.000 mm (-0+100 mm)

Manufacturing process:

The steel billet transformation process, which is carried out by Laminados Losal, consists of hot rolling. The rolling process comprises the following stages:

- Cutting of raw material
- Heating in the furnace
- Hot rolling mill
- Cold finishing line
- Cut to length section
- Final straightening

UN CPC code: UN CPC 4121

Geographical scope: Global. Products under study are produced in Spain but can be used at a global scale.

## LCA information

### Declared unit:

The declared unit is 1 tonne (1000 kg) of semi-finished steel product at the manufacturer gate.

### Time representativeness:

Data from the year 2022 has been using for the LCA calculation. The inventory data refers to the 12-months period between January 2022 and December 2022, representing conventional operation conditions.

### Database(s) and LCA software used:

The LCA modelling of LAMINADOS LOSAL steel products was carried out using SimaPro v9.4.0.2 LCA software.

All relevant background LCI database were sourced from de Ecoinvent database v3.8. In certain cases, such as electricity mix, the original Ecoinvent datasets were adapted to the specific requirements of the LCA analysis.

### Description of system boundaries:

This EPD provided information on the production stage of special steel products (raw material supply, transport to plants and manufacturing - cradle-to-gate EPD type). The following is included:

#### UPSTREAM STAGE

This stage includes:

- The extraction and production of raw materials (alloys, refractory, electrodes and chemicals) used in the melt shop of the group, Rugui Melt.
- Transportation of the scrap and raw materials to the melt shop, Rugui Melt.
- The energy consumption (included electricity), emissions to air and water, waste generated during manufacturing (slags, dust...) and its treatment and emissions generated during manufacturing of steel billets manufactured by induction furnace in Rugui Melt.
- The extraction and production of auxiliary materials (refractory, oil and chemicals) used in the rolling mill Laminados Losal.
- Transportation of the steel billets manufactured in Rugui Melt to the rolling mill Laminados Losal

#### CORE STAGE

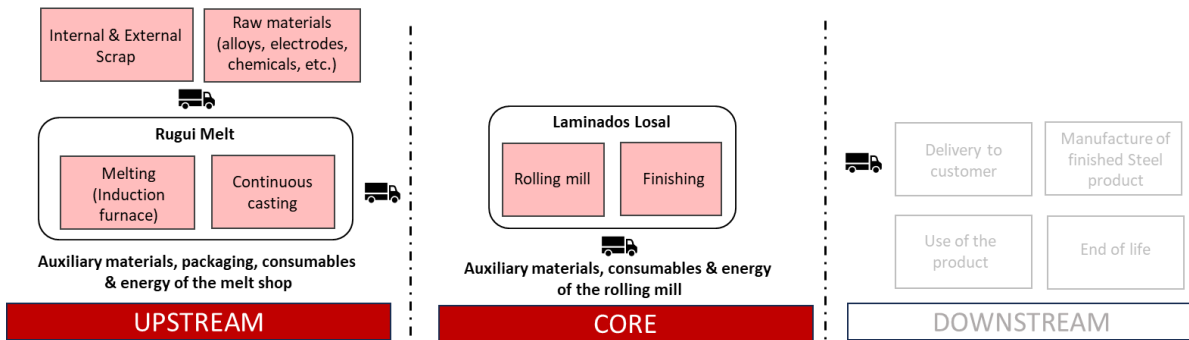
This stage includes:

- The manufacturing process of the special steel profiles in the rolling mill Laminados Losal. It includes core process related material consumption, energy production and consumption (included electricity), emissions to air and water, waste generated during manufacturing and its treatment and emissions generated during manufacturing.
- Packaging of raw materials used for the manufacturing of special steel profiles.
- The transport of waste generated during manufacturing to waste treatment facilities.

#### DOWNSTREAM

Not included, following the criteria of the PCR 2015:03 version 2.1.0.

System diagram:



Allocation: Total energy consumption was attributed entirely to total production. This is also the case for raw material and waste generation. Polluter-Pays Principle (PPP) and Modularity Principle both were applied in the study.

Cut off criteria:

In accordance with the PCR criteria, the gross weight/volume of all materials used in the manufacturing process has been included in the LCA, so that at least 99% of the weight of the product unit is considered.

The following processes have been excluded:

- Manufacture of equipment used in the production, buildings, or any other capital goods.
- Business travel of personnel.
- Travel to and from work by personnel.
- Research and development activities including production and manufacture of laboratory equipment.

Hypotheses and considerations applied:

Steel scrap input in the LCA inventory was modelled as burden free when entering the system although transport to the plant was included.

Electricity mix:

The electricity consumption of the Rugui Group's facilities is 60% covered by renewable Guarantees of Origin (GoO), i.e. electricity from renewable sources. Specifically, for the Laminados Losal facility, 59.29% of the electricity mix is made up of renewable GdO, of the wind and hydro type, while the remaining 40.71% is covered by the conventional mix provided by the plant's electricity supplier. Conventional electricity mix considered for the study is shown below divided by technologies:

	%
Coal	3.4%
Natural gas	30.30%
Nuclear	24.4%
Other	8.90%
Renewable:	33%
- Wind	17%
- Hydro	5%
- Solar	9%
- Rest	2%

The emission factor of the electricity mix consumed in Laminados Losal is 0,246 kg CO<sub>2</sub> eq. / kwh.

Data quality requirement: The quality of the data used to calculate this LCA meets the following requirements:

- The data used in the LCA were as up to date as possible (updated within the last 10 years for generic data and within the last 5 years for manufacturer-specific data.
- Used background data are of recognised prestige and acceptance in the technical and scientific fields. In particular, the Ecoinvent database is considered to be of preferential use.
- Regionally specific datasets were used to model energy consumption (electricity, natural gas or diesel). For processes of transport, production of raw materials or end-of-life, datasets were chosen according to their technological and geographical representation of the actual process.

An assessment is made of the quality of the data used, so that uncertainty is reduced as far as possible by using the best available data quality. Overall, the quality of the data can be said to be between "good" and "very good".

More information:

- Company website for more information: <https://losal.es/>
- Name and contact information of LCA partitioner:  
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## Content declaration

### Product

The average composition of the declared products is shown in the following table:

Material components	%
External Scrap	79,36
Internal Scrap	19,25
Alloys: FeSi, FeMn, Al, FeV & S	1,39
Renewable material	0
Biogenic carbon dioxide	0

The product does not include in its life cycle any dangerous substances included in the "Very High Impact Candidate List for Authorization (SVHC)" in a percentage greater than 0.1% of the weight of the product.

### Packaging

Distribution packaging: wire rod and strapping bands made of steel are used for the distribution of the special steel profiles manufactured in Laminados Losal.

### Recycled material

Recycled materials come from scrap used in the manufacturing process, with a proportion of 79,36% external scrap, mainly obtained from the automotive sector, and 19,25% internal scrap originated from the manufactured processes in the facilities of Rugui Group.



## Results of the environmental performance indicators

Estimated impact results are only relative statements that do not indicate impact category endpoints, exceeding threshold values, safety margins, or risks.

### Potential environmental impact – mandatory indicators according to EN 15804

Environmental Impacts for 1 tonne of Bulb Flat				
PARAMETER	UNIT	Upstream	Core	TOTAL
Global warming potential – Fossil (GWP-fossil)	kg CO <sub>2</sub> eq.	2.16E+02	1.52E+02	3.69E+02
Global warming potential – Biogenic (GWP-biogenic)	kg CO <sub>2</sub> eq.	0.00E+00	0.00E+00	0.00E+00
Global warming potential – Land use and land transformation (GWP-luluc)	kg CO <sub>2</sub> eq.	3.15E-01	1.25E+00	1.57E+00
Global warming potential – (GWP-total)	kg CO <sub>2</sub> eq.	2.17E+02	1.54E+02	3.71E+02
Ozone layer depletion (ODP)	kg CFC 11 eq.	4.09E-05	2.39E-05	6.48E-05
Acidification potential (AP)	mol H <sup>+</sup> eq.	1.11E+00	3.15E-01	1.42E+00
Eutrophication potential – freshwater (EP-freshwater)	kg P eq.	1.37E-03	4.02E-04	1.77E-03
Eutrophication potential – marine (EP-marine)	kg N eq.	2.55E-01	1.49E-01	4.04E-01
Eutrophication potential – terrestrial (EP-terrestrial)	mol N eq.	2.53E+00	9.85E-01	3.52E+00
Photochemical oxidant creation potential (POCP)	kg NMVOC eq.	7.59E-01	4.36E-01	1.20E+00
Abiotic depletion potential - Metals and minerals (ADP-metals&minerals) (*)	kg Sb eq.	1.90E-05	1.17E-06	2.01E-05
Abiotic depletion potential - Fossil resources (ADP-fossil) (*)	MJ	4.11E+03	2.70E+03	6.81E+03
Water deprivation potential (WDP) AWARE	m <sup>3</sup> eq.	7.03E+01	7.64E+01	1.47E+02

(\*) The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Use of resources

Resource Use for 1 tonne of Bulb Flat				
PARAMETER	UNIT	Upstream	Core	TOTAL
Use of renewable primary energy as energy carrier (PERE)	MJ	2.36E+03	3.86E+02	2.75E+03
Use of renewable primary energy resources used as raw materials (PERM)	MJ	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy (PERT)	MJ	2.36E+03	3.86E+02	2.75E+03
Use of non-renewable primary energy as energy carrier (PENRE)	MJ	4.32E+03	2.96E+03	7.28E+03
Use of non-renewable primary energy resources used as raw materials (PENRM)	MJ	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable primary energy resource (PENRT)	MJ	4.32E+03	2.96E+03	7.28E+03
Use of secondary material (SM)	kg	1.14E+03	0.00E+00	1.14E+03
Use of renewable secondary fuels (RSF)	MJ	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels (NRSF)	MJ	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water (FW)	m <sup>3</sup>	6.44E+02	2.59E+03	3.23E+03

## Waste indicators

Waste Flows for 1 tonne of Bulb Flat				
PARAMETER	UNIT	Upstream	Core	TOTAL
Hazardous waste disposed	kg	1.11E+01	4.24E-01	1.15E+01
Non-hazardous waste disposed	kg	7.25E+01	6.56E+01	1.38E+02
Radioactive waste disposed	kg	0.00E+00	0.00E+00	0.00E+00

## Differences with other version of the EPD®

This EPD® is the first version, so no older versions exist.

## References

- Ecoinvent, 2021. Ecoinvent Database 3.8. <https://ecoinvent.org/database/>
- EPD International (2019) General Programme Instructions for the International EPD® System. Version 3.01, dated 2019-09-18.
- ISO 14025:2006 Environmental labels and declarations - Type III Environmental Declarations - Principles and procedures
- ISO 14040:2006 Environmental Management - Life Cycle Assessment - Principles and framework
- ISO 14044:2006 Environmental Management - Life Cycle Assessment - Requirements and guidelines
- PCR 2015:03. Basic Iron or Steel Products & Special Steels, except construction products. Version 2.1.0