Environmental Product Declaration

In accordance with ISO 14025 and EN 15804 for:

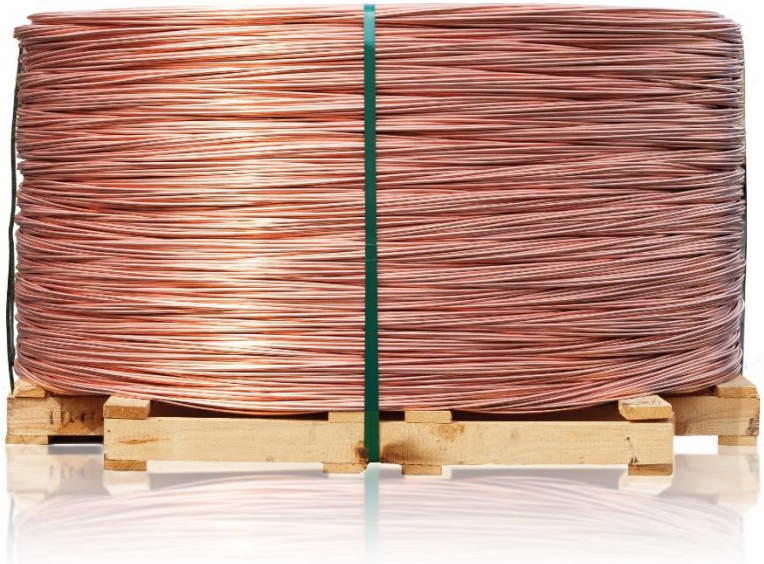
Genius Copper Wire Rod according to EN 1977 standard

from

LAFARGA yourcoppersolutions

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-02032
Publication date:	2020-10-30
Valid until:	2025-10-30
Geographical validity	Global

GENIUS



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 2012:01 Construction products and construction services, Version 2.3.1 Published on 2019.12.20, valid until: 2020.09.01.* *CPC Code: 415 (Semi-finished products of copper, nickel, aluminium, lead, zinc and tin or their alloys).* *For EPDs compliant with EN15804: "CEN standard EN 15804 serves as the Core Product Category Rules (PCR)"*
PCR review was conducted by the Technical Committee of the International EPD® System. Chair: Massino Marino. Contact via info@environdec.com
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ 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 programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804.

The verifier and the programme operator do not make any claim or have any responsibility of the legality of the product.

Company information

Owner of the EPD: LaFarga Yourcoppersolutions SA, 93 850 41 00, www.lafarga.es.
For more information contact Xavier Rovira, Technical Director by mail: xavier.rovira@lafarga.es

Description of the organization: La Farga is a metallurgy-family owned company founded in 1808, that manufactures and sells semi-finished copper products and their alloys for the electrical, metal packaging, railway, tubes, automotive, billets and special conductors' markets. As an International company, we have four production plants, three in Spain and one in the United States called, SDI La Farga.

La Farga is committed to innovation and its application to the development of new products and processes; with more than 35 years in the recycling business, we are a world leader in copper recycling technology; we have sold our expertise to more than 35 plants worldwide.

Environmental sustainability is the foundation of our strategy. The manufacturing process of La Farga places special importance on recycling, which allow us to evaluate high percentages of secondary copper, optimizing natural resources and minimizing the impacts caused in manufacturing.

Product-related or management system-related certifications: the company holds ISO 9001, ISO 14001 and OHSAS 18001:2007 certifications.

Social, environmental, and economic aspects are integrated transversely throughout La Farga. Balancing business goals with social and environmental objectives to create value is the root of the strategy to work towards the sustainability of the company and its long-term stability.

Name and location of production site: Carretera C-17z km63,5 Colonia Lacambra s/n, 08509 Les Masies de Voltregà, Barcelona, Spain.

Product information

Product name: Genius copper wire rod according to EN 1977 standard.

GENIUS
Think smart, act sustainably

Product identification: High conductivity copper wire rod suitable for fabrication into wire by cold drawing, principally for the manufacture of electrical conductors. Its production process is optimized in terms of performance, obtaining a rod of maximum purity, quality and with technical features required for the market. The product is made of 100% recycled copper scrap.

Product description: Intermediate solid wrought product, of circular uniform cross-section its whole length. The product is supplied in coils along. The main scrap origins are: copper recovered in origin (foundries, refineries and finished or semi-finished products), industrial processes (copper scrap recovery and obsolete final products) and obsolete materials (construction, coins, power cables, data cables, special cables, automotive sector, train infrastructures, airplanes and ships). A high copper grade (94-96%) is selected in LaFarga to produce the Genius copper wire rod.

UN CPC code: 415 (Semi-finished products of copper, nickel, aluminium, lead, zinc and tin or their alloys).

Geographical scope: Global

Fabricated in Spain, this product may be used globally.

Chemical composition	1. Cu+Ag > 99,90% 2. ∑ impurities ≤ 600 ppm 3. Oxygen ≤ 400 ppm
Elongation	A200 ≥30%
Electrical properties	1. Conductivity ≥ 100% IACS 2. Volume resistivity ≤ 0,01724 μΩ*m
Anneal ability	Not required

The same Genius copper wire rod may be delivered by LaFarga in the following formats:

Genius copper wire rod formats	
Nominal diameter (mm)	**Linear density (kg/km)**
8	446,86
10	698,22

For more information visit: https://www.lafarga.es/en/products-and-markets/copper-rod

LCA information

Declared unit: 1kg of Genius copper wire rod according to EN 1977 standard

Time representativeness: The specific on-site data are from the year 2017 (less than three years on antiquity).

Database(s) and LCA software used: Generic data used from the Ecoinvent database V3.5, updated in 2018. Simapro v9.0 is used.

Primary data regarding the inflows and outflows of both the foundry and continuous casting plants has been provided by LaFarga Yourcoppersolutions S.A.

Whenever possible, allocation is avoided (e.g. primary and packaging materials used). Mass allocation is used for the rest of inputs used (energy and auxiliary materials) and outputs generated (emissions, waste) in the production plant.

Description of system boundaries: Cradle to gate (see diagram), from the processing of the secondary material (Copper Scrap) to the production and packaging of Genius copper wire rod according to EN 1977, including the production of auxiliary materials and energy, and the management of waste.

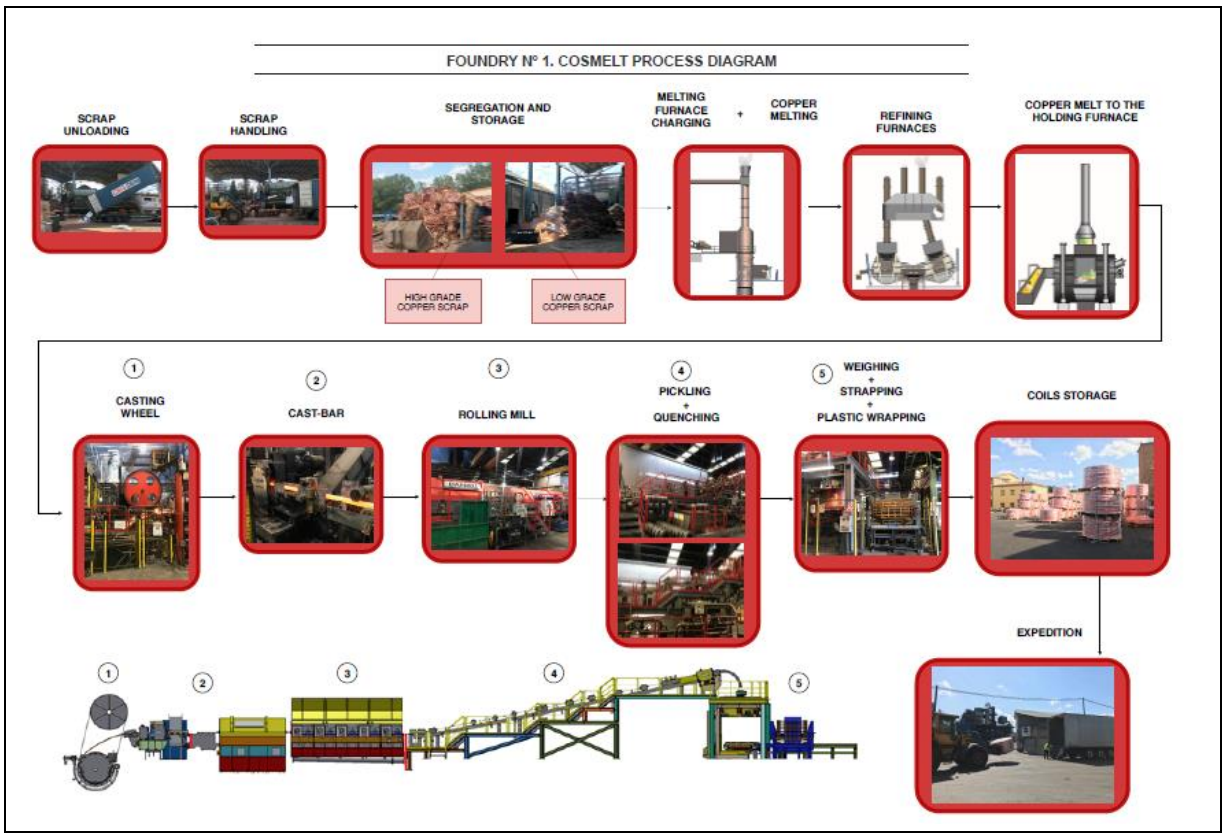
Excluded lifecycle stages: A4, A5, use phase, end of life and module D.

More information:

LCA practitioner:
Lavola – Anthesis Group
Rambla de Catalunya, 6, planta 2, 08007 Barcelona
+34 938 515 055
www.lavola.com

System diagram:

The high grade Copper Scrap is melted in the foundry to produce wire rod. This semi-manufacturaded wire is then packaged and stored until it is prepared for expedition.



Content declaration

Product

Materials / chemical substances	[Unit]	Value	Environmental / hazardous properties
Copper Scrap	%	100	Product losses are fully reused at the manufacturing plant

None of the materials used are listed in the “Candidate List of Substances of Very High Concern for Authorization”.

Packaging

Distribution packaging (inside the manufacturing plant): The Genius copper wire rod produced at the foundry is protected and stored using strips (polypropylene), plastic film and wooden pallets before the expedition

Recycled material

Provenience of recycled materials (pre-consumer or post-consumer) in the product:
The copper scrap used for the manufacturing of this product is a post-consumer material.

To produce copper rod and other semi-finished products in La Farga, main scrap origins can be resumed in copper recovered in origin (foundries, refineries and finished or semi-finished products), industrial processes (copper scrap recovery and obsolete final products) and finally from obsolete materials (construction, coins, power cables, data cables, special cables, automotive sector, train infrastructures, airplanes and ships).

Environmental performance

Environmental performance has been calculated with CML-IA. Characterization factors from CML-IA have been used for estimating the potential environmental impacts, as required by PCR 2012:01 Construction products and construction services, Version 2.3. Results for the other parameters have been calculated using EDIP, CED (Cumulative energy Demand) and ReCiPe Midpoint (H) methodologies.

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold valued, safety margins or risks.

As Sub-PCRs are not available for this product category, system boundaries refer to cradle to gate.

The A1 module is the stage with more contribution to the life cycle environmental impacts, since it represents between a 69% (GWP) and a 99,9% (AD-E), while the A3 module is the second life cycle stage with a highest contribution, representing a maximum of 25% for GWP.

Potential environmental impact

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Global warming potential (GWP)	kg CO_2 eq.	8,55E-01	7,25E-02	3,11E-01	1,24E+00
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC 11 eq.	9,21E-08	1,35E-08	1,23E-09	1,07E-07
Acidification potential (AP)	kg SO_2 eq.	5,40E-03	3,06E-04	1,31E-04	5,83E-03
Eutrophication potential (EP)	kg PO_4^{3-} eq.	1,21E-03	4,15E-05	2,68E-05	1,28E-03
Formation potential of tropospheric ozone (POCP)	kg C_2H_4 eq.	2,58E-04	1,25E-05	1,45E-05	2,85E-04
Abiotic depletion potential – Elements (AD-E)	kg Sb eq.	2,08E-04	1,44E-10	2,63E-09	2,08E-04
Abiotic depletion potential – Fossil resources (AD-FF)	MJ, net calorific value	1,24E+01	1,05E+00	1,77E-01	1,36E+01

Use of resources

PARAMETER		UNIT	A1	A2	A3	TOTAL A1-A3
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1,21E+00	2,63E-03	1,51E-01	1,36E+00
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	9,19E+00	9,19E+00
	TOTAL	MJ, net calorific value	1,21E+00	2,63E-03	9,34E+00	1,06E+01
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	1,51E+01	1,12E+00	2,57E-01	1,65E+01
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	6,75E-02	6,75E-02
	TOTAL	MJ, net calorific value	1,51E+01	1,12E+00	3,24E-01	1,66E+01
Secondary material		kg	1,009E+00	0,00E+00	0,00E+00	1,009E+00
Renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water		m^3	1,46E-02	7,76E-05	6,39E-05	1,48E-02

Waste production and output flows

Waste production

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Hazardous waste disposed	kg	6,52E-03	1,91E-07	7,58E-04	7,28E-03
Non-hazardous waste disposed	kg	8,25E-05	2,04E-07	1,06E-08	8,27E-05
Radioactive waste disposed	kg	2,91E-05	7,62E-06	1,17E-06	3,79E-05

Output flows

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Components for reuse	kg	0	0	2,8E-1	2,8E-1
Material for recycling	kg	0	0	3,76E-03	3,76E-03
Materials for energy recovery	kg	0	0	2,36E-03	2,36E-03
Exported energy, electricity	MJ	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0

References

General Programme Instructions of the International EPD® System. Version 2.5.

PCR 2012:01. Construction Products and Construction Services. 2.3

Life cycle assessment of an Essential copper wire rod and a Genius copper wire rod both according to EN 1977 standard and produced by LA FARGA YOURCOPPERSOLUTIONS S.A. Anthesis Lavola, October 2020 version 2.

ISO 14025:2006 Environmental labels and declarations - Type III environmental declarations - Principles and procedures.

UNE-EN 15804:2012+A1 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.

EN 1977. Copper and copper alloys. Copper wire rod.

Ecoinvent database 3.5 (released on 23rd August 2018).

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