

Environmental Product Declaration



In accordance with ISO 14025 and EN 15804 for:

COPPER SILVER (CuAg0,1) GROOVED CONTACT WIRE ACCORDING TO EN 50149 STANDARD

from



Programme:

The International EPD® System, www.environdec.com

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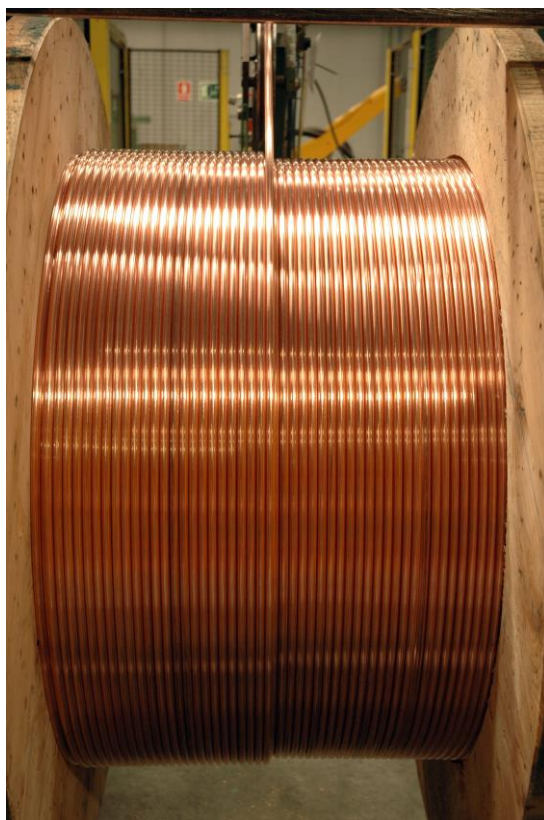
2019-12-17

Valid until:

2024-12-17

Geographical validity

Global



Programme information

Programme:	<p>The International EPD® System</p> <p>EPD International AB Box 210 60 SE-100 31 Stockholm Sweden</p> <p>www.environdec.com info@environdec.com</p>
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Product category rules (PCR): *PCR 2012:01 Construction products and construction services, Version 2.3. Published on 2018.11.15, valid until: 2020.03.03.*
 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: *Version 2.0 of this PCR was reviewed by the Technical Committee of the International EPD® System.*
The review was conducted by Martin Erlandsson, IVL Swedish Environmental Research Institute neither the contact email martin.erlandsson@ivl.se

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 organisation: Founded in 1808, LaFarga is a metallurgical company that manufactures and sells semi-finished copper products and their alloys for the electrical, metal packaging, railway, tubes, automotive, billets and special conductors markets.

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: Copper silver (CuAg0,1) grooved contact wire according to EN 50149.

Product identification: Wire used for overhead contact lines of railway infrastructures.

Product description: The grooved contact wire is mainly composed of copper cathode partially alloyed with silver.

The same Copper Silver grooved contact wire may be delivered by LaFarga in the following formats:

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.

DETAIL OF PROFILES AND SIZES INCLUDED IN COPPER SILVER (CuAg0,1) GROOVED CONTACT WIRE ACCORDING TO EN 50149 STANDARD

PROFILES	NOMINAL CROSS SECTION (mm ²)	MINIMUM MASS (kg/km)	MAXIMUM MASS (kg/km)
AC	80	690	733
AC, BC, BF	100	862	916
	107	923	980
	120	1035	1099
	150	1293	1374

Lengthening (%A200)	3-8
Guideline annealing temperature (°C)	340
Conductivity (%IACS)	97,1
Values according to norm EN-50149	

For more information visit: <https://www.lafarga.es/en/products-and-markets/railway-cables/item/fil-contacto-ranurat>

LCA information

Declared unit: 1kg of copper silver (CuAg0,1) grooved contact wire according to EN 50149.

Time representativeness: The specific on-site data are from the year 2017 (less than two 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 wire drawing 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 production of the primary materials (Copper Cathode and Silver) to the production and packaging of Copper Silver grooved contact wire, including the production of auxiliary materials and energy, and the management of waste.

Two scenarios for distribution (module A4) are declared as additional information.

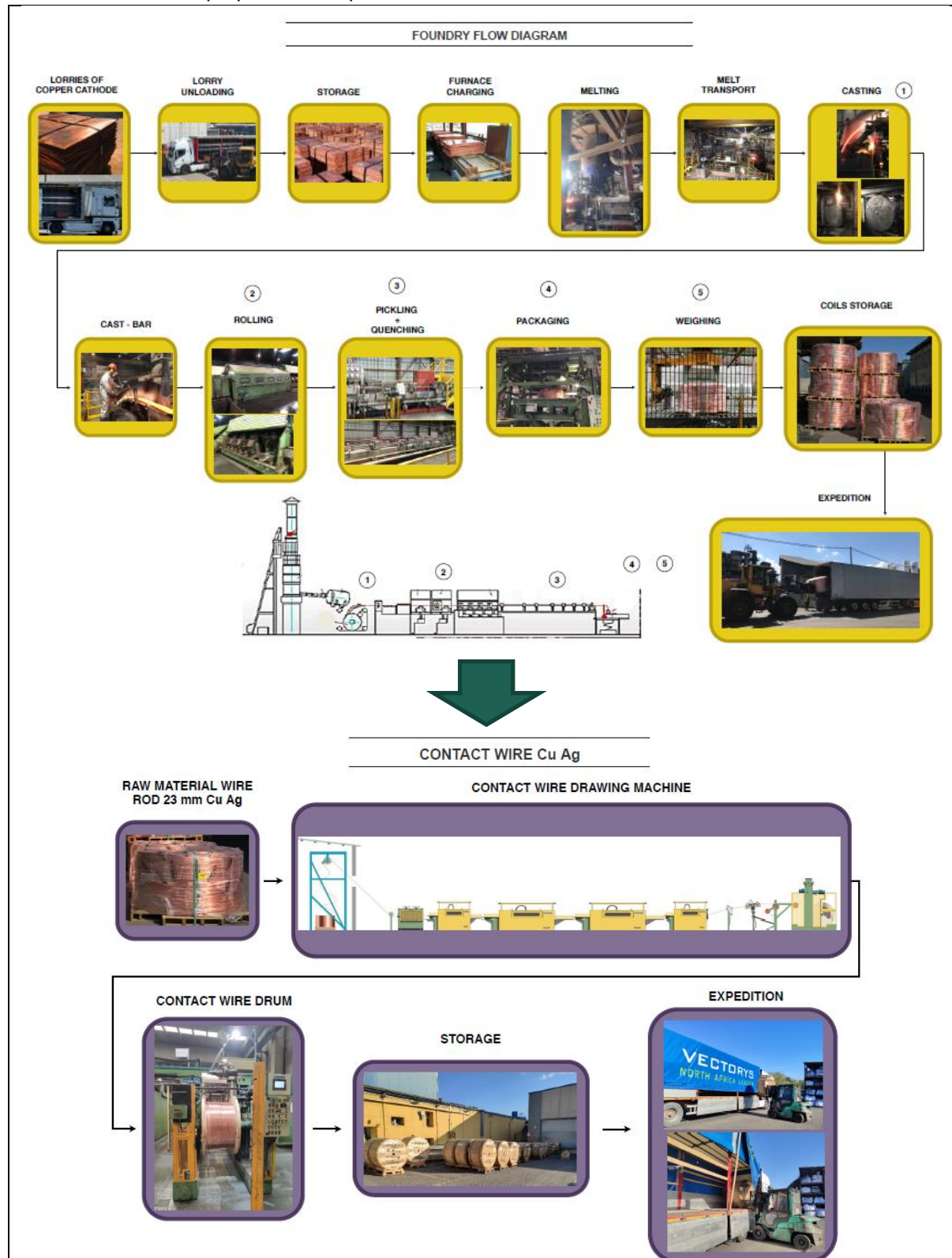
Excluded lifecycle stages: A4, A5, use phase, end of life and module D.

More information:

LCA practitioner:
Lavola – Anthesis Group
Rambla de Catalunya, 6, planta 2, 08007
Barcelona
[+34 938 515 055](tel:+34938515055)
www.lavola.com

System diagram:

Both the foundry and the wire drawing plant are located at the same production site. Copper cathodes and Silver are melted in the foundry to produce wire rod. This semi-manufactured wire is then packaged and stored until it is used, at the wire drawing plant, to produce CuAg (0,1) grooved contact wire which is prepared for expedition.



Content declaration

Product

Materials / chemical substances	[Unit]	%	Environmental / hazardous properties
Copper Cathode	%	99,91	Product losses are fully reused at the manufacturing plant
Silver	%	0,09%	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 Authorisation”.

Packaging

Distribution packaging (inside the manufacturing plant): Copper Silver rod wire produced at the foundry is protected and storage using strips (polypropylene), plastic film and pallets before entering the wire drawing process

Consumer packaging (packaging sent with the product to the delivery point): Copper Silver grooved wire is packaged using wood bobbins, pallet, wood staves, strips, plastic film and iron.

Recycled material

Provenience of recycled materials (pre-consumer or post-consumer) in the product: No recycled materials are used for the manufacturing of this product.

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. A4 for a specific case (transportation from the production site to Norway) is included as additional environmental information.

Potential environmental impact

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Global warming potential (GWP)	kg CO ₂ eq.	1,94E+00	1,64E-01	2,05E-01	2,31E+00
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC 11 eq.	1,66E-07	3,07E-08	1,10E-08	2,08E-07
Acidification potential (AP)	kg SO ₂ eq.	6,39E-02	1,11E-03	6,14E-04	6,56E-02
Eutrophication potential (EP)	kg PO ₄ ³⁻ eq.	4,93E-02	1,25E-04	1,02E-04	4,95E-02
Formation potential of tropospheric ozone (POCP)	kg C ₂ H ₄ eq.	2,25E-03	4,08E-05	3,76E-05	2,33E-03
Abiotic depletion potential – Elements	kg Sb eq.	2,10E-03	3,26E-10	1,60E-08	2,10E-03
Abiotic depletion potential – Fossil resources	MJ, net calorific value	2,160E+01	2,37E+00	1,37E+00	2,54E+01

Use of resources

PARAMETER		UNIT	A1	A2	A3	TOTAL A1-A3
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	7,40E+00	5,78E-03	6,40E+00	1,38E+01
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	9,62E+00	9,62E+00
	TOTAL	MJ, net calorific value	7,40E+00	5,78E-03	1,60E+01	2,34E+01
Primary energy resources – Non- renewable	Use as energy carrier	MJ, net calorific value	2,97E+01	2,53E+00	2,09E+00	3,43E+01
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	8,67E-02	8,67E-02
	TOTAL	MJ, net calorific value	2,97E+01	2,53E+00	2,17E+00	3,44E+01
Secondary material		kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	0,00E+00
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	3,89E-02	2,46E-04	3,70E-03	4,29E-02

Waste production and output flows

Waste production

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Hazardous waste disposed	kg	3,48E-05	4,39E-07	7,60E-04	7,95E-04
Non-hazardous waste disposed	kg	2,48E-06	5,25E-07	1,03E-07	3,11E-06
Radioactive waste disposed	kg	1,24E-04	1,73E-05	1,14E-05	1,53E-04

Output flows

PARAMETER	UNIT	A1	A2	A3	TOTAL A1-A3
Components for reuse	kg	0	0	1,43E-01	1,43E-01
Material for recycling	kg	0	0	3,96E-03	3,96E-03
Materials for energy recovery	kg	0	0	2,97E-03	2,97E-03
Exported energy, electricity	MJ	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0

Additional information

As additional information, the environmental results for the distribution (A4) module are presented below. Two scenarios have been calculated: scenario 1 represents distribution to Asland (Norway) and Scenario 2 shows the results for 1 km transportation.

In both cases, weight transported equals to 1kg of product and 0,16kg of packaging.

Scenarios	Distribution to Asland (Norway)	Distribution 1 km
PARAMETER	value per declared unit	value per declared unit
Fuel type and consumption of vehicle or vehicle type used for transport e.g. long-distance truck, boat, etc.	Truck >32tn EURO V	Truck >32tn EURO V
Distance	3217 km	1 km
Capacity utilisation (including empty returns)	100 % of the capacity in volume 30 % of empty returns	100 % of the capacity in volume 30 % of empty returns
Bulk density of transported products*	8,89 kg/m ³	8,89 kg/m ³
Volume capacity utilisation factor	No applicable	No applicable

PARAMETER	UNIT	Distribution to Asland (Norway)	Distribution 1 km
Global warming potential (GWP)	kg CO ₂ eq.	2,66E-01	8,26E-05
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC 11 eq.	4,89E-08	1,52E-11
Acidification potential (AP)	kg SO ₂ eq.	6,88E-04	2,14E-07
Eutrophication potential (EP)	kg PO ₄ ³⁻ eq.	1,17E-04	3,62E-08
Formation potential of tropospheric ozone (POCP)	kg C ₂ H ₄ eq.	3,27E-05	1,02E-08
Abiotic depletion potential – Elements	kg Sb eq.	5,17E-10	1,61E-13
Abiotic depletion potential – Fossil resources	MJ, net calorific value	3,77E+00	1,17E-03

PARAMETER		UNIT	Distribution to Asland (Norway)	Distribution 1 km
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	9,69E-03	3,01E-06
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00
	TOTAL	MJ, net calorific value	9,69E-03	3,01E-06
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	4,03E+00	1,25E-03
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00
	TOTAL	MJ, net calorific value	4,03E+00	1,25E-03
Secondary material		kg	0,00E+00	0,00E+00
Renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00
Non-renewable secondary fuels		MJ, net calorific value	0,00E+00	0,00E+00
Net use of fresh water		m³	3,92E-04	1,22E-07

PARAMETER	UNIT	Distribution to Asland (Norway)	Distribution 1 km
Hazardous waste disposed	kg	6,86E-07	2,134E-10
Non-hazardous waste disposed	kg	6,75E-07	2,097E-10
Radioactive waste disposed	kg	2,75E-05	8,548E-09

PARAMETER	UNIT	Distribution to Asland (Norway)	Distribution 1 km
Components for reuse	kg	0	0
Material for recycling	kg	0	0
Materials for energy recovery	kg	0	0
Exported energy, electricity	MJ	0	0
Exported energy, thermal	MJ	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 a copper silver (CuAg0,1) grooved contact wire according to EN 50149 produced by LA FARGA YOURCOPPER SOLUTIONS S.A. Lavola, December 2019.

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 50149:2012 Railway applications – Fixed installations – Electric traction – Copper and copper alloy grooved contact wires.

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

