

GlobalEPD

A VERIFIED ENVIRONMENTAL DECLARATION



Environment
al Product
Declaration

EN ISO 14025:2010

EN 15804:2012+A2:2019

EN 15804:2012+A2:2019/AC:2021

AENOR

Copper Anode

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Cunext Copper Industries



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<p>Product category rule</p> <p>European Standard UNE-EN 15804:2012+A2:2019 serves as the basis for the PCR (Product Category Rules)</p>
<p>Independent verification of the declaration and data in accordance with EN ISO 14025:2010</p> <p><input type="checkbox"/> Internal <input checked="" type="checkbox"/> External</p>
<p>Verification body</p> <p>AENOR</p> <p>Product certification body accredited by ENAC with accreditation No. 1/C-PR468.</p>

1. General information

1.1. The organisation

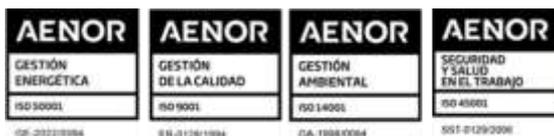
Grupo Cunext is a leader in the transformation of copper and aluminium of the highest quality, with sustainability, continuous innovation and the development of products that bring greater value to the market at the core of its operations.

Its facilities are located in Spain, in the provinces of Córdoba, Madrid, Barcelona, Zaragoza and Vitoria. It also has an international presence in Italy and the United States.

The copper and aluminium products manufactured by the Cunext Group are always at the top of the quality range, with the company positioning itself as a leading supplier in its sector in Southern Europe and North Africa; being a leading supplier of wire rod, wire and drawn products, ropes and extruded products.

The Cunext Group's facilities have various certifications that endorse the commitment to sustainability adopted in the management of all its processes:

- UNE-EN-ISO 9001:2015. No. ER-0128/1994
- UNE-EN-ISO 14001:2015. No. GA-1998/0084
- European Regulation 1221/2009 (EMAS) No. E-AN-0000006
- UNE-EN-ISO 45001:2018. No. SST-0129/2006
- UNE-EN-ISO 50001:2018. No. GE-2022/0064



1.2. Scope of the Declaration

This environmental product declaration describes environmental information relating to the life cycle of the copper anode produced at the Cunext Copper Industries plant in Córdoba, in the Spanish geographical and technological environment during the year 2025.

1.3. Life cycle and compliance.

This EPD has been developed and verified in accordance with UNE-EN ISO 14025:2010 and UNE-EN 15804:2012+A2:2020 standards.

PRODUCT CATEGORY RULE INFORMATION

Descriptive title	Sustainability in construction. Environmental product declarations. Basic product category rules for construction products
Registration code and version	UNE-EN 15804:2012+A2:2020
Issue date	2020
Programme Manager	AENOR

This Environmental Declaration includes the following life cycle stages:

System limits.		
Information modules considered		
	A1 Supply of raw materials	X
	A2 Transport to the factory	X
	A3 Manufacture	X
Construction	A4 Transport to construction site	MNE
	A5 Installation / construction	MNE
Stage of use	B1 Application	MNE
	B2 Maintenance	MNE
	B3 Repair	MNE
	B4 Replacement	MNE
	B5 Reinstatement	MNE
	B6 In-service energy use	MNE
	B7 In-service water use	MNE
End of life	C1 Deconstruction / demolition	X
	C2 Transport	X
	C3 Waste treatment	X
	C4 Removal	X
D	Potential for reuse, recovery and/or recycling	X
X = Module included in the LCA; NR = Module not relevant; MNE = Module not evaluated		

This EPD may not be comparable with those developed in other Programmes or according to different reference documents, in particular it may not be comparable with EPDs not developed according to UNE-EN 15804+A2.

Similarly, these EPDs may not be comparable if the origin of the data is different (e.g. databases), or not all relevant information modules are included, or they are not based on the same scenarios.

The comparison of construction products must be made on the same function, applying the same functional unit and at the level of the building (or architectural or engineering work), i.e. including the behaviour of the product throughout its life cycle, as well as the specifications of section 6.7.2 of UNE-EN ISO 14025.



3. LCA information

3.1. Life cycle assessment

The Life Cycle Assessment Report that supports this EPD has been developed by Sinergy, based on specific data provided by the Cunext Group for the copper anode manufacturing process at the Cunext Copper Industries plant in Córdoba, corresponding to the year 2025.

The generic data source was the SimaPro 10.2 software together with the Ecoinvent 3.11 database.

The LCA life cycle analysis has a cradle-to-gate scope with options, including modules A1-A3, C1 to C4 and D.

3.2. Declared unit

The declared unit is defined as **1 tonne** of copper anode.

3.3. Allocation criteria

For processes shared with the production of other types of products, where allocation could not be avoided, allocation rules based on product mass were applied:

- Fuel consumption of transport machinery.
- Oxygen and nitrogen consumption.
- Water consumption.
- Water discharge.
- Waste disposal.

3.4. Cut-off criteria

In the quantification of material and energy flows, cut-off criteria in accordance with EN 15804 +A2 have been used. In this way, material flows representing less than 1% of the accumulated mass of inputs and outputs may be excluded, unless their environmental relevance is significant. Similarly, energy flows of less than 1% of the cumulative energy inputs and outputs can be excluded, unless their environmental relevance is significant. In any case, the sum of the excluded flows does not exceed 5% of the mass, energy or overall environmental impact. The cut-off criterion has not been applied to omit available data with relevant impact.

Given that the anode is an intermediate product that can be used in various applications, the following have been excluded from the analysis of the construction and use stages:

- A4-A5 Construction processes - Installation.
- B1-B7 Use stage processes
- Equipment production and maintenance.
- Employee movements.

3.5. Representativeness, quality and selection of data

For the development of this study, the data quality requirements established by the UNE-EN 15804:2012+A2:2020 standard have been taken into account and are summarised in the following table. The data quality assessment has been carried out according to table E.1 of Annex E of the above-mentioned standard.

Table 4. Data quality criteria

Criteria	Description
Integrity	All relevant processes in the anode production value chain have been used, representing the specific situation of each of them.
Consistency	To ensure consistency, data at the same level of detail and developed under the same methodological considerations have been used.
Reproducibility	The methods and data used have been described in such a way that they can be reproduced by an independent professional.
Representativeness	
Geographical coverage	The geographical scope of the data is representative of the operational reality of the different phases of the life cycle analysed.
Temporary coverage	The specific data for the production of the ground wire at the Cunext Copper Industries plant in Córdoba covers the first half of 2025. The generic data source was the SimaPro 10.2 software together with the Ecoinvent 3.11 database. Generic data are representative of a period within the last 10 years.
Technological coverage	The data is representative of the copper anode production technologies at the Cunext Copper Industries plant in Córdoba, where it is manufactured. The Ecoinvent 3.11 database has been used to model the representative processes of the components not manufactured at Cunext.

Following the data quality criteria, and considering that the processes are representative of the declared geographical area, that the technological aspects are very similar, with no need to modify technical aspects significantly and that the data are less than 3 years old, the level of data quality is considered to be good.

The copper anode is manufactured in Spain, and is intended to be used domestically for the production of cathode copper, although it may be distributed internationally for processing into copper products.

3.6. Other calculation rules and assumptions

For the modelling of the energy consumption related to the anode production process, the electricity mix process for the high voltage supply in Spain of Ecoinvent 3.11 has been modified to adapt it to the supplier's mix in accordance with the remaining labelling established by the CNMC.

The GWP of the electricity mix applied specifically for A1-A3 is 0.28 kg CO₂e/kWh.

In order to determine the impacts associated with electricity consumption in the manufacturing stage, the energy mix of the supplier has been modelled, without the use of GDO.

The GWP of natural gas applied specifically for A1-A3 is 0.04 kg CO₂e/MJ.

For the characterisation of the potential environmental impacts throughout the analysed life cycle, the impact method according to EN 15804 +A2 has been applied, using the SimaPro 10.2 software together with the Ecoinvent 3.11 database. The EN 15804+A2 impact methodology uses the characterisation factors of the Environmental Footprint 3.1 method. The Cumulative Energy Demand LHV 1.01 method has also been used for the energy-related environmental indicators (PERT, PERNT), and the Selected LCI Results 1.08 method for the water use indicator (FW).

The "Cut-off" criterion has been applied for Ecoinvent processes.

4. System limits, scenarios and additional technical information.

4.1. Pre-manufacturing processes.

Module A1 includes the extraction and processing of raw materials, as well as the generation of the electricity consumed in the product manufacturing processes.

Cunext's copper anode is produced from secondary copper from the recovery of offcuts, rejects and scrap, generated in copper transformation processes and at the end of life of copper equipment and products.

Module A1 also includes the generation of imported and self-generated electricity consumed in the anode production processes.

Module A2 includes the processes of transporting materials to the production plant.

4.2. Manufacture of the product.

Module A3 includes the copper anode manufacturing processes at the Cunext Copper Industries facility.

The raw material is melted in the furnaces, in a thermal refining process through the stages of smelting, oxidation, slag removal and reduction.

The molten copper is then poured onto a casting wheel, from which high-purity copper anodes of the appropriate shape and weight are obtained for subsequent treatment in the electrolytic refining process.

4.3. End-of-life stages

For modules C1-C4: the following assumptions and scenarios have been considered.

- C1: the dismantling or demolition of the product of the building or facility has been undertaken, indistinguishable from the enclosure materials, and the sorting of materials on site.
- C2: a transport distance from the place of disassembly to the treatment or disposal plant of 150 km is considered.
- C3: 70% (Law 7/2022) of the material has been considered for subsequent recycling.
- C4: final disposal of the remaining 30% of the material in an inert landfill has been considered.

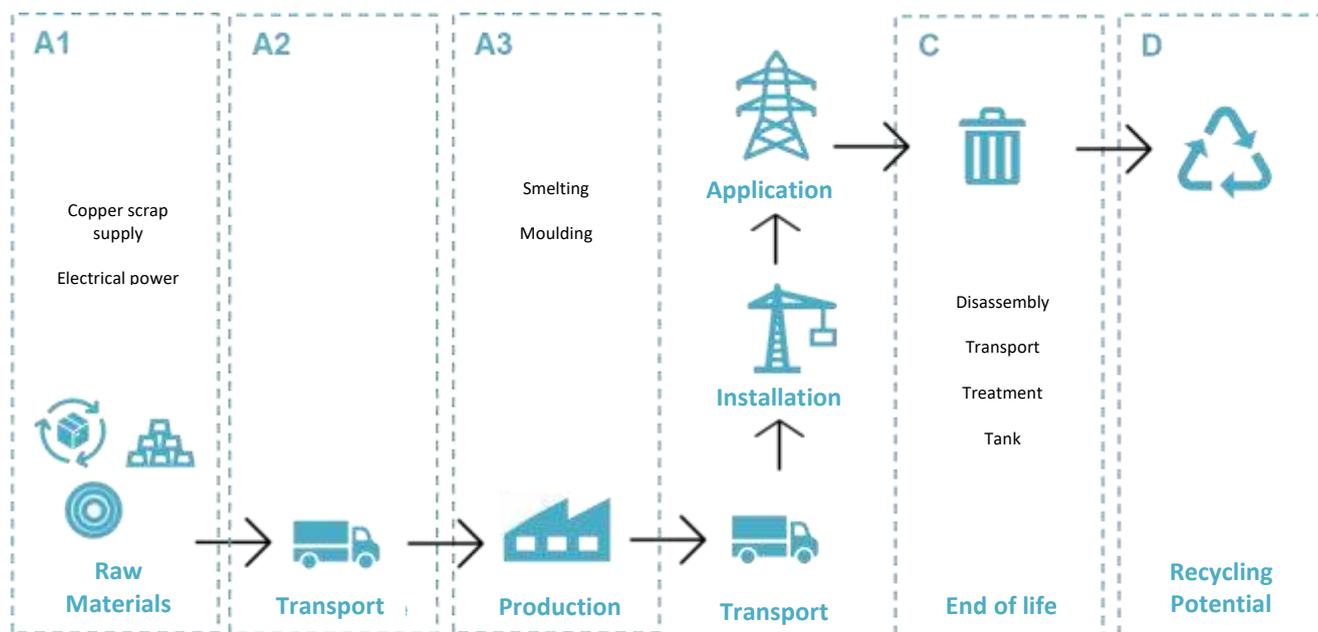
Table 5. End-of-life scenarios

Criteria	Description
Collection process	70% collected separately.
	30% collected with mixed construction waste.
Recovery system	.0% for reuse.
	95% of copper for recycling. 0% for energy recovery.
Removal	5% of copper for landfill.
	30% mixed waste for landfill.
Transport	150 km road transport by 7.5-16t Euro 6 truck.

4.4. Benefits and burdens beyond the system

D: the net impacts related to the recycling potential beyond the system boundaries have been calculated as the impacts associated with the virgin material that the recycled material replaces, taking into account the avoided impacts of the input and output secondary materials.

In the case of copper anode, the input secondary materials constitute 100% of the raw material.



System Limits



5. Declaration of environmental parameters of the LCA and LCI

Environmental impacts.

The estimated impact results are relative and do not indicate the final value of the impact categories, nor do they refer to threshold values, safety margins or risks.

Parameter	Units	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
GWP-total	kg CO2 eq	4.18E+01	3.18E+01	2.95E+02	3.68E+02	1.64E+02	2.93E+01	8.44E+01	1.77E+00	0.00E+00
GWP-fossil	kg CO2 eq	4.02E+01	3.17E+01	2.94E+02	3.66E+02	1.64E+02	2.93E+01	8.34E+01	1.77E+00	0.00E+00
GWP-biogenic	kg CO2 eq	1.65E+00	2.05E-02	7.32E-01	2.41E+00	2.92E-02	6.52E-03	7.98E-01	4.52E-03	0.00E+00
GWP-luluc	kg CO2 eq	5.46E-03	1.12E-02	4.38E-02	6.05E-02	6.76E-03	4.59E-04	1.77E-01	2.82E-04	0.00E+00
ODP	kg CFC11 eq	6.30E-07	6.80E-07	3.25E-05	3.38E-05	2.50E-06	6.59E-07	4.75E-07	6.59E-08	0.00E+00
AP	mol H+ eq	2.28E-01	1.09E-01	4.04E-01	7.41E-01	1.52E+00	7.28E-02	4.08E-01	1.10E-02	0.00E+00
EP-freshwater	kg P eq	1.32E-03	2.31E-04	2.04E-03	3.59E-03	1.55E-04	1.79E-05	4.43E-03	9.97E-06	0.00E+00
EP-marine	kg N eq	3.76E-02	2.53E-02	1.25E-01	1.88E-01	7.15E-01	2.74E-02	7.42E-02	4.69E-03	0.00E+00
EP-terrestrial	mol N eq	4.13E-01	2.80E-01	1.40E+00	2.10E+00	7.84E+00	3.00E-01	8.18E-01	5.14E-02	0.00E+00
POCP	kg NMVOC eq	1.46E-01	1.34E-01	7.92E-01	1.07E+00	2.34E+00	1.21E-01	2.43E-01	2.08E-02	0.00E+00
ADP-minerals& metals ²	kg Sb eq	1.17E-04	1.05E-04	3.23E-03	3.45E-03	5.75E-06	7.57E-07	2.47E-06	2.22E-06	0.00E+00
ADP-fossil ²	MJ	8.06E+02	3.51E+01	2.28E+02	1.07E+03	2.07E+01	2.56E+00	7.67E+02	1.69E+00	0.00E+00
WDP ²	m3 worl eq depriv	1.70E+01	1.73E+00	6.85E+01	8.72E+01	1.60E+00	1.26E-01	1.10E+01	1.52E-01	0.00E+00

GWP - total: Global warming potential; **GWP - fossil:** Global warming potential of fossil fuels; **GWP - biogenic:** Biogenic global warming potential; **GWP - luluc:** Global warming potential of land use and land use change; **ODP:** Stratospheric ozone depletion potential; **AP:** Acidification potential, cumulative surplus; **EP-freshwater:** Eutrophication potential, fraction of nutrients reaching the final freshwater compartment; **EP-marine:** Eutrophication potential, fraction of nutrients reaching the final marine water compartment; **EP-terrestrial:** Eutrophication potential, cumulative surplus; **POCP:** Tropospheric ozone formation potential; **ADP-minerals&metals** Abiotic resource depletion potential for non-fossil resources; **ADP-fossil:** Abiotic resource depletion potential for fossil resources; **WDP:** Water deprivation potential (user), weighted water deprivation consumption. **NR:** Not relevant

Additional environmental impacts

Parameter	Units	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
PM	Incidence of diseases	5.17E-07	2.29E-06	2.19E-05	2.47E-05	4.03E-04	1.65E-06	3.67E-06	2.78E-07	0.00E+00
IRP ¹	kBq U235 eq	1.48E+01	1.91E-01	2.34E+00	1.73E+01	1.78E-01	3.71E-02	4.51E+00	1.42E-02	0.00E+00
ETP-fw ²	CTUe	4.69E+01	5.89E+01	4.61E+02	5.67E+02	6.16E+01	1.29E+01	1.68E+02	4.49E+00	0.00E+00
HTP-c ²	CTUh	5.89E-09	5.40E-09	1.75E-08	2.88E-08	8.77E-09	1.85E-09	6.96E-09	7.43E-09	0.00E+00
HTP-nc ²	CTUh	2.14E-07	2.73E-07	5.63E-07	1.05E-06	1.61E-07	1.65E-07	3.97E-07	6.48E-09	0.00E+00
SQP ²	-	5.90E+01	2.58E+02	1.47E+02	4.64E+02	3.65E+00	4.90E-01	1.01E+02	8.90E+01	0.00E+00

PM: Potential incidence of diseases due to particulate matter (PM) emissions; **IRP:** Exposure efficiency of the human potential relative to U235; **ETP-fw:** Comparative ecosystem toxic unit potential - freshwater; **HTP-c:** Comparative ecosystem toxic unit potential - carcinogenic effects; **HTP-nc:** Comparative ecosystem toxic unit potential - non-carcinogenic effects; **SQP:** Soil quality potential index; **NR:** Not relevant

Notice 1: This impact category deals mainly with the potential impacts of low doses of ionising radiation on human health from the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents and occupational exposure due to the disposal of radioactive waste in underground facilities. The ionising radiation potential of soil, due to radon or some building materials is also not measured with this parameter.

Notice 2: The results of this environmental impact indicator should be used with caution, as the uncertainties of the results are high and experience with this parameter is limited.

Use of resources

Parameter	Units	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
PERE	MJ	1.36E+02	7.26E+00	6.66E+01	2.10E+02	4.69E+00	9.63E-01	1.46E+02	9.00E-01	0.00E+00
PERM	MJ	0.00E+00								
PERT	MJ	1.36E+02	7.26E+00	6.66E+01	2.10E+02	4.69E+00	9.63E-01	1.46E+02	9.00E-01	0.00E+00
PENRE	MJ	8.06E+02	3.51E+01	2.28E+02	1.07E+03	2.07E+01	2.56E+00	7.67E+02	1.69E+00	0.00E+00
PENRM	MJ	0.00E+00	0.00E+00	9.48E-03	9.48E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	8.06E+02	3.51E+01	2.28E+02	1.07E+03	2.07E+01	2.56E+00	7.67E+02	1.69E+00	0.00E+00
SM	kg	8.18E+02	0.00E+00	0.00E+00	8.18E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00								
NRSF	MJ	0.00E+00								
FW	m ³	2.67E-01	5.53E-02	1.52E+00	1.84E+00	6.45E-02	7.46E-03	4.70E-01	5.02E-02	0.00E+00

PERE: Renewable primary energy use excluding renewable primary energy resources used as feedstock; **PERM:** Use of renewable primary energy used as feedstock; **PERT:** Total use of renewable primary energy; **PENRE:** Non-renewable primary energy use, excluding non-renewable primary energy resources used as feedstock; **PENRM:** Use of non-renewable primary energy used as feedstock; **PENRT:** Total non-renewable primary energy use; **SM:** Use of secondary materials; **RSF:** Use of renewable secondary fuels; **NRSF:** Use of non-renewable secondary fuels; **FW:** Net use of flowing water resources; **NR:** Not relevant

Waste categories

Parameter	Units	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
HWD	kg	9.38E-03	1.12E-02	4.33E-02	6.38E-02	1.61E-02	2.79E-03	3.80E-02	6.31E-04	0.00E+00
NHWD	kg	1.74E-01	2.08E+01	4.97E+01	7.07E+01	7.53E-02	1.28E-02	5.23E-01	3.00E+02	0.00E+00
RWD	kg	9.34E-03	1.30E-04	1.81E-03	1.13E-02	1.00E-04	2.33E-05	2.91E-03	8.86E-06	0.00E+00

HWD: Hazardous waste disposed of; **NHWD:** Non-hazardous waste disposed of; **RWD:** Radioactive waste disposed of; **NR:** Not relevant

Outflows

Parameter	Units	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
CRU	kg	0.00E+00								
MFR	kg	0.00E+00	0.00E+00	4.60E+01	4.60E+01	0.00E+00	0.00E+00	6.65E+02	0.00E+00	0.00E+00
MER	kg	0.00E+00								
EE	MJ	0.00E+00								

CRU: Components for re-use; **MFR:** Materials for recycling; **MER:** Materials for energy recovery; **EE:** Energy exported; **NR:** Not relevant

Information on biogenic carbon content

Biogenic carbon content	Units	Result per declared functional unit
Biogenic carbon content of product	Kg CO ₂	0.00E+00
Biogenic carbon content of packaging	Kg CO ₂	0.00E+00

References

- [1] General Instructions for the GlobalEPD Programme 3rd revision 09-10 2023
- [2] UNE-EN ISO 14025:2010 Environmental labels. Type III environmental declarations. Principles and procedures (ISO 14025:2006).
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- [9] Copper Anode LCA Report. Cunext. December 2025: V01

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A verified environmental declaration

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