Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Recycled Aggregates

for

APRR.EUS

Association of Stationary (Fixed) Construction and Demolition Waste Recycling Plants of Basque Country



Programme:	The International EPD [®] System, <u>www.environdec.com</u>
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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









General information

Programme information

Programme:	The International EPD [®] System						
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Accountabilities for PCR, LCA and independent, third-party verification

Product Category Rules (PCR)

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)

Product Category Rules (PCR): PCR 2019:14 Construction products (EN 15804:A2) Version 1.3.2.

PCR review was conducted by: The Technical Committee of the International EPD System. See www.environdec.com for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.

Life Cycle Assessment (LCA)

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Third-party verification

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

⊠ EPD verification by accredited certification body

Third party verifier:

Tecnalia R&I Certificacion, SL Auditor: Eva Larzabal info@tecnaliacertificacion.com Accredited by: ENAC nº125/C-PR283 accreditation.

Procedure for follow-up of data during EPD validity involves third party verifier:

 \boxtimes Yes \Box 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, or not compliant with EN 15804, 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 EN 15804 and ISO 14025.



APRR.EUS

The Association of Stationary (Fixed) Construction and Demolition Waste Recycling Plants of the Basque Country (APRR.EUS) - https://www.aprr.eus - was set up in February 2010 and currently brings together the main fixed Construction and Demolition Waste (CDW) recovery plants in the Basque Country which, by means of technologically advanced processes, make it possible to optimize the resources contained in CDW and obtain a product, RECYCLED CDW AGGREGATE for incorporation into new processes for construction purposes.

APRR.EUS participates in a clear and decisive commitment of the Basque Government's Department of the Environment as a strategic line in the correct management of waste, and in particular of CDW waste for the production of a commercial product, RECYCLED CDW AGGREGATE, with CE MARKING, for its reintroduction into the production cycle, replacing the use of natural aggregates extracted from the natural ecosystem.

The basic aim of the Association is to represent its members in the promotion of all those actions that contribute to the development of the CDW recovery sector by means of fixed plant in the Basque Country and to promote the prestige of the profession against the bad practices rooted in the past, contrary to the regulations and good practice in the management of this type of waste.

The APRR. EUS plants are a key 'end of the line' element in the process of proper management and recovery of construction and demolition waste, working to involve all the agents - public and private - that intervene in the waste production/possession/management chain, in raising awareness and implementing and complying with the regulations governing the correct management of this type of waste.

All of this with the clear aim of, either through green public procurement or in the private framework, through information and formation, allow the reintroduction of RECYCLED AGGREGATE FROM CDW into the production cycle with all the environmental and technical guarantees for its correct use.

Since July 2015, APRR.EUS has been a member of FEDERACIÓNRCDs, the Spanish Federation of Associations of Construction and Demolition Waste Management Companies (https://federacionrcd.org).

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Participating companies

The companies participating in this EPD and their production sites are the following ones:



U.T.E RCD GARDELEGUI 2005 Vitoria-Gasteiz. Álava

BIZKAIKO TXINTXOR BERZIKLATEGIA S.A Ortuella. Vizcaya.

> **CONTAINERS SUSPERREGI S.L** Errenteria. Guipúzcoa

> > **VOLBAS S.A.U** Erandio. Vizcaya

CARLOS SANTAMARÍA S.L. El campillar, La Guardia. Álava

Product information

Product description

Participating companies produce a wide variety of recycled aggregate from construction and demolition waste (CDW) for use in construction. Recycled aggregate from construction and demolition waste is the aggregate resulting from the treatment of inorganic material previously used in construction. These can be classified into the following typologies:

- Recycled concrete aggregate: is the recycled aggregate from construction and demolition waste in which the components, determined according to the UNE-EN 13242 and UNE-EN 933-11 standards, exceed 90% by weight in concrete, concrete products, mortars, parts for concrete masonry, aggregates and natural stones, as well as materials treated with hydraulic binders; and may not exceed 2% by weight of glass. At least 50% must consist of concrete, concrete products, mortar and concrete masonry components.
- Mixed recycled aggregate: is the aggregate recycled from construction waste in which the components, determined according to the UNE-EN 13242 and UNE-EN 933-11 standards, exceed 70% by weight in concrete, concrete products, mortars, parts for concrete masonry, aggregates and natural stones, as well as materials treated with hydraulic binders; not exceeding 2% by weight of glass. The remainder shall consist of clay masonry ceramic materials (bricks and tiles) or calcium silicate, non-floating aerated concrete.

The product represented is the result of the average of the different recycled aggregates produced by the companies participating in this sector EPD. This average aggregate has been obtained by weighting with respect to the production of each of the participating manufacturers on the basis of inventory data. Therefore, the declared product corresponds to an average product which itself is not available on the market. In addition, the maximum and minimum variation of the declared indicators and parameters has been calculated. The declared range contains the variation due to the different products represented by the average product, and to the different production sites included in the study. The following table lists the production plants analysed, as well as the analysed recycled aggregates from each of them.



Production plant	Produced recycled aggregate analysed				
	ARH 40-160				
	ARH 160-350				
U.I.E RCD GARDELEGUI 2005I	ARH 0-40				
	ARH 40-80				
BIZKAIKO TXINTXOR BERZIKLATEGIA S.A	Recycled mixed aggregate 0-40-T-R(M)				
	ARH gravel 0-20 / 0-32				
	ARH Sand 0-6				
CONTAINERS SUSPERREGIS.L	ARH Ballast 40-80				
	ARM gravel 0-20 / 0-32				
	Z-0 / 40-T-R				
VOLBAS S.A.U	AR1 and AR2				
	Recycled Selected Material 40/100				
CADLOS SANITANAADÍA S I	Recycled Selected Soil 0/80				
CARLOS SANTAWARIA S.L.	Recycled Artificial gravel 0/40				
	Recycled Mixed Asphalt 0/40				

Uses of recycled aggregates:

Recycled aggregates may be used:

- According to EN 13242:2002 + A1:2007: For granular and hydraulically bound layers for use in structural pavement layers.
- According to the ORDER of 12 January 2015, of the Regional Minister for the Environment and Territorial Policy, which establishes the requirements for the use of recycled aggregates from the recovery of construction and demolition waste.

In unbound applications:

- ✓ As selected granular material in road construction, for the execution of improved graded embankments, embankments or other related construction units.
- ✓ As selected granular material in localised fills under sealed surface.
- ✓ As selected granular material in urbanisation projects of industrial or residential areas, under sealed surface.
- ✓ As a graded aggregate used in the execution of structural layers of road surfaces. Note: a sealed surface is defined as a surface that guarantees infiltration of less than 6 mm/year.

In bound applications

- ✓ As granular material for the construction of soil-cement and gravel-cement, in the construction of structural layers of road surfaces, as established in the corresponding annexes of the Standard for the dimensioning of road surfaces of the Basque Country road network.
- ✓ As a granular material in the manufacture of mortar, pozzolanic bricks and cement as established in the technical standard applicable in each case.
- ✓ As a granular material in the manufacture of both structural and non-structural concrete, including prefabricated concrete.





Technical characteristics:

The technical characteristics of the products analysed are the following ones:

Characteristic	Values	Standards
Particle size (d/D)	Declaration of the manufacturer	UNE-EN 13242:2002 +A1:2007 Article 4.2
Granulometry	Declaration of the manufacturer	UNE-EN 13242:2002 +A1:2007 Article 4.3.1 Table 2
Particle shape	Declaration of the manufacturer	UNE-EN 13242:2002 +A1:2007 Article 4.4 Table 5
Density of particles after drying	Declaration of the manufacturer	UNE-EN 13242:2002 +A1:2007 Article 5.4
fines content	Declaration of the manufacturer	UNE-EN 13242:2002 +A1:2007 Article 4.6 Table 8
Sand equivalent	Declaration of the manufacturer	UNE-EN 13242:2002 +A1:2007 Article 4.4 Table 5
Cleanliness coefficient	Declaration of the manufacturer	Annex C UNE 146130
Percentage of fracture faces	Declaration of the manufacturer	UNE-EN 13242:2002 +A1:2007 Article 4.5 Table 7
Fragmentation resistance of coarse aggregate. Los Angeles test.	Declaration of the manufacturer	UNE-EN 13242:2002 +A1:2007 Article 5.2 Table 9
Water absorption / water suction.	Declaration of the manufacturer	UNE-EN 13242:2002 +A1:2007 Article 5.5 Table 9 UNE-EN 1097.6
Composition and classification of coarse aggregates. Rc ₅₀ Rcug ₉₀ Rb ₁₀₋ Ra ₅₋ FL ₅₋ X ₁₋ Rg ₂₋	Declaration of the manufacturer	UNE-EN 13242:2002 +A1:2007 Article 5.6 Table 12
Humus content	Declaration of the manufacturer	UNE-EN 1744-1:10 +A1:13. Ap.15.1

According to the project European Standard prEN 933-11:

Symbol	Component of recycled aggregates			
	Concrete, concrete products, mortar, concrete			
Rc	masonry products, concrete masonry			
	components			
Pu	Untreated aggregates, natural stone, aggregates			
l Xu	treated with hydraulic binders			
	Clay masonry masonry units (i.e. bricks and			
Rb	tiles), calcium silicate masonry masonry units,			
	non-floating aerated concrete			
Ra	Bituminous materials			
Rg	Glass			
FL	Floating material by volume			
	Other, cohesive materials (i.e. clay and soil).			
X	Miscellaneous, metals (ferrous and non-ferrous).			
	Wood, non-floating plastics and rubber, gypsum.			

<u>UN CPC Code:</u> UN CPC 89420 (Non-metal waste and scrap recovery (recycling) services, on a fee or contract basis).



LCA information

<u>Declared unit</u>: The declared unit is the baseline reference for which all information is collected. In this study, the declared unit is **"1000 kg of recycled aggregates"**.

<u>Reference service life:</u> RSL is not relevant for this EPD. The service life will depend in any case on the properties of the product, its installation and the conditions of use.

<u>Time representativeness</u>: The data collection from participating companies (primary data) and electricity mix are from 2022/01/01 to 2022/12/31. In this study, no datasets older than 10 years were used.

<u>Geographical scope</u>: Foreground data is based on the participating companies facility in Basque Country (Spain).

Database(s) and LCA software used: All the data used to model the process and obtain the Life Cycle Inventory are specific data and have been obtained by measurements made during the period from 2022/01/01 to 2022/12/31 by the companies. In addition, the most complete and highest quality European life cycle inventory database, Ecoinvent 3.9, has been used, as this database contains the most extensive and updated information and its scope coincides with the geographical, technological and temporal area of the project. The LCA was modelled with Simapro 9.5.0.1. and EN 15804 reference package based on EF 3.1 has been used.

Description of system boundaries:

According to the standard EN 15804:2012+A2:2019/AC:2021 and PCR 2019:14 CONSTRUCTION PRODUCTS (version 1.3.2) the system boundary includes the environmental impacts associated with stockpiling and loading the recycled aggregate (A1-A3), end-of-life modules (C1-C4) and recovery stage (D). Given the typical use of this type of aggregates is as granular material and it is not typically used as raw materials for concrete production, so does not meet the criteria for exclusion of the end-of-life stages.

System diagram:





Manufacturing process

The recycled aggregates are manufactured from construction demolition waste that has reached the End-of-Waste state at the recycling plant. The end-of-waste state is reached when all the following criteria are fulfilled:

- ✓ the recovered material or product is commonly used for specific purposes;
- ✓ a market or demand, identified for example by a positive economic value, exists for such a recovered material or product;
- ✓ the recovered material or product fulfils the technical requirements for the specific purposes for which it is used and meets the existing legislation and standards applicable to its use; and
- ✓ the use of the recovered material or product will not lead to overall adverse environmental or human health impacts, which shall be understood as content of hazardous substances below limit values in applicable legislation.

Therefore, End-of-Waste state is reached after the demolition waste has been screened, crushed and sorted, at the stockpilling point, at which point the analysis takes place and the waste ceases to be waste and becomes material. Hence, the treatment of waste up to the collection point is excluded, in accordance with the polluter pays principle. The energy source used at the collection point for loading the recycled aggregate is diesel. Oil is used as auxiliary lubricating.

Assumptions

The modularity principle, as well as the polluter-payer principle have been followed. The following assumptions have been made in this EPD:

- ✓ It does not include the manufacturing processes of the capital goods or spare parts and/or maintenance with a life of more than three years.
- ✓ The environmental impact of infrastructure for general management, office, and headquarters operations is not included.
- ✓ The impact caused by people (common activities, travel for work...) will not be considered. It does not include the consumption of natural gas for sanitary hot water from showers and heating system for the comfort of people.
- ✓ The processes associated with fuel production are intrinsically included in the indicators in ECOINVENT's database used in carrying out the LCA.
- ✓ The environmental impact of external transport has been calculated using lorries from the ECOINVENT 3.9 database, EURO 5. These lorries have been selected to reflect the most realistic scenario possible.
- ✓ Long-term emissions have been excluded.

Data Quality:

In accordance with the PCR, in modules (A1-A3) specific data is use. This data have been obtained by measurements made during the year 2022 . A data quality assessment on applied datasets has been performed in accordance with EN 15804:2012+A2:2019/AC:2021, Annex E.

Cut-off rules:

The PCR indicate that the life cycle inventory data should include a minimum of 95% of the total inputs (materials and energy) for each stage. This cut-off rule does not apply for hazardous materials and substances. this cut-off criterion has been applied for those ancillary materials and replacement parts that do not account for more than 5% of the material total input.



Allocation:

It has not been necessary to allocate loads between products and co-products. When it has been necessary to make any allocation, a mass allocation has been made by production or, in the case of energy, it has been calculated by power and working hours.

Additional information and LCA Scenarios:

Raw material supply, A1: The raw materials for the aggregates are waste, that arise as secondary materials after processing and reaching the End-of-Waste state at the waste management plants. The environmental burden of the recycling process is allocated to the end-of-life stage of the construction waste, in the prior life cycle of this material. Thus the processed materials enter this next life cycle burden free, and have zero impacts.

Transport, A2: As in module A1, The environmental burden of the recycling process is allocated to the end-of-life stage of the construction waste, in the prior life cycle of this material. Therefore the transport of the waste to the waste management plant is associated with the module C2 in the prior life cycle, and the value of A2 is zero, and the value of A2 is associated with the transport of diesel and auxiliaries consumed in module A3.

Manufacturing, A3: The manufacturing of the recycled aggregates stars when the End-of-Waste state has been reached, after sorting and crushing aggragates. This processing is the stockpiling and loading of the aggregates. The energy source for this process is diesel.Oil is used as auxiliary lubricant.

Dismantling/demolition, C1: Since they are not products with a structural use, the load of a truck has been considered. It has been considered to use the same diesel and auxiliary consumption as module A3 as the most similar data available.

Transport to waste management, C2: With a collection rate of 100%, the transports are carried out by lorry (EURO 5) over 25 km. (distance considered representative in the Basque Country).

Waste processing, C3: A representative scenario has been considered according to geographical location. A recycling ratio of 78 % is considered in accordance with the recovery rate of construction and demolition waste statistics, published by Basque Goverment <u>(Statistics on Construction and Demolition Waste in the Autonomous Community of the Basque Country. 2020).</u> For the calculation of this module, a weighted average of the impacts of CDW management from the specific data of the participating companies has been used. In this case, all the processes up to the End-of-Waste state have been considered. In other words, the screening, crushing and sorting process from each plant to the collection point. For the calculation of this module, a weighted average of the impacts of CDW management from the specific data of the participating companies has been used.

Disposal, C4: The remaining 22 % is considered to be landfilled. These percentages are representative according to geographical location.

Reuse, recovery, recycling, D: contains credits from the recycling of CDW in module C3. The CDW is recycled as aggregate of construction and demolition waste origin, for use in substitution of virgin raw aggregates. The loads of recycling process and the benefits of substitution of virgin raw aggregates have been considered.





Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Pr	oduct sta	ge	Constr proces	ruction is stage	Use stage End of life stage stage stage				End of life stage							
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	В3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	х	x	х	ND	ND	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x
Geography	ES	ES	ES	-	-	-	-	-	-	-	-	-	ES	ES	ES	ES	ES
Specific data used		>90%		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products		-35%/+15		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites		-35%/+15		-	-	-	-	-	-	-	-	-	-	-	-	-	-



Content Declaration

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Recycled aggregates from construction waste	1.000	100%	0%
TOTAL	1.000	100%	0%

Packaging: the product is supplied in bulk, without packaging.

Recycled Aggregates are inert and does not contain any materials on the Candidate List of substances of very high concern (SVHC) by the European Reach Regulation at a concentration greater than 0.1% by mass.

Environmental Information

The results refer to 1000 Kg of recycled aggregate. The results have been obtained by weighting with respect to the production of each of the participating manufacturers based on inventory data.

The use of the results of modules A1-A3 without taking into account the results of module C is discouraged. The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

Mandatory impact category indicators according to EN 15804

Results per declared unit												
Indicator	Unit	A1-A3	C1	C2	C3	C4	D					
GWP-fossil	kg CO ₂ eq.	2,09E-01	2,06E-01	4,71E+00	2,51E+00	1,24E+00	7,30E-01					
GWP-biogenic	kg CO ₂ eq.	3,02E-05	2,90E-05	1,50E-03	1,00E-03	6,96E-04	3,69E-03					
GWP- Iuluc	kg CO ₂ eq.	2,28E-05	2,09E-05	2,29E-03	5,88E-04	2,45E-04	5,66E-04					
GWP- total	kg CO₂ eq.	2,10E-01	2,06E-01	4,71E+00	2,51E+00	1,25E+00	7,34E-01					
ODP	kg CFC 11 eq.	4,00E-09	3,91E-09	1,02E-07	5,13E-08	4,31E-08	1,19E-08					
AP	mol H⁺ eq.	1,90E-03	1,89E-03	1,53E-02	1,63E-02	8,04E-03	6,00E-03					
EP-freshwater	kg P eq.	7,86E-07	7,55E-07	3,77E-05	2,44E-05	7,13E-06	1,93E-05					
EP- marine	kg N eq.	8,85E-04	8,80E-04	5,22E-03	6,92E-03	3,49E-03	1,68E-03					
EP-terrestrial	mol N eq.	9,61E-03	9,57E-03	5,57E-02	7,43E-02	3,76E-02	2,33E-02					
POCP	kg NMVOC eq.	2,88E-03	2,86E-03	2,29E-02	2,31E-02	1,49E-02	5,85E-03					
ADP- minerals&metals*	kg Sb eq.	8,53E-08	7,27E-08	1,51E-05	2,30E-06	1,31E-06	1,07E-05					
ADP-fossil*	MJ	2,77E+00	2,72E+00	6,67E+01	4,02E+01	3,16E+01	1,10E+01					
WDP*	m ³	7,99E-03	7,77E-03	2,72E-01	1,25E+00	1,14E-01	1,90E-01					
Acrony	ms	GWP-fossil = Gl GWP-luluc = Gl stratospheric oz Eutrophication Eutrophication p ADP-minerals&r for fossil resour	obal Warming Pot obal Warming Pot cone layer; AP = potential, fraction potential, fraction potential, Accumul netals = Abiotic de rces potential; Wi	ential fossil fuels; ential land use and Acidification pote of nutrients rea of nutrients rea ated Exceedance; epletion potential fo DP = Water (use	GWP-biogenic = G d land use change ential, Accumulate ching freshwater ching marine en POCP = Formatio pr non-fossil resour deprivation pote	Clobal Warming Po ; ODP = Depletion of Exceedance; L end compartmer d compartment; on potential of trop ces; ADP-fossil = . ential, deprivation	otential biogenic; n potential of the EP-freshwater = t; EP-marine = EP-terrestrial = pospheric ozone; Abiotic depletion -weighted water					

* Disclaimer: 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.

consumption



Additional mandatory and voluntary impact category indicators

	Results per declared unit												
Indicator	Unit	A1-A3	C1	C2	C3	C4	D						
GWP-GHG ¹	kg CO ₂ eq.	2,10E-01	2,06E-01	4,71E+00	2,51E+00	1,25E+00	7,33E-01						
Particulate matter emissions	Disease incidence	5,34E-08	5,31E-08	3,73E-07	4,20E-07	2,03E-07	1,28E-07						
lonising radiation, human health*	kBq U235 eq.	6,43E-04	6,16E-04	3,34E-02	1,85E-01	1,24E-02	7,93E-02						
Ecotoxicity (freshwater)**	CTUe	1,26E+00	1,23E+00	3,29E+01	1,25E+01	1,34E+01	5,30E+00						
Human toxicity, cancer effects**	CTUh	4,83E-10	4,44E-10	4,70E-08	9,63E-09	5,56E-09	1,24E-08						
Human toxicity, non-cancer effects**	CTUh	6,44E-11	6,26E-11	2,14E-09	1,01E-09	4,22E-10	1,50E-09						
Land use related impacts / soil quality**	Dimensionless	2,07E-01	1,74E-01	3,97E+01	8,96E+00	6,53E+01	2,28E+01						

Disclaimer*- This impact category deals mainly with the eventual 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 or occupational exposure due to the disposal of radioactive waste in underground facilities. The ionizing radiation potential of soil, due to radon or some building materials is also not measured by this parameter.

Disclaimer**- 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.

	Results per declared unit													
Indicator	Unit	A1-A3	C1	C2	C3	C4	D							
PERE	MJ	1,90E-02	1,82E-02	1,04E+00	9,19E-01	6,29E-01	3,71E+00							
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
PERT	MJ	1,90E-02	1,82E-02	1,04E+00	9,19E-01	6,29E-01	3,71E+00							
PENRE	MJ	2,77E+00	2,72E+00	6,67E+01	4,02E+01	3,16E+01	1,09E+01							
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
PENRT	MJ	2,77E+00	2,72E+00	6,67E+01	4,02E+01	3,16E+01	1,09E+01							
SM	kg	1,00E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00							
FW	m³	2,66E-04	2,58E-04	9,51E-03	2,48E-02	3,70E-02	8,02E-02							

Resource use indicators

Acronyms

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of non-renew

¹ The indicator includes all greenhouse gases included in the GWP-Total, but excludes the uptake and emissions of biogenic carbon dioxide and biogenic carbon stored in the product. This indicator is therefore equal to the GWP-Total indicator except that the characterisation factor for biogenic CO_2 is zero.



Waste indicators

Results per declared unit												
Indicator	Unit	A1-A3	C1	C2	C3	C4	D					
Hazardous waste disposed	kg	1,84E-05	1,80E-05	4,25E-04	1,84E-04	1,54E-04	7,22E-05					
Non-hazardous waste disposed	kg	6,27E-03	3,56E-03	3,26E+00	1,46E+01	2,20E+02	1,91E-01					
Radioactive waste disposed	kg	3,69E-07	3,51E-07	2,17E-05	1,18E-04	6,85E-06	4,32E-05					

Output flow indicators

Results per declared unit												
Indicator	Unit	A1-A3	C1	C2	C3	C4	D					
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00					
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00	7,77E-01	0,00E+00	0,00E+00					
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00					
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00					
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00					

Results per declared unit		
BIOGENIC CARBON CONTENT	Unit	QUANTITY
Biogenic carbon content in product	kg C	0,00E+00
Biogenic carbon content in packaging	kg C	0,00E+00

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO2.



Additional information

Website: www.aprr.eus

Information related to Sector EPD

The Sector EPD covers the production of the Recycled aggregates produced by the following companies:

	COMPANY: U.T.E RCD GARDELEGUI 2005 WEBSITE: www.aprr.eus
	COMPANY : BIZKAIKO TXINTXOR BERZIKLATEGIA S.A WEBSITE: www.btbab.com
SUSPERREGI Containers	COMPANY : CONTAINERS SUSPERREGI S.L WEBSITE: www.susperregi.es
VOLBAS	COMPANY : VOLBAS S.A.U WEBSITE: www.volbas.com
	COMPANY : CARLOS SANTAMARÍA S.L. http://www.carlossantamaria.es/

This EPD covers average values for recycled aggregates produced by these 5 Basque companies, and, hence, the declared product is an average that is not available for purchase on the market.

This EPD covers average values for the production with a representativeness of 82,64 %. The data have been chosen by APRR.EUS as representative for the reference year 2022. The average calculation was done according to the weighted production share of the data providing plants.

Differences versus previous versions

This is the first version of the sector EPD®





References

- General Programme Instruction of the International EPD®System. Version 4.0.
- ISO 14020:2000 Environmental labels and declarations-General principles.
- ISO 14025:2010 Environmental labels and declarations-Type III Environmental DeclarationsPrinciples 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 2019:14 Construction products (EN 15804: A2) version 1.3.2
- EN 15804:2012+A2:2019/AC:2021 Sustainability of construction works-Environmental Product Declarations-Core rules for the product category of construction products



EPD[®]

VERIFICATION STATEMENT CERTIFICATE CERTIFICADO DE DECLARACIÓN DE VERIFICACIÓN

Certificate No. / Certificado nº: EPD10201

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:

> APRR.EUS - Asociación de Plantas Fijas de Reciclaje de Residuos de Construcción y Demolición de Euskadi

> > Zona Zentolen, 52 Zamalbide Auzoa 20100 ERRENTERIA (Gipuzkoa) - SPAIN

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

> **Recycled** aggregates Áridos reciclados

with registration number EPD-IES-0013904:001 (S-P-13904) in the International EPD® System (www.environdec.com). con número de registro EPD-IES-0013904:001 (S-P-13904) 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 2019:14 Construction products (EN 15804+A2) v1.3.2.
- tecnalia. UN CPC 89420 Non-metal waste and scrap recovery (recycling) services, on a fee or contract basis

Issued date / Fecha de emisión: Update date / Fecha de actualización: Valid until / Válido hasta: Serial Nº / Nº Serie:

12/06/2024 12/06/2024 10/06/2029 EPD1020100-E

Carlos Nazabal Alsua Manager



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

This certificate is subject to modifications, temporary suspensions and withdrawals by TECNALIA R&I CERTIFICACION. El presente certificado está sujeto a modificaciones, suspensiones temporales y retiradas por TECNALIA R&I CERTIFICACION The validity of this certificate can be checked through consultation in www.tecnaliacertificacion.com.

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