

ES TU MUNDO. CONSTRÚYELO.™

# Environmental Product Declaration Gypsum boards

Environmental Product Declaration  
In accordance with ISO 14025:2006 and EN 15804:2012



**Program:**

The International EPD® System

**Program operator:**

EPD registered through the fully aligned regional program /hub:

**Regional Hub:**

EPD Latin America  
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Mexico

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# 1. USG



ES TU MUNDO. CONSTRÚYELO.™

USG has been a leading manufacturer of building products and innovative solutions for more than 115 years. Our wall, ceiling, flooring, sheathing and roofing products provide the solutions that enable customers to build the outstanding spaces where people live and do business.

Since 1902, USG has led the manufacturing industry with innovations and products that set new standards for design, productivity and performance for customers all over the globe.

In 2017, we celebrated the 100<sup>th</sup> anniversary of USG's iconic SHEETROCK® Brand, the landmark product that revolutionized interior construction and enabled the lightweight-fireproof walls we still build today. We are a leading manufacturer of building products and innovative solutions, including wall, ceiling, flooring, sheathing and roofing products, that help the construction industry to build stronger, safer and more sustainable communities.

## **Innovation:**

We manufacture high-quality products that solve real-world challenges and meet our rigorous safety standards. When we look at the issues that our customers and others in the manufacturing industry face, such as labor shortages, water scarcity, or time management, we think about the science, engineering, and technology that is needed to solve them.

USG holds more than 2,400 active U.S. and international patents that represent innovations that improve the way building materials are used in the places we live and do business.

Our Corporate Innovation Center (CIC) is a state-of-the-art research facility committed to develop new-to-market products and to improve our existing portfolio.

## **Safety:**

Safety is our first and most important core value. USG has been committed to the safety of our employees, customers and the communities where we live and do business since we documented our first safety rules more than 100 years ago. In 2016, we earned the National Safety Council's Robert W. Campbell award, one of the world's most respected celebrations of safety-first culture, for our excellence in environmental, health and safety (EHS) management.

## **Sustainability:**

Our vision is to be the world leader in building products and innovative solutions that enable our customers to create sustainable, inspirational and inviting spaces. Living out this vision extends beyond our manufacturing lines to our employees, communities and the environment.

As part of our commitment to the environment, we focus on reducing waste while using resources more efficiently and transforming manufacturing byproducts into valuable resources. Our Ecoblueprint™ strategy is our public commitment to completing three goals by 2020:

- Reduce greenhouse emissions by 20%;
- Reduce operational waste to landfills by 50%; and,
- Conduct life cycle assessments of all product lines.

## 2. General information

Product:	Gypsum Boards
Declaration owner:	USG México, S.A. de C.V. Av. Vasco de Quiroga #4800, Piso 5, Oficina 501, Santa Fe, Cuajimalpa de Morelos. Ciudad de México, México. C.P. 05348. Contact person: Gabriela González Alcaraz e-mail: gagonzalez@usg.com.mx
Description of the construction product:	USG gypsum boards have a non-combustible gypsum core, are resistant to moisture and are coated on the front and back with 100% recycled paperboard or fiber-glass. Primarily used in non-load-bearing walls and ceilings at buildings.
Declared Unit:	1 m <sup>2</sup> of gypsum board
Construction product identification:	Central Product Classification: CPC 54 Construction Services V2
Description of the main product components and/or materials:	TABLAROCA® gypsum boards may contain materials such as: Gypsum rock, fiberglass, cornstarch, adhesives and paper.
Life cycle stages not considered:	Distribution, installation, use, end of life
Content of the declaration:	This EPD is based on information modules that do not cover the aspects of use and end of life of the product. It contains in detail, for Module A1, A2 and A3: <ul style="list-style-type: none"> <li>• Product definition and physical data</li> <li>• Information about raw materials and origin</li> <li>• Specifications on manufacturing the product</li> <li>• Notes on product processing</li> <li>• LCA based on a declared unit, cradle-to-gate</li> <li>• LCA results</li> <li>• Evidence and verifications</li> </ul>
For more information consult:	<a href="http://www.usg.com">www.usg.com</a>
Site for which this EPD is representative:	<b>Manufacturing Plant</b> 1) USG Monterrey Plant. Carretera a Monclova km 15, camino a la laguna km 2.5, El Carmen, Nuevo León, México. 2) USG Puebla Plant. Av. Los Arcos s/n Cuautlancingo, Puebla, México. 3) USG Tecomán Plant. Camino Industrial Universidad Caleras #375, Fraccionamiento Zona Industrial. Tecomán, Colima, México.
Public intended:	B2B (Business to Business)

# 3. Product description

USG gypsum boards have a non-combustible gypsum core, are resistant to moisture and are coated on the front and back with 100% recycled paperboard or fiberglass. Primarily used in non-load-bearing walls and ceilings inside buildings.

USG has 10 types of gypsum boards, which are described below:

## **USG TABLAROCA®:**

Panels are manufactured with a core comprised of fire-resistant gypsum, encased in 100% recycled face and back papers. The natural finish face paper is folded around the long edges, in order to reinforce and protect the core; also, the ends are cut square and even. The long edges of the panels are tapered, allowing joints to be reinforced and concealed with USG joint treatment products.

All panels comply with ASTM C1396, which regulates and defines the characteristics and physical properties that a quality gypsum board must meet, as well as the ASTM E84 standard that defines them as Class A products.

Its application for residential use includes ceilings, non-load-bearing walls, acoustic and thermal insulated walls. Its application for commercial use includes restaurants, shopping centers, hotels and offices.

## **USG TABLAROCA® ULTRALIGHT®:**

USG TABLAROCA® ULTRALIGHT® gypsum panels feature proprietary core and paper technologies, resulting in a high strength-to-weight ratio composite design. These panels are also designed to have superior sag resistance. The innovative non-combustible gypsum core is encased in 100% recycled face and back papers. The natural finish face paper is folded around the long edges in order to

reinforce and protect the core; also, the ends are cut square and even. The long edges of the panels are tapered, allowing joints to be reinforced and concealed with USG joint treatment products.

Different decorations can be applied such as paint, textured and laminated plastic, and paper. Its main application for residential use includes ceilings, non-load-bearing walls, acoustic and thermal insulated walls. Its application for commercial use includes restaurants, shopping centers, hotels and offices.

## **USG TABLAROCA® ANTI-MOHO®:**

USG TABLAROCA® ANTI-MOHO® gypsum board has a non-combustible, moisture- and mold-resistant gypsum core that is encased in moisture- and mold-resistant, 100% recycled green face and brown back papers. The long edges of the panels are tapered, allowing joints to be reinforced and concealed with USG joint treatment products.

Its application for residential use includes rooms with a high concentration of relative humidity, like bathrooms, dressing rooms and kitchens. In addition, its application for commercial use includes offices, restaurants, shopping centers, hotels and schools.

## **USG TABLAROCA® FIRECODE® TYPE X:**

USG TABLAROCA® FIRECODE® Type X panels (UL Type SCX) are 15.9 mm (5/8 in). Type X panels that feature a fire-resistant gypsum core encased in 100% recycled face and back papers that form a high strength composite design. The paper's natural finish face is folded around the long edges in order to reinforce and protect the core; also, the ends are cut square and even. The long edges of panels are tapered, allowing joints to be reinforced and concealed with USG joint treatment products.

USG TABLAROCA® FIRECODE® Type X panels are UL Classified for fire resistance and can be used in any UL Design where Type SCX panels are listed.

Intended to be applied for commercial or residential use, where walls are needed with fire protection for up to 4 hours.

**USG TABLAROCA® FIRECODE® TYPE C:**

Available in 12.7 mm (1/2 in) and 15.9 mm (5/8 in). USG TABLAROCA® FIRECODE® Type C panels (UL Type C) feature a specially formulated mineral core that provides superior fire resistance for ceiling applications. These panels feature a non-combustible gypsum core encased in 100% recycled face and back papers that form a high strength composite design. The paper's natural finish face is folded around the long edges in order to reinforce and protect the core; also, the ends are cut square and even. The long edges of the panels are tapered, allowing joints to be reinforced and concealed with USG joint treatment products. The panels are UL Classified for fire resistance and can be used in any UL Design where Type C panels are listed.

**USG TABLAROCA® ANTI-MOHO® FIRECODE® TYPE X:**

This type of board combines all the advantages of the USG TABLAROCA® regular panel with additional protection against fire, moisture and mold.

These boards have a non-combustible, moisture- and mold-resistant gypsum core that is encased in moisture- and mold-resistant, 100% recycled green face and brown back papers. When tested in accordance with ASTM D3273, Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber, the panels meet or exceed ASTM C1396 specifications. The long edges of the panels are tapered, allowing joints to be reinforced and concealed with USG joint treatment products. The panels are UL Classified for fire resistance and can be used in any UL Design where Type SCX panels are listed.

**USG LINER PANEL®:**

Resistant to fire and moisture, which makes it ideal for elevator and mechanical shaft walls. It has a special 25.4 mm (1 in) gypsum core, covered with a green

paper treated to resist the penetration of moisture. Beveled edges for easier installation. Its dimensions are: 60.9 cm (2 feet) wide and 243.8 cm (8 feet) long.

**USG SHEETROCK® BRAND GYPSUM PANEL:**

Panels are manufactured with a core comprised of fire-resistant gypsum encased in 100% recycled face and back papers. The paper's natural finish face is folded around the long edges in order to reinforce and protect the core; also, the ends are cut square and even. The long edges of the panels are tapered, allowing joints to be reinforced and concealed with USG joint treatment products.

All panels comply with ASTM C1396, which regulates and defines the characteristics and physical properties that a quality gypsum board must meet, as well as the ASTM E84 standard that defines them as Class A products.

Its application for residential use includes ceilings, non-load-bearing walls, acoustic and thermal insulated walls. Its application for commercial use includes restaurants, shopping centers, hotels and offices.

**USG SHEETROCK® BRAND GYPSUM SHEATHING:**

USG SHEETROCK® brand gypsum sheathing features a moisture-resistant gypsum core encased in a 100% recycled moisture-resistant paper on both sides and the long edges. The treated gypsum core allows water vapor to escape from stud space, protecting wood framing from moisture build-up.

**USG SECUROCK® GLASS-MAT SHEATHING:**

It is a gypsum board for outdoors, covered on both sides with a fiberglass layer that makes it resistant to weather, water and mold. This product, which meets and exceeds the requirements of the ASTM C-1177 standard, can be used as an exterior sheathing product. Applications include, but are not limited to: properly detailed Exterior Insulation Finish Systems (EIFS), aluminum panels, vinyl or wood shingles, conventional stucco, etc.

## 4. Content declaration

USG TABLAROCA® gypsum boards contain the materials shown in Table 1.

Element	Typical content
Gypsum rock (Stucco)	98%
Fiberglass	0.13%
Cornstarch	0.14%
Paper	0.2%
Others	0.8%

Table 1. Typical content of gypsum boards

## 5. LCA Rules

Environmental potential impacts were calculated according to EN 15804:2012 and PCR 2012:01 Construction products and construction services Version 2.3 (2018-11-15). This EPD is in accordance with ISO 14025:2006.

Environmental potential impacts were calculated through Life Cycle Assessment (LCA) methodology according to ISO 14040:2006 and ISO 14044:2006. An external third-party verification process of the EPD was conducted according to General Program Instructions for the International EPD® System Version 3.0. Verification includes a documental review and validation of both the underlying LCA study and documents describing additional environmental information that justify data provided in the EPD.

### 5.1. Declared unit

1m<sup>2</sup> of gypsum board.

### 5.2. System boundary

Environmental potential impacts were calculated according to EN 15804:2012 and PCR 2012:01 Construction products and construction services Version 2.3 (2018-11-15). The declared EPD is a "Cradle-to-gate EPD" according to ISO 14025:2006. The following Table 2 describes the scope of the inventory performed in the LCA.

Life cycle environmental information of USG cement boards							Other environmental information
Product stage			Construction process stage		Use stage	End of life stage	Reuse recovery stage
A1	A2	A3	A4	A5	B1 - B7	C1 - C4	D
Extraction and processing of raw materials, generation of electricity and fuels	Transportation of raw materials to the manufacturing site of cement board and internal transportation	Manufacture of gypsum board, consumption of materials for packaging of finished product and auxiliary materials. Air emissions and waste generation	Product distribution	Construction and installation	<ul style="list-style-type: none"> <li>• Use</li> <li>• Maintenance</li> <li>• Repair</li> <li>• Replacement</li> <li>• Refurbishment</li> <li>• Operational energy use</li> <li>• Operational water use</li> </ul>	De-construction, demolition, transport, waste processing, disposal	Re-use- Recovery- Recycling- potential
X	X	X	MND	MND	MND	MND	MND
Cradle-to-gate Declared unit			These stages are not considered in this study, since they are cradle-to-grave stages				

\*Included Module = x \*MND = Module Not Declared

Table 2. Product system of USG gypsum boards





A description of information modules is included in Table 3.



### **A1) Raw material supply**

Extraction and processing of gypsum rock.

Processing of solid additives such as fiberglass, gypsum accelerator.

Processing of liquid additives.

Production of packaging materials for raw materials, such as plastic bags, cardboard and wood.

Paper production.

Generation and distribution of national electricity.

Production and processing of natural gas consumed in manufacturing.



### **A2) Transportation**

Transportation of stucco.

Transportation of additives.

Transportation of auxiliary materials and raw materials of finished product packaging.

Transportation of natural gas.

Transportation of paper.



### **A3) Manufacturing**

Well water consumption.

Production of maintenance materials such as lubricating oil and textiles.

Air emissions generated during manufacturing process of USG.

Generation of waste for recycling, for confinement, incineration and landfill.

Transportation of waste to final disposal sites.

Table 3. Description of information modules included in this EPD

# 5.3. Description of the manufacturing process

The manufacturing process is described in Figure 1. The development of all gypsum products starts with the extraction of a mineral known as plaster or stucco, whose color can be gray or white. The basic mineral is composed of calcium sulphate chemically combined with water of crystallization,  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ . The combined water represents approximately 20% of the weight of the gypsum ore. This feature gives gypsum its fire resistance properties and makes it so adaptable for construction.

After removing the gypsum ore, it is crushed, dried and milled to a consistency similar to the flour, and then calcined, resulting in most of the chemically combined water being vaporized.

This calcined gypsum is subsequently mixed with water and other ingredients, then is placed between two layers of paper to form several types of gypsum boards.

Gypsum boards are formed by means of a highly automated continuous process. Once the gypsum core is set, the panels are cut to various lengths, dried, pre-finished if necessary, and packaged for remission. The process is carried out with strict specifications to comply with the quality standards.

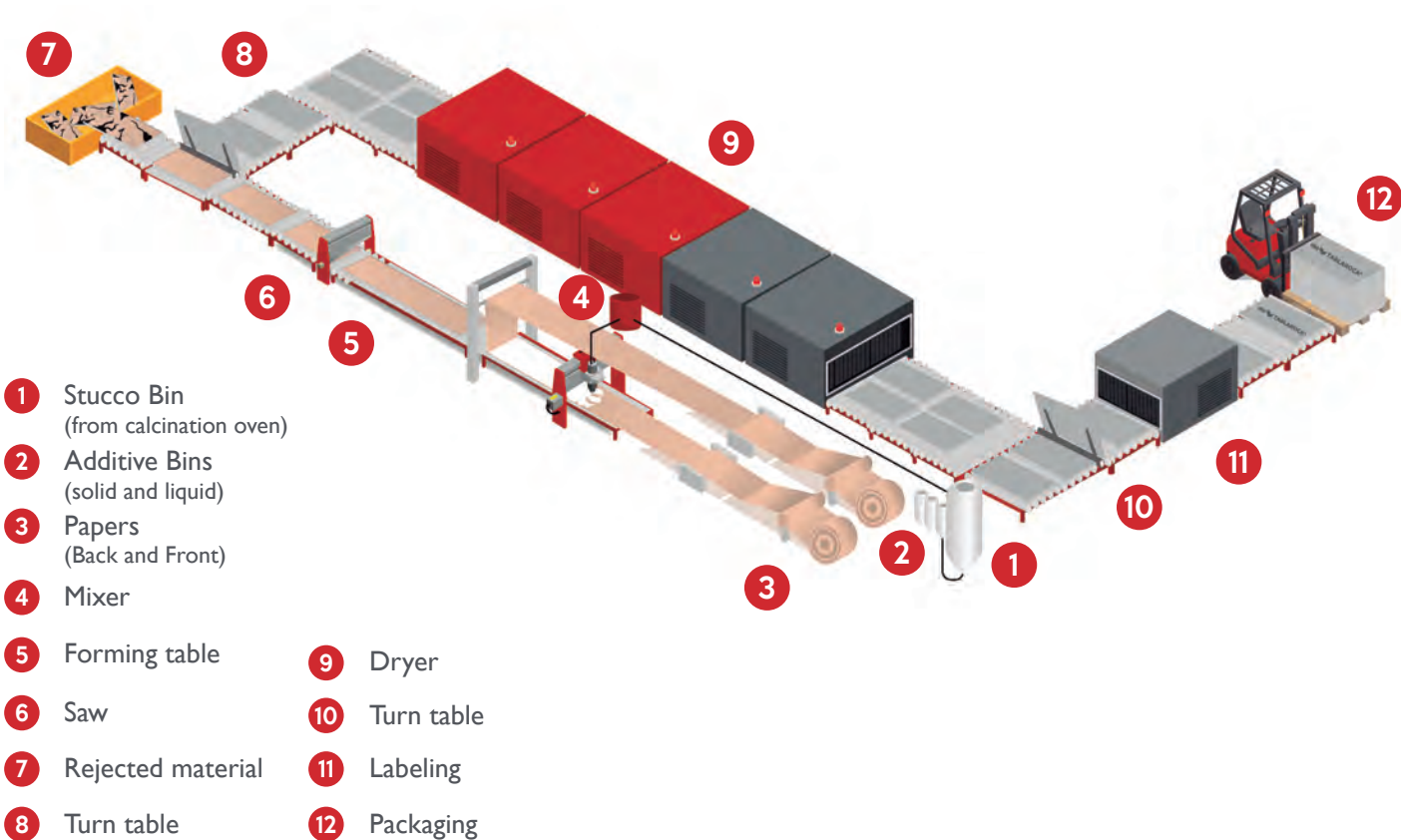


Figure. 1. Flow diagram of gypsum board's manufacturing process

## 5.4. Assumptions

The data set for Mexican electricity is part of the Mexicaniuh database, created by CADIS with direct data from the CFE (Comisión Federal de Electricidad, Mexico's Federal Electricity Company). Electricity generation in Mexico is divided as follows: 36% thermoelectric, 12% coal-fired, 2% geothermal, 1% electric, 12% hydroelectric, 33% combined cycle technology, and 4% nuclear power (SENER, 2017).

In the year 2017, the loss for transmission and distribution of electric energy was 11% (SENER, 2017).

For secondary data and when it was not possible to obtain direct information from the company, the life cycle databases Mexicaniuh and Ecoinvent 3.3, in their Allocation Recycled Content version, were used.

For this study, the generic information obtained from the Ecoinvent 3.3 database has the following characteristics:

- The information is used as a world average, excluding Europe (RoW).
- It is meant to be a technological equivalence to that used by USG providers.

## 5.5. Cut-off criteria

The PCR document establishes that a minimum of 95% of the total flows (matter and energy) in modules A1 and A3 must be included in the LCI (PCR, 2017). In order to include the relevant data, the minimum established by the PCR was met, leaving out of the scope of this study, the company's infrastructure, the activities related to the transportation of employees and administrative activities developed by employees, as well as substances related to the corrective and preventive maintenance of the production machinery; spare parts and elements of the personal protection equipment are excluded.

## 5.6. Allocation

No allocations were made to the input or output data of the gypsum boards since USG does not report co-products during its internal manufacturing processes or other situations that require allocation.

## 5.7. Time representativeness

The information provided by USG corresponds to internal data from 2017.

## 5.8. Data quality assessment

Data quality assessment per information module is provided in Tables 4, 5 and 6.

**Table 4. Raw material supply Module A1 data quality assessment**

Data	Temporary coverage	Geographic coverage	Technological coverage	Precision	Completeness	Representativeness	Consistency	Reproducibility	Sources of information	Measured or estimated	Uncertainty
Consumption of stucco, solid and liquid additives	2017	Mexico	Modern	✓	✓	✓	✓	✓	Company data	M	1.05
Stucco production	1996 - 2016	Ecoinvent adapted	Modern	✓	✓	●	✓	✓	Ecoinvent 3.3. adapted	M&E	Uncertainty provided by Ecoinvent database 3.3
Production of solid and liquid additives	1980 - 2016	Worldwide average based on Europe	Worldwide average based on Europe	✓	✓	●	✓	✓	Ecoinvent 3.3	M&E	Uncertainty provided by Ecoinvent database 3.3
Electrical energy consumption for board's manufacture	2017	Mexico	Modern	✓	✓	✓	✓	✓	Company data	M	1.05
Natural gas consumption for board's manufacture	2017	Mexico	Modern	✓	✓	✓	✓	✓	Company data	M	1.05
Fuel consumption and emissions related to the generation and distribution of electricity in Mexico	2017	Mexico	Mix for Mexico	✓	✓	✓	✓	✓	Mexcaniuh	M&E	Uncertainty provided by Mexcaniuh
Electricity consumption and generation of emissions related to natural gas production in Mexico	2017	Mexico	Mix for Mexico	✓	✓	✓	✓	✓	Mexcaniuh	M&E	Uncertainty provided by Mexcaniuh
Consumption of raw material's packaging materials	2017	Mexico	Modern	✓	✓	✓	✓	✓	Company data	M&E	1.05
Manufacture of raw material's packaging materials	1980 - 2016	Worldwide average based on Europe	Worldwide average based on Europe	✓	✓	●	✓	✓	Ecoinvent 3.3	M&E	Uncertainty provided by Ecoinvent database 3.3

M&E: Measured and Estimated, M: Measured, E: Estimated

● Data of Ecoinvent    ● Worldwide average based on Europe

**Table 5. Transportation Module A2 data quality assessment**

Data	Temporary coverage	Geographic coverage	Technological coverage	Precision	Completeness	Representativeness	Consistency	Reproducibility	Sources of information	Measured or estimated	Uncertainty
Distance of stucco transport, solid and liquid additives	2017	Mexico	NA	✓	✓	✓	✓	✓	Company data	M	1.05
Distance of natural gas transportation	2017	Mexico	NA	✓	✓	✓	✓	✓	Company data	M	1.05
Distance of transportation of raw materials packaging materials	2017	Mexico	NA	✓	✓	✓	✓	✓	Company data	M&E	1.05
Distance of transportation of finished product packaging materials	2017	Mexico	NA	✓	✓	✓	✓	✓	Company data	M&E	1.05
Distance of material transportation for maintenance	2017	Mexico	NA	✓	✓	✓	✓	✓	Company data	M&E	1.05
Material and energy consumption, and emissions related to the transportation requirements of raw materials and auxiliary inputs.	1992 - 2014	Worldwide average based on Europe	Worldwide average based on Europe	✓	✓	●	✓	✓	Ecoinvent 3.3	M&E	Uncertainty provided by Ecoinvent database 3.3

M&E: Measured and Estimated, M: Measured, E: Estimated

● Data of Ecoinvent   ● Worldwide average based on Europe



**Table 6. Manufacture Module A3 data quality assessment**

Data	Temporary coverage	Geographic coverage	Technological coverage	Precision	Completeness	Representativeness	Consistency	Reproducibility	Sources of information	Measured or estimated	Uncertainty
Water consumption	2017	Mexico	Modern	✓	✓	✓	✓	✓	Company data	M	1.05
Materials consumption for maintenance	2017	Mexico	Modern	✓	✓	✓	✓	✓	Company data	M	1.05
Finished product packaging materials consumption	2017	Mexico	Modern	✓	✓	✓	✓	✓	Company data	M	1.05
Manufacturing of materials for maintenance	1990 - 2016	Worldwide average based on Europe	Worldwide average based on Europe	✓	✓	●	✓	✓	Ecoinvent 3.3	M&E	Uncertainty provided by Ecoinvent database 3.3
Manufacture of finished product packaging materials	1990 - 2016	Worldwide average based on Europe	Worldwide average based on Europe	✓	✓	●	✓	✓	Ecoinvent 3.3	M&E	Uncertainty provided by Ecoinvent database 3.3
Air emissions	2017	Mexico	Modern	✓	✓	✓	✓	✓	Company data	M	1.05
Waste generation	2017	Mexico	Modern	✓	✓	✓	✓	✓	Company data	M	1.05
Waste treatment processes, consumption of materials and related energy	1990 - 2016	Worldwide average based on Europe	Worldwide average based on Europe	✓	✓	●	✓	✓	Ecoinvent 3.3	M&E	Uncertainty provided by Ecoinvent database 3.3
Distance of waste transportation to final disposal site	2017	Mexico	Modern	✓	✓	✓	✓	✓	Company data	M	1.05
Material and energy consumption, and emissions related to waste transportation requirements	1992 - 2014	Worldwide average based on Europe	Worldwide average based on Europe	✓	✓	●	✓	✓	Ecoinvent 3.3	M&E	Uncertainty provided by Ecoinvent database 3.3

M&E: Measured and Estimated, M: Measured, E: Estimated

● Data of Ecoinvent   ● Worldwide average based on Europe

# 6. Environmental performance

SimaPro 8.4 was used for the Life Cycle Impact Assessment. USG presents 10 types of boards whose environmental performance was analyzed, with the following results.

## 6.1. Use of resources

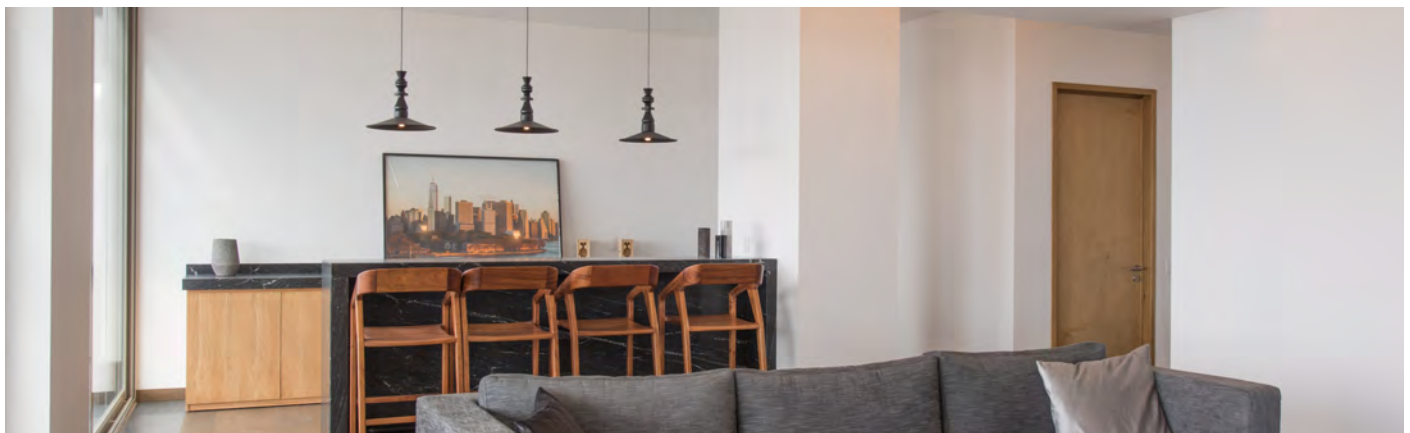
Parameters describing use of resources were evaluated with the Cumulative Energy Demand method version 1.09 (Frischknecht et al. 2007), except for the indicator of net use of fresh water that was evaluated with Recipe 2016 Midpoint (H) version 1.00 (Huijbregts et al. 2017). The detailed description of the use of resources is provided per module in Tables 7, 8, 9 and the total (A1-A3) in Table 10.

**Table 7. Resource Indicators per 1m<sup>2</sup> of gypsum board A1) Raw material supply**

Parameter	Type of panel									
	USG TABLAROCA® ANTI-MOHO® FIRECODE® TYPE X	USG LINER PANEL®	USG SECUROCK® GLASS-MAT SHEATHING	USG TABLAROCA® ANTI-MOHO®	USG TABLAROCA® FIRECODE® TYPE X	USG TABLAROCA®	USG SHEETROCK® BRAND GYPSUM PANEL	USG TABLAROCA® FIRECODE® TYPE C	USG TABLAROCA® ULTRALIGHT®	USG SHEETROCK® BRAND GYPSUM SHEATHING
Use of renewable primary energy excluding renewable primary energy resources used as raw materials (MJ)	2.06E+01	6.50E+00	1.05E+01	1.51E+01	1.00E+01	1.73E+01	1.80E+00	2.04E+01	1.07E+01	1.71E+01
Use of renewable primary energy as raw materials (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources (MJ)	2.06E+01	6.50E+00	1.05E+01	1.51E+01	1.00E+01	1.73E+01	1.80E+00	2.04E+01	1.07E+01	1.71E+01
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (MJ)	5.66E+01	7.80E+01	4.87E+01	5.40E+01	4.71E+01	4.54E+01	3.93E+01	5.36E+01	3.71E+01	4.66E+01
Use of non-renewable primary energy used as raw materials (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources (MJ)	5.66E+01	7.80E+01	4.87E+01	5.40E+01	4.71E+01	4.54E+01	3.93E+01	5.36E+01	3.71E+01	4.66E+01
Use of secondary material (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water (m <sup>3</sup> )	2.13E-02	2.19E-02	1.44E-02	1.77E-02	9.74E-03	1.01E-02	5.42E-03	1.43E-02	1.14E-02	1.11E-02

**Table 8. Resource Indicators per 1m<sup>2</sup> of gypsum board A2) Transportation**

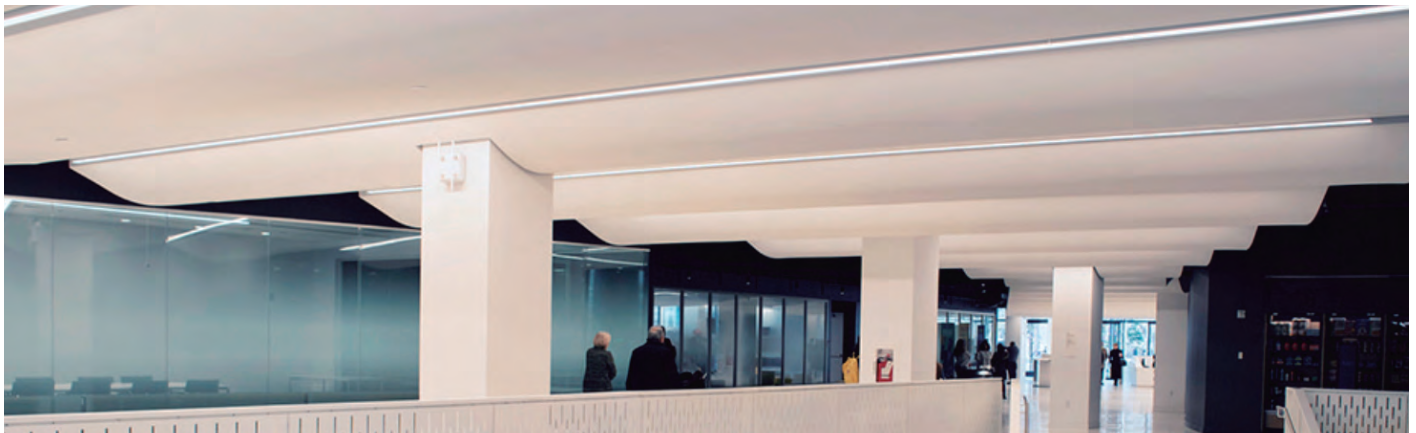
Parameter	Type of panel									
	USG TABLAROCA® ANTI-MOHO® FIRECODE® TYPE X	USG LINER PANEL®	USG SECUROCK® GLASS-MAT SHEATHING	USG TABLAROCA® ANTI-MOHO®	USG TABLAROCA® FIRECODE® TYPE X	USG TABLAROCA®	USG SHEETROCK® BRAND GYPSUM PANEL	USG TABLAROCA® FIRECODE® TYPE C	USG TABLAROCA® ULTRALIGHT®	USG SHEETROCK® BRAND GYPSUM SHEATHING
Use of renewable primary energy excluding renewable primary energy resources used as raw materials (MJ)	1.00E-01	2.39E-01	1.00E-01	1.06E-01	8.20E-02	8.54E-02	6.63E-02	1.37E-01	1.07E+01	1.71E+01
Use of renewable primary energy as raw materials (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources (MJ)	1.00E-01	2.39E-01	1.00E-01	1.06E-01	8.20E-02	8.54E-02	6.63E-02	1.37E-01	1.07E+01	1.71E+01
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (MJ)	4.64E-04	1.53E+01	5.30E+00	6.12E+00	3.94E+00	4.33E+00	3.07E+00	8.40E+00	3.71E+01	4.66E+01
Use of non-renewable primary energy used as raw materials (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources (MJ)	4.64E-04	1.53E+01	5.30E+00	6.12E+00	3.94E+00	4.33E+00	3.07E+00	8.40E+00	3.71E+01	4.66E+01
Use of secondary material (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water (m <sup>3</sup> )	1.47E-03	3.13E-03	1.09E-03	1.28E-03	8.73E-04	9.45E-04	6.86E-04	1.73E-03	7.60E-04	1.01E-03





**Table 9. Resource Indicators per 1m<sup>2</sup> of gypsum board A3) Manufacturing**

Parameter	Type of panel									
	USG TABLAROCA® ANTI-MOHO® FIRECODE® TYPEX	USGLINER PANEL®	USG SECUROCK® GLASS-MAT SHEATHING	USG TABLAROCA® ANTI-MOHO®	USG TABLAROCA® FIRECODE® TYPEX	USG TABLAROCA®	USG SHEETROCK® BRAND GYPSUM PANEL	USG TABLAROCA® FIRECODE® TYPE C	USG TABLAROCA® ULTRALIGHT®	USG SHEETROCK® BRAND GYPSUM SHEATHING
Use of renewable primary energy excluding renewable primary energy resources used as raw materials (MJ)	1.66E-02	1.66E-02	1.74E-02	1.72E-02	1.06E-02	1.66E-02	2.72E-03	1.65E-02	1.06E-02	1.66E-02
Use of renewable primary energy as raw materials (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources (MJ)	1.66E-02	1.66E-02	1.74E-02	1.72E-02	1.06E-02	1.66E-02	2.72E-03	1.65E-02	1.06E-02	1.66E-02
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (MJ)	8.19E-01	7.99E-01	7.65E-01	7.26E-01	4.13E-01	7.99E-01	5.45E-02	7.61E-01	4.40E-01	7.99E-01
Use of non-renewable primary energy used as raw materials (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources (MJ)	8.19E-01	7.99E-01	7.65E-01	7.26E-01	4.13E-01	7.99E-01	5.45E-02	7.61E-01	4.40E-01	7.99E-01
Use of secondary material (kg)	0.00E+00	0.00E+00	5.92E-02	5.31E-02	1.40E-01	0.00E+00	1.96E-01	0.00E-00	1.04E-01	0.00E+00
Use of renewable secondary fuels (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water (m <sup>3</sup> )	1.06E-02	1.06E-02	1.07E-02	1.07E-02	1.04E-02	1.06E-02	4.77E-03	1.06E-02	5.25E-03	1.06E-02



**Table 10. Resource Indicators per 1m<sup>2</sup> of gypsum board total A1-A3**

Parameter	Type of panel									
	USG TABLAROCA® ANTI-MOHO® FIRECODE® TYPE X	USG LINER PANEL®	USG SECUROCK® GLASS-MAT SHEATHING	USG TABLAROCA® ANTI-MOHO®	USG TABLAROCA® FIRECODE® TYPE X	USG TABLAROCA®	USG SHEETROCK® BRAND GYPSUM PANEL	USG TABLAROCA® FIRECODE® TYPE C	USG TABLAROCA® ULTRALIGHT®	USG SHEETROCK® BRAND GYPSUM SHEATHING
Use of renewable primary energy excluding renewable primary energy resources used as raw materials (MJ)	2.08E+01	6.81E+00	1.07E+01	1.53E+01	1.02E+01	1.75E+01	1.95E+00	2.06E+01	1.08E+01	1.72E+01
Use of renewable primary energy as raw materials (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources (MJ)	2.08E+01	6.81E+00	1.07E+01	1.53E+01	1.02E+01	1.75E+01	1.95E+00	2.06E+01	1.08E+01	1.72E+01
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (MJ)	6.45E+01	9.41E+01	5.48E+01	6.09E+01	5.15E+01	5.05E+01	4.24E+01	6.28E+01	4.11E+01	5.21E+01
Use of non-renewable primary energy used as raw materials (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources (MJ)	6.45E+01	9.41E+01	5.48E+01	6.09E+01	5.15E+01	5.05E+01	4.24E+01	6.28E+01	4.11E+01	5.21E+01
Use of secondary material (kg)	0.00E+00	0.00E+00	5.92E-02	5.31E-02	1.40E-01	0.00E+00	1.96E-01	0.00E+00	1.04E-01	0.00E+00
Use of renewable secondary fuels (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water (m <sup>3</sup> )	3.34E-02	3.57E-02	2.61E-02	2.96E-02	2.10E-02	2.17E-02	1.09E-02	2.67E-02	1.74E-02	2.28E-02

## 6.2. Potential environmental impact

All information modules are reported and assessed separately. However, this EPD shows the total impact across all stages.

Parameters describing potential environmental impacts were calculated using the CML-IA method version 3.04 (Guinee et al. 2001; Huijbregts et al. 2003; Wegener et al. 2008), as implemented in SimaPro 8.4. Water scarcity potential was calculated using the AWARE method (Boulay et al. 2018). These categories were included because they are mandatory according to PCR. Water scarcity is important in Mexican context because water availability varies in different regions of the country. Environmental performances per module are shown in Tables 11, 12 and 13 and the total impacts (A1-A3) are shown in Table 14.

**Table 11. Environmental performance (A1) Raw material supply**

Type of panel	Environmental impact category							
	Abiotic depletion	Abiotic depletion (fossil fuels)	Global warming (GWP 100a)	Ozone layer depletion (ODP)	Photochemical oxidation	Acidification	Eutrophication	Water scarcity potential
	kg Sb eq	MJ	kg CO <sub>2</sub> eq	kg CFC-11 eq	kg C <sub>2</sub> H <sub>4</sub> eq	kg SO <sub>2</sub> eq	kg PO <sub>4</sub> <sup>3-</sup> eq	m <sup>3</sup> eq
USG TABLAROCA® ANTI-MOHO FIRECODE® TYPE X	4.09E-06	5.49E+01	2.10E+00	3.82E-07	1.28E-03	1.64E-02	3.50E-03	1.66E-01
USG LINER PANEL®	7.07E-06	7.58E+01	3.36E+00	3.92E-07	2.09E-03	2.67E-02	4.21E-03	4.96E-01
USG SECUROCK® GLASS-MAT SHEATHING	2.60E-06	4.75E+01	1.50E+00	3.15E-07	1.07E-03	1.27E-02	1.95E-03	1.03E-01
USG TABLAROCA® ANTI-MOHO®	3.35E-06	5.23E+01	1.68E+00	2.93E-07	1.05E-03	1.30E-02	2.60E-03	1.02E-01
USG TABLAROCA® FIRECODE® TYPE X	2.87E-06	4.61E+01	1.20E+00	2.22E-07	9.96E-04	1.17E-02	1.86E-03	1.05E-01
USG TABLAROCA®	2.36E-06	4.42E+01	1.34E+00	2.20E-07	9.89E-04	1.20E-02	2.43E-03	8.69E-02
USG SHEETROCK® BRAND GYPSUM PANEL	1.43E-06	3.85E+01	5.94E-01	1.68E-07	7.15E-04	7.40E-03	6.57E-04	1.99E-02
USG TABLAROCA® FIRECODE® TYPE C	4.82E-06	5.21E+01	1.87E+00	2.65E-07	1.22E-03	1.56E-02	3.24E-03	1.82E-01
USG TABLAROCA® ULTRALIGHT®	3.46E-06	3.62E+01	9.68E-01	1.79E-07	7.84E-04	9.46E-03	2.03E-03	5.51E-02
USG SHEETROCK® BRAND GYPSUM SHEATHING	2.62E-06	4.54E+01	1.45E+00	2.33E-07	1.02E-03	1.23E-02	2.52E-03	9.02E-02



**Table 12. Environmental performance (A2) Transportation**

Type of panel	Environmental impact category							
	Abiotic depletion	Abiotic depletion (fossil fuels)	Global warming (GWP100a)	Ozone layer depletion (ODP)	Photochemical oxidation	Acidification	Eutrophication	Water scarcity potential
	kg Sb eq	MJ	kg CO <sub>2</sub> eq	kg CFC-11 eq	kg C <sub>2</sub> H <sub>4</sub> eq	kg SO <sub>2</sub> eq	kg PO <sub>4</sub> <sup>3-</sup> eq	m <sup>3</sup> eq
USG TABLAROCA® ANTI-MOHO® FIRECODE® TYPE X	1.81E-06	6.89E+00	4.61E-01	1.16E-07	8.46E-05	1.83E-03	4.38E-04	8.05E-02
USG LINER PANEL®	4.50E-06	1.50E+01	9.87E-01	2.06E-07	1.81E-04	3.95E-03	9.43E-04	2.39E-01
USG SECUROCK® GLASS-MAT SHEATHING	1.42E-06	5.19E+00	3.54E-01	9.78E-08	6.58E-05	1.39E-03	3.37E-04	6.90E-02
USG TABLAROCA® ANTI-MOHO®	1.48E-06	6.01E+00	4.03E-01	1.05E-07	7.35E-05	1.59E-03	3.80E-04	5.76E-02
USG TABLAROCA® FIRECODE® TYPE X	9.33E-07	3.85E+00	2.68E-01	8.56E-08	5.02E-05	1.05E-03	2.57E-04	3.99E-02
USG TABLAROCA®	1.11E-06	4.24E+00	2.92E-01	8.59E-08	5.44E-05	1.14E-03	2.79E-04	5.12E-02
USG SHEETROCK® BRAND GYPSUM PANEL	6.31E-07	3.01E+00	2.10E-01	7.22E-08	3.93E-05	8.18E-04	2.01E-04	1.92E-02
USG TABLAROCA® FIRECODE® TYPE C	2.05E-06	8.26E+00	5.47E-01	1.32E-07	9.93E-05	2.18E-03	5.17E-04	7.98E-02
USG TABLAROCA® ULTRALIGHT®	7.80E-07	3.39E+00	2.34E-01	7.39E-08	4.36E-05	9.16E-04	2.24E-04	2.83E-02
USG SHEETROCK® BRAND GYPSUM SHEATHING	1.18E-06	4.56E+00	3.12E-01	8.94E-08	5.81E-05	1.23E-03	2.99E-04	5.29E-02



**Table 13. Environmental performance (A3) Manufacturing**

Type of panel	Environmental impact category							
	Abiotic depletion	Abiotic depletion (fossil fuels)	Global warming (GWP100a)	Ozone layer depletion (ODP)	Photochemical oxidation	Acidification	Eutrophication	Water scarcity potential
	kg Sb eq	MJ	kg CO <sub>2</sub> eq	kg CFC-11 eq	kg C <sub>2</sub> H <sub>4</sub> eq	kg SO <sub>2</sub> eq	kg PO <sub>4</sub> <sup>3-</sup> eq	m <sup>3</sup> eq
USG TABLAROCA® ANTI-MOHO® FIRECODE® TYPE X	1.53E-08	7.77E-01	1.33E+00	1.13E-09	2.64E-05	2.33E-04	4.83E-05	1.06E+00
USG LINER PANEL®	1.52E-08	7.58E-01	1.33E+00	1.13E-09	2.63E-05	2.30E-04	4.79E-05	1.06E+00
USG SECUROCK® GLASS-MAT SHEATHING	1.75E-08	7.26E-01	1.23E+00	1.29E-09	2.65E-05	2.19E-04	4.64E-05	9.94E-01
USG TABLAROCA® ANTI-MOHO®	3.97E-08	6.91E-01	1.06E+00	1.83E-09	2.61E-05	2.04E-04	4.38E-05	8.45E-01
USG TABLAROCA® FIRECODE® TYPE X	2.01E-08	3.93E-01	6.80E-01	1.04E-09	2.40E-05	1.18E-04	2.58E-05	5.04E-01
USG TABLAROCA®	1.52E-08	7.58E-01	1.33E+00	1.13E-09	2.63E-05	2.30E-04	4.79E-05	1.06E+00
USG SHEETROCK® BRAND GYPSUM PANEL	7.24E-09	5.32E-02	1.32E-01	4.09E-10	2.57E-05	1.22E-05	3.49E-06	7.98E-03
USG TABLAROCA® FIRECODE® TYPE C	1.49E-08	7.21E-01	1.32E+00	1.13E-09	2.61E-05	2.24E-04	4.72E-05	1.06E+00
USG TABLAROCA® ULTRALIGHT®	2.01E-08	4.19E-01	6.46E-01	1.09E-09	2.23E-04	5.12E-03	2.69E-05	2.47E-01
USG SHEETROCK® BRAND GYPSUM SHEATHING	1.52E-08	7.58E-01	1.33E+00	1.13E-09	2.63E-05	2.30E-04	4.79E-05	1.06E+00



**Table 14. Environmental performance (total impact A1- A3)**

Type of panel	Environmental impact category							
	Abiotic depletion	Abiotic depletion (fossil fuels)	Global warming (GWP100a)	Ozone layer depletion (ODP)	Photochemical oxidation	Acidification	Eutrophication	Water scarcity potential
	kg Sb eq	MJ	kg CO <sub>2</sub> eq	kg CFC-11 eq	kg C <sub>2</sub> H <sub>4</sub> eq	kg SO <sub>2</sub> eq	kg PO <sub>4</sub> <sup>3-</sup> eq	m <sup>3</sup> eq
USG TABLAROCA® ANTI-MOHO® FIRECODE® TYPE X	5.91E-06	6.25E+01	3.88E+00	4.99E-07	1.39E-03	1.85E-02	3.99E-03	1.31E+00
USG LINER PANEL®	1.16E-05	9.16E+01	5.67E+00	5.99E-07	2.29E-03	3.09E-02	5.20E-03	1.80E+00
USG SECUROCK® GLASS-MAT SHEATHING	4.05E-06	5.34E+01	3.08E+00	4.14E-07	1.16E-03	1.44E-02	2.34E-03	1.17E+00
USG TABLAROCA® ANTI-MOHO®	4.87E-06	5.90E+01	3.14E+00	4.00E-07	1.15E-03	1.48E-02	3.03E-03	1.00E+00
USG TABLAROCA® FIRECODE® TYPE X	3.82E-06	5.03E+01	2.15E+00	3.09E-07	1.07E-03	1.29E-02	2.14E-03	6.49E-01
USG TABLAROCA®	3.48E-06	4.92E+01	2.96E+00	3.07E-07	1.07E-03	1.33E-02	2.76E-03	1.20E+00
USG SHEETROCK® BRAND GYPSUM PANEL	2.07E-06	4.16E+01	9.37E-01	2.41E-07	7.80E-04	8.23E-03	8.61E-04	4.71E-02
USG TABLAROCA® FIRECODE® TYPE C	6.88E-06	6.11E+01	3.74E+00	3.98E-07	1.35E-03	1.80E-02	3.80E-03	1.32E+00
USG TABLAROCA® ULTRALIGHT®	4.26E-06	4.01E+01	1.85E+00	2.54E-07	1.05E-03	1.55E-02	2.29E-03	3.30E-01
USG SHEETROCK® BRAND GYPSUM SHEATHING	3.81E-06	5.07E+01	3.08E+00	3.24E-07	1.10E-03	1.38E-02	2.86E-03	1.21E+00

## 6.3. Waste production

Environmental indicators describing waste generation were obtained from the LCI except for background information, which was calculated using the EDIP 2003 method (Hauschild and Potting, 2005). Tables 15, 16 and 17 show waste and other outputs generated per module, total (A1-A3) is shown in Table 18.

**Table 15. Waste and other outputs per 1m<sup>2</sup> of gypsum board A1) Raw material supply**

Parameter	Type of panel									
	USG TABLAROCA® ANTI-MOHO® FIRECODE® TYPE X	USG LINER PANEL®	USG SECUROCK® GLASS-MAT SHEATHING	USG TABLAROCA® ANTI-MOHO®	USG TABLAROCA® FIRECODE® TYPE X	USG TABLAROCA®	USG SHEETROCK® BRAND GYPSUM PANEL	USG TABLAROCA® FIRECODE® TYPE C	USG TABLAROCA® ULTRALIGHT®	USG SHEETROCK® BRAND GYPSUM SHEATHING
Hazardous waste (kg)	4.72E-05	5.03E-05	3.53E-05	3.75E-05	3.46E-05	3.79E-05	2.32E-05	4.54E-05	2.92E-05	3.86E-05
Non hazardous waste (kg)	8.93E-02	9.70E-02	5.57E-02	7.05E-02	5.40E-02	5.93E-02	1.95E-02	8.34E-02	5.96E-02	6.13E-02
Radioactive waste* (kg)	5.69E-05	7.33E-05	3.75E-05	4.19E-05	3.37E-05	3.99E-05	1.58E-05	5.31E-05	3.01E-05	4.18E-05
Components for reuse (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported electricity (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported heat (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

\*No radioactive waste is produced during USG operation.

**Table 16. Waste and other outputs per 1m<sup>2</sup> of gypsum board A2) Transportation**

Parameter	Type of panel									
	USG TABLAROCA® ANTI-MOHO® FIRECODE® TYPE X	USG LINER PANEL®	USG SECUROCK® GLASS-MAT SHEATHING	USG TABLAROCA® ANTI-MOHO®	USG TABLAROCA® FIRECODE® TYPE X	USG TABLAROCA®	USG SHEETROCK® BRAND GYPSUM PANEL	USG TABLAROCA® FIRECODE® TYPE C	USG TABLAROCA® ULTRALIGHT®	USG SHEETROCK® BRAND GYPSUM SHEATHING
Hazardous waste (kg)	4.98E-06	1.11E-05	3.91E-06	4.25E-06	2.88E-06	3.19E-06	2.18E-06	5.77E-06	2.47E-06	3.39E-06
Non hazardous waste (kg)	2.32E-01	4.62E-01	1.66E-01	2.13E-01	1.31E-01	1.38E-01	1.10E-01	2.94E-01	1.20E-01	1.50E-01
Radioactive waste* (kg)	4.26E-05	9.35E-05	3.18E-05	3.73E-05	2.33E-05	2.58E-05	1.81E-05	5.16E-05	2.06E-05	2.78E-05
Components for reuse (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported electricity (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported heat (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

\*No radioactive waste is produced during USG operation.

**Table 17. Waste and other outputs per 1m<sup>2</sup> of gypsum board A3) Manufacturing**

Parameter	Type of panel									
	USG TABLAROCA® ANTI-MOHO® FIRECODE® TYPE X	USG LINER PANEL®	USG SECUROCK® GLASS-MAT SHEATHING	USG TABLAROCA® ANTI-MOHO®	USG TABLAROCA® FIRECODE® TYPE X	USG TABLAROCA®	USG SHEETROCK® BRAND GYPSUM PANEL	USG TABLAROCA® FIRECODE® TYPE C	USG TABLAROCA® ULTRALIGHT®	USG SHEETROCK® BRAND GYPSUM SHEATHING
Hazardous waste (kg)	2.17E-04	2.17E-04	2.02E-04	2.08E-04	1.12E-04	2.17E-04	3.76E-07	2.16E-04	1.16E-04	2.17E-04
Non hazardous waste (kg)	3.31E-01	3.31E-01	3.42E-01	2.83E-01	2.01E-01	3.31E-01	7.05E-02	3.31E-01	1.72E-01	3.31E-01
Radioactive waste* (kg)	6.30E-07	6.30E-07	7.14E-07	1.01E-06	5.71E-07	6.30E-07	2.19E-07	6.29E-07	6.06E-07	6.30E-07
Components for reuse (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling (kg)	6.46E-03	6.46E-03	5.54E-03	1.03E-01	7.81E-03	6.46E-03	3.73E-02	6.46E-03	5.80E-03	6.46E-03
Materials for energy recovery (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported electricity (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported heat (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

\*No radioactive waste is produced during USG operation.



**Table 18. Waste and other outputs per 1m<sup>2</sup> of gypsum board total A1-A3**

Parameter	Type of panel									
	USG TABLAROCA® ANTI-MOHO® FIRECODE® TYPE X	USG LINER PANEL®	USG SECUROCK® GLASS-MAT SHEATHING	USG TABLAROCA® ANTI-MOHO®	USG TABLAROCA® FIRECODE® TYPE X	USG TABLAROCA®	USG SHEETROCK® BRAND GYPSUM PANEL	USG TABLAROCA® FIRECODE® TYPE C	USG TABLAROCA® ULTRALIGHT®	USG SHEETROCK® BRAND GYPSUM SHEATHING
Hazardous waste (kg)	2.69E-04	2.78E-04	2.41E-04	2.50E-04	1.50E-04	2.58E-04	2.58E-05	2.68E-04	1.47E-04	2.59E-04
Non hazardous waste (kg)	6.53E-01	8.91E-01	5.63E-01	5.67E-01	3.86E-01	5.29E-01	2.00E-01	7.09E-01	3.51E-01	5.43E-01
Radioactive waste* (kg)	1.00E-04	1.67E-04	7.00E-05	8.02E-05	5.76E-05	6.63E-05	3.42E-05	1.05E-04	5.13E-05	7.03E-05
Components for reuse (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling (kg)	6.46E-03	6.46E-03	5.54E-03	1.03E-01	7.81E-03	6.46E-03	3.73E-02	6.46E-03	5.80E-03	6.46E-03
Materials for energy recovery (kg)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported electricity (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported heat (MJ)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

\*No radioactive waste is produced during USG operation.



# 7. Verification and registration

GEN standard EN 15804 served as the core PCR	
Program:	International EPD® System <a href="http://www.environdec.com">www.environdec.com</a>  EPD registered through the fully aligned regional program/hub: EPD Latin America <a href="http://www.epdlatinamerica.com">www.epdlatinamerica.com</a> 
Program operator:	EPD International AB Box 210 60 SE-100 31 Stockholm, Sweden EPD Latin America Chile: Alonso de Ercilla 2996, Ñuñoa, Santiago Chile. Mexico: Av. Convento de Actopan 24 Int. 7A, Colonia Jardines de Santa Mónica, Tlalnepantla de Baz, Estado de México, México, C.P. 54050
EPD registration number:	S-P-01423
Issue date:	2019-08-30
Validity date:	2024-08-27
Revision date:	2019-08-28
Reference year of data:	2017
Geographical scope:	Mexico
Product group classification:	CPC Division 54 Construction services
PCR:	PCR 2012:01 construction products and construction services. Version 2.3 (2018-11-15)
PCR review was conducted by:	The Technical Committee of the International EPD® System. Chair: Massimo Marino. Contact via <a href="mailto:info@environdec.com">info@environdec.com</a>
Independent verification of the declaration data, according to ISO 14025:2006.	EPD process certification (Internal) <input type="checkbox"/> EPD verification (External) <input checked="" type="checkbox"/>
Third-party verifier:	Rubén Carnerero Acosta <a href="mailto:r.carnerero@ik-ingenieria.com">r.carnerero@ik-ingenieria.com</a>
Accredited or approved by:	The International EPD® System
Procedure for follow-up of data during EPD validity involves third-party verifier:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
LCA:	This environmental product declaration was carried out based on the Life Cycle Assessment study of Gypsum Boards (González M, Chargoy JP, Luque C, Vulling M, Martínez A, Hernández M, 2019).

EPDs within the same product category but from different programmes may not be comparable. The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs of construction products may not be comparable if they do not comply with EN 15804.

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LCA study: Análisis de ciclo de vida  
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