

# ENVIRONMENTAL PRODUCT DECLARATION

*In accordance with EN 15804 and ISO 14025*

## PPC Italia Gyproc Hydro 13 mm

Date of issue: 2016-10-25  
Valid until: 2021-06-23  
Version : 1



The environmental impacts of this product have been assessed over its whole life cycle. Its Environmental Product Declaration has been verified by an independent third party.



N° VERIFICATION

ECO EPD 00000419

S-P-00937

## 1. General information

**Manufacturer:** Saint-Gobain PPC Italia SPA

**Programme used:** International EPD® System ([www.environdec.com](http://www.environdec.com))

**EPD registration number/declaration number:** S-P-00937

**PCR identification:** The International EPD System PCR for Construction Products and CPC 54 Construction Services V2, with reference to the Saint Gobain Environmental Product Declaration Methodological Guide for Construction Products

**Site of manufacture:** Termoli Plant, S.P. Traversa della Termolese, Z.I. Pantano Basso - TERMOLI (CB) – ITALY & Casola Plant, 10 Via Del Senio, Casola Valsenio, Ra 48010, Italy

**Declaration owner:** Martina Lusa

**Product / product family name and manufacturer represented:** Gyproc Hydro 13 mm, PPC Italia

**Declaration issued:** 2016-10-25

**Valid until:** 2021-06-23

**Demonstration of verification:** an independent verification of the declaration was made, according to ISO 14025:2010 and EN15804. This verification was external and conducted by the following third party: Dr. Andrew Norton, Renuables, based on the PCR mentioned above.

**EPD Prepared by:** Central SHEAR, Saint Gobain Gypsum. Contact. [acagen-epd.gypsum@saint-gobain.com](mailto:acagen-epd.gypsum@saint-gobain.com)

**Declaration of Hazardous substances:** None

**Environmental certifications held at both plants:** ISO 14001

**Scope:** The EPD is based on 2014 production data for the Casola Valsenio & Termoli sites producing Gyproc Hydro 13 mm. This EPD covers information modules A1 to C4 (cradle to gate with options) as defined in EN 15804:2012 + A1:2013.

Geographical scope of EPD application is Italy, Egypt, Malta and Lebanon

The declared unit is 1 m<sup>2</sup> of Gyproc Hydro 13 mm with a weight of 9.33 – 10.32 kg/m<sup>2</sup>

CPC code: 37510

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

| CEN standard EN 15804 serves as the core PCR                                |                                                                                                               |
|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| PCR:                                                                        | PCR 2012:01 Construction products and Construction services, Version 2.0, 2015-03-03                          |
| PCR review was conducted by:                                                | The Technical Committee of the International EPD® System. Chair: Massimo Marino.                              |
| Independent verification of the declaration, according to EN ISO 14025:2010 | <input type="checkbox"/> EPD process certification (Internal)                                                 |
|                                                                             | <input checked="" type="checkbox"/> EPD verification (External)                                               |
| Third party verifier:                                                       | Dr. Andrew Norton, Renuables<br>Email: <a href="mailto:a.norton@renuables.co.uk">a.norton@renuables.co.uk</a> |
| Accredited or approved by:                                                  | The International EPD® System                                                                                 |

## 2. Product description

### 2.1 Description of the main product components and or materials:

Standard plasterboard with reduced water absorption; this property offers the plasterboard excellent seal in the presence of high levels of humidity. Green colored face paper.

### 2.2 Application

Hydro is a type H1 board, with a low water absorption, allowing its installation in rooms with high levels of relative humidity.

### 2.3 Technical data

| EN CLASSIFICATION       | Type H1, EN 520:2004+A1:2009 |
|-------------------------|------------------------------|
| REACTION TO FIRE        | A2-s1,d0                     |
| WATER VAPOUR RESISTANCE | 10/4 (dry/wet)               |
| THERMAL CONDUCTIVITY    | 0,21 W/mK                    |

### Certifications:

ISO 9001:2008 Quality Management System

ISO 14001:2004 Environmental Management System

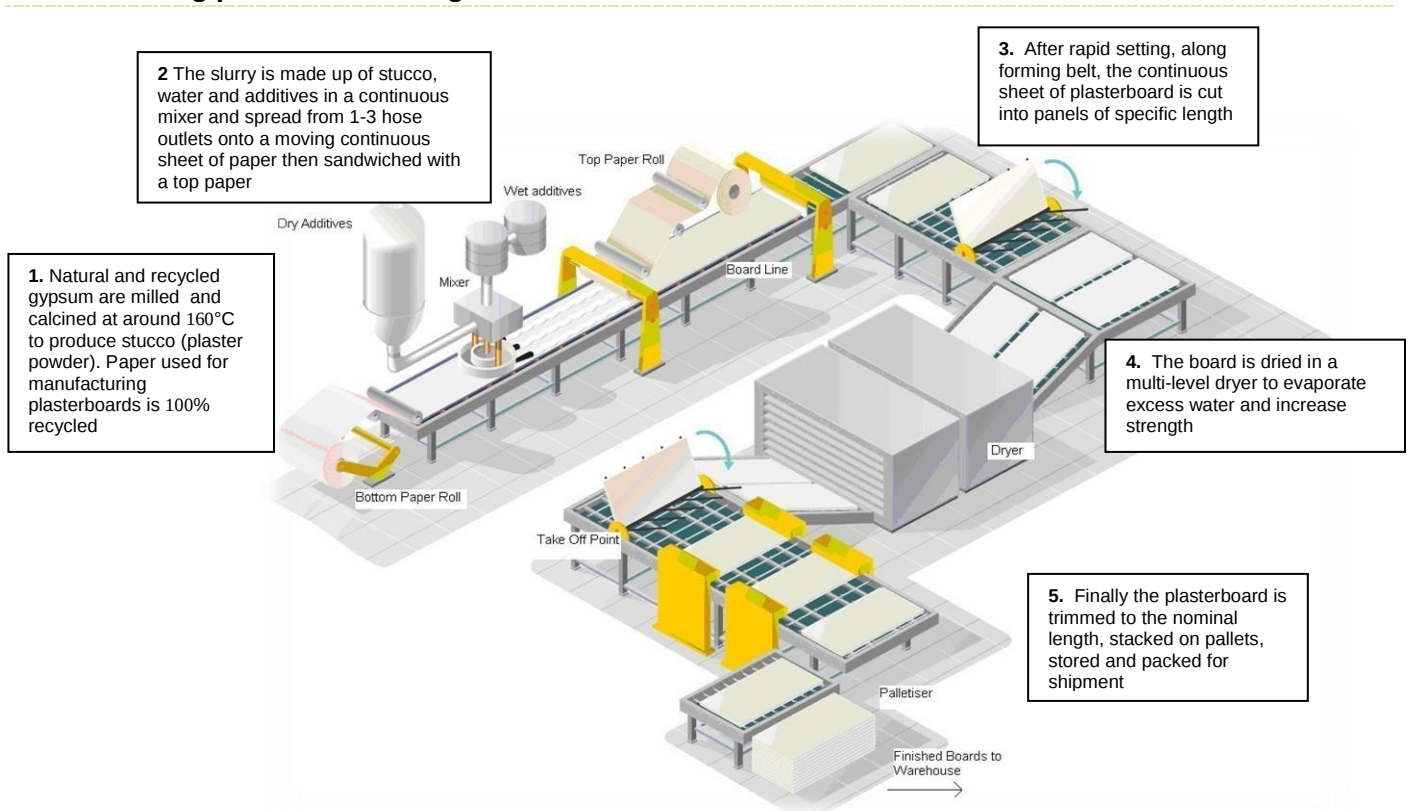
BS OHSAS 18001:2007 Occupational Health and Safety Management

### 2.4 Base materials / Ancillary materials

PPC Italia provides complete solution for the installation of plasterboards. For the installation, the following implementation materials are needed: 0.33 kg jointing compound, 1.23 m jointing tape and 8 screws.

### 2.5 Manufacturing process flow

#### Manufacturing process flow diagram



### 3. LCA calculation information

|                                              |                                                                                                                                                                                                                                                                    |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DECLARED UNIT</b>                         | <b>1 m<sup>2</sup> of installed board weighing 9.33 – 10.32 kg</b>                                                                                                                                                                                                 |
| <b>SYSTEM BOUNDARIES</b>                     | Cradle to Gate with Options: Upstream & Core processes (A1 – A3), Downstream processes (A4 – A5, B1 – B7, C1 – C4)                                                                                                                                                 |
| <b>REFERENCE SERVICE LIFE (RSL)</b>          | 50 years (as per the Saint-Gobain Methodological Guide)                                                                                                                                                                                                            |
| <b>CUT-OFF RULES</b>                         | Life Cycle Inventory data for a minimum of 99% of total inflows to the upstream and core module shall be included                                                                                                                                                  |
| <b>ALLOCATIONS</b>                           | Production data. Recycling, energy and waste data have been calculated on a mass basis.                                                                                                                                                                            |
| <b>GEOGRAPHICAL COVERAGE AND TIME PERIOD</b> | Scope includes Italy, Egypt, Malta and Lebanon. Data collected in Casola Valsenio & Termoli, Italy, 2014.<br>CML characterisation factors are used in the impact calculation. Ecoinvent data is used having been adapted for TEAM by Ecobilan (last updated 2015). |

According to EN 15804, EPDs of construction products may not be comparable if they do not comply with this standard.  
According to ISO 21930, EPDs might not be comparable if they are from different programmes.

## 4. Life cycle stages

### Flow diagram of the Life Cycle



### Product stage, A1-A3

#### Description of the stage:

**A1**, raw material extraction and processing, processing of secondary material input (e.g. recycling processes). This includes the extraction and processing of all raw materials and energy which occur upstream from the manufacturing process.

**A2**, transport to the manufacturer. The raw materials are transported to the manufacturing site. The modelling includes road, boat and/or train transportations of each raw material.

**A3**, manufacturing, including provision of all materials, products and energy, as well as waste processing up to the end-of-waste state or disposal of final residues during the product stage. This module includes the manufacture of products and the manufacture of packaging. The production of packaging material is taken into account at this stage. The processing of any waste arising from this stage is also included. In recent years an initiative was implemented to increase the content of recycled gypsum used for the plasterboard production. Currently 100% of the gypsum scrap from the production process is being reused.

### Construction process stage, A4-A5

#### Description of the stage:

**A4**, transport to the building site,

**A5**, installation into the building, including provision of all materials, products and energy, as well as waste processing up to the end-of-waste state or disposal of final residues during the construction process stage. These information modules also include all impacts and aspects related to any losses during this construction process stage (i.e. production, transport, and waste processing and disposal of the lost products and materials).

#### Transport to the building site:

| PARAMETER                                                                                                    | VALUE (expressed per declared unit)                                            |
|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Fuel type and consumption of vehicle or vehicle type used for transport e.g. long distance truck, boat, etc. | Truck with a 23 tonne average payload<br>Diesel consumption 0.34 litres per km |
| Distance                                                                                                     | 260 – 276 km by truck<br>0 – 2670 km by boat                                   |
| Capacity utilisation (including empty returns)                                                               | 95% volume capacity<br>30% empty returns                                       |
| Bulk density of transported products                                                                         | 718 - 794 kg/m <sup>3</sup>                                                    |
| Volume capacity utilisation factor                                                                           | 0.95                                                                           |

#### Installation in the building:

| PARAMETER                                                                                                                                                                       | VALUE (expressed per declared unit)                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Ancillary materials for installation (specified by materials)                                                                                                                   | Jointing compound 0.33kg/m <sup>2</sup> board, tape 1.23m /m <sup>2</sup> board, screws 8 /m <sup>2</sup> board        |
| Water use                                                                                                                                                                       | 0.165 litres/m <sup>2</sup> board                                                                                      |
| Other resource use                                                                                                                                                              | none                                                                                                                   |
| Quantitative description of energy type (regional mix) and consumption during the installation process                                                                          | None required                                                                                                          |
| Wastage of materials on the building site before waste processing, generated by the product's installation (specified by type)                                                  | Board: 0.467 - 0.516 kg, 0.0165 kg jointing compound, 0.062 m jointing tape                                            |
| Output materials (specified by type) as results of waste processing at the building site e.g. of collection for recycling, for energy recovering, disposal (specified by route) | Board: 0.467 - 0.516 kg to landfill<br>Jointing compound: 0.0165 kg to landfill<br>Jointing tape: 0.062 kg to landfill |
| Direct emissions to ambient air, soil and water                                                                                                                                 | None                                                                                                                   |

#### Use stage (excluding potential savings), B1-B7

##### Description of the stage:

The use stage, related to the building fabric includes:

**B1**, use or application of the installed product;

**B2**, maintenance;

**B3**, repair;

**B4**, replacement;

**B5**, refurbishment, including provision and transport of all materials, products and related energy and water use, as well as waste processing up to the end-of-waste state or disposal of final residues during this part of the use stage. These information modules also include all impacts and aspects related to the losses during this part of the use stage (i.e. production, transport, and waste processing and disposal of the lost products and materials).

**Maintenance:**

| PARAMETER                                                                                                                              | VALUE (expressed per declared unit) / DESCRIPTION |
|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| Maintenance process                                                                                                                    | None required during plasterboard lifetime        |
| Maintenance cycle                                                                                                                      | None required during plasterboard lifetime        |
| Ancillary materials for maintenance (e.g. cleaning agent, specify materials)                                                           | None required during plasterboard lifetime        |
| Wastage material during maintenance (specify materials)                                                                                | None required during plasterboard lifetime        |
| Net fresh water consumption during maintenance                                                                                         | None required during plasterboard lifetime        |
| Energy input during maintenance (e.g. vacuum cleaning), energy carrier type, (e.g. electricity) and amount, if applicable and relevant | None required during plasterboard lifetime        |

**Repair:**

| PARAMETER                                                                                                                       | VALUE (expressed per declared unit) / DESCRIPTION |
|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| Repair process                                                                                                                  | None required during plasterboard lifetime        |
| Inspection process                                                                                                              | None required during plasterboard lifetime        |
| Repair cycle                                                                                                                    | None required during plasterboard lifetime        |
| Ancillary materials (e.g. lubricant, specify materials)                                                                         | None required during plasterboard lifetime        |
| Wastage material during repair (specify materials)                                                                              | None required during plasterboard lifetime        |
| Net fresh water consumption during repair                                                                                       | None required during plasterboard lifetime        |
| Energy input during repair (e.g. crane activity), energy carrier type, (e.g. electricity) and amount if applicable and relevant | None required during plasterboard lifetime        |

**Replacement:**

| PARAMETER                                                                                                                            | VALUE ( expressed per declared unit ) / DESCRIPTION |
|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| Replacement cycle                                                                                                                    | None required during plasterboard lifetime          |
| Energy input during replacement (e.g. crane activity), energy carrier type, (e.g. electricity) and amount if applicable and relevant | None required during plasterboard lifetime          |
| Exchange of worn parts during the product's life cycle (e.g. zinc galvanized steel sheet), specify materials                         | None required during plasterboard lifetime          |

#### Refurbishment:

| PARAMETER                                                                                                                                       | VALUE (expressed per declared unit) / DESCRIPTION |
|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| Refurbishment process                                                                                                                           | None required during plasterboard lifetime        |
| Refurbishment cycle                                                                                                                             | None required during plasterboard lifetime        |
| Material input for refurbishment (e.g. bricks), including ancillary materials for the refurbishment process (e.g. lubricant, specify materials) | None required during plasterboard lifetime        |
| Wastage material during refurbishment (specify materials)                                                                                       | None required during plasterboard lifetime        |
| Energy input during refurbishment (e.g. crane activity), energy carrier type, (e.g. electricity) and amount                                     | None required during plasterboard lifetime        |
| Further assumptions for scenario development (e.g. frequency and time period of use, number of occupants)                                       | None required during plasterboard lifetime        |

#### Use of energy and water:

| PARAMETER                                                                                                               | VALUE (expressed per declared unit) / DESCRIPTION |
|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| Ancillary materials specified by material                                                                               | None required during plasterboard lifetime        |
| Net fresh water consumption                                                                                             | None required during plasterboard lifetime        |
| Type of energy carrier (e.g. electricity, natural gas, district heating)                                                | None required during plasterboard lifetime        |
| Power output of equipment                                                                                               | None required during plasterboard lifetime        |
| Characteristic performance (e.g. energy efficiency, emissions, variation of performance with capacity utilisation etc.) | None required during plasterboard lifetime        |
| Further assumptions for scenario development (e.g. frequency and time period of use, number of occupants)               | None required during plasterboard lifetime        |

## End-of-life stage C1-C4

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Description of the stage: The end-of-life stage includes:

**C1**, de-construction, demolition;

**C2**, transport to waste processing;

**C3**, waste processing for reuse, recovery and/or recycling;

**C4**, disposal, including provision and all transport, provision of all materials, products and related energy and water use.

### End-of-life:

| PARAMETER                                                  | VALUE (expressed per declared unit) / DESCRIPTION                                                        |
|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| Collection process specified by type                       | 100% of waste is collected by truck to be landfilled                                                     |
| Recovery system specified by type                          | No waste is recycled                                                                                     |
| Disposal specified by type                                 | 100% landfilled                                                                                          |
| Assumptions for scenario development (e.g. transportation) | On average, Gypsum waste is transported 32km by road from construction / demolition sites landfill sites |

## Reuse/recovery/recycling potential, D

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### Description of the stage:

Module D includes: reuse, recovery and/or recycling potentials, expressed as net impacts and benefits.

## 5. LCA results

Description of the system boundary (X = Included in LCA, MNA = Module Not Assessed). The declared unit is 1 m<sup>2</sup> of Gyproc Hydro 13 mm with a weight of 9.33 – 10.32 kg/m<sup>2</sup>

CML characterisation factors are used in the impact calculation. Specific data has been supplied by the plant, and generic data come from the DEAM and Ecoinvent databases.

All emissions to air, water, and soil, and all materials and energy used have been included, with the exception of long-term emissions (>100 years).

| PRODUCT STAGE       |           |               | CONSTRUCTION STAGE |                                   | USE STAGE |             |        |             |               |                        |                       | END OF LIFE STAGE          |           |                  |          | BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY |
|---------------------|-----------|---------------|--------------------|-----------------------------------|-----------|-------------|--------|-------------|---------------|------------------------|-----------------------|----------------------------|-----------|------------------|----------|-----------------------------------------------|
| Raw material supply | Transport | Manufacturing | Transport          | Construction-Installation process | Use       | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction demolition | Transport | Waste processing | Disposal | Reuse-recovery                                |
| A1                  | A2        | A3            | A4                 | A5                                | B1        | B2          | B3     | B4          | B5            | B6                     | B7                    | C1                         | C2        | C3               | C4       | D                                             |
| X                   | X         | X             | X                  | X                                 | X         | X           | X      | X           | X             | X                      | X                     | X                          | X         | X                | X        | MNA                                           |

| ENVIRONMENTAL IMPACTS                                                                                                                                                                                                                                                                                                                                            |                                                                                             |               |                            |                 |           |                |           |                |                  |                           |                          |                                |              |                     |             |                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------------|----------------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------------------|--------------------------|--------------------------------|--------------|---------------------|-------------|------------------------------|
| Parameters                                                                                                                                                                                                                                                                                                                                                       |                                                                                             | Product stage | Construction process stage |                 | Use stage |                |           |                |                  |                           |                          | End-of-life stage              |              |                     |             | D Reuse, recovery, recycling |
|                                                                                                                                                                                                                                                                                                                                                                  |                                                                                             | A1 / A2 / A3  | A4 Transport               | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Operational energy use | B7 Operational water use | C1 Deconstruction / demolition | C2 Transport | C3 Waste processing | C4 Disposal |                              |
|                                                                                                                                                                                                                                                                                  | Global Warming Potential (GWP) - <i>kg CO<sub>2</sub>equiv/FU</i>                           | 2.6E+00       | 2.9E-01                    | 2.2E-01         | 0         | 0              | 0         | 0              | 0                | 0                         | 0                        | 3.2E-02                        | 6.5E-02      | 1.7E-03             | 0           | 0                            |
| The global warming potential of a gas refers to the total contribution to global warming resulting from the emission of one unit of that gas relative to one unit of the reference gas, carbon dioxide, which is assigned a value of 1.                                                                                                                          |                                                                                             |               |                            |                 |           |                |           |                |                  |                           |                          |                                |              |                     |             |                              |
|                                                                                                                                                                                                                                                                                  | Ozone Depletion (ODP) <i>kg CFC 11 equiv/FU</i>                                             | 1.5E-07       | 1.2E-07                    | 2.4E-08         | 0         | 0              | 0         | 0              | 0                | 0                         | 0                        | 4.0E-09                        | 4.5E-08      | 4.1E-10             | 0           | 0                            |
| Destruction of the stratospheric ozone layer which shields the earth from ultraviolet radiation harmful to life. This destruction of ozone is caused by the breakdown of certain chlorine and/or bromine containing compounds (chlorofluorocarbons or halons), which break down when they reach the stratosphere and then catalytically destroy ozone molecules. |                                                                                             |               |                            |                 |           |                |           |                |                  |                           |                          |                                |              |                     |             |                              |
|                                                                                                                                                                                                                                                                                  | Acidification potential (AP) <i>kg SO<sub>2</sub> equiv/FU</i>                              | 6.3E-03       | 2.9E-03                    | 7.3E-04         | 0         | 0              | 0         | 0              | 0                | 0                         | 0                        | 2.5E-04                        | 3.9E-04      | 9.4E-06             | 0           | 0                            |
| Acid depositions have negative impacts on natural ecosystems and the man-made environment incl. buildings. The main sources for emissions of acidifying substances are agriculture and fossil fuel combustion used for electricity production, heating and transport.                                                                                            |                                                                                             |               |                            |                 |           |                |           |                |                  |                           |                          |                                |              |                     |             |                              |
|                                                                                                                                                                                                                                                                                  | Eutrophication potential (EP) <i>kg (PO<sub>4</sub>)<sup>3-</sup> equiv/FU</i>              | 1.3E-03       | 2.8E-04                    | 1.5E-04         | 0         | 0              | 0         | 0              | 0                | 0                         | 0                        | 5.8E-05                        | 9.6E-05      | 1.1E-06             | 2.1E-04     | 0                            |
| Excessive enrichment of waters and continental surfaces with nutrients, and the associated adverse biological effects.                                                                                                                                                                                                                                           |                                                                                             |               |                            |                 |           |                |           |                |                  |                           |                          |                                |              |                     |             |                              |
|                                                                                                                                                                                                                                                                                 | Photochemical ozone creation (POPC) <i>kg Ethene equiv/FU</i>                               | 9.1E-04       | 1.5E-04                    | 8.2E-05         | 0         | 0              | 0         | 0              | 0                | 0                         | 0                        | 7.2E-05                        | 2.9E-05      | 7.2E-07             | 0           | 0                            |
| Chemical reactions brought about by the light energy of the sun. The reaction of nitrogen oxides with hydrocarbons in the presence of sunlight to form ozone is an example of a photochemical reaction.                                                                                                                                                          |                                                                                             |               |                            |                 |           |                |           |                |                  |                           |                          |                                |              |                     |             |                              |
|                                                                                                                                                                                                                                                                                | Abiotic depletion potential for non-fossil resources (ADP-elements) - <i>kg Sb equiv/FU</i> | 6.7E-07       | 3.7E-11                    | 3.7E-08         | 0         | 0              | 0         | 0              | 0                | 0                         | 0                        | 5.1E-09                        | 1.4E-11      | 2.7E-11             | 0           | 0                            |
|                                                                                                                                                                                                                                                                                | Abiotic depletion potential for fossil resources (ADP-fossil fuels) - <i>MJ/FU</i>          | 5.0E+01       | 3.6E+00                    | 4.1E+00         | 0         | 0              | 0         | 0              | 0                | 0                         | 0                        | 4.5E-01                        | 8.0E-01      | 2.7E-02             | 0           | 0                            |
| Consumption of non-renewable resources, thereby lowering their availability for future generations.                                                                                                                                                                                                                                                              |                                                                                             |               |                            |                 |           |                |           |                |                  |                           |                          |                                |              |                     |             |                              |

# RESOURCE USE

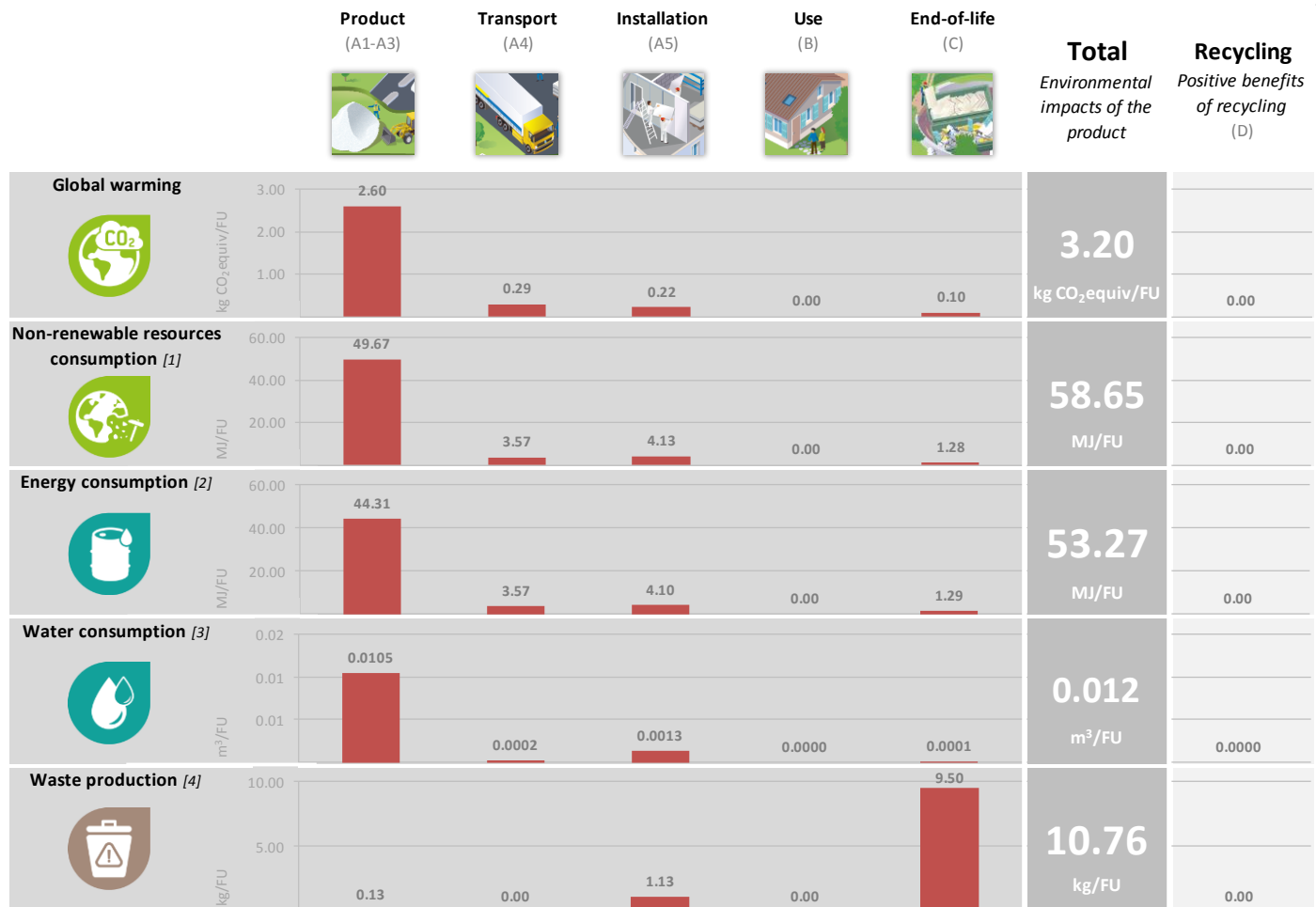
| Parameters                                                                                                                             |                                                                                                                           | Product stage | Construction process stage |                 | Use stage |                |           |                |                  |                           |                          | End-of-life stage              |              |                     |             | D Reuse, recovery, recycling |
|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------|----------------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------------------|--------------------------|--------------------------------|--------------|---------------------|-------------|------------------------------|
|                                                                                                                                        |                                                                                                                           | A1 / A2 / A3  | A4 Transport               | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Operational energy use | B7 Operational water use | C1 Deconstruction / demolition | C2 Transport | C3 Waste processing | C4 Disposal |                              |
|                                                        | Use of renewable primary energy excluding renewable primary energy resources used as raw materials <i>MJ/FU</i>           | 2.4E+00       | 1.8E-03                    | 3.3E-01         | 0         | 0              | 0         | 0              | 0                | 0                         | 0                        | 1.8E-03                        | 4.2E-04      | 2.0E-03             | 0           | 0                            |
|                                                        | Use of renewable primary energy used as raw materials <i>MJ/FU</i>                                                        | -             | -                          | -               | -         | -              | -         | -              | -                | -                         | -                        | -                              | -            | -                   | -           | -                            |
| Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) <i>MJ/FU</i>       |                                                                                                                           | 2.4E+00       | 1.8E-03                    | 3.3E-01         | 0         | 0              | 0         | 0              | 0                | 0                         | 0                        | 1.8E-03                        | 4.2E-04      | 2.0E-03             | 0           | 0                            |
|                                                        | Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials - <i>MJ/FU</i> | 4.2E+01       | 3.6E+00                    | 3.8E+00         | 0         | 0              | 0         | 0              | 0                | 0                         | 0                        | 4.5E-01                        | 8.1E-01      | 2.9E-02             | 0           | 0                            |
|                                                        | Use of non-renewable primary energy used as raw materials <i>MJ/FU</i>                                                    | -             | -                          | -               | -         | -              | -         | -              | -                | -                         | -                        | -                              | -            | -                   | -           | -                            |
| Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) - <i>MJ/FU</i> |                                                                                                                           | 4.2E+01       | 3.6E+00                    | 3.8E+00         | 0         | 0              | 0         | 0              | 0                | 0                         | 0                        | 4.5E-01                        | 8.1E-01      | 2.9E-02             | 0           | 0                            |
|                                                      | Use of secondary material <i>kg/FU</i>                                                                                    | 2.0E-01       | 0                          | 2.0E-02         | 0         | 0              | 0         | 0              | 0                | 0                         | 0                        | 0                              | 0            | 0                   | 0           | 0                            |
|                                                      | Use of renewable secondary fuels- <i>MJ/FU</i>                                                                            | -             | -                          | -               | -         | -              | -         | -              | -                | -                         | -                        | -                              | -            | -                   | -           | -                            |
|                                                      | Use of non-renewable secondary fuels - <i>MJ/FU</i>                                                                       | -             | -                          | -               | -         | -              | -         | -              | -                | -                         | -                        | -                              | -            | -                   | -           | -                            |
|                                                      | Use of net fresh water - <i>m³/FU</i>                                                                                     | 1.0E-02       | 2.1E-04                    | 1.3E-03         | 0         | 0              | 0         | 0              | 0                | 0                         | 0                        | 6.1E-05                        | 7.7E-05      | 3.0E-06             | 0           | 0                            |

| WASTE CATEGORIES                                                                                                                      |               |                            |                 |           |                |           |                |                  |                           |                          |                                |              |                     |             |                              |
|---------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------------------|--------------------------|--------------------------------|--------------|---------------------|-------------|------------------------------|
| Parameters                                                                                                                            | Product stage | Construction process stage |                 | Use stage |                |           |                |                  |                           |                          | End-of-life stage              |              |                     |             | D Reuse, recovery, recycling |
|                                                                                                                                       | A1 / A2 / A3  | A4 Transport               | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Operational energy use | B7 Operational water use | C1 Deconstruction / demolition | C2 Transport | C3 Waste processing | C4 Disposal |                              |
|  Hazardous waste disposed kg/FU                       | 4.6E-02       | 4.8E-05                    | 2.7E-03         | 0         | 0              | 0         | 0              | 0                | 0                         | 0                        | 0                              | 1.8E-05      | 2.1E-07             | 0           | 0                            |
|  Non-hazardous (excluding inert) waste disposed kg/FU | 8.7E-02       | 2.9E-04                    | 1.1E+00         | 0         | 0              | 0         | 0              | 0                | 0                         | 0                        | 0                              | 6.0E-05      | 4.7E+00             | 4.8E+00     | 0                            |
|  Radioactive waste disposed kg/FU                     | 3.3E-05       | 3.4E-05                    | 7.1E-06         | 0         | 0              | 0         | 0              | 0                | 0                         | 0                        | 0                              | 1.3E-05      | 2.1E-07             | 0           | 0                            |

# OUTPUT FLOWS

| Parameters                                                                                                                                | Product stage | Construction process stage |                 | Use stage |                |           |                |                  |                           |                          | End-of-life stage              |              |                     |             | D Reuse, recovery, recycling |
|-------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------------------|--------------------------|--------------------------------|--------------|---------------------|-------------|------------------------------|
|                                                                                                                                           | A1 / A2 / A3  | A4 Transport               | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Operational energy use | B7 Operational water use | C1 Deconstruction / demolition | C2 Transport | C3 Waste processing | C4 Disposal |                              |
|  Components for re-use <i>kg/FU</i>                       | -             | -                          | -               | -         | -              | -         | -              | -                | -                         | -                        | -                              | -            | -                   | -           | -                            |
|  Materials for recycling <i>kg/FU</i>                     | 1.1E-01       | 0                          | 0               | 0         | 0              | 0         | 0              | 0                | 0                         | 0                        | 0                              | 0            | 0                   | 0           | -                            |
|  Materials for energy recovery <i>kg/FU</i>               | -             | -                          | -               | -         | -              | -         | -              | -                | -                         | -                        | -                              | -            | -                   | -           | -                            |
|  Exported energy, detailed by energy carrier <i>MJ/FU</i> | 0             | 0                          | 0               | 0         | 0              | 0         | 0              | 0                | 0                         | 0                        | 0                              | 0            | 0                   | 0           | 0                            |

## 6. LCA results interpretation



[1] This indicator corresponds to the abiotic depletion potential of fossil resources.

[2] This indicator corresponds to the total use of primary energy.

[3] This indicator corresponds to the use of net fresh water.

[4] This indicator corresponds to the sum of hazardous, non-hazardous and radioactive waste disposed.

86-80% of the energy consumption for Gyproc Hydro 13 mm comes from stages A1-A3. The natural gas use in stage A3 accounts for 52-57% of the total energy consumption. Saint-Gobain Gyproc is constantly working on environmental impact reduction and energy efficiency through ISO 14001 implementation. We focus on energy efficiency by setting objectives and implementing projects to achieve them. Aiming to reduce the consumption of natural gas, heat exchangers have been installed in the calcination area, which contributes to central heating of administrative building.

## 7. References

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4. EN 15804:2012 + A1:2013  
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5. ISO 21930:2007  
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6. ISO 14025:2006  
Environmental labels and declarations – Type III environmental declarations – Principles and procedures
7. ISO 14040:2006  
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8. ISO 14044:2006  
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9. ISO 9001:2008  
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10. ISO 14001:2004  
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