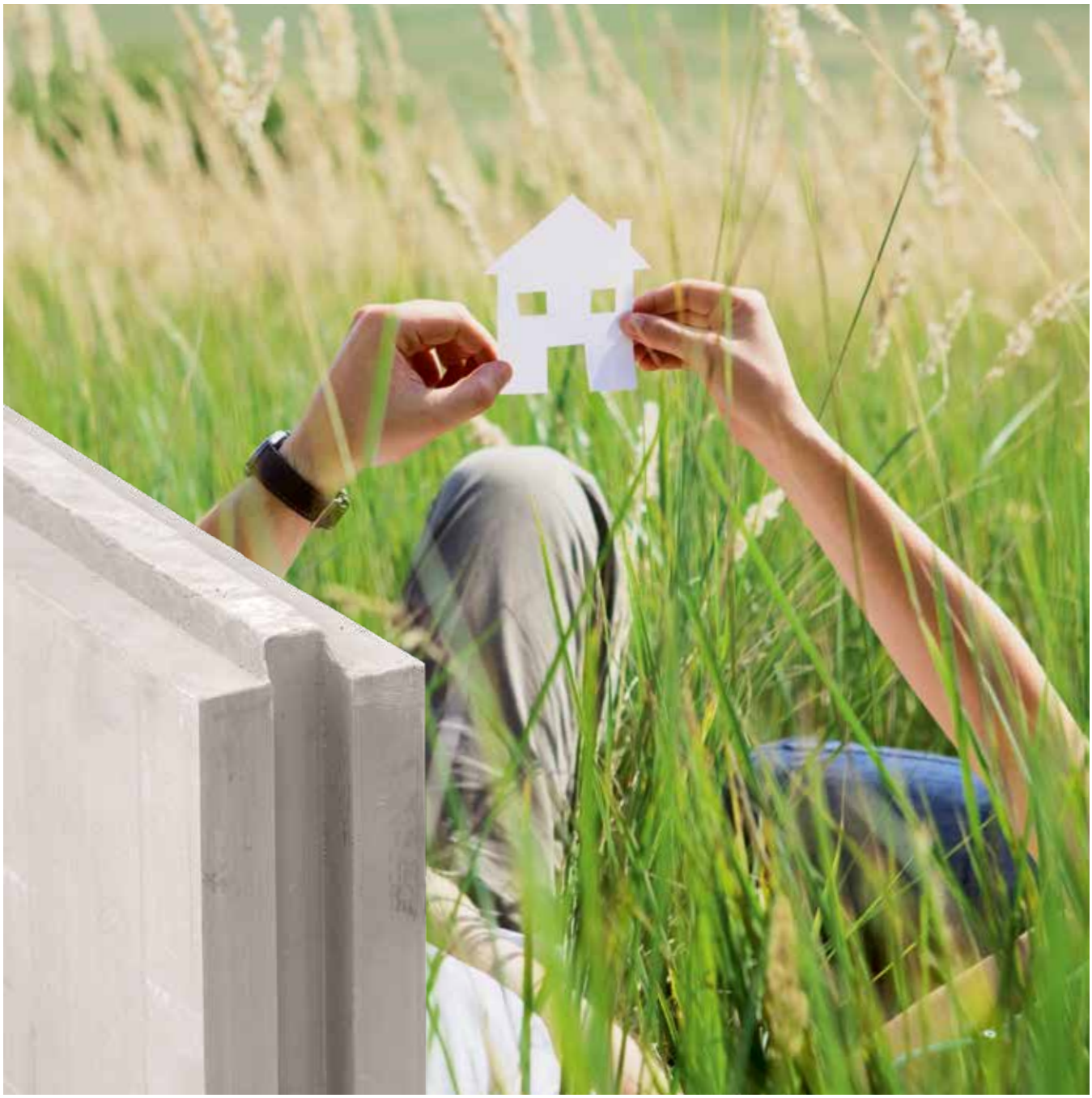
ENVIRONMENTAL
PRODUCT DECLARATION

In accordance with EN 15804 and ISO 14025

Alba® hydro 80

GYPSUM BLOCK



Date of issue: 2018-03-09 / Valid until: 2022-04-05 / Version: 1

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Rigips
SAINT-GOBAIN

Contents

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
S-P-01229

ECO EPD 00000661

1. General information

Manufacturer: Rigips AG
Programme used: International EPD® System (www.environdec.com)
EPD registration number/declaration number: S-P-01229
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: Rigips AG Heimberg; Gewerbepark, 5506 Mägenwil, Switzerland, and Rigips AG Granges, usine de la platrière, rte de Mangold 2, CH-3977 Granges VS, Switzerland
Declaration owner: Christian Rolandi

Product / product family name and manufacturer represented: Alba® hydro 80, Rigips AG

Declaration issued: 2018-03-09
Valid until: 2022-04-05
Demonstration of verification: an independent verification of the declaration and data was made, according to ISO 14025:2010 and EN15804:2012 + A1:2013. This verification was external and conducted by the following third party: Rolf Frischknecht, Treeze Ltd, based on the PCR mentioned above.
EPD Prepared by: Central SHEAR, Saint Gobain Gypsum. Contact. acagen-epd.gypsum@saint-gobain.com

Declaration of Hazardous substances: None

Explanatory material: Further information or explanatory material may be obtained by contacting Rigips AG

Scope: The EPD is based on 2014 production data for the Heimberg and Granges sites producing Alba® hydro 80. 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 Switzerland

The declared unit is 1 m^2 of Alba® hydro 80 with a weight of 80 kg/m^2

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. Contact via info@environdec.com
Independent verification of the declaration, according to EN ISO 14025:2010	☐ EPD process certification (Internal) ☒ EPD verification (External)
Third party verifier:	Rolf Frischknecht, Treeze Ltd
Accredited or approved by:	The International EPD® System

2. Product description

2.1 Description of the main product components and or materials:

A calcium sulfate base with added water. Some glass fibers and additives are also used.
The size is 80x1000x1000 mm in thickness, length and width.

2.2 Application

Wall and ceiling gypsum block (panel) for dry constructions.

2.3 Technical data

EN CLASSIFICATION	None, modeled by BS EN 12859:2011
REACTION TO FIRE	A1, EN 13501-1 6.3, VKF
WATER VAPOUR RESISTANCE	μ = 5 – 10, EN 12524
THERMAL CONDUCTIVITY	about 0.34 W/(m•K), EN ISO 10456

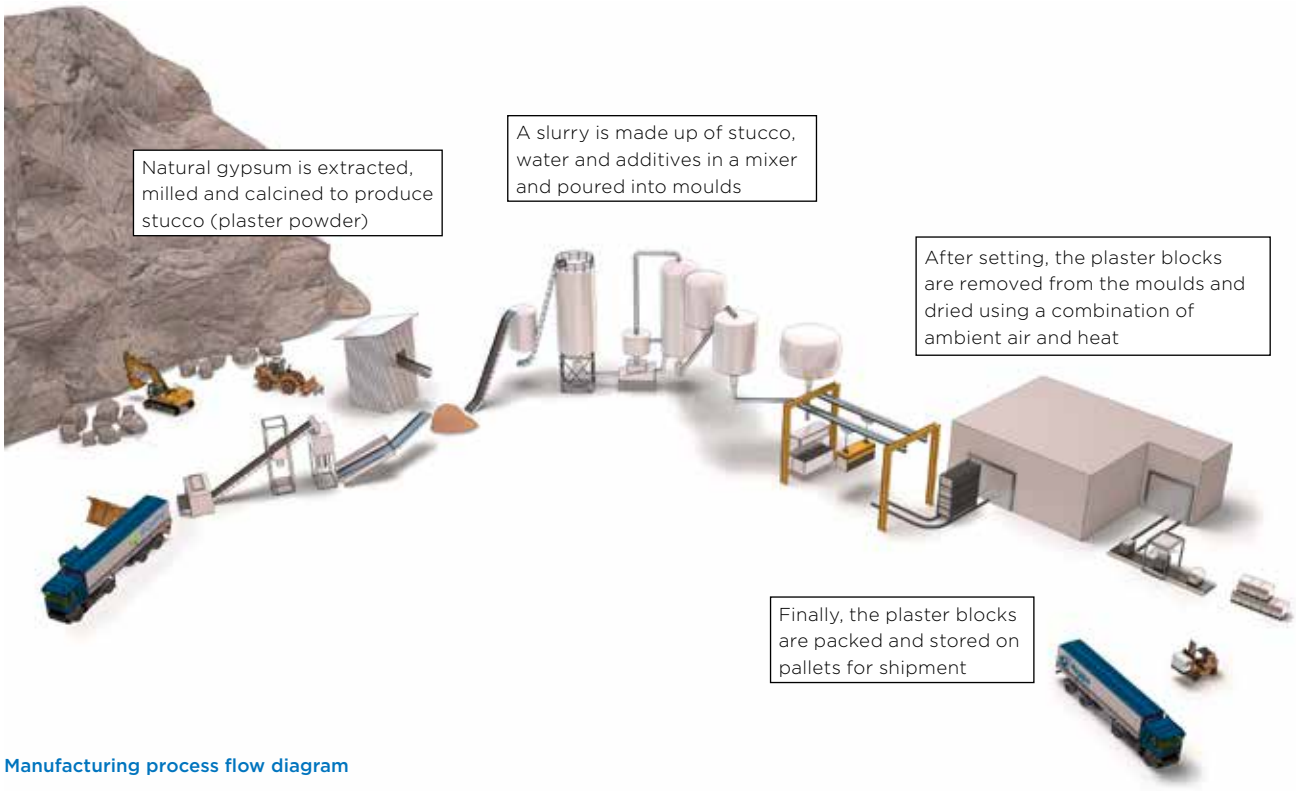
2.4 Base materials / Ancillary materials

Rigips AG provides a complete solution for the installation of gypsum blocks. For the installation, the following implementation materials are needed: 0.77 kg/m² jointing compound.

2.5 Product installation

It is important to observe appropriate health and safety legislation when working on site, i.e. personal protective clothing and equipment, etc. The following notes are intended as general guidance only. In practice, consideration must be given to design criteria requiring specific project solutions.
Please refer to the Rigips Alba installation guides on www.rigips.ch.

2.6 Manufacturing process flow



Manufacturing process flow diagram

3. LCA calculation information

DECLARED UNIT	1 m² of installed gypsum block weighing 80 kg
SYSTEM BOUNDARIES	Cradle to Gate with Options: Upstream & Core processes (A1 – A3), Downstream processes (A4 – A5, B1 – B7, C1 – C4)
REFERENCE SERVICE LIFE (RSL)	50 years. This 50 year value is the amount of time that we recommend our products last for without refurbishment, and corresponds to standard building design life
CUT-OFF RULES	Life Cycle Inventory data for a minimum of 99% of total inflows to the upstream and core module shall be included
ALLOCATIONS	Production data. Recycling, energy and waste data have been calculated on a mass basis.
GEOGRAPHICAL COVERAGE AND TIME PERIOD	Scope includes Switzerland only. Data collected in Heimberg and Granges, Switzerland in 2014. CML characterisation factors are used in the impact calculation.

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 plaster blocks production. 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).

A4 Transport to the building site:

PARAMETER	VALUE (expressed perdeclared unit)
Fuel type and consumption of vehicle or vehicle type used for transport e.g. long distance truck, boat, etc.	Truck with a 27 tonne average payload Diesel consumption 0.158l/tkm
Distance	144 km by truck
Capacity utilisation (including empty returns)	85% volume capacity
Bulk density of transported products	1000 kg/m^3
Volume capacity utilisation factor	1

A5 Installation in the building:

PARAMETER	VALUE (expressed perdeclared unit)
Ancillary materials for installation (specified by materials)	Jointing compound 0.77 kg/m^2
Water use	0.64 litres/m^2
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)	Gypsum Blocks: 4 kg, 0.04 kg jointing compound
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)	Gypsum Blocks: 0.424 kg to internal recycling 3.4 kg to landfill 0.176 kg to incineration Jointing compound: 0.004 kg to internal recycling 0.034 kg to landfill 0.002 kg to incineration
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).

B2 Maintenance:

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

B3 Repair:

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

B4 Replacement:

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

B5 Refurbishment:

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

B6 Use of energy and water:

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

End-of-life stage C1-C4

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	Separated, 100% collected by truck
Recovery system specified by type	10.6% of waste is recycled by Rigips
Disposal specified by type	85% landfilled 4.4% incinerated
Assumptions for scenario development (e.g. transportation)	On average, Gypsum waste is transported 220 km by truck to the recycling facility, 60 km by truck and 150 km by rail to the landfill facility and 30 km by truck, 10 km by ship and 50 km by rail to the incineration facility.

Reuse/recovery/recycling potential, D

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

Old gypsum blocks from de-construction or demolition can theoretically be recycled infinitely. The old gypsum blocks are processed into gypsum powder. Gypsum blocks made from this gypsum powder have the same quality and technical characteristics as the blocks made of natural gypsum.
The only condition for the recycling process is that the blocks are delivered without any foreign substances to the site.
Rigips wants to promote this process by means of favourable conditions, thereby saving the natural resource of gypsum and reducing the amount of landfill.

5. LCA results

Description of the system boundary (X = Included in LCA, MNA = Module Not Assessed). The declared unit is 1 m² of Alba® hydro 80 with a weight of 80 kg/m².

CML characterisation factors are used in the impact calculation. Specific data has been supplied by the plant, and generic data come from the Thinkstep and Ecoinvent 3.3 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	X

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) – *kg CO_2 equiv/FU*	1.7E+01	4.2E-01	2.3E+00	0	0	0	0	0	0	0	3.5E-01	3.4E-01	0	1.6E+00	3.1E-02
	Ozone Depletion (ODP) *kg CFC 11 equiv/FU*	5.8E-07	1.4E-13	8.8E-09	0	0	0	0	0	0	0	7.4E-13	9.3E-11	0	3.1E-08	1.2E-10
	Acidification potential (AP) *kg SO_2 equiv/FU*	3.7E-02	1.8E-03	1.3E-03	0	0	0	0	0	0	0	2.0E-03	1.5E-03	0	8.7E-03	1.1E-04
	Eutrophication potential (EP) *kg $(PO_4)^{3-}$ equiv/FU*	3.9E-03	4.4E-04	3.3E-04	0	0	0	0	0	0	0	8.2E-05	3.8E-04	0	1.1E-03	2.5E-05
	Photochemical ozone creation (POPC) *kg Ethene equiv/FU*	3.6E-03	7.2E-04	4.7E-06	0	0	0	0	0	0	0	1.2E-04	4.5E-04	0	6.3E-04	9.7E-06
	Abiotic depletion potential for non-fossil ressources (ADP-elements) *kg Sb equiv/FU*	3.9E-03	3.4E-08	2.2E-04	0	0	0	0	0	0	0	3.0E-09	7.1E-08	0	6.2E-07	2.4E-04
	Abiotic depletion potential for fossil ressources (ADP-fossil fuels) – *MJ/FU*	3.3E+02	5.9E+00	1.7E+01	0	0	0	0	0	0	0	4.6E+00	4.5E+00	0	1.9E+01	2.6E-01

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 – *MJ/FU*	1.2E+02	2.9E-01	6.1E+00	0	0	0	0	0	0	0	1.3E-02	1.1E+00	0	2.0E+00	1.3E+00
	Use of renewable primary energy used as raw materials *MJ/FU*	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) *MJ/FU*		1.2E+02	2.9E-01	6.1E+00	0	0	0	0	0	0	0	1.3E-02	1.1E+00	0	2.0E+00	1.3E+00
	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials – *MJ/FU*	3.7E+02	5.9E+00	1.8E+01	0	0	0	0	0	0	0	4.6E+00	5.8E+00	0	2.1E+01	1.9E+00
	Use of non-renewable primary energy used as raw materials – *MJ/FU*	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) – *MJ/FU*		3.7E+02	5.9E+00	1.8E+01	0	0	0	0	0	0	0	4.6E+00	5.8E+00	0	2.1E+01	1.9E+00
	Use of secondary material *kg/FU*	2.4E+00	0	1.2E-01	0	0	0	0	0	0	0	0	0	0	0	0
	Use of renewable secondary fuels – *MJ/FU*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Use of non-renewable secondary fuels – *MJ/FU*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Use of net fresh water m^3/*FU*	1.5E-01	5.5E-04	1.2E-02	0	0	0	0	0	0	0	2.8E-05	1.8E-03	0	1.3E-02	1.8E-03

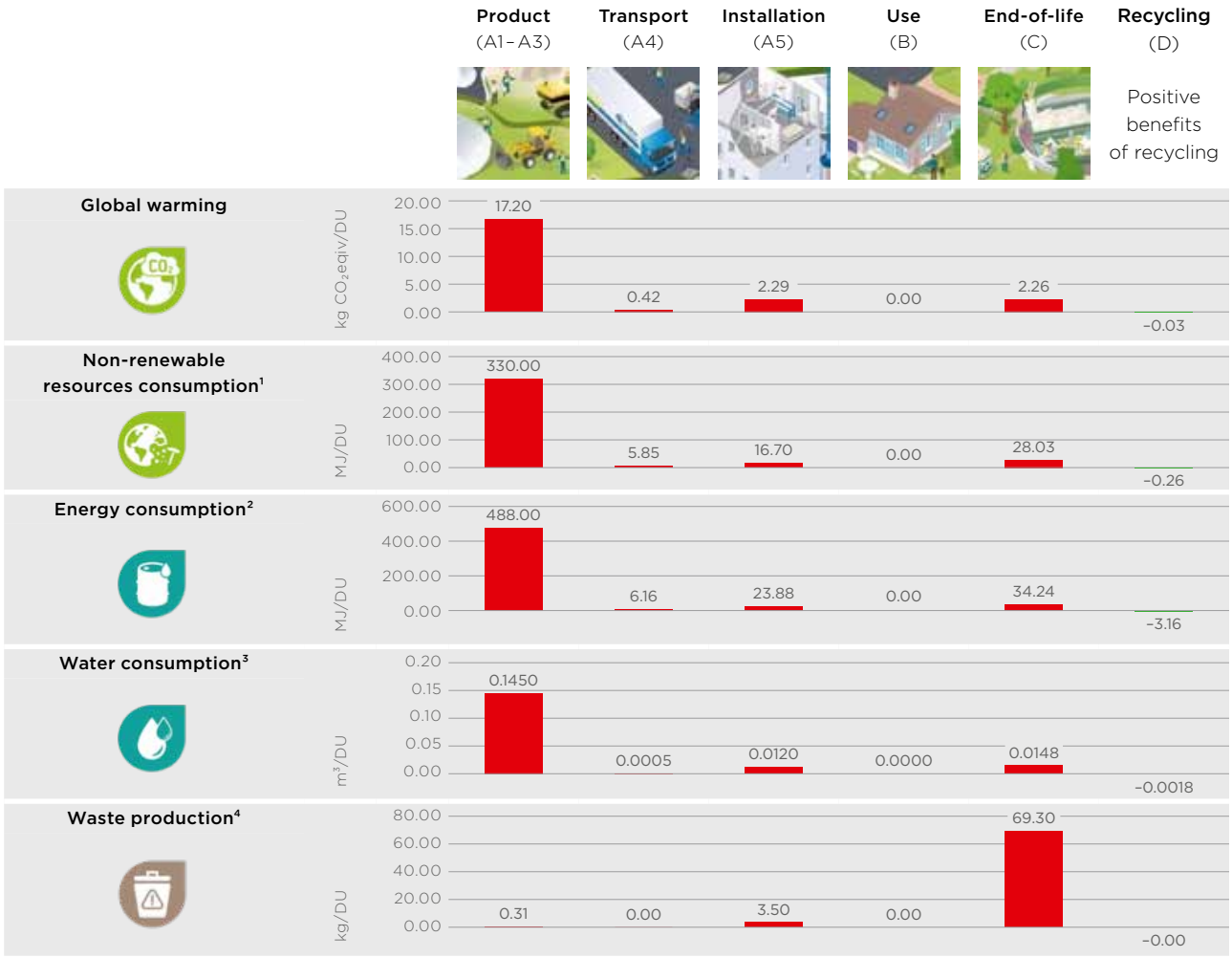
WASTE CATEGORIES

Parameters		Product stage	Construction process stage		Use stage							End-of-life stage				
		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	D Reuse, recovery, recycling
	Hazardous waste disposed *kg/FU*	4.8E-07	3.1E-07	1.0E-07	0	0	0	0	0	0	0	3.4E-10	2.4E-07	0	2.4E-07	6.9E-09
	Non-hazardous (excluding inert) waste disposed *kg/FU*	2.9E-01	4.5E-04	3.5E+00	0	0	0	0	0	0	0	6.3E-04	2.8E-03	0	6.9E+01	3.3E-03
	Radioactive waste disposed *kg/FU*	1.3E-02	8.0E-06	4.7E-04	0	0	0	0	0	0	0	5.7E-06	4.8E-04	0	5.9E-04	6.3E-04

OUTPUT FLOWS

Parameters		Product stage	Construction process stage		Use stage							End-of-life stage				
		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	D Reuse, recovery, recycling
	Components for re-use *kg/FU*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Materials for recycling *kg/FU*	0	0	4.3E-01	0	0	0	0	0	0	0	0	0	8.6E+00	0	0
	Materials for energy recovery *kg/FU*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Exported energy, detailed by energy carrier *MJ/FU*	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.*

87% of the energy consumption for Alba® hydro 80 comes from the stages A1-A3. The natural gas use of the manufacturing site accounts for 62% of the energy consumed in A1-A3.

Savings from Rigips initiatives to reduce energy consumption

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
CO_2 Reduction															
Diff to year 2000	0	-3%	-5%	-4%	-4%	-4%	-6%	-8%	-19%	-21%	-21%	-24%	-23%	-27%	**-28%**
Diff to year 2005						0%	-2%	-4%	-15%	-18%	-17%	-20%	-20%	-23%	**-25%**
Electricity efficency															
Diff to year 2000	0	2%	3%	1%	2%	1%	-5%	-7%	-16%	-19%	-21%	-24%	-24%	-29%	**-31%**
Diff to year 2005						0%	-7%	-8%	-17%	-20%	-22%	-25%	-25%	-30%	**-32%**

Data basis: per to gypsum block for Rigips AG, Heimberg, Leissigen & Granges Plant

7. Additional Environmental information

Additional information has been produced in accordance with «Swiss specific and additional requirements on construction product LCAs according to EN 15804» (Frischknecht 2015) in order to provide the background information for environmental indicators used in the KBOB-recommendation (KBOB et al. 2016).

Background modelling information remains the same as in the preceding sections, with the following exceptions:

LCA Calculation Information:

DECLARED UNIT	**1 kg of installed gypsum block**
SYSTEM BOUNDARIES	Cradle to Gate plus downstream processes (A1-A3, C3-C4)
REFERENCE SERVICE LIFE (RSL)	50 years (as per the Saint-Gobain Methodological Guide)
CUT-OFF RULES	Life Cycle Inventory data for a minimum of 99% of total inflows to the upstream and core module shall be included
ALLOCATIONS	Production data, energy and waste data have been calculated on a mass basis.
GEOGRAPHICAL COVERAGE AND TIME PERIOD	Scope includes Switzerland only. Data collected in Leissigen and Heimberg, Switzerland in 2014.

End-of-life:

PARAMETER	VALUE (expressed per declared unit) / DESCRIPTION
Collection process specified by type	Separated, 100% collected by truck
Recovery system specified by type	According to the KBOB recommendation, no waste is recycled
Disposal specified by type	According to the KBOB recommendation, 100% of waste is landfilled
Assumptions for scenario development (e.g. transportation)	According to KBOB indicator requirements waste is transported 15 km by lorry to landfill

Description of the system boundary (X = Included in LCA, MNA = Module Not Assessed). The declared unit is 1kg of average gypsum plate of the «Alba®» product family with an average density of 1000 kg/m³.

Specific data has been supplied by the plant, and generic data comes from the Ecoinvent 2.2 database.

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	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	MNA	X	X	MNA

Cumulative energy demand			
Parameters	Total	Production	Disposal
	A1/A2/A3/C3/C4	A1/A2/A3	C3/C4
Total cumulative energy demand *MJ/kg*	**5.95**	**5.67**	**0.28**
Renewable energy demand *MJ/kg*	**0.311**	0.308	0.003
Non-renewable energy demand *MJ/kg*	**5.64**	5.36	0.277

Greenhouse gas emissions, quantified with the GWP based on IPCC 2013			
Parameters	Total	Production	Disposal
	A1/A2/A3/C3/C4	A1/A2/A3	C3/C4
Global Warming Potential (GWP) *kg CO_2 equiv/kg*	**0.285**	**0.274**	**0.011**

Environmental impacts quantified with the eco-factors 2013 of the ecological scarcity method			
Parameters	**Total**	**Production**	**Disposal**
	A1/A2/A3/C3/C4	**A1/A2/A3**	**C3/C4**
Total UPB 2013 *UBP/kg*	**331**	**311**	**19.9**
Water resources *UBP/kg*	**1.82E-01**	1.67E-01	1.50E-02
Energy resources *UBP/kg*	**1.95E+01**	1.85E+01	9.66E-01
Mineral resources *UBP/kg*	**1.42E+01**	9.81E+00	4.35E+00
Land use *UBP/kg*	**1.19E+00**	7.83E-01	4.08E-01
Global warming *UBP/kg*	**1.30E+02**	1.25E+02	4.98E+00
Ozone layer depletion *UBP/kg*	**4.07E-01**	4.01E-01	6.39E-03
Main air pollutants and PM *UBP/kg*	**1.15E+02**	1.10E+02	5.23E+00
Carcinogenic substances into air *UBP/kg*	**2.93E+00**	2.70E+00	2.27E-01
Heavy metals into air *UBP/kg*	**7.99E+00**	7.67E+00	3.17E-01
Water pollutants *UBP/kg*	**3.39E+00**	2.47E+00	9.16E-01
POP into water *UBP/kg*	**8.23E-01**	3.52E-01	4.71E-01
Heavy metals into water *UBP/kg*	**9.49E+00**	8.84E+00	6.53E-01
Pesticides into soil *UBP/kg*	**4.44E-03**	4.34E-03	1.03E-04
Heavy metals into soil *UBP/kg*	**3.31E-01**	2.50E-01	8.12E-02
Radioactive substances into air *UBP/kg*	**7.47E-06**	7.39E-06	8.10E-08
Radioactive substances into water *UBP/kg*	**6.00E-01**	5.93E-01	7.35E-03
Noise *UBP/kg*	**2.41E+00**	1.44E+00	9.69E-01
Non radioactive waste to deposit *UBP/kg*	**1.82E-01**	1.72E-01	9.84E-03
Radioactive waste to deposit *UBP/kg*	**2.23E+01**	2.20E+01	2.59E-01

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