ENVIRONMENTAL PRODUCT DECLARATION

In accordance with EN 15804 and ISO 14025

WEBERBLOC FIX

Date of issue: 2019-10-21
Validity: 5 years
Valid until: 2024-10-03
Scope of the EPD: United Arad Emirates

EPD VERIFIED

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.

weber SAINT-GOBAIN

Registration number
The International EPD® System:

S-P-01693

EPD®
THE INTERNATIONAL EPD® SYSTEM

We care about people and their environment

At Weber, we believe that what matters most in the construction industry is to care about people and their environment. Weber is a world leader in industrial mortars with expertise and knowledge throughout the world. Weber is made up of 10,000 people in 62 countries supported by almost 200 production units with an annual turnover over €2 billion. Weber's services and solutions aim to help customers save time, feel confident and comfortable, be successful in their work and grow their business.

Our brand promises:

- **Well-being:** We care for the safety and benefit of all. Making lives easier, more convenient and more comfortable.
- **Empathy:** We care about people. Listening to what matters to people and taking into account theirs needs. Helping everyone to grow. Responding to the multiplicity of challenges in today's world, and adapting to the diversity of the lives that populate it.
- **Long-lasting:** We care about today. But also for the future. Taking responsibility to lead the change and build a tomorrow that is in harmony with its environment.

Our commitments:

Develop sustainable and comfortable solutions that guarantee the wellbeing of both individuals and society as a whole, these are the fundamentals of the Saint-Gobain brand promise. They are also the basis of the Group’s Corporate Social Responsibility (CSR), through commitments made to our teams, customers and local communities.

Site-related information: Sodamco Emirates Factory

- Quality management system: ISO 9001:2015 IND17.6181 U/Q 1-2
- Environment management system: ISO 14001:2015 IND18.5154 U/E 1-2
- Health and Safety management system: OHSAS 18001:2007 IND17.6180 U/HS 1-2

General information

Manufacturer: Sodamco Emirates Factory For Building Materials L.L.C. P.O. Box 96082 Abu Dhabi UAE (Weber Saint-Gobain).

Programme used: The International EPD® System. More information at www.environdec.com

PCR identification: The International EPD® System PCR 2012:01 Construction products and construction services version 2.3.

UN CPC Code: 37510 Non-refractory mortars and concretes

Owner of the declaration: Sodamco Emirates Factory For Building Materials

Product / product family name and manufacturer represented: This EPD describes the environmental impacts of 1kg of mortar weberbloc fix manufactured at Sodamco site

EPD® prepared by: Mohamad Derbas (Sodamco Weber Saint-Gobain), Patricia Jiménez Diaz (Saint-Gobain LCA central team).

Contact: Mohamad Derbas, Mohamad.derbas@saint-gobain.com

Declaration issued: 2019-10-21, **valid until:** 2024-10-03

Demonstration of verification: an independent verification of the declaration was made, according to ISO 14025:2010. This verification was external and conducted by a third party, based on the PCR mentioned above (see information below).

CEN standard EN 15804 served as the core PCR	
EPD Program operator	International EPD System. Operated by EPD® International AB http://www.environdec.com/
PCR review conducted by	The Technical Committee of the International EPD® System. Chair: Massimo Marino. Contact via info@environdec.com
Independent verification of the declaration and data, according to ISO 14025	Internal ☐ External ☒
Third party verifier	Marcel Gomez Marcel Gómez Consultoria Ambiental (www.marcelgomez.com) Tlf 0034 630 64 35 93 Email: info@marcelgomez.com
Accredited or approved by	The International EPD System

Product description

Product description and description of use:

weberbloc fix is a ready mix mortar that requires only the addition of water. It is made of cement, graded sand and additives for improved workability, better bonding and water retention.

weberbloc fix is particularly adapted for mounting regular/hollow blocks, stones, and bricks and to fill gaps between concrete and bricks.

Technical data/physical characteristics		
Pull off strength at 28 days	> 0.3 MPa	BS 1881 part 207
Compressive strength	13 MPa at 28 days	BS-EN 196-1-1994
VOC and formaldehyde content	< 0.1 g/LT	ISO/FDIS 11890-2/GC-MS
Resistance to fire	Class A1	BS EN 998 -2, 2003

Description of the main product components and/or materials:

All raw materials contributing more than 5% to any environmental impact are listed in the following table.

Component Category	Component specification	Amount (%)
Aggregate	Limestone	**40-60%**
Binder	OPC type I	**10-20%**
Filler	Dune/ red sand	**20-40%**

PARAMETER	VALUE (expressed per declared unit)
Quantity of mortar	1 kg
Packaging for the transportation and distribution	Polyethylene film: 0.33 g/kg Paper bag: 4 g/kg Pallet: 10 g/kg
Product used for the installation	Energy: 0.0039 MJ/kg Water: 0.13 l/kg

During the life cycle of the product any hazardous substance listed in the “Candidate List of Substances of Very High Concern (SVHC) for authorization” has been used in a percentage higher than 0.1% of the weight of the product.

The verifier and the program operator do not make any claim nor have any responsibility of the legality of the product.

LCA calculation information

DECLARED UNIT	1 kg of weberbloc fix mortar
SYSTEM BOUNDARIES	Cradle to gate with options
REFERENCE SERVICE LIFE (RSL)	50 years
CUT-OFF RULES	Life Cycle Inventory data for a minimum of 99% of total inflows to the upstream and core module shall be included and at least 95% at the module level. Flows related to human activities such as employee transport are excluded. The construction of plants, production of machines and transportation systems are excluded
ALLOCATIONS	Based on mass repartition The polluter pays and modularity principles have been followed.
GEOGRAPHICAL COVERAGE AND TIME PERIOD	Data included is collected from one production site in ICAD3, SODAMCO EMIRATES and United Arab Emirates (UAE) Production year from 2018 Background data: Ecoinvent (from 2015 to 2018) and GaBi (from 2013 to 2018)

According to EN 15804, EPD of construction products may not be comparable if they do not comply with this standard. According to ISO 21930, Environmental Product Declarations within the same product category from different programs may not be comparable.

Life cycle stages

Flow diagram of the Life Cycle

Figure 1: Life Cycle illustration of a product for construction

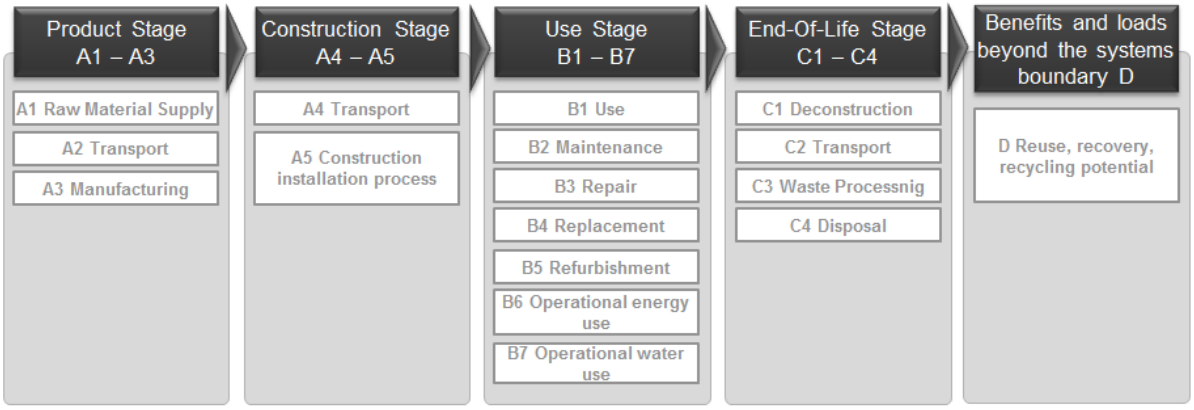


Figure 2: Cradle to gate with option analysis taking into account all stages of the Life Cycle product

Product stage, A1 - A3

Description of the stage:

The product stage of the Weber products is subdivided into 3 modules A1, A2 and A3 respectively "Raw material supply", "transport" and "manufacturing".

The aggregation of the modules A1, A2 and A3 is a possibility considered by the EN 15 804 standard. This rule is applied in this EPD.

Raw material supply – A1

This part takes into account the extraction and processing of all raw materials and energy which occurs upstream to the studied manufacturing process.

Specifically, the raw material supply covers sourcing (quarry) and production of all binder components and additives (e.g. sand, cement, rheology agent and others).

Transport to manufacturer – A2

The raw materials are transported to the manufacturing site. In this case, the modelling includes road transportations (average values) of each raw material.

Manufacture – A3

This module includes manufacturing of products but also besides on-site activities such as drying, storing, mixing, packing and internal transportation.

The manufacturing process also collect data on the combustion of refinery products, such as diesel and gasoline, related to the production process.

Use of electricity, fuels and auxiliary materials in the production is taken into account too. The environmental profile of these energy carriers is modeled for local conditions.

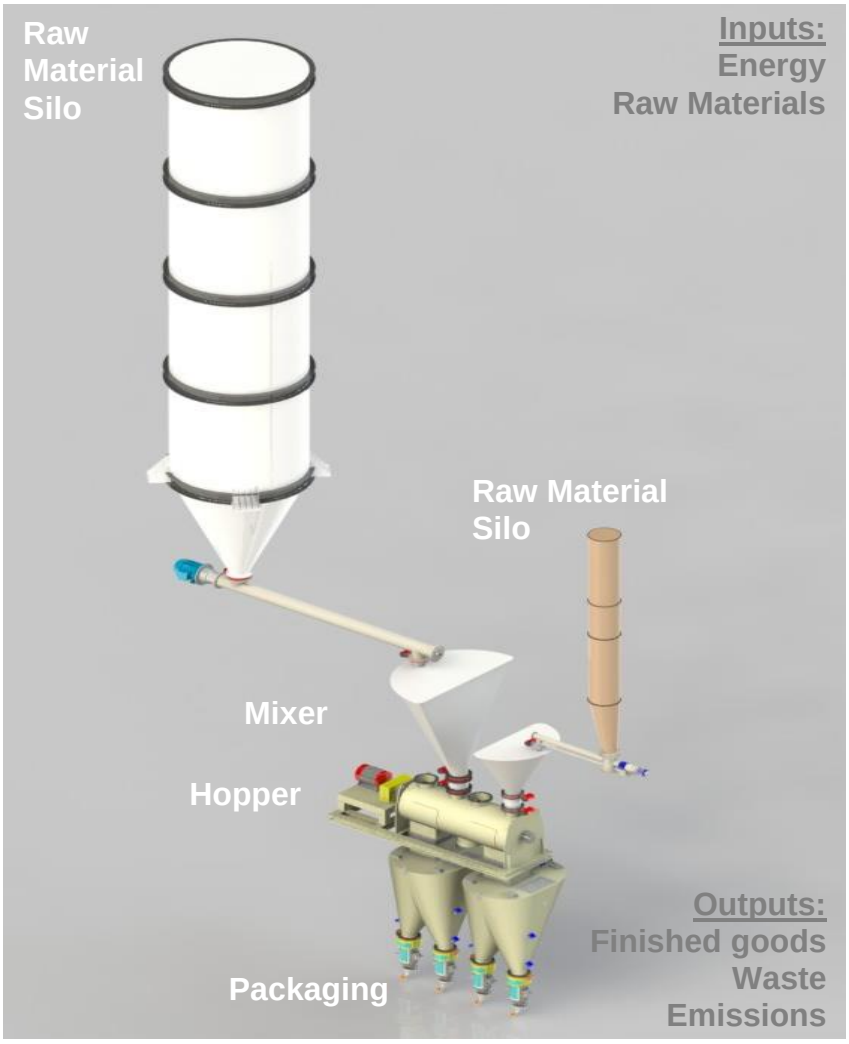
Packaging-related flows in the production process and all up-stream packaging are included in the manufacturing module, i.e. wooden pallets, paper sack and LDPE film.

Apart from production of packaging material, the supply and transport of packaging material are also considered in the LCA model. They are reported and allocated to the module where the packaging is applied. Data on packaging waste created during this step are then generated.

It is assumed that packaging waste generated in the course of production and up-stream processes is 100% collected and either recycled or incinerated with energy recovery.

[1] **Included Transport**

Manufacturing process flow diagram: Basic scheme of a Mortar Production line



Construction process stage, A4 - A5

Description of the stage:

Transport – A4

This module includes transport from the production gate to the building site.

Transport is calculated on the basis of a scenario with the parameters described in the following table.

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.	49,5l per truck per 100km with payload 48t per 100 km and forward real load 40t
Distance	110 km
Capacity utilisation (including empty returns)	91% capacity utilization in mass including 1 % of empty returns in mass
Bulk density of transported products	1.95 kg/lit
Volume capacity utilisation factor	1 (by default)

Construction installation process – A5

For the implementation of the product, mixer pump equipment is generally used for high volume purposes. Smaller volumes are mixed and applied according to local circumstances. A pump is generally used. The energy to run different equipment has been accounted for in relation to the product type and different uses.

During installation and construction, 5 % of the material amount is estimated to be wasted through excess preparation and cleaning processes. The losses are considered as landfilled. Within module A5, site-related packaging waste processing is included in the LCA.

End-of-life of packaging materials is reported and allocated to the module where it arises.

As no factual data on waste treatment of packaging materials and leftovers of installation products from construction sites are available, they are considered 100 % collected and recycled. Wooden pallets are considered recycled in established systems.

Installation in the building:

PARAMETER	VALUE (expressed per declared unit)
secondary materials for installation (specified by materials)	none
Water use	0.13 liters/kg
Other resource use	none
Quantitative description of energy type (regional mix) and consumption during the installation process	0.0039 MJ/kg (UAE mix)
Wastage of materials on the building site before waste processing, generated by the product's installation (specified by type)	0.05 kg (5%)
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)	Polyethylene film: 0.33 g/kg Paper bag: 4 g/kg Pallet: 10 g/kg Packaging and pallets are sent to recycled
Direct emissions to ambient air, soil and water	none

Use stage (excluding potential savings), B1 - B7

Description of the stage:

The use stage is divided into the following modules:

Use – B1

Maintenance – B2

Repair – B3

Replacement – B4

Refurbishment – B5

Operational energy and water use – B6 and B7

Once installation is complete, no actions or technical operations are required during the use stages until the end of life stage. The product does not require any energy, water or material input to keep it in working order. Furthermore, it is not exposed to the indoor atmosphere of the building, nor is it in contact with the circulating water or the ground.

The product covered by this EPD does not require any maintenance as it is aimed for weberbloc fix mortar. In addition, due to the product durability; maintenance, repair, replacement or restoration are irrelevant in the specified applications. Declared product performances therefore assume a working life that equals the building's lifetime. For this reason, no environmental loads are attributed to any of the modules between B1 and B5.

End-of-life stage C1 - C4

Description of the stage:

Landfill is considered to be the worst scenario.

The end-of-life stage is divided into the following modules:

Deconstruction – C1

The de-construction and/or dismantling of the product take part of the demolition of the entire building. In our case, the environmental impact is assumed to be very small and can be neglected.

Transport to waste processing – C2

The model use for the transportation is applied (cf. table below).

Waste processing – C3

The product is considered to be landfilled without reuse, recovery or recycling. It is classified as 'non-hazardous waste' in the European list of waste products.

Disposal –C4

The impact of landfill is taken into account according to available data.

Additional technical information of End-of-life:

PARAMETER	VALUE (expressed per declared unit) / DESCRIPTION
Collection process specified by type	1 kg collected with mixed construction waste.
Recovery system specified by type	0% of waste
Disposal specified by type	100 % (1 kg) product to municipal landfill
Assumptions for scenario development (e.g. transportation)	Average truck trailer with 27t payload, diesel consumption 38l/100km; 50km distance to landfill

Reuse/recovery/recycling potential, D

Post-consumer recycling scenarios are not considered within this EPD.

LCA results

Description of the system boundary, X = Included in LCA, MND = Module Not Declared

CML 2001 has been used as the impact model. Specific data has been supplied by the plant, and generic data come from GABI and Ecoinvent databases.

All emissions to air, water, and soil, and all materials and energy used have been included.

Resume of the LCA data results are detailed on the following tables and they refer to a declared unit of 1kg of weberbloc fix mortar.

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	MND

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 CO2equiv/FU*	1,72E-01	2,96E-03	1,07E-02	0	0	0	0	0	0	0	4,39E-03	2,39E-03	0	1,56E-02	NMD
	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) *kg CFC 11 equiv/FU*	7,29E-09	4,52E-19	3,10E-09	0	0	0	0	0	0	0	5,98E-19	5,93E-19	0	8,73E-17	NMD
	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) *kg SO2equiv/FU*	4,28E-04	3,89E-06	3,18E-05	0	0	0	0	0	0	0	1,54E-05	9,69E-06	0	8,92E-05	NMD
	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) *kg (PO4)3-equiv/FU*	2,20E-04	8,12E-07	1,26E-05	0	0	0	0	0	0	0	8,97E-07	2,46E-06	0	1,01E-05	NMD
	Excessive enrichment of waters and continental surfaces with nutrients, and the associated adverse biological effects.														
Photochemical ozone creation (POPC) *Etheneequiv/FU*	1,04E-06	3,06E-07	3,10E-06	0	0	0	0	0	0	0	1,04E-06	3,96E-07	0	7,35E-06	NMD
	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 ressources (ADP-elements) - *kg Sbequiv/FU*	2,12E-08	3,92E-11	2,05E-09	0	0	0	0	0	0	0	1,09E-10	2,07E-10	0	5,32E-09	NMD
Abiotic depletion potential for fossil ressources (ADP-fossil fuels) - *MJ/FU*	1,09E+00	4,11E-02	8,79E-02	0	0	0	0	0	0	0	5,47E-02	3,23E-02	0	2,08E-01	NMD
	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 - *MJ/FU*	3,68E-01	9,4E-04	2,4E-02	0	0	0	0	0	0	0	1,8E-04	1,9E-03	0	2,7E-02	NMD
Use of renewable primary energy used as raw materials *MJ/FU*	0,063	0	3,0E-03	0	0	0	0	0	0	0	0	0	0	0	NMD
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) *MJ/FU*	4,94E-01	9,4E-04	2,7E-02	0	0	0	0	0	0	0	1,8E-04	1,9E-03	0	2,7E-02	NMD
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw	1,14E+00	4,1E-02	9,4E-02	0	0	0	0	0	0	0	5,5E-02	3,3E-02	0	2,2E-01	NMD
Use of non-renewable primary energy used as raw materials *MJ/FU*	3,51E-02	0	1,7E-03	0	0	0	0	0	0	0	0	0	0	0	NMD
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) - *MJ/FU*	1,18E+00	4,1E-02	9,5E-02	0	0	0	0	0	0	0	5,5E-02	3,3E-02	0	2,2E-01	NMD
Use of secondary material *kg/FU*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NMD
Use of renewable secondary fuels- *MJ/FU*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NMD
Use of non-renewable secondary fuels - *MJ/FU*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NMD
Use of net fresh water - *m3/FU*	5,03E-04	3,2E-07	3,2E-05	0	0	0	0	0	0	0	3,3E-07	3,3E-06	0	5,4E-05	NMD

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*	3,82E-09	1,48E-10	4,65E-10	0	0	0	0	0	0	0	6,76E-12	1,80E-09	0	3,68E-09	NMD
Non-hazardous(excluding inert) waste disposed *kg/FU*	1,10E-04	5,00E-07	5,01E-02	0	0	0	0	0	0	0	8,07E-06	2,73E-06	0	1,00E+00	NMD
Radioactive waste disposed *kg/FU*	2,67E-05	4,81E-08	1,48E-06	0	0	0	0	0	0	0	6,76E-08	6,65E-08	0	2,86E-06	NMD

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 *kg/FU*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NMD
Materials for recycling *kg/FU*	9,32E-03	0	1,48E-02	0	0	0	0	0	0	0	0	0	0	0	NMD
Materials for energy recovery *kg/FU*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NMD
Exported energy, detailed by energy carrier *MJ/FU*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NMD

Environmental parameters description

Environmental impacts

Global warming potential

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 CO_2, which is assigned a value of 1. For example, if CH_4 (methane) has a global warming potential of 21, it means that 1kg of methane has the same impact on climate change as 21kg of CO_2 and thus 1kg of CH_4 would count as 21kg of CO_2 equivalent.

Ozone Depletion

Ozone depletion is the destruction of the stratospheric ozone layer which shields the earth from UV radiation harmful to life.

Acidification potential

Acid depositions have negative impacts on natural ecosystems and the man-m ade 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

It corresponds to an excessive enrichment of waters and continental surfaces with nutrients, and the associated adverse biological effects.

Photochemical ozone creation

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. It corresponds to the pollution of the air at ground level.

Abiotic depletion potential for fossil and non-fossil resources

The abiotic depletion potential is the consumption of non-renewable resources, thereby lowering their availability for future generations.

Resource Use

Use of primary energy resources

Renewable energy is energy from non-fossil sources (wind, solar, geothermal, etc.
Renewable resource is a resource that is grown, naturally replenished or naturally cleansed, on a human time scale.

Non-Renewable energy is energy from sources which are not defined as renewable energy sources.
Non-renewable resource is resource that exists in a finite amount that cannot be replenished on a human scale.

Use of secondary material

Secondary material is material recovered from previous use or from waste which substitutes primary materials. Materials recovered from previous use of from waste from one product system and used as an input in another product system are secondary materials (recycled scrap metal, recycled plastic, recycled wood chips, etc.)

Use of secondary fuels

Secondary fuel is fuel recovered from previous use or from waste which substitutes primary fuels. Any combustible material recovered from previous use or from waste from the previous product

system and used as a fuel in a following system is a secondary fuel (e.g. solvents, used tyres, used oil, etc.)

Use of net fresh water

Fresh water is naturally occurring water on the Earth's surface (ice, lakes, rivers, groundwater, etc.) It is generally characterized by having low concentrations of dissolved salts; the term specifically excludes seawater and brackish water.

Waste categories

Hazardous waste disposed

This kind of waste poses substantial or potential threats to public health or the environment

Non-hazardous waste disposed

This kind of waste is a waste that can burn, produce chemical, physical or biological reaction but without being hazardous or toxic for human health (e.g. PE, PVC, PS, metals, non-treated wood, construction waste mixed with non-mineral waste without any hazardous substance inside, etc.).

Radioactive waste disposed

These kinds of wastes contain radioactive material. Radioactive wastes are usually by-products or nuclear power generation and other applications of nuclear fission or nuclear technology, such research and medicine. Radioactive waste is hazardous to most forms of life and the environment, and is regulated by government in order to protect human health and the environment.

Output flows

Components for re-use

To re-use is to use again after it has been used: this includes conventional reuse where the item is used again for the same function and new-life reuse where it is used for a different function.

Material for recycling

In contrast with re-use, recycling is the breaking down of the used item into raw materials which are used to make new items.

Materials for energy recovery

It includes any technique or method of minimizing the input of energy to an overall system by the exchange of energy from one sub-system to another.

Exported energy

It relates to energy exported from waste incineration and landfill

LCA results interpretation

The following figure refers to a declared unit of 1kg of weberbloc fix.

[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.

Comments:

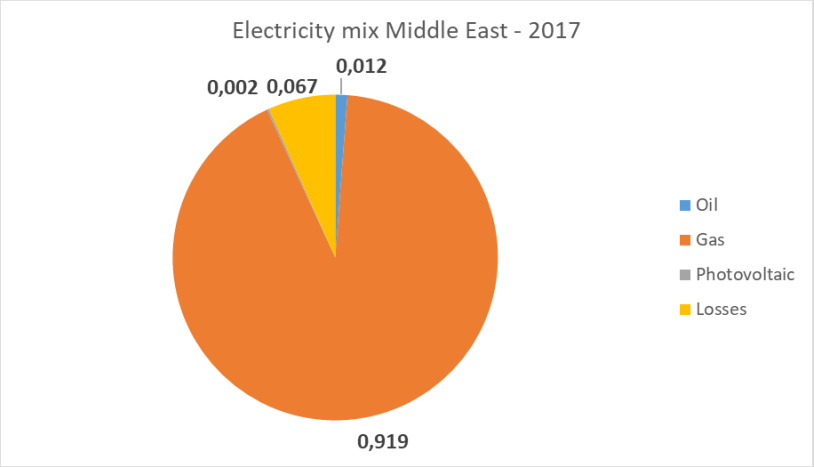
With the graphic view above, it is possible to assess which steps of the LCA are the most impacting for the chosen indicators

- The main environmental impacts of the product life cycle come from extraction and processing of raw materials (A1-A3). The Product stage is responsible for over 80% of the impact for following indicators: Global Warming, Non-renewable resources consumption, Energy consumption and Water consumption.
- As expected, waste production is mainly generated (over 95 %) during the end-of-life stage with building demolition.
- Water is added at installation.
- The formula mix and distribution pattern have identifiable impacts on the total.

Additional information

Electricity description

TYPE OF INFORMATION	DESCRIPTION
Location	Representative of average production in United Arab Emirates (2017)
Geographical representativeness description	Split of energy sources in United Arab Emirates - Natural gas: 92% - Oil: 1% - Photo: 0.2% - Losses: 6.7%
Reference year	2017
Type of data set	Cradle to gate from Thinkstep
Source	International Energy Agency -2017



Carbonation during use phase

The carbonation process that occurs during the use stage when the cement included in the mortar's recipe reacts with carbon dioxide (CO2) from the air and forms calcium carbonate is calculated based on the "EN 16757 – Sustainability of Construction Works - Environmental Product Declarations - Product Category Rules for Concrete and Concrete Elements".

Kg CO2 uptaken during use stage is -9,56E-04 being k factor and degree of carbonation for indoor in dry climate with cover.

Data Quality

Scope: United Arab Emirates

Period: 2018

Background information is taken from the GaBi or Ecoinvent database, trade association or suppliers data.

Raw Materials	Generic database, trade association and supplier data
Production	Own specific data
Transport	Generic and specific data
Application	Generic and specific data
Life in Use	Generic data
End of Life	Generic data
Energy	Generic average country

References

1. EPD International (2017) General Programme Instructions for the International EPD® System. Version 2.5, dated 2017-12-11. www.environdec.com.
2. The International EPD System PCR 2012:01 Construction products and Construction services, Version 2.3
3. EN 15804:2012 + A1:2013 Sustainability of construction works ‐ Environmental product declarations ‐ Core rules for the product category of construction products
4. ISO 14 025: environmental labels and declarations – type III Environmental Declarations Principles and procedure (2009)
5. ISO 14 040: Environmental management – Life Cycle Assessment – Principles and framework (2006)
6. ISO 14 044: Environmental management – Life Cycle Assessment – Requirements and guidelines (2006)
7. ISO 14020:2000 Environmental labels and Declarations - General principles
8. Saint-Gobain Environmental Product Declaration Methodological Guide for Construction Products, Version 3.0.1 (2013)
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