Environmental Product Declaration No 17/2014

Gypsum plasters
ALFA, BETA, GAMMA, ZETA, SPRINT, TEMPO

Issuance date: 01.03.2014
Validity date: 01.03.2019

EPD program operator:
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Basic information
This declaration is the type III Environmental Product Declaration (EPD) based on EN 15804 and verified according to ISO 14025. It contains information about the impact of declared construction materials on environment and their aspects verified by the independent Advisory Board according to ISO 14025. Basically, a comparison or evaluation of EPD data is possible only if all the compared data were created according to EN 15804 (see point 5.3 of the norm).

Life cycle: A1-A3 modules in accordance with EN 15804 (Cradle to Gate)
The year of preparing the characteristic: 2014
Period of data collection: 2012 (due to databases which allow the use of data for a close accounting period).
Issuance date: 10.03. 2014
Validation date: 01.03.2014
Validity date: 10.03.2019
PCR: ITB PCR A v1.4
Declared durability: Under normal conditions, gypsum plaster have an expected service life well in excess of 50 years.
Declared unit : 1 kg

Manufacturer and Product Information

Dolina Nidy is a manufacturer of gypsum plasters intended for plastering internal walls and ceilings. These plasters are based on two types of raw materials: natural, exploit from gypsum quarry, and FGD (synthetic) gypsum, which is a by-product in the process of desulfurization of fumes in a power plant. Depending on the type of raw material, the fallowing products are distinguish:

- based on FGD (synthetic) gypsum
  Tynk gipsowy maszynowy lekki plus ALFA,
  Tynk gipsowy maszynowy lekki BETA,
  Tynk gipsowy ręczny GAMMA,
  Tynk gipsowy maszynowy o zwiększonej twardości powierzchni ZETA.

- based on natural gypsum:
  Tynk gipsowy maszynowy lekki SPRINT,
  Tynk gipsowy maszynowy TEMPO.

Figure 1. Gypsum plasters manufactured in Dolina Nidy plants

FGD gypsum is a unique synthetic product derived from flue gas desulfurization systems at electric power plants. Both natural and FGD gypsum are inert, non-toxic materials, harmless to human life in their natural state. They have Radiation Hygiene Certificate (see Appendix no. 1-2) and in 2010 have been registered in accordance with REACH Regulation (EC) No 1907/2006 (registration number 01-2119444918-26-0138)
Based on these two type of raw materials, as the only in Poland, Dolina Nidy gypsum plasters are healthy, ecological and human friendly. They create comfortable living environment by humidity regulation and enhance thermal insulation properties.

Dolina Nidy has implemented an Integrated Management System consisting of three complementary subsystems:
- the quality management ISO 9001:2008 (since 2002); (see Appendix no. 10-11)
- environmental management ISO 14001:2004 +Cor 1:2009 (since 2004);
- the management of occupational health and safety PN-N 18001:2004 (since 2008).
The Integrated Management System Policy defines the principal directions of DOLINA NIDY activities with a view to offering products that are safe and environmentally friendly. This is achieved by professional product development, state-of-the-art production process and meticulous quality control. The System is based on the process approach, this means that all the processes that have an impact on quality have been identified and described and members of the staff have been appointed and authorised to manage these processes.

DOLINA NIDY has implemented and maintains a Quality and Environmental Management Systems fulfils requirements of the following standards:
- ISO 9001:2008 and ISO 14001:2004 + Cor1:2009, (Registration number 255019 QM08/UM),
- Occupational health and safety Management System PN-N 18001:2004 (Registration number 255019 OH/PL)
Scope of certificates: Formula design. production and sale of gypsum binder and dry mix gypsum.
Certification body: DQS – PCA accreditation number - AC 087, Deutsche Akkreditierungsstelle D-ZM16074-01-00
Since 2007, Dolina Nidy has implemented the European Eco-Management and Audit Scheme (EMAS) which sets additional requirements connected with active involvement of employees, adaptation of undertaken actions to legal regulations, transparency of undertaken actions and obtained results, as well as dialogue with the community. EMAS registration number PL 2.26-001-8 .

Product type

Gypsum plasters are produced in accordance with standard EN 13279-1:2008. There are ready to internal use as a one coat plaster system. Depending on the application, there are distinguished projection and manual plasters. Projection plaster is formulated for mechanical application, mixed with water to the required consistency and applied by the projection machine to the background. Manual plaster is formulated for manual application, batch mixed with water to the required consistency and applied manually to the background. According to EN 13279-1:2008 standard plasters are divided into following types:

Standard designation	Type of application	Commercial name
lightweight gypsum building plaster	projection gypsum plaster	Tynk gipsowy maszynowy lekki plus ALFA, Tynk gipsowy maszynowy lekki BETA, Tynk gipsowy maszynowy lekki SPRINT
gypsum building plaster	projection gypsum plaster	Tynk gipsowy maszynowy TEMPO
gypsum building plaster	manual gypsum plaster	Tynk gipsowy ręczny GAMMA
gypsum plaster for plasterwork with enhanced surface hardness	projection gypsum plaster	Tynk gipsowy maszynowy o zwiększonej twardości powierzchni ZETA

Product description

Description	dry mortar, gypsum based plaster blended at the factory that requires only mixing with a required quantity of water
Destination	For interior use only, on mineral walls and ceilings made of: concrete, lightweight concrete, ceramic and lime-sand block and brick
Components	Gypsum hemihydrates, anhydrite, mineral fillers (calcium, dolomite and perlite), hydrated lime, chemical additives
Package	20, 25 or 30 kg paper bags and silo system
Colour	ALFA, BETA, GAMMA, ZETA – yellow, SPRINT, TEMPO –grey

General raw components of gypsum plasters

Components	**% of mass**
Gypsum binder	45÷65
Anhydrite binder	5÷20
Limestone filler	30÷35
Hydrated lime	1÷3
Expanded perlite	1÷3
Additives (each < 0.5%)	

Tynk gipsowy maszynowy lekki plus ALFA, Tynk gipsowy maszynowy lekki BETA, Tynk gipsowy maszynowy lekki SPRINT, Tynk gipsowy maszynowy TEMPO, Tynk gipsowy ręczny GAMMA, Tynk gipsowy maszynowy o zwiększonej twardości powierzchni ZETA there are one-coat, interior use, gypsum based plasters, designed for machine or manual application. The plasters after applying, finishing and drying give a protecting and decorative layer for walls and ceilings. It can provide a background for decorative elements or a smooth surface direct for painting or wallpapering.
Gypsum plasters advantages are the following: comfortable living environment by humidity regulation, increase a thermal insulation of walls, fire resistant, no shrinkage cracks, smooth and aesthetic surface.

Technical parameters

Trade name	**Tynk gipsowy maszynowy lekki plus ALFA**
Standard designation	B4/50/2 – EN 13279:2008
Gypsum binder content	≥ 60 %
Adhesive strength	≥ 0.1 N/mm^2
Compressive strength	≥ 2,5 N/mm^2
Flexural strength	≥ 1,3 N/mm^2
Thermal conductivity	0,26 W/(m·k)
Bulk density	780 kg/m^3
Dry density	850 kg/m^3
Yield	130 dm^3/100 kg
Coat thickness	8-30 mm
Reaction to fire	A1
Product literature	Declaration of conformity no EC 26/CPR, Radiation Hygiene Certificate no HR/B/104/2011 Hygienic Certificate no HK/B/0231/01/2010 Technical Data Sheet Material Safety Data Sheet

Trade name	**Tynk gipsowy maszynowy lekki BETA**
Standard designation	B4/50/2 - EN 13279:2008
Gypsum binder content	≥ 60 %
Adhesive strength	≥ 0.1 N/mm^2
Compressive strength	≥ 2,5 N/mm^2
Flexural strength	≥ 1,0 N/mm^2

Thermal conductivity	0,27 W/(m·k)
Bulk density	800 kg/m^3
Dry density	900 kg/m^3
Yield	125 dm^3/100 kg
Coat thickness	8-30 mm
Reaction to fire	A1
Product literature	Declaration of conformity no EC 19/CPR, Radiation Hygiene Certificate no HR/B/105/2011 Hygienic Certificate no HK/B/0231/01/2010 Technical Data Sheet Material Safety Data Sheet

Trade name	**Tynk gipsowy maszynowy lekki SPRINT**
Standard designation	B4/50/2- EN 13279:2008
CE number	EC 10/CPR
Gypsum binder content	≥ 60 %
Adhesive strength	≥ 0.1 N/mm^2
Compressive strength	≥ 2,0 N/mm^2
Flexural strength	≥ 1,0 N/mm^2
Thermal conductivity	0,30 W/(m·k)
Bulk density	820 kg/m^3
Dry density	950 kg/m^3
Yield	120 dm3/100 kg
Coat thickness	8-30 mm
Reaction to fire	A1
Product literature	Declaration of conformity no EC 10/CPR, Radiation Hygiene Certificate no HR/B/106/2011 Hygienic Certificate no HK/B/1118/01/2012 Technical Data Sheet Material Safety Data Sheet

Trade name	Tynk gipsowy maszynowy TEMPO
Standard designation	B1/50/2- EN 13279:2008
Gypsum binder content	≥ 60 %
Adhesive strength	≥ 0.1 N/mm^2
Compressive strength	≥ 2,2 N/mm^2
Flexural strength	≥ 1,0 N/mm^2
Thermal conductivity	0,32 W/(m·k)
Bulk density	850 kg/m^3
Dry density	980 kg/m^3
Yield	110 dm^3/100 kg
Coat thickness	8-30 mm
Reaction to fire	A1

Product literature	Declaration of conformity no EC 09/CPR, Radiation Hygiene Certificate no HR/B/72/2009 Hygienic Certificate no HK/B/1118/01/2012 Technical Data Sheet Material Safety Data Sheet

Trade name	Tynk gipsowy ręczny GAMMA
Standard designation	B1/20/2- EN 13279:2008
Gypsum binder content	≥ 60 %
Adhesive strength	≥ 0.1 N/mm^2
Compressive strength	≥ 3,0 N/mm^2
Flexural strength	≥ 1,5 N/mm^2
Thermal conductivity	0,28 W/(m·k)
Bulk density	800 kg/m^3
Dry density	900 kg/m^3
Yield	120 dm^3/100 kg
Coat thickness	8-30 mm
Reaction to fire	A1
Product literature	Declaration of conformity no EC 25/CPR, Radiation Hygiene Certificate no HR/B/108/2011 Hygienic Certificate no HK/B/0231/01/2010 Technical Data Sheet Material Safety Data Sheet

Trade name	Tynk gipsowy maszynowy o zwiększonej twardości powierzchni ZETA
Standard designation	B7/50/6- EN 13279:2008
CE number	EC 28/CPR
Gypsum binder content	≥ 60 %
Adhesive strength	≥ 0.1 N/mm^2
Compressive strength	≥ 6,0 N/mm^2
Flexural strength	≥ 2,0 N/mm^2
Thermal conductivity	0,45 W/(m·k)
Bulk density	1000 kg/m^3
Dry density	1100 kg/m^3
Yield	110 dm^3/100 kg
Coat thickness	8-30 mm
Reaction to fire	A1
Product literature (see Appendix no. 9)	Declaration of conformity no EC 28/CPR, Radiation Hygiene Certificate no HR/B/38/2012 Hygienic Certificate no HK/B/0636/01/2012 Technical Data Sheet Material Safety Data Sheet

Site details ZAKŁAD PRODUKCYJNY LESZCZE

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The production plant in Leszcze, built in 2003-2007 is a modern full automation complex, consisting of a gypsum stone quarry, a stone storage, a calcination plant, a gypsum binder mixing plant and a storage hall.

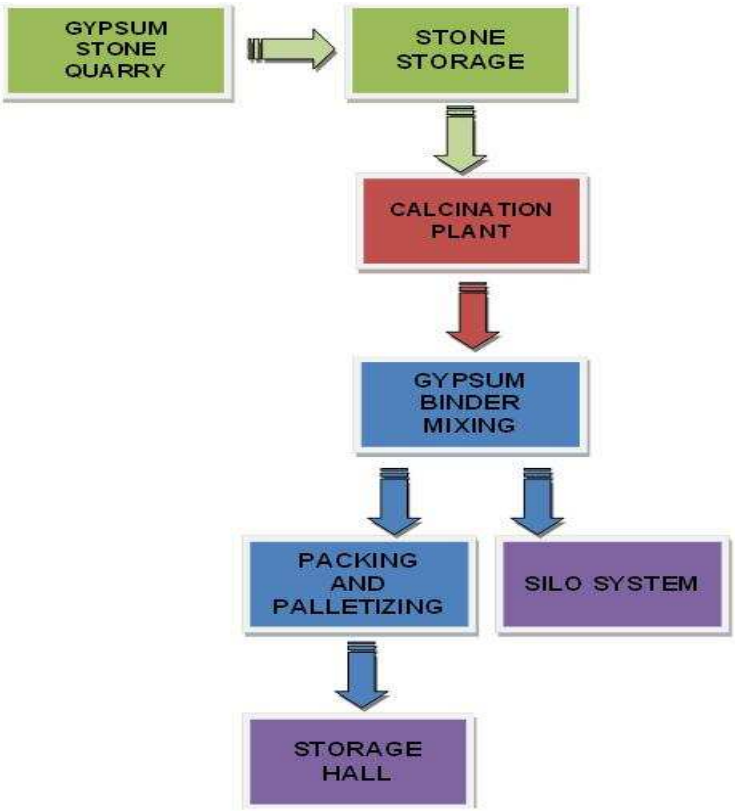

Figure 2. Diagram of the production process

Gypsum stone after excavation in the quarry is hold in the store from where goes to further processing. The calcination plant provides mechanical processing and heat treatment of stone. The first stage of the gypsum stones treating is a mechanical process which consists in stones breaking, grinding and drying in a bowl-roll mill. Depending on mill separator speed, different graining rock is obtained, that determines its further use. Then the milled and dried gypsum stone is dispensed to calcinators, where it is heat treated. For various type of binders, some or all crystallization water is removed. In this way, gypsum hemihydrate ($CaSO4 \cdot ½H2O$) or anhydrite binder ($CaSO_4$ - high-burn gypsum) are obtained. Afterwards gypsum is transported from calcinators to silos, and pneumatically transported to the mixing plant subsequently. In the mixing plant - depending on binder type - gypsum is blended in the mixer with different mineral fillers and chemical compounds. After quality control, final products are packed into paper bags or loaded into silo system

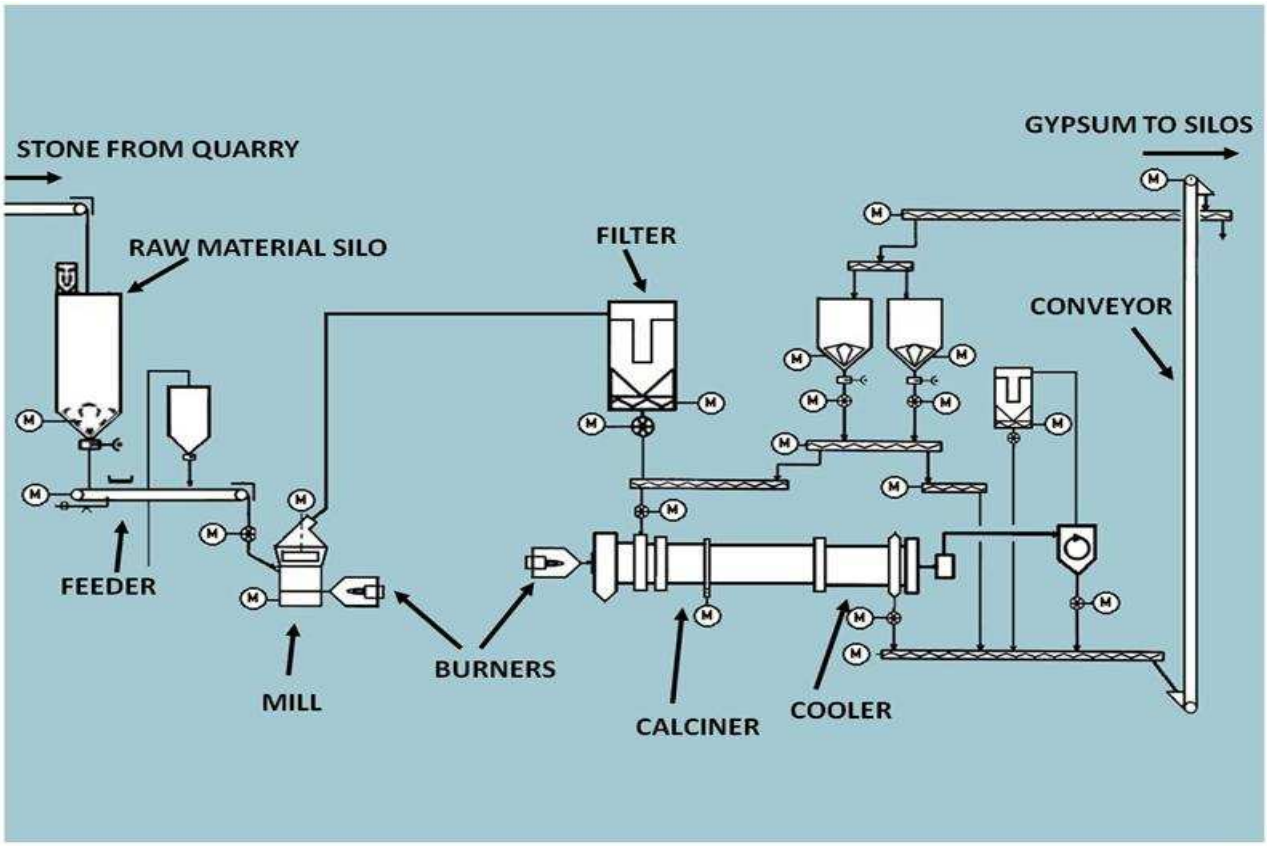

Figure 3. Calcination process – gypsum and anhydrite binders based on natural stone.

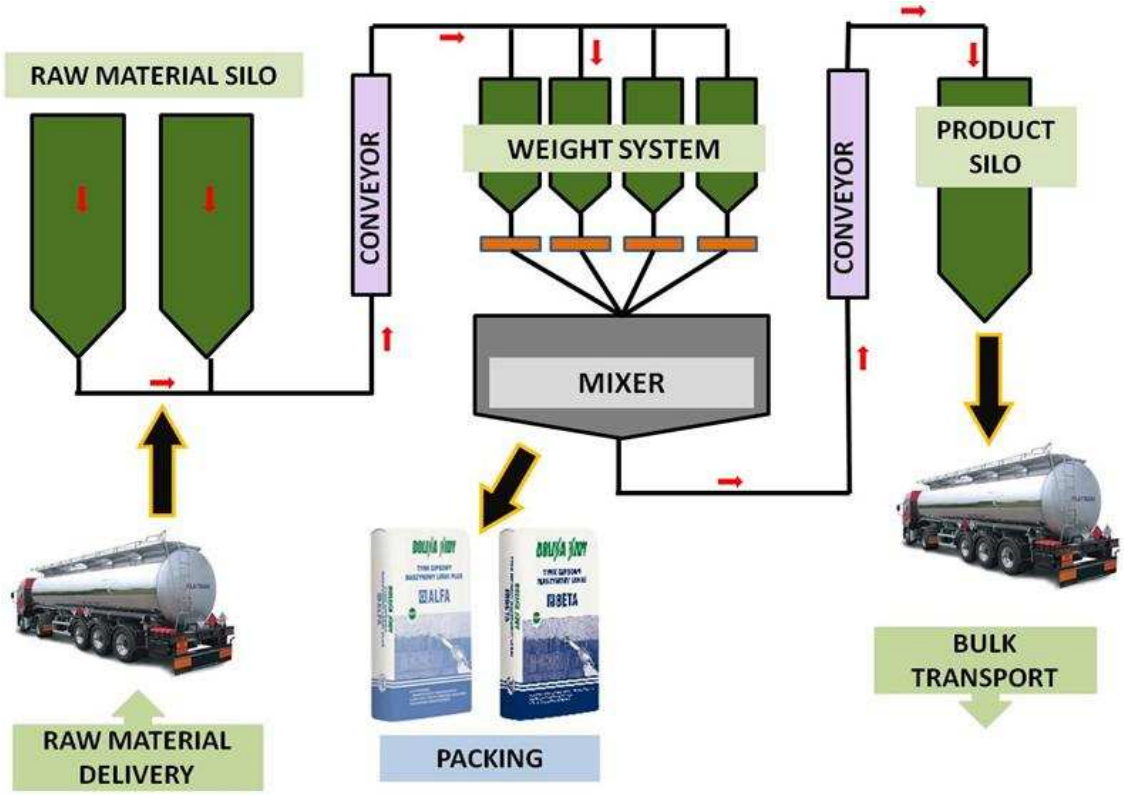

Figure 4. Production process – gypsum plasters

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Gypsum Processing Plant in Konin was built in 2009. The factory produces gypsum binders based on FGD (synthetic) raw material, obtained as by-product in the process of desulfurisation of fumes in a power plant. As a heating agent in calcination process in this factory, saturated water vapour from a power plant is used. It is the only installation of this type in Poland. This innovative proces of gypsum calcination provides no emission of CO_2, NO_x, SO_x and combustion dust. Moreover usage of synthetic gypsum as a waste material leads to reduction of natural resources consumption. The Konin plant consist of a gypsum calcination plant, a mixing plant, a packing and a palletizing line. Raw material is transported directly through a converted belt conveyor to a calcination plant, where is heat treated. Gypsum binder is transported from calcinator to silos and next to mixing plant. After quality control, final products are packed into paper bags or loaded directly into the silo system.

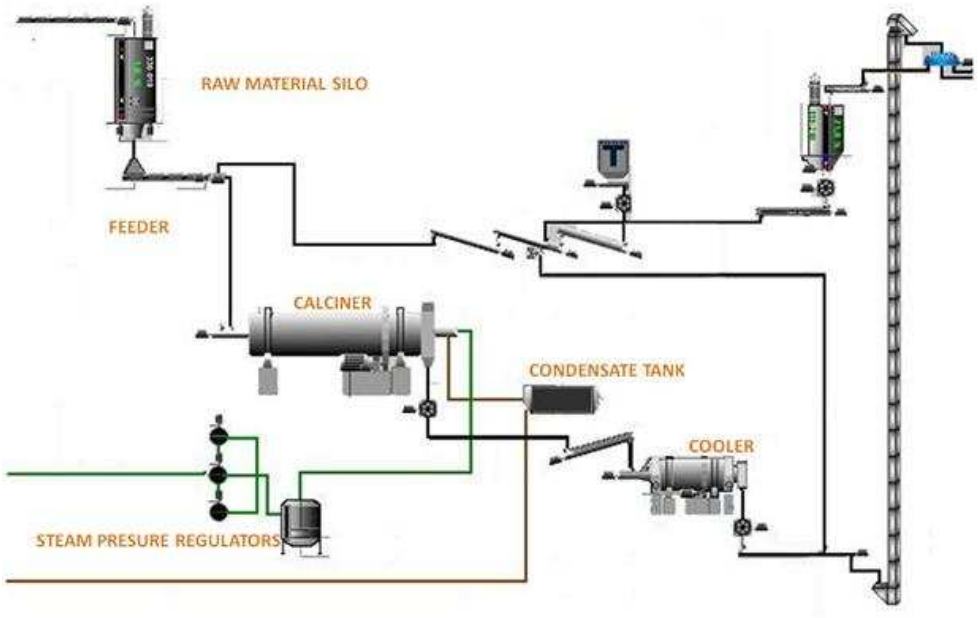

Figure 5. Calcination process –binders based on FGD gypsum

System limits

The life cycle analysis of the examined products covers A1-A3 modules (Cradle to Gate) in accordance with EN 15804:2012. Its include production in two sites, including raw materials extraction and energy provision up to the finished, packed product at the factory gate. Processes whose total contribution to the final result, according to mass looked at, is less than 0.5 % was ignored. All inventory processes for gypsum stone mining as explosive substances and gas emissions in explosion were included as A1 module. For gypsum all processes as: crushing, milling, drying, calcination, transport, and storage processes were included. Office impacts were also taken to consideration. For gypsum plaster all processes (internal transportation, packaking) as it presnetd on figure 4 were included.

Data collection period

The data for manufacture of the examined products refer to the year 2012. The life cycle assessments were prepared for Poland as a reference area (national electricity mix for 2012).

Data quality

The specific values determined to calculate the LCA originate from verified LCI Dolina Nidy inventory data. All inventory data was verified by ISO auditor in production site.

Assumptions and estimates

Impacts for each product stage and factory process were inventoried and calculated separately. All raw material, emission and waste inventory used was specific and is documented.

Databases

The data for the processes come from the following databases: LCI questionnaire, Ecoinvent, Ullmann's, ITB-Data, GUS, WAT, electricity provider and impacted scientific literature sources. Data was verified by external verificator.

Note

Specific inventory data is confidential and can be requested by a special inquiry. Specific information on application and other actions with these products are described in detail in the technical data sheet available on the producers website.

Energy

Energy resource	What is the fuel used for?	Total quantity used per year	Unit	Unit/Mg	Source of data
Grid Electricity	Production line, lighting of buildings and external storages	2252700	kWh	16	meters
Natural Gas*	Production line and central heating	109 155,1	Nm^3	0,78	meters
Fuel Oil	Fork lifts, emergency – generators Loading machine	39742,24	l	0,28	bills

*Natural Gas is not used directly in gypsum plaster production line, the impact is included in gypsum production that is used as A1 impact for gypsum plaster

Emissions (LCI) and their impact on the environment

Table 3. Emissions into air generated during production stage A3

Air emission	**Unit**	**total in production [Mg]**	**used on product [kg/Mg]**
Leszcze			
Dust	kg	809,53	0,00576
Konin			
Dust	kg	693,41	0,00640

Table 4. Emissions into water generated during production stage A3

Leszcze		
Water	m^3	1711
BOD	mg/l	8,1
COD	mg/l	24
Suspended matter	mg/l	38
Konin		
Water	m^3	693
BOD	mg/l	8,1
COD	mg/l	24

Table 5. Waste generated in the phase of product manufacturing A3

Waste code	Unit	total in production [Mg]	destination
Leszcze			
Municipal wastes:	Mg	7,74	Landfil/recycling
Other watses:			
70208	Mg	0,087	re-using
101382	Mg	421,95	re-using
150101	Mg	0,27	dengerous wastes
150102	Mg	0,099	dengerous wastes
150106	Mg	12,58	recycyling
160103	Mg	0,13	recycling
160107	Mg	0,15	dengerous wastes
160119	Mg	0,078	recycling
160199	Mg	0,12	Recycyling
160601	Mg	0,027	Recycling
170405	Mg	6,5	dengerous wastes
Konin			
Municipal wastes:	Mg	9,151	Landfil/recycling
Other watses:			
101382	Mg	110,2	reycyling
150101	Mg	2,786	Recycyling
150102	Mg	1,050	Recycyling
150202	Mg	0,274	dengerous wastes
160103	Mg	0,200	recyling
160601	Mg	0,067	dengerous wastes

Environmental characteristics (LCA)

Table 6. Environmental characteristic for ALFA gypsum plaster (unpacked, Konin) (1kg)

Environmental assessment information (MND – Module not declared, MD – Module Declared, INA – Indicator Not Assessed)																
Product stage			Construction process		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse-recovery-recycling potential
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
MD	**MD**	**MD**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**

Environmental impacts: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Global warming potential	[kg CO_2 eq.]	0,058	7,00E-04	0,003	0,062
Depletion potential of the stratospheric ozone layer	[kg CFC 11 eq.]	8,67E-09	1,99E-09	8,64E-10	1,15E-08
Acidification potential of soil and water	[kg SO_2 eq.]	1,72E-04	5,11E-06	7,24E-06	1,84E-04
Eutrophication potential	[kg $(PO_4)^{3-}$ eq.]	1,90E-05	9,01E-07	8,24E-07	2,08E-05
Formation potential of tropospheric ozone	[kg Ethene eq.]	3,60E-06	3,73E-07	3,07E-07	4,28E-06
Abiotic depletion potential (ADP-elements) for non-fossil resources	[kg Sb eq.]	3,23E-04	3,37E-05	3,65E-05	3,93E-04
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	[MJ]	0,613	9,24E-03	2,70E-02	0,649
Environmental aspects on resource use: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0,871	0,00	2,70E-03	0,874
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0,677	9,29E-03	3,24E-02	0,72
Use of secondary material	[kg]	0,000	0,00	0,00	0,00
Use of renewable secondary fuels	[MJ]	0,000	0,00	0,00	0,00
Use of non-renewable secondary fuels	[MJ]	0,000	0,00	0,00	0,00
Net use of fresh water	[dm^3]	0,180	0,00	1,54E-02	0,1950
Other environmental information describing waste categories: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Hazardous waste disposed	[kg]	5,59E-09	0,00E+00	0,00E+00	5,59E-09
Non-hazardous waste disposed	[kg]	0,0031	2,79E-06	5,40E-03	8,53E-03
Radioactive waste disposed	[kg]	0,00	0,00E+00	0,00	0,00
Components for re-use	[kg]	0,00	0,00E+00	0,00	0,00
Materials for recycling	[kg]	9,86E-06	1,17E-06	0,00	1,10E-05
Materials for energy recovery	[kg]	0,00	0,00E+00	0,00	0,00
Exported energy	[MJ]	0,00	0,00E+00	0,00	0,00

Table 7. Environmental characteristic for ALFA gypsum plaster (packed, Konin) (1kg)

Environmental assessment information (MND – Module not declared, MD – Module Declared, INA – Indicator Not Assessed)																
Product stage			Construction process		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse-recovery-recycling potential
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
MD	**MD**	**MD**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**

Environmental impacts: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Global warming potential	[kg CO_2 eq.]	0,072	7,00E-04	3,12E-03	0,076
Depletion potential of the stratospheric ozone layer	[kg CFC 11 eq.]	9,12E-09	1,99E-09	8,64E-10	1,20E-08
Acidification potential of soil and water	[kg SO_2 eq.]	2,27E-04	5,11E-06	7,24E-06	2,39E-04
Eutrophication potential	[kg $(PO_4)^{3-}$ eq.]	2,61E-05	9,01E-07	8,24E-07	2,79E-05
Formation potential of tropospheric ozone	[kg Ethene eq.]	1,09E-05	3,73E-07	3,07E-07	1,15E-05
Abiotic depletion potential (ADP-elements) for non-fossil resources	[kg Sb eq.]	3,77E-04	3,37E-05	3,65E-05	4,47E-04
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	[MJ]	0,679	9,24E-03	2,70E-02	0,715
Environmental aspects on resource use: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0,871	0,00	0,00	0,872
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0,690	9,29E-03	1,20E-02	0,71
Use of secondary material	[kg]	0,002	0,00	0,00	0,00
Use of renewable secondary fuels	[MJ]	0,003	0,00	0,00	0,00
Use of non-renewable secondary fuels	[MJ]	0,002	0,00	0,00	0,00
Net use of fresh water	[dm^3]	0,180	0,00	5,70E-03	0,1853
Other environmental information describing waste categories: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Hazardous waste disposed	[kg]	5,59E-09	0,00	0,00	5,59E-09
Non-hazardous waste disposed	[kg]	0,0031	2,79E-06	2,00E-03	5,13E-03
Radioactive waste disposed	[kg]	0,00	0,00	0,00	0,00
Components for re-use	[kg]	0,00	0,00	0,00	0,00
Materials for recycling	[kg]	9,86E-06	1,17E-06	0,00E+00	1,10E-05
Materials for energy recovery	[kg]	0,00	0,00	0,00	0,00
Exported energy	[MJ]	0,00	0,00	0,00	0,00

Table 8. Environmental characteristic for ALFA gypsum plaster (unpacked, Leszcze) (1kg)

Environmental assessment information (MND – Module not declared, MD – Module Declared, INA – Indicator Not Assessed)																
Product stage			Construction process		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse-recovery-recycling potential
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
MD	**MD**	**MD**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**

Environmental impacts: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Global warming potential	[kg CO_2 eq.]	0,058	5,30E-05	0,014	0,071
Depletion potential of the stratospheric ozone layer	[kg CFC 11 eq.]	8,67E-09	1,50E-10	3,74E-09	1,26E-08
Acidification potential of soil and water	[kg SO_2 eq.]	1,72E-04	3,87E-07	3,13E-05	2,03E-04
Eutrophication potential	[kg $(PO_4)^{3-}$ eq.]	1,90E-05	6,82E-08	3,57E-06	2,26E-05
Formation potential of tropospheric ozone	[kg Ethene eq.]	3,60E-06	2,82E-08	1,33E-06	4,95E-06
Abiotic depletion potential (ADP-elements) for non-fossil resources	[kg Sb eq.]	3,23E-04	2,55E-06	1,58E-04	4,83E-04
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	[MJ]	0,612	7,00E-04	1,02E-01	0,715
Environmental aspects on resource use: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0,061	0,00	1,17E-02	0,073
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	[MJ]	INA	0,00	INA	INA
Use of non-renewable primary energy resources used as raw materials	[MJ]	INA	0,00	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0,677	7,03E-04	1,40E-01	0,82
Use of secondary material	[kg]	0,00	0,00	0,00	0,00
Use of renewable secondary fuels	[MJ]	0,00	0,00	0,00	0,00
Use of non-renewable secondary fuels	[MJ]	0,00	0,00	0,00	0,00
Net use of fresh water	[dm^3]	0,177	0,00	6,66E-02	0,2435
Other environmental information describing waste categories: 1 kg					
Indicator	**Unit**	**A1**	0,00	**A3**	**A1-A3**
Hazardous waste disposed	[kg]	5,58E-09	0,00	0,00E+00	5,58E-09
Non-hazardous waste disposed	[kg]	3,08E-03	2,11E-07	2,34E-02	2,64E-02
Radioactive waste disposed	[kg]	0,00	0,00	0,00	0,00
Components for re-use	[kg]	0,00	0,00	0,00	0,00
Materials for recycling	[kg]	9,70E-06	8,83E-08	0,00	9,79E-06
Materials for energy recovery	[kg]	0,00	0,00	0,00	0,00
Exported energy	[MJ]	0,00	0,00	0,00	0,00

Table 8. Environmental characteristic for ALFA gypsum plaster (packed, Leszcze) (1kg)

Environmental assessment information (MND – Module not declared, MD – Module Declared, INA – Indicator Not Assessed)																
Product stage			Construction process		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse-recovery-recycling potential
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
MD	**MD**	**MD**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**

Environmental impacts: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Global warming potential	[kg CO_2 eq.]	0,072	5,30E-05	0,014	0,086
Depletion potential of the stratospheric ozone layer	[kg CFC 11 eq.]	9,12E-09	1,50E-10	3,74E-09	1,30E-08
Acidification potential of soil and water	[kg SO_2 eq.]	2,26E-04	3,87E-07	3,13E-05	2,58E-04
Eutrophication potential	[kg $(PO_4)^{3-}$ eq.]	2,61E-05	6,82E-08	3,57E-06	2,97E-05
Formation potential of tropospheric ozone	[kg Ethene eq.]	1,09E-05	2,82E-08	1,33E-06	1,22E-05
Abiotic depletion potential (ADP-elements) for non-fossil resources	[kg Sb eq.]	3,77E-04	2,55E-06	1,58E-04	5,37E-04
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	[MJ]	0,678	7,00E-04	1,02E-01	0,781
Environmental aspects on resource use: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0,061	0,00	1,17E-02	0,073
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0,689	7,03E-04	1,40E-01	0,83
Use of secondary material	[kg]	0,002	0,00	0,00	0,002
Use of renewable secondary fuels	[MJ]	0,003	0,00	0,00	0,003
Use of non-renewable secondary fuels	[MJ]	0,002	0,00	0,00	0,002
Net use of fresh water	[dm^3]	0,177	0,00	6,66E-02	0,2435
Other environmental information describing waste categories: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Hazardous waste disposed	[kg]	5,58E-09	0,00	0,00	5,58E-09
Non-hazardous waste disposed	[kg]	3,08E-03	2,11E-07	2,34E-02	2,64E-02
Radioactive waste disposed	[kg]	0,00	0,00	0,00	0,00
Components for re-use	[kg]	0,00E+00	0,00	0,00	0
Materials for recycling	[kg]	9,70E-06	8,83E-08	0,00	9,79E-06
Materials for energy recovery	[kg]	0,00	0,00	0,00	0,00
Exported energy	[MJ]	0,00	0,00	0,00	0,00

Table 6. Environmental characteristic for BETA gypsum plaster (unpacked, Konin) (1kg)

Environmental assessment information (MND – Module not declared, MD – Module Declared, INA – Indicator Not Assessed)																
Product stage			Construction process		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse-recovery-recycling potential
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
MD	**MD**	**MD**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**

Environmental impacts: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Global warming potential	[kg CO_2 eq.]	0,076	1,96E-03	0,003	0,081
Depletion potential of the stratospheric ozone layer	[kg CFC 11 eq.]	9,10E-09	5,56E-09	8,64E-10	1,55E-08
Acidification potential of soil and water	[kg SO_2 eq.]	1,90E-04	1,43E-05	7,24E-06	2,12E-04
Eutrophication potential	[kg $(PO_4)^{3-}$ eq.]	2,34E-05	2,52E-06	8,24E-07	2,67E-05
Formation potential of tropospheric ozone	[kg Ethene eq.]	3,92E-06	1,04E-06	3,07E-07	5,27E-06
Abiotic depletion potential (ADP-elements) for non-fossil resources	[kg Sb eq.]	3,33E-04	9,45E-05	3,65E-05	4,64E-04
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	[MJ]	0,763	2,59E-02	2,70E-02	0,816
Environmental aspects on resource use: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0,749	0,000	2,70E-03	0,752
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0,831	2,60E-02	3,24E-02	0,89
Use of secondary material	[kg]	0,000	0,000	0,000	0,000
Use of renewable secondary fuels	[MJ]	0,000	0,000	0,000	0,000
Use of non-renewable secondary fuels	[MJ]	0,000	0,000	0,000	0,000
Net use of fresh water	[dm^3]	0,171	0,000	1,54E-02	0,1864
Other environmental information describing waste categories: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Hazardous waste disposed	[kg]	4,41E-07	0,00	0,00E+00	4,41E-07
Non-hazardous waste disposed	[kg]	0,0030	7,80E-06	5,40E-03	8,36E-03
Radioactive waste disposed	[kg]	0,000	0,000	0,000	0,000
Components for re-use	[kg]	0,000	0,000	0,000	0,000
Materials for recycling	[kg]	9,13E-06	3,26E-06	0,00E+00	1,24E-05
Materials for energy recovery	[kg]	0,000	0,000	0,000	0,000
Exported energy	[MJ]	0,000	0,000	0,000	0,000

Table 7. Environmental characteristic for BETA gypsum plaster (packed, Konin) (1kg)

Environmental assessment information (MND – Module not declared, MD – Module Declared, INA – Indicator Not Assessed)																
Product stage			Construction process		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse-recovery-recycling potential
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
MD	**MD**	**MD**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**

Environmental impacts: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Global warming potential	[kg CO_2 eq.]	0,091	1,96E-03	0,003	0,096
Depletion potential of the stratospheric ozone layer	[kg CFC 11 eq.]	9,55E-09	5,56E-09	8,64E-10	1,60E-08
Acidification potential of soil and water	[kg SO_2 eq.]	2,45E-04	1,43E-05	7,24E-06	2,66E-04
Eutrophication potential	[kg $(PO_4)^{3-}$ eq.]	3,05E-05	2,52E-06	8,24E-07	3,38E-05
Formation potential of tropospheric ozone	[kg Ethene eq.]	1,12E-05	1,04E-06	3,07E-07	1,25E-05
Abiotic depletion potential (ADP-elements) for non-fossil resources	[kg Sb eq.]	3,87E-04	9,45E-05	3,65E-05	5,18E-04
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	[MJ]	0,829	2,59E-02	2,70E-02	0,882
Environmental aspects on resource use: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0,749	0,00	2,70E-03	0,752
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0,843	2,60E-02	3,24E-02	0,92
Use of secondary material	[kg]	0,002	0,00	0,00	0,002
Use of renewable secondary fuels	[MJ]	0,003	0,00	0,00	0,003
Use of non-renewable secondary fuels	[MJ]	0,002	0,00	0,00E+00	0,002
Net use of fresh water	[dm^3]	0,171	0,00	1,54E-02	0,1864
Other environmental information describing waste categories: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Hazardous waste disposed	[kg]	4,41E-07	0,00	0,00	4,41E-07
Non-hazardous waste disposed	[kg]	0,0030	7,80E-06	5,40E-03	8,36E-03
Radioactive waste disposed	[kg]	0,0000	0,0000	0,0000	0,0000
Components for re-use	[kg]	0,0000	0,0000	0,0000	0,0000
Materials for recycling	[kg]	9,13E-06	3,26E-06	0,00E+00	1,24E-05
Materials for energy recovery	[kg]	0,0000	0,0000	0,0000	0,0000
Exported energy	[MJ]	0,0000	0,0000	0,0000	0,0000

Table 8. Environmental characteristic for BETA gypsum plaster (unpacked, Leszcze) (1kg)

Environmental assessment information (MND – Module not declared, MD – Module Declared, INA – Indicator Not Assessed)																
Product stage			Construction process		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse-recovery-recycling potential
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
MD	**MD**	**MD**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**

Environmental impacts: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Global warming potential	[kg CO_2 eq.]	0,076	1,85E-03	0,014	0,091
Depletion potential of the stratospheric ozone layer	[kg CFC 11 eq.]	9,10E-09	5,25E-09	3,74E-09	1,81E-08
Acidification potential of soil and water	[kg SO_2 eq.]	1,90E-04	1,35E-05	3,13E-05	2,35E-04
Eutrophication potential	[kg $(PO_4)^{3-}$ eq.]	2,34E-05	2,38E-06	3,57E-06	2,93E-05
Formation potential of tropospheric ozone	[kg Ethene eq.]	3,92E-06	9,85E-07	1,33E-06	6,23E-06
Abiotic depletion potential (ADP-elements) for non-fossil resources	[kg Sb eq.]	3,33E-04	8,92E-05	1,58E-04	5,80E-04
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	[MJ]	0,763	2,44E-02	1,02E-01	0,889
Environmental aspects on resource use: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0,084	0,00	1,17E-02	0,096
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	1,642	2,45E-02	1,40E-01	1,81
Use of secondary material	[kg]	0,000	0,00	0,000	0,000
Use of renewable secondary fuels	[MJ]	0,000	0,000	0,000	0,000
Use of non-renewable secondary fuels	[MJ]	0,000	0,000	0,000	0,000
Net use of fresh water	[dm^3]	0,171	0,000	0,067	0,238
Other environmental information describing waste categories: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Hazardous waste disposed	[kg]	4,41E-07	0,00	0,00E+00	4,41E-07
Non-hazardous waste disposed	[kg]	0,0030	7,36E-06	2,34E-02	2,63E-02
Radioactive waste disposed	[kg]	0,000	0,000	0,000	0,000
Components for re-use	[kg]	0,000	0,000	0,000	0,000
Materials for recycling	[kg]	9,13E-06	3,08E-06	0,000	1,22E-05
Materials for energy recovery	[kg]	0,000	0,000	0,000	0,000
Exported energy	[MJ]	0,000	0,000	0,000	0,000

Table 8. Environmental characteristic for BETA gypsum plaster (packed, Leszcze) (1kg)

Environmental assessment information (MND – Module not declared, MD – Module Declared, INA – Indicator Not Assessed)																
Product stage			Construction process		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse-recovery-recycling potential
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
MD	**MD**	**MD**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**

Environmental impacts: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Global warming potential	[kg CO_2 eq.]	0,091	1,85E-03	0,014	0,106
Depletion potential of the stratospheric ozone layer	[kg CFC 11 eq.]	9,55E-09	5,25E-09	3,74E-09	1,85E-08
Acidification potential of soil and water	[kg SO_2 eq.]	2,45E-04	1,35E-05	3,13E-05	2,89E-04
Eutrophication potential	[kg $(PO_4)^{3-}$ eq.]	3,05E-05	2,38E-06	3,57E-06	3,64E-05
Formation potential of tropospheric ozone	[kg Ethene eq.]	1,12E-05	9,85E-07	1,33E-06	1,35E-05
Abiotic depletion potential (ADP-elements) for non-fossil resources	[kg Sb eq.]	3,87E-04	8,92E-05	1,58E-04	6,34E-04
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	[MJ]	0,829	2,44E-02	1,02E-01	0,955
Environmental aspects on resource use: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0,083	0,00	1,17E-02	0,095
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	1,654	2,45E-02	1,40E-01	1,82
Use of secondary material	[kg]	0,002	0,00	0,00	0,002
Use of renewable secondary fuels	[MJ]	0,003	0,00	0,00	0,003
Use of non-renewable secondary fuels	[MJ]	0,002	0,00	0,00	0,002
Net use of fresh water	[dm^3]	0,171	0,00	6,66E-02	0,2377
Other environmental information describing waste categories: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Hazardous waste disposed	[kg]	4,41E-07	0,00	0,00	4,41E-07
Non-hazardous waste disposed	[kg]	2,95E-03	7,36E-06	2,34E-02	0,0263
Radioactive waste disposed	[kg]	0,0000	0,0000	0,0000	0,0000
Components for re-use	[kg]	0,0000	0,0000	0,0000	0,0000
Materials for recycling	[kg]	9,13E-06	3,08E-06	0,00	1,22E-05
Materials for energy recovery	[kg]	0,0000	0,0000	0,0000	0,0000
Exported energy	[MJ]	0,0000	0,0000	0,0000	0,0000

Table 8. Environmental characteristic for GAMMA gypsum plaster (packed, Leszcze) (1kg)

Environmental assessment information (MND – Module not declared, MD – Module Declared, INA – Indicator Not Assessed)																
Product stage			Construction process		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse-recovery-recycling potential
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
MD	**MD**	**MD**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**

Environmental impacts: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Global warming potential	[kg CO_2 eq.]	0,082	2,12E-04	0,014	0,095
Depletion potential of the stratospheric ozone layer	[kg CFC 11 eq.]	1,12E-08	6,04E-10	3,74E-09	1,56E-08
Acidification potential of soil and water	[kg SO_2 eq.]	2,54E-04	1,55E-06	3,13E-05	2,87E-04
Eutrophication potential	[kg $(PO_4)^{3-}$ eq.]	2,86E-05	2,74E-07	3,57E-06	3,25E-05
Formation potential of tropospheric ozone	[kg Ethene eq.]	1,09E-05	1,13E-07	1,33E-06	1,24E-05
Abiotic depletion potential (ADP-elements) for non-fossil resources	[kg Sb eq.]	4,45E-04	1,03E-05	1,58E-04	6,13E-04
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	[MJ]	0,820	2,81E-03	1,02E-01	0,924
Environmental aspects on resource use: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0,082	0,00	1,17E-02	0,094
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0,845	2,82E-03	1,40E-01	0,99
Use of secondary material	[kg]	0,002	0,00	0,00	0,002
Use of renewable secondary fuels	[MJ]	0,003	0,000	0,000	0,003
Use of non-renewable secondary fuels	[MJ]	0,002	0,000	0,000	0,002
Net use of fresh water	[dm^3]	0,184	0,000	0,067	0,250
Other environmental information describing waste categories: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Hazardous waste disposed	[kg]	5,06E-10	0,00E	0,00	5,06E-10
Non-hazardous waste disposed	[kg]	0,0032	8,47E-07	2,34E-02	2,66E-02
Radioactive waste disposed	[kg]	0,0000	0,0000	0,0000	0,0000
Components for re-use	[kg]	0,0000	0,0000	0,0000	0,0000
Materials for recycling	[kg]	1,02E-05	3,54E-07	0,000	1,05E-05
Materials for energy recovery	[kg]	0,000	0,000	0,000	0,000
Exported energy	[MJ]	0,000	0,000	0,000	0,000

Table 8. Environmental characteristic for TEMPO gypsum plaster (packed, Leszcze) (1kg)

Environmental assessment information (MND – Module not declared, MD – Module Declared, INA – Indicator Not Assessed)																
Product stage			Construction process		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse-recovery-recycling potential
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
MD	**MD**	**MD**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**

Environmental impacts: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Global warming potential	[kg CO_2 eq.]	0,136	3,50E-05	0,014	0,149
Depletion potential of the stratospheric ozone layer	[kg CFC 11 eq.]	8,89E-09	9,96E-11	3,74E-09	1,27E-08
Acidification potential of soil and water	[kg SO_2 eq.]	2,64E-04	2,56E-07	3,13E-05	2,95E-04
Eutrophication potential	[kg $(PO_4)^{3-}$ eq.]	3,90E-05	4,52E-08	3,57E-06	4,26E-05
Formation potential of tropospheric ozone	[kg Ethene eq.]	1,15E-05	1,87E-08	1,33E-06	1,28E-05
Abiotic depletion potential (ADP-elements) for non-fossil resources	[kg Sb eq.]	3,48E-04	1,69E-06	1,58E-04	5,07E-04
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	[MJ]	1,160	4,63E-04	1,02E-01	1,263
Environmental aspects on resource use: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0,020	0,00	1,17E-02	0,032
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	1,276	4,66E-04	1,40E-01	1,42
Use of secondary material	[kg]	0,002	0,00	0,00	0,002
Use of renewable secondary fuels	[MJ]	0,003	0,00	0,000	0,003
Use of non-renewable secondary fuels	[MJ]	0,002	0,00	0,000	0,002
Net use of fresh water	[dm^3]	0,083	0,00	0,067	0,149
Other environmental information describing waste categories: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Hazardous waste disposed	[kg]	1,82E-06	0,00	0,00	1,82E-06
Non-hazardous waste disposed	[kg]	0,0013	1,40E-07	2,34E-02	2,47E-02
Radioactive waste disposed	[kg]	0,0000	0,0000	0,0000	0,0000
Components for re-use	[kg]	0,0000	0,0000	0,0000	0,0000
Materials for recycling	[kg]	2,91E-06	5,85E-08	0,00E+00	2,97E-06
Materials for energy recovery	[kg]	0,0000	0,0000	0,0000	0,0000
Exported energy	[MJ]	0,0000	0,0000	0,0000	0,0000

Table 8. Environmental characteristic for ZETA gypsum plaster (packed, Leszcze) (1kg)

Environmental assessment information (MND – Module not declared, MD – Module Declared, INA – Indicator Not Assessed)																
Product stage			Construction process		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse-recovery-recycling potential
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
MD	**MD**	**MD**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**

Environmental impacts: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Global warming potential	[kg CO_2 eq.]	0,061	1,20E-04	0,014	0,075
Depletion potential of the stratospheric ozone layer	[kg CFC 11 eq.]	6,63E-09	3,41E-10	3,74E-09	1,07E-08
Acidification potential of soil and water	[kg SO_2 eq.]	1,87E-04	8,78E-07	3,13E-05	2,19E-04
Eutrophication potential	[kg $(PO_4)^{3-}$ eq.]	2,12E-05	1,55E-07	3,57E-06	2,50E-05
Formation potential of tropospheric ozone	[kg Ethene eq.]	1,04E-05	6,41E-08	1,33E-06	1,18E-05
Abiotic depletion potential (ADP-elements) for non-fossil resources	[kg Sb eq.]	2,98E-04	5,80E-06	1,58E-04	4,62E-04
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	[MJ]	0,523	1,59E-03	1,02E-01	0,627
Environmental aspects on resource use: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0,815	0,00	1,17E-02	0,826
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0,514	1,60E-03	1,40E-01	0,66
Use of secondary material	[kg]	0,002	0,00E	0,00	0,002
Use of renewable secondary fuels	[MJ]	0,003	0,00	0,000	0,003
Use of non-renewable secondary fuels	[MJ]	0,002	0,00	0,000	0,002
Net use of fresh water	[dm^3]	0,165	0,00	0,067	0,231
Other environmental information describing waste categories: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Hazardous waste disposed	[kg]	4,58E-10	0,00E+00	0,00E+00	4,58E-10
Non-hazardous waste disposed	[kg]	0,0029	4,79E-07	2,34E-02	2,62E-02
Radioactive waste disposed	[kg]	0,0000	0,0000	0,0000	0,0000
Components for re-use	[kg]	0,0000	0,0000	0,0000	0,0000
Materials for recycling	[kg]	9,22E-06	2,00E-07	0,00	9,42E-06
Materials for energy recovery	[kg]	0,0000	0,0000	0,0000	0,0000
Exported energy	[MJ]	0,0000	0,0000	0,0000	0,0000

Table 8. Environmental characteristic for SPRINT gypsum plaster (packed, Leszcze) (1kg)

Environmental assessment information (MND – Module not declared, MD – Module Declared, INA – Indicator Not Assessed)																
Product stage			Construction proces		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse-recovery-recycling potential
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
MD	**MD**	**MD**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**

Environmental impacts: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Global warming potential	[kg CO_2 eq.]	0,136	3,00E-05	0,014	0,149
Depletion potential of the stratospheric ozone layer	[kg CFC 11 eq.]	8,89E-09	8,54E-11	3,74E-09	1,27E-08
Acidification potential of soil and water	[kg SO_2 eq.]	2,62E-04	2,20E-07	3,13E-05	2,94E-04
Eutrophication potential	[kg $(PO_4)^{3-}$ eq.]	3,87E-05	3,87E-08	3,57E-06	4,23E-05
Formation potential of tropospheric ozone	[kg Ethene eq.]	1,14E-05	1,60E-08	1,33E-06	1,28E-05
Abiotic depletion potential (ADP-elements) for non-fossil resources	[kg Sb eq.]	3,48E-04	1,45E-06	1,58E-04	5,07E-04
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	[MJ]	1,162	3,97E-04	1,02E-01	1,265
Environmental aspects on resource use: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0,020	0,00	1,17E-02	0,032
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	1,171	3,99E-04	1,40E-01	1,31
Use of secondary material	[kg]	0,002	0,00	0,00	0,002
Use of renewable secondary fuels	[MJ]	0,003	0,00	0,000	0,003
Use of non-renewable secondary fuels	[MJ]	0,002	0,00	0,000	0,002
Net use of fresh water	[dm^3]	0,083	0,00	0,067	0,149
Other environmental information describing waste categories: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Hazardous waste disposed	[kg]	1,82E-06	0,00E+00	0,00E+00	1,82E-06
Non-hazardous waste disposed	[kg]	0,0013	1,20E-07	2,34E-02	2,47E-02
Radioactive waste disposed	[kg]	0,0000	0,0000	0,0000	0,0000
Components for re-use	[kg]	0,0000	0,0000	0,0000	0,0000
Materials for recycling	[kg]	2,91E-06	5,01E-08	0,00E	2,96E-06
Materials for energy recovery	[kg]	0,0000	0,0000	0,0000	0,0000
Exported energy	[MJ]	0,0000	0,0000	0,0000	0,0000

Table 8. Environmental characteristic for SPRINT gypsum plaster (unpacked, Leszcze) (1kg)

Environmental assessment information (MND – Module not declared, MD – Module Declared, INA – Indicator Not Assessed)																
Product stage			Construction proces		Use stage							End of life				Benefits and loads beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport to construction site	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse-recovery-recycling potential
A1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
MD	**MD**	**MD**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**	**MND**

Environmental impacts: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Global warming potential	[kg CO_2 eq.]	0,121	3,00E-05	0,014	0,135
Depletion potential of the stratospheric ozone layer	[kg CFC 11 eq.]	8,45E-09	8,54E-11	3,74E-09	1,23E-08
Acidification potential of soil and water	[kg SO_2 eq.]	2,07E-04	2,20E-07	3,13E-05	2,39E-04
Eutrophication potential	[kg $(PO_4)^{3-}$ eq.]	3,15E-05	3,87E-08	3,57E-06	3,52E-05
Formation potential of tropospheric ozone	[kg Ethene eq.]	4,16E-06	1,60E-08	1,33E-06	5,50E-06
Abiotic depletion potential (ADP-elements) for non-fossil resources	[kg Sb eq.]	2,94E-04	1,45E-06	1,58E-04	4,53E-04
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	[MJ]	1,097	3,97E-04	1,02E-01	1,199
Environmental aspects on resource use: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	0,020	0,00	1,17E-02	0,032
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Use of non-renewable primary energy resources used as raw materials	[MJ]	INA	INA	INA	INA
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	[MJ]	1,159	3,99E-04	1,40E-01	1,30
Use of secondary material	[kg]	0,000	0,00	0,00	0,000
Use of renewable secondary fuels	[MJ]	0,000	0,00	0,000	0,000
Use of non-renewable secondary fuels	[MJ]	0,000	0,00	0,000	0,000
Net use of fresh water	[dm^3]	0,083	0,00	0,067	0,149
Other environmental information describing waste categories: 1 kg					
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**
Hazardous waste disposed	[kg]	1,82E-06	0,00E+00	0,00E+00	1,82E-06
Non-hazardous waste disposed	[kg]	0,0013	1,20E-07	2,34E-02	2,47E-02
Radioactive waste disposed	[kg]	0,0000	0,0000	0,0000	0,0000
Components for re-use	[kg]	0,0000	0,0000	0,0000	0,0000
Materials for recycling	[kg]	2,91E-06	5,01E-08	0,00	2,96E-06
Materials for energy recovery	[kg]	0,0000	0,0000	0,0000	0,0000
Exported energy	[MJ]	0,0000	0,0000	0,0000	0,0000

Verification

The process of verification of an EPD is in accordance with EN ISO 14025, clause 8 and ISO 21930, clause 9. After verification, this EPD is valid for a 5-year-period. EPD does not have to be recalculated after 5 years, if the underlying data have not changed significantly.

The basis for LCA analysis was EN 15804
Independent verification corresponding to ISO 14025 & 8.3.1. ☒ external ☐ internal
Verification of EPD: dr eng. Aleksander Panek LCI audit and input data verification: msc eng. Dominik Bekierski LCA: dr eng. Michał Piasecki Verification of procedures and declaration: dr eng. Halina Prejzner

Normative references

- ISO 14025:2006, Environmental management – Type III environmental declarations – Principles and procedure.
- ISO 21930:2007, Sustainability in building and construction – Environmental declaration of building products.
- ISO 14044:2006, Environmental management – Life cycle assessment – Requirements and guidelines.
- ISO 15686-1:2000, Buildings and constructed assets — Service life planning — Part 1: General principles
- ISO 15686-8:2008, Buildings and constructed assets – Service life planning – Part 8: Reference service life
- EN 15804:2012, Sustainability in construction works – Environmental product declarations – Core rules for the product category of construction products.

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ŚWIADECTWO nr 017/2014
DEKLARACJI ŚRODOWISKOWEJ III TYPU

Wyroby:

Tynki gipsowe DOLINA NIDY:
ALFA, BETA, GAMMA, ZETA, SPRINT, TEMPO

Wnioskodawca:

DOLINA NIDY Sp. z o.o.
28-400 Pińczów, Leszcze 15

potwierdza się poprawność ustalenia danych uwzględnionych przy opracowaniu Deklaracji Środowiskowej III typu oraz zgodność z wymaganiami normy

EN 15804:2012
Zrównoważoność obiektów budowlanych.
Deklaracje środowiskowe wyrobów.
Podstawowe zasady kategoryzacji wyrobów budowlanych.

Niniejsze świadectwo, wydane po raz pierwszy 10 marca 2014 r. jest ważne 5 lat, lub do czasu zmiany wymienionej Deklaracji Środowiskowej

Kierownik
Zakładu Fizyki Cieplnej,
Instalacji Sanitarnych i Środowiska
Robert Geryło

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