

ENVIRONMENTAL PRODUCT DECLARATION

Nr 02-10/2023

Gypsum plaster

Knauf sp. z o.o.



Owner of the EPD:
Programme owner:

Knauf sp. z o.o.
Łukasiewicz Research Network - Institute of Ceramics and Building Materials

Name of programme:

Environmental Product Declaration – B2B

Issued:



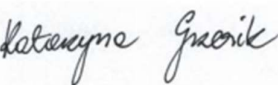
26.10.2023

Valid until:

26.10.2028

1. INFORMACJE OGÓLNE

<p>Owner of the EPD:</p> <p>Knauf sp. z o.o.</p>	<p>Products covered by the EPD:</p> <p>Gypsum plaster</p>
<p>Programme owner: Łukasiewicz Research Network – Institute of Ceramics and Building Materials http://www.icimb.pl/opole/</p>	<p>Owner of the EPD: Knauf sp. z o.o. 25 Światowa str 02-229 Warszawa Telephone: +48 22 36 95 100 e-mail: biuro@knauf.pl https://www.knauf.pl/</p>
<p>Data wystawienia:</p> <p>26.10.2023</p>	<p>Declared product/declared unit: The declared unit (DU) for the products is 1 kg (1 kilogram) gypsum plaster – Knauf MP75L, Knauf MP75, Knauf MP75 SL, Knauf MP75 DIAMANT, Knauf MP75 G/F THERM, Knauf MP75 AQUA, Knauf GOLDBAND, Knauf ROTBAND</p>
<p>Deklaracja ważna do:</p> <p>26.10.2028</p>	<p>Scope: The declaration covers the following products: Gypsum plaster – Knauf MP75L, Knauf MP75, Knauf MP75 DIAMANT, Knauf GOLDBAND, Knauf ROTBAND, manufactured in the Knauf Bauprodukte Polska sp. z o.o.; 5 Gipsowa str, 97-427 Rogowiec. Gypsum plaster – Knauf MP75L, Knauf MP75, Knauf MP75 SL, Knauf MP75 DIAMANT, Knauf MP75 G/F THERM, Knauf MP75 AQUA, Knauf GOLDBAND, Knauf ROTBAND manufactured in the Knauf Jaworzno III sp. z o.o.; 51 Promienna str, 43-603 Jaworzno.</p> <p>It contains information about the impact of the declared products on the environment. All data on the production cycle have been collected by Knauf sp. z o.o. from January 1, 2022 to December 31, 2022 (12 months) and corresponded to the production's technology of that time. All data are averaged for total production of gypsum plaster – Knauf MP75L, Knauf MP75, Knauf MP75 SL, Knauf MP75 DIAMANT, Knauf MP75 G/F THERM, Knauf MP75 AQUA, Knauf GOLDBAND, Knauf ROTBAND produced by Knauf Bauprodukte Polska sp. z o.o. in Rogowcu and Knauf Jaworzno III sp. z o.o. in Jaworzno.</p> <p>The life cycle assessment has been developed in accordance with the requirements of PN-EN ISO 15804+A2:2020, PN-EN ISO 14025 and PN-EN ISO 14040. The rules for product categorization have been adopted in accordance with the PN-EN 15804 standard. The declaration owner is responsible for the underlying information and evidence. Łukasiewicz</p>

	<p>Research Network – Institute of Ceramics and Building Materials Environmental Engineering Center in Opole is not responsible for the manufacturer’s information and data and evidence regarding the life cycle assessment. Declarations resulting from different programs or performed not in accordance with the standard may not be compared.</p>
Product Category Rules (PCR)	<p>According to: PN-EN 15804+A2:2020-03 Sustainability of construction works. Environmental product declarations. Basic principles of categorization of construction products.</p>
Representativeness:	Polish product, year 2022
Reference Service Life (RSL):	50 years
Reasons for performing LCA:	B2B
Life cycle Analysis (LCA):	LCA covers modules A1-A3,A4, A5, C1-C4 and D according to PN-EN 15804+A2 standard (Cradle-to-Gate with options)
<p>Łukasiewicz Research Network – Institute of Ceramics and Building Materials, Environmental Engineering Center provides access to the type III EPD for gypsum plaster produced by Knauf sp. z o.o. to the interested parties.</p>	
<p>Authors: Katarzyna Kiprian, MSc Eng. Ewa Głodek-Bucyk, PhD Eng.</p> <p>Approved by: Joanna Poluszyńska, PhD</p> <p></p> <p>Director of the environmental engineering center</p> <p>Ewa Głodek-Bucyk, PhD Eng.</p> <p></p> <p>Leader of Process Engineering Research Group</p>	<p>Verification:</p> <p>CEN PN-EN 15804+A2 standard serves as main PCR. Independent EPD and data verification according to PN-EN ISO 14025:2010 standard.</p> <p><input type="checkbox"/> internal <input checked="" type="checkbox"/> external</p> <p></p> <p>Katarzyna Grzesik, PhD Eng.</p>

2. MANUFACTURER AND PRODUCT DESCRIPTION

Knauf sp. z o. o. is a multinational company operating in the construction industry with a product range that includes plastering systems, drywall systems, flooring systems, insulation systems, construction chemicals and construction machinery and tools. Knauf sp. z o.o.'s products have been available in Poland for 25 years, which has allowed the company to become a leader in building materials in Poland. The plasters mainly contain gypsum, sand and other additives. Forming a single-layer surface, they are suitable for all types of substrates. They are mineral products that regulate humidity and are vapor-permeable, so the products create a pleasant and healthy indoor climate. Gypsum plasters produced by Knauf sp. z o.o. meet the highest standards. A wide range of products allows for comprehensive interior finishing of a room.

Caring for the environment is one of the company's most important foundations. The company is ISO 14001, 9001 and GRCA certified. The quality of the products is confirmed by tests in accredited laboratories.

The company focuses on innovation, constantly looking for new ways of development and developing products in such a way that they best meet the needs of their users.

The group of products covered by the declaration are gypsum plaster:

- ◆ Knauf MP75L, Knauf MP75, Knauf MP75 SL, Knauf MP75 DIAMANT, Knauf MP75 G/F THERM, Knauf MP75 AQUA, Knauf GOLDBAND, Knauf ROTBAND

The indicative composition of the products covered by the declaration is presented in the table below:

Material	Mass fraction [%]
Gypsum	55-85
Sand	16-26
Calcium carbonate	1-2
Calcium hydroxide	1-1,5
Setting time regulator	0,17-0,6
Thickeners	0,24-0,45

The technological process of gypsum plaster production begins with the delivery of gypsum from the power plant, which is stored or goes directly to the kiln for roasting. The roasted gypsum is transported to the mill for grinding. Perlite is delivered to the plant by truck transport, where it is stored in silos. Then the raw material is roasted at a sufficiently high temperature by which the rock changes its properties. After the expanded process, with the pneumatic transport,

perlite is directed to storage or perlite scale. All raw materials depending on the group (large components and small components) included in the plaster mixture are weighed on appropriate scales. The components thus prepared in the mixer undergo several stages of mixing. The resulting finished product can be packed into bags using a packer and then placed on a pallet or transported directly to silos. The finished plasters, either bagged or in bulk, are stored in the finished goods warehouse and prepared for loading and transport for the end customer.

The technological of the production process of gypsum plaster is shown below:

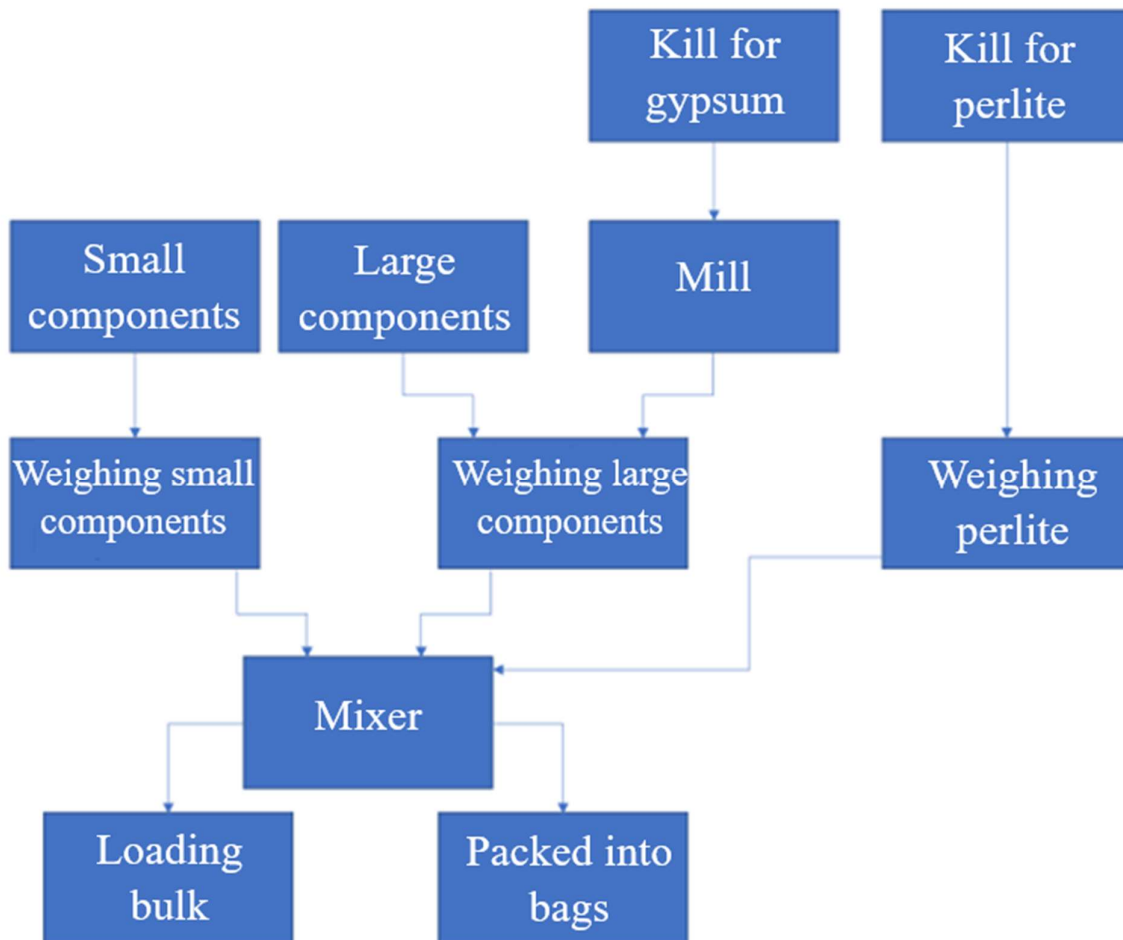
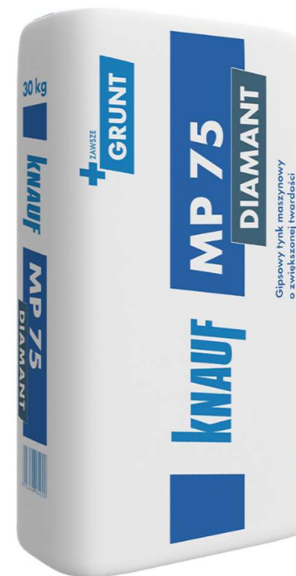


Fig. 1: The production diagram of gypsum plaster by Knauf sp. z o.o.

Knauf MP 75 Diamant it is a dry gypsum plaster mortar for one-layer interior plastering. The resulting surfaces have increased hardness and resistance to mechanical damage. The plaster can be applied to any type of mineral surface using plastering machines.

Product properties	
Adhesion to substrate	≥ 0.1 (N/mm ²)
Reaction to fire	A1
pH	10-12
Capacity 100 kg	ok. 106 l mortar
Thermal conductivity coefficient [λ]	0.39 (W/mK)
Compressive strength	≥ 6.0 (N/mm ²)
Bending strength	≥ 2.0 (N/mm ²)
Adhesion to substrate	≥ 2.5 (N/mm ²)



Knauf MP 75 L it is a ready dry, lightweight gypsum plaster mortar with lightweight aggregate additives. For machine application, it can be used on all types of mineral substrates. Allows to obtain a smooth and light in processing surface of walls and ceilings.

Product properties	
Adhesion to substrate	≥ 0.1 (N/mm ²)
Reaction to fire	A1
pH	10-12
Capacity 100 kg	ok. 125 l mortar
Thermal conductivity coefficient [λ]	0.30 (W/mK)
Compressive strength	≥ 2.0 (N/mm ²)
Bending strength	≥ 1.0 (N/mm ²)



Knauf MP 75 SL is a selected super-light gypsum plaster mortar with a very large addition of special lightweight aggregates. It is designed for machine application of single-layer interior plaster. It makes it possible to obtain a super-smooth surface of walls and ceilings, with increased efficiency and ease of processing.

Product properties	
Adhesion to substrate	≥ 0.1 (N/mm ²)
Reaction to fire	A1
pH	10-12
Capacity 100 kg	ok. 142 l mortar
Thermal conductivity coefficient [λ]	0.26 (W/mK)
Compressive strength	≥ 2.0 (N/mm ²)
Bending strength	≥ 1.0 (N/mm ²)



Knauf MP 75 is a ready dry gypsum plaster mortar designed for machine application of single layer gypsum plaster on all types of mineral surfaces inside buildings.

Product properties	
Adhesion to substrate	≥ 0.1 (N/mm ²)
Reaction to fire	A1
pH	10-12
Capacity 100 kg	ok. 100 l mortat
Thermal conductivity coefficient [λ]	0.39 (W/mK)
Compressive strength	≥ 2.0 (N/mm ²)
Bending strength	≥ 1.0 (N/mm ²)



Knauf MP 75 G/F Therm it is a machine-made gypsum-lime plaster for heated walls. The dry and efficient mortar is designed to create rubbed and smooth surfaces inside buildings.

Product properties	
Adhesion to substrate	≥ 0.1 (N/mm ²)
Reaction to fire	A1
pH	10-12
Capacity 100 kg	ok. 124 l mortar
Thermal conductivity coefficient [λ]	0.32 (W/mK)
Compressive strength	≥ 2.0 (N/mm ²)
Bending strength	≥ 1.0 (N/mm ²)



Knauf MP 75 Aqua is a lightweight dry gypsum plaster mortar with additives that reduce water absorption. It is designed for machine and manual application of single-layer interior plasters from 8 to 50 mm thick. It can be used on all types of mineral substrates with low water absorption.

Product properties	
Adhesion to substrate	≥ 0.1 (N/mm ²)
Reaction to fire	A1
pH	10-12
Thermal conductivity coefficient [λ]	0.32 (W/mK)
Compressive strength	≥ 2.0 (N/mm ²)
Bending strength	≥ 1.0 (N/mm ²)



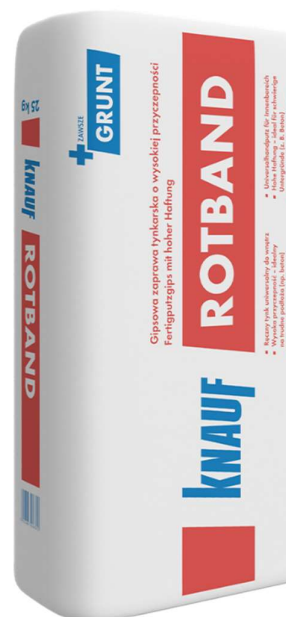
Knauf Goldband is a gypsum plaster mortar for manual application of single-layer gypsum plasters indoors. Suitable for all types of mineral substrates, light in processing.

Product properties	
Adhesion to substrate	≥ 0.1 (N/mm ²)
Reaction to fire	A1
pH	10-12
Capacity 100 kg	ok. 115 l mortar
Thermal conductivity coefficient [λ]	0.34 (W/mK)
Compressive strength	≥ 2.0 (N/mm ²)
Bending strength	≥ 1.0 (N/mm ²)



Knauf Rotband is a dry plaster mortar for manual application of single layer gypsum plasters indoors. Light in processing so that smooth surfaces can be obtained. Suitable for all types of surfaces, especially recommended for difficult substrates such as smooth concrete, thanks to increased adhesion.

Product properties	
Adhesion to substrate	≥ 0.1 (N/mm ²)
Reaction to fire	A1
pH	10-12
Capacity 100 kg	ok. 125 l mortar
Thermal conductivity coefficient [λ]	0.30 (W/mK)
Compressive strength	≥ 2.0 (N/mm ²)
Bending strength	≥ 1.0 (N/mm ²)



3. LCA: CALCULATION RULES

System boundaries

The life cycle analysis of the tested products includes A1-A3, A4, A5, C1-C4 and D (Cradle to Gate with options) modules in accordance with PN-EN 15804. It includes the following modules:

- ◆ A1 – extraction and preparation of raw materials, generation of electricity and Energy carriers for auxiliary processes,
- ◆ A2 – transport raw materials to the gate of the production plant,
- ◆ A3 – production, including ancillary processes and emissions,
- ◆ A4 – transport to the building site,
- ◆ A5 – installation into the building,
- ◆ C1 – deconstruction/demolition,
- ◆ C2 – transport to the waste processing facility,
- ◆ C3 – processing of waste material,
- ◆ C4 – treatment of waste material,
- ◆ D – re-use potential.

Data collection period

Data on the production process was collected in the years 2022 (in the period 01.01.22 to 31.12.22).

Declared unit (DU)

Due to negligible differences between the two groups of products, the declared unit of 1 kg gypsum paster – Knauf MP75L, Knauf MP75, Knauf MP75 SL, Knauf MP75 DIAMANT, Knauf MP75 G/F THERM, Knauf MP75 AQUA, Knauf GOLDBAND, Knauf ROTBAND produced by Knauf Bauprodukte Polska sp. z o.o. in Rogowc and Knauf Jaworzno III sp. z o.o

Assumptions

A1 – extraction and consumption of raw materials refers to specific mass shares in the production process per declared unit of the product.

A2 – distances from the place of obtaining raw materials to the production plant individual for each raw material, means of transport differentiated due to the method of raw materials delivery.

A3 – actual production process - emission values of CO₂, NO_x, SO₂ and other gases and dust from the production process obtained from measurements taken at the site, others estimated on the basis of fuel consumption. Energy and fuel consumption are taken into account entirely on the basis of consumption data for 1 year provided by the owner.

A4 - transportation is carried out by trucks with a capacity of 3.5-7.5 tons meeting EURO 6 emission standards, average distance from the plant to the customer 100 km.

A5 - consumption of energy and other raw materials in this module due to negligible values has been omitted.

C1 - demolition/demolition of the material. Data is collected based on the developed scenario. At the demolition site, the initial sorting of the material takes place. Dismantling of gypsum plaster does not require energy and material expenditures, manual or power tool demolition is possible. The impact of these operations is so small that the environmental impact of the from the C1 module is ignored.

C2 – pre-sorted waste from gypsum plaster demolition is always transported to a waste recovery or disposal facility. Data is collected based on the developed scenario.

C3 – module C3 takes into account the environmental impact during the treatment of waste containing at the

waste recovery facility. Data are collected based on the developed scenario.

C4 – module C4 should take into account the impact of landfilled construction debris containing gypsum plaster. In the developed scenario, landfilling operations are not taken into account, as construction rubble is not a worthless waste, is recyclable and should not be sent to municipal landfills.

D – addresses the impact and effects of using secondary material. Thermal disposal of packaging materials is assumed. Calculations are made based on the developed scenario.

Cut-off criteria

99% of all mass flows involved in the production process were taken into account.

All the energy used in the process has been taken into account in the EPD.

General data

The main source of general and auxiliary data is the EcoInvent 3.8 database and manufacturer's reports.

Allocation

All data provided by the manufacturer have been referred to the declared unit (DU) of the product – 1 kg gypsum plaster produced by company Knauf Bauprodukte sp. z o.o. and Knauf Jaworzno III sp. z o.o.

4. LCA: SCENARIOS AND ADDITIONAL TECHNICAL DATA

For the life cycle analysis of the products covered by the "Cradle to gate with options" environmental declaration, scenarios were developed for modules A4-A5, C1-C4 and D:

Module A4:

- Transportation is carried out using trucks with a load capacity of 3.5-7.5 tons, meeting EURO 6 emission standards,
- The average distance from the company to the customer 100 km.

Module A5:

Consumption of energy and other raw materials in this module due to negligible values has been ignored.

Module C1:

Demolition/demolition of masonry walls is considered part of the process of demolition of the entire building. Plaster mortars as a wall covering constitute a small percentage of the masonry wall mass. Therefore, their contribution to the demolition of the entire building can be ignored and the impact of this module can be assumed to be zero.

Module C2:

Transport of waste containing plaster is directed to a recovery facility (recycling plant). In order to calculate the impact of this module, the following assumptions were made:

- 100% of the waste by weight is transported to a recovery facility as part of waste 17 01 01 or 17 01 02 (construction debris),
- transport is carried out with the help of self-unloading vehicles with a capacity of
- 7.5 - 16 tons, meeting EURO 6 emission standards

- the material is transported to a waste treatment site located within 100 km of the demolition site.

Module C3:

Waste containing plaster for recovery is classified as "non-hazardous waste" with code 17 01 01 or 17 01 02. The recycling process includes crushing and screening. No pretreatment, additional fractional screening or post-treatment is used. Recycling takes place at a waste treatment facility. Only coarse crushing is used to achieve the appropriate classification. A group of waste (17 01 02) is usually recovered during the filling of pits. Electricity consumption per kg of waste is 0.03 kWh/kg, and energy to drive internal transport vehicles is 0, 3 MJ/kg.

Module C4:

Should consider the impact of landfilled construction debris containing gypsum plaster. In the

developed scenario, landfilling operations are not taken into account because construction rubble is not a worthless waste, it is recyclable and should not go to municipal landfills.

Module D:

There is a lot of uncertainty in the development of scenarios for Module D, which makes modeling and calculations difficult. The recycled 0/63 mm aggregate fraction of construction debris 17 01 01, which contains plaster, contributes to the saving of natural resources. However, their low share in the total fraction makes the positive impacts resulting from the reuse of the declared material negligible. When processed rubble with code 17 01 02 containing the analyzed product is used to fill pits, this also contributes to saving natural resources.

5. LCA: RESULTS

The table below shows the LCA modules included in the calculation of the environmental impact categories for the products covered by the declaration.

SYSTEM BOUNDARIES (X –MODULE INCLUDED IN LCA, MND – MODULE NOT DECLARED)																
Products stage			Construction process stage		Use stage							End-of-life stage				Benefits and loads beyond the system boundary
Raw material supply	Transport	Production	Transport	Construction process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction	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
X	X	X	X	X	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

The following tables present the results of the LCA analysis for gypsum plaster. Explanations of the abbreviations used to describe the impact categories are given below:

GWP-total	Global warming potential
GWP-fossil	Global warming potential fossil fuel
GWP-biogenic	Global warming potential biogenic
GWP-luluc	Global warming potential land use and land change
ODP	Depletion potential of the stratospheric ozone layer
AP	Acidification potential of land and water
EP-freshwater	Eutrophication potential, fraction of nutrients reaching freshwater end compartment
EP-marine	Eutrophication potential, fraction of nutrients reaching marine end compartment
EP-terrestrial	Eutrophication potential, Accumulated Exceedance
POCP	Formation potential of tropospheric ozone photochemical oxidants
ADP-minerals&metals	Abiotic depletion potential for nonfossil resources
ADP-fossil	Abiotic depletion potential for fossil resources
WDP	Water (user) deprivation potential
PM	Potential incidence of disease due to PM emissions
IRP	Potential Human exposure efficiency relative to U235
ETP-fw	Potential comparative Toxic Unit for ecosystems
HTP-c	Potential comparative Toxic Unit for humans (cancerogenic)

HTP-nc	Potential comparative Toxic Unit for humans (non-cancerogenic)
SQP	Potential soil quality index
PERE	Use of renewable primary energy excluding renewable primary energy resources used as raw materials
PERM	Use of renewable primary energy resources used as raw materials
PERT	Total use of renewable primary energy resources
PEN-RE	Use of non-renewable primary energy resources excluding non-renewable primary energy resources used as raw materials
RE	Use of non-renewable primary energy resources used as raw materials
PENRT	Total use of non-renewable primary energy resources
SM	Use of secondary material
RSF	Use of renewable fuels
NRSF	Use of non-renewable secondary fuels
FW	Use of net fresh water

CORE ENVIRONMENTAL IMPACT INDICATORS: 1 kg Knauf MP75 L											
Life Cycle Stage											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq.	7,15E-03	1,87E-02	3,73E-02	5,12E-02	0,00E+00	0,00E+00	2,25E-02	5,93E-02	0,00E+00	-3,58E-03
GWP-fossil	kg CO ₂ eq.	3,26E-02	1,87E-02	3,60E-02	5,11E-02	0,00E+00	0,00E+00	2,24E-02	5,91E-02	0,00E+00	-3,57E-03
GWP-biogenic	kg CO ₂ eq.	-2,56E-02	1,52E-05	1,30E-03	5,20E-05	0,00E+00	0,00E+00	1,15E-05	1,31E-04	0,00E+00	-1,08E-05
GWP-luluc	kg CO ₂ eq.	1,13E-04	7,78E-06	2,58E-05	3,05E-05	0,00E+00	0,00E+00	1,11E-05	9,98E-06	0,00E+00	-3,55E-07
ODP	kg CFC11 eq.	2,89E-09	4,30E-09	4,30E-09	1,12E-08	0,00E+00	0,00E+00	4,68E-09	6,58E-09	0,00E+00	-7,32E-10
AP	mol H ⁺ eq.	1,37E-04	8,08E-05	1,90E-04	1,47E-04	0,00E+00	0,00E+00	6,63E-05	5,19E-04	0,00E+00	-3,63E-05
EP-freshwater	kg PO ₄ eq.	1,14E-05	1,19E-06	2,63E-04	4,75E-06	0,00E+00	0,00E+00	1,90E-06	3,82E-05	0,00E+00	-1,64E-07
EP-marine	kg N eq.	2,41E-05	1,77E-05	7,83E-05	2,72E-05	0,00E+00	0,00E+00	1,30E-05	1,64E-04	0,00E+00	-1,57E-05
EP-terrestrial	mol N eq.	2,28E-04	1,95E-04	2,80E-04	2,95E-04	0,00E+00	0,00E+00	1,42E-04	1,73E-03	0,00E+00	-1,72E-04
POCP	kg NMVOC eq.	8,21E-05	6,45E-05	8,15E-05	1,14E-04	0,00E+00	0,00E+00	5,29E-05	4,76E-04	0,00E+00	-4,79E-05
ADP-minerals & metals	kg Sb eq.	1,53E-07	6,42E-08	8,51E-08	3,17E-07	0,00E+00	0,00E+00	9,96E-08	4,44E-08	0,00E+00	-1,84E-09
ADP-fossil	MJ	4,18E-01	2,81E-01	1,47E+00	7,61E-01	0,00E+00	0,00E+00	3,26E-01	7,27E-01	0,00E+00	-4,80E-02
WDP	WDP (m ³) świat. ekw	1,75E-02	8,40E-04	5,37E-03	2,95E-03	0,00E+00	0,00E+00	1,23E-03	4,72E-03	0,00E+00	-7,57E-05
ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS: 1 kg Knauf MP75 L											
Life Cycle Stage											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	1,06E-09	1,46E-09	4,89E-10	2,95E-09	0,00E+00	0,00E+00	1,53E-09	8,40E-09	0,00E+00	-9,55E-10
IRP	kBq U235 eq.	3,10E-03	1,44E-03	4,39E-03	4,24E-03	0,00E+00	0,00E+00	1,49E-03	2,65E-03	0,00E+00	-2,13E-04
ETP-fw	CTUe	1,14E-05	1,19E-06	2,63E-04	4,75E-06	0,00E+00	0,00E+00	1,90E-06	3,82E-05	0,00E+00	-1,64E-07
HTP-c	CTUh	4,41E-11	7,36E-12	1,12E-11	2,78E-11	0,00E+00	0,00E+00	9,67E-12	1,87E-11	0,00E+00	-1,13E-12
HTP-nc	CTUh	3,56E-10	2,18E-10	4,31E-10	6,33E-10	0,00E+00	0,00E+00	2,64E-10	6,15E-10	0,00E+00	-3,17E-11
SQP	-	2,70E+00	1,89E-01	9,36E-02	3,71E-01	0,00E+00	0,00E+00	1,90E-01	1,12E-01	0,00E+00	-6,29E-03
PARAMETERS DESCRIBING RESOURCE: 1 kg Knauf MP75 L											
Life Cycle Stage											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	5,18E-01	3,94E-03	4,87E-02	1,62E-02	0,00E+00	0,00E+00	4,38E-03	2,66E-02	0,00E+00	-2,98E-04
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	5,18E-01	3,94E-03	4,87E-02	1,62E-02	0,00E+00	0,00E+00	4,38E-03	2,66E-02	0,00E+00	-2,98E-04
PEN-RE	MJ	4,46E-01	2,92E-01	1,83E+00	7,88E-01	0,00E+00	0,00E+00	3,46E-01	8,49E-01	0,00E+00	-5,07E-02
RE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	4,46E-01	2,92E-01	1,83E+00	7,88E-01	0,00E+00	0,00E+00	3,46E-01	8,49E-01	0,00E+00	-5,07E-02
SM	kg	0,00E+00	0,00E+00	6,51E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,00E-01	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,88E-04
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m ³	1,28E-03	4,90E-05	1,49E-02	2,27E-04	0,00E+00	0,00E+00	1,96E-05	2,44E-02	0,00E+00	-7,96E-06
ENVIRONMENTAL INFORMATION DESCRIBING WASTE AND OUTPUT FLOWS: 1 kg Knauf MP75 L											
Life Cycle Stage											
Indicator	Unit (expressed per DU)	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	WN	WN	6,98E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Non-hazardous waste	kg	WN	WN	1,67E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Components for re-use	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	WN	WN	1,73E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,00E-01	0,00E+00	0,00E+00
Materials for energy recovery	kg	WN	WN	4,46E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ/energy carrier	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,88E-04

CARBON ORGANIC

Contents organic carbon in product (kg C _{org})	1,04E-03
Contents organic carbon in packaging (kg C _{org})	3,37E-04

CORE ENVIRONMENTAL IMPACT INDICATORS: 1 kg Knauf MP75											
Indicator	Unit	Life Cycle Stage									
		A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq.	2,60E-03	2,04E-02	3,73E-02	5,35E-02	0,00E+00	0,00E+00	2,25E-02	5,93E-02	0,00E+00	-3,58E-03
GWP-fossil	kg CO ₂ eq.	2,81E-02	2,04E-02	3,60E-02	5,34E-02	0,00E+00	0,00E+00	2,24E-02	5,91E-02	0,00E+00	-3,57E-03
GWP-biogenic	kg CO ₂ eq.	-2,57E-02	1,53E-05	1,30E-03	5,43E-05	0,00E+00	0,00E+00	1,15E-05	1,31E-04	0,00E+00	-1,08E-05
GWP-luluc	kg CO ₂ eq.	1,14E-04	8,92E-06	2,58E-05	3,19E-05	0,00E+00	0,00E+00	1,11E-05	9,98E-06	0,00E+00	-3,55E-07
ODP	kg CFC11 eq.	2,45E-09	4,64E-09	4,30E-09	1,17E-08	0,00E+00	0,00E+00	4,68E-09	6,58E-09	0,00E+00	-7,32E-10
AP	mol H ⁺ eq.	1,09E-04	1,27E-04	1,90E-04	1,54E-04	0,00E+00	0,00E+00	6,63E-05	5,19E-04	0,00E+00	-3,63E-05
EP-freshwater	kg PO ₄ eq.	1,13E-05	1,26E-06	2,63E-04	4,96E-06	0,00E+00	0,00E+00	1,90E-06	3,82E-05	0,00E+00	-1,64E-07
EP-marine	kg N eq.	2,10E-05	2,90E-05	7,83E-05	2,84E-05	0,00E+00	0,00E+00	1,30E-05	1,64E-04	0,00E+00	-1,57E-05
EP-terrestrial	mol N eq.	2,07E-04	3,20E-04	2,80E-04	3,09E-04	0,00E+00	0,00E+00	1,42E-04	1,73E-03	0,00E+00	-1,72E-04
POCP	kg NMVOC eq.	7,12E-05	9,72E-05	8,15E-05	1,19E-04	0,00E+00	0,00E+00	5,29E-05	4,76E-04	0,00E+00	-4,79E-05
ADP-minerals & metals	kg Sb eq.	1,47E-07	6,72E-08	8,51E-08	3,32E-07	0,00E+00	0,00E+00	9,96E-08	4,44E-08	0,00E+00	-1,84E-09
ADP-fossil	MJ	3,74E-01	3,03E-01	1,47E+00	7,95E-01	0,00E+00	0,00E+00	3,26E-01	7,27E-01	0,00E+00	-4,80E-02
WDP	WDP (m ³) świat. ekw.	2,04E-02	8,84E-04	5,37E-03	3,08E-03	0,00E+00	0,00E+00	1,23E-03	4,72E-03	0,00E+00	-7,57E-05
ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS: 1 kg Knauf MP75											
Indicator	Unit	Life Cycle Stage									
		A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	5,72E-10	1,53E-09	4,89E-10	3,08E-09	0,00E+00	0,00E+00	1,53E-09	8,40E-09	0,00E+00	-9,55E-10
IRP	kBq U235 eq.	3,54E-03	1,54E-03	4,39E-03	4,43E-03	0,00E+00	0,00E+00	1,49E-03	2,65E-03	0,00E+00	-2,13E-04
ETP-fw	CTUe	1,13E-05	1,26E-06	2,63E-04	4,96E-06	0,00E+00	0,00E+00	1,90E-06	3,82E-05	0,00E+00	-1,64E-07
HTP-c	CTUh	4,22E-11	8,31E-12	1,12E-11	2,90E-11	0,00E+00	0,00E+00	9,67E-12	1,87E-11	0,00E+00	-1,13E-12

HTP-nc	CTUh	3,24E-10	2,29E-10	4,31E-10	6,61E-10	0,00E+00	0,00E+00	2,64E-10	6,15E-10	0,00E+00	-3,17E-11
SQP	-	2,68E+00	1,95E-01	9,36E-02	3,88E-01	0,00E+00	0,00E+00	1,90E-01	1,12E-01	0,00E+00	-6,29E-03
PARAMETERS DESCRIBING RESOURCE: 1 kg Knauf MP75											
Life Cycle Stage											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	5,15E-01	4,13E-03	4,87E-02	1,69E-02	0,00E+00	0,00E+00	4,38E-03	2,66E-02	0,00E+00	-2,98E-04
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	5,15E-01	4,13E-03	4,87E-02	1,69E-02	0,00E+00	0,00E+00	4,38E-03	2,66E-02	0,00E+00	-2,98E-04
PEN-RE	MJ	3,63E-01	3,16E-01	1,83E+00	8,23E-01	0,00E+00	0,00E+00	3,46E-01	8,49E-01	0,00E+00	-5,07E-02
RE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	3,63E-01	3,16E-01	1,83E+00	8,23E-01	0,00E+00	0,00E+00	3,46E-01	8,49E-01	0,00E+00	-5,07E-02
SM	kg	0,00E+00	0,00E+00	6,51E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,00E-01	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,88E-04
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m ³	1,45E-03	5,05E-05	1,49E-02	2,38E-04	0,00E+00	0,00E+00	1,96E-05	2,44E-02	0,00E+00	-7,96E-06
ENVIRONMENTAL INFORMATION DESCRIBING WASTE AND OUTPUT FLOWS: 1 kg Knauf MP75											
Life Cycle Stage											
Indicator	Unit (expressed per DU)	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	WN	WN	6,98E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste	kg	WN	WN	1,67E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Components for re-use	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	WN	WN	1,73E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,00E-01	0,00E+00	0,00E+00
Materials for energy recovery	kg	WN	WN	4,46E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ/energy carrier	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,88E-04

CARBON ORGANIC

Contents organic carbon in product (kg C_{org})

1,19E-03

Contents organic carbon in packaging (kg C_{org})

3,37E-04

CORE ENVIRONMENTAL IMPACT INDICATORS: 1 kg Knauf MP75 SL											
Life Cycle Stage											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq.	3,50E-02	2,55E-02	3,73E-02	5,68E-02	0,00E+00	0,00E+00	2,25E-02	5,93E-02	0,00E+00	-3,58E-03
GWP-fossil	kg CO ₂ eq.	3,79E-02	2,54E-02	3,60E-02	5,67E-02	0,00E+00	0,00E+00	2,25E-02	5,91E-02	0,00E+00	-3,57E-03
GWP-biogenic	kg CO ₂ eq.	-3,08E-03	2,14E-05	1,30E-03	5,77E-05	0,00E+00	0,00E+00	1,15E-05	1,31E-04	0,00E+00	-1,08E-05
GWP-luluc	kg CO ₂ eq.	8,24E-05	1,12E-05	2,58E-05	3,39E-05	0,00E+00	0,00E+00	1,11E-05	9,98E-06	0,00E+00	-3,55E-07
ODP	kg CFC11 eq.	2,81E-09	5,81E-09	4,30E-09	1,24E-08	0,00E+00	0,00E+00	4,68E-09	6,58E-09	0,00E+00	-7,32E-10
AP	mol H+ eq.	8,77E-05	1,16E-04	1,90E-04	1,63E-04	0,00E+00	0,00E+00	6,64E-05	5,19E-04	0,00E+00	-3,63E-05
EP-freshwater	kg PO ₄ eq.	1,02E-05	1,73E-06	2,63E-04	5,27E-06	0,00E+00	0,00E+00	1,90E-06	3,82E-05	0,00E+00	-1,64E-07
EP-marine	kg N eq.	6,37E-06	2,89E-05	7,83E-05	3,02E-05	0,00E+00	0,00E+00	1,31E-05	1,64E-04	0,00E+00	-1,57E-05
EP-terrestrial	mol N eq.	2,56E-05	3,17E-04	2,80E-04	3,28E-04	0,00E+00	0,00E+00	1,42E-04	1,73E-03	0,00E+00	-1,72E-04
POCP	kg NMVOC eq.	3,91E-05	1,00E-04	8,15E-05	1,27E-04	0,00E+00	0,00E+00	5,29E-05	4,76E-04	0,00E+00	-4,79E-05
ADP-minerals & metals	kg Sb eq.	1,41E-07	9,72E-08	8,51E-08	3,52E-07	0,00E+00	0,00E+00	9,98E-08	4,44E-08	0,00E+00	-1,84E-09
ADP-fossil	MJ	5,39E-01	3,82E-01	1,47E+00	8,44E-01	0,00E+00	0,00E+00	3,26E-01	7,27E-01	0,00E+00	-4,80E-02
WDP	WDP (m ³) świat. ekw	1,66E-02	1,19E-03	5,37E-03	3,27E-03	0,00E+00	0,00E+00	1,24E-03	4,72E-03	0,00E+00	-7,57E-05
ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS: 1 kg Knauf MP75 SL											
Life Cycle Stage											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	-1,67E-10	2,02E-09	4,89E-10	3,27E-09	0,00E+00	0,00E+00	1,53E-09	8,40E-09	0,00E+00	-9,55E-10
IRP	kBq U235 eq.	2,68E-03	1,98E-03	4,39E-03	4,70E-03	0,00E+00	0,00E+00	1,50E-03	2,65E-03	0,00E+00	-2,13E-04
ETP-fw	CTUe	1,02E-05	1,73E-06	2,63E-04	5,27E-06	0,00E+00	0,00E+00	1,90E-06	3,82E-05	0,00E+00	-1,64E-07
HTP-c	CTUh	2,11E-11	1,12E-11	1,12E-11	3,08E-11	0,00E+00	0,00E+00	9,69E-12	1,87E-11	0,00E+00	-1,13E-12
HTP-nc	CTUh	2,66E-10	3,09E-10	4,31E-10	7,02E-10	0,00E+00	0,00E+00	2,64E-10	6,15E-10	0,00E+00	-3,17E-11
SQP	-	7,21E-01	2,47E-01	9,36E-02	4,12E-01	0,00E+00	0,00E+00	1,90E-01	1,12E-01	0,00E+00	-6,29E-03
PARAMETERS DESCRIBING RESOURCE: 1 kg Knauf MP75 SL											
Life Cycle Stage											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1,48E-01	5,74E-03	4,87E-02	1,79E-02	0,00E+00	0,00E+00	4,39E-03	2,66E-02	0,00E+00	-2,98E-04
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,48E-01	5,74E-03	4,87E-02	1,79E-02	0,00E+00	0,00E+00	4,39E-03	2,66E-02	0,00E+00	-2,98E-04
PEN-RE	MJ	5,52E-01	3,97E-01	1,83E+00	8,74E-01	0,00E+00	0,00E+00	3,47E-01	8,49E-01	0,00E+00	-5,07E-02
RE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	5,52E-01	3,97E-01	1,83E+00	8,74E-01	0,00E+00	0,00E+00	3,47E-01	8,49E-01	0,00E+00	-5,07E-02
SM	kg	0,00E+00	0,00E+00	1,73E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,00E-01	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,88E-04
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m ³	5,38E-04	6,46E-05	1,49E-02	2,23E-04	0,00E+00	0,00E+00	1,17E-05	2,44E-02	0,00E+00	-7,55E-06
ENVIRONMENTAL INFORMATION DESCRIBING WASTE AND OUTPUT FLOWS: 1 kg Knauf MP75 SL											
Life Cycle Stage											
Indicator	Unit (expressed per DU)	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	WN	WN	6,98E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Non-hazardous waste	kg	WN	WN	1,67E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Components for re-use	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	WN	WN	1,73E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,00E-01	0,00E+00	0,00E+00
Materials for energy recovery	kg	WN	WN	4,46E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ/energy carrier	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,88E-04

CARBON ORGANIC

Contents organic carbon in product (kg C _{org})	8,80E-04
Contents organic carbon in packaging (kg C _{org})	3,37E-04

CORE ENVIRONMENTAL IMPACT INDICATORS: 1 kg Knauf MP75 Diamant

Indicator	Unit	Life Cycle Stage									
		A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq.	1,16E-02	2,31E-02	3,73E-02	5,14E-02	0,00E+00	0,00E+00	2,25E-02	5,93E-02	0,00E+00	-3,58E-03
GWP-fossil	kg CO ₂ eq.	3,64E-02	2,30E-02	3,60E-02	5,13E-02	0,00E+00	0,00E+00	2,24E-02	5,91E-02	0,00E+00	-3,57E-03
GWP-biogenic	kg CO ₂ eq.	-2,50E-02	1,91E-05	1,30E-03	5,22E-05	0,00E+00	0,00E+00	1,15E-05	1,31E-04	0,00E+00	-1,08E-05
GWP-luluc	kg CO ₂ eq.	1,06E-04	9,62E-06	2,58E-05	3,06E-05	0,00E+00	0,00E+00	1,11E-05	9,98E-06	0,00E+00	-3,55E-07
ODP	kg CFC11 eq.	3,29E-09	5,30E-09	4,30E-09	1,12E-08	0,00E+00	0,00E+00	4,68E-09	6,58E-09	0,00E+00	-7,32E-10
AP	mol H ⁺ eq.	1,26E-04	9,22E-05	1,90E-04	1,48E-04	0,00E+00	0,00E+00	6,64E-05	5,19E-04	0,00E+00	-3,63E-05
EP-freshwater	kg PO ₄ eq.	1,23E-05	1,50E-06	2,63E-04	4,76E-06	0,00E+00	0,00E+00	1,90E-06	3,82E-05	0,00E+00	-1,64E-07
EP-marine	kg N eq.	2,08E-05	2,00E-05	7,83E-05	2,73E-05	0,00E+00	0,00E+00	1,30E-05	1,64E-04	0,00E+00	-1,57E-05
EP-terrestrial	mol N eq.	2,01E-04	2,20E-04	2,80E-04	2,96E-04	0,00E+00	0,00E+00	1,42E-04	1,73E-03	0,00E+00	-1,72E-04
POCP	kg NMVOC eq.	8,17E-05	7,43E-05	8,15E-05	1,15E-04	0,00E+00	0,00E+00	5,29E-05	4,76E-04	0,00E+00	-4,79E-05
ADP-minerals & metals	kg Sb eq.	1,72E-07	8,14E-08	8,51E-08	3,19E-07	0,00E+00	0,00E+00	9,96E-08	4,44E-08	0,00E+00	-1,84E-09
ADP-fossil	MJ	5,57E-01	3,47E-01	1,47E+00	7,64E-01	0,00E+00	0,00E+00	3,26E-01	7,27E-01	0,00E+00	-4,80E-02
WDP	WDP (m ³) świat. ekw	2,18E-02	1,05E-03	5,37E-03	2,96E-03	0,00E+00	0,00E+00	1,23E-03	4,72E-03	0,00E+00	-7,57E-05

ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS: 1 kg Knauf MP75 Diamant

Indicator	Unit	Life Cycle Stage									
		A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	4,80E-10	1,80E-09	4,89E-10	2,96E-09	0,00E+00	0,00E+00	1,53E-09	8,40E-09	0,00E+00	-9,55E-10
IRP	kBq U235 eq.	3,83E-03	1,78E-03	4,39E-03	4,26E-03	0,00E+00	0,00E+00	1,49E-03	2,65E-03	0,00E+00	-2,13E-04
ETP-fw	CTUe	1,23E-05	1,50E-06	2,63E-04	4,76E-06	0,00E+00	0,00E+00	1,90E-06	3,82E-05	0,00E+00	-1,64E-07
HTP-c	CTUh	4,74E-11	9,12E-12	1,12E-11	2,79E-11	0,00E+00	0,00E+00	9,67E-12	1,87E-11	0,00E+00	-1,13E-12

HTP-nc	CTUh	3,50E-10	2,71E-10	4,31E-10	6,35E-10	0,00E+00	0,00E+00	2,64E-10	6,15E-10	0,00E+00	-3,17E-11
SQP	-	2,68E+00	2,33E-01	9,36E-02	3,72E-01	0,00E+00	0,00E+00	1,90E-01	1,12E-01	0,00E+00	-6,29E-03

PARAMETERS DESCRIBING RESOURCE: 1 kg Knauf MP75 Diamant

Life Cycle Stage											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	9,78E-01	7,07E-02	1,99E-01	1,62E-02	0,00E+00	0,00E+00	4,38E-03	2,66E-02	0,00E+00	-2,98E-04
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	9,78E-01	7,07E-02	1,99E-01	1,62E-02	0,00E+00	0,00E+00	4,38E-03	2,66E-02	0,00E+00	-2,98E-04
PEN-RE	MJ	5,79E-01	3,61E-01	1,83E+00	7,91E-01	0,00E+00	0,00E+00	3,46E-01	8,49E-01	0,00E+00	-5,07E-02
RE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	5,79E-01	3,61E-01	1,83E+00	7,91E-01	0,00E+00	0,00E+00	3,46E-01	8,49E-01	0,00E+00	-5,07E-02
SM	kg	0,00E+00	0,00E+00	1,73E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,00E-01	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,88E-04
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m ³	1,71E-03	6,20E-05	1,49E-02	2,28E-04	0,00E+00	0,00E+00	1,96E-05	2,44E-02	0,00E+00	-7,96E-06

ENVIRONMENTAL INFORMATION DESCRIBING WASTE AND OUTPUT FLOWS: 1 kg Knauf MP75 Diamant

Life Cycle Stage											
Indicator	Unit (expressed per DU)	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	WN	WN	6,98E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste	kg	WN	WN	1,67E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Components for re-use	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	WN	WN	1,73E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,00E-01	0,00E+00	0,00E+00
Materials for energy recovery	kg	WN	WN	4,46E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ/energy carrier	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,88E-04

CARBON ORGANIC

Contents organic carbon in product (kg C_{org}) **8,75E-04**

Contents organic carbon in packaging (kg C_{org}) **3,37E-04**

CORE ENVIRONMENTAL IMPACT INDICATORS: 1 kg Knauf MP75 G/F THERM											
Life Cycle Stage											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq.	1,99E-02	2,42E-02	3,73E-02	5,58E-02	0,00E+00	0,00E+00	2,28E-02	5,93E-02	0,00E+00	-3,58E-03
GWP-fossil	kg CO ₂ eq.	4,47E-02	2,41E-02	3,60E-02	5,58E-02	0,00E+00	0,00E+00	2,28E-02	5,91E-02	0,00E+00	-3,57E-03
GWP-biogenic	kg CO ₂ eq.	-2,49E-02	2,01E-05	1,30E-03	5,67E-05	0,00E+00	0,00E+00	1,17E-05	1,31E-04	0,00E+00	-1,08E-05
GWP-luluc	kg CO ₂ eq.	1,09E-04	9,89E-06	2,58E-05	3,33E-05	0,00E+00	0,00E+00	1,13E-05	9,98E-06	0,00E+00	-3,55E-07
ODP	kg CFC11 eq.	3,85E-09	5,57E-09	4,30E-09	1,22E-08	0,00E+00	0,00E+00	4,74E-09	6,58E-09	0,00E+00	-7,32E-10
AP	mol H+ eq.	1,73E-04	9,01E-05	1,90E-04	1,60E-04	0,00E+00	0,00E+00	6,73E-05	5,19E-04	0,00E+00	-3,63E-05
EP-freshwater	kg PO ₄ eq.	1,37E-05	1,56E-06	2,63E-04	5,18E-06	0,00E+00	0,00E+00	1,93E-06	3,82E-05	0,00E+00	-1,64E-07
EP-marine	kg N eq.	3,43E-05	1,93E-05	7,83E-05	2,97E-05	0,00E+00	0,00E+00	1,32E-05	1,64E-04	0,00E+00	-1,57E-05
EP-terrestrial	mol N eq.	3,75E-04	2,12E-04	2,80E-04	3,22E-04	0,00E+00	0,00E+00	1,44E-04	1,73E-03	0,00E+00	-1,72E-04
POCP	kg NMVOC eq.	1,24E-04	7,33E-05	8,15E-05	1,25E-04	0,00E+00	0,00E+00	5,36E-05	4,76E-04	0,00E+00	-4,79E-05
ADP-minerals & metals	kg Sb eq.	1,86E-07	8,40E-08	8,51E-08	3,46E-07	0,00E+00	0,00E+00	1,01E-07	4,44E-08	0,00E+00	-1,84E-09
ADP-fossil	MJ	6,35E-01	3,64E-01	1,47E+00	8,30E-01	0,00E+00	0,00E+00	3,30E-01	7,27E-01	0,00E+00	-4,80E-02
WDP	WDP (m ³) świat. ekw	2,54E-02	1,10E-03	5,37E-03	3,21E-03	0,00E+00	0,00E+00	1,25E-03	4,72E-03	0,00E+00	-7,57E-05
ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS: 1 kg Knauf MP75 G/F THERM											
Life Cycle Stage											
Wskaźnik	Jednostka	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	1,22E-09	1,91E-09	4,89E-10	3,21E-09	0,00E+00	0,00E+00	1,55E-09	8,40E-09	0,00E+00	-9,55E-10
IRP	kBq U235 eq.	4,62E-03	1,87E-03	4,39E-03	4,63E-03	0,00E+00	0,00E+00	1,51E-03	2,65E-03	0,00E+00	-2,13E-04
ETP-fw	CTUe	1,37E-05	1,56E-06	2,63E-04	5,18E-06	0,00E+00	0,00E+00	1,93E-06	3,82E-05	0,00E+00	-1,64E-07
HTP-c	CTUh	4,96E-11	9,40E-12	1,12E-11	3,03E-11	0,00E+00	0,00E+00	9,81E-12	1,87E-11	0,00E+00	-1,13E-12
HTP-nc	CTUh	4,22E-10	2,85E-10	4,31E-10	6,91E-10	0,00E+00	0,00E+00	2,68E-10	6,15E-10	0,00E+00	-3,17E-11
SQP	-	2,70E+00	2,49E-01	9,36E-02	4,05E-01	0,00E+00	0,00E+00	1,93E-01	1,12E-01	0,00E+00	-6,29E-03
PARAMETERS DESCRIBING RESOURCE: 1 kg Knauf MP75 G/F THERM											
Life Cycle Stage											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1,04E+00	7,40E-02	4,16E-01	1,76E-02	0,00E+00	0,00E+00	4,45E-03	2,66E-02	0,00E+00	-2,98E-04
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,04E+00	7,40E-02	4,16E-01	1,76E-02	0,00E+00	0,00E+00	4,45E-03	2,66E-02	0,00E+00	-2,98E-04
PEN-RE	MJ	6,32E-01	3,79E-01	1,83E+00	8,60E-01	0,00E+00	0,00E+00	3,51E-01	8,49E-01	0,00E+00	-5,07E-02
RE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	6,32E-01	3,79E-01	1,83E+00	8,60E-01	0,00E+00	0,00E+00	3,51E-01	8,49E-01	0,00E+00	-5,07E-02
SM	kg	0,00E+00	0,00E+00	1,73E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,00E-01	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,88E-04
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m ³	1,81E-03	6,44E-05	1,49E-02	2,48E-04	0,00E+00	0,00E+00	1,99E-05	2,44E-02	0,00E+00	-7,96E-06
ENVIRONMENTAL INFORMATION DESCRIBING WASTE AND OUTPUT FLOWS: 1 kg Knauf MP75 G/F THERM											
Life Cycle Stage											
Indicator	Unit (expressed per DU)	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	WN	WN	6,98E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Non-hazardous waste	kg	WN	WN	1,67E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Components for re-use	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	WN	WN	1,73E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,00E-01	0,00E+00	0,00E+00
Materials for energy recovery	kg	WN	WN	4,46E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ/energy carrier	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,88E-04

CARBON ORGANIC

Contents organic carbon in product (kg C_{org})	7,61E-04
Contents organic carbon in packaging (kg C_{org})	3,37E-04

CORE ENVIRONMENTAL IMPACT INDICATORS: 1 kg Knauf MP75 AQUA											
Life Cycle Stage											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq.	5,76E-02	3,20E-02	3,73E-02	9,11E-02	0,00E+00	0,00E+00	2,27E-02	5,93E-02	0,00E+00	-3,58E-03
GWP-fossil	kg CO ₂ eq.	8,18E-02	3,19E-02	3,60E-02	9,09E-02	0,00E+00	0,00E+00	2,27E-02	5,91E-02	0,00E+00	-3,57E-03
GWP-biogenic	kg CO ₂ eq.	-2,44E-02	2,94E-05	1,30E-03	9,25E-05	0,00E+00	0,00E+00	1,16E-05	1,31E-04	0,00E+00	-1,08E-05
GWP-luluc	kg CO ₂ eq.	1,17E-04	1,57E-05	2,58E-05	5,43E-05	0,00E+00	0,00E+00	1,13E-05	9,98E-06	0,00E+00	-3,55E-07
ODP	kg CFC11 eq.	6,40E-09	7,22E-09	4,30E-09	1,99E-08	0,00E+00	0,00E+00	4,73E-09	6,58E-09	0,00E+00	-7,32E-10
AP	mol H ⁺ eq.	2,73E-04	1,52E-04	1,90E-04	2,62E-04	0,00E+00	0,00E+00	6,72E-05	5,19E-04	0,00E+00	-3,63E-05
EP-freshwater	kg PO ₄ eq.	1,66E-05	2,47E-06	2,63E-04	8,45E-06	0,00E+00	0,00E+00	1,92E-06	3,82E-05	0,00E+00	-1,64E-07
EP-marine	kg N eq.	5,42E-05	4,66E-05	7,83E-05	4,84E-05	0,00E+00	0,00E+00	1,32E-05	1,64E-04	0,00E+00	-1,57E-05
EP-terrestrial	mol N eq.	5,98E-04	5,09E-04	2,80E-04	5,26E-04	0,00E+00	0,00E+00	1,43E-04	1,73E-03	0,00E+00	-1,72E-04
POCP	kg NMVOC eq.	2,17E-04	1,52E-04	8,15E-05	2,04E-04	0,00E+00	0,00E+00	5,35E-05	4,76E-04	0,00E+00	-4,79E-05
ADP-minerals & metals	kg Sb eq.	2,93E-07	1,50E-07	8,51E-08	5,65E-07	0,00E+00	0,00E+00	1,01E-07	4,44E-08	0,00E+00	-1,84E-09
ADP-fossil	MJ	1,22E+00	4,81E-01	1,47E+00	1,35E+00	0,00E+00	0,00E+00	3,30E-01	7,27E-01	0,00E+00	-4,80E-02
WDP	WDP (m ³) świat. ekw	3,95E-02	1,62E-03	5,37E-03	5,24E-03	0,00E+00	0,00E+00	1,25E-03	4,72E-03	0,00E+00	-7,57E-05
ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS: 1 kg Knauf MP75 AQUA											
Life Cycle Stage											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	2,17E-09	2,64E-09	4,89E-10	5,24E-09	0,00E+00	0,00E+00	1,55E-09	8,40E-09	0,00E+00	-9,55E-10
IRP	kBq U235 eq.	5,56E-03	2,56E-03	4,39E-03	7,55E-03	0,00E+00	0,00E+00	1,51E-03	2,65E-03	0,00E+00	-2,13E-04
ETP-fw	CTUe	1,66E-05	2,47E-06	2,63E-04	8,45E-06	0,00E+00	0,00E+00	1,92E-06	3,82E-05	0,00E+00	-1,64E-07
HTP-c	CTUh	7,03E-11	1,72E-11	1,12E-11	4,94E-11	0,00E+00	0,00E+00	9,79E-12	1,87E-11	0,00E+00	-1,13E-12

HTP-nc	CTUh	6,68E-10	4,24E-10	4,31E-10	1,13E-09	0,00E+00	0,00E+00	2,67E-10	6,15E-10	0,00E+00	-3,17E-11
SQP	-	2,73E+00	2,86E-01	9,36E-02	6,60E-01	0,00E+00	0,00E+00	1,92E-01	1,12E-01	0,00E+00	-6,29E-03
PARAMETERS DESCRIBING RESOURCE: 1 kg Knauf MP75 AQUA											
Life Cycle Stage											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1,15E+00	1,13E-01	1,99E-01	2,88E-02	0,00E+00	0,00E+00	4,44E-03	2,66E-02	0,00E+00	-2,98E-04
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,15E+00	1,13E-01	1,99E-01	2,88E-02	0,00E+00	0,00E+00	4,44E-03	2,66E-02	0,00E+00	-2,98E-04
PEN-RE	MJ	1,24E+00	4,99E-01	1,83E+00	1,40E+00	0,00E+00	0,00E+00	3,50E-01	8,49E-01	0,00E+00	-5,07E-02
RE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	1,24E+00	4,99E-01	1,83E+00	1,40E+00	0,00E+00	0,00E+00	3,50E-01	8,49E-01	0,00E+00	-5,07E-02
SM	kg	0,00E+00	0,00E+00	1,73E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,00E-01	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,88E-04
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m ³	9,42E-04	9,78E-05	1,49E-02	3,58E-04	0,00E+00	0,00E+00	1,19E-05	2,44E-02	0,00E+00	-7,55E-06
ENVIRONMENTAL INFORMATION DESCRIBING WASTE AND OUTPUT FLOWS: 1 kg Knauf MP75 AQUA											
Life Cycle Stage											
Indicator	Unit (expressed per DU)	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	WN	WN	6,98E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste	kg	WN	WN	1,67E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Components for re-use	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	WN	WN	1,73E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,00E-01	0,00E+00	0,00E+00
Materials for energy recovery	kg	WN	WN	4,46E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ/energy carrier	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,88E-04

CARBON ORGANIC

Contents organic carbon in product (kg C_{org}) **6,44E-04**

Contents organic carbon in packaging (kg C_{org}) **3,37E-04**

CORE ENVIRONMENTAL IMPACT INDICATORS: 1 kg Knauf GOLDBAND											
Life Cycle Stage											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq.	-7,18E-04	1,55E-02	3,73E-02	5,24E-02	0,00E+00	0,00E+00	2,25E-02	5,93E-02	0,00E+00	-3,58E-03
GWP-fossil	kg CO ₂ eq.	2,44E-02	1,54E-02	3,60E-02	5,23E-02	0,00E+00	0,00E+00	2,24E-02	5,91E-02	0,00E+00	-3,57E-03
GWP-biogenic	kg CO ₂ eq.	-2,53E-02	1,29E-05	1,30E-03	5,33E-05	0,00E+00	0,00E+00	1,15E-05	1,31E-04	0,00E+00	-1,08E-05
GWP-luluc	kg CO ₂ eq.	1,02E-04	6,34E-06	2,58E-05	3,13E-05	0,00E+00	0,00E+00	1,11E-05	9,98E-06	0,00E+00	-3,55E-07
ODP	kg CFC11 eq.	1,86E-09	3,56E-09	4,30E-09	1,14E-08	0,00E+00	0,00E+00	4,68E-09	6,58E-09	0,00E+00	-7,32E-10
AP	mol H+ eq.	6,63E-05	5,81E-05	1,90E-04	1,51E-04	0,00E+00	0,00E+00	6,64E-05	5,19E-04	0,00E+00	-3,63E-05
EP-freshwater	kg PO ₄ eq.	9,33E-06	9,97E-07	2,63E-04	4,86E-06	0,00E+00	0,00E+00	1,90E-06	3,82E-05	0,00E+00	-1,64E-07
EP-marine	kg N eq.	7,97E-06	1,25E-05	7,83E-05	2,79E-05	0,00E+00	0,00E+00	1,30E-05	1,64E-04	0,00E+00	-1,57E-05
EP-terrestrial	mol N eq.	4,36E-05	1,37E-04	2,80E-04	3,03E-04	0,00E+00	0,00E+00	1,42E-04	1,73E-03	0,00E+00	-1,72E-04
POCP	kg NMVOC eq.	3,67E-05	4,72E-05	8,15E-05	1,17E-04	0,00E+00	0,00E+00	5,29E-05	4,76E-04	0,00E+00	-4,79E-05
ADP-minerals & metals	kg Sb eq.	1,21E-07	5,37E-08	8,51E-08	3,25E-07	0,00E+00	0,00E+00	9,96E-08	4,44E-08	0,00E+00	-1,84E-09
ADP-fossil	MJ	3,44E-01	2,33E-01	1,47E+00	7,79E-01	0,00E+00	0,00E+00	3,26E-01	7,27E-01	0,00E+00	-4,80E-02
WDP	WDP (m ³) świat. ekw	1,46E-02	7,01E-04	5,37E-03	3,02E-03	0,00E+00	0,00E+00	1,23E-03	4,72E-03	0,00E+00	-7,57E-05
ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS: 1 kg Knauf GOLDBAND											
Life Cycle Stage											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	-1,37E-11	1,22E-09	4,89E-10	3,02E-09	0,00E+00	0,00E+00	1,53E-09	8,40E-09	0,00E+00	-9,55E-10
IRP	kBq U235 eq.	2,38E-03	1,20E-03	4,39E-03	4,34E-03	0,00E+00	0,00E+00	1,49E-03	2,65E-03	0,00E+00	-2,13E-04
ETP-fw	CTUe	9,33E-06	9,97E-07	2,63E-04	4,86E-06	0,00E+00	0,00E+00	1,90E-06	3,82E-05	0,00E+00	-1,64E-07
HTP-c	CTUh	4,02E-11	6,02E-12	1,12E-11	2,85E-11	0,00E+00	0,00E+00	9,67E-12	1,87E-11	0,00E+00	-1,13E-12
HTP-nc	CTUh	2,58E-10	1,82E-10	4,31E-10	6,48E-10	0,00E+00	0,00E+00	2,64E-10	6,15E-10	0,00E+00	-3,17E-11
SQP	-	2,65E+00	1,59E-01	9,36E-02	3,80E-01	0,00E+00	0,00E+00	1,90E-01	1,12E-01	0,00E+00	-6,29E-03
PARAMETERS DESCRIBING RESOURCE: 1 kg GOLDBAND											
Life Cycle Stage											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	5,02E-01	3,30E-03	4,87E-02	1,66E-02	0,00E+00	0,00E+00	4,38E-03	2,66E-02	0,00E+00	-2,98E-04
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	5,02E-01	3,30E-03	4,87E-02	1,66E-02	0,00E+00	0,00E+00	4,38E-03	2,66E-02	0,00E+00	-2,98E-04
PEN-RE	MJ	3,45E-01	2,42E-01	1,83E+00	8,07E-01	0,00E+00	0,00E+00	3,46E-01	8,49E-01	0,00E+00	-5,07E-02
RE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	3,45E-01	2,42E-01	1,83E+00	8,07E-01	0,00E+00	0,00E+00	3,46E-01	8,49E-01	0,00E+00	-5,07E-02
SM	kg	0,00E+00	0,00E+00	1,73E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,00E-01	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,88E-04
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m ³	1,22E-03	4,11E-05	1,49E-02	2,33E-04	0,00E+00	0,00E+00	1,96E-05	2,44E-02	0,00E+00	-7,96E-06
ENVIRONMENTAL INFORMATION DESCRIBING WASTE AND OUTPUT FLOWS: 1 kg Knauf GOLDBAND											
Life Cycle Stage											
Indicator	Unit (expressed per DU)	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	WN	WN	6,98E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Non-hazardous waste	kg	WN	WN	1,67E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Components for re-use	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	WN	WN	1,73E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,00E-01	0,00E+00	0,00E+00
Materials for energy recovery	kg	WN	WN	4,46E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ/energy carrier	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,88E-04

CARBON ORGANIC

Contents organic carbon in product (kg C _{org})	9,05E-04
Contents organic carbon in packaging (kg C _{org})	3,37E-04

CORE ENVIRONMENTAL IMPACT INDICATORS: 1 kg Knauf ROTBAND

Indicator	Unit	Life Cycle Stage									
		A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq.	-2,82E-03	1,55E-02	3,73E-02	5,21E-02	0,00E+00	0,00E+00	2,25E-02	5,93E-02	0,00E+00	-3,58E-03
GWP-fossil	kg CO ₂ eq.	2,25E-02	1,54E-02	3,60E-02	5,20E-02	0,00E+00	0,00E+00	2,25E-02	5,91E-02	0,00E+00	-3,57E-03
GWP-biogenic	kg CO ₂ eq.	-2,54E-02	1,29E-05	1,30E-03	5,29E-05	0,00E+00	0,00E+00	1,15E-05	1,31E-04	0,00E+00	-1,08E-05
GWP-luluc	kg CO ₂ eq.	1,02E-04	6,33E-06	2,58E-05	3,11E-05	0,00E+00	0,00E+00	1,12E-05	9,98E-06	0,00E+00	-3,55E-07
ODP	kg CFC11 eq.	1,64E-09	3,56E-09	4,30E-09	1,14E-08	0,00E+00	0,00E+00	4,69E-09	6,58E-09	0,00E+00	-7,32E-10
AP	mol H+ eq.	4,84E-05	5,74E-05	1,90E-04	1,50E-04	0,00E+00	0,00E+00	6,66E-05	5,19E-04	0,00E+00	-3,63E-05
EP-freshwater	kg PO ₄ eq.	8,56E-06	9,97E-07	2,63E-04	4,83E-06	0,00E+00	0,00E+00	1,91E-06	3,82E-05	0,00E+00	-1,64E-07
EP-marine	kg N eq.	2,94E-06	1,23E-05	7,83E-05	2,77E-05	0,00E+00	0,00E+00	1,31E-05	1,64E-04	0,00E+00	-1,57E-05
EP-terrestrial	mol N eq.	-2,18E-05	1,35E-04	2,80E-04	3,01E-04	0,00E+00	0,00E+00	1,42E-04	1,73E-03	0,00E+00	-1,72E-04
POCP	kg NMVOC eq.	2,04E-05	4,67E-05	8,15E-05	1,16E-04	0,00E+00	0,00E+00	5,31E-05	4,76E-04	0,00E+00	-4,79E-05
ADP-minerals & metals	kg Sb eq.	1,15E-07	5,38E-08	8,51E-08	3,23E-07	0,00E+00	0,00E+00	1,00E-07	4,44E-08	0,00E+00	-1,84E-09
ADP-fossil	MJ	3,00E-01	2,33E-01	1,47E+00	7,75E-01	0,00E+00	0,00E+00	3,27E-01	7,27E-01	0,00E+00	-4,80E-02
WDP	WDP (m ³) świat. ekw	1,23E-02	7,02E-04	5,37E-03	3,00E-03	0,00E+00	0,00E+00	1,24E-03	4,72E-03	0,00E+00	-7,57E-05

ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS: 1 kg Knauf ROTBAND

Indicator	Unit	Life Cycle Stage									
		A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	-2,53E-10	1,22E-09	4,89E-10	3,00E-09	0,00E+00	0,00E+00	1,54E-09	8,40E-09	0,00E+00	-9,55E-10
IRP	kBq U235 eq.	1,95E-03	1,20E-03	4,39E-03	4,32E-03	0,00E+00	0,00E+00	1,50E-03	2,65E-03	0,00E+00	-2,13E-04
ETP-fw	CTUe	8,56E-06	9,97E-07	2,63E-04	4,83E-06	0,00E+00	0,00E+00	1,91E-06	3,82E-05	0,00E+00	-1,64E-07
HTP-c	CTUh	3,90E-11	6,01E-12	1,12E-11	2,83E-11	0,00E+00	0,00E+00	9,71E-12	1,87E-11	0,00E+00	-1,13E-12

HTP-nc	CTUh	2,41E-10	1,83E-10	4,31E-10	6,45E-10	0,00E+00	0,00E+00	2,65E-10	6,15E-10	0,00E+00	-3,17E-11
SQP	-	2,64E+00	1,59E-01	9,36E-02	3,78E-01	0,00E+00	0,00E+00	1,91E-01	1,12E-01	0,00E+00	-6,29E-03
PARAMETERS DESCRIBING RESOURCE: 1 kg ROTBAND											
Life Cycle Stage											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	5,01E-01	3,30E-03	4,87E-02	1,65E-02	0,00E+00	0,00E+00	4,40E-03	2,66E-02	0,00E+00	-2,98E-04
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	5,01E-01	3,30E-03	4,87E-02	1,65E-02	0,00E+00	0,00E+00	4,40E-03	2,66E-02	0,00E+00	-2,98E-04
PEN-RE	MJ	3,03E-01	2,42E-01	1,83E+00	8,03E-01	0,00E+00	0,00E+00	3,47E-01	8,49E-01	0,00E+00	-5,07E-02
RE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	3,03E-01	2,42E-01	1,83E+00	8,03E-01	0,00E+00	0,00E+00	3,47E-01	8,49E-01	0,00E+00	-5,07E-02
SM	kg	0,00E+00	0,00E+00	1,73E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,00E-01	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,88E-04
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m ³	1,17E-03	4,12E-05	1,49E-02	2,32E-04	0,00E+00	0,00E+00	1,97E-05	2,44E-02	0,00E+00	-7,96E-06
ENVIRONMENTAL INFORMATION DESCRIBING WASTE AND OUTPUT FLOWS: 1 kg Knauf ROTBAND											
Life Cycle Stage											
Indicator	Unit (expressed per DU)	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	WN	WN	6,98E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste	kg	WN	WN	1,67E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Components for re-use	kg	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	WN	WN	1,73E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,00E-01	0,00E+00	0,00E+00
Materials for energy recovery	kg	WN	WN	4,46E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ/energy carrier	WN	WN	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,88E-04

CARBON ORGANIC

Contents organic carbon in product (kg C_{org})	9,92E-04
Contents organic carbon in packaging (kg C_{org})	3,37E-04

6. INTEPRETATION OF LCA

Figures 2, 3, 4, 5, 6, 7, 8 and 9 show contributions of the each life cycl module to the basic impact categories for gypsum plaster – *Knauf MP75L, Knauf MP75, Knauf MP75 SL, Knauf MP75 DIAMANT, Knauf MP75 G/F THERM, Knauf MP75 AQUA, Knauf GOLDBAND, Knauf ROTBAND*:

Fig. 2 Shares of life cycle modules on main categories of influence - Knauf MP75 L

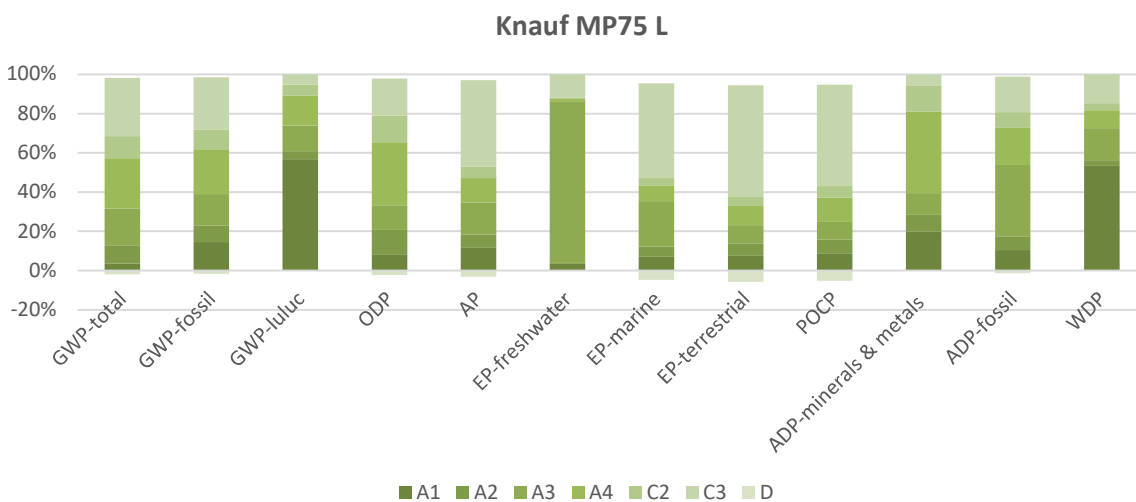


Fig. 3 Shares of life cycle modules on main categories of influence - Knauf MP75

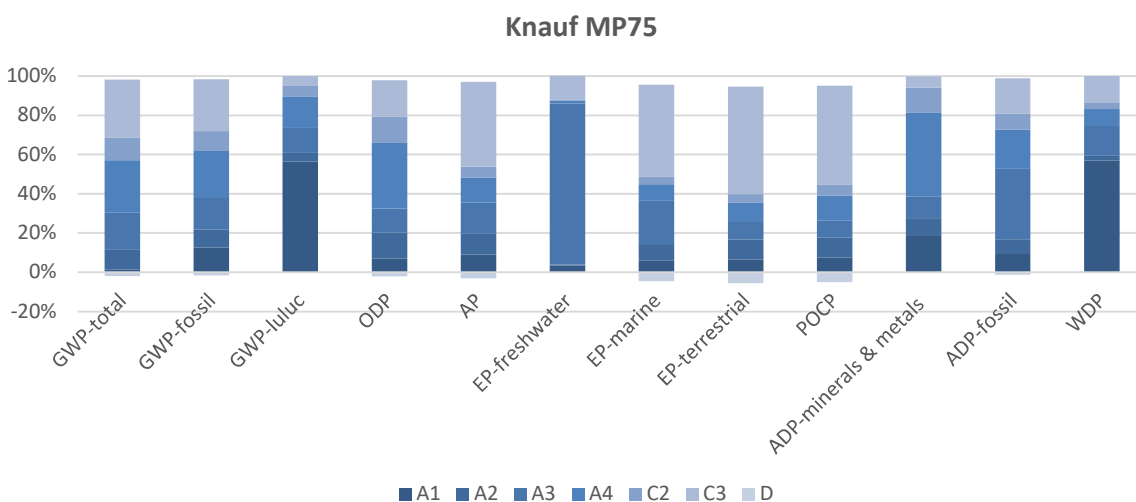


Fig. 4 Shares of life cycle modules on main categories of influence - Knauf MP75 SL

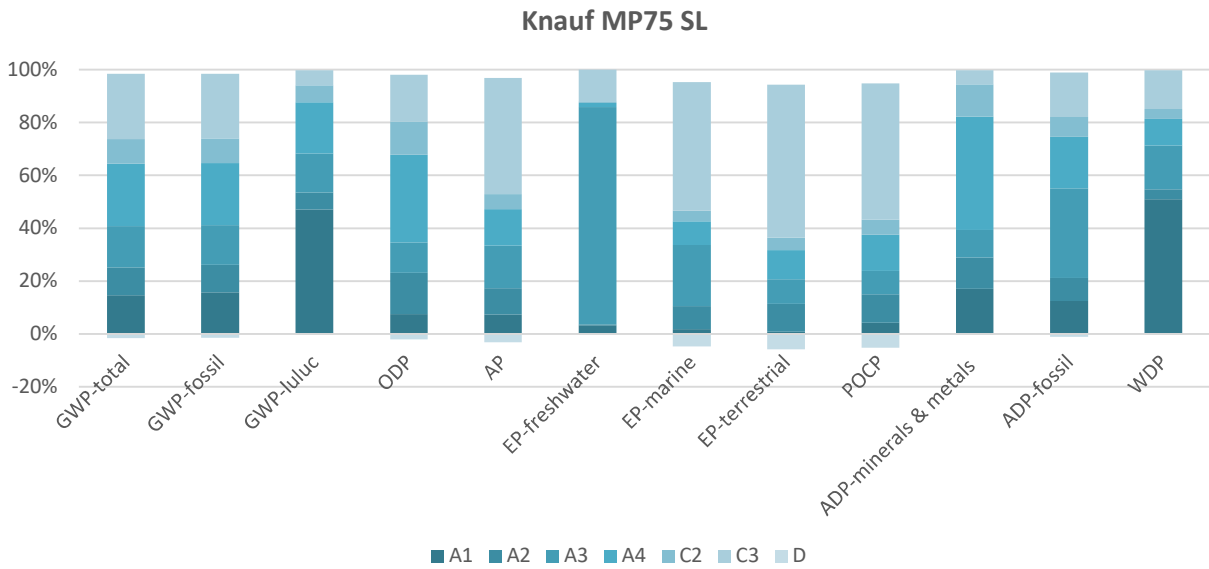


Fig. 5 Shares of life cycle modules on main categories of influence - Knauf MP75 Diamant

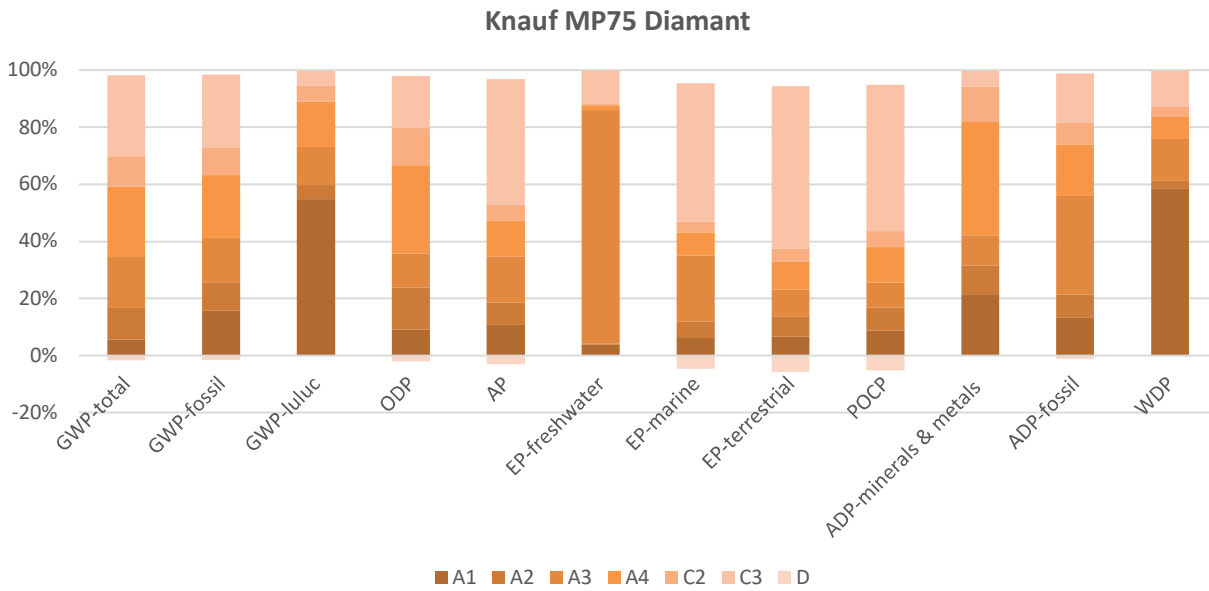


Fig. 6 Shares of life cycle modules on main categories of influence - Knauf MP75 G/F THERM

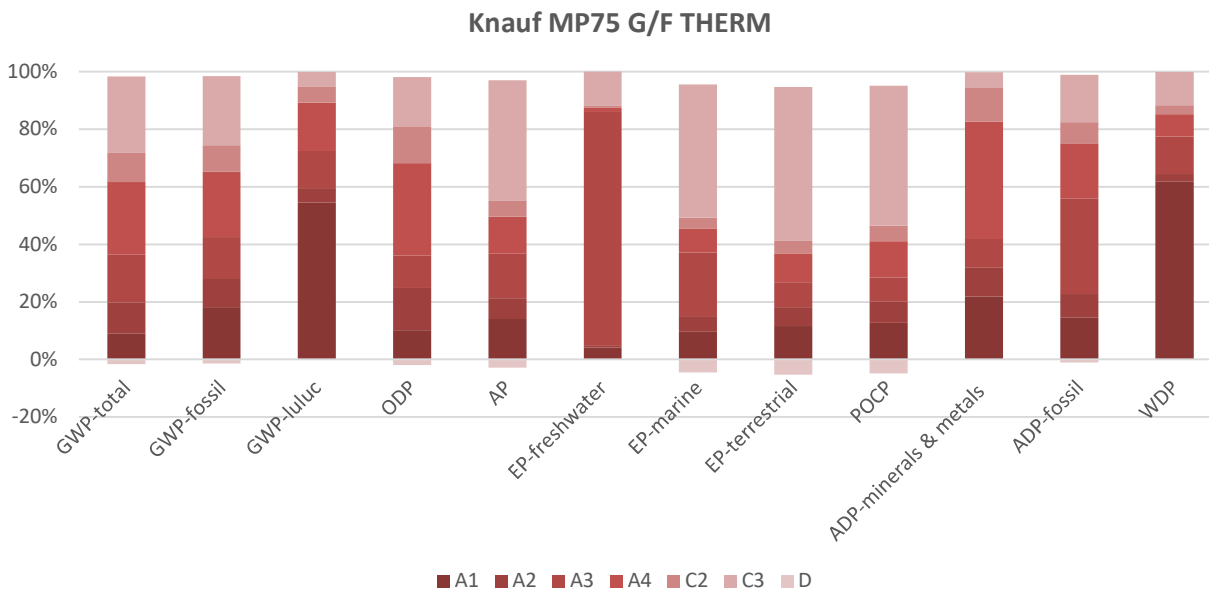


Fig. 7 Shares of life cycle modules on main categories of influence - Knauf MP75 Aqua

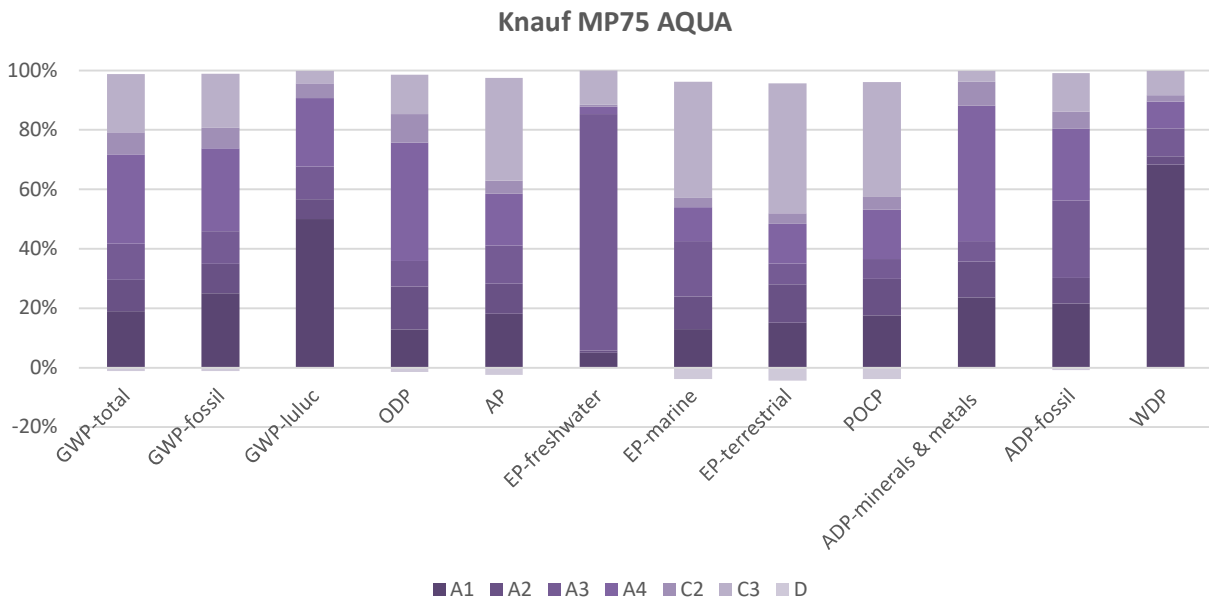


Fig. 8 Shares of life cycle modules on main categories of influence - Knauf Goldband

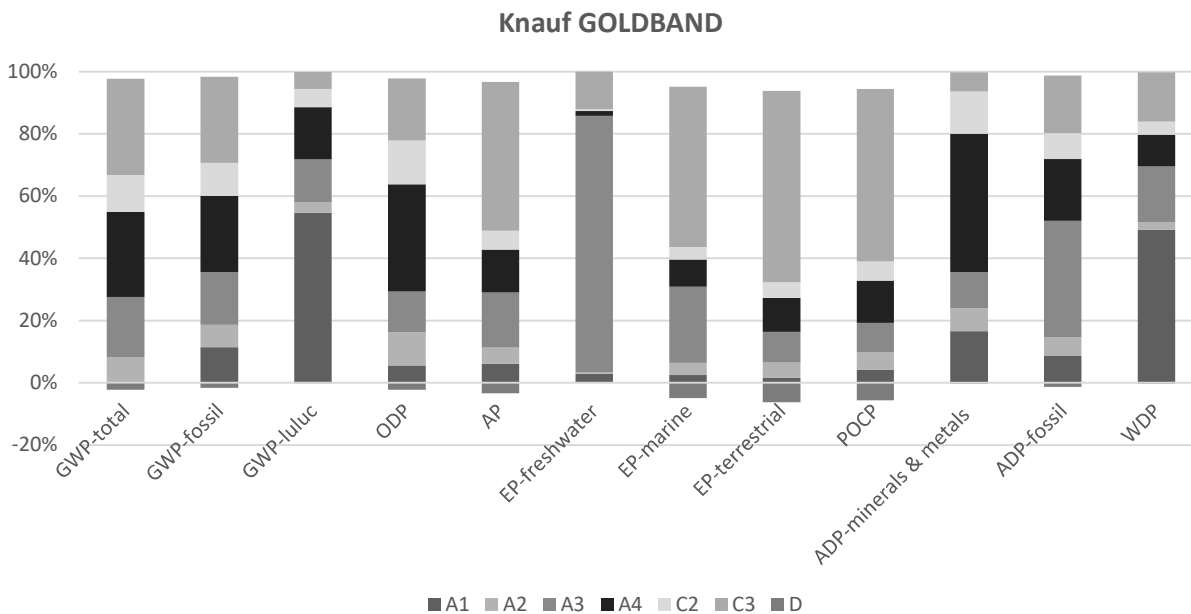
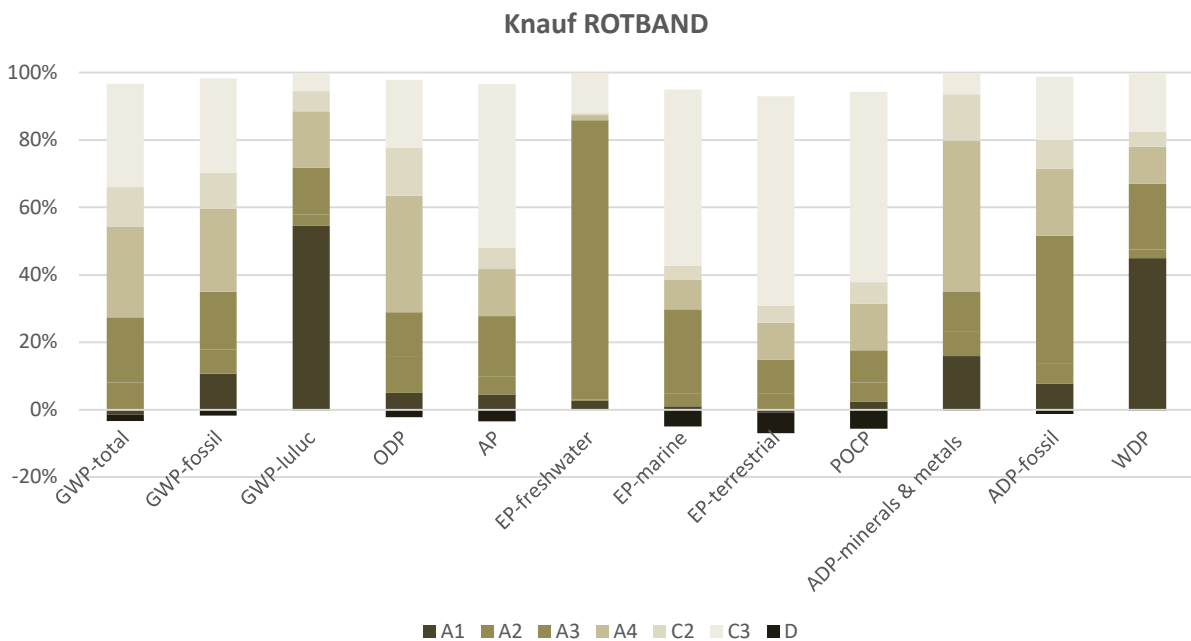


Fig. 9 Shares of life cycle modules on main categories of influence - Knauf Rotband



- ◆ The gypsum plaster production processes use the same technology. The LCA analysis proved that the processes related to the procurement of raw materials and intermediate products (A1) have the greatest impact on the value of the environmental impact indicators, but the distribution between the modules of the production stage (A1-A3) is relatively homogeneous. The sub-processes related to the acquisition of raw materials and energy have a varying impact on the individual impact categories. The impact of transport to the plant (A2) on the impact categories represents a small % of the total impact in the main categories.
- ◆ The environmental impact of modules C1-C4 is relatively small. Transport to the waste treatment site (module C2) has a relatively minor impact on the final values of the LCIA.
- ◆ Considering the a.m. conclusions, the owner of the declaration has a moderate influence on the values of the environmental impact indicators, as this is dependent on external parties.

LITERATURE

- ✓ PN-EN ISO 14025:2014-04, Environmental labels and declarations – Type III environmental declarations – Rules and procedures.
- ✓ PN-EN 15804+A2:2020, Sustainability of construction works – Environmental product declarations – Basic rules for categorizing construction products.
- ✓ PN-EN ISO 14040:2009 Environmental management. Life Cycle Assessment. Principles and structure.
- ✓ PN-EN ISO 14044:2009, Environmental management. Life Cycle Assessment. Requirements and guidelines.
- ✓ EN 15942:2012, Sustainability of construction works – Environmental product declarations – Communication format business-to-business.
- ✓ Explanatory materials can be found on the manufacturers website:
<https://www.knauf.pl/>



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PROCESS ENGINEERING RESEARCH GROUP

TYPE III ENVIRONMENTAL DECLARATION CERTIFICATE

no. 02-10/2023

Products:

Gypsum plaster

Owner:

Knauf

**25 Światowa Str.
02-229 Warszawa**

The declaration was developed in accordance with the requirements of the standard:

PN-EN 15804+A2: 2020-03

Sustainability of construction works
Environmental product declarations
Core rules for the product category of construction products

The declaration was verified in accordance with the requirements of the standard:

PN-EN ISO 14025:2010

Environmental labels and declarations
Type III environmental declarations. Principles and procedures

The certificate was issued for the first time on **October,26 2023** and is valid for 5 years
or until the said EPD is amended.

**Process Engineering
Research Group Leader**

Ewa Głodek-Bucyk

Ewa Głodek-Bucyk, PhD Eng.



**Director of
Center Of Environmental
Engineering**

Joanna Poluszyńska

Joanna Poluszyńska, PhD

Opole, October 2023