KNAUF

ENVIRONMENTAL PRODUCT DECLARATION
IN ACCORDANCE WITH ISO 14025:2006 and
EN 15804:2012+A2:2019/AC:2021 for

Knauf Fire Panel 15mm

From Knauf UK GmbH

Programme: The International EPD® System, www.environdec.com
Programme operator: EPD International AB
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An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.environdec.com

EPD
INTERNATIONAL EPD SYSTEM

ECO PLATFORM
EPD
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GENERAL INFORMATION

This EPD provides environmental performance indicators for Knauf Fire Panel 15mm manufactured by Knauf UK GmbH.

Knauf UK GmbH Knauf Fire Panel 15mm EPD

PROGRAMME INFORMATION	
EPD programme	The International EPD® System
Address	EPD International AB - Box 210 60 - SE 100 31 Stockholm - Sweden
Email	www.environdec.com
Website	support@environdec.com
PRODUCT CATEGORY RULES (PCR) The CEN standard EN 15804 serves as the core PCR	
Product Category Rules (PCR)	PCR 2019:14 Construction products (EN 15804:A2) (V2.0.1) (2025-06-05)
PCR review conducted by	The Technical Committee of the International EPD® System See www.environdec.com for a list of members Review chairs: Rob Rouwette (chair), Noa Meron (co-chair) The Review Chairs may be contacted via info@environdec.com
Complementary PCR (c-PCR)	c-PCR-031 V 2024-08-06 Gypsum-based construction products (EN 17328:2024) - UN CPC 314
c-PCR review conducted by	Not applicable (CEN standard adopted by the International EPD® System)
THIRD-PARTY VERIFICATION External and independent third-party verification of the declaration and data, according to ISO 14025 via individual EPD verification, without a pre-verified LCA/EPD tool	
Third party verifier	Dr Matthew Fishwick, Fishwick Environmental Ltd
Approved by	The International EPD® System
Procedure for data follow-up during EPD validity	Involves third party verifier: ☐ Yes ■ No

Ownership and limitations on use of EPD

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall

- be based on the same PCR (including the same first-digit version number) or be based on fully-aligned PCRs or versions of PCRs;
- cover products with identical functions, technical performances and use (e.g. identical declared/functional units);
- have identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant);
- apply identical impact assessment methods (including the same version of characterisation factors);
- and be valid at the time of comparison.

For further information about comparability, see EN 15804 and ISO 14025.

INFORMATION ABOUT EPD OWNER

EPD owner: Knauf UK GmbH

Knauf began as an idea from two brothers and has grown into a global industry leader spanning 90 countries, multiple brands and with more than 41,500 employees worldwide.

Through our people and state-of-the-art plants, we produce high-performing solutions ranging from drywall systems, plasters and insulating materials all the way to external thermal insulation composite systems.

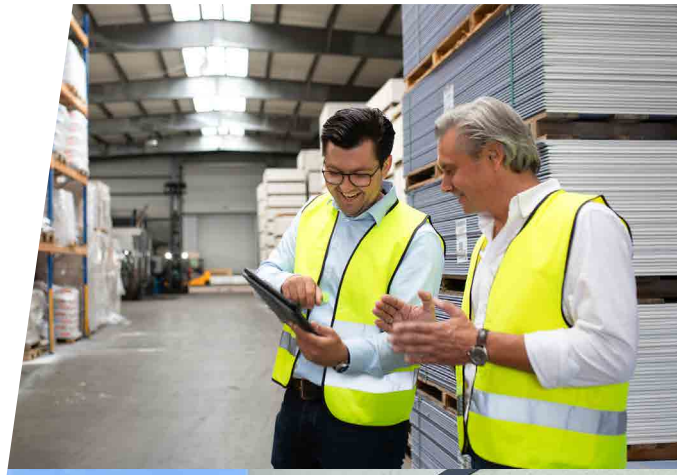
The Knauf Group develops solutions that simplify every phase of construction. Our presence reaches more than 90 countries, backed by approximately 80 raw material processing plants and 300 manufacturing plants.

The Company‘s headquarters in the UK is located in Sittingbourne, Kent. Constructed in 1988, the plasterboard plant was up and running in less than twelve months.

Following its success, a second UK plasterboard manufacturing facility commenced in 1990. Based on the banks of the River Humber, the Immingham plasterboard plan services the North of England, Scotland and the Irish market.

Built to the same modern technical specification as the Sittingbourne Plant, Immingham also has the capability to produce the complete range of Knauf Plasterboards, Insulating Laminates and Foil-backed Plasterboards.

Knauf production facilities in Sittingbourne and Immingham both operate an ISO 14001, ISO 9001, ISO 45001 and ISO 50001 certified Integrated Management System. We are also proud to have held BES 6001 Excellent rating over 10 consecutive years.



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PRODUCT INFORMATION

Product Name: KNAUF FIRE PANEL 15MM

UN CPC CODE

314 - Boards and panels (UN CPC classification system v2.1)

Product Description

Knauf Fire Panel offers improved fire protection when used as part of a full Knauf system. Fire Panel can be used in applications that require greater fire protection in systems such as shaftwalls, I stud linings and partitions.

Made from aerated gypsum core, with premium paper liners on either side. Knauf Fire Panel can be finished with Knauf Jointing Products and Knauf Airless Finish before decoration.

Edge Type
SE, TE
Thickness (mm)
15
Width (mm)
1200
Lengths (mm)
2400, 2700, 3000
Weight (kg/m³)
12
Density (kg/m³)
800
Thermal Conductivity (W/mK)
0.25
Standards Designation
BS EN 520 A & F
Lifespan
60 years

Further information

For more information and product data sheets, please visit our website

Technical Service

0800 521 050 (Option 2)
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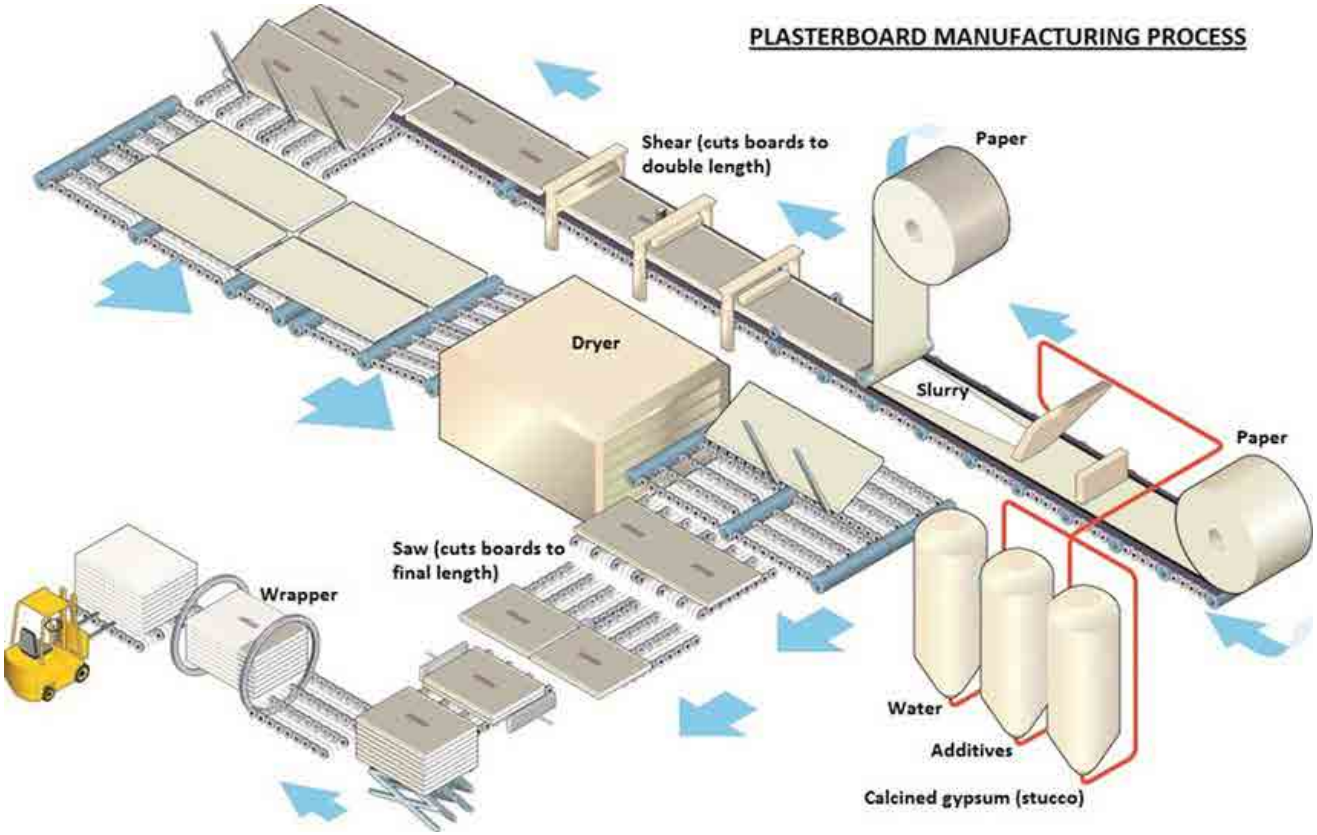
Manufacturing

Knauf Fire Panel 15mm plasterboards are manufactured using a continuous production process, shown in the image (right).

Raw materials are homogeneously mixed to form a gypsum slurry that is spread via hose outlets onto a paper liner on a moving belt conveyor. A second paper line is fed onto the production line from above to form the plasterboard. The plasterboard continues along the production line where it is finished, dried and cut to size.

Manufacturing sites:

Knauf UK GmbH in Sittingbourne and Immingham, UK.



CONTENT DECLARATION

The material composition of Knauf Fire Panel 15mm and associated delivery packaging is shown below (per declared unit - DU); the total DU mass is 12.2kg (including packaging).

The declared composition represents the production-weighted average across all manufacturing sites.

Product Content

Material/substance name	Mass, kg	Post-consumer recycled material, mass - % of product	Biogenic material, mass - % of product	Biogenic material kg C/ declared unit*
Gypsum & other minerals	10.4	0	0	0
Recycled Gypsum	0.9	7.8	0	0
Paper	0.3	2.7	2.7	0.15
Organic & inorganic additives	0.5	0	0	0
Total:	**12.1**	**10.5**	**2.7**	**0.15**

Packaging Materials

Material name	Mass, kg	Mass % versus the product	Biogenic material kg C/ DU *
Wood	0.08	0.7	0.04
Plastic film	<0.01	0	0
Cardboard	<0.01	0	0
Total:	**0.08**	**0.7**	**0.04**

* 1kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of CO_2

At the time of data collection, no substance included in the Candidate List of Substances of Very High Concern for authorisation under the REACH Regulations is present in the protection materials, either above the threshold for registration with the European Chemicals Agency or above 0.1% (wt/wt).

LCA INFORMATION

This section of the EPD records key features of the LCA on which it is based.

LCA software and database

The LCA was carried out by EuGeos Ltd, using openLCA v2.5 software and ecoinvent v3.10 database.

Declared unit

The declared unit (DU) is 1m² of board, thickness 15mm, mass 12.2kg.

Geographical scope

The geographical scope for all declared modules is detailed in the table below.

LCA scope and system boundaries

The system boundary of the EPD is defined using the modular approach set out in EN 15804. This is a "type b" EPD: cradle-to-gate with options, modules C1–C4, module D and optional modules A4, A5, B1-B5.

As well as the core processes which cover manufacture of plasterboards at Knauf's facilities in the UK, the system includes production of all raw materials from basic resources; transport of those materials at all stages up to users' sites, subsequent installation, use and end-of-life management; the production of fuels and energy carriers and their delivery to manufacturing sites; the treatment of all wastes. Non-reusable packaging used to deliver products to the place of installation is also included.

Capital equipment is excluded in the foreground system, but is included in background datasets.

The processing of plasterboard waste is considered to occur before the end of waste state has been reached and is therefore included in the system as waste treatment but not as the upstream processing of recycled material inputs. Following EN 17328:2024, only recycled gypsum from external recycling is treated as secondary material.

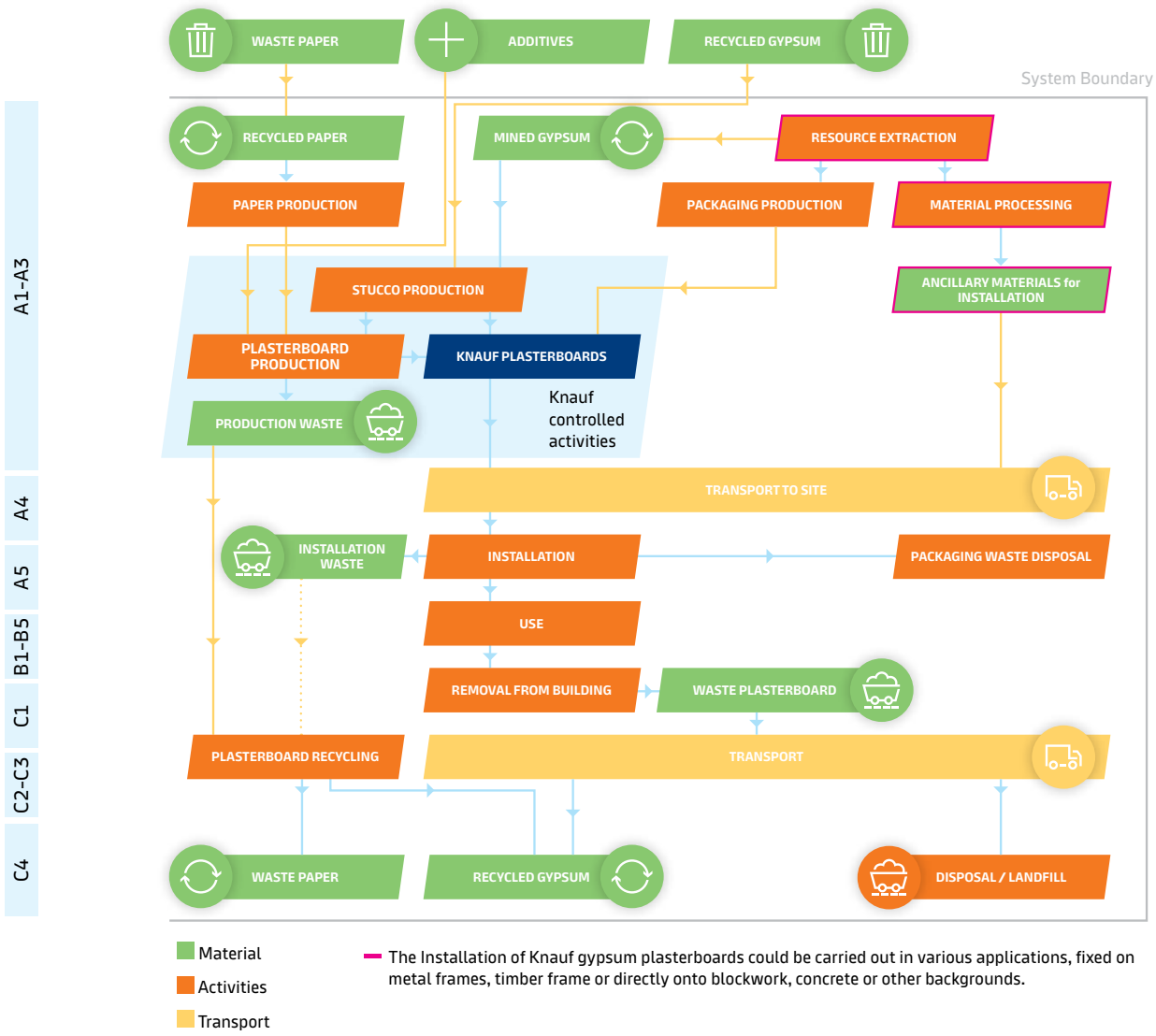
The processing of waste paper and cardboard is considered to occur after the end of waste state and is therefore included in the system as the upstream processing of recycled material inputs but not as waste treatment.

Modules B6 & B7 are excluded: the product consumes neither water nor energy in use.

	Product stage			**Construction process stage**		**Use stage**							**End of life stage**				**Benefits & loads beyond the system boundaries**
	Raw material supply	Transport	Manufacturing	Transport to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste treatment	Dispoal	Reuse-Recycling-Recovery potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	X	X	X	X	X	ND	ND	X	X	X	X	X
Geography	Global	Global	UK	UK	UK	UK	UK	UK	UK	UK	-	-	UK	UK	UK	UK	UK
Specific data used *	84%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products *	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites *	-4% / +21%			-	-	-		-	-	-	-	-	-	-	-	-	-

* based on GWP-GHG indicator X - Included in LCA ND - Module not declared

Process flow diagram



Data quality

Primary data were collected from Knauf's manufacturing sites for the 12-month period from 01 April 2024 to 31 March 2025. These data were checked to ensure that sufficient materials and water are included within the inputs to account for all products, wastes and emissions.

Background (generic) data were taken from the ecoinvent database (v3.10), adapted where necessary to reflect specific information relating to Knauf's processes or those of its suppliers.

Taking the age of other data into consideration, the EPD is considered representative for 2024.

Following EN 15804 and the PCR flows can be omitted (cut off) from the LCA up to a maximum of 1% of the total mass of material inputs or 1% of the total energy content of fuels and energy carriers. Labels used on packaging and printing ink, amounting in combination to <0.1% of total input materials, were omitted from the LCA underpinning this EPD, as was waste-derived biodiesel used in mobile plant and accounting for 0.1% of total energy use at one production site.

Data quality assessment

Data quality has been assessed using the data quality level and criteria schemes of the UN Environment Global Guidance on LCA database development (GLAD); the overall data quality ratings for significant datasets (that together account for >80% of the declared environmental impact indicators) are presented with other data quality information in the table below.

For products made in more than one width and / or at both manufacturing sites, the data used in the LCA represents the production-weighted average.

Process	Data source type	Source	Reference year	Data category	Overall data quality	Share of primary data, of GWP-GHG results for A1-A3
Plasterboard production	Collected data	EPD owner	2024	Primary	Very good	>10%
Electricity generation	Database, adapted	ecoinvent 3.10 / AIB	2024	Primary	Very good	>10%
Liner paper production	Database, adapted	ecoinvent 3.10, supplier	2023	Secondary	Very good	0%
Sea transport	Collected data, database	EPD owner, ecoinvent 3.10	2024	Primary/secondary	Good	<10%
Road transport	Collected data, database	EPD owner, ecoinvent 3.10	2024	Primary/secondary	Good	<10%
Gypsum mining	Database, adapted	ecoinvent 3.10	2019	Secondary	Good	0%
Starch production	Database	ecoinvent 3.10	2023	Secondary	Good	0%
Other processes	Database	ecoinvent 3.10, EuGeos	2019-2023	Secondary	Good	0%
Total share of primary data, of GWP-GHG results for A1-A3						84%

The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data to increase the representativeness of and comparability between EPD. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories.

Data characterising starch production is only significant for the water depletion potential indicator; this is one of the indicators which must be used with care because either the uncertainties associated with the results are high or there is limited experience with the indicator.

No environmental impact potential stemming from proxy data exceeds 10% of the total indicator value for any impact category.

Allocation

In the background data, the ecoinvent default allocation is applied to all processes except those in which secondary materials are used, where the “cut-off” allocation is applied. This ensures that secondary materials are free of upstream burdens that arise prior to their reaching the “end of waste” state.

Manufacturing data have been sub-divided where possible to avoid allocation; where subdivision is impossible, remaining inputs and outputs are allocated on the basis of physical relationships.

Plasterboard waste sent to recycling from A5 or C1 (in the alternative 100% recycling scenario) is assumed still to be waste when it enters the recycling process; gypsum and the recyclable paper outputs from this process are secondary materials that have passed the end-of-waste state.

Assumptions and estimates

Inputs to and outputs from the system are accounted for over a 100-year time period; long-term emissions are therefore omitted from the LCA, except for biogenic carbon-containing flows, which are accounted for on an indefinite timeframe.

The “primary energy used as material (PERM; PENRM)” indicators are calculated using, as characterisation factors, published values for component materials which can yield energy on combustion, where available, and from published calorific values where PERM or PENRM values are not available.

In this EPD, the following values are used:

- renewable primary energy as material: paper and cardboard – 14MJ/kg
- renewable primary energy as material: wood (packaging) – 16MJ/kg
- non-renewable primary energy as material: 27 MJ/kg for all polymer content

Energy used as raw material is declared as an input to the module where it enters the product system and is only declared as an output if it leaves the product system as useful energy; energy in materials that is assumed lost (in landfill or incineration) remains as part of the indicator for energy used for raw materials (option B of Annex 3 of the PCR).

“Primary energy as fuel” indicators (PENRE, PERE) are calculated as the total primary energy demand minus primary energy used as material.

Electricity modelling

Type of electricity mix

Electricity is modeled as the residual mix for the UK, using 2024 data. The GWP-GHG indicator value associated with this is 0.51kgCO_2e/kWh.

Energy source	Share of the mix %
Coal	19
Natural gas	47
Other fossil (oil, lignite, etc.)	7
Nuclear	24
Solar	1
Other renewable (hydro, wind, biomass. etc.)	2

Scenario information

Module A4 Product Transport

Scenario modelling is used for the transport from our production sites to customers, and shown in the table below:

A4 transport to construction site - scenario parameters	
Parameter	Quantity and unit
Vehicle type	Lorry
Vehicle load capacity	26t
Fuel type and consumption	Diesel, 0.2 l/km
Volume capacity utilisation factor	60% (including empty returns)
Distance to site	228 km
Bulk density of transported products	650-950 kg/m^3

Module A5 Installation

Following EN 17328, module A5 allows for 0.01kWh low-voltage grid electricity used by hand power tools (e.g. screwdrivers) when installing the boards, 5% product loss, the management of this material and used product packaging as wastes. No ancillary materials, water or other resources are required. Waste wood packaging is assumed to be recovered by incineration with energy recovery, other packaging waste disposed to landfill. Knauf operates a take-back scheme which provides containers on construction sites to collect offcuts and other scrap for recycling to regenerate gypsum for plasterboard manufacture, therefore 75% recycling of plasterboard waste from installation is assumed in this EPD, with the remaining 25% consigned to monocell landfill. Recycling is modelled in the same way as in the C3 module (for alternative, 100% recycling scenario).

Modules B1-B5 Use

Module B1: there are no emissions to air from the product in use.

As noted in EN 17328, no interventions are required during the use stage, therefore these products have no quantifiable impacts in Modules B2 to B5.

Modules C1-C4 End of Life

C1: Following EN 17328, any environmental impacts arising in C1 are regarded as negligible. It is assumed that plasterboard waste is separated during deconstruction to meet regulatory requirements.

The available data regarding the rate of plasterboard recycling from demolition and deconstruction is poor, therefore, following EN 17328, for Modules C2, C3, C4 and D, environmental indicators are reported in this EPD for alternative 100% recycling scenario and default 100% landfill scenarios only. The 100% landfill scenario is used as the default scenario (main results).

C2: Waste is transported by road in both the default 100% landfill and alternative 100% recycling scenarios. For both scenarios, transport over 25km in small trucks (7.5-16t) then 225km in large (16 - 32t) trucks is assumed. Vehicles are assumed to operate fully-loaded, empty on the return trip.

C3: In the default 100% landfill scenario, use of the default quantity of diesel fuel (0.8kWh diesel per tonne product) from the PCR is applied.

In the 100% recycling scenario, treatment is modelled as the recycling process described in Fisher (2007). One tonne of plasterboard yields 930kg gypsum as secondary material for return to plasterboard production and 23kg waste paper which may be processed into recycled paper, with the remainder being waste; 23kg of paper waste is incinerated with energy recovery.

C4: Plasterboard is managed separately in landfills, in the default scenario. It is assumed to behave as inert waste in the dedicated monocells to which it is consigned. The dataset used in the LCA includes diesel used in mobile plant, electricity and other fuels used in the operation of landfills.

Module D Beyond the system boundary

Module D quantifies the benefits and loads associated with recycling materials and the exported energy from waste management activities, were those recycled materials and recovered energy to be used in another product system. Net output quantities of materials used in the Module D calculation are shown in the table below, with the associated “quality factors” and the virgin materials assumed to be displaced. Energy exported from the incineration of wooden packaging from Module A5 and waste paper from plasterboard in A5 and C3 (alternative 100% recycling) is included in Module D, with conversion to electrical energy assumed to be 20% efficient and conversion to thermal energy efficiency 52%.

In the table below, the net outputs shown originate from Module A5 for the 100% landfill scenario, while for the 100% recycling scenario they originate from both Modules A5 and C3 (except wood-based packaging, which only originates from A5).

Module D – scenario parameters						
Output to recycling / recovery	Assumed fate	Displaced input flow	Quality factor	Net output		
				Quantity		
				Default 100% landfill scenario	Alternative 100% recycling scenario	Unit
Gypsum	Recycling to gypsum products	Mined gypsum	1	-0.6	10.8	kg
Paper	Recycling	Sulphate pulp, unbleached	0.85	-0.3	-0.2	kg
Paper	Recovery	UK grid electricity	n/a	<0.01	0.1	kWh
Paper	Recovery	Heat from gas-fired plant	n/a	0.01	0.2	kWh
Wooden packaging	Recovery	UK grid electricity	n/a	0.1	0.1	kWh
Wooden packaging	Recovery	Heat from gas-fired plant	n/a	0.2	0.2	kWh

ENVIRONMENTAL PERFORMANCE

INDICATOR RESULTS (PER DECLARED UNIT) FOR KNAUF UK FIRE PANEL 15MM

Environmental indicator results for all declared modules are shown in the tables on the following pages for the declared unit of 1 square metre ($1m^2$). The A1-A3 modules are shown on an aggregated basis as mandated by PCR2019:14.

Environmental performance results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (module A1-A3).

The biogenic CO_2 introduced in Module A1 is included in the inventories of Modules A5, C3 and C4 as emissions from management of waste packaging and product, whether by disposal, recovery or recycling. Where any adjustment of generic data is necessary to assure that inflows and outflows of biogenic CO_2 balance, the adjustment is made in C4 in the 100% disposal scenario and C3 in the alternative 100% recycling scenario.

Default end-of-life scenario: 100% landfill

MANDATORY ENVIRONMENTAL PERFORMANCE INDICATORS ACCORDING TO EN 15804

The EF3.1 characterisation factors have been applied when calculating the environmental performance indicators

Impact Category		Unit	A1-A3	A4	A5	B1-B5	C1	C2	C3	C4	D
Global warming potential – total	GWP-total	kg CO_2 eq	2.64E+00	2.89E-01	3.17E-01	0.00E+00	0.00E+00	6.02E-01	3.50E-03	7.27E-01	7.73E-03
Global warming potential – fossil fuels	GWP-fossil	kg CO_2 eq	3.28E+00	2.88E-01	1.77E-01	0.00E+00	0.00E+00	6.01E-01	3.50E-03	7.59E-02	7.44E-03
Global warming potential –biogenic	GWP-biogenic	kg CO_2 eq	-6.48E-01	1.54E-04	1.40E-01	0.00E+00	0.00E+00	4.05E-04	3.83E-07	6.51E-01	0.00E+00
Global warming potential – land use and land use change	GWP-luluc	kg CO_2 eq	5.16E-03	1.02E-04	2.64E-04	0.00E+00	0.00E+00	1.96E-04	3.04E-07	3.91E-05	2.96E-04
Ozone depletion	ODP	kg CFC-11 eq	1.74E-07	6.01E-09	8.97E-09	0.00E+00	0.00E+00	1.20E-08	5.36E-11	2.19E-09	-1.81E-09
Acidification potential	AP	mol H+ eq	1.26E-02	6.81E-04	6.88E-04	0.00E+00	0.00E+00	1.87E-03	3.16E-05	5.38E-04	5.53E-04
Eutrophication - freshwater	EP-freshwater	kg P eq	3.23E-04	2.03E-05	1.81E-05	0.00E+00	0.00E+00	4.00E-05	1.02E-07	6.30E-06	2.41E-05
Eutrophication - marine	EP-marine	kg N eq	3.46E-03	1.79E-04	2.06E-04	0.00E+00	0.00E+00	6.30E-04	1.47E-05	2.05E-04	2.08E-04
Eutrophication - terrestrial	EP-terrestrial	mol N eq	3.54E-02	1.93E-03	2.03E-03	0.00E+00	0.00E+00	6.86E-03	1.60E-04	2.24E-03	2.28E-03
Photochemical ozone creation potential	POCP	kg NMVOC eq	1.08E-02	1.18E-03	6.13E-04	0.00E+00	0.00E+00	2.93E-03	4.78E-05	8.01E-04	6.52E-04
Depletion of abiotic resources – minerals & metals[1]	ADPMM	kg Sb eq	4.16E-04	8.26E-07	2.09E-05	0.00E+00	0.00E+00	1.97E-06	1.28E-09	1.21E-07	2.17E-05
Depletion of abiotic resources – fossil fuels[1]	ADPFF	MJ	5.41E+01	4.33E+00	2.88E+00	0.00E+00	0.00E+00	8.44E+00	4.58E-02	1.86E+00	-2.65E-01
Water (user) deprivation potential[1]	WDP	m^3 world-eq deprived	5.89E-01	2.17E-02	3.44E-02	0.00E+00	0.00E+00	4.07E-02	1.12E-04	5.20E-03	1.93E-02

Additional mandatory environmental performance indicator

Impact Category		Unit	A1-A3	A4	A5	B1-B5	C1	C2	C3	C4	D
Global warming potential - biogenic excluded[2]	GWP-GHG	kg CO_2 eq	3.30E+00	2.89E-01	1.83E-01	0.00E+00	0.00E+00	6.02E-01	3.50E-03	7.59E-02	7.81E-03

Resource use indicators according to EN 15804

Impact Category		Unit	A1-A3	A4	A5	B1-B5	C1	C2	C3	C4	D
Renewable primary energy as energy carrier	PERE	MJ, ncv	2.37E+00	6.87E-02	4.50E-01	0.00E+00	0.00E+00	1.45E-01	2.81E-04	1.73E-02	8.93E+00
Renewable primary energy resources as material utilisation	PERM	MJ, ncv	5.95E+00	0.00E+00	2.97E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total renewable primary energy use (sum of the two parameters above)	PERT	MJ, ncv	8.32E+00	6.87E-02	7.47E-01	0.00E+00	0.00E+00	1.45E-01	2.81E-04	1.73E-02	8.93E+00
Non-renewable primary energy as energy carrier	PENRE	MJ, ncv	5.41E+01	4.33E+00	2.88E+00	0.00E+00	0.00E+00	8.44E+00	4.58E-02	1.86E+00	-2.64E-01
Non-renewable primary energy resources as material utilisation	PENRM	MJ, ncv	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
Total non-renewable primary energy use (sum of the two parameters above)	PENRT	MJ, ncv	5.41E+01	4.33E+00	2.88E+00	0.00E+00	0.00E+00	8.44E+00	4.58E-02	1.86E+00	-2.64E-01
Use of secondary material	SM	kg	1.28E+00	0.00E+00	6.38E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	RSF	MJ, ncv	1.59E-02	1.14E-03	8.35E-04	0.00E+00	0.00E+00	2.77E-03	3.20E-06	1.79E-04	3.50E-03
Use of non-renewable secondary fuels	NRSF	MJ, ncv	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
Net use of fresh water	FW	m^3	2.17E-02	6.29E-04	1.15E-03	0.00E+00	0.00E+00	1.12E-03	2.98E-06	1.93E-03	3.84E-04

Waste indicators according to EN 15804

Impact Category		Unit	A1-A3	A4	A5	B1-B5	C1	C2	C3	C4	D
Hazardous waste disposed	HWD	kg	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
Non-hazardous waste disposed	NHWD	kg	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
Radioactive waste disposed	TRWD	kg	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

Output flow indicators according to EN 15804

Impact Category		Unit	A1-A3	A4	A5	B1-B5	C1	C2	C3	C4	D
Components for re-use	CRU	kg	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
Materials for recycling	MFR	kg	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
Materials for energy recovery	MER	kg	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
Exported energy - electrical	EEE	MJ, ncv	0.00E+00	0.00E+00	2.85E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-04	-2.56E-03
Exported energy - thermal	EET	MJ, ncv	0.00E+00	0.00E+00	7.41E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.21E-05	4.17E-04

1 - The results of this environmental impact indicator shall be used with care because either the uncertainties associated with the results are high or there is limited experience with the indicator.
2 – The GWP-GHG indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

LCA results for alternative end-of-life scenario: 100% recycling

MANDATORY ENVIRONMENTAL PERFORMANCE INDICATORS ACCORDING TO EN 15804

The EF3.1 characterisation factors have been applied when calculating the environmental performance indicators

Impact Category		Unit	C1	C2	C3	C4	D
Global warming potential – total	GWP-total	kg CO_2 eq	0.00E+00	6.02E-01	8.58E-01	0.00E+00	-1.95E-01
Global warming potential – fossil fuels	GWP-fossil	kg CO_2 eq	0.00E+00	6.01E-01	2.06E-01	0.00E+00	-1.95E-01
Global warming potential –biogenic	GWP-biogenic	kg CO_2 eq	0.00E+00	4.05E-04	6.52E-01	0.00E+00	0.00E+00
Global warming potential – land use and land use change	GWP-luluc	kg CO_2 eq	0.00E+00	1.96E-04	4.81E-05	0.00E+00	1.25E-04
Ozone depletion	ODP	kg CFC-11 eq	0.00E+00	1.20E-08	2.76E-09	0.00E+00	-7.70E-09
Acidification potential	AP	mol H+ eq	0.00E+00	1.87E-03	7.64E-04	0.00E+00	-6.70E-04
Eutrophication - freshwater	EP-freshwater	kg P eq	0.00E+00	4.00E-05	2.25E-05	0.00E+00	4.45E-06
Eutrophication - marine	EP-marine	kg N eq	0.00E+00	6.30E-04	4.88E-04	0.00E+00	-2.40E-04
Eutrophication - terrestrial	EP-terrestrial	mol N eq	0.00E+00	6.86E-03	3.62E-03	0.00E+00	-3.27E-03
Photochemical ozone creation potential	POCP	kg NMVOC eq	0.00E+00	2.93E-03	1.07E-03	0.00E+00	-8.99E-04
Depletion of abiotic resources – minerals & metals[1]	ADPMM	kg Sb eq	0.00E+00	1.97E-06	1.70E-07	0.00E+00	-3.87E-04
Depletion of abiotic resources – fossil fuels[1]	ADPFF	MJ	0.00E+00	8.44E+00	1.80E+00	0.00E+00	-3.51E+00
Water (user) deprivation potential[1]	WDP	m^3 world-eq deprived	0.00E+00	4.07E-02	4.27E-02	0.00E+00	-8.12E-03

Additional mandatory environmental performance indicator

Impact Category		Unit	C1	C2	C3	C4	D
Global warming potential - biogenic excluded[2]	GWP-GHG	kg CO_2 eq	0.00E+00	6.02E-01	2.63E-01	0.00E+00	-1.95E-01

1 - The results of this environmental impact indicator shall be used with care because either the uncertainties associated with the results are high or there is limited experience with the indicator.
2 – The GWP-GHG indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Resource use indicators according to EN 15804

Impact Category		Unit	C1	C2	C3	C4	D
Renewable primary energy as energy carrier	PERE	MJ, ncv	0.00E+00	1.45E-01	2.58E-01	0.00E+00	5.83E+00
Renewable primary energy resources as material utilisation	PERM	MJ, ncv	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total renewable primary energy use (sum of the two parameters above)	PERT	MJ, ncv	0.00E+00	1.45E-01	2.58E-01	0.00E+00	5.83E+00
Non-renewable primary energy as energy carrier	PENRE	MJ, ncv	0.00E+00	8.44E+00	1.80E+00	0.00E+00	-3.50E+00
Non-renewable primary energy resources as material utilisation	PENRM	MJ, ncv	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total non-renewable primary energy use (sum of the two parameters above)	PENRT	MJ, ncv	0.00E+00	8.44E+00	1.80E+00	0.00E+00	-3.50E+00
Use of secondary material	SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.47E-03
Use of renewable secondary fuels	RSF	MJ, ncv	0.00E+00	2.77E-03	3.99E-04	0.00E+00	5.44E-04
Use of non-renewable secondary fuels	NRSF	MJ, ncv	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water	FW	m³	0.00E+00	1.12E-03	3.53E-04	0.00E+00	-2.73E-04

Waste indicators according to EN 15804

Impact Category		Unit	C1	C2	C3	C4	D
Hazardous waste disposed	HWD	kg	0.00E+00	0.00E+00	1.36E-02	0.00E+00	0.00E+00
Non-hazardous waste disposed	NHWD	kg	0.00E+00	0.00E+00	1.07E+00	0.00E+00	0.00E+00
Radioactive waste disposed	TRWD	kg	0.00E+00	0.00E+00	6.75E-06	0.00E+00	0.00E+00

Output flow indicators according to EN 15804

Impact Category		Unit	C1	C2	C3	C4	D
Components for re-use	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	MFR	kg	0.00E+00	0.00E+00	1.16E+01	0.00E+00	0.00E+00
Materials for energy recovery	MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy - electrical	EEE	MJ, ncv	0.00E+00	0.00E+00	7.75E-01	0.00E+00	-6.90E-03
Exported energy - thermal	EET	MJ, ncv	0.00E+00	0.00E+00	2.00E+00	0.00E+00	-4.73E-04

Notes on the LCA Results

For the variation in values of the GWP-GHG indicator between different products and/or sites, please refer to the table in the sub-section LCA Scope and System Boundaries.

Indicator values obtained for resource depletion (ADPMM, ADPFF), stratospheric ozone depletion (ODP), eutrophication (EP) freshwater and water deprivation (WDP) potential should be used with caution; all are subject to uncertainties in data or method which limit the scope for their use as the basis for comparisons.

No untreated wastes leave the modelled system, which includes waste treatment activities as required by EN 15804.

The secondary materials (SM) indicator includes all secondary materials used in the modelled system and does not represent the recycled material content of the product.

The output flow indicators also include flows leaving the background system.

The reporting of Module D shows benefits as negative indicator values.

ADDITIONAL ENVIRONMENTAL INFORMATION

To minimise waste during installation, the plasterboard should be stored in dry conditions in line with recommendations on the product data sheet.

Plasterboard should be segregated from other waste for recycling.

To find out more about how Knauf are trying to minimise environmental impact and supporting a just transition, please visit Sustainability | Building for generations at Knauf Gypsum UK & Ireland

ABBREVIATIONS

CF: carbon footprint

c-PCR: Complementary Product Category Rules

DU: declared unit

IES: The International EPD® System: a programme for Type III environmental declarations, maintaining a system to verify and register EPDs as well as keeping a library of EPDs and PCRs in accordance with ISO 14025. (www.environdec.com)

LCA: Life cycle assessment (LCA): LCA studies the environmental aspects and quantifies the potential impacts (positive or negative) of a product (or service) throughout its entire life. ISO standards ISO 14040 and ISO 14044 set out conventions for conducting LCA.

NCV: net calorific value

PCR: Product Category Rules

REACH (Regulations): The EU and UK chemicals regulations - Registration, Evaluation, Authorisation and Restriction of Chemicals - governing registration, evaluation, authorisation, and restrictions for substances and articles placed on the market.

SE: Square Edge

TE: Tapered Edge

UN CPC: UN (United Nations) Central Product Classification

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