KNAUF

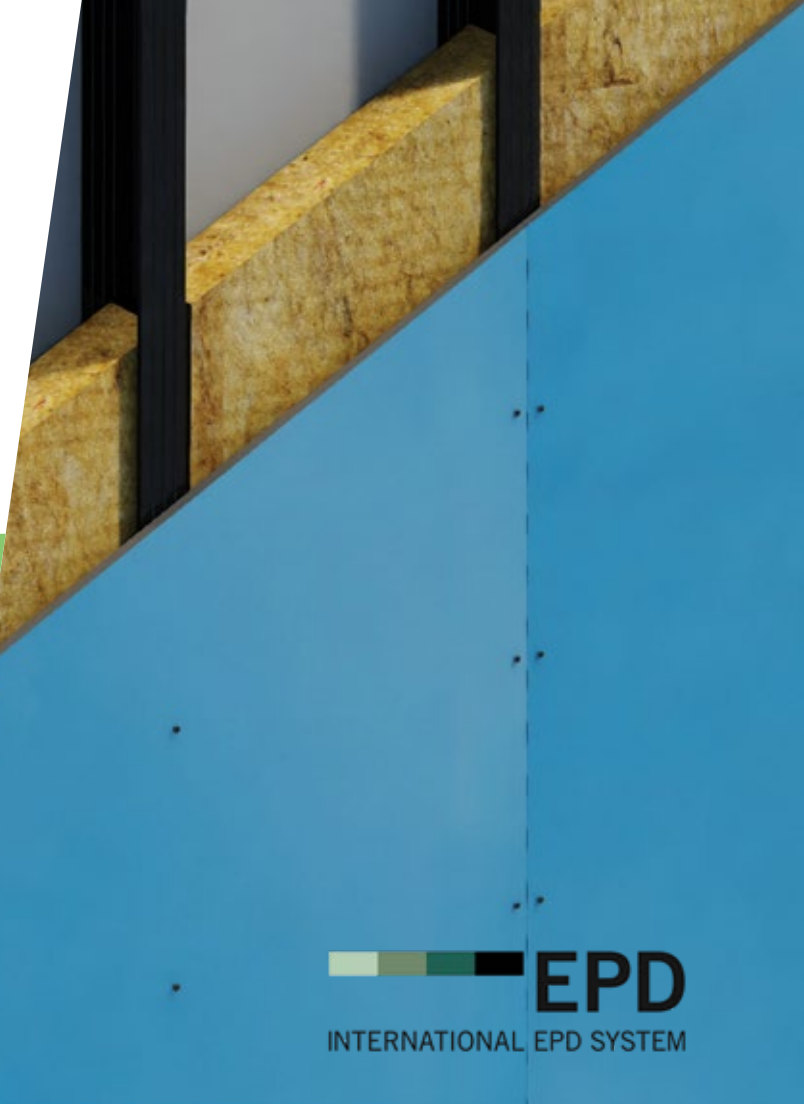
ENVIRONMENTAL PRODUCT DECLARATION

W394 GUARDEX WALL SYSTEM

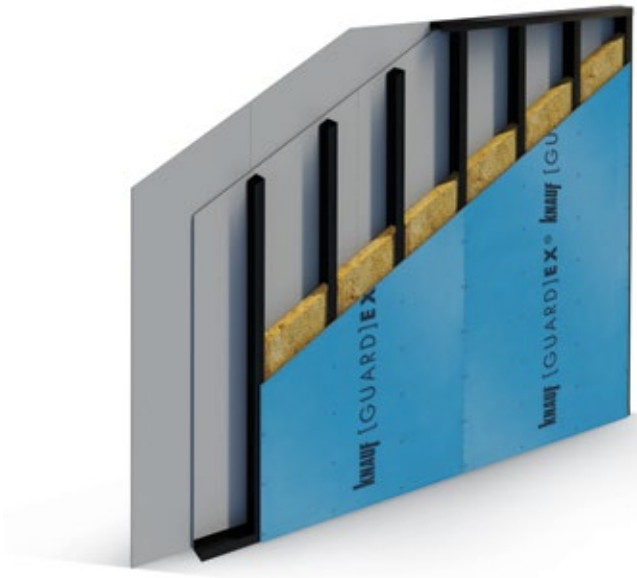
by Knauf

In accordance with ISO 14025:2006
& EN 15804:2012+A2:2019/AC:2021

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com.



Programme:	**The International EPD® System**
Programme operator:	**EPD International AB**
EPD registration number:	**EPD-IES-0016824**
Publication date:	**2025-06-16**
Version date:	**2025-12-05**
Valid until:	**2030-06-15**



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Contents

Programme related information

Programme Owner:

The International EPD System
Box 210 60 SE-100 31, Stockholm, Sweden
www.environdec.com
info@environdec.com

Programme Operator: EPD International AB

EPD Owner:

KNAUF Gypsopoiia A.V.E.E
10 Evripidou st., Kallithea, Athens
https://knauf.com/el-GR

Accountabilities for PCR, LCA and third-party verification

Product Category Rules (PCR)
CEN standard EN 15804 serve as the core Product Category Rules (PCR)

Product Category Rules (PCR):

PCR 2019:14 Construction products, version 1.3.3
PCR review was conducted by: The Technical Committee of the International EPD® System.
See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact

Life Cycle Assessment (LCA)

LCA Accountability:

ENVIROMETRICS S.A.
3 Kodrou str., 152 32, Chalandri, Greece
email: info@envirometrics.gr
www.envirometrics.gr

Third party verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:
☒ EPD verification by certification body

Third party verification:

Business Quality Verification P.C,
Accredited by E.S.Y.D, Accreditation No. 1218
5 Konitsis street, Marousi, GR 15125, Greece
https://bqv.gr/

Business Quality Verification P.C. is an approved certification body accountable for the third-party verification

Procedure for follow-up during EPD validity involves third party verifier

☐ **Yes** ☒ **No**

The EPD does not give information on the release of dangerous substances into soil, water and indoor air because the horizontal standards on measurement of the release of regulated dangerous substances from construction products using harmonized test methods according to the provisions of the respective technical committees for European product standards are not available.
The EPD owner has the sole ownership, liability, and responsibility of the EPD. EPDs within the same product category but registered in different EPD programs may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same 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 equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterization factors); have equivalent content declarations; and be valid at the time of comparison.
For further information about comparability, see EN 15804 and ISO 14025

Company Information

Knauf is one of the world's leading manufacturers of modern insulation materials, drylining systems, plasters and accessories, thermal insulation composite systems, paints, floor screed, floor systems, and construction equipment and tools. Established in 1932, when brothers Alfons and Karl Knauf secured the mining rights to gypsum deposits in the Schengen community (Obermosel) in Germany, accounts more than 320 production facilities and sales organizations in over 90 countries, more than 43,500 employees worldwide, and sales of 15 billion Euro (in 2024), the Knauf Group is without doubt one of the big players on the market – in Europe, the USA, South America, Asia, Africa, and Australia.

Knauf Gypsopiia A.B.E.E is a subsidiary of Knauf Group with headquarters in Athens, factories and offices in Amphilochia, Thessaloniki and Cyprus. Knauf Gypsopiia A.B.E.E was established in 1991 and now employs over 240 people in Greece and Cyprus Knauf produces building materials for drywall construction including plasterboards, cement boards, metal profiles and surface treatment products, as well as gypsum plasters, floor screeds and insulating materials. It also produces energy saving building systems for exterior and interior use. At Knauf, innovation and sustainability are at the core of everything we do, delivering advanced systems with high fire resistance, energy efficiency, and sound insulation through continuous modernization and digitalization, without compromising on quality

Product Information

Drywall systems are versatile and widely used in construction due to their affordability, ease of installation, and adaptability to various applications and design requirements. Drywall is commonly used to construct interior walls in homes, apartments, offices, and other buildings. It provides a smooth, flat surface that can be easily painted, wallpapered, or finished with other decorative treatments. Drywall is also used to create ceilings in residential and commercial buildings. Some of the notable benefits include:

- **Speed of Installation:** Drywall panels can be quickly and easily installed, significantly reducing construction time compared to traditional plaster methods.
- **Cost-Effectiveness:** It is generally less expensive to install drywall than to apply plaster, making it a cost-efficient option for large and small projects alike.
- **Versatility:** Drywall can be cut and shaped to fit various spaces and designs, accommodating any architectural style.
- **Fire Resistance:** Gypsum contains water in its crystal structure, which, under heat, is released as steam, helping to control the spread of fire.
- **Sound Insulation:** Special types of drywall are designed to reduce sound transmission between rooms, enhancing privacy and comfort.
- **Repair and Maintenance:** Drywall is relatively easy to repair if damaged, making maintenance straightforward and inexpensive.
- **Field of Application:** The system described in this EPD, consisting of the specified materials, is designed for use as a substrate for ventilated façades or as a substrate of an external thermal insulation composite system (ETICS).

W394 Properties

Thickness (mm)	112,5
Weight (kg/m²)	32,47

W394 Compositions

Components		*Mass of components (kg)*	*Biogenic carbon content (kg C per DU)*
Boards	*Standard plasterboard (Type A)*	*15,00*	*0*
	Guardex Fiberboard	*11,50*	*0*
	NATURBOARD mineral wool board	*1,13*	*0*
Accessories	*Screws*	*0,08*	*0*
Metal profiles	*KNAUF Cw profile*	*2,55*	*0*
	KNAUF Uw profile	*0,49*	*0*
Fillings	*KNAUF Fugenfuller*	*0,40*	*0*
	Power Elast	*0,08*	*0*
Other	*KURT paper tape*	*0,17*	*0,08*
	PVC tape	*1,08*	*0*
Total		*32,47*	*0,08*
Packaging	*PE films*	*1,03E-02*	*0*
	Wooden pallets	*7,03E-03*	*0,35*

UN CPC code: 37990

According to the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) Regulation, the product does not contain any substance included in the Candidate List of Substances of Very High Concern (SVHCs) for authorization with concentrations higher than 0,1% weight by weight (w/w).

System boundaries

	X= Included, ND= Module Not Declared																
	Product stage			Construction stage		Use stage							End-of-life stage				Resource recovery stage
	Raw Materials Supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction and demolition	Transport	Waste processing for reuse, recovery and/or recycling	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Module Declared	X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	GLO	GR	GR	GR								EU	EU	EU	EU	EU
GWP share of Specific data used	77,98%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation-products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation-sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

A1: Raw Material Supply

This stage includes the mining and processing of raw materials, the generation of electricity and fuels required for the manufacturing and the recycling process of secondary materials. More specifically, this module includes the production of all components of the system that are not produced in KNAUF premises and the production of all raw materials used for components of the systems manufactured in KNAUF premises.

A2: Transportation of raw materials to manufacturer

This module includes the environmental impact regarding the transportation of all raw materials used for components production up to the KNAUF manufacturing site.

A3: Manufacturing

This module includes all emissions occurring during the manufacturing of system components that takes place in KNAUF premises (from fuels combustion, waste treatment.)

A4: Transportation to the construction site

This module includes the environmental impact regarding the transportation of all components up to the customer's construction site, where the assembling takes place.

A5: Installation

This module includes the impacts from the electrical energy required for the installation/assembly of the system and the waste treatment of packaging materials used for components packaging.

C1: De-construction and demolition

The deconstruction and demolition of the product takes place with the demolition of the whole building. It is assumed that energy for the systems demolition is equal to the energy for installation in module A5.

C2: Transportation to waste processing

The discarded product is transported either to the recycling site or to landfills for final disposal. As a conservative assumption, a distance of 50 km to waste processing sites is assumed.

C3: Waste processing for reuse, recovery and/or recycling

According to World steel Association, the average recycling rate of steel after its life cycle is 85%. The rest is assumed to be landfilled. Recycling includes sorting and pressing (any process after this is after its end-of waste state and shall be attributed to subsequent product system). All other components of the system are assumed to be 100% landfilled.

C4: Disposal

Usually, a small amount of the waste remains either at the deconstruction site or during the separation. This small portion will be landfilled. In relation to the C3 stage explained above, 15% of steel after its life cycle will be landfilled. All other components of the system are assumed to be 100% landfilled.

D: Reuse-Recovery-Recycling-potential

Module D consists of avoided burdens related to the potential reuse and/or recycling of the product after its end-of-life stage. Since plaster products are 100% landfilled, the benefits and loads resulting from reuse and recycling is zero. For steel parts, the avoided burden derives only from the 85% recycling rate of steel that exists in the final product after its life cycle, since all other components are to be landfilled.

LCA Information

Declared unit

The declared unit is 1 m^2 of W394 GUARDEX system, with weight 32,47 kg/D.U. (thickness 112,5 mm)

Goal and scope

This EPD assesses the environmental impacts of the production of 1 m^2 of W394 GUARDEX from Cradle-to-gate (modules A1-A3) with modules A4, A5, C and D.

System Boundary

The type of EPD is cradle-to-gate (modules A1-A3) with modules A4, A5, C and D.

Time representativeness

Time representativeness for the systems is 2023, since bill of materials for systems are acquired via measurements conducted in 2023. (despite the fact that for some components production, EPDs based on data of 2021 are used).

Data quality

ISO 14044 was applied in terms of data collection and quality requirements. Data regarding the quantities of each component of the system were acquired through ERP system and technical measurements.

For the production of some raw materials/components of the system (plasterboard, Guardex, Fugenfuller, steel CW, UW profiles), the results from existing EPDs are used.

- **Type A plasterboard:** *EPD of type A plasterboard*
- **Fugenfuller:** *EPD of Fugenfuller*
- **Steel UW, CW profiles:** *EPD of UW & CW steel profiles*
- **Guardex:** *EPD of Guardex*

For components not manufactured in Greek KNAUF premises and there is no relevant EPD or LCA study (screws, Naturboard, PVC tape, paper tape and glass mat/fibers), datasets from openLCA are used.
The version of Ecoinvent 3.9.1 (EN15804 add-on), is used, which is valid for 2023, thus having a high time representativeness.
These generic data regarding manufacturing processes and inventory are considered to be representative for average European manufacturing plants, thus reducing the geographical representativeness.

Data regarding electricity used in manufacturing stage (for components manufactured in KNAUF premises and the relevant LCA/EPDs are used), can be found in the relative EPDs referred above.

The end-of-life and construction stages are based on the most representative scenarios for this product.

Geographical scope

Worldwide

Co-product allocation

Allocation rules have been performed in accordance with the requirements of ISO 14044:2006. Wherever possible, allocation was avoided by dividing the unit process to be allocated into two or more sub-processes and collecting the input and output data related to these sub-processes. Where allocation cannot be avoided, the inputs and outputs of the system were partitioned between its different products or functions in a way that reflects the underlying physical or economic relationships between them.

In this case, no co-product allocation was applied to the system production. Although, it should be noted that for some of the components' production that EPDs are available (plasterboards, steel profiles, Fugenfuller) the allocation rules stated there are valid.

End-of-life allocation

End-of-life allocation generally follows the requirements of ISO 14044 & EN 15804.

The allocation of waste shall follow the polluter-pays principle, which is made operational according to the following rules. Waste processing processes shall be assigned to the product system that generates the waste until the end-of-waste state is reached. The system boundary to the subsequent product system is set where the waste (e.g., the discarded product) reaches the end-of-waste state, i.e., when the material has become a usable flow (e.g., for reuse, energy recovery and/or recycling). The end-of-waste state is reached when all the following criteria are fulfilled:

- **the recovered material or product (including, e.g., energyware such as fuel, electricity and heat) is commonly used for specific purposes**
- **a market or demand, identified, for example by a positive economic value, exists for such a recovered material or product**
- **the recovered material or product fulfils the technical requirements for the specific purposes for which it is used and meets the existing legislation and standards applicable to its use**
- **the use of the recovered material or product will not lead to overall adverse environmental or human health impacts, which shall be understood as the content of hazardous substances below limit values in applicable legislation**

The following rules indicate that, regarding the treatment of steel scrap in module C3, only the procedure of scrap sorting shall be assigned to this product system. Any other treatment after this (e.g. steel production in EAF etc..) shall be assigned in a subsequent product system. Furthermore, disposal or incineration of steel, plasterboards, mineral wool and cement boards waste shall be fully assigned to this product system.

Cut-off

The cut-off criteria adopted is as stated in "EN 15804:2012+A2:2019". Where there is insufficient data or data gaps for a unit process, the cut-off criteria are 1% of the total mass of input of that process. The total of neglected input flows per module is a maximum of 5% of energy usage and mass. In this case, no cut-off was applied to the system production. Although, it should be noted that for some of the components' production that EPDs are available (plasterboards, Guardex, steel profiles, Fugenfuller) the cut-off rules stated there are valid.

Assumptions

- **For road transportation, a EURO 5 freight lorry 16-32 metric ton was assumed.**
- **For module A4: Since the majority of the construction works takes place in Athens, the following distances of components' transport**
  - Knauf (Amphilochia plant) - Athens: 294 km
  - Knauf (Thessaloniki plant) - Athens: 498 km
  - Knauf (Central Europe) - Athens: Average 2180 km
- **For module A5, the following scenario is considered**
  For the installation/assembly of 1 m2 of system are required:
  - power drills (700 W)
  - screw gun (500 W)

  for about half an hour. Thus, the required energy is 0,6 kwh per m2 of system installed. Furthermore, it is assumed that all pallets and films are disposed.

Scenario Information (module A4)	Unit
Fuel type and consumption of vehicle or distance truck, boat etc.	Fuel type: Diesel Type of transport: Freight, lorry 16-32 t
Distance	Plasterboard, Guardex & Fugenfuller: 294 km UW, CW steel profiles: 498 km Screws & Naturboard: 2180 km
Capacity utilization (including empty returns)	100%
Volume capacity utilisation factor (factor: =1 or <1 or >1 for compressed or nested packaged products)	Not applicable

Scenario Information (module A5)	Unit
Ancillary materials for installation (specified by material)	None
Water use	None
Quantitative description of energy type kWh or MJ (regional mix) and consumption during the installation process	0,6 kWh per m^2
Waste materials on the building site before waste processing, generated by the product's installation (specified by type)	Packaging waste: **Wooden pallets:** 7,03E-01 kg **PE films:** 1,03E-02 kg

Environmental performance of 1 m² W394-Guardex system

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. The results of module A1-A3 are generally discouraged to be used without considering the results of module C.

ENVIRONMENTAL IMPACTS	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO2 eq	2,05E+01	2,26E+00	5,42E-01	4,77E-01	3,06E-01	3,77E-01	4,00E-01	-6,96E+00
GWP-fossil	kg CO2 eq	2,06E+01	2,26E+00	4,87E-01	4,77E-01	3,06E-01	6,87E-02	3,96E-01	-6,94E+00
GWP-biogenic	kg CO2 eq	-2,05E-01	1,97E-03	5,48E-02	-3,59E-05	2,67E-04	3,08E-01	3,76E-03	-8,47E-03
GWP-luluc	kg CO2 eq	2,57E-02	1,10E-03	4,51E-05	3,87E-05	1,48E-04	1,01E-04	1,09E-04	-3,60E-03
GWP-GHG	kg CO2 eq	2,07E+01	2,26E+00	4,87E-01	4,78E-01	3,06E-01	6,88E-02	3,96E-01	-6,94E+00
ODP	kg CFC-11 eq	3,15E-06	4,91E-08	1,88E-08	1,86E-08	6,65E-09	1,09E-09	1,01E-08	-3,76E-07
AP	mol H+ eq	9,37E-02	7,36E-03	2,17E-03	2,11E-03	9,97E-04	7,70E-04	2,58E-01	-2,92E-02
EP-freshwater	kg P eq	7,57E-03	1,58E-04	4,16E-04	4,15E-04	2,14E-05	4,05E-05	2,28E-05	-3,27E-03
EP-marine	kg N eq	1,82E-02	2,53E-03	6,25E-04	3,38E-04	3,43E-04	1,80E-04	1,15E-03	-6,41E-03
EP-terrestrial	mol N eq	2,00E-01	2,67E-02	3,02E-03	2,77E-03	3,62E-03	2,00E-03	1,24E-02	-6,81E-02
POCP	kg NMVOC eq	7,31E-02	1,10E-02	1,29E-03	1,19E-03	1,49E-03	6,00E-04	2,01E-02	-3,04E-02
ADPe	kg Sb eq	1,86E-04	7,42E-06	2,60E-07	2,42E-07	1,00E-06	4,24E-06	7,05E-07	-8,89E-05
ADPf	MJ	2,95E+02	3,22E+01	6,88E+00	6,70E+00	4,37E+00	9,41E-01	7,62E+00	-7,56E+01
WDP	m3 eq	8,48E+00	1,58E-01	3,55E-02	3,44E-02	2,14E-02	1,56E-02	4,71E-02	-2,52E+00

The results of this environmental impact indicators of ADPf, ADPe and WDP shall be used with care as the uncertainties of these results are high or as there is limited experienced with the indicator.

GWP-GHG indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide emissions and uptake and biogenic carbon stored in the product, with characterization factors (CFs) based on IPCC (2013).

In GWP biogenic indicator in C3 module, except for impacts from recycling, there is also a compensation of biogenic carbon content in raw materials, leading in negative value in A1-A3.

RESOURCE USE	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	5,32E+01	4,96E-01	2,71E-01	2,67E-01	6,72E-02	1,44E-01	2,41E-01	-7,74E+00
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
PERT	MJ	5,32E+01	4,96E-01	2,71E-01	2,67E-01	6,72E-02	1,44E-01	2,41E-01	-7,74E+00
PENRE	MJ	2,89E+02	2,94E+01	6,60E+00	6,44E+00	3,99E+00	8,86E-01	6,95E+00	-7,56E+01
PENRM	MJ	5,91E+00	2,80E+00	2,77E-01	2,61E-01	3,79E-01	5,52E-02	6,79E-01	5,38E-02
PENRT	MJ	2,95E+02	3,22E+01	6,88E+00	6,70E+00	4,37E+00	9,41E-01	7,62E+00	-7,56E+01
SM	kg	1,73E-01	3,49E-02	2,08E-03	1,92E-03	4,73E-03	2,66E+00	1,19E-02	2,59E+00
RSF	MJ	4,82E-02	9,42E-03	5,22E-04	4,89E-04	1,28E-03	1,89E-03	4,10E-03	1,84E-03
NRSF	MJ	1,11E-01	1,85E-02	1,01E-03	9,23E-04	2,51E-03	2,17E-03	9,20E-02	2,12E-03
FW	m3	1,42E-01	3,84E-03	9,59E-04	7,74E-04	5,21E-04	4,40E-04	6,05E-03	-5,87E-02

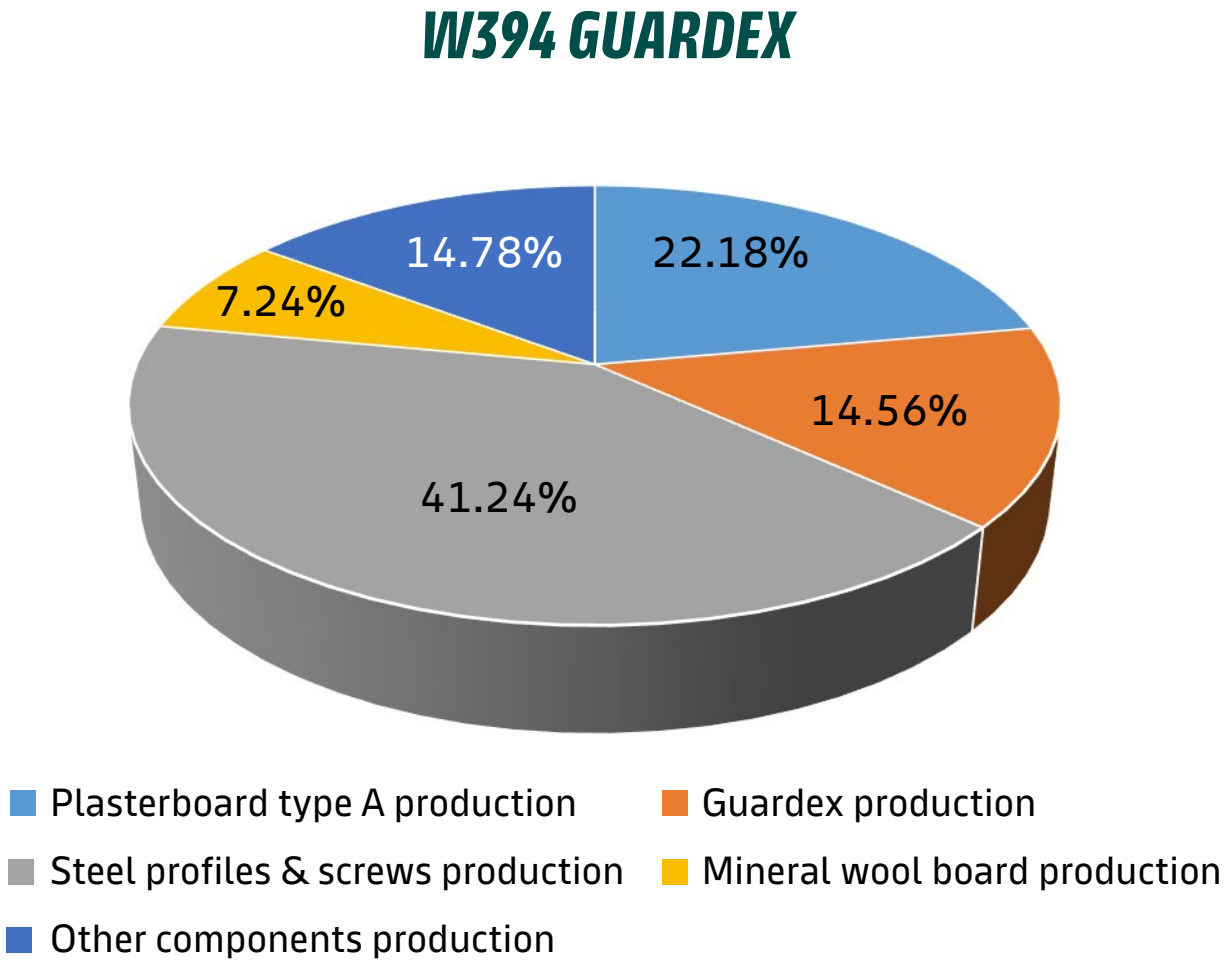
OUTPUT FLOWS AND WASTE CATEGORIES	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	2,42E-01	2,99E-02	5,17E-03	4,92E-03	4,04E-03	4,05E-03	1,58E-02	3,44E-03
NHWD	kg	4,31E+00	1,53E+00	7,25E-01	1,01E-02	2,08E-01	2,42E-02	2,82E+01	-2,87E+00
RWD	kg	9,48E-04	1,04E-05	1,73E-06	1,67E-06	1,41E-06	1,89E-06	2,93E-06	-1,86E-04
CRU	kg	6,23E-23	-1,29E-21	-2,94E-22	-3,10E-22	-1,74E-22	2,61E-23	-4,08E-22	2,55E-23
MFR	kg	1,18E-01	3,16E-02	1,91E-03	1,80E-03	4,28E-03	3,94E-03	9,23E-03	3,84E-03
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
EE	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

ADDITIONAL IMPACTS	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	9,98E-07	1,80E-07	9,99E-09	8,68E-09	2,43E-08	1,06E-08	4,57E-07	-4,60E-07
IRP	kBq U235 eq	1,62E+00	4,28E-02	7,20E-03	6,94E-03	5,80E-03	7,41E-03	1,27E-02	-4,22E-01
ETP-FW	CTUe	3,58E+02	1,58E+01	1,44E+00	1,32E+00	2,14E+00	7,30E-01	4,41E+00	-1,97E+02
HTP-c	CTUh	6,15E-08	1,03E-09	1,25E-10	1,20E-10	1,39E-10	1,05E-10	3,66E-10	-4,07E-08
HTP-nc	CTUh	3,05E-07	2,27E-08	3,37E-09	3,23E-09	3,07E-09	4,74E-09	1,33E-08	-1,52E-07
SQP	dimensionless	2,46E+02	1,90E+01	9,30E-01	5,16E-01	2,58E+00	1,65E+00	1,18E+01	-1,52E+01

Ionizing radiation potential (IRP) impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Interpretation

The results were interpreted using a dominance analysis of the core environmental impacts. The figure below illustrates the contribution of each stream to the GWP indicator.



Contribution of each parameter in GWP (modules A1-A3)

List of abbreviations

LCA	Life Cycle assessment
EPD	Environmental Product Declaration
PCR	Product category rules
GLO	Global
RER	Europe
RoW	Rest of the world
GWP-total	Global Warming Potential total
GWP-fossil	Global Warming Potential fossil
GWP-biogenic	Global Warming Potential biogenic
GWP-luluc	Global Warming Potential land use and land use change
ODP	Ozone Depletion Potential
AP	Acidification Potential
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
ADPe	Abiotic depletion potential for non-fossil resources
ADPf	Abiotic depletion potential for fossil resources
WDP	Water use
PERE	Use of renewable primary energy excluding resources used as raw materials
PERM	Use of renewable primary energy resources used as raw materials
PERT	Total use of renewable primary energy resources
PENRE	Use of non-renewable primary energy excluding resources used as raw materials
PENRM	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 secondary fuels
NRSF	Use of non-renewable secondary fuels
FW	Use of net fresh water
HWD	Hazardous waste disposed
NHWD	Non-hazardous waste disposed
RWD	Radioactive waste disposed
CRU	Components for re-use
MFR	Materials for recycling
MER	Materials for energy recovery
EE	Exported Energy
PM	Particulate matter emissions
IRP	Ionizing radiation, human health
ETP-FW	Ecotoxicity, freshwater
HTP-c	Human toxicity, cancer
HTP-nc	Human toxicity, non-cancer
SQP	Land use related impacts/Soil quality

Version History

Date	Description of change
2025-06-16	Original Version
2025-12-05	Correction of typographical errors, presentation of the mass of each individual component in the content declaration

References

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- ***ISO 14040:2006*** *Environmental management - Life cycle assessment–Principles and framework*
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- ***Residual Energy Mix 2021*** *from Renewable Energy Sources Operator & Guarantees of Origin (DAPEEP SA)*
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EPD.W394 GUARDEX/06.25/KNAUF/GR

KNAUF GYPSOPIIA ABEE
10 Evripidou Street,
176 74 Kallithea, Athens
Tel.: +30 210 931056
E-mail: Knauf-gr@knauf.com

www.knauf.com

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