SENTINEL HOLDING
INSTITUT

SHI PRODUCT PASSPORT

Find products. Certify buildings.

SHI Product Passport No.:

15206-10-1082

Safeboard GKF 12,5

Product group: Plasterboard - Radiation shielding building boards - Interior construction

KNAUF

Knauf Gips KG
Am Bahnhof 7
97346 Iphofen

Product qualities:

- SHI Product Assessment 2024
- QNG Qualitätssiegel Nachhaltiges Gebäude
- DGNB NEW CONSTRUCTION 2023.2
- DGNB NEW CONSTRUCTION 2023
- DGNB NEW CONSTRUCTION 2018
- BNB-BN NEUBAU V2015
- EU TAXONOMY
- BREEAM DE NEUBAU 2018
- LEED v4.1 (outside US)

CERTIFIED SUSTAINABLE PRODUCT
SHI PRODUCT PASSPORT
SENTINEL HOLDING INSTITUT
www.sentinel-holding.eu

Köttner

Helmut Köttner
Scientific Director
Freiburg, 26 August 2026

SENTINEL HOLDING
INSTITUT

Product:
Safeboard GKF 12,5

SHI Product Passport no.:
15206-10-1082

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The SHI Database is the first and only database for construction products whose comprehensive processes and data accuracy are regularly verified by the independent auditing company SGS-TÜV Saar

SGS TÜV SAAR

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SHI Product Assessment 2024

Since 2008, Sentinel Holding Institut GmbH (SHI) has been establishing a unique standard for products that support healthy indoor air. Experts carry out independent product assessments based on clear and transparent criteria. In addition, the independent testing company SGS regularly audits the processes and data accuracy.

Criteria	Product category	Harmful substance limit	Assessment
SHI Product Assessment	Other products	TVOC ≤ 300 µg/m^3 Formaldehyd ≤ 24 µg/m^3	Indoor Air Quality Certified
Valid untill: 14 November 2027			

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QNG - Qualitätssiegel Nachhaltiges Gebäude

The Qualitätssiegel Nachhaltiges Gebäude (Quality Seal for Sustainable Buildings), developed by the German Federal Ministry for Housing, Urban Development and Building (BMWSB), defines requirements for the ecological, socio-cultural, and economic quality of buildings. The Sentinel Holding Institut evaluates construction products in accordance with QNG requirements for certification and awards the QNG ready label. Compliance with the QNG standard is a prerequisite for eligibility for the KfW funding programme. For certain product groups, the QNG currently has no specific requirements defined. Although classified as not assessment-relevant, these products remain suitable for QNG-certified projects.

Criteria	Pos. / product group	Considered substances	QNG assessment
3.1.3 Schadstoffvermeidung in Baumaterialien			QNG ready - Not relevant for assessment

Product:
Safeboard GKF 12,5

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DGNB New Construction 2023.2

Criteria	No. / Relevant building components / construction materials / surfaces	Considered substances / aspects	Quality level
ENV 1.2 Local environmental impact			Not relevant for assessment

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DGNB New Construction 2023

The DGNB System (German Sustainable Building Council) assesses the sustainability of various types of buildings. It can be applied to both large-scale private and commercial projects as well as smaller residential buildings. The 2023 version sets high standards for ecological, economic, socio-cultural, and functional aspects throughout the entire life cycle of a building.

Criteria	No. / Relevant building components / construction materials / surfaces	Considered substances / aspects	Quality level
ENV 1.2 Local environmental impact, 03.05.2024 (3rd edition)			Not relevant for assessment

Criteria	No. / Relevant building components / construction materials / surfaces	Considered substances / aspects	Quality level
ENV 1.2 Local environmental impact, 29.05.2025 (4th edition)			Not relevant for assessment

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DGNB New Construction 2018

The DGNB System (German Sustainable Building Council) assesses the sustainability of various types of buildings. It can be applied to both large-scale private and commercial projects as well as smaller residential buildings.

Criteria	No. / Relevant building components / construction materials / surfaces	Considered substances / aspects	Quality level
ENV 1.2 Local environmental impact			Not relevant for assessment

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BNB-BN Neubau V2015

The Bewertungssystem Nachhaltiges Bauen (Assessment System for Sustainable Building) is a tool for evaluating public office and administrative buildings, educational facilities, laboratory buildings, and outdoor areas in Germany. The BNB was developed by the former Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) and is now overseen by the Federal Ministry for Housing, Urban Development and Building (BMWSB).

Criteria	Pos. / product type	Considered substance group	Quality level
1.1.6 Risiken für die lokale Umwelt			Not relevant for assessment

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EU taxonomy

The EU Taxonomy classifies economic activities and products according to their environmental impact. At the product level, the EU regulation defines clear requirements for harmful substances, formaldehyde and volatile organic compounds (VOCs). The Sentinel Holding Institut GmbH labels qualified products that meet this standard.

Criteria	Product type	Considered substances	Assessment
DNSH - Pollution prevention and control	Sonstige	Stoffe nach Anlage C	compliant
Verification: Herstellererklärung			

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BREEAM DE Neubau 2018

BREEAM (Building Research Establishment Environmental Assessment Methodology) is a UK-based building assessment system that evaluates the sustainability of new constructions, refurbishments, and conversions. Developed by the Building Research Establishment (BRE), the system aims to assess and improve the environmental, economic, and social performance of buildings.

Criteria	Product category	Considered substances	Quality level
Hea 02 Indoor Air Quality			Not relevant for assessment

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Product:
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LEED v4.1

LEED (Leadership in Energy and Environmental Design) is an internationally recognised building certification system developed by the U.S. Green Building Council. It is one of the most widely used sustainability standards for buildings worldwide and is particularly applied in internationally oriented projects. LEED assesses buildings holistically across categories such as energy efficiency, resource conservation, material selection, indoor environmental quality and site sustainability. Depending on the number of points achieved, projects are awarded one of the certification levels: LEED Certified, Silver, Gold or Platinum.

Criteria	Product category	Considered substances	Assessment
EQ Credit: Low-Emitting Materials			Not relevant for assessment

SENTINEL HOLDING INSTITUT

Product:
Safeboard GKF 12,5

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Product labels

In the construction industry, high-quality materials are crucial for a building's indoor air quality and sustainability. Product labels and certificates offer guidance to meet these requirements. However, the evaluation criteria of these labels vary, and it is important to carefully assess them to ensure products align with the specific needs of a construction project.

The IBU ("Institut Bauen und Umwelt e.V.") is an initiative of building product manufacturers committed to sustainability in construction. It serves as the programme operator for Environmental Product Declarations (EPDs) in accordance with the EN 15804 standard. The IBU EPD programme provides comprehensive life cycle assessments and environmental impact data for construction products, supported by independent third-party verification.

Products bearing the Sentinel Holding Institute QNG-ready seal are suitable for projects aiming to achieve the "Qualitätssiegel Nachhaltiges Gebäude" (Quality Seal for Sustainable Buildings). QNG-ready products meet the requirements of QNG Appendix Document 3.1.3, "Avoidance of Harmful Substances in Building Materials." The KfW loan program Climate-Friendly New Construction with QNG may allow for additional funding.

This product is SHI Indoor Air Quality certified and recommended by Sentinel Holding Institut. Indoor-air-focused construction, renovation, and operation of buildings is made possible by transparent and verifiable criteria thanks to the Sentinel Holding concept.

Product:
Safeboard GKF 12,5

SHI Product Passport no.:
15206-10-1082

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Legal notices

(*) These criteria apply to the construction project as a whole. While individual products can positively contribute to the overall building score through proper planning, the evaluation is always conducted at the building level. The information was provided entirely by the manufacturer.

Find our criteria here: https://www.sentinel-holding.eu/de/Themenwelten/Pr%C3%BCfkriterien%20f%C3%BCr%20Produkte

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SGS

SGS TÜV SAAR

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Safeboard GKF

Produktsicherheitsinformationsblatt

Für dieses Produkt ist gemäß Artikel 31 der REACH-Verordnung kein Sicherheitsdatenblatt erforderlich. Dieses Produktsicherheitsinformationsblatt wurde auf freiwilliger Basis erstellt

Überarbeitungsdatum: 06.04.2021 Version: 3.0

ABSCHNITT 1: Bezeichnung des Stoffs beziehungsweise des Gemischs und des Unternehmens

1.1. Produktidentifikator

Produktform : Erzeugnis

Andere Bezeichnungen : Safeboard GKF

1.2. Relevante identifizierte Verwendungen des Stoffs oder Gemischs und Verwendungen, von denen abgeraten wird

1.2.1. Relevante identifizierte Verwendungen

Für die Allgemeinheit bestimmt

Hauptverwendungskategorie : Gewerbliche Nutzung,Verwendung durch Verbraucher

Verwendung des Stoffs/des Gemischs : Gipsplatten

Funktions- oder Verwendungskategorie : Baustoffe auf Gipsbasis

1.2.2. Verwendungen, von denen abgeraten wird

Keine weiteren Informationen verfügbar

1.3. Einzelheiten zum Lieferanten, der das Sicherheitsdatenblatt bereitstellt

Hersteller
Knauf Gips KG
Am Bahnhof 7
97346 Iphofen - Germany
T 09323/31-0 - F 09323/31-277
zentrale@knauf.de - www.knauf.de
E-Mail-Adresse der für das SDB zuständigen sachkundigen Person :
sds-info@knauf.de

Technische Auskunft
Technischer Auskunft-Service Trockenbau und Boden
T +49 (0)9001/31-1000 (see section 16)
knauf-direkt@knauf.de

1.4. Notrufnummer

Keine weiteren Informationen verfügbar

ABSCHNITT 2: Mögliche Gefahren

2.1. Einstufung des Stoffs oder Gemischs

Einstufung gemäß Verordnung (EG) Nr. 1272/2008 [CLP]
Nicht eingestuft

Schädliche physikalisch-chemische Wirkungen sowie schädliche Wirkungen auf die menschliche Gesundheit und die Umwelt
Keine weiteren Informationen verfügbar

2.2. Kennzeichnungselemente

Kennzeichnung gemäß Verordnung (EG) Nr. 1272/2008 [CLP] Zusätzliche KennzeichnungZusätzlich anzugebende Einstufung(en)
Keine Kennzeichnung erforderlich

2.3. Sonstige Gefahren

Keine weiteren Informationen verfügbar

ABSCHNITT 3: Zusammensetzung/Angaben zu Bestandteilen

3.1. Stoffe

Nicht anwendbar

3.2. Gemische

Anmerkungen : Bleifreie Strahlenschutzplatte GKF aus abgebundenem Gips und Schwerspat, ummantelt mit Karton. Kern mit geringen Zusätzen an Stärke, Tensiden, Faserzusatz als festigkeits- und feuerwiderstandserhöhende Verstärkung sowie einem anorganischen Farbpigment.

Dieses Gemisch enthält keine anzeigepflichtigen Substanzen gemäß den Kriterien aus 3.2 des Anhangs II der REACH-Verordnung

ABSCHNITT 4: Erste-Hilfe-Maßnahmen

4.1. Beschreibung der Erste-Hilfe-Maßnahmen

Erste-Hilfe-Maßnahmen allgemein : In allen Zweifelsfällen oder bei anhaltendenden Symptomen, Arzt aufsuchen.

Erste-Hilfe-Maßnahmen nach Einatmen : Die Person an die frische Luft bringen und für ungehinderte Atmung sorgen.

Erste-Hilfe-Maßnahmen nach Hautkontakt : Haut mit viel Wasser abwaschen. Bei anhaltender Reizung einen Arzt hinzuziehen.

Erste-Hilfe-Maßnahmen nach Augenkontakt : Sofort gründlich mit Wasser spülen (mindestens 15 Minuten). Eventuell vorhandene Kontaktlinsen nach Möglichkeit entfernen. Weiter ausspülen. Bei andauernder Reizung einen Augenarzt konsultieren.

Erste-Hilfe-Maßnahmen nach Verschlucken : Mund mit Wasser spülen. Reichlich Wasser trinken. Bei Unwohlsein ärztlichen Rat einholen.

4.2. Wichtigste akute und verzögert auftretende Symptome und Wirkungen

Keine weiteren Informationen verfügbar

4.3. Hinweise auf ärztliche Soforthilfe oder Spezialbehandlung

Symptomatisch behandeln.

ABSCHNITT 5: Maßnahmen zur Brandbekämpfung

5.1. Löschmittel

Geeignete Löschmittel : Material ist nicht brennbar. Bei Umgebungsbrand Löschmittel anpassen an Umgebung.

5.2. Besondere vom Stoff oder Gemisch ausgehende Gefahren

Gefährliche Zerfallsprodukte im Brandfall : Mögliche Freisetzung giftiger Rauchgase. Kohlenmonoxid. Kohlendioxid.

5.3. Hinweise für die Brandbekämpfung

Schutz bei der Brandbekämpfung : Nicht versuchen ohne geeignete Schutzausrüstung tätig zu werden. Umgebungsluft-unabhängiges Atemschutzgerät. Vollständige Schutzkleidung.

ABSCHNITT 6: Maßnahmen bei unbeabsichtigter Freisetzung

6.1. Personenbezogene Vorsichtsmaßnahmen, Schutzausrüstungen und in Notfällen anzuwendende Verfahren

Allgemeine Maßnahmen : Staubbildung vermeiden.

6.1.1. Nicht für Notfälle geschultes Personal

Notfallmaßnahmen : Verunreinigten Bereich lüften.

6.1.2. Einsatzkräfte

Schutzausrüstung : Nicht versuchen ohne geeignete Schutzausrüstung tätig zu werden. Weitere Angaben: siehe Abschnitt 8 "Begrenzung und Überwachung der Exposition/Persönliche Schutzausrüstung".

6.2. Umweltschutzmaßnahmen

Freisetzung in die Umwelt vermeiden. Eindringen in Kanalisation und öffentliche Gewässer verhindern.

6.3. Methoden und Material für Rückhaltung und Reinigung

Reinigungsverfahren : Das Produkt mechanisch aufnehmen. Staubbildung vermeiden.

Sonstige Angaben : Stoffe oder Restmengen in fester Form einer zugelassenen Anlage zuführen.

6.4. Verweis auf andere Abschnitte

Weitere Angaben zur Entsorgung siehe Abschnitt 13.

ABSCHNITT 7: Handhabung und Lagerung

7.1. Schutzmaßnahmen zur sicheren Handhabung

Schutzmaßnahmen zur sicheren Handhabung : Für eine gute Belüftung des Arbeitsplatzes sorgen. Persönliche Schutzausrüstung tragen. Staubbildung vermeiden. Staub nicht einatmen.

Hygienemaßnahmen : Bei Gebrauch nicht essen, trinken oder rauchen. Nach Handhabung des Produkts immer die Hände waschen.

7.2. Bedingungen zur sicheren Lagerung unter Berücksichtigung von Unverträglichkeiten

Lagerbedingungen : Trocken lagern.

7.3. Spezifische Endanwendungen

Baustoffe auf Gipsbasis.

ABSCHNITT 8: Begrenzung und Überwachung der Exposition/persönliche Schutzausrüstungen

8.1. Zu überwachende Parameter

Keine weiteren Informationen verfügbar

8.2. Begrenzung und Überwachung der Exposition

Geeignete technische Steuerungseinrichtungen:

Für eine gute Belüftung des Arbeitsplatzes sorgen.

Handschutz:

Geeignete Schutzhandschuhe tragen

Typ	Material	Permeation	Dicke (mm)	Durchdringung	Norm
Wiederverwendbare Handschuhe	Polyamid/Elasthan, oder, Leder				EN 388

Augenschutz:

Bei Staubentwicklung: dichtschließende Schutzbrille

Haut- und Körperschutz:

Bei der Arbeit geeignete Schutzkleidung tragen. langärmlige Arbeitskleidung

Atemschutz:

Bei unzureichender Belüftung geeignete Atemschutzausrüstung tragen

Gerät	Filtertyp	Bedingung	Norm
Bei Staubbildung: Staubmaske	Typ P2	Atemschutzgerät nur bei Staubbildung erforderlich, Schleifen, Fräsen und ähnliche Arbeiten	



Begrenzung und Überwachung der Umweltexposition:

Freisetzung in die Umwelt vermeiden.

ABSCHNITT 9: Physikalische und chemische Eigenschaften

9.1. Angaben zu den grundlegenden physikalischen und chemischen Eigenschaften

Aggregatzustand	:	Fest
Farbe	:	Gelblich.
Geruch	:	Geruchlos.
Geruchsschwelle	:	Keine Daten verfügbar
pH-Wert	:	Gilt nicht für das Produkt im Lieferzustand
Relative Verdampfungsgeschwindigkeit (Butylacetat=1)	:	Keine Daten verfügbar
Schmelzpunkt	:	Keine Daten verfügbar
Gefrierpunkt	:	Keine Daten verfügbar
Siedepunkt	:	Keine Daten verfügbar
Flammpunkt	:	Keine Daten verfügbar
Zündtemperatur	:	Keine Daten verfügbar
Zersetzungstemperatur	:	Keine Daten verfügbar
Entzündbarkeit (fest, gasförmig)	:	Nicht selbstentzündlich

Dampfdruck	:	Keine Daten verfügbar
Relative Dampfdichte bei 20 °C	:	Keine Daten verfügbar
Relative Dichte	:	Keine Daten verfügbar
Dichte	:	≥ 1400 kg/m³
Löslichkeit	:	Keine Daten verfügbar
Verteilungskoeffizient n-Oktanol/Wasser (Log Pow)	:	Keine Daten verfügbar
Viskosität, kinematisch	:	Keine Daten verfügbar
Viskosität, dynamisch	:	Keine Daten verfügbar
Explosive Eigenschaften	:	Das Produkt ist nicht explosionsgefährlich.
Brandfördernde Eigenschaften	:	Keine Daten verfügbar
Explosionsgrenzen	:	Keine Daten verfügbar

9.2. Sonstige Angaben

Keine weiteren Informationen verfügbar

ABSCHNITT 10: Stabilität und Reaktivität

10.1. Reaktivität

Das Produkt ist nicht reaktiv unter normalen Gebrauchs-, Lagerungs- und Transportbedingungen.

10.2. Chemische Stabilität

Stabil unter normalen Bedingungen.

10.3. Möglichkeit gefährlicher Reaktionen

Unter normalen Verwendungsbedingungen sind keine gefährlichen Reaktionen bekannt.

10.4. Zu vermeidende Bedingungen

Keine unter den empfohlenen Lagerungs- und Handhabungsbedingungen (siehe Abschnitt 7).

10.5. Unverträgliche Materialien

Keine weiteren Informationen verfügbar

10.6. Gefährliche Zersetzungsprodukte

Unter normalen Lager- und Anwendungsbedingungen sollten keine gefährlichen Zersetzungsprodukte gebildet werden.

ABSCHNITT 11: Toxikologische Angaben

11.1. Angaben zu toxikologischen Wirkungen

Akute Toxizität	:	Nicht eingestuft
Ätz-/Reizwirkung auf die Haut	:	Nicht eingestuft pH-Wert: Gilt nicht für das Produkt im Lieferzustand
Schwere Augenschädigung/-reizung	:	Nicht eingestuft pH-Wert: Gilt nicht für das Produkt im Lieferzustand
Sensibilisierung der Atemwege/Haut	:	Nicht eingestuft
Keimzell-Mutagenität	:	Nicht eingestuft
Karzinogenität	:	Nicht eingestuft
Reproduktionstoxizität	:	Nicht eingestuft
Spezifische Zielorgan-Toxizität bei einmaliger Exposition	:	Nicht eingestuft
Spezifische Zielorgan-Toxizität bei wiederholter Exposition	:	Nicht eingestuft
Aspirationsgefahr	:	Nicht eingestuft

ABSCHNITT 12: Umweltbezogene Angaben

12.1. Toxizität

Ökologie - Allgemein : Das Produkt gilt weder als schädlich für Wasserorganismen noch verursacht es langfristige Schäden in der Umwelt.

12.2. Persistenz und Abbaubarkeit

Keine weiteren Informationen verfügbar

12.3. Bioakkumulationspotenzial

Keine weiteren Informationen verfügbar

12.4. Mobilität im Boden

Keine weiteren Informationen verfügbar

12.5. Ergebnisse der PBT- und vPvB-Beurteilung

Keine weiteren Informationen verfügbar

12.6. Andere schädliche Wirkungen

Keine weiteren Informationen verfügbar

ABSCHNITT 13: Hinweise zur Entsorgung

13.1. Verfahren der Abfallbehandlung

Örtliche Vorschriften (Abfall) : Entsorgung muss gemäß den behördlichen Vorschriften erfolgen.

Verfahren der Abfallbehandlung : Inhalt/Behälter gemäß den Sortieranweisungen des zugelassenen Einsammlers entsorgen.

EAK-Code : 17 08 02 - Baustoffe auf Gipsbasis mit Ausnahme derjenigen, die unter 17 08 01 fallen
17 09 04 - gemischte Bau- und Abbruchabfälle mit Ausnahme derjenigen, die unter 17 09 01, 17 09 02 und 17 09 03 fallen

ABSCHNITT 14: Angaben zum Transport

Gemäß ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN-Nummer				
Nicht anwendbar	Nicht anwendbar	Nicht anwendbar	Nicht anwendbar	Nicht anwendbar
14.2. Ordnungsgemäße UN-Versandbezeichnung				
Nicht anwendbar	Nicht anwendbar	Nicht anwendbar	Nicht anwendbar	Nicht anwendbar
14.3. Transportgefahrenklassen				
Nicht anwendbar	Nicht anwendbar	Nicht anwendbar	Nicht anwendbar	Nicht anwendbar
Nicht anwendbar	Nicht anwendbar	Nicht anwendbar	Nicht anwendbar	Nicht anwendbar
14.4. Verpackungsgruppe				
Nicht anwendbar	Nicht anwendbar	Nicht anwendbar	Nicht anwendbar	Nicht anwendbar
14.5. Umweltgefahren				
Nicht anwendbar	Nicht anwendbar	Nicht anwendbar	Nicht anwendbar	Nicht anwendbar
Keine zusätzlichen Informationen verfügbar				

14.6. Besondere Vorsichtsmaßnahmen für den Verwender

- Landtransport
Nicht anwendbar

- Seeschiffstransport
Nicht anwendbar

- Lufttransport
Nicht anwendbar

- Binnenschiffstransport
Nicht anwendbar

- Bahntransport
Nicht anwendbar

14.7. Massengutbeförderung gemäß Anhang II des MARPOL-Übereinkommens und gemäß IBC-Code

Nicht anwendbar

ABSCHNITT 15: Rechtsvorschriften

15.1. Vorschriften zu Sicherheit, Gesundheits- und Umweltschutz/spezifische Rechtsvorschriften für den Stoff oder das Gemisch

15.1.1. EU-Verordnungen

Enthält keinen REACH-Kandidatenstoff

15.1.2. Nationale Vorschriften

Deutschland

Rechtlicher Bezug	:	WGK 1, Schwach wassergefährdend (Einstufung nach AwSV, Anlage 1)
Lagerklasse (LGK, TRGS 510)	:	LGK 13 - Nicht brennbare Feststoffe
Störfall-Verordnung (12. BImSchV)	:	Unterliegt nicht der 12. BImSchV (Bundes-Immissionsschutzverordnung) (Störfall-Verordnung)

15.2. Stoffsicherheitsbeurteilung

Keine weiteren Informationen verfügbar

ABSCHNITT 16: Sonstige Angaben

Dieses Sicherheitsdatenblatt ersetzt die vorherige Version vom 08.10.2012. Folgende Änderungen wurden durchgeführt:

Für dieses Produkt ist gemäß Artikel 31 der REACH-Verordnung kein Sicherheitsdatenblatt erforderlich. Dieses Produktsicherheitsinformationsblatt wurde auf freiwilliger Basis erstellt

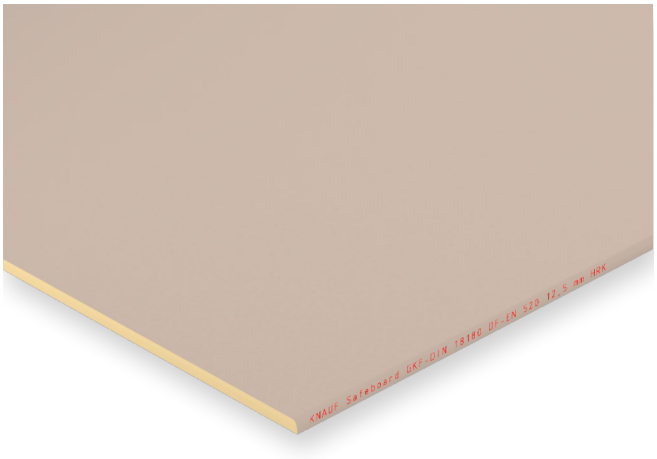
Knauf SDB EU (REACH Anhang II)

Diese Informationen basieren auf unserem aktuellen Wissen und sollen das Produkt nur im Hinblick auf Gesundheit, Sicherheit und Umweltbedingungen beschreiben. Sie darf also nicht als eine Garantie für irgendeine spezifische Eigenschaft des Produkts ausgelegt werden.

Safeboard GKF

Bleifreie Strahlenschutzplatte für Röntgeneinrichtungen im Trockenbau

Produkt-Datenblatt *12/2025*



Produktbeschreibung

Safeboard GKF sind Gipsplatten mit einem gelben Spezialgipskern für Strahlenschutz in Röntgenräumen. Die Gipsplatten sind faserverstärkt für hohe Stabilität und Brandschutzqualität. Die Plattenbreite von 625 mm sorgt für gutes Handling.

- Plattentyp
  DIN 18180 GKF
  EN 520 DF
- Kartonfarbe Elfenbein
- Farbe Gipskern Gelb
- Rückseitenstempel Rot

Lagerung
Trocken auf Plattenpaletten lagern.

Qualität
In Übereinstimmung mit der EN 520 unterliegt das Produkt einer Erstprüfung sowie der ständigen werkseigenen Produktionskontrolle und trägt eine CE-Kennzeichnung.

Eigenschaften und Mehrwert

- Wirtschaftlicher Strahlenschutz ohne Blei
- Einfache Verarbeitung
- Guter Gefügezusammenhalt unter Brandeinwirkung
- Nicht brennbar
- Biegbar
- Faltbar mit V-Fräsungen
- Geringes Quellen und Schwinden bei Änderung der klimatischen Bedingungen

Anwendungsbereich

Knauf Safeboard GKF 12,5 ist die Lösung für Röntgenräume und dient der Abschirmung von Röntgenstrahlen in raumbegrenzenden Trockenbau-Systemen.

Der Anwendungsbereich umfasst verschiedene Systeme, darunter Strahlenschutz-Wände, Strahlenschutz-Unterdecken und Strahlenschutz-Vorsatzschalen.

Ausführung

Verarbeitung

Safeboard GKF sind wie herkömmliche Gipsplatten zu verarbeiten. An Wänden erfolgt die Verlegung horizontal, bei Decken sind reduzierte Achsabstände der Tragprofile (max. 400 mm) erforderlich.

Hinweis	Die Verarbeitung erfolgt gemäß den einschlägigen Normen sowie gemäß der Knauf System-Datenblätter der jeweiligen Trockenbau-Systeme.

Verschraubung

Für die Befestigung der Platten auf Holz- oder Metallunterkonstruktion Diamant-Schrauben verwenden.

Verspachtelung

Verspachtelung mit Safeboard-Spachtel zur Herstellung eine lückenlosen Strahlenschutzes. Ein Fugendeckstreifen ist nicht erforderlich. SafeboardSpachtel ist zur Kenntlichmachung gelblich eingefärbt.

Hinweis	Weitere Details siehe auch Produkt-Datenblatt Safeboard-Spachtel K467S.de.

Bleigleichwerte

Anzahl Platten	Gesamtdicke	Röhrenspannung Bleigleichwert[1)] in mm Pb bei						
	mm	60 kV	70 kV	80 kV	90 kV	100 kV	125 kV	150 kV
1	12,5	0,45	0,60	0,75	0,70	0,70	0,50	0,40
2	25	0,90	1,20	1,50	1,40	1,40	1,00	0,80
3	37,5	1,35	1,80	2,20	2,10	2,10	1,50	1,10
4	50	1,80	2,30	2,90	2,80	2,80	2,00	1,40
5	62,5	–	–	–	–	3,40	2,40	1,70
6	75	–	–	–	–	4,00	2,80	2,00

1) Zwischenwerte können linear interpoliert werden, Berechnung der Bleigleichwerte nach DIN 6812.

Im Bereich Mammographie (35 kV) ist eine Lage Safeboard GKF für den Strahlenschutz ausreichend.

Technische Daten

Bezeichnung	Safeboard GKF 12,5	Einheit	Norm
Plattentyp national	GKF	–	DIN 18180
Plattentyp europäisch	Typ DF	–	EN 14190
Brandverhalten EN 13501-1	A2-s1, d0 (B)	Klasse	EN 520
Maßtoleranz Breite	+0 / -4	mm	EN 520
Maßtoleranz Länge	+0 / -5	mm	EN 520
Maßtoleranz Dicke	+0,5 / -0,5	mm	EN 520
Maßtoleranz Winkligkeit	≤ 2,5	mm je m Plattenbreite	EN 520
Wärmeleitfähigkeit λ	0,26	W/(m·K)	EN ISO 12664
Schwind- und Quellmaß je 1 % Änderung der rel. Luftfeuchte	0,005 – 0,008	mm/m	–
Schwind- und Quellmaß je 1 Kelvin Änderung der Temperatur	0,013 – 0,02	mm/m	–
Dauertemperaturbelastung max. (Obergrenze)	≤ 50	°C	–
Rohdichte	≥ 1400	kg/m³	–
Wasserdampfdiffusionswiderstandszahl μ trocken	10	–	EN ISO 10456
Wasserdampfdiffusionswiderstandszahl μ feucht	4	–	EN ISO 10456
Biegebruchlast parallel zur Herstellrichtung	≥ 610	N	DIN 18180
Biegebruchlast rechtwinklig zur Herstellrichtung	≥ 210	N	DIN 18180
Biegeradius trocken, Plattendicke 12,5 mm	≥ 2750	mm	–
Biegeradius nass, Plattendicke 12,5 mm	≥ 1000	mm	–
Anwendungsbereich	Innen	–	–

Produktvarianten

Bezeichnung	Breite mm	Länge mm	Dicke mm	Kanten	Liefergewicht ca. kg/m²	Verpackungseinheit	Artikelnummer	EAN
Safeboard GKF 12,5	625	2500	12,5	HRK SSK	18,0	42 Stück/Palette 65,6 m²/Palette	00132849	4003982205629

HRK = halbrunde Längskante
SSK = stirnseits scharfkantig geschnitten

Nachhaltigkeit und Umwelt

Kurzbeschreibung	Bemerkung	Wert	Einheit
AgBB-Schema	Version 2021	Erfüllt	–
Französische Emissionsklasse	Version modified in 2012	A+	–
EPD Umweltproduktdeklaration	–	EPD-KNA-20230175-IBA1-EN	–
Eurofins	Indoor Air Comfort Gold®	Erfüllt	–
DGNB Neubau Version 2018	ENV 1.2	Nicht bewertungsrelevant	–
DGNB Neubau Version 2023	ENV 1.2	Nicht bewertungsrelevant	–
QNG Version 2023	Anhang 3.1.3	Nicht bewertungsrelevant	–
BNB-BN Neubau Version 2015	Kriterium 1.1.6	Nicht bewertungsrelevant	–
BREEAM Neubau	International New Constuction v2.0 2016 (HEA / Indoor Air Quality)	Exemplary Level	–
LEED	v4.1 BETA 2021 (Low-Emitting Materials)	Erfüllt	–
SVHC	Substances of very high concern gem. REACH ≤ 0,1 Masseprozent	Erfüllt	–
Recyclinganteil Post-Consumer (Mittelwert)	Plattendicke 12,5 mm	ca. 2	%

Videos für Knauf Systeme und Produkte sind unter folgendem Link zu finden:
youtube.com/knauf

Ausschreibungstexte für alle Knauf Systeme mit Exportfunktionen sind unter folgendem Link zu finden:
ausschreiben.de/knauf

Finden Sie passende Systeme für Ihre Anforderungen!
knauf.de/systemfinder

Im Download Center der www.knauf.com stehen alle Dokumente von Knauf Gips aktuell und übersichtlich zur Verfügung.

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www.knauf.com

Technische Änderungen vorbehalten. Es gilt die jeweils aktuelle Auflage. Die enthaltenen Angaben entsprechen unserem derzeitigen Stand der Technik. Die allgemein anerkannten Regeln der Bautechnik, einschlägige Normen, Richtlinien und handwerklichen Regeln müssen vom Ausführenden neben den Verarbeitungsvorschriften beachtet werden. Unsere Gewährleistung bezieht sich nur auf die einwandfreie Beschaffenheit unseres Materials. Verbrauchs-, Mengen- und Ausführungsangaben sind Erfahrungswerte, die im Falle abweichender Gegebenheiten nicht ohne weiteres übertragen werden können. Alle Rechte vorbehalten. Änderungen, Nachdruck und fotomechanische Wiedergabe, auch auszugsweise, bedürfen unserer ausdrücklichen Genehmigung.
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Safeboard GKF



EPD Verified

EPD-KNA-20230175-IBA1-EN
gültig bis 13.08.2028

Build on us.

ENVIRONMENTAL PRODUCT DECLARATION

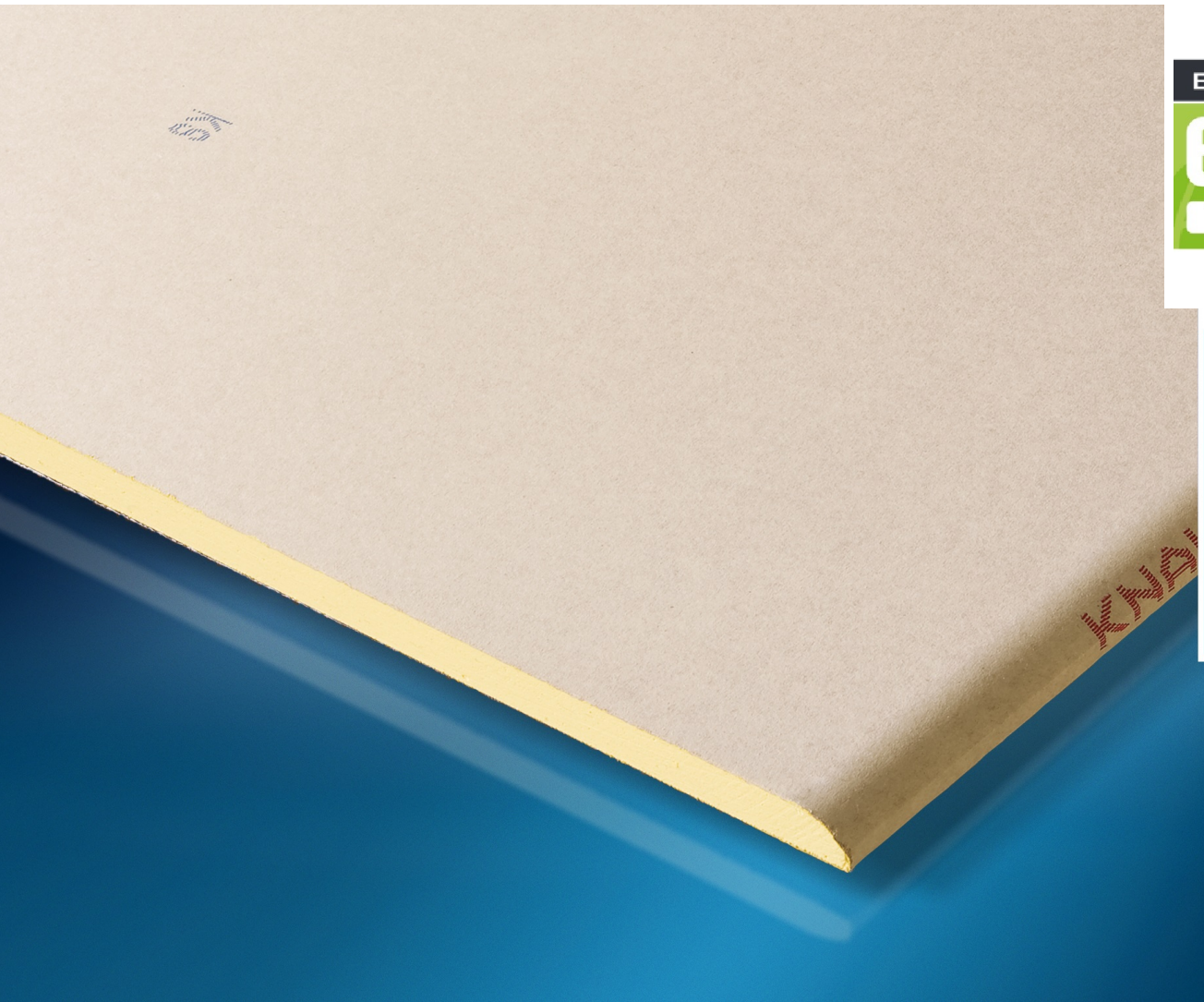
as per *ISO 14025* and *EN 15804+A2*

Owner of the Declaration	Knauf Gips KG
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-KNA-20230175-IBA1-EN
Issue date	14.08.2023
Valid to	13.08.2028

Knauf Safeboard GKF

Knauf Gips KG

www.ibu-epd.com | https://epd-online.com



1. General Information

Knauf Gips KG

Programme holder

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

Declaration number

EPD-KNA-20230175-IBA1-EN

This declaration is based on the product category rules:

Plasterboard, 11.07.2023
(PCR checked and approved by the SVR)

Issue date

14.08.2023

Valid to

13.08.2028

Dipl.-Ing. Hans Peters
(Chairman of Institut Bauen und Umwelt e.V.)

Florian Pronold
(Managing Director Institut Bauen und Umwelt e.V.)

Knauf Safeboard GKF

Owner of the declaration

Knauf Gips KG
Am Bahnhof 7
97346 Iphofen
Germany

Declared product / declared unit

Plasterboard Knauf Safeboard Type GKF according to *DIN 18180* respectively DF according to *EN 520*, 1 m², board thickness 12.5 mm, weight of board approx. 17.7 kg/m²

Scope:

This EPD covers 100 % of manufacture of the plasterboard Knauf Safeboard GKF. This plasterboard is manufactured in Germany. The life cycle assessment is based on production data for 2021/22.
The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

Verification

The standard EN 15804 serves as the core PCR
Independent verification of the declaration and data according to ISO 14025:2011
☐ internally ☒ externally

Ms Jane Anderson,
(Independent verifier)

2. Product

2.1 Product description/Product definition

Plasterboard Knauf Safeboard GKF is a lead-free X-ray shielding board for X-ray equipment designed to shield against radiation for enhanced stability and higher fire resistance quality.
For the placing on the market of the product in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) Regulation (EU) *No. 305/2011 CPR2011* applies. The product Knauf Safeboard GKF 12.5 mm needs a declaration of performance and the CE-marking harmonized acc. to *EN 520*.

For the application and use the respective national provisions apply.

2.2 Application

Knauf Safeboard GKF are used for room-enclosing constructions of X-ray facilities for radiation shielding regarding the following systems:

- X-Ray shield suspended ceilings
- X-Ray shield partitions
- X-Ray shield furring

2.3 Technical Data

The following technical data in condition on delivery is relevant for the declared product:

Constructional data

Name	Value	Unit
Gross density	≥ 1400	kg/m^3
Flexural breaking load longitudinal according to DIN 18180	≥ 610	N
Flexural breaking load transversal according to DIN 18180	≥ 210	N
Thermal conductivity following EN 12664	0.26	W/(mK)
Water vapour diffusion resistance factor (dry), according to EN ISO 10456	10	-
Water vapour diffusion resistance factor (wet), according to EN ISO 10456	4	-
Shrinkage and expansion air humidity per 1 % change of relative air humidity	0.005 / 0.008	mm/m
Shrinkage and expansion temperature per 1 Kelvin change of temperature	0.013 / 0.02	mm/m

Further information is available in the technical data sheet *K762.de*_ENG Knauf Safeboard GKF under www.knauf.de.

Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to *EN 520.*

2.4 Delivery status

Plasterboards Knauf Safeboard GKF according to *DIN 18180* (Type DF according to *EN 520)* are delivered with a board thickness of 12.5 mm as well as a size of 2500 mm x 625 mm with a half-rounded long edge (HRAK) and front cut square edge (SSK).

2.5 Base materials/Ancillary materials

Knauf Safeboard GFK consists of more than 90 % of set gypsum and baryte, covered with a board liner (< 3 %). Furthermore, the plasterboards contain small amounts (< 5 %) of starch, tensides, fibre additives as well as in-organic colour pigments.

The declared products contain substances listed in the candidate list (date: 14.06.2023, *ECHA2023*) exceeding 0.1 percentage by mass: no.

This product contains other CMR substances in categories 1A or 1B (Regulation (EC) No. 1272/2008) which are not on the candidate list, exceeding 0.1 percentage by mass: no

Biocide products were added to this construction product or it has been treated with biocide products (this then concerns a treated product as defined by the (EU) Ordinance on Biocide Products No. 528/2012): no

2.6 Manufacture

The manufacturing process for gypsum boards is shown in Figure 1:

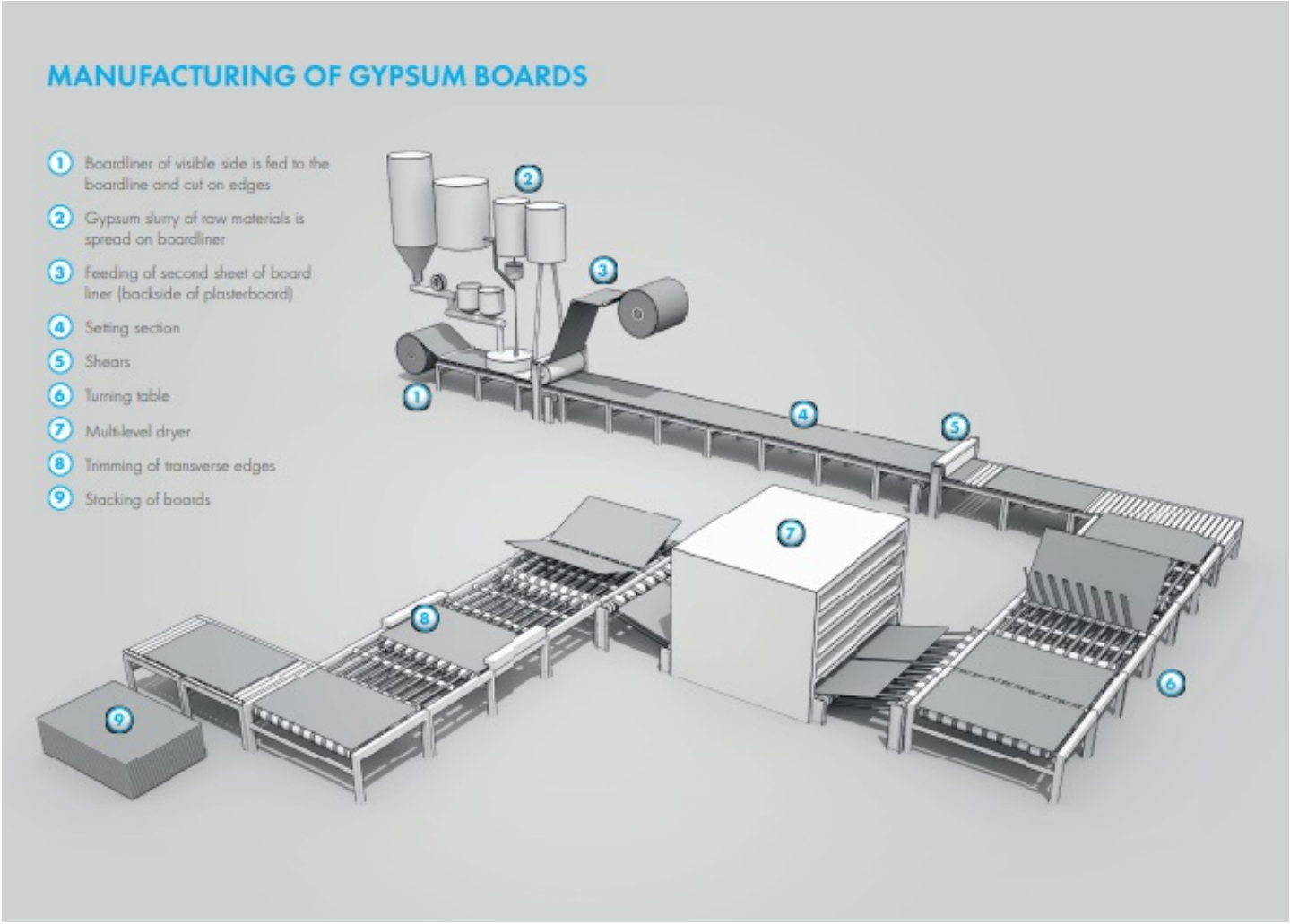


Figure 1: Manufacturing process of gypsum boards

The components of plasterboards Knauf Safeboard GKF are suspended in water and spread on a continuous sheet of board liner (visible face, lower layer). Beforehand, the board liner is cut on the sides for edge shaping. The slurry is covered with a second sheet of board liner (back surface) in the forming station and the edges of the visible face board liner are flipped upwards. On the subsequent board line the gypsum is setting continuously and is dried in a multi-level drier to the permitted residual moisture level. Drying is followed by the cutting of the boards to the desired lengths.

All processes within the company are certified according to *ISO 9001*.

2.7 Environment and health during manufacturing

The production of Knauf Safeboard GKF is subject to the German emission control regulations *BImSchG*. CO_2 emissions are measured due to CO_2 emissions trading. The German manufacturing sites for the production of Knauf Safeboard GKF are certified according to *ISO 50001* as well as certified with the occupational safety standard 'Systematic Safety' from the German Social Accident Insurance Institution for the Raw Materials and Chemical Industry BG RCI.

Gypsum from the flue-gas desulphurization plants of coal-fired power stations is used in addition to natural gypsum. Production waste as well as dust from the filtration units are recycled internally and fed back into the production of plasterboards.

2.8 Product processing/Installation

Storage

Plasterboards Knauf Safeboard GKF should be stored indoors under dust-free and dry conditions in a horizontal position.

Application

During application, dust thresholds are to be observed according to *TRGS 900* and *TRGS 559*. The application and installation should follow the instruction sheets provided under www.knauf.de (e.g., K131, K151, K152, K112) respectively the Knauf brochure *ST02*.de_EN Knauf Safeboard - X-ray Shielding.

Endless filament glass fibres are used in the manufacturing of plasterboards Knauf Safeboard GKF for enhanced fire protection. These fibres do not fan out during application and therefore no fibre dusts according to *TRGS 521* occur.

2.9 Packaging

Plasterboards Knauf Safeboard GKF are stacked on reusable pallets and protected with a PE-film. Pallets are re-used, whereas the PE-film is externally recycled.

2.10 Condition of use

Knauf Safeboard GKF are used for suspended ceilings, partitions and furring for shielding X-rays. They feature high levels of robustness against mechanical impacts and serve increased demands on fire protection. There is no change in the chemical composition during use.

2.11 Environment and health during use

Knauf Safeboard GKF are able to shield effectively against X-rays. The respective values of lead equivalence according to

DIN 6812 are available in the technical data sheet under www.knauf.de.

According to the emission test of Eurofins Product Testing A/S *Eurofins2021*, no hazardous substances are emitted above permissible thresholds during use.

2.12 Reference service life

There was no reference service life determined according to *ISO 15686-1*. However, a reference service life of 50 years can be considered for gypsum plasterboards according to the Guideline for Sustainable Building *BBSR2017*. There are no influences on ageing of plasterboards Knauf Safeboard GKF during use following the established engineering practice.

2.13 Extraordinary effects

Fire

The reaction to fire of plasterboards Knauf Safeboard GKF is classified as follows according to *EN 520* in conjunction with *EN 13501-1*.

Fire safety regulations

Name	Value
Building material class ; fire behaviour class	A2
Smoke gas development ; smoke production	s1
Burning droplets ; flaming droplets/particles	d0

A2 = non-combustible
s1 = no smoke
d0 = no burning fall-off/drop-off

Water

Knauf Safeboard GKF show a small tendency to swell or shrink within changes of climatic conditions. However, a permanent exposure to wet conditions or very high levels of relative humidity may lead to a decrease in strength. An instruction sheet about the restoration of flood damage is available under www.knauf.de *BSDH2013*.

Mechanical destruction

Minor damages on Knauf Safeboard GKF can be mended with suitable gypsum-based filling materials, *e.g.*, Knauf Safeboard Filler. The installation with screws and brackets allows an easy exchange of heavily damaged boards. In this case, the substructure should be examined, too, and replaced if necessary.

2.14 Re-use phase

Re-use

Once plasterboards Knauf Safeboard GKF are installed, they are not suited for re-use in an unchanged way. Prior to collection, plasterboards Knauf Safeboard GKF should be separated from other used building materials and pruned of foreign matter, e.g., metals from the substructure already on site for easier recycling or disposal.

Further use

Residual materials from new plasterboards Knauf Safeboard GKF, e.g., from cut waste at the building site, can be disposed of at a landfill.

Recycling

In principle, gypsum boards can be recycled by standard recycling processes. However, Knauf Safeboard GKF is not suitable for recycling due to the barytes included int the gypsum core.

2.15 Disposal

X-ray shielding boards Knauf Safeboard GKF have to be disposed of in compliance with the following waste codes of the European Waste Catalogue *EWC*:

17 08 02 - gypsum-based construction materials other than those mentioned in 17 08 01
17 09 04 - mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03

National disposal guidelines need to be observed. In Germany, plasterboards Knauf Safeboard GKF are to be disposed of at landfills of landfill category 1 or higher according to the regulation of landfills *DepV2021*.

2.16 Further information

Further information about plasterboards Knauf Safeboard GKF, e.g., technical data sheets or material safety data sheets are available at www.knauf.de.

3. LCA: Calculation rules

3.1 Declared Unit

The declared unit is 1 m² of plasterboard Knauf Safeboard GKF with a thickness of 12.5 mm, weight approx. 17.7 kg/m².

Declared Unit

Name	Value	Unit
Declared unit	1	m^2
Conversion factor to 1 kg	0.056	-

3.2 System boundary

Type of the EPD: cradle to gate - with options, modules C1–C4, and module D (A1–A3 + C+ D, additional modules: A4, A5)

This Environmental Product Declaration according to *EN 15804* contains:

- provision of raw materials and transport to plant Iphofen, production of boards (A1-A3) including thermal energy for calcination and drying (from natural gas, geographic scope: DE), as well as electricity (residual mix DE)
- transport to building site (A4)
- installation at building site (A5) including the incineration of transport packaging
- disassembly (C1)
- transport to recycling facility or landfill site (C2)
- landfilling at end of life (C4)
- credits in D from incineration of packaging material in A5

The life cycle of Knauf Safeboard GKF is outlined in Figure 2.

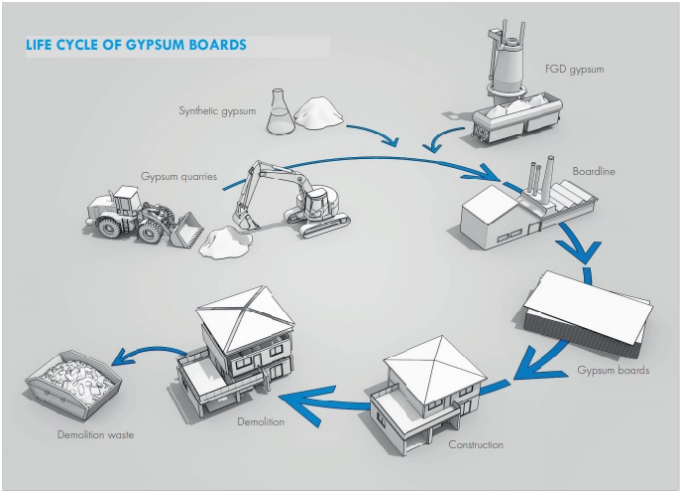


Figure 2: Principal life cycle of gypsum boards

3.3 Estimates and assumptions

For modelling the manufacturing of Knauf Safeboard GKF in plant Iphofen, the residual electricity for Germany has been chosen, whereas processes beyond the plant gate were mainly modelled with the European electricity consumption mix.

Some raw materials and additives were not available in the background database and therefore were either substituted with similar materials or modelled with their own processes. The respectively chosen methods are described in the background report.

Transport to the building site (module A4) as well as transport from the building site to landfill (module C2) is calculated with a standard distance of 100 km. This way, the user of the Environmental Product Declaration can convert the distances of modules A4 and C2 to the specific distance by extrapolation.

3.4 Cut-off criteria

All raw materials for the manufacturing of plasterboards Knauf Safeboard GKF, the required energy, water and the resulting emissions are considered in the life cycle assessment. That way, recipe components with a share even smaller than 1 % are included.
Cut-off rules as required by EN 15804+A2 are respected. The details are given in the background report. The environmental impacts imposed by these cut-offs are considered neglectable. All neglected processes contribute less than 5 % to the total mass or less than 5 % to the total energy consumption.

3.5 Background data

For modelling the LCA the software *LCA for Experts* with data base version 2023.1 from Sphera is used. Data sets for Germany are used for the life cycle inventory as much as possible. This is especially true for the provision of electricity and thermal energy for processes inside the Knauf plant.

3.6 Data quality

The LCA of plasterboards Knauf Safeboard GKF is modelled by using *LCA for Experts*, exclusively. All datasets used have been updated in the last 5 years. For processes and materials, where no direct match is available, data from literature or expert judgements are applied. Only a few materials and processes needed to be cut off due to missing information. Since these cut-off materials and processes are only of small amounts (<< 1 % w/w), the total influence of these neglected inputs is expected to be lower than 5 % of energy usage and mass.

With respect to technological, geographic and time representativeness, the overall data quality is evaluated to be 'satisfactory'.

Foreground data are related to production data from plant Satteldorf for the reference year 2021/2022.

3.7 Period under review

The modelling of Knauf Safeboard GKF is based on data from production years 2021/2022. Since different plasterboards are manufactured subsequentially, the energy consumption is measured directly during the production of each board type.

3.8 Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product´s lifespan: Global

3.9 Allocation

Allocations are avoided in the modelling of production data. There may be allocations in the background data which are are explained in the documentation of the respective datasets.

3.10 Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account.

4. LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

Information on describing the biogenic carbon content at factory gate

Name	Value	Unit
Biogenic carbon content in product	0.211	kg C
Biogenic carbon content in accompanying packaging	0.043	kg C

Product Stage (A1-A3)

Supply of raw materials
Plasterboards Knauf Safeboard GKF consist of a gypsum core and barytes which is reinforced with mineral fillers and covered with board liner. For its identification the core of Knauf Safeboard GKF is coloured in yellow. The natural gypsum is mainly extracted from open-cast mining in close vicinity to the manufacturing site. Furthermore, gypsum from the flue-gas desulphurization of coal-fired power stations (FGD gypsum) is used as a raw material. Board liner for the covering of gypsum core is produced from recycled waste paper which is certified by FSC and/or PEFC. Additives are added for an easier processing and a fine adjustment of properties of plasterboards Knauf Safeboard GKF. These additives add up to less than 5 % of the overall mass of the product.

Transport of raw materials
Natural gypsum is extracted from mines close to the manufacturing sites of plasterboard Knauf Safeboard GKF. Accordingly, transport distances are short and trucks can be used. FGD gypsum is transported by freight train from coal-fired power plants. The heavy spar is produced predominantly in Germany and also delivered by truck. In parts, baryte can also be delivered from overseas by container ship. Further raw materials are supplied by truck from manufacturers within Germany or from neighbouring countries.

Manufacturing
Natural gypsum as well as gypsum from the flue-gas desulphurization is calcinated prior to the mixing with other components. FGD gypsum is usually delivered as damp material and, thus, must be dried before calcination. Stucco, mineral fillers and additives are mixed with water and processed as described in section 2.6. The addition of water allows the incorporation of water of crystallization into the molecules of calcium sulphate. By the addition of water, gypsum becomes settled and hardened. Redundant surface water is removed in a multi-level dryer.

Transport to building site (A4)

For transport, a standard distance of 100 km by truck is assumed. This declaration facilitates the extrapolation of the results in A4 to the real distance.

Name	Value	Unit
Litres of fuel (Diesel, density: 0.83 kg/l)	0.0364	l/100km
Transport distance	100	km
Capacity utilisation (including empty runs)	61	%
Gross density of products transported	≥ 1400	kg/m^3

Assembly on building site (A5)

The installation in the building includes the electricity consumption for fastening the Knauf Safeboard GKF. Accessories such as screws or the substructure itself are not part of the LCA in this EPD. The energy consumption for the electrical devices was considered with 0.0018 kWh/m².

The waste material (0.887 kg/m²) from the construction site is transported by truck to a landfill and disposed of. The replacement of this construction waste is considered in A5 as well.

The packaging material, re-usable wooden pallets and PE-film, are incinerated. The credits from this process are reported in Modul D.

Name	Value	Unit
Electricity consumption	0.0018	kWh
Material loss (landfilling)	0.887	kg
Reference service life according to BBSR2017	50	a

Use phase (B1-B7): Excluded since no environmental impacts/benefits are expected.

End of life (C1-C4)

The demolition (C1) of the Knauf Safeboard GKF from the building is considered to be done 100 % manually. It is assumed that the deconstruction would take place without further processing of the waste.

For the transport (C2) from the demolition site to the landfill by truck, a distance of 100 km was assumed in the calculation.

Transport (C2)

Name	Value	Unit
Transport distance	100	km
Capacity utilisation (including empty runs)	61	%

Currently, Knauf Safeboard GKF are not recycled. Therefore, module C3 is declared with 0 impacts.

Disposal (C4) includes the disposal of Knauf Safeboard GKF at an inert landfill.

Disposal (C4)

Name	Value	Unit
Collected separately	17.7	kg
Collected as mixed construction waste	-	kg
Reuse	-	kg
Recycling	-	kg
Energy recovery	-	kg
Landfilling	17.7	kg

Reuse-, recover- and recycling potential (D): Module D contains only credits for exported energy from incineration of packaging material (results only from A5)

5. LCA: Results

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; ND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

Product stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	MND	MND	MNR	MNR	MNR	MND	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m² Knauf Safeboard GKF 12.5 mm; 17.7 kg/m²

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq	1.36E+00	1.31E-01	3.16E-01	0	1.31E-01	0	1.17E+00	-6.36E-02
GWP-fossil	kg CO_2 eq	2.3E+00	1.3E-01	1.57E-01	0	1.3E-01	0	2.67E-01	-6.29E-02
GWP-biogenic	kg CO_2 eq	-9.42E-01	0	1.59E-01	0	0	0	9.01E-01	-6.06E-04
GWP-luluc	kg CO_2 eq	2.62E-03	1.18E-03	2.72E-04	0	1.18E-03	0	8.29E-04	-6E-06
ODP	kg CFC11 eq	1.43E-11	1.99E-14	7.82E-13	0	1.99E-14	0	6.86E-13	-8.56E-13
AP	mol H^+ eq	4.36E-03	1.64E-04	3.59E-04	0	1.64E-04	0	1.89E-03	-6.64E-05
EP-freshwater	kg P eq	1.67E-05	4.66E-07	9.08E-07	0	4.67E-07	0	5.39E-07	-1.89E-07
EP-marine	kg N eq	1.36E-03	5.69E-05	1.07E-04	0	5.7E-05	0	4.89E-04	-2.37E-05
EP-terrestrial	mol N eq	1.38E-02	6.68E-04	1.15E-03	0	6.69E-04	0	5.38E-03	-2.51E-04
POCP	kg NMVOC eq	3.34E-03	1.41E-04	2.79E-04	0	1.42E-04	0	1.48E-03	-6.13E-05
ADPE	kg Sb eq	1.83E-07	8.49E-09	1.09E-08	0	8.51E-09	0	1.23E-08	-6.03E-09
ADPF	MJ	3.66E+01	1.75E+00	2.25E+00	0	1.75E+00	0	3.55E+00	-9.57E-01
WDP	m^3 world eq deprived	6.74E-02	1.6E-03	2.49E-02	0	1.6E-03	0	2.92E-02	-9.27E-04

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; 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 (user) deprivation potential)

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 m² Knauf Safeboard GKF 12.5 mm; 17.7 kg/m²

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	2.17E+00	1.28E-01	2.14E+00	0	1.28E-01	0	5.81E-01	-4.16E-01
PERM	MJ	8.4E+00	0	-1.55E+00	0	0	0	0	0
PERT	MJ	1.06E+01	1.28E-01	5.9E-01	0	1.28E-01	0	5.81E-01	-4.16E-01
PENRE	MJ	3.63E+01	1.76E+00	2.46E+00	0	1.76E+00	0	3.56E+00	-9.57E-01
PENRM	MJ	3.77E-01	0	-2.1E-01	0	0	0	0	0
PENRT	MJ	3.67E+01	1.76E+00	2.25E+00	0	1.76E+00	0	3.56E+00	-9.57E-01
SM	kg	3.98E-01	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	2.98E-09	9E-12	1.54E-10	0	9.01E-12	0	7.66E-11	-5.27E-12

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; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy 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

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 m² Knauf Safeboard GKF 12.5 mm; 17.7 kg/m²

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	2.98E-09	9E-12	1.54E-10	0	9.01E-12	0	7.66E-11	-5.27E-12
NHWD	kg	5.21E-01	2.71E-04	9.21E-01	0	2.72E-04	0	1.78E+01	-5.43E-04
RWD	kg	9.8E-04	3.43E-06	5.58E-05	0	3.43E-06	0	4E-05	-4.31E-05
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0
EEE	MJ	0	0	2.58E-01	0	0	0	0	0
EET	MJ	0	0	4.65E-01	0	0	0	0	0

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; EEE = Exported electrical energy; EET = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 m² Knauf Safeboard GKF 12.5 mm; 17.7 kg/m²

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	2.21E-07	1.2E-09	1.26E-08	0	1.2E-09	0	2.33E-08	-5.38E-10
IR	kBq U235 eq	1E-01	5.03E-04	6.01E-03	0	5.04E-04	0	4.54E-03	-4.56E-03
ETP-fw	CTUe	1.1E+01	1.24E+00	8.02E-01	0	1.24E+00	0	1.94E+00	-1.87E-01
HTP-c	CTUh	5.45E-10	2.53E-11	4.69E-11	0	2.53E-11	0	2.99E-10	-1.25E-11
HTP-nc	CTUh	3.75E-08	1.35E-09	3.79E-09	0	1.35E-09	0	3.28E-08	-3.37E-10
SQP	SQP	3.6E+01	7.25E-01	1.93E+00	0	7.26E-01	0	8.96E-01	-2.89E-01

PM = Potential incidence of disease due to PM emissions; IR = 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 (not cancerogenic); SQP = Potential soil quality index

Disclaimer 1 – for the indicator “Potential Human exposure efficiency relative to U235”. This 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 or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators “abiotic depletion potential for non-fossil resources”, “abiotic depletion potential for fossil resources”, “water (user) deprivation potential, deprivation-weighted water consumption”, “potential comparative toxic unit for ecosystems”, “potential comparative toxic unit for humans – cancerogenic”, “Potential comparative toxic unit for humans - not cancerogenic”, “potential soil quality index”. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

6. LCA: Interpretation

In general, the highest environmental impacts of Knauf Safeboard GKF result from the product stage A1-A3. Exceptions are Global Warming Potential – total GWP-t, non-hazardous waste disposed NHWD, and Human toxicity - non-cancer effects HTP-nc. For those indicators, module C4 and the disposal of the boards at inert landfill lead to the highest overall contributions.

In modules A1-A3, major contributions result from the provision of raw materials by at least 31 % to the overall life cycle impacts of the product. Exceptions are Non-hazardous waste disposed NHWD (< 1 %), Potential soil quality index SQP (approx. 28 %), and Global Warming Potential land use and land use change GWP-luluc (approx. 16 %).

The non-hazardous waste disposed NHWD, is dominated by the disposal C4 by almost 92 %. This was expected since there is no recycling at end of life but a complete landfilling. The high contribution of C4 to GWP-t results from the emission of biogenic carbon incorporated in the plasterboard. Landfilling in C4 contributes also considerably to the impact categories Water deprivation potential WDP (20 %), Eutrophication – freshwater EP-fw (24 %), Eutrophication – marine EP-m (25 %), Eutrophication – terrestrial (28 %), Acidification potential AP (27 %), and Human toxicity - cancer effects HTP-c (32 %).

Transports in A4 and in C2 cause only minor contributions to the overall life cycle impacts, due to assumed distances of 100 km in both modules. Exceptions are Ecotoxicity, freshwater ETP-fw (approx. 8 %) and the Global Warming Potential land use and land use change GWP-luluc (approx. 20 %).

Some small credits given in module D result from the incineration and recycling of packaging only. The disassembled product is landfilled after disassembly.

7. Requisite evidence

7.1 Leaching (sulphates and heavy metals)

Plasterboards Knauf Safeboard GKF show a leaching behaviour typical for gypsum based building products /Dre2006/. Thus, sulphates are leached in the saturation region (complexometric titration according to /DIN 38404-5:1985/). That is why disposal is only allowed in landfills from landfill category 1 in Germany /DepV2009/.
Heavy metal concentrations were verified (by ICPOES according to /ISO 11885:2007/) significantly below the assignment criteria according to landfill category 1 complying with /DepV2009/.

Plasterboards Knauf Safeboard GKF are classified in water hazard class 1 (slightly water-hazardous) *AwSV*.

7.2 Radioactivity

According to *Geh2012* and *RP 112* dose values and radon concentrations of gypsum-based building products are below 0.3 mSv/a. Thus, they can be used without restrictions.

7.3 VOC emissions

According to emission test from Eurofins Product Testing A/S, no hazardous substances are emitted above permissible thresholds during use */Eurofins2021/*.

Test after 3 days (limit value)

Name	Value	Unit
TVOC	≤ 10	mg/m³
Total carcinogens	< 0.01	mg/m³

Test after 28 days (limit value)

Name	Value	Unit
TVOC	≤ 1.0	mg/m³
TSVOC	≤ 0.1	mg/m³
R-value (dimensionless)	≤ 1	-
Sum of VOC without NIK/LCI	≤ 0.1	mg/m³
Formaldehyde	≤ 0.1	mg/m³
Total carcinogens	≤ 0.001	mg/m³

VOC emission tests showed that Knauf Safeboard GKF significantly undercuts the required thresholds.

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DIN 18180
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EU Taxonomy Compliance

EU taxonomy directive EU 2023/2486 section 3.1 and 3.2 and EU2021/2139 section 7.1 and 7.2 Chemistry Appendix C

We hereby confirm that the following product(s) comply with EU taxonomy regulation EU 2023/2486 Appendix C section 3.1 and 3.2 and EU2021/2139 Appendix C section 7.1 and 7.2 for Chemistry, regarding DNSH criteria for 'pollution prevention and control'. Points 1-11 listed on this declaration's page two.

Product name	Knauf Safeboard
Product IDs	10037 | Knauf Safeboard GKF 12,5

Company name	Knauf Gips KG Am Bahnhof 7 97346 Iphofen Germany
Name and position	Klaus Salhoff Head of Construction Technology | Knauf Gips KG
Phone and e-mail	+49 9323 9163000 (Knauf Direkt) Knauf-direkt@knauf.com
Place, date and signature	Iphofen, 12.02.2025

Build on us.

	We confirm that the product fulfills all requirements listed below
1	**EU) 2021/2139, sections 7.1 and 7.2, DNSH criterion** Building components and materials that may come into contact with occupants emit less than 0.06 mg formaldehyde per m3 test chamber air when tested in accordance with the conditions specified in Annex XVII to Regulation (EC) No 1907/2006.
2	**EU) 2021/2139, sections 7.1 and 7.2, DNSH criterion** Building components and materials that may come into contact with occupants emit less than 0,001 mg of other category 1A and 1B carcinogenic volatile organic compounds per m3 of test chamber air when tested in accordance with CEN/EN 16516 or ISO 16000-3:2011 or other equivalent standardised test conditions and methods of determination.
3	**EU) 2021/2139, Appendix C, point a (Persistent organic pollutants (POPs))** The product does not contain substances listed in Annex I or II to Regulation (EU) 2019/1021, except for substances present as unintentional trace contaminants.
4	**(EU) 2021/2139, Appendix C, point b (mercury and mercury compounds)** The product does not contain mercury and mercury compounds as defined in Article 2 of Regulation (EU) 2017/852.
5	**(EU) 2021/2139, Appendix C, point c (ozone-depleting substances)** The product does not contain substances listed in Annex I or II to Regulation (EU) 1005/2009.
6	**(EU) 2021/2139, Appendix C, point d** The product does not contain electrical and electronic equipment as defined in Annex I to Directive 2011/65/EU (ROHS) containing substances listed in Annex II to that Directive, unless in full compliance with Article 4(1) of that Directive.
7	**(EU) 2021/2139, Appendix C, point e (REACH Annex XVII, Restrictions list)** The product does not contain any substances listed in Annex XVII of Regulation (EC) No 1907/2006 (REACH) unless in full compliance with the conditions listed in that Annex.
8	(EU) 2021/2139, Appendix C, point f (REACH Art. 59(1), Candidate list of substances) The product, including individual parts, does not contain substances in concentrations above 0.1% (w/w) identified in accordance with Article 59(1) of Regulation (EU) 1907/2006.
9	**(EU) 2021/2139, Appendix C, point f (REACH Art. 57 a, b, c, potential candidate list substances)** The product, including individual parts, does not contain substances in concentrations above 0.1% (w/w) that fulfil the criteria for classification in one or more of the hazard classes: • Carcinogenicity 1A or 1B according to section 3.6 of Annex 1 to Regulation (EU) 1272/2008 (CLP) • Germ cell mutagenicity 1A or 1B according to section 3.5 of Annex 1 to Regulation (EU) 1272/2008 (CLP) • Reproductive toxicity 1A or 1B, adverse effects on sexual function and fertility or on the development according to section 3.7 of Annex 1 to Regulation (EU) 1272/2008 (CLP)
10	**(EU) 2021/2139, Appendix C, point f (REACH Art. 57 d, e, potential candidate list substances)** The product, including individual parts, does not contain substances in concentrations above 0.1% (w/w) that are: • Persistent, bioaccumulative and toxic (PBT) according to criteria in Regulation (EU) 1272/2008 (CLP) • Very persistent and very bioaccumulative (vPvB) according to criteria in Regulation (EU) 1272/2008 (CLP)
11	**(EU) 2021/2139, Appendix C, point f (REACH Art. 57 f, potential candidate list substances)** The product, including individual parts, does not contain substances in concentrations above 0.1% (w/w) of: • Endocrine disruptors according to criteria in Regulation (EU) 1272/2008 (CLP)