July 2020

WELL version 2

Product Data for Building Certification

GLASS MINERAL WOOL WITH ECOSE® TECHNOLOGY

WELL v2 operates on a points-based system, with a total of 110 points available to each project. All optimizations have maximum point-values. The point-value of a feature is determined by its potential for impact. This is defined as the extent to which a feature addresses a specific health and wellness concern or opportunity for health promotion, and the potential impact of effective intervention.

KNAUF INSULATION put you on the right track for the highest result into the certification process!

Feature	Part	Definition	Knauf Insulation Products contribution	Contributes towards
A01. Fundamental Air Quality	A01.2 Meet Thresholds for Organic Gases	To provide acceptable air quality levels as determined by public health authorities.	ECOSE Technology products are compliant with the German AgBB Testing and Evaluation Scheme, the higher category (A+) of the French labelling and the Blue Angel. The binder is without added phenol formaldehyde. Products with or without facing are certified for Indoor Air Comfort Eurofins Gold [1]	Precondition
A05. Enhanced Air Quality	A05.2 Meet Enhanced Thresholds for Organic Gases	To go above current guidelines to provide enhanced air quality levels that have been linked to improved human health and performance.		1 point
T01. Thermal Performance	T01.1 Support Thermal Environment	To create indoor thermal environments that provide comfortable thermal conditions to the majority of people in support of their health, well-being and productivity.	Glass Mineral Wool products help reducing energy demand through very high insulation efficiency.	Precondition

[1] See annex 1 Indoor Air Confort Gold Eurofins and https://www.eurofins.com/consumer-product-testing/

Feature	**Part**	**Definition**	**Knauf Insulation Products contribution**	**Contributes towards**
S01. Sound Mapping 	S01.1 Manage Background Noise Level	To create an acoustical plan that identifies internal and external noise sources that can negatively impact the acoustical environment of interior spaces.	Glass Mineral Wool products have high performance acoustic properties[2]. They reduce HVAC background noise, increase sound insulation of building envelope, partitions, ceilings and aid in controlling reverberation time.	Precondition
	S01.2 Manage Acoustical Privacy			
S02. Maximum Noise Levels 	S02.1 Limit Background Noise Levels	To facilitate comfortable interior noise levels. This feature can operate in tandem with Feature S01: Sound Mapping.		3 points
S03. Sound Barriers 	S03.1 Ensure Adequate Wall Construction	To bolster acoustical privacy between rooms. This feature can operate in tandem with Feature S01: Sound Mapping		2 points
X10. Volatile Compound Reduction 	X10.1 Manage Volatile Organic Compounds	To restrict hazardous VOC and SVOC compounds, halogenated flame retardants (HFRs), urea-formaldehyde and select phthalates commonly used in building materials and products	ECOSE Technology products are compliant with the German AgBB Testing and Evaluation Scheme, the higher category (A+) of the French labelling and the Blue Angel. The binder is without added phenol formaldehyde. Products with or without facing are certified for Indoor Air Comfort Eurofins Gold [3] 	2 points
X11. Long-Term Emission Control 	X11.2 Manage Flooring and Insulation Emissions	To test and adhere to emission thresholds for newly purchased furniture and furnishings, flooring and insulation.		1 point

2 See annex 2 Measurement of Sound Absorption in a Reverberation Room
3 See annex 1 Indoor Air Comfort Gold Eurofins and https://www.eurofins.com/consumer-product-testing/

Annex 1: Indoor Air Comfort Gold EUROFINS Certificate

INDOOR AIR COMFORT
eurofins
GOLD
CERTIFIED PRODUCT

Certificate

Indoor Air Comfort Gold

Knauf Insulation unfaced GMW products with ECOSE® Technology

Certified Product

Knauf Insulation

Applicant

The product complies with Indoor Air Comfort Gold requirements for product type, version 6.0 (2017). These include both inspections of factory production according to DIN 18200 and VOC testing according to CEN/TS 16516 and the ISO 16000 series, each in the latest versions, by an ISO 17025 accredited laboratory, at regular interval.

Indoor Air Comfort Gold certification ensures that low product emission requirements are fulfilled and is a sign of the applicant's focus on quality and contribution to a healthy indoor environment.

Details are defined in Indoor Air Comfort Gold requirements, version 6.0 (2017).

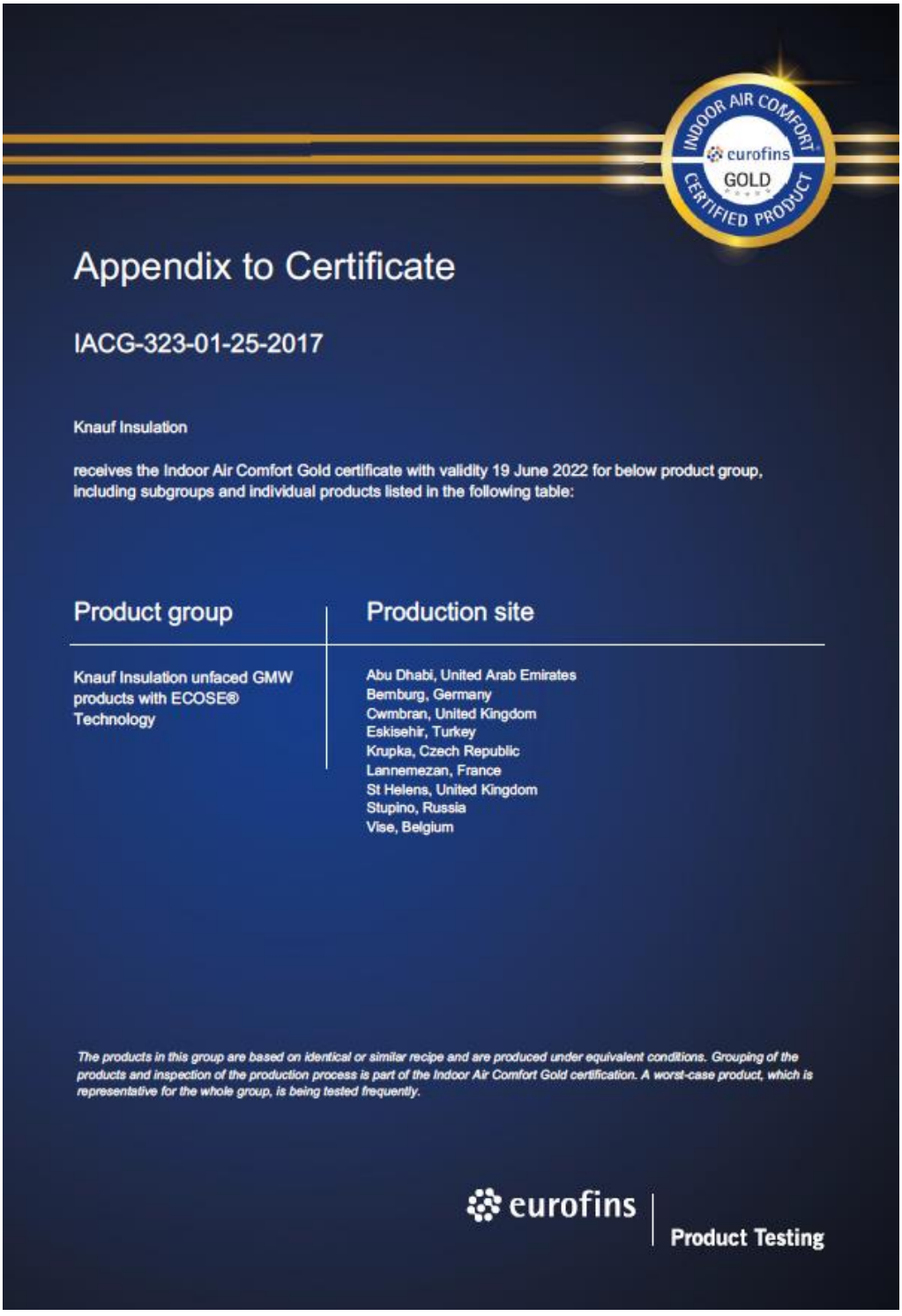
Certificate No.: IACG-323-01-25-2017
Date: 19 June 2017
Validity of certificate: 19 June 2022, with frequent surveillance and retesting.

Compliance with Indoor Air Comfort Gold means compliance with VOC requirements on low emitting products of:

Belgium regulation, France VOC class A+, Germany (AgBB/ABG), BREEAM international, BREEAM NOR, LEED outside North America, Italian regulation on GPP (Green Public Procurement), DGNB, BVB (Sweden), Blue Angel RAL UZ 132, M1.

Thomas Neuhaus
Head of Certification Body

eurofins | Product Testing



INDOOR AIR COMFORT
eurofins
GOLD
CERTIFIED PRODUCT

Appendix to Certificate

IACG-323-01-25-2017

Knauf Insulation

receives the Indoor Air Comfort Gold certificate with validity 19 June 2022 for below product group, including subgroups and individual products listed in the following table:

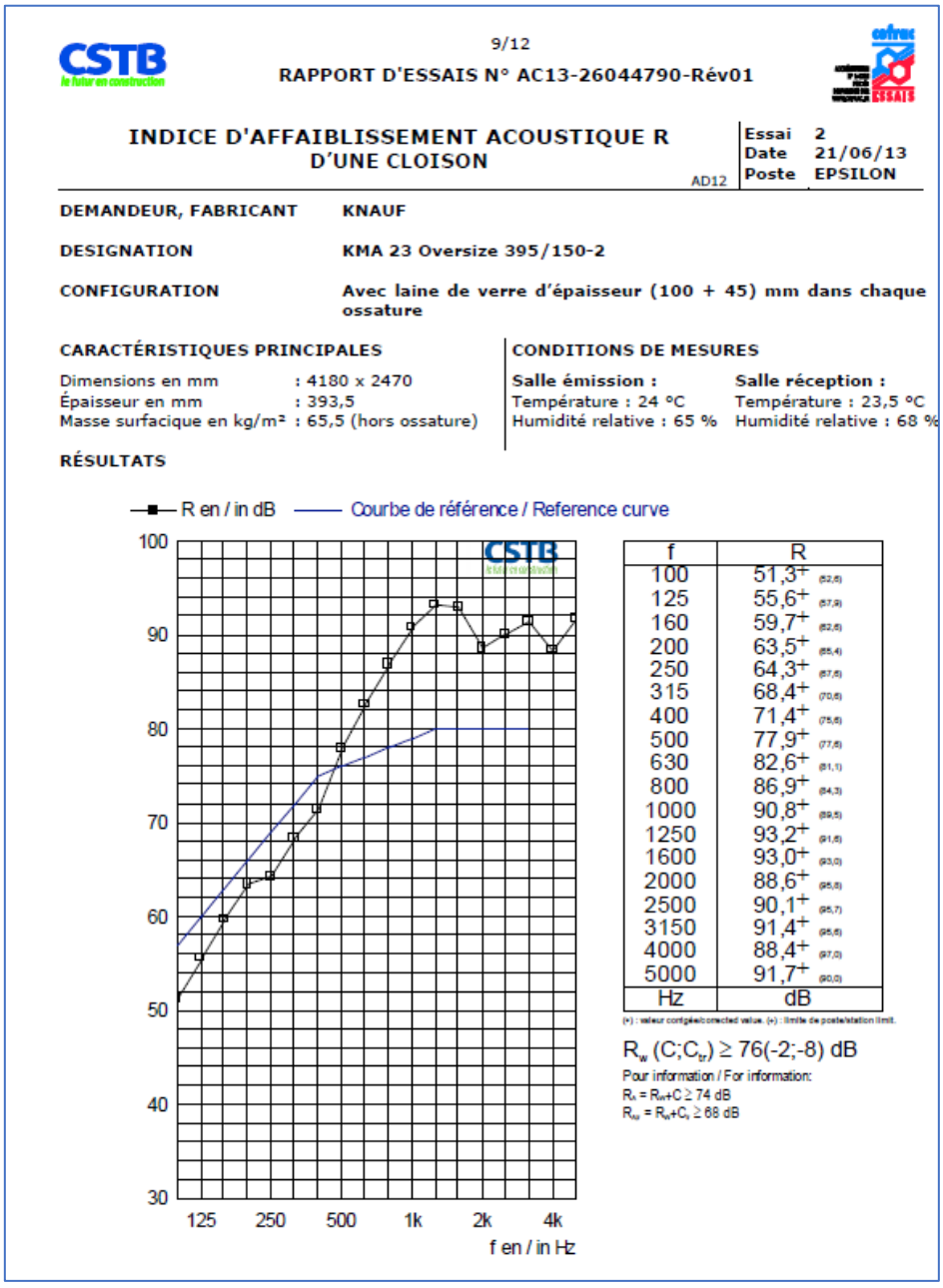
Product group	Production site
Knauf Insulation unfaced GMW products with ECOSE® Technology	Abu Dhabi, United Arab Emirates Bernburg, Germany Cwmbran, United Kingdom Eskisehir, Turkey Krupka, Czech Republic Lannemezan, France St Helens, United Kingdom Stupino, Russia Vise, Belgium

The products in this group are based on identical or similar recipe and are produced under equivalent conditions. Grouping of the products and inspection of the production process is part of the Indoor Air Comfort Gold certification. A worst-case product, which is representative for the whole group, is being tested frequently.

eurofins | Product Testing

Annex 2: ECOSE product and sound transmission and absorption examples

STC_c in North America is the composite *Sound Transmissions Class* and is equivalent to R_w *Sound Reduction Index* in Europe. α coefficient is the coefficient for *sound absorption*.



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RAPPORT D'ESSAIS N° AC13-26044790-Rév01

INDICE D'AFFAIBLISSEMENT ACOUSTIQUE R D'UNE CLOISON

AD12

Essai 2
Date 21/06/13
Poste EPSILON

DEMANDEUR, FABRICANT KNAUF

DESIGNATION KMA 23 Oversize 395/150-2

CONFIGURATION Avec laine de verre d'épaisseur (100 + 45) mm dans chaque ossature

CARACTÉRISTIQUES PRINCIPALES

Dimensions en mm : 4180 x 2470
Épaisseur en mm : 393,5
Masse surfacique en kg/m² : 65,5 (hors ossature)

CONDITIONS DE MESURES

Salle émission : Température : 24 °C Humidité relative : 65 %
Salle réception : Température : 23,5 °C Humidité relative : 68 %

RÉSULTATS

R en / in dB — Courbe de référence / Reference curve

f	R
100	51,3+ (52,6)
125	55,6+ (57,9)
160	59,7+ (62,6)
200	63,5+ (65,4)
250	64,3+ (67,6)
315	68,4+ (70,6)
400	71,4+ (75,6)
500	77,9+ (77,6)
630	82,6+ (81,1)
800	86,9+ (84,3)
1000	90,8+ (89,5)
1250	93,2+ (91,6)
1600	93,0+ (93,0)
2000	88,6+ (95,6)
2500	90,1+ (95,7)
3150	91,4+ (95,6)
4000	88,4+ (97,0)
5000	91,7+ (90,0)
Hz	dB

(+) : valeur corrigée/corrected value. (+) : limite de poste/station limit.

R_w (C;C_{tr}) ≥ 76(-2;-8) dB

Pour information / For information:
$R_A = R_w + C \geq 74$ dB
$R_w = R_w + C_i \geq 68$ dB

MEASUREMENT OF SOUND ABSORPTION IN A REVERBERATION ROOM ACCORDING TO CSN EN ISO 354

Registration no.: **A-604**

Product: **Mineral insulation with ECOSE Technology (IPB 037) – thickness 50 mm**

Specimen description: The sample consist of 12 boards 1350 mm × 625 mm in the test room K4. The boards were produced on the basis of glass fibres with ECOSE technology. They are planned for thermal, sound and anti fire insulation. The specimen was laid freely on a floor and confined to specimen height.

Specimen size: 2,50 m × 4,05 m

Manufacturer: KNAUF INSULATION spol. s r.o. Bucharova 2641, 158 00 Praha 5

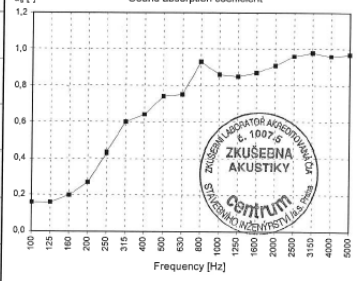
Test room: K4
Room volume: 80,25 m³
Air temperature: 23,0 °C
Relative humidity:: 46 %

Date of test: August 14, 2012
Fabrication date: August 14, 2012

Reverberation method measurement results according to CSN EN ISO 354 and CSN EN ISO 11654

Sound absorption coefficient α_s in 1/3 octave bands and weighed sound absorption coefficient α_w:

Frequency [Hz]	α_s [-]
100	0,16
125	0,16
160	0,20
200	0,27
250	0,43
315	0,60
400	0,64
500	0,74
630	0,75
800	0,93
1000	0,86
1250	0,85
1600	0,87
2000	0,91
2500	0,96
3150	0,98
4000	0,96
5000	0,97



Evaluation according to CSN EN ISO 11654:

α_w = 0,70 (H)

Specimen area: 10,12 m²
Basic weight: - kg/m²
Specimen thickness: 50 mm
Air gap thickness: -

Centrum stavebního inzenyrství a.s. (Centre of Building Engineering)– Acoustic Test Laboratory
Test Laboratory accredited by CAI, No. 1007.5
Prazska 16, 102 21 Prague 10 – Hostivar
phone: 281017111, 281017491 fax: 271751128
e-mail: meller@csias.cz

Date: August 20, 2012
Test Laboratory Chief:
Ing. M. Meller, CSc

Protokol o zkoušce č. 2Z-10
Strana 6 / 9

Lugar de medida: Cámara reverberante normalizada de AUDIOTEC. Parc. 28 y 30. Parque Tecnológico de Boecillo. Valladolid. España.
Ensayo realizado: Medición de la absorción acústica en cámara reverberante.
Cliente: KNAUF INSULATION
C/ La Selva, 2. 08820. El Prat de Llobregat (Barcelona)
Fecha: 30 de Enero de 2010.
Composición de la muestra: Lana Mineral Natural ULTRACOUSTIC de 60 mm de espesor y Rd = 1,60 m2.K/W.
Superficie muestra: 11,7 m². **Volumen cámara:** 202,12 m³.
Norma: UNE-EN ISO 354:2004.

Frec(Hz)	125	250	500	1000	2000	4000	α_w = 0,
α_p	0,20	0,60	0,90	0,90	0,85	0,80