

Isover TOPSIL

Mineral insulation from stone wool

TECHNICAL SPECIFICATION

Insulating slabs made of Isover mineral wool. The production method is based on fibering mineral composition melt and other additives and ingredients. The mineral fibres produced are processed into the final slab shape in the production line. The entire fibre surface is water repellent. The slabs in the construction should be protected in a suitable manner (outer sheathing, alternatively diffusion foil).

APPLICATION

Isover TOPSIL slabs provide for versatile application in all types of ventilated façades, wooden buildings, walls and pitched roofs and ceilings. The material is suitable for fire protection system structures where the volume density $60 \geq \text{kg}\cdot\text{m}^{-3}$ is required.

Superior thermal insulation material with $\lambda_D = 0.033 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$.

PACKAGING, TRANSPORT, WAREHOUSING

Isover TOPSIL insulation slabs are packed in PE foil with the maximum package height of 0.5 m. The slabs have to be transported in covered vehicles under conditions preventing their wetting or other degradation. They can also be delivered on pallets 1200 x 2400 mm. The products are stored indoors or outdoors depending on the conditions specified in the current ISOVER price list.

BENEFITS

- very good thermal insulation performance
- fire-resistant
- excellent acoustic properties in terms of noise absorption
- low vapour resistance - good water vapour penetrability
- environmentally friendly and hygienic
- completely hydrophobic
- long life span
- resistant to wood-destroying pests, rodents, and insect
- easy workability - can be cut, drilled into, etc.
- dimensional stability during temperature change



DIMENSIONS AND PACKAGING

Thickness	[mm]	40	50	60	80	100	120*	140	160
Length x width	[mm]	1200 x 600							
Volume per package	[ks]	12	10	8	6	5	4	3	3
Quantity per palette	[m ²]	8.64	7.20	5.76	4.32	3.60	2.88	2.16	2.16
	[m ³]	0.35	0.36	0.35	0.35	0.36	0.35	0.30	0.35
Declared thermal resistance R _D	[m ² ·K·W ⁻¹]	198.72	165.60	132.48	99.36	82.80	66.24	56.16	49.68
Declared thermal resistance R _D	[m ² ·K·W ⁻¹]	1.20	1.50	1.80	2.40	3.00	3.60	4.20	4.85

* It is necessary to consult with the producer for the terms of delivery.

TECHNICAL PARAMETERS

Parameter	Unit	Methodology	Value	Designation code
Geometric shape				
Length l	[% , mm]	EN 822	±2 %	
Width b	[% , mm]	EN 822	±1.5 %	
Thickness d	[% , mm]	EN 823	-3 % or -3 mm ¹⁾ and +5 % or 5 mm ²⁾	Class of thickness tolerances T4
Deviation from squareness of the edge on length and width S _b	[mm·m ⁻¹]	EN 824	5	
Deviation from flatness S _{max}	[mm]	EN 825	6	
Relative change in length Δε _l in width Δε _b in thickness Δε _d	[%]	EN 1604	1	Dimensional stability under the specified temperature and humidity conditions DS (23,90)
Thermal technical properties				
Declared value of the thermal conductivity coefficient λ _D ³⁾	[W·m ⁻¹ ·K ⁻¹]	Declaration according to EN 13162+A1 Measurement according to EN 12667	0.033	
Design thermal conductivity λ ⁴⁾	[W·m ⁻¹ ·K ⁻¹]	ČSN 73 0540-3	0.035	
Specific heat capacity c _d	[J·kg ⁻¹ ·K ⁻¹]	ČSN 73 0540-3	800	
Fire safety properties				
Reaction to fire class	[-]	Declaration according to EN 13501-1+A1	A1	
Maximum temperature for use	[°C]		200	
Melting temperature t _f	[°C]	DIN 4102 part 17	≥ 1000	
Hydrothermal properties				
Water vapour diffusion resistance factor μ	[-]	EN 13162+A1	1	Declared value for water vapour diffusion resistance factor MU1
Other properties				
Density	[kg·m ⁻³]	EN 1602	60	

¹⁾ Whichever gives the greatest numerical tolerance.

²⁾ Whichever gives the smallest numerical tolerance.

³⁾ Declared values were set under the following conditions (reference temperature 10 °C, humidity u_{dry}, which is reached by drying) according EN ISO 10456.

⁴⁾ It is valid for typical use in construction with risk of condensation. In the case of construction without any risk of condensation it is possible to use the declared value of thermal conductivity.

RELATED DOCUMENTS

- Declaration of Performance CZ0001-043
- Environmental Product Declaration
- ISO 9001, ISO 14001, OHSAS 18001, ISO 50001

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Parameter	Unit	Methodology	Value	Designation code			
Acoustic properties⁵⁾							
The practical sound absorption coefficient α_p	[-]	EN 13162+A1	Level of practical sound absorption coefficient	AP			
		EN ISO 11654					
		Measurement according to EN ISO 354					
	Frequency	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz
	Thickness	40 mm	0.16	0.47	0.86	1.00	1.00
60 mm		0.27	0.92	1.00	1.00	1.00	1.00
80 mm		0.50	1.00	0.96	1.00	1.00	1.00
100 mm		0.50	1.00	0.98	1.00	1.00	1.00
Weighted sound absorption coefficient α_w	[-]	EN ISO 11654	Level of weighted sound absorption coefficient	AW			
		(for NRC according ASTM C423)					
	Single number value	α_w					
	Thickness	40 mm	0.75 (MH)				
		60 mm	1.00				
80 mm		1.00					
100 mm		1.00					
Specific air flow resistivity r	[mm]	EN 13162+A1	Level of air flow resistivity				
	[kPa·s·m ⁻²]	Measurement according to EN 29053	60	AFr			
		22.1					
Environmental properties / impacts							
Volume of Pre-consumer recycled content for production	[%]	ČSN ISO 14021	55				
Volume of Post-consumer recycled content for production	[%]	ČSN ISO 14021	0				
Non-hazardous waste disposed⁶⁾	[kg /FU ⁷⁾]	EN 15804+A1, ČSN ISO 14025	2.6	NHWD			
Total use of non-renewable primary energy resources	[MJ /FU]	EN 15804+A1, ČSN ISO 14025	190	PENRT			
Global Warming Potential	[kg CO ₂ ekv. /FU]	EN 15804+A1, ČSN ISO 14025	14	GWP			
Ozone Depletion	[kg CFC 11 ekv. /FU]	EN 15804+A1, ČSN ISO 14025	4.5 E-07	ODP			
Acidification potential	[kg SO ₂ ekv. /FU]	EN 15804+A1, ČSN ISO 14025	0.91	AP			
Eutrophication potential	[kg PO ₄ ³⁻ ekv. /FU]	EN 15804+A1, ČSN ISO 14025	0.0054	EP			
Photochemical ozone creation	[kg C ₂ H ₄ ekv. /FU]	EN 15804+A1, ČSN ISO 14025	0.0047	POPC			
Abiotic depletion potential for non-fossil resources	[kg Sb ekv. /FU]	EN 15804+A1, ČSN ISO 14025	2.2 E-06	ADP-elements			
Abiotic depletion potential for fossil resources	[MJ (Calorific value) /FU]	EN 15804+A1, ČSN ISO 14025	220	ADP-fossil fuels			

⁵⁾ Informative non-declared value beyond scope of CPR, obtained by concrete tests.

⁶⁾ In this case it is standard mixed waste.

⁷⁾ FU = functional unit (1 m² of insulation by 100 mm thick for live cycle phases A1-A3).



Example of product application Isover TOPSIL