

# Isover ORSIK

Mineral insulation from stone wool

## TECHNICAL SPECIFICATION

Insulating slabs made of Isover mineral wool. The production is based on defibring method of the minerals composition melt and additional additives and ingredients. The mineral fibres produced are processed into the final slab shape on the production line. The entire fibre surface is hydrophobic. The slabs in the construction should be protected suitably against the weather effects, increased relative inner humidity and condensate (diffusion and vapour-proof foil).

## APPLICATION

Isover ORSIK slabs are suitable for unloaded thermal, acoustic and fire insulation of pitch roofs especially with insertion between rafters and additional frame as well, into partition walls, wood ceilings insulations, false ceilings, and cavities.

## PACKAGING, TRANSPORT, WAREHOUSING

Isover ORSIK insulation slabs are packed into the PE foil with package height up to 0.5 m. The slabs have to be transported in covered vehicles under conditions preventing their wetting or other degradation. The products are stored indoors or outdoors depending on the conditions specified in the current ISOVER price list.



## BENEFITS

- fire-resistant
- very good thermal insulation performance
- 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	70	80	90	100	120	140	160	180	200
Length × width	[mm]	1200 × 625						1200 × 600					
Volume per package	[ks]	12	10	8	8	6	4	6	5	4	4	3	3
	[m <sup>2</sup> ]	9.00	7.50	6.00	4.50	4.50	3.00	3.60	2.88	2.16	2.16	1.44	1.44
	[m <sup>3</sup> ]	0.36	0.38	0.36	0.32	0.36	0.27	0.36	0.35	0.30	0.35	0.26	0.29
Quantity per palette	[m <sup>2</sup> ]	207.00	165.00	138.00	117.00	103.50	87.00	82.80	66.24	56.16	49.68	41.76	37.44
Declared thermal resistance R <sub>D</sub>	[m <sup>2</sup> ·K·W <sup>-1</sup> ]	1.05	1.30	1.55	1.80	2.10	2.35	2.60	3.15	3.65	4.20	4.70	5.25

## TECHNICAL PARAMETERS

Parameter	Unit	Methodology	Value	Designation code
<b>Geometric shape</b>				
Length <i>l</i>	[%, mm]	EN 822	±2 %	
Width <i>b</i>	[%, mm]	EN 822	±1.5 %	
Thickness <i>d</i>	[%, mm]	EN 823	-5 % or -5 mm <sup>1)</sup> and +15 mm or +15 mm <sup>2)</sup>	Class of thickness tolerances T2
Deviation from squareness of the edge on length and width <i>S<sub>b</sub></i>	[mm·m <sup>-1</sup> ]	EN 824	5	
Deviation from flatness <i>S<sub>max</sub></i>	[mm]	EN 825	6	
Relative change in length Δ <i>ε<sub>l</sub></i> , in width Δ <i>ε<sub>b</sub></i> , in thickness Δ <i>ε<sub>d</sub></i>	[%]	EN 1604	1	Dimensional stability under the specified temperature and humidity conditions DS (70,-)
<b>Thermal technical properties</b>				
Declared value of the thermal conductivity coefficient λ <sub>D</sub> <sup>3)</sup>	[W·m <sup>-1</sup> ·K <sup>-1</sup> ]	Declaration according to EN 13162+A1 Measurement according to EN 12667	0.038	
Design thermal conductivity λ <sub>D</sub> <sup>4)</sup>	[W·m <sup>-1</sup> ·K <sup>-1</sup> ]	ČSN 73 0540-3	0.040	
Specific heat capacity <i>c<sub>d</sub></i>	[J·kg <sup>-1</sup> ·K <sup>-1</sup> ]	ČSN 73 0540-3	800	
<b>Fire safety properties</b>				
Reaction to fire class	[-]	Declaration according to EN 13501-1+A1	A1	
Maximum temperature for use	[°C]		200	
Melting temperature <i>t<sub>f</sub></i>	[°C]	DIN 4102 part 17	≥ 1000	
<b>Hydrothermal properties</b>				
Water vapour diffusion resistance factor μ	[-]	EN 13162+A1	1	Declared value for water vapour diffusion resistance factor MU1
<b>Other properties</b>				
Density	[kg·m <sup>-3</sup> ]	EN 1602	30	

<sup>1)</sup> Whichever gives the greatest numerical tolerance.

<sup>2)</sup> Whichever gives the smallest numerical tolerance.

<sup>3)</sup> Declared values were set under the following conditions (reference temperature 10 °C, humidity *u<sub>dry</sub>*, which is reached by drying) according EN ISO 10456.

<sup>4)</sup> 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 CZ0001-004
- Environmental Product Declaration
- Certificate of constancy of performance 1390-CPR-0305/11/P
- ISO 9001, ISO 14001, OHSAS 18001, ISO 50001

### TECHNICAL PARAMETERS

Parameter	Unit	Methodology	Value	Designation code				
<b>Acoustic properties<sup>5)</sup></b>								
<b>The practical sound absorption coefficient <math>\alpha_p</math></b>	[-]	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	0.15	0.40	0.80	0.90	0.95	0.95
60 mm		0.20	0.65	1.00	1.00	0.95	1.00	
80 mm		0.30	0.90	1.00	1.00	1.00	1.00	
100 mm		0.45	1.00	1.00	1.00	1.00	1.00	
<b>Weighted sound absorption coefficient <math>\alpha_w</math></b> <b>Sound Absorption Average <math>\alpha_{sfr}</math></b> <b>Noise Reduction Coefficient NRC</b>	[-]	EN ISO 11654 (for NRC according to ASTM C423)	Level of weighted sound absorption coefficient				AW	
		Single number value	$\alpha_w$				NCR	
	Thickness	40 mm	0.70 (H)	$\alpha_{sfr}$				0.75
		60 mm	0.95					0.90
		80 mm	1.00					1.00
100 mm		1.00					1.05	
<b>Specific air flow resistivity <math>r</math></b>	[kPa·s·m <sup>-2</sup> ]	EN 13162+A1	Level of air flow resistivity			AFr		
		Measurement according to EN 29053	≥ 5					
<b>Environmental properties / impacts</b>								
<b>Volume of Pre-consumer recycled content for production</b>	[%]	ČSN ISO 14021	55					
<b>Volume of Post-consumer recycled content for production</b>	[%]	ČSN ISO 14021	0					
<b>Non-hazardous waste disposed<sup>6)</sup></b>	[kg /FU <sup>7)</sup> ]	EN 15804+A1, ČSN ISO 14025	1.1	NHWD				
<b>Total use of non-renewable primary energy resources</b>	[MJ /FU]	EN 15804+A1, ČSN ISO 14025	80	PENRT				
<b>Global Warming Potential</b>	[kg CO <sub>2</sub> ekv. /FU]	EN 15804+A1, ČSN ISO 14025	5.9	GWP				
<b>Ozone Depletion</b>	[kg CFC 11 ekv. /FU]	EN 15804+A1, ČSN ISO 14025	1.9 E-07	ODP				
<b>Acidification potential</b>	[kg SO <sub>2</sub> ekv. /FU]	EN 15804+A1, ČSN ISO 14025	0.038	AP				
<b>Eutrophication potential</b>	[kg PO <sub>4</sub> <sup>3-</sup> ekv. /FU]	EN 15804+A1, ČSN ISO 14025	0.0023	EP				
<b>Photochemical ozone creation</b>	[kg C <sub>2</sub> H <sub>4</sub> ekv. /FU]	EN 15804+A1, ČSN ISO 14025	0.0020	POPC				
<b>Abiotic depletion potential for non-fossil resources</b>	[kg Sb ekv. /FU]	EN 15804+A1, ČSN ISO 14025	9.2 E-07	ADP-elements				
<b>Abiotic depletion potential for fossil resources</b>	[MJ (Calorific value) /FU]	EN 15804+A1, ČSN ISO 14025	92	ADP-fossil fuels				

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

<sup>6)</sup> In this case it is standard mixed waste.

<sup>7)</sup> FU = functional unit (1 m<sup>2</sup> of insulation by 100 mm thick for live cycle phases A1-A3).



Example of product application Isover ORSIK