

BLOWN INSULATION



BLOWN INSULATION

is a material which is automatically blown and filled with the help of machinery straight to wall cladding or cavity, roofs and ceilings. Blown insulation adheres extremely well to every element, significantly reducing the risk of thermal bridges and existence of vertical air flow. Fire and acoustic properties are also significant. In the field of thermal insulators, blown insulation, based on cellulose, glass fibre, non-absorbent polystyrene and wood fibres allows on site installation without risk of structural damage.

Especially **Climatizer Plus®** has excellent thermal, fire and acoustic insulation properties. It stands out for its high specific heat capacity, i.e. $cd = 1919 - 2142 \text{ J/kg}\cdot\text{K}$, so that works perfectly in winter as well as in the summer with sufficient thermal inertia. A great advantage is the unique ability of moisture transport.

Mineral stone blown insulation **Climastone®** is a good alternative to cellulose insulation specified for areas with high requirements for reaction to fire (Euro class A1).

Climaglass® is a unique thermal and acoustic insulation free from formaldehyde, which is made from glass wool. It has excellent fire and acoustic properties, and is easily permeable to water vapour. Benefits include also the low density and high reaction to fire class – A1.

Foam, nonabsorbent polystyrene mixture of graphite **Climastyren®** is useful wherever there is a risk of contact with water. An example may be a floor structure with the potential for water ingress, external weather exposed walls and wall gaps.

Climawood® is a unique thermal and acoustic insulation, which is made from pure loose wood fibres, filling all cavities without gaps and joints.



With proper coordination of external wall insulation process all applications can be made on site, i.e. including retrofitting of older buildings. By complying with the correct procedures and through carefully guarded and sophisticated production of the materials 100% reliability can be guaranteed. Specialized application companies are equipped with devices that accurately assesses the quality of the work.



The ever-increasing requirements for energy savings spent on building construction, both standardized as well as by users and project consultants, carry a high claim for building-physical quality attributes of the materials and construct compositions. In most cases, is not enough to properly assemble the cheapest available materials from different suppliers, as for the years running practice often works, but the care must be taken on the recommendations of manufacturers and designers, who should respect these compositions and take into accounts their exact parameters.

This applies especially for the composition of thermal insulator, vapor barriers and waterproof layers and tightness of construction, including diffusion-open facade systems.

The aim is to offer reliable, practical proven system of material compositions that provide a healthy environment for residents and long lifetime of structures without defects.

We and our cooperating partners use primarily suitable materials for each isolated building with optimum quality at a reasonable price.

In system Compri® we support this kind of solution, by our own supplies, specialist advisory and professional installation, and also subsequent inspection.

Michal Urbánek
General Director CIUR a.s.

ADVANTAGES OF BLOWN INSULATION

- 1 Saving energy and significantly reduce heating costs**
 - Excellent thermal insulation attributes
- 2 Significant improvement in building acoustics**
 - Excellent sound insulation attributes increased sound reduction of structures
- 3 Improving accumulation characteristics of building**
 - In the summer effectively prevents overheating of buildings, in the winter compensates thermal comfort throughout the day
- 4 Low vapor resistance and the ability of moisture transportation**
 - In case of correct composition of the layers of material allows structures of the house to breathe
- 5 Perfect filling out of all construction details**
 - Application without waste, without the risk of thermal bridges and of longitudinal airflow
- 6 Universal use in roofs, walls and ceilings**
 - Application thickness of insulation according to the type of construction from 4 cm
- 7 Good fire parameters and resistance to mold and mildew**
 - Insulating material is impregnated with mineral additives
- 8 Fast availability and application**
 - Guarantee of the implementation - certified companies
- 9 Long-lasting insulation**
 - Long-term life of isolation – a unique technology
- 10 Environmentally friendly product**

**25 years of experience
with blown insulation**

**Warranty up to 20 years depending
on the type of isolation**



The house without
thermal insulation
100%
of energy
consumption



The roof or ceiling
thermally insulated
65%
of energy
consumption



The complete thermal
insulation of the entire
structure
40%
of energy consumption



Climatizer Plus®

PRODUCT CHARACTERISTICS

Climatizer Plus® is a unique thermal and acoustic insulation, made using a natural cellulose fibre base. The cellulose insulation raw material is recycled newsprint, which is shredded, milled and impregnated with mineral additives (Boric Acid and Magnesium Sulphate). The product is unattractive to vermin and small organisms and is resistant to mould and mildew. Mineral fire retardants are added to the product in order to provide excellent reaction to fire performance. The advantage is natural ability to balance moisture and to accumulate heat at a much greater extent than synthetically made insulation.

USE, APPLICATION

Climatizer Plus® is designed for thermal and acoustic insulation in both external and internal building element structures – pitched roofs, attics, ceilings, floors between joists or beams, partition walls, ceilings and others.

Installation is carried out by using blowing machines (dry application or by spraying). Dry insulation application is possible by open blowing (e.g. lofts) or, more commonly by injection filling into prepared cavity walls, roofs or ceilings. The system enables penetrate very easily into the smallest corners and hence provides a full fill installation without any air gaps. Blowing technology ensures quick and easy work. When using the open blowing application is necessary to apply a settlement value of about 10% - 15% (install the product at 10 - 15% increased depth in order to meet a target settled U value). For dry cavity injection, the manufacturer installation instructions regarding minimum required density should be followed, in order to avoid any settlement.

The damp spray technique can be applied to internal and external wall structures using a fine mist of moisture or glue. For horizontal application the damp spray technique can be used in combination with a suitable glue only.

Density ranges for dry cellulose insulation application:

- open blowing in horizontal surfaces: 30–48 kg·m⁻³
- volume filling in horizontal, pitched or vertical structures: 34–70 kg·m⁻³

Volume spray density:

- when spraying with glue: 45–90 kg·m⁻³
- when spraying with water: 38–50 kg·m⁻³



ADVANTAGES

- excellent thermal insulation properties
- significant improvement in building acoustics
- high value of specific heat capacity of material
- improving of accumulated properties a reducing the room temperature in summer
- good fire parameters
- low diffusion resistance allowing the realization of structures with open-diffusion construction
- resistance to fungi, mold, rodents and insects
- application thicknesses in the range from 1 to 100 cm
- environmentally friendly product (trademark since 1994)

DIMENSIONS

Trade Mark	Weight (kg)
Climatizer Plus®	13.6

TECHNICAL PARAMETERS

Parameter	Measured Value	Unit	Harmonized Technical Specification
THERMAL PROPERTIES			
Thermal conductivity $\lambda_{D(23/50)}$ – dry injection/dry open blowing	0.038*	W·m ⁻¹ ·K ⁻¹	EN 12667, EN ISO 10456
Thermal conductivity factor Λ – spraying with moisture (binding agent)	0.039 (0.042)	W·m ⁻¹ ·K ⁻¹	
Specific heat capacity c_d	2020 ± 6%	J·Kg ⁻¹ ·K ⁻¹	EN ISO 8990, EN 675
PHYSICAL PROPERTIES			
Volume weight	30–90**	kg·m ⁻³	EN 1602
Settling rate (open blowing on horizontal surface)	≤10–15	%	–
Settling rate (volume filling – ceilings, roofs, partitions)	undetectable (≤1)	%	–
FIRE PROPERTIES			
Reaction to fire – dry material	C-s1, d0	–	ČSN EN 13501-1
Reaction to fire – dry material in the cavity under specified conditions	B-s1, d0	–	
Reaction to fire – spraying with the Karsil E01 binding agent	B-s1, d0	–	
Reaction to fire – spraying with the Sokrat 2802A binding agent	D-s2, d0	–	
Flame spread index i_s	0.00	mm·min ⁻¹	ČSN 73 0863
Maximum used temperature	80 (105 for short time)	°C	–
OTHER PROPERTIES			
Diffusion resistance factor μ	1.1–3**	–	ČSN EN 12086

* Declared lambda 90/90 value given for the mean temperature of 10°C and moisture content equal to the moisture of the material in the equilibrium state at 23°C and the relative humidity of 50%

**Based on the method of application for various structures and their inclination.





Climastone®

PRODUCT CHARACTERISTICS

Climastone® is a unique thermal and acoustic insulation, made from mineral fibre. The production is based on shredding of composition melt and other additives and ingredients. The mineral fibre in the production line is then shaped into granules. The entire fibre surface is hydrophobised, however it is necessary to protect the insulation in the construction suitably against weathering.

APPLICATION

Installation is carried out by using blowing machines, free blowing (for example soil) or injection filling into the prepared cavity walls, roofs or ceilings. The system enables penetrate very easily into the smallest corners and hence provides a full fill installation without any air gaps. Blowing technology ensures quick and easy work. When applying free blowing,

the material meets the S1 requirements of settlement. The manufacturer installation instructions regarding minimum required density should be followed, in order to avoid any settlement.

ADVANTAGES

- excellent thermal insulation properties
- highest reaction to fire class A1
- significant improvement in building acoustics
- low diffusion resistance allowing the realization of structures with open-diffusion construction
- perfect completion of all construction details
- ecological and hygienic
- high fire resistance
- resistance to borers, rodents and insects
- application thicknesses in the range from 6 to 60 cm

There are three types of the product: Climastone® S, Climastone® L and Climastone® M.



USE – CLIMASTONE® S

Climastone® S has excellent thermal and acoustic insulation properties, in the external and internal structures. It is suitable for all applications in common structures. Density in horizontal and slightly sloping structures, depending on the method of processing and storing,

in the range from 50 kg to 90 kg / m³. **Climastone® S** can be used in all external building elements including walls. Wall structure, in terms of long-term stability, must be filled with a greater density. It must be installed at a minimum density of 70 kg / m³.

Density ranges:

- open blowing in horizontal surfaces: 50–60 kg·m⁻³
- volume filling in vertical structures: 70–110 kg·m⁻³



DIMENSIONS

Trade Mark	Weight (kg)
Climastone® S	15

TECHNICAL PARAMETERS

Parameter	Measured Value	Unit	Harmonized Technical Specification
THERMAL PROPERTIES			
Thermal conductivity factor λ (according to volume density)	0.041–0.036	W·m ⁻¹ ·K ⁻¹	EN 12667, EN ISO 10456
Declared thermal conductivity factor λ_D	0.037	W·m ⁻¹ ·K ⁻¹	
Specific heat capacity c_d	900	J·Kg ⁻¹ ·K ⁻¹	EN ISO 8990, EN 675
PHYSICAL PROPERTIES			
Volume weight	50–69 (70–110)*	kg·m ⁻³	EN 1602
Settling rate (open blowing on horizontal surface)	S2** (S1)***	–	EN 14064-1
Settling rate (volume filling – ceilings, roofs, partitions)	undetectable (≤ 1)	%	–
FIRE PROPERTIES			
Reaction to fire	A1	–	EN 13501-1
Flame spread index i_s	0.00	mm·min ⁻¹	ČSN 73 0863
Maximum used temperature	200	°C	–
Melting temperature of mineral fibre	1000	°C	–
OTHER PROPERTIES			
Diffusion resistance factor μ	1	–	EN 12086

* according to the construction type

**S2 = settling rate > 1 % and ≤ 5 % according to EN 14064-1

***S1 = settling rate undetectable (≤ 1 %) according to EN 14064-1



USE – CLIMASTONE® L

Climastone® L is used for thermal and acoustic insulation in the external and internal structures. It is particularly suitable in the ceiling and on the undersides. Its bulk density in the range of

40–90 kg/m³ is used in this case in the lower limit, where the use of this type of product most economically and qualitatively advantageous is.

Density ranges:

- open blowing in free horizontal surfaces: 40–60 kg·m⁻³
- volume filling in horizontal or inclined structures: 50–90 kg·m⁻³

DIMENSIONS

Trade Mark	Weight (kg)
Climastone® L	15

TECHNICAL PARAMETERS

Parameter	Measured Value	Unit	Harmonized Technical Specification
THERMAL PROPERTIES			
Thermal conductivity factor λ (according to volume density)	0.037	W·m ⁻¹ ·K ⁻¹	EN 12667, EN ISO 10456
Declared thermal conductivity factor λ_D	0.038	W·m ⁻¹ ·K ⁻¹	
Specific heat capacity c_d	900	J·Kg ⁻¹ ·K ⁻¹	EN ISO 8990, EN 675
PHYSICAL PROPERTIES			
Volume weight	40–90*	kg·m ⁻³	EN 1602
Settling rate (open blowing on horizontal surface)	S1**	–	EN 14064-1
Settling rate (volume filling – ceilings, roofs, partitions)	undetectable (≤ 1)	%	–
FIRE PROPERTIES			
Reaction to fire	A1	–	EN 13501-1
Flame spread index i_s	0.00	mm·min ⁻¹	ČSN 73 0863
Maximum used temperature	200	°C	–
Melting temperature of mineral fibre	1000	°C	–
OTHER PROPERTIES			
Diffusion resistance factor μ	1	–	EN 12086

* according to the construction type

** S1 = settling rate undetectable (≤ 1 %) according to EN 14064-1

USE – CLIMASTONE® M

Climastone® M is used for thermal and acoustic insulation in the external and internal structures. This product is designed for specific fire design, installation shafts, cable routes and filling of thin structures with a small volume in general. Flakes of this type are very small and

therefore allow very detailed filling even complicated and complex space. The volume weight of this product used in the range of 70 - 130 kg / m³ and most are around 100 kg/m³.

Density ranges:

– open blowing in free horizontal surfaces: 70–130 kg·m⁻³

DIMENSIONS

Trade Mark	Weight (kg)
Climastone® M	15

TECHNICAL PARAMETERS

Parameter	Measured Value	Unit	Harmonized Technical Specification
THERMAL PROPERTIES			
Thermal conductivity factor λ (dle objemové hmotnosti)	0.036–0.038	W·m ⁻¹ ·K ⁻¹	EN 12667,
Declared thermal conductivity factor λ_D	0.037	W·m ⁻¹ ·K ⁻¹	EN ISO 10456
Specific heat capacity c_p	900	J·Kg ⁻¹ ·K ⁻¹	EN ISO 8990, EN 675
PHYSICAL PROPERTIES			
Volume weight	70 –130*	kg·m ⁻³	EN 1602
Settling rate (open blowing on horizontal surface)	S1	–	EN 14064-1
Settling rate (volume filling – ceilings, roofs, partitions)	undetectable (≤ 1)	%	–
FIRE PROPERTIES			
Reaction to fire	A1	–	EN 13501-1
Flame spread index i_s	0,00	mm·min ⁻¹	ČSN 73 0863
Maximum used temperature	200	°C	–
Melting temperature of mineral fibre	1000	°C	–
OTHER PROPERTIES			
Diffusion resistance factor μ	1	–	EN 12086

* according to the construction type

** S1 = settling rate undetectable (≤ 1 %) according to EN 14064-1



Climaglass® - W

PRODUCT CHARACTERISTICS

Climaglass®-W is a unique thermal and acoustic insulation free from formaldehyde, which is made from glass wool. It has excellent fire and acoustic properties, and is easily permeable to water vapour. Benefits include also the low density and high reaction to fire class - A1.

The production method is based on re-pulping in-situ. The formed glass fibres are then processed in the production line into their final granulate shape. The entire fibre surface is hydrophobic, it is nevertheless necessary to suitably protect the insulation from the elements (avoid contact with rain water).

USE, APPLICATION

Climaglass®-W is used for thermal and acoustic insulation in external and internal structures - pitched roofs, loft attics, ceilings, floors between joists or pillars, partition walls, ceilings and other construction elements which have acoustic requirements.

Application is carried out under dry conditions by using blowing machinery, open blowing (for example, in lofts), or more commonly injection filling into prepared cavity walls, roofs or ceilings. The system enables very easy penetration into the smallest corners and hence provides a full fill installation without any air gaps. Blowing technology ensures quick and easy installation.

When using the open blowing application is necessary to apply a settlement value of about from 5% to 10% (during the application the thickness increases by 5%, after which time no further settlement occurs).

For dry cavity injection, the manufacturer installation instructions regarding minimum required installed density should be followed, in order to avoid any settlement.

Density ranges:

- Open blowing in open horizontal surfaces: 18–28 kg·m⁻³
- Injection filling in horizontal, pitched or vertical structures: 40–60 kg·m⁻³

ADVANTAGES

- Very low density
- Easy application
- Low diffusion resistance allowing the easy permeability to water vapour
- Ecological and hygienic – pure, white, non-irritating formaldehyde-free
- Highest reaction to fire class A1



DIMENSIONS

Trade Mark	Weight (kg)
CLIMAGLASS® – W	12

TECHNICAL PARAMETERS

Parameter	Measured Value	Unit	Harmonized Technical Specification
THERMAL PROPERTIES			
Thermal conductivity λ (by density)	0.032-0.041	$W \cdot m^{-1} \cdot K^{-1}$	EN 14064-1:2010
Declared thermal conductivity λ_D (at density of 12-45 $kg \cdot m^{-3}$)	0.039	$W \cdot m^{-1} \cdot K^{-1}$	ČSN EN 12667
Declared thermal conductivity λ_D (at density of 18-45 $kg \cdot m^{-3}$)	0.036	$W \cdot m^{-1} \cdot K^{-1}$	ČSN EN 12667
Declared thermal conductivity λ_D (at density of 28-50 $kg \cdot m^{-3}$)	0.034	$W \cdot m^{-1} \cdot K^{-1}$	ČSN EN 12667
Specific heat capacity c_p	840	$J \cdot Kg^{-1} \cdot K^{-1}$	ČSN 730540-3
PHYSICAL PROPERTIES			
Volume weight	18-60*	$kg \cdot m^{-3}$	–
Settlement (open blowing on horizontal surface)	S3**	%	–
Settlement (volume filling – ceilings, roofs, partitions)	S1***	%	–
FIRE PROPERTIES			
Reaction to fire	A1	–	ČSN EN 13501-1
Flame spread index i_s	0.00	$mm \cdot min^{-1}$	ČSN 73 0863
Maximum in use exposure temperature	200	$^{\circ}C$	–
Melting point	<1000	$^{\circ}C$	–
OTHER PROPERTIES			
Moisture diffusion resistance factor μ	1	–	ČSN EN 12086

* Parameter on the final product after application.

** S3 = (>5 %) a (≤ 10 %) according to CSN EN 14064-1 at density of 14-28 $kg \cdot m^{-3}$

*** S1 = settlement is not measurable (≤ 1 %) according to CSN EN 14064-1 at density above of 28 $kg \cdot m^{-3}$



Climaglass® - Y

PRODUCT CHARACTERISTICS

Climaglass®-Y is a unique thermal and acoustic insulation, made from glass wool. The production is based on shredding of composition glass melt and other additives and ingredients. The formed glass fibres in the production line are then processed into the final granulate shape. The entire fibre surface is hydrophobic, however, it is necessary to protect the insulation in the construction against weathering.

USE, APPLICATION

Climaglass®-Y is used for thermal and acoustic insulation in external and internal structures - pitched roofs, loft attics, ceilings, floors between joists or pillows, partition walls, ceilings and other construction elements which have acoustic requirements.

Installation is carried out by using blowing machines, open blowing (for example, in lofts) or injection filling into the prepared cavity walls, roofs or ceilings. The system enables very easy penetration into the smallest corners and hence provides a full fill installation without any air gaps. Blowing technology ensures quick and easy installation.

When using the open blowing application is necessary to apply a settlement value of about 5% (sometime after application the installed thickness decreases by 5% or more, after settlement the material does not settle any more). For dry cavity injection, the manufacturer installation instructions regarding minimum required density should be followed, in order to avoid any settlement.

Density ranges:

- Open blowing in open horizontal surfaces: 25–34 kg·m⁻³
- Injection filling in horizontal, pitched or vertical structures: 25–60 kg·m⁻³

ADVANTAGES

- Low density
- Highest reaction to fire class A1
- Elastic fibre absorbing sound
- Low diffusion resistance allowing the easy permeability to water vapor
- Perfect completion of all construction details
- Special compressed packaging
- Ecological and hygienic
- Application thicknesses in the range from 6 to 60 cm



DIMENSIONS

Trade Mark	Weight (kg)
CLIMAGLASS - Y	20

TECHNICAL PARAMETERS

Parameter	Measured Value	Unit	Harmonized Technical Specification
THERMAL PROPERTIES			
Declared thermal conductivity ($\lambda_{90/90}$) λ_D	0.039	$W \cdot m^{-1} \cdot K^{-1}$	EN ISO 13164
PHYSICAL PROPERTIES			
Volume weight	25–60*	$kg \cdot m^{-3}$	–
Settlement (open blowing on horizontal surface)	S2**	%	–
Settlement (volume filling – ceilings, roofs, partitions)	undetectable ($\leq 1\%$)	%	–
FIRE PROPERTIES			
Reaction to fire	A1	–	EN 13501-1
Flame spread index i_f	0.00	$mm \cdot min^{-1}$	ČSN 73 0863
Maximum in use exposure temperature	150	$^{\circ}C$	–
OTHER PROPERTIES			
Moisture diffusion resistance factor μ	1.1	–	EN 12086

* Parameter on the final product after application

** S2 = settlement > 1 % a ≤ 5 according to EN 14064-1





Climastyren®

PRODUCT CHARACTERISTICS

Climastyren® is the latest type of graphite foam polystyrene using nano-technology for professional insulation. Insulation material with millions of cells, with a trace addition of graphite, effectively reflects heat back to its source and substantially improves the insulating properties. **Climastyren®** is manufactured using the latest technologies without CFC and HCFC (known as freon). Modern technology ensures a constant level of quality and which reduces the energy required for production, allowing **Climastyren®** to offer an excellent price/performance ratio. **Climastyren®** is manufactured with a self-extinguishing design with increased fire safety.*

USE, APPLICATION

Climastyren® is designed for professional installation in to cavities, in particular the hollow walls, ceilings, floors, and ceilings that are more susceptible to moisture (e.g. rising moisture from the ground). **Climastyren®** has a high heat insulating effect, moisture resistance and a high degree of flexibility in the cavity providing a complete fill. It allows, unlike other materials for similar use, for installation of the product with only minimal opening yet still ensuring perfect filling of the cavity.

Density range between 11–18 kg·m⁻³.

ADVANTAGES

- Excellent thermal insulation properties
- Excellent mechanical properties
- Minimum weight
- Easy workability
- Long-term life
- Ecological and hygienic
- Permanent moisture resistance
- Biological neutrality
- Economic return

DIMENSIONS

Trade Mark	Weight (kg)
Climastyren®	20–22

TECHNICAL PARAMETERS

Parameter	Measured Value	Unit	Harmonized Technical Specification
THERMAL PROPERTIES			
Declared thermal conductivity factor λ_b	0.034	W·m ⁻¹ ·K ⁻¹	EN ISO 10456
PHYSICAL PROPERTIES			
Volume weight	11–18**	kg·m ⁻³	EN 1602
FIRE PROPERTIES			
Reaction to fire	E***	–	EN 13501-1
Flame spread index i_b	0.00	mm·min ⁻¹	ČSN 73 0863
Maximum used temperature	70	°C	–
OTHER PROPERTIES			
Diffusion resistance factor μ	2–5	–	EN 12086
Granularity of individual lenses	4–8	mm	

* Self-extinguishing of **Climastyren®** is ensured using the flame retardant hexabromocyclododecane – HBCD. Use of this fire retardant is not required to establish the safety rules, detailed technical parameters are available in writing upon request.

** Bulk density is indicative only and is intended primarily for the needs of static calculation of the fire load.

*** For fire safety in buildings is crucial Classification of all constructions and systems, EPS is not used without fire-proof coatings.





Climawood®

PRODUCT CHARACTERISTICS

Climawood® is a unique thermal and acoustic insulation, which is made from pure loose wood fibres, filling all cavities without gaps and joints. Each of these fibers has all the advantages of natural wood: durability, stability and very good thermal insulation properties. The production method is based on re-pulping pinewood. In the production process the ingredients are added, protecting the insulation material against vermin and molds with respect to the environment and also act as flame retardants. It is always necessary to protect the insulation in the construction of an appropriate way against weathering.

USE, APPLICATION

Climawood® is used for thermal and acoustic insulation in external and internal structures. Application is carried out under dry conditions by using blowing machinery (for example lofts), or more commonly volume filling into prepared cavity walls, roofs or ceilings. The system enables very easy penetration into the smallest corners and hence provides a full fill installation without any air gaps. During the application no cuttings or scrap is generated. Blowing technology provides fast and easy installation. The material is also suitable for the pre-fabricated production of roof, wall and ceiling panels. If the insulation is injected into the cavity, then the manufacturer's

instructions must be respected regarding the exact density in order to avoid any settlement.

Density ranges:

- Free floor blowing: cca 32–38 kg·m⁻³
- Roof < 45°, floor, ceiling: cca 35–42 kg·m⁻³
- Roof > 45°, wall: cca 38–45 kg·m⁻³

ADVANTAGES

- Insulating layer, without gaps and joint
- Very good thermal insulation properties
- Excellent protection against heat in summer (high thermal mass)
- Extremely diffuse open insulation to create a healthy indoor climate
- Excellent settlement resistance due to the long fibres
- Application with no cuttings or waste
- Pure fibre from pine wood with recycling options
- Optimum noise protection in combination with wood-fibre



DIMENSIONS

Trade Mark	Weight (kg)
CLIMAWOOD®	15

TECHNICAL PARAMETERS

Parameter	Value	Unit	Harmonized Technical Specification
THERMAL PROPERTIES			
Thermal conductivity λ (by density)	0.038	$W \cdot m^{-1} \cdot K^{-1}$	AbZ- Z-23.11-1120
Declared thermal conductivity λ_D	0.040	$W \cdot m^{-1} \cdot K^{-1}$	ETA-12/0011
Specific heat capacity c_p	2100	$J \cdot Kg^{-1} \cdot K^{-1}$	ČSN EN ISO 8990, ČSN EN 675
PHYSICAL PROPERTIES			
Volume weight	32–45*	$kg \cdot m^{-3}$	–
Settlement (volume filling – ceilings, roofs, partitions)	undetectable (≤ 1)	%	–
FIRE PROPERTIES			
Reaction to fire	E	–	ČSN EN 13501-1
OTHER PROPERTIES			
Diffusion resistance factor μ	1–2	–	ČSN EN 12086

* According to type of the construction.



PACKAGING, TRANSPORT, STORAGE

Climatizer Plus®, Climastone®, Climaglass®, Climawood®

The products are packed in PE bags and can be stacked on pallets and stored freely dry ground in a covered warehouse. For hassle-free transportation, it is recommended that the pallets are stretched film wrapped. The thermal insulating material packaging is labelled by the manufacturer for identification and performance declaration purposes.

The product must be transported in covered vehicles in order to protect from weathering effects.

The product is stored in covered storage areas protected from the weather. The insulation packaging is not water-

proof. If outdoor storage is required then delivery for this purpose is possible only on pallets and the pallets are covered by special packaging in the production process.



Climastyren®

Climastyren® is packed in big bags weighing 20-22 kg. The bags must be stored under conditions preventing their destruction and must not be stored in direct sunlight (thermal stability max. 70°C).



Comparison of particular used blown insulation materials

	Climatizer Plus®	Climaglass®-W	Climaglass®-Y
Declared thermal conductivity factor λ_D^* [W·m ⁻¹ ·K ⁻¹]	0.038	0.032 – 0,041	0.039
Specific heat capacity c_d [J·Kg ⁻¹ ·K ⁻¹]	2 020 +/- 6 %	840	840
Volume weight** [kg·m ⁻³]	30–90	18 - 60	28 - 86
Settlement (open blowing on horizontal surface)	≤ 10–15 %	S3****	S2****
Settlement (volume filling – ceilings, roofs, partitions)	undetectable (≤1 %)	undetectable (≤1 %)	undetectable (≤1 %)
Reaction to fire	C-s1, d0	A1	A1
Flame spread index [mm·min ⁻¹]	0.00	0.00	0.00
Moisture diffusion resistance factor	1.1–3	1	1.1
Decrement delay/time lag at 30 cm of the isolant at open blowing [h]	6.6	1.4	2.1
Nature material	yes	no	no
Resistant to fire	high	low	low
Resistant to vermin	yes	no	no
Resistant to mold/mildew	yes	no	no
Insulation of twin-canopy ventilated roofs	yes	yes	yes
Insulation of pitched roofs	yes	yes	yes
Insulation of horizontal surfaces (lofts, ceilings & floors)	yes	yes	yes
Insulation of vertical wall structures	yes	yes	yes

	Climastone® L	Climastone® S	Climastone® M
Declared thermal conductivity factor λ_D^* [W·m ⁻¹ ·K ⁻¹]	0.038	0.037	0.037
Specific heat capacity c_d [J·Kg ⁻¹ ·K ⁻¹]	900	900	900
Volume weight** [kg·m ⁻³]	40–90	50–69 (70–110)	70–130
Settlement (open blowing on horizontal surface)	S1***	S2**** S1***	no stated
Settlement (volume filling – ceilings, roofs, partitions)	undetectable (≤1 %)	undetectable (≤1 %)	undetectable (≤1 %)
Reaction to fire	A1	A1	A1
Flame spread index [mm·min ⁻¹]	0.00	0.00	0.00
Moisture diffusion resistance factor	1	1	1
Decrement delay/time lag at 30 cm of the isolant at open blowing [h]	4.9	4.9	4.9
Nature material	no	no	no
Resistant to fire	middle	middle	high
Resistant to vermin	yes	yes	yes
Resistant to mold/mildew	no	no	no
Insulation of twin-canopy ventilated roofs	no	no	no
Insulation of pitched roofs	no	yes	no
Insulation of horizontal surfaces (lofts, ceilings & floors)	yes	yes	yes
Insulation of vertical wall structures	no	yes	Yes

	Climastyren®	Climawood®
Declared thermal conductivity factor λ_D^* [W·m ⁻¹ ·K ⁻¹]	0.034	0.040
Specific heat capacity c_d [J·Kg ⁻¹ ·K ⁻¹]	x	2 100
Volume weight** [kg·m ⁻³]	11–18	32–45
Settlement (open blowing on horizontal surface)	NPD	≤ 10–15 %
Settlement (volume filling – ceilings, roofs, partitions)	NPD	undetectable (≤1 %)
Reaction to fire	E	E
Flame spread index [mm·min ⁻¹]	0.00	
Moisture diffusion resistance factor	2–5	1–2
Decrement delay/time lag at 30 cm of the isolant at open blowing [h]	2.4	6.1
Nature material	no	yes
Resistant to fire	low	middle
Resistant to vermin	yes	yes
Resistant to mold/mildew	yes	yes
Insulation of twin-canopy ventilated roofs	no	no
Insulation of pitched roofs	no	yes
Insulation of horizontal surfaces (lofts, ceilings & floors)	yes	yes
Insulation of vertical wall structures	yes	yes

* Declared value for temperature of 10° C and moisture content of the material at temperature of 23 °C and relative air moisture of 50 %.

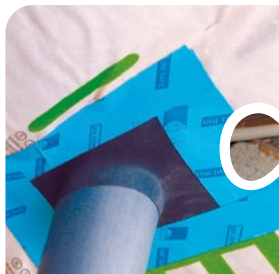
** According to type of the construction.

*** S1 = settlement is undetectable (≤1 %) according to CSN EN 14064-1

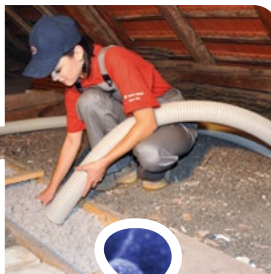
**** S2 = settlement > 1 % a ≤ 5 % according to CSN EN 14064-1

***** S3 = (>5 %) and (≤10 %) according to CSN EN 14064-1; valid for density 18–28 kg.m⁻³

Tightness of Buildings
FILMS, ADHESIVES, TAPES



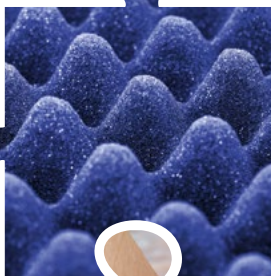
Thermal
Insulation



Diagnosis
THERMAL CAMERA, BLOWER DOOR



Sound
Insulation



Consulting
and Design



Interior
Insulation



Thermal Pumps
Air Conditioning
Ventilation



Fire
Resistance



Recovery
for Passive Houses



Expanders
SOLUTION OF ADDITIONAL
INSULATION

