



4MG.026 Biosoluble Fibre

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Biosoluble fibres are guaranteed asbestos and ceramic fibre-free. In order to eliminate the health risks associated with exposure to ceramic fibres or rock fibres for insulation, their chemical composition has been adapted. These fibres dissolve in bodily fluids such as those found in the pulmonary alveoli. They are less biopersistent, meaning they are eliminated more quickly by the body while maintaining their excellent thermal insulation and fire protection qualities. Our biosoluble fibre products are reinforced with glass or refractory steel which enhances their thermal resistance up to 650 °C (E-glass) and 1,050 °C (refractory steel).

Applications

- Insulation for pipes and exhausts
- Electrical insulation
- Metal work
- Insulation for furnaces

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General Characteristics

Health and Safety

- Low biopersistence
- Excluded from all carcinogenic classifications
- Stored as a non-hazardous product

Mechanical Properties

- Good mechanical resistance
- Very low linear shrinkage (< 2 % up to 1,200 °C)
- High flexibility

Thermal Properties

- Can be used up to 1,200 °C
- Very good resistance to high temperatures
- Low thermal capacity
- Low thermal conductivity
- Resistance to thermal cycles

Chemical Properties

- Very good resistance to various chemicals (except phosphoric and hydrofluoric acids and concentrated bases and solvents)
- No usage restrictions

Benefits

- Excellent thermal insulation properties
- High resistance to traction
- No binder or lube
- Good thermal stability
- Low thermal accumulation
- Excellent chemical stability and resistance to most corrosif substances
- Very good flexibility and resilience
- No reaction to thermal shock
- Excluded from all carcinogenic classifications

Comparative Table

Property	S98	S94	Biosoluble
Composition	SiO : 98 % Others: 2 %	SiO ₂ : 94.5 % Al ₂ O ₃ : 4.5 % Na ₂ O: 0.5 % Others: 0.5 %	SiO ₂ : 63-67 % CaO: 29-33 % MgO: 1.5-4 % Al ₂ O ₃ : max 1 % Fe ₂ O ₃ : max 0.6 %
Color	Off-white	White	Light green
Fibre Diameter	6 µm	9 µm	3.5 µm
Peak Temperature	1,200 °C	1,100 °C	650 °C (glass) 1,050 °C (Inconel®)
High Temperature Stability	Very good	Excellent	Good
Resistance To Thermal Shock	Excellent	Excellent	-

**Biosoluble Fibre**

Property	S98	S94	Biosoluble
Chemical Resistance	Good	Good	Good
Mechanical Resistance	Good	Good	High (abrasion)
Flexibility	Good	Excellent	Good
Thermal Conductivity	Low	Low	Low
Reaction to Fire	Fireproof	Fireproof	Fireproof

Product range**Tapes**

Biosoluble fibre strips are available in 2, 3 and 5 mm thicknesses with widths of 10 to 200 mm. Adhesive strips and strips with bolt holes are also available.

Property	Unit	Biosoluble Fibre Tape					
Item N°		reinforced with E-glass: 207-6201					
Item N°		reinforced with Inconel®: 207-6202					
Thickness	mm	2	2	2	5	5	5
Width	mm	25	50	100	25	50	100
Reel length	m	50	50	50	25	25	25

Other dimensions are available on request.

Packings

Produced with a biosoluble fibre sleeve, packings have excellent flexibility while maintaining good mechanical strength. The core consists of 100 % biosoluble fibres. Sleeves are available in diameters from 12 to 80 mm and can reach a peak temperature of 600 °C.

Property	Unit	Biosoluble Fibre Packings					
Item N°		207-6401					
Section	mm	round					
Diameter	mm	12	20	25	40	60	
Reel Length	m	50	50	25	25	20	
Linear Density	g/m	115	280	390	700	1,280	

Other dimensions and version with a biosoluble sheath are available on request.

Twisted Ropes

Biosoluble fibre twisted ropes are reinforced, either with E-glass fibre or with refractory steel (Inconel®):

- Glass fibre reinforcement is more cost-effective, and provides the benefit of not being electrically conductive;



Biosoluble Fibre

- Refractory steel reinforcement increases the strength of the high-temperature braided cord, and improves its physical properties, whilst preserving its initial flexibility.

These twisted ropes are available in diameters ranging from 5 to 60 mm.

Property	Unit	Reinforced Biosoluble Fibre Twisted Ropes													
Item N°		reinforced with E-glass: 207-6601													
Item N°		reinforced with Inconel®: 207-6602													
Section		round													
Diameter	mm	3	4	5	6	8	10	12	15	20	25	30	35	40	50
Reel Length	m	200	150	100	100	100	100	100	50	50	50	25	25	25	10

Other dimensions are available on request.

Braided Ropes

Alike twisted ropes, biosoluble fibre braided ropes can be reinforced with refractory steel or fiberglass and benefit from the same advantages.

The biosoluble braided ropes are available in diameters ranging from 5 to 60 mm, in square, rectangular or round sections.

Property	Unit	Round Biosoluble Braids													
Item N°		reinforced with E-glass: 207-6301													
Item N°		reinforced with Inconel®: 207-6302													
Section		round													
Diameter	mm	5	6	8	10	12	15	20	22	25	30	35	40	50	60
Reel Length	m	100	100	100	50	50	50	30	30	30	10	10	10	10	10

Property	Unit	Square Biosoluble Braids													
Item N°		reinforced with glass: 207-6303													
Item N°		reinforced with Inconel®: 207-6304													
Section		square													
Diameter	mm	5	6	8	10	12	15	20	22	25	30	35	40	50	60
Reel Length	m	100	100	100	50	50	50	30	30	30	10	10	10	10	10

Other dimensions and rectangular sections are available on request.

Bulk fibre

The product consists of a mass of randomly orientated, long, fluffy, resistant fibres. It has excellent thermal stability and retains its flexible fibrous structure up to a temperature of 1,000 °C. It contains no binders and emits no smoke or odor when first heated. The fibres are insensitive to thermal shock and absorb very little energy when heated.

**Biosoluble Fibre**

Biosoluble bulk fibre is available lubricated for use when filling or as expansion joints. The non-lubricated version is particularly useful for vacuum forming. The fibres are available in short, medium, long and extra-long sizes. The level of thermal conductivity depends on the degree of compression during installation.

Property		Unit	Bulk Fibres
Item N°			210-0100
Diameter of the Fibres		µm	2.5 to 3.5
Density		kg/m ³	64/80/96/128
Thermal Conductivity at 1,000 °C for 128 kg/m ³		W.m ⁻¹ .K ⁻¹	0.25
Composition	SiO ₂	%	62-68
	CaO		26-32
	MgO		3-7
	Other		< 1
Operating Temperature		°C	1,000
Peak Temperature		°C	1,200

Sleeves

Our sleeves are available in diameters of 15 to 60 mm. They are sold in 25 m rolls.

Property	Unit	Biosoluble Fibre Sleeves				
Item N°		reinforced with glass: 207-6501				
Item N°		reinforced with Inconel®: 207-6502				
Diameter	mm	15	20	25	40	60
Reel Length	m	25	25	25	25	25
Linear Mass	g/m	88	110	123	220	339

Other dimensions are available on request.

Felts

Biosoluble fibre felts are obtained from long fibres of alkaline earth silicate. Their high-temperature insulation performance is remarkable. With high thermal stability, they retain a flexible fibrous structure up to a temperature of 1,200 °C.

Felts contain no binders or lubricants and emit no smoke or odor when heated. Biosoluble fibre felts are flexible and easy to cut or install. They are available laminated with an aluminium film to improve the thermal properties of the sheets.

Property	Unit	Biosoluble Fibre Felts			
Density	kg/m ³	64	80	96	128
Tensile Resistance	kPa	75	75	75	75
Linear shrinkage 24 hrs at 1,200 °C	%	1	1	1	1
Continuous Temperature	°C	1,000	1,000	1,000	1,000
Peak Temperature	°C	1,200	1,200	1,200	1,200



Biosoluble Fibre

Property		Unit	Biosoluble Fibre Felts			
Thermal Conductivity	at 200°C	W.m ⁻¹ .K ⁻¹	0.06	0.06	0.05	0.05
	at 400°C		0.11	0.09	0.09	0.08
	at 600°C		0.18	0.15	0.14	0.12
	at 800°C		0.29	0.24	0.21	0.18
	at 1,000 °C		0.42	0.36	0.29	0.25

Other dimensions are available on request.

Papers

Made from alkaline earth silicate wool, biosoluble paper has an extremely uniform structure. Resistant to continuous operating temperatures up to 1,260 °C, this product has low thermal conductivity and high temperature stability as well as being light, smooth, flexible and easy to handle. These exceptional properties come from the careful selection of specific organic binders combined with advanced manufacturing processes.

Thermal conductivity (W.m ⁻¹ .K ⁻¹)	
at 400 °C	0.08
at 600 °C	0.11
at 800 °C	0.16
at 1,000 °C	0.21

Our papers are available in thicknesses from 1 to 6 mm and a width of 610 mm. Sold in whole rolls, we also offer customized cuts. Other dimensions are available on request.

Property	Unit	Biosoluble Fibre Paper			
Item N°		214-0010	214-0020	214-0030	214-0060
Thickness	mm	1	2	3	6
Width	mm	610	610	610	610
Length	m	125	60	35	15
Density	kg/m ³	140-160	140-160	140-160	140-160
Resistance to Traction	kPa	350	350	350	350
Average Diameter	µm	4	4	4	4
Ignition Loss	Wt. %	< 10	< 10	< 10	< 10
Melting Point	°C	> 1,500	> 1,500	> 1,500	> 1,500
Operating Temp.	°C	1,260	1,260	1,260	1,260

Thickness (mm)	1	2	3	6
Hot-surface temperature (°C)	Cold-surface temperature (°C)			
538	398	332	264	199
648	472	396	317	240
760		453	381	273
870		513	410	312
982			480	351
1,093			509	392
1,204				432

Other thicknesses are available on request.

**Fabrics**

Biosoluble fibre fabrics are available in 2 and 3 mm thicknesses. During production, they are heat-treated to limit flying fibres and dust.

Property	Unit	Biosoluble Fibers + Glass Reinforcement		Biosoluble Fibers + Inconel® Reinforcement		
		Item N°	Item N°	Item N°	Item N°	Item N°
Item N°		207-6101	207-6102	207-6104	207-6105	207-6106
Thickness	mm	2	3	2	3	5
Area Density	g/m ²	1,250	1,500	1,250	1,500	1,900
Width	mm	1,000	1,000	1,000	1,000	1,000
Reel Length	m	30	30	30	30	30

Aluminised version available on request.

Physical variables included in this documentation are provided by way of indication only and do not, under any circumstances, constitute a contractual undertaking. Please contact our technical service if you require any additional information.