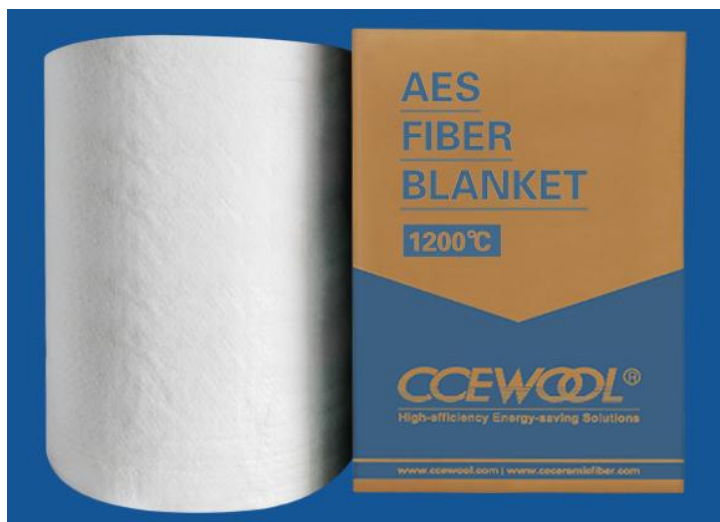


CCEWOOL® Bio Soluble Fiber Blanket



Classification Temperature: 1200°C (2192°F),
1300°C (2372°F)

Chemical Composition: Silicon, Calcium,
Magnesium (AES)

CCEWOOL® Bio Soluble Fiber Blanket (Bio Soluble Fiber Blanket) is made from alkaline earth silicate (AES) fibers, a calcium-magnesium-based bio-soluble fiber material. These fibers have increased solubility in physiological fluids and are developed as an alternative to conventional aluminosilicate

ceramic fibers. CCEWOOL® Bio Soluble Fiber Blanket has undergone solubility testing by the Fraunhofer Institute and complies with relevant GHS and REACH requirements, without requiring additional carcinogenic hazard labeling where applicable.

The product is manufactured from our own spun bio-soluble fiber using CCEWOOL®'s self-developed double-sided internal needle-punching process. It features a uniform fiber structure and low dust content, with no binders or lubricants added, so it produces no smoke or odor during initial heating. The fibers remain soft and flexible at elevated temperatures while maintaining stable thermal insulation performance and good mechanical strength.

With its stable fiber structure, low dust content, and good consistency, CCEWOOL® Bio Soluble Fiber Blanket is also well suited for Fabrication processing. It can be further processed into custom-shaped components, modules, composite insulation structures, and customized high-temperature parts, helping meet the requirements of complex equipment and integrated insulation systems for both processing performance and application safety.

CCEWOOL® Bio Soluble Fiber Blanket is available in various thicknesses and densities and is widely used in industrial furnace linings, heating equipment, pipelines, and heat-treatment systems, providing stable, clean, and reliable high-temperature insulation.

Characteristics:

Bio-soluble fiber;
Fully inorganic system;
Excellent thermal shock resistance;
Low thermal conductivity;
Infrared opacity for stable high-temperature insulation;
Low linear shrinkage;
Low heat capacity and low heat storage;
High tensile strength;
High purity and chemical corrosion resistance;
Flexible fibers with good resistance to mechanical damage;
Lightweight, soft, and easy to install;
Good sound absorption.

Applications:

Industrial furnace, heating furnace, and process furnace linings;
Boiler and waste-heat boiler pipe insulation;
Industrial and commercial chimney, flue, and duct insulation;
External wrapping insulation for pipelines and equipment;
Backup insulation for kilns, furnaces, and holding pits;
Modular insulation systems and expansion joint filling;
Fire-protection structures, including fire walls, fire doors, fire-rated ceilings, and fire barriers;
Fire-resistant ducts and smoke-control systems;
Thermal shields for vehicle exhaust systems;
Thermal protection for cable trays and electrical equipment;
Insulation for thermal storage heaters and heating equipment;
Insulation for auxiliary components in metal and glass industries, such as covers and vessel lids;
Thermal insulation and stress control during welding and heat treatment;
Thermal insulation and protection in consumer heat-resistant products.

TDS

CCEWOOL® Bio Soluble Fiber Blanket

Classification Temperature	1200°C(2192°F)		1300°C(2372°F)	
Chemical Composition (%)				
SiO2	62-68		≥70	
CaO	26-32		-	
MgO	4-7		-	
CaO+MgO	-		≥20	
Color	Light Bluish		Light Bluish	
Shot Content (%)	≤12		≤12	
Density (kg/m³)	96(6lb/ft³)	128(8lb/ft³)	96(6lb/ft³)	128(8lb/ft³)
Tensile Strength (kPa)	55	75	55	75
Permanent Linear Shrinkage (%)	1100°C x 24h ≤1.0		1300°C x 24h ≤3.0	
Thermal Conductivity (W/m·K)				
200°C	0.05	0.05	0.05	0.04
400°C	0.09	0.08	0.1	0.08
600°C	0.13	0.12	0.18	0.14
800°C	0.2	0.17	0.3	0.22
1000°C	0.28	0.25	0.46	0.33
1200°C	-	-	0.68	0.46

Thickness	Density (kg/m ³)			Length	Width
mm	96	128	160	mm	mm
13	√	√	○	14640	610, 1220
19	√	√	○	9760	
25	√	√	√	7320	
38	√	√	√	4880	
50	√	√	-	3660	

Note: (√) is standard size, Custom size are available

CCEWOOL® Bio Soluble Fiber Board



Classification Temperature: 1200°C (2192°F),

1300°C (2372°F)

Chemical Composition: Silicon, Calcium,
Magnesium (AES)

CCEWOOL® Bio Soluble Fiber Board is a high-performance refractory insulation board developed for customized Fabrication insulation and protection structures. It is made from our own high-purity bio-soluble fiber bulk combined with selected organic and inorganic binders and

formed through a vacuum-forming process. The board features a uniform, dense internal structure and stable bulk density, meeting the requirements of high-temperature equipment for structural integrity, installation accuracy, and system compatibility.

The AES (alkaline earth silicate) fibers used in CCEWOOL® Bio Soluble Fiber Board are low-biopersistence fibers with increased solubility in physiological fluids and reduced long-term retention in the lungs, making them a safer alternative to conventional aluminosilicate fibers. These fibers have undergone relevant biosolubility testing and are suitable for high-temperature applications with higher occupational health, safety, and environmental compliance requirements.

The product is developed specifically around Fabrication customization requirements, rather than simply serving as a standard board for secondary processing. It can be customized to meet different equipment structures, installation methods, and engineering requirements for dimensions, thicknesses, holes, grooves, and complex shapes. Its stable structure and good processing consistency make it particularly suitable for customized insulation panels, structural separators, and shaped high-temperature components.

CCEWOOL® Bio Soluble Fiber Board provides good thermal shock resistance and can be used in direct-flame applications. It resists cracking and performance degradation under repeated heating and cooling. The board also maintains structural integrity under high-velocity gas flow, mechanical vibration, and certain erosive conditions. If exposed to water, steam, or oil during installation or service, its thermal and physical properties can recover after thorough drying.

Combining the safety advantages of bio-soluble fibers with strong Fabrication capability, CCEWOOL® Bio Soluble Fiber Board is widely used in industrial furnaces and ovens, refractory backup insulation, boilers, hot-air ducts, chimneys, and other high-temperature equipment, providing a safer, stable, and easy-to-integrate insulation solution.

Characteristics:

Rigid, self-supporting structure;
Extremely low thermal conductivity;
Low heat storage and low heat loss;
Suitable as backup insulation behind refractory bricks and castables;
High-temperature stability;
Excellent thermal shock resistance;
Suitable for direct flame contact;
Resistant to high-velocity gas flow and erosion;
Good chemical corrosion resistance;
Non-reactive with molten aluminum;
Lightweight structure;
Uniform structure and easy machining;
Easy to install.

Applications:

Industrial Furnaces & Kilns

Hot-face and backup insulation for industrial furnaces, kilns, and ovens;
Refractory linings and backup insulation layers;
Combustion chamber linings;
Heat-treatment furnaces and related equipment.

Backup & Composite Insulation

Backup insulation behind refractory bricks and insulating fire bricks;
Backup insulation behind monolithic refractories such as ramming mixes and castables;
Rigid support boards in blanket lining systems;
Secondary insulation behind refractory brick or castable linings.

Boilers & Piping Systems

Linings for boilers and industrial heaters;
Flue and chimney linings;
Hot-gas duct and high-temperature air-duct linings.

Non-Ferrous Metals & Molten Metal Applications

Hot-top insulation for aluminum ingot molds;
Covers for molten metal troughs;
Insulation areas in direct contact with molten aluminum.

Sealing & Structural Insulation

High-temperature gaskets and seals;
Expansion joint insulation;
Thermal protection shields for personal protection.

Equipment & OEM Applications

OEM industrial furnaces, stoves, and ovens;
Domestic and commercial appliances, including:

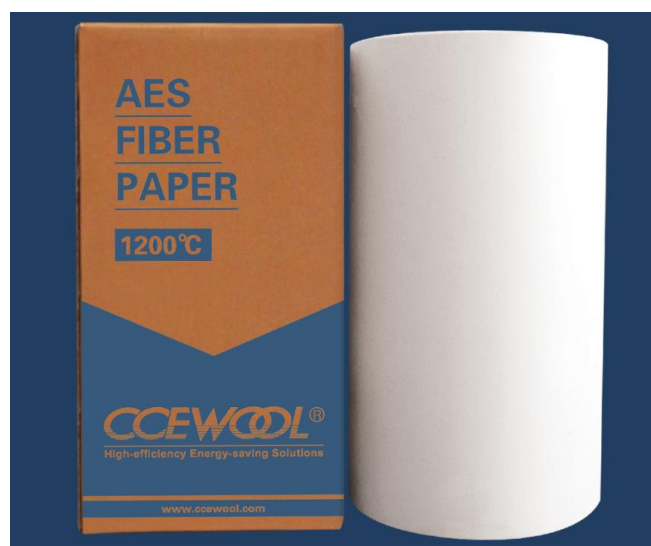
- Ovens
- Water heaters
- Thermal storage heaters

TDS

CCEWOOL® Bio Soluble Fiber Board		
Classification Temperature (°C)	1200°C(2192°F)	1300°C(2372°F)
Color	Light Bluish	Light Bluish
Density (kg/m³)	300	300
Modules of Rupture (MPa)	≥0.25	≥0.25
Compressive Strength (MPa, 10% relative deformation)	0.15	0.15
Loss of Ignition (%)	≤7	≤7
Permanent Linear Shrinkage (%)	1100°C x 24h ≤2.0	1260°C x 24h ≤2.0
Thermal Conductivity (W/m·K)		

200°C	0.05	0.05
400°C	0.08	0.07
600°C	0.1	0.1
800°C	0.12	0.11
1000°C	0.14	0.14

CCEWOOL® Bio Soluble Fiber Paper



Classification Temperature: 1200°C (2192°F)

Chemical Composition: Silicon, Calcium, Magnesium (AES)

CCEWOOL® Bio Soluble Fiber Paper is made from our own high-purity alkaline earth silicate (AES) fibers combined with a specially formulated organic binder system. It offers good flexibility, mechanical strength, and high-temperature stability, making it suitable for high-temperature insulation, protection, and precision thermal insulation applications.

Compared with conventional aluminosilicate ceramic fiber paper, CCEWOOL® Bio Soluble Fiber Paper

offers the advantages of low biopersistence and improved environmental safety. The fibers have increased solubility in physiological fluids and comply with relevant GHS requirements, making the product more suitable for industrial and equipment applications with higher occupational health, safety, and environmental compliance requirements.

While maintaining its environmental and safety advantages, CCEWOOL® Bio Soluble Fiber Paper also provides good processing adaptability and dimensional stability, making it suitable as a base material for

Fabrication processing. It can be further processed into custom-shaped components, gaskets, heat shields, seals, and multilayer composite insulation structures.

With its environmental advantages, reliable high-temperature performance, and good Fabrication adaptability, CCEWOOL® Bio Soluble Fiber Paper is widely used in high-temperature insulation, protective wrapping, sealing gaskets, heat shields, and multilayer insulation systems.

Characteristics:

- Low-biopersistence fiber;
- Excellent thermal insulation with low thermal conductivity;
- Low heat storage and fast thermal response;
- Good high-temperature stability;
- Lightweight, thin, and flexible;
- Excellent thermal shock resistance;
- Excellent tensile strength;
- Easy to process and die-cut into complex shapes;
- Suitable for high-temperature gaskets and sealing;
- Non-wetting to molten aluminum;
- Ultra-low shot content.

Applications:

- Refractory backup and separation layers for molten metal handling equipment;
- High-temperature sealing pads and gaskets;
- Expansion joint insulation and sealing;
- Thermal insulation and sealing for industrial and domestic appliances, including ovens, stoves, boilers, electric heaters, and small appliances;
- Glassware separation materials;
- Refractory backup for glass tanks and glass-processing equipment;
- Non-ferrous metal ingot mold linings;
- Backup insulation for aluminum transfer systems;
- Separation media in induction furnaces;
- Automotive heat shields and muffler insulation;
- Thermal insulation and separators for EV batteries;

Investment casting mold wrapping;
Ladle backup insulation;
Ladle shrouds and nozzle wrapping;
Fire-protection applications, including fire doors and fire-resistant insulation layers;
Multipurpose high-temperature padding and separation materials;
Fireplace catalytic converter mats;
Aluminum filter cup gaskets;
Separation gaskets between aluminum and zinc trough sections;
Metal trough linings.

TDS

CCEWOOL® Bio Soluble Fiber Paper	
Classification temperature	1200°C(2192°F)
Density, Kg/m ³	190-210
Operation temperature	1000°C (1832°F)
Melting point	>1300°C (2372°F)
Tensile strength(Kpa)	>250
Loss on ignition (wt%)	9
Permanent Linear shrinkage, % ENV(1094-1)	
After 24 hours @1000°C	1.5
Thermal conductivity (%)	
400°C	0.1
600°C	0.16
800°C	0.22
Chemical composition (%)	
SiO ₂	65-68
CaO+MgO	27-33
others	≤3%
Specification (MM)	60000×610×1 (200'×24"×1/24")
	30000×610×2 (100'×24"×1/12")
	20000×610×3 (66'×24"×1/8")
	15000×610×4 (50'×24"×1/6")
	12000×610×5 (40'×24"×1/5")
	10000×610×6 (33'×24"×1/4")

	Min Width: 5cm (2")
Package	Inner Plastic Bag+Outer Carton

CCEWOOL® Bio Soluble Fiber Module



Classification Temperature: 1200°C (2192°F),
1300°C (2372°F)

Chemical Composition: Silicon, Calcium,
Magnesium (AES)

CCEWOOL® Bio Soluble Fiber Module is made from our own high-quality bio-soluble fiber blanket through precision compression forming. It maintains stable thermal insulation and chemical stability at temperatures up to 1300°C (2372°F). The product is lightweight, with low thermal conductivity and low heat storage, helping reduce furnace heat loss and improve thermal efficiency.

The module design takes full advantage of the elasticity and compressibility of the fiber blanket. During installation, adjacent modules are tightly compressed together to compensate for minor deformation of the furnace shell and steel structure, forming a continuous and dense insulation lining. This helps reduce thermal bridges and gaps, making the system particularly suitable for industrial furnaces exposed to thermal cycling and temperature fluctuations.

As a safer high-temperature insulation solution, CCEWOOL® Bio Soluble Fiber Module uses an AES bio-soluble fiber system, combining reliable insulation performance with occupational health and environmental considerations. It is suitable for applications with higher safety and regulatory compliance requirements.

For different furnace types, structural areas, and installation methods, CCEWOOL® Bio Soluble Fiber Module is available in multiple module configurations and anchoring systems. It is widely used for hot-face and backup insulation in furnaces, boilers, kilns, and other high-temperature equipment. The modular design

helps shorten installation time and provides a stable, energy-efficient, and environmentally responsible furnace lining solution.

Characteristics:

High-temperature stability up to 1300°C;
Low thermal conductivity and low heat loss;
Low heat storage for rapid heating and cooling;
Excellent thermal shock resistance;
Lightweight structure;
Binder- and lubricant-free;
Excellent chemical resistance and contamination resistance;
High resistance to gas erosion;
High tensile strength;
Modular design for easy installation;
Multiple connection and anchoring systems available;
Built-in stainless steel anchors;
Low heat loss and low heat storage for improved energy efficiency;
Suitable for rapid furnace cycling.

Applications:

Industrial Furnaces & Heat-Treatment Equipmen

Heat-treatment furnaces
Forging furnaces
Annealing furnaces
Stress-relieving furnaces
Carbide heating furnaces

Ceramics & Refractory Industry

Ceramic tunnel kilns
Ceramic intermittent kilns
Ceramic industrial furnace linings

Steel & Metallurgical Industry

Zibo Double Egret Thermal Insulation Co.,Ltd
Add: No.105 Liuquan Road, Zibo, Shandong, China
Tel: +86-533-7986860

Email: ceramicfibres@ccewool.com
Website: www.ceramicfibres.com
www.cceramicfiber.com
www.ccwool.com

Steel industry furnace linings

Ladle preheating stands

High-temperature heating and holding equipment

Energy & Utilities

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Chimney and pipeline insulation for waste heat boilers in power generation

Petrochemical & Refining

Process heaters

Ethylene cracking furnaces

Ammonia, hydrogen, and methanol reforming units

Delayed coking units

Refinery heaters

Flare stack insulation linings

Flue Gas & Piping Systems

Chimney linings

Flue linings

High-temperature process piping linings

Furnace Structural Areas

Furnace door linings

Furnace covers and removable section insulation linings

TDS

CCEWOOL® Bio Soluble Fiber Module		
Classification Temperature	1200°C(2192°F)	1300°C(2372°F)
Chemical Composition (%)		
SiO ₂	62 -68	≥70
CaO	26 -32	-
MgO	4-7	-
CaO+MgO	-	≥20

Color	Light Bluish	Light Bluish
Density (kg/m ³)(lb/ft ³)	160-220 (10-13.75)	160-220 (10-13.75)
Permanent Linear Shrinkage (%)	1200°C x 24h ≤ 1.0	1300°C x 24h ≤ 3.0
Thermal Conductivity (W/m)		
400°C	0.07	0.07
600°C	0.11	0.13
800°C	0.17	0.2
1000°C	0.23	0.3
1200°C	-	0.41

CCEWOOL® Bio Soluble Fiber Bulk



Classification Temperature: 1200°C (2192°F),
1300°C (2372°F)

Chemical Composition: Silicon, Calcium, Magnesium (AES)

CCEWOOL® Bio Soluble Fiber Bulk is made from low-biopersistence AES (alkaline earth silicate) fibers based on calcium, magnesium, and silicate chemistry. While maintaining reliable high-temperature performance, it also offers improved occupational health and environmental characteristics. The fibers are soft and uniform, with

low thermal conductivity, low heat storage, and good thermal shock resistance, making the product suitable for direct use as loose-fill high-temperature insulation.

CCEWOOL® Bio Soluble Fiber Bulk is also an important raw material for bio-soluble fiber blankets, boards, papers, textiles, and vacuum-formed products. According to downstream processing requirements, it can be further chopped, milled, and classified into different fiber lengths and particle sizes for wet-forming, Fabrication processing, and other high-temperature insulation products.

In practical applications, CCEWOOL® Bio Soluble Fiber Bulk can be used as loose-fill insulation in industrial furnaces, boilers, pipelines, chimneys, and complex spaces. It is also suitable for expansion joints, furnace bottoms, pipe seals, and burner tile filling, providing a lightweight, stable, and easy-to-install insulation solution for high-temperature equipment.

Characteristics:

- Low biopersistence;
- Excellent thermal shock resistance;
- Low thermal conductivity;
- Low heat capacity and low heat storage;
- Good thermal stability;
- Good chemical stability;
- Resistant to powdering at elevated temperatures;
- Binder-free and free of corrosive substances;
- Lightweight, soft, and easy to fill;
- Good sound absorption;
- Easy to process and form.

Applications:

- Raw material for bio-soluble fiber blankets, boards, papers, and textiles;
- Raw material for vacuum-formed shapes and other fiber products;
- Base fiber for Fabrication processing and wet-formed products;
- Loose-fill insulation for industrial furnaces, kilns, and boilers;
- Insulation for pipelines, chimneys, and high-temperature ducts;
- Insulation filling for complex and hard-to-reach areas;
- Expansion and movement joint filling;
- Furnace bottom sealing;
- Pipe sealing filler;

Burner tile filling;

Internal insulation filling for fire doors.

TDS

CCEWOOL® Bio Soluble Fiber Bulk		
Classification Temperature	1200°C(2192°F)	1300°C(2372°F)
Chemical Composition (%)		
SiO ₂	65-68	≥70
CaO	27-33	-
MgO	2-7	-
CaO+MgO	-	≥20
Color	Light Bluish	Light Bluish
Shot Content(%)	≤12	≤12
Fiber Diameter(μm)	3-5	3-5

CCEWOOL® Bio Soluble Fiber Textiles



Classification Temperature: 1200°C (2192°F)

Chemical Composition: Silicon, Calcium, Magnesium (AES)

CCEWOOL® Bio Soluble Fiber Textiles are made from soluble fibers combined with glass filament or stainless steel wire. Soluble fiber products are an innovative solution for high-temperature applications. Based on their unique chemical composition with calcium and magnesium, they can meet the demands of

1200°C usage while maintaining significant solubility and environmental characteristics. CCEWOOL® Bio Soluble Fiber Textiles exhibit excellent chemical stability, remaining unaffected by most chemicals except for hydrofluoric acid, phosphoric acid, and concentrated alkalis. Even when exposed to water or steam, their

thermal and physical properties remain unaffected after drying. They possess a solubility certificate from the European Fraunhofer Laboratory.

Characteristics:

Low thermal conductivity
Excellent thermal shock resistance, thermal stability
Excellent tensile strength
Sound insulation
Easy cut and easy stall
Containing no asbestos
Chemical corrosion resistance

Applications:

Furnace door insulation and sealing
Filling expansion joints in boilers and kilns
Coke oven door frame sealing
High-temperature gaskets and packaging
Expansion joint filling
Heat treatment furnace for wrapping radiation tubes
Coating between reinforcement and casing to prevent molten liquid leakage

TDS

Description	CCEWOOL® Bio Soluble Fiber Textiles					
	Cloth		Tape		Yarn	
Reinforcement	Glass Fiber	Stainless Steel	Glass Fiber	Stainless Steel	Glass Fiber	Stainless Steel
Continuous Temperature Use Limit (°C)	650	1000	650	1000	650	1000
Color	Light Bluish		Light Bluish		Light Bluish	
Density (kg/m³)	500		550-600		-	

Organic Content (%)	≤18		≤18		≤18		
Description	CCEWOOL® Bio Soluble Fiber Textiles						
	Round Braided Rope		Square Braided Rope		Twisted Rope		Woolen Rope
Reinforcement	Glass Fiber	Stainless Steel	Glass Fiber	Stainless Steel	Glass Fiber	Stainless Steel	Glass Fiber
Continuous Temperature Use Limit (°C)	650	1000	650	1000	650	1000	650
Color	Light Bluish		Light Bluish		Light Bluish		Light Bluish
Density (kg/m³)	550-600		550-600		550-600		550-600
Organic Content (%)	≤18		≤18		≤18		≤18