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INSULATION FIBER

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CCEWOOL® LBP Module

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

CCEWOOL® LBP Module is a modular furnace lining system manufactured from low biopersistent fiber (AES fiber) blankets, designed for high-temperature insulation in industrial furnace applications. Based on a calcium–magnesium–silicate (AES) fiber composition, the material provides reliable high-temperature insulation performance while offering improved biopersistence characteristics, helping meet modern industrial requirements for occupational health, safety, and environmental compliance.

During manufacturing, the AES fiber blanket is compressed and pre-fabricated into modular blocks with an integrated anchoring system. Once installed in the furnace lining, the modules release stored compression energy, allowing the fiber structure to remain tightly compressed during furnace operation. This feature effectively compensates for thermal shrinkage and helps maintain the overall sealing integrity of the furnace lining system.

To accommodate different furnace structures and installation methods, CCEWOOL® LBP Module is available in several module configurations, including S-Fold modules, U-Fold modules, L-shaped modules, and stacked modules. Each configuration is designed to optimize fiber orientation and mechanical performance, improving the adaptability and operational stability of the furnace lining system.

CCEWOOL® LBP Module also supports Fabrication customization. Module dimensions, thickness, density, and anchoring systems can be tailored according to furnace design requirements or customer drawings. Custom-shaped modules and specialized structural modules can also be manufactured to meet the engineering needs of different high-temperature industrial systems.

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The modular lining system built with CCEWOOL® LBP Modules significantly reduces heat storage within the furnace lining, improves heating efficiency, shortens installation time, and lowers long-term maintenance costs. As a result, it is widely used in high-temperature equipment across the heat treatment, metallurgy, ceramics, and energy industries.

Characteristics:

High Temperature Stability (up to 1300°C);

Low Thermal Conductivity;

Excellent Thermal Shock Resistance;

Low Heat Storage;

Lightweight Structure;

Rapid Installation System;

Low Dust and Low Shot Content.

Application:

Heat treatment furnaces;

Forging furnaces;

Stress relieving furnaces;

Process heaters;

Annealing furnaces;

Tunnel kilns;

Intermittent ceramic kilns;

Furnace doors and roof linings;

Furnace bottom heating systems;

Chimneys;

Flues and high-temperature duct linings;

Incinerators and boilers;

Ethylene cracking furnaces;

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Ammonia, hydrogen, and methanol reformers;

Delayed coking units and refinery heaters;

Ladle preheating systems.

TDS

CCEWOOL® Low Biopersistent Fiber Module		
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
Density (kg/m³)(lb/ft³)	160-220(10-13.75)	160-220(10-13.75)
Permanent Linear Shrinkage (%)	1200℃ x 24h ≤1.0	1300℃ x 24h ≤3.0
Thermal Conductivity (W/m·K)		
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® RCF Module

Temperature Grades: 1260°C (2300°F), 1400°C (2550°F), 1430°C (2600°F)

CCEWOOL® RCF Module is a modular refractory ceramic fiber lining system manufactured from spun refractory ceramic fiber blankets. The modules are mechanically pre-compressed and folded into block structures during production. Each module is

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compressed to a designed density and pre-installed with an anchoring system according to furnace lining requirements, allowing direct attachment to anchor studs welded on the furnace steel shell. Once installed, the modules form a continuous high-temperature insulation lining system.

During installation, the modules are further compressed against the furnace shell. When the external restraints are removed, the fibers expand and release stored compression energy, causing adjacent modules to press tightly against each other. This feature compensates for thermal shrinkage during high-temperature operation and significantly improves the overall sealing integrity and structural stability of the furnace lining system.

In addition, the modular design dramatically reduces installation time compared with traditional refractory linings and lowers long-term maintenance costs. As a result, CCEWOOL® RCF Modules are widely used in a variety of high-temperature industrial furnace lining systems.

To meet the requirements of different furnace structures and installation methods, CCEWOOL® RCF Modules are available in multiple structural configurations and also support Fabrication customization. Module dimensions, thickness, density, folding structure, and anchoring systems can all be customized based on furnace lining designs or engineering drawings, enabling optimal compatibility with different industrial furnace configurations and operating conditions.

CCEWOOL® RCF Modules are available in several module designs, including S-Fold modules, U-Fold modules, L-shaped modules, Stack modules, and monolithic formed modules, each engineered with different fiber orientations and load-bearing structures to accommodate various furnace lining installation requirements.

Module Structure Types

S-Fold Modules

S-Fold modules are formed by continuous wave-like folding of fiber blankets, creating a dense and uniform fiber arrangement. This design provides strong rebound capability, allowing the lining to compensate for thermal shrinkage during furnace operation. It is commonly used in large-area furnace lining applications.

U-Fold Modules

U-Fold modules are formed through U-shaped folding, producing a balanced internal fiber arrangement that improves the structural stability of the module.

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L-Shaped Modules

L-shaped modules are derived from U-Fold designs with modified fiber orientation, allowing better adaptation to furnace edges, corners, and structural transition areas.

Stack Modules

Stack modules are manufactured by stacking layers of fiber blankets to form the module structure, providing a more uniform fiber orientation and stable structural performance.

Monolithic Formed Modules

These modules are manufactured using automated forming processes in a single integrated structure without lamination or assembly joints. The continuous internal fiber structure provides high density, excellent structural strength, and long-term stability.

Characteristics:

Excellent Chemical and Thermal Stability;

Low Thermal Conductivity and Low Heat Storage;

Multiple Anchoring System Designs;

Strong Expansion Compensation Capability;

Excellent Mechanical Flexibility;

Lightweight Structure;

Outstanding Thermal Shock Resistance;

Immediate Commissioning After Installation;

Fabrication Customizable Modules.

Application:

CCEWOOL® RCF Modules are widely used in insulation lining systems for industrial furnaces and high-temperature equipment, including:

Petrochemical Industry

Process heaters

Reforming furnaces

Cracking furnaces

Flue and duct systems

Steel Industry

Reheating furnaces

Soaking pits and furnace covers

Ladle covers

Coil annealing furnaces

Continuous annealing and coating lines

Rotary kilns

Car-bottom furnaces

Roller hearth furnaces

Elevator furnaces

Flue and exhaust systems

Aluminum Industry

Soaking pits and furnace covers

Molten aluminum treatment furnaces

Homogenizing furnaces

Flue systems

Ceramic Industry

Tunnel kilns

Intermittent kilns

Hoffman kilns

Technical ceramic firing kilns

Combustion chambers and flue insulation structures

Utilities and Energy Equipment

Thermal oxidizers

Waste heat recovery units

Combustion chambers

Boiler flue systems

Other High-Temperature Industrial Equipment

Heat treatment furnaces

Roller hearth furnace linings

Gas turbine exhaust systems

Waste heat boiler linings

Pipe and flue linings

Regenerative thermal oxidizers (RTO)

Various industrial kiln insulation systems

TDS

CCEWOOL® RCF Module				
Item	1260S	1260HPS	1400	1430HZ
Operation Temp	1050°C(1922°F)	1100°C(2012°F)	1200°C(2192°F)	1350°C(2462°F)
Density	160-220 kg/m3			
Linear Shrinkage EN1094-1 （%）				
®950°C, 24hrs	-	-	-	-
®1000°C,24hrs	1.5	1.5	-	-
®1100°C,24hrs	2.5	2	1.5	-
®1200°C,24hrs	3	2.5	2	1
®1300°C,24hrs	-	-	3	2
®1400°C,24hrs	-	-	-	3
Thermal Conductivity W/(m·k)				
400°C	0.10	0.10	0.10	0.10
600°C	0.18	0.17	0.16	0.15
800°C	0.2	0.20	0.20	0.9
1000°C	0.27	0.26	0.26	0.26
Chemical Composition（%）				
Al2O3	≥43	≥44	≥52	≥35
SiO2	≥54	≥55	≥47	≥49
ZrO2	-	-	-	≥15
Specification （mm）	L×W: 300×300 (12"×12"); 450×300 (18"×12"); 600×300 (24"×12")			

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	H: 100;150;200;250;300 (4",6",8",10",12")
Package	Carton Box or Pallet

CCEWOOL® Superbloc® Module

Temperature Grades: 1316°C (2400°F), 1430°C (2600°F)

CCEWOOL® Superbloc® Module is a monolithic ceramic fiber module manufactured from high-purity synthetic ceramic fiber materials using a continuous automated production process. Unlike conventional folded ceramic fiber modules, the Superbloc® Module is designed with a solid block structure, forming a fully integrated fiber body during manufacturing without layered folding or stacked fiber arrangements. This design significantly improves the structural integrity and long-term stability of the module.

CCEWOOL® Superbloc® Modules are installed using specially designed anchoring systems and installation tools that ensure strong compression between adjacent modules. The installation process is simple and efficient, while the anchoring system provides secure positioning and structural safety. Once installed, the modules form a continuous furnace lining structure, improving the overall sealing performance of the furnace insulation system.

Compared with traditional folded ceramic fiber modules, CCEWOOL® Superbloc® Modules maintain a more stable structure under high-temperature operating conditions. The monolithic design provides enhanced resistance to mechanical stress and high-velocity gas flow, making it particularly suitable for furnace areas exposed to severe operating conditions. As a result, Superbloc® Modules represent a high-performance furnace lining solution for advanced industrial insulation systems.

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Characteristics:

Monolithic Block Structure;

Multi-Directional Compression Structure;

Low Shrinkage at High Temperatures;

Excellent Resistance to High-Velocity Gas Flow;

Low Heat Storage;

Excellent Thermal Shock Resistance;

Binder-Free Structure.

Application:

High-temperature furnace insulation systems;

Surface insulation for industrial kilns and furnaces;

Fire protection materials for multi-zone furnace systems;

Back-up insulation in petrochemical, chemical, and metallurgical furnaces;

High-temperature sintering saggers;

High-temperature sealing for machinery and precision molds.

TDS

CCEWOOL® Superbloc® module						
Description	Superbloc® Module 24			Superbloc® Module 26		
Classification Temperature (°C)	1316(2400°F)			1430(2600°F)		
Color	White			White		
Shot Content (%)	≤10			≤10		
Density (kg/m^3)	160	192	240	160	192	240
Permanent Linear Shrinkage (%)	1200℃x24h≤3			1400℃x24h≤3		
Thermal Conductivity (W/m-K)						
400°C	≤0.09			≤0.09		
600°C	≤0.14			≤0.14		
800°C	≤0.20			≤0.20		

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1000°C		-	≤0.28
Standard Size (mm)	Length	305 (12")	
	Width	305 (12")	
	Thickness	76-305 (3"-12")	

CCEWOOL® 1500MX Fiber Module

Temperature Grade 1500°C (2732°F)

CCEWOOL® 1500MX Fiber Module is a high-performance composite refractory fiber product manufactured using a specialized microcrystalline process. Through targeted optimization of fiber composition and crystal phase structure, the module delivers lower long-term shrinkage, more stable thermal performance, and stronger structural integrity under sustained high-temperature operation.

Its temperature resistance falls between zirconia-containing ceramic fiber and alumina fiber, offering significantly better performance than conventional chromium-containing fibers, while remaining substantially more cost-effective than alumina fiber modules. This makes it a high-temperature insulation solution that balances performance and economy.

CCEWOOL® 1500MX Fiber Module is designed for industrial furnaces operating continuously at 1250–1350°C, with particularly strong performance in high-temperature forging furnaces, where it helps extend lining service life and reduce overall energy consumption.

Characteristics:

Extremely low thermal conductivity;

low high-temperature shrinkage;

higher heat resistance;

improved thermal stability;

enhanced thermal shock resistance;

Stable chemical properties and strong corrosion resistance.

Application:

CCEWOOL® 1500MX Fiber Module is designed for high-temperature industrial equipment operating

continuously at 1250–1350°C. Typical applications include:

1. High-Temperature Forging Furnaces

Long-cycle heat treatment furnaces

Rapid heat-up forging furnaces

Furnaces requiring stable thermal fields and strong thermal shock resistance

2. Steel and Metallurgical Furnace Linings

Billet reheating furnaces

Billet holding furnaces

Quenching and heat treatment furnaces

3. High-Temperature Equipment in Petrochemical and Mechanical Industries

Prefabricated industrial furnaces

Combustion chambers and high-temperature flues

Hot-face insulation layers for process heating equipment

4. Cost-Effective Alternative to Chromium-Containing Fibers

Ideal for users seeking reduced cost while maintaining high-temperature stability and low shrinkage.

TDS

CCEWOOL® 1500MX Fiber Module	
Classification Temperature (℃)	1500(2732℉)
Continuous Temperature Use Limit (℃)	≤1350(2462℉)
Density (kg/m3)	192 (12lb/ft3)
Shot Content (Φ≥0.212mm) (%)	≤10

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Permanent Linear Shrinkage (%)	
1450℃x24h	≤1 (Classical numerical: 0.4%)
1500℃x24h	≤2 (Classical numerical: 1.0%)
Thermal Conductivity (W/m·K)	
200℃	0.056
300℃	0.074
400℃	0.096
500℃	0.122
600℃	0.130
800℃	0.240
1000℃	0.330

CCEWOOL® Polycrystalline Wool Fiber Module HD

Temperature Grade 1600℃（2912℉）

CCEWOOL® Polycrystalline Wool Fiber Module HD is made of Polycrystalline Wool Fiber Blanket. This module is designed specifically to meet the insulation requirements of all fiber lining furnace between 1300 ℃ (2372 ℉) and 1500 ℃ (2732 ℉). CCEWOOL® Polycrystalline Wool Fiber Module HD is equipped with various anchoring systems and can be quickly, easily, and efficiently installed on most furnace linings. CCEWOOL® Polycrystalline Wool Fiber Module HD has the advantages of good corrosion resistance and long service life.

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We can produce alumina fiber composite module made of CCEWOOL® Polycrystalline Wool Blanket and CCEWOOL® Ceramic Fiber Blanket 2600 which is more cost saving while meeting the working temperature.

Composite Module A: Module made of CCEWOOL® Polycrystalline Wool Blanket and CCEWOOL® Ceramic Fiber Blanket 2600 through cut, composite, and extrude according to a certain size. It is a high-temperature refractory lining product developed and manufactured specifically for 1200 to 1400 ℃ high temperature furnace.

Composite module B: All hot surfaces are CCEWOOL® Polycrystalline Wool Blanket, cold side CCEWOOL® Ceramic Fiber Blanket 2600.
This product greatly improves the utilization rate of Polycrystalline Wool Blanket, fully utilizing it on the firing side. This can increase the operating temperature of the module while not increase the usage of PCW blanket. The advantages of Polycrystalline Wool Blanket are fully utilized and the service life of module is extended.
According to practical applications, the thickness of the hot surface Polycrystalline Wool Blanket layer can be adjusted to meet different furnace temperature requirements.

Composite Module C: The hot surface is red and is made of CCEWOOL® Polycrystalline Wool Blanket. It can fully utilize the high-temperature resistance performance of Polycystalline Wool Fiber, and improve the service temperature and lifespan of the module. The cold surface is white and is made of CCEWOOL® Ceramic Fiber Blanket 2600. It can be hardened at high temperatures, to ensure a sturdy structure. The thickness of the hot surface Polycrystalline Wool Blanket layer can be adjusted to meet different furnace temperature requirements.

Characteristics:

Excellent thermal shock resistance;
Excellent chemical stability;

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High-temperature stability;

Low thermal conductivity;

Low installation and repair costs.

Application:

Stress relieving furnaces;

Annealing furnaces;

Carbottom heat treating furnaces;

Process heaters;

Reheat furnaces;

Furnace, kiln and boiler linings;

Incineration equipment and stack linings;

Soaking pit covers;

Ladle covers;

Ladle preheaters;

Forge furnaces.

TDS

CCEWOOL® Polycrystalline Wool Fiber Module HD	
Classification Temperature (℃)	1600(2912℉)
Continuous Temperature Use Limit (℃)	1500(2732℉)
Chemical Composition(%)	
Al2O3	71-73
Si02	27-29
Leachable Chlorides	Trace
Color	White
Density (kg/m3)	128/160/196 （8,10,12lb/ft3）

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Permanent Linear Shrinkage (%)	1400℃x24h<1.0
Thermal Conductivity (W/m·K)	
400℃	0.09
600℃	0.16
800℃	0.22
1000℃	0.28
1200℃	0.36
1400℃	0.45