

Product Manual

Refractory Materials Customized
Service Expert



www.luyangwool.com



Company Profiles

Luyang Energy-saving Materials Co., Ltd. was established in 1984 and listed in Shenzhen Stock Exchange in 2006 (Stock Code: 002088). Going through more than 30 years development, Luyang has become a world famous enterprise for new energy-saving materials researching, manufacturing and selling in the field of ceramic fibers, soluble fibers, alumina fibers, rock wool fibers and insulating firebricks.

Luyang is a professional inorganic fiber materials manufacturer; drafting unit of international standards and national standards; leaders in energy-saving and environmental protection materials. Luyang has national-recognized enterprise technology center and State Key Laboratory of enterprise. Luyang has 118 patents and 54 scientific and technological achievements.

Luyang has an annual output of 300,000 tons of various ceramic fiber products and 100,000 tons of rock wool products. Luyang has five production bases in Shandong, Inner Mongolia, Xinjiang, Guiyang and Suzhou. Luyang has maintained a leading position in scale, technology, variety and efficiency in domestic industries for many years and ascends among the world's ceramic fiber industry forefront. Luyang products are in great demand nationwide and sold in more than sixty countries and regions, such as USA, EU, Japan, Vietnam. Luyang products are applied widely in the field of petrochemical refractory insulation, long-distance pipe network insulation, building fire insulation, shipping fire prevention, household appliances fire insulation, high-temperature insulation etc.

Brief History

- 2018 🟡 Participate in International Standard ISO 20310 & ISO 22152
- 2015 🟡 Cooperate with Unifrax
- 2014 🔴 Supply Alumina Fibers
- 2013 🔴 Supply Microporous Materials
- 2012 🔴 Supply Rock Wool Fibers
- 2007 🟡 Supply Insulating Firebricks
- 2005 🟡 Supply Soluble Fibers
- 1997 🔴 First Oversea Customer
- 1984 🔴 Established in Zibo Shandong for Insulation Material

Our Products

Ceramic Fiber

Bulk, Blanket, Board, Paper, Module, Textile

Bio-Soluble Fiber

Bulk, Blanket, Board, Paper, Module, Textile

Alumina Fiber

Bulk, Blanket, Board, Module

Insulating Firebrick

Insulating Firebrick, Refractory Mortar

Rockwool Board

CONTENTS



LUYANGWOOL® BULK /01



LUYANGWOOL® BLANKET /02



LUYANGWOOL® BOARD /03



LUYANGWOOL® BL BOARD /04



LUYANGWOOL® PAPER /05



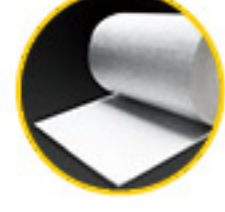
LUYANGWOOL® TEXTILE /06



LUYANGWOOL® MODULE /07



BIOWOOL® BULK /09



BIOWOOL® BLANKET /10



BIOWOOL® BOARD /11



BIOWOOL® PAPER /12



BIOWOOL® TEXTILE /13



BIOWOOL® MODULE /14



TEMPMAX™ BULK /15



TEMPMAX™ BLANKET /16



TEMPMAX™ BOARD /17



TEMPMAX™ MODULE /18



INSULATING FIREBRICK /19



REFRACTORY MORTAR /20



MICROPOROUS BOARD /21



LUYBLOC® MODULE /23

LUYANGWOOL[®] BULK

Luyangwool[®] bulk is manufactured from high purity alumina-silica materials through spinning operation or blowing operation. These fibers can be further modified by chopping. In addition, Lubricant can be added to the fibers. Luyangwool[®] bulk serves as the foundation for fiber products such as blanket, board, paper and other vacuum-formed products. Luyangwool[®] fibers are available in a variety of chemistries and diameters which can offer a wide variety of applications.



Features

- Excellent thermal shock resistance
- Excellent chemical stability
- High-temperature stability
- Low thermal conductivity
- Low heat storage

Typical Applications

- Raw material for finished ceramic fiber products
- Insulating fill for complex spaces and difficult access
- Packing expansion Joints
- Kiln car infill
- Fire door infill

Typical Parameters

Description	LUYANGWOOL [®] STD BULK		
	SPUN	BLOWN	CHOPPED
Classification Temperature (°C)	1260	1260	1260
Chemical Composition (%)			
Al ₂ O ₃	≥43	≥43	≥43
SiO ₂	≥54	≥54	≥54
ZrO ₂	-	-	-
Color	White	White	White
Shot Content (%)	≤15	≤15	≤12
Fiber Diameter (μm)	3-5	2-4	2-4

Description	LUYANGWOOL [®] HP BULK	LUYANGWOOL [®] HA BULK	LUYANGWOOL [®] HZ BULK
Classification Temperature (°C)	1260	1350	1430
Chemical Composition (%)			
Al ₂ O ₃	≥44	≥52	≥35
SiO ₂	≥55	≥47	≥49
ZrO ₂	-	-	≥15
Color	White	White	White
Shot Content (%)	≤15	≤15	≤12
Fiber Diameter (μm)	3-5	2-4	3-5

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

LUYANGWOOL[®] BLANKET

Luyangwool[®] blanket is high strength, needled insulating blanket that is made from Luyangwool[®] bulk. The combination of long spun fibers and needling operation produce tough, resilient and strong blankets, which resist tearing both before and after heating. Luyangwool[®] blanket is completely inorganic and available in a variety of temperature grades, densities, and sizes. Luyangwool[®] blanket can be folded, compressed and encapsulated to produce modules.



Features

Excellent thermal shock resistance
 Excellent thermal stability
 High tensile strength
 Low thermal conductivity
 Low heat storage

Typical Applications

Pipe wrap
 Furnace and kiln back-up insulation
 Chimney insulation
 Annealing furnace linings
 Process heater linings

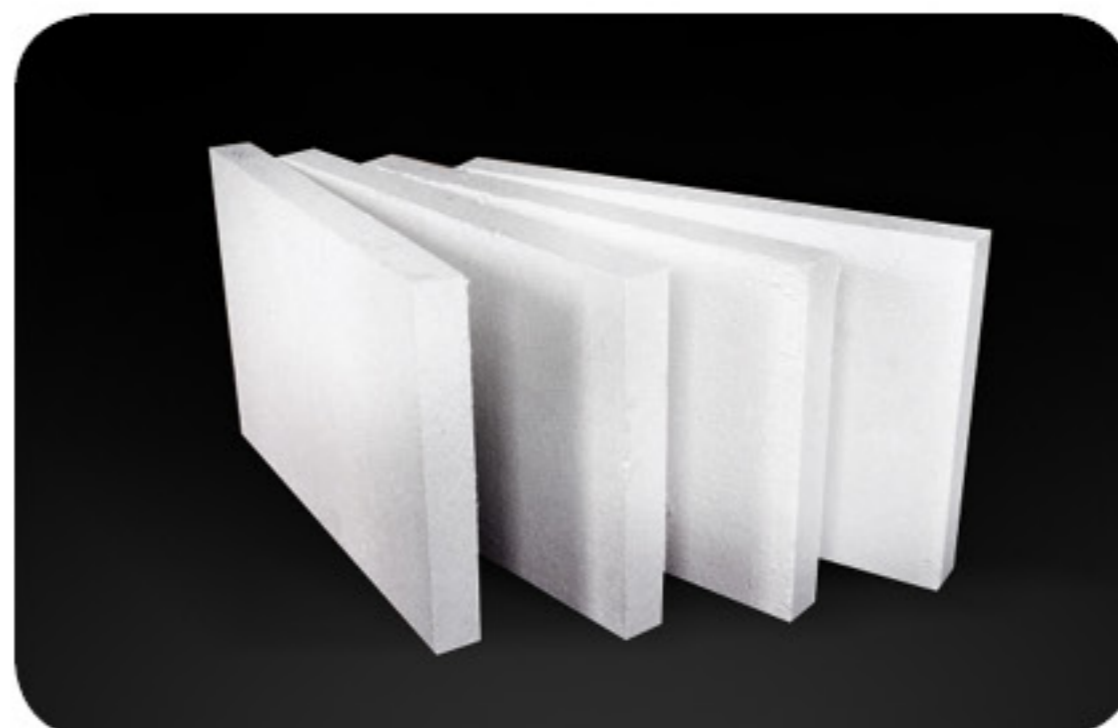
Typical Parameters

Description	LUYANGWOOL [®] STD BLANKET			LUYANGWOOL [®] HP BLANKET		LUYANGWOOL [®] HA BLANKET		LUYANGWOOL [®] HZ BLANKET	
Classification Temperature (°C)	1260			1260		1350		1430	
Chemical Composition (%)									
Al ₂ O ₃	≥43			≥44		≥52		≥35	
SiO ₂	≥54			≥55		≥47		≥49	
ZrO ₂	-			-		-		≥15	
Color	White			White		White		White	
Shot Content (%)	≤15			≤15		≤15		≤12	
Density (kg/m ³)	64	96	128	96	128	96	128	96	128
Tensile Strength (kPa)	30	50	70	50	70	50	70	50	70
Permanent Linear Shrinkage (%)	1000°C x24h≤2.5			1100°C x24h≤2.5		1200°C x24h≤3.0		1350°C x24h≤3.0	
Thermal Conductivity (W/m·K)									
200°C	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
400°C	0.12	0.11	0.10	0.11	0.10	0.11	0.10	0.11	0.10
600°C	0.20	0.19	0.18	0.19	0.17	0.18	0.16	0.16	0.15
800°C	0.30	0.23	0.20	0.23	0.20	0.22	0.20	0.21	0.19
1000°C	0.40	0.32	0.27	0.31	0.26	0.30	0.26	0.30	0.26

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

LUYANGWOOL® BOARD

Luyangwool® board is manufactured in a wet forming process using Luyangwool® bulk and binders. Luyangwool® board is designed for insulation applications experiencing vibration, mechanical stress and erosive forces. Luyangwool® board can reduce energy costs and cycling times due to high insulating capability, as well as serving to protect refractory surfaces from thermal shock and chemical attack.



Features

- Excellent thermal shock resistance
- Can be machined, cut and shaped easily
- High rigidity and light weight
- Low thermal conductivity
- Low heat storage

Typical Applications

- Furnace hot face lining in petrochemical furnace
- Furnace hot face lining in ceramic kiln
- Board over blanket hot face lining
- Back-up insulation to brick & castable
- Expansion joints

Typical Parameters

Description	LUYANGWOOL® STD BOARD	LUYANGWOOL® HP BOARD	LUYANGWOOL® HA BOARD	LUYANGWOOL® HZ BOARD
Classification Temperature (°C)	1260	1260	1350	1430
Color	White	White	White	White
Density (kg/m³)	250/300/360	250/300/360	300/360	300/360
Modules of Rupture (MPa)	≥0.3	≥0.3	≥0.3	≥0.3
Compressive Strength (MPa, 10% relative deformation)	0.15/0.25/0.3	0.25/0.3	0.25/0.3	0.25/0.3
Loss of Ignition (%)	≤6	≤6	≤6	≤6
Permanent Linear Shrinkage (%)	1000°C x24h≤3.0	1100°C x24h≤3.0	1200°C x24h≤3.5	1350°C x24h≤3.5
Thermal Conductivity (W/m-K)				
400°C	0.08	0.07	0.07	0.07
600°C	0.11	0.10	0.10	0.09
800°C	0.14	0.14	0.13	0.13
1000°C	0.19	0.19	0.19	0.18

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

LUYANGWOOL[®] BL BOARD

Luyangwool[®] BL board is manufactured in a fully automated control continuous production line using Luyangwool[®] bulk and binders. Luyangwool[®] BL board is widely used in kiln stove back lining heat preservation. Luyangwool[®] BL board can reduce energy costs and cycling times due to high insulating capability, as well as providing stability to the entire refractory lining system.



Features

Excellent thermal shock resistance
 Can be machined, cut and shaped easily
 High rigidity and light weight
 Low thermal conductivity
 Low heat storage

Typical Applications

Furnace hot face lining in low temperature furnace
 Back lining in heat treatment furnace
 Back lining in glass furnace
 Back lining in ceramic kiln
 Back lining in cement kiln

Typical Parameters

Description	LUYANGWOOL [®] 95 BL BOARD	LUYANGWOOL [®] 100 BL BOARD
Classification Temperature (°C)	1050	1140
Continuous Temperature Use Limit (°C)	950	1000
Color	Brown	Brown
Density (kg/m ³)	220	300
Modules of Rupture (MPa)	≥0.3	≥0.3
Compressive Strength (MPa, 10% relative deformation)	≥0.1	≥0.2
Loss of Ignition (%)	≤7	≤7
Permanent Linear Shrinkage (%)	950°C x24h≤2.0	1000°C x24h≤2.0
Thermal Conductivity (W/m·K)		
800°C	≤0.116	-
1000°C	-	≤0.135

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

LUYANGWOOL[®] PAPER

Luyangwool[®] paper is manufactured by blending Luyangwool[®] bulk, binders, and additives. The specialized paper-making process is used to form uniform and flexible paper. Luyangwool[®] paper is easy to be handled and cut. Luyangwool[®] paper can be used in a wide range of applications as thermal insulation. It is especially suited to used in gaskets and as a parting medium.



Features

- Excellent thermal shock resistance
- Can be machined, cut and shaped easily
- High flexibility
- Low thermal conductivity
- Good dielectric strength

Typical Applications

- Gaskets for high temperature applications
- Gaskets for domestic appliances
- Back-up lining for metal troughs
- Thermal barriers for vehicles
- Expansion joints

Typical Parameters

Description	LUYANGWOOL [®] STD PAPER	LUYANGWOOL [®] HD PAPER
Classification Temperature (°C)	1260	1350
Chemical Composition (%)		
Al ₂ O ₃	42-47	44-50
SiO ₂	52-57	49-55
Color	White	White
Density (kg/m ³)	200	240
Tensile Strength (MPa)	0.4	0.7
Loss of Ignition (%)	≤10	≤6
Thermal Conductivity (W/m-K)		
200°C	0.06	0.06
400°C	0.09	0.08
600°C	0.13	0.13
800°C	0.20	0.19
1000°C	-	0.29
1200°C	-	0.43

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

LUYANGWOOL[®] TEXTILE

Luyangwool[®] textile is made from ceramic fiber and viscose fiber, reinforced with glass filament or stainless steel. Luyangwool[®] textile contains yarn, rope, tape and cloth. Luyangwool[®] textile is used in application such as the insulating lining of metallurgical ovens and furnaces, petrochemical heaters, and ceramic kilns etc.



Features

Excellent thermal shock resistance
 Excellent thermal stability
 High-temperature stability
 Low thermal conductivity
 Flexible and easy to use

Typical Applications

Gaskets in furnaces and domestic appliances
 Door seals in furnaces
 Kiln car seals
 Welding curtains
 Expansion joints

Typical Parameters

Description	LUYANGWOOL [®] TEXTILE					
	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	White		White		White	
Density (kg/m ³)	500		500-550		-	
Organic Content (%)	≤15		≤15		≤15	

Description	LUYANGWOOL [®] TEXTILE						
	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	White		White		White		White
Density (kg/m ³)	500		500		500		380
Organic Content (%)	≤15		≤15		≤15		≤15

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

LUYANGWOOL® MODULE

Luyangwool® module is made from compressed ceramic fiber blanket. The module is specially designed to meet the thermal insulation requirements of industrial furnaces in some special thermal conditions. Luyangwool® module is produced with various anchoring systems to enable quick, easy and efficient installation in most furnace linings. Module linings can increase the furnace productivity and reduce the maintenance costs.



Features

- Fast and easy installation
- Fast and easy repair
- Fast temperature cycling
- Low installation and repair costs
- Low heat storage

Typical Applications

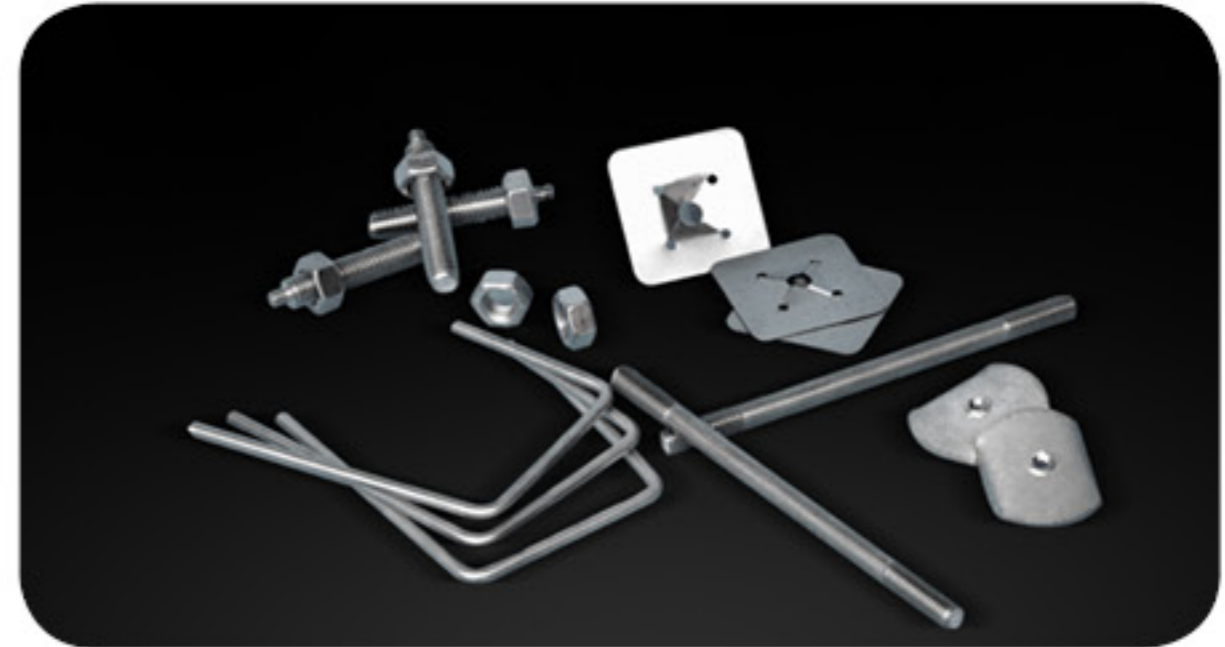
- Petrochemical
- Refining, iron and steel
- Non ferrous
- Ceramic and glass
- Heat treatment

Typical Parameters

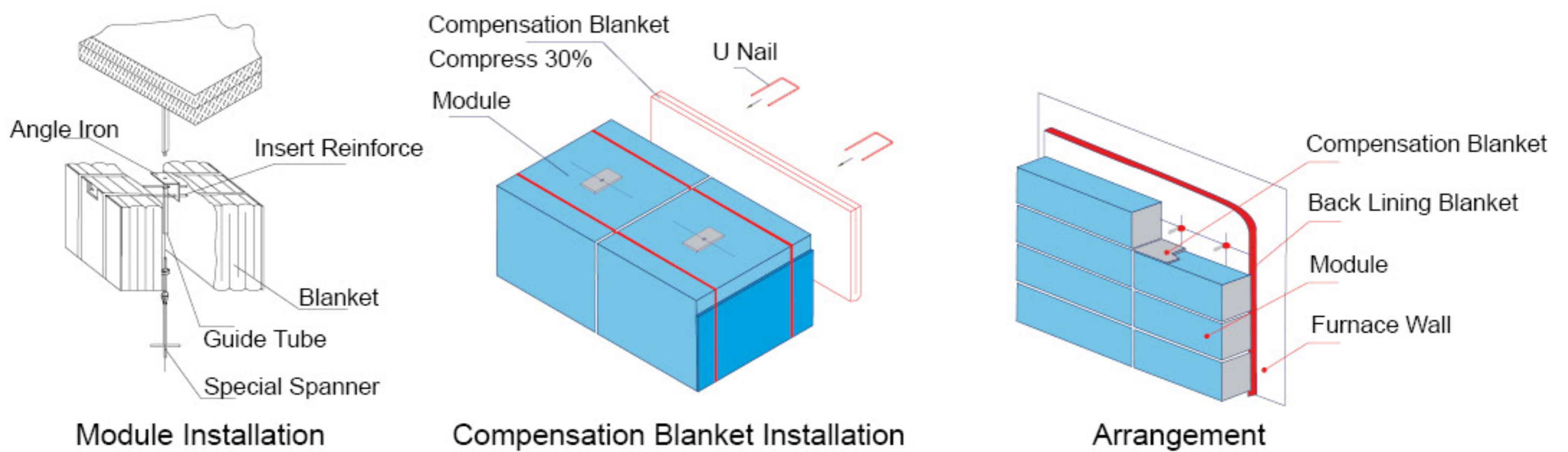
Description	LUYANGWOOL® STD MODULE	LUYANGWOOL® HP MODULE	LUYANGWOOL® HA MODULE	LUYANGWOOL® HZ MODULE
Classification Temperature (°C)	1260	1260	1350	1430
Chemical Composition (%)				
Al ₂ O ₃	≥43	≥44	≥52	≥35
SiO ₂	≥54	≥55	≥47	≥49
ZrO ₂	-	-	-	≥15
Color	White	White	White	White
Density (kg/m ³)	160-220	160-220	160-220	160-220
Permanent Linear Shrinkage (%)	1000°C x24h≤2.5	1100°C x24h≤2.5	1200°C x24h≤3.0	1350°C x24h≤3.0
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	0.20	0.20	0.20	0.19
1000°C	0.27	0.26	0.26	0.26

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

MODULE WITH ANCHOR



INSTALLATION



BIOWOOL® BULK

Biowool® bulk consists of calcium, magnesium, silicate. The fibers can be degraded in the human body to meet the requirements of health and environmental protection. Biowool® bulk serves as the foundation for soluble fiber products such as blanket, board, paper and other vacuum-formed products. It can meet European regulatory requirements (Directive 97/69/EC).



Features

- Excellent thermal shock resistance
- Excellent thermal insulating performance
- Low thermal conductivity
- Low heat storage
- Low bio-persistence

Typical Applications

- Raw material for finished soluble fiber products
- Insulating fill for complex spaces and difficult access
- Packing expansion Joints
- Tube seal packing
- Fire door infill

Typical Parameters

Description	BIOWOOL® 1100 BULK	BIOWOOL® 1300 BULK
Classification Temperature (°C)	1100	1300
Chemical Composition (%)		
SiO ₂	62-68	≥70
CaO	26-32	-
MgO	4-7	-
CaO+MgO	-	≥20
Color	White	White
Shot Content (%)	≤12	≤12
Fiber Diameter (μm)	3-5	3-5

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

BIOWOOL® BLANKET

Biowool® blanket is high strength, needled insulating blanket that is made from Biowool® bulk. The combination of spinning and needling operation produce tough, resilient and strong blankets, which have superior thermal and mechanical properties. Biowool® blanket is used in a wide range of applications including thermal insulation, appliances. Blanket can be folded, compressed and encapsulated to produce modules. It can meet European regulatory requirements (Directive 97/69/EC).



Features

Excellent thermal shock resistance
 Excellent thermal stability
 High tensile strength
 Low thermal conductivity
 Low heat storage

Typical Applications

Pipe wrap
 Furnace and kiln back-up insulation
 Annealing furnace linings
 Appliances insulation
 Expansion joint seals

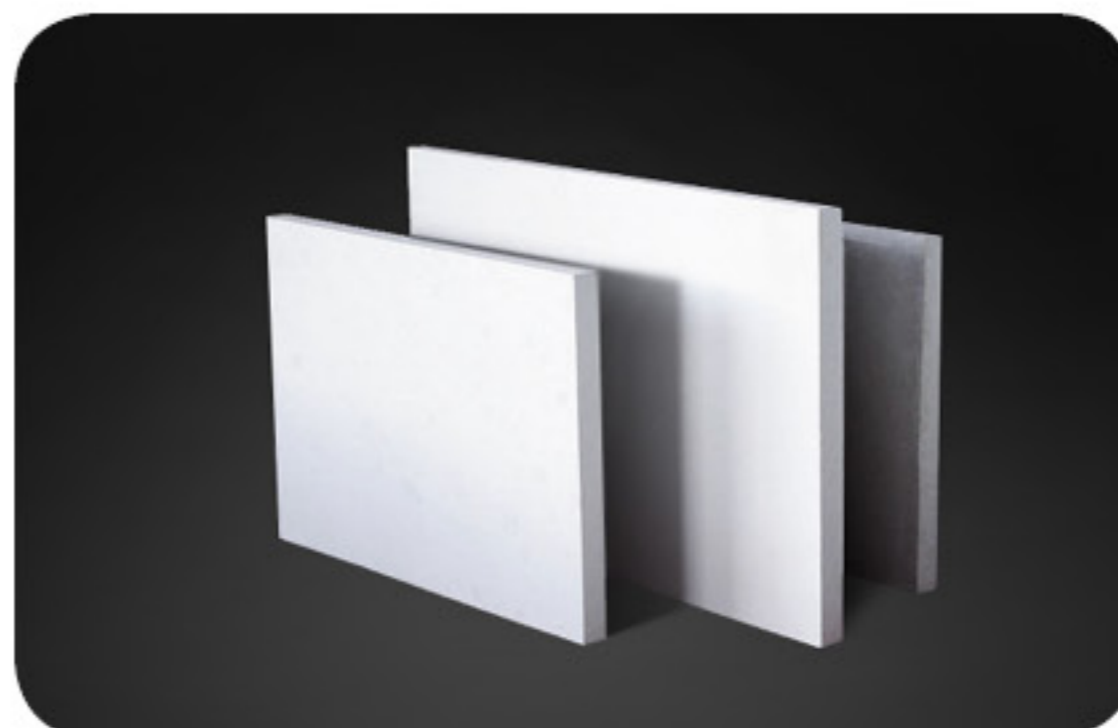
Typical Parameters

Description	BIOWOOL® 1100 BLANKET			BIOWOOL® 1300 BLANKET	
Classification Temperature (°C)	1100			1300	
Chemical Composition (%)					
SiO ₂	62-68			≥70	
CaO	26-32			-	
MgO	4-7			-	
CaO+MgO	-			≥20	
Color	White			White	
Shot Content (%)	≤12			≤12	
Density (kg/m ³)	64	96	128	96	128
Tensile Strength (kPa)	30	50	70	50	70
Permanent Linear Shrinkage (%)	1100°C x24h≤1.0			1260°C x24h≤3.0	
Thermal Conductivity (W/m·K)					
200°C	0.06	0.05	0.05	0.05	0.04
400°C	0.11	0.09	0.08	0.10	0.08
600°C	0.17	0.13	0.12	0.18	0.14
800°C	0.28	0.20	0.17	0.30	0.22
1000°C	0.40	0.28	0.25	0.46	0.33
1200°C	-	-	-	0.68	0.46

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

BIOWOOL® BOARD

Biowool® board is manufactured in a wet forming process using Biowool® bulk and binders. Biowool® board is designed for insulation applications experiencing vibration, mechanical stress and erosive forces. Biowool® board can reduce energy costs and cycling times due to high insulating capability, as well as providing stability to the entire refractory lining system.



Features

- Excellent thermal shock resistance
- Can be machined, cut and shaped easily
- High compressive strength and rigidity
- Low thermal conductivity and heat storage
- Light weight

Typical Applications

- Furnace hot face lining in petrochemical furnace
- Furnace hot face lining in ceramic kiln
- Back-up insulation to dense refractory linings
- Molten metal transfer
- Expansion joints

Typical Parameters

Description	BIOWOOL® 1100 BOARD	BIOWOOL® 1300 BOARD
Classification Temperature (°C)	1100	1300
Color	White	White
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 (%)	1000°C x24h≤2.0	1260°C x24h≤2.0
Thermal Conductivity (W/m·K)		
200°C	0.05	0.05
400°C	0.08	0.07
600°C	0.11	0.10
800°C	0.12	0.11
1000°C	0.15	0.14

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

BIOWOOL® PAPER

Biowool® paper is manufactured by blending Biowool® bulk, binders, and additives. The specialized paper-making process is used to form uniform and flexible paper. Biowool® paper is easy to be handled and cut. Biowool® paper can be used in a wide range of applications as thermal insulation. It is especially suited to be used in gaskets and as a parting medium.



Features

- Excellent thermal shock resistance
- Easy to wrap, shape, or cut
- High-temperature stability
- High flexibility
- Low thermal conductivity

Typical Applications

- Gaskets in furnaces and domestic appliances
- Door seals in furnaces
- Thermal insulation for pipe work
- Welding curtains
- Expansion joints

Typical Parameters

Description	BIOWOOL® 1100 PAPER
Classification Temperature (°C)	1100
Chemical Composition (%)	
SiO ₂	62-68
CaO	26-32
MgO	4-7
Color	White
Density (kg/m ³)	200
Tensile Strength (MPa)	0.3
Loss of Ignition (%)	4-8
Thermal Conductivity (W/m-K)	
200°C	0.05
400°C	0.07
600°C	0.11
800°C	0.15
1000°C	0.23

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

BIOWOOL® TEXTILE

Biowool® textile is made from soluble fiber and viscose fiber, reinforced with glass filament or stainless steel. Biowool® textile contain yarn, rope, tape and cloth. Biowool® textile is used in application such as the insulating lining of metallurgical ovens and furnaces, petrochemical heaters, and ceramic kilns etc. It can meet European regulatory requirements (Directive 97/69/EC).



Features

- Excellent thermal shock resistance
- Excellent thermal stability
- High-temperature stability
- Low thermal conductivity
- Flexible and easy to use

Typical Applications

- Gaskets in furnaces and domestic appliances
- Door seals in furnaces
- Thermal insulation for pipe work
- Welding curtains
- Expansion joints

Typical Parameters

Description	BIOWOOL® TEXTILE					
	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 Green		Light Green		Light Green	
Density (kg/m³)	500		550-600		-	
Organic Content (%)	≤18		≤18		≤18	

Description	BIOWOOL® TEXTILE						
	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 Green		Light Green		Light Green		Light Green
Density (kg/m³)	600		600		600		380
Organic Content (%)	≤18		≤18		≤18		≤18

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

BIOWOOL[®] MODULE

Biowool[®] module is made from compressed soluble fiber blanket. The module is specially designed to meet the thermal insulation requirements of industrial furnaces in some special thermal conditions. Biowool[®] module is produced with various anchoring systems to enable quick, easy and efficient installation in most furnace linings. Module linings can increase the furnace productivity and reduce the maintenance costs.



Features

- Fast and easy installation
- Fast and easy repair
- Fast temperature cycling
- Low installation and repair costs
- Low heat storage

Typical Applications

- Petrochemical
- Refining, iron and steel
- Non ferrous
- Ceramic and glass
- Heat treatment

Typical Parameters

Description	BIOWOOL [®] 1100 MODULE	BIOWOOL [®] 1300 MODULE
Classification Temperature (°C)	1100	1300
Chemical Composition (%)		
SiO ₂	62-68	≥70
CaO	26-32	-
MgO	4-7	-
CaO+MgO	-	≥20
Color	White	White
Density (kg/m ³)	160-220	160-220
Permanent Linear Shrinkage (%)	1100°C x24h≤1.0	1260°C x24h≤3.0
Thermal Conductivity (W/m·K)		
400°C	0.07	0.07
600°C	0.11	0.13
800°C	0.17	0.20
1000°C	0.23	0.30
1200°C	-	0.41

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

TEMPMAX™ BULK

TempMax™ bulk is manufactured from polycrystalline mullite fiber. The fibers have an excellent thermal stability to be used in the field of high-temperature insulation. TempMax™ bulk serves as the foundation for alumina fiber products such as blanket, board and other vacuum-formed products.



Features

- Excellent thermal shock resistance
- Excellent chemical stability
- High-temperature stability
- Low thermal conductivity
- Low shot content

Typical Applications

- Raw material for finished alumina fiber products
- Insulating fill for various industrial furnaces
- High-temperature seals, gaskets and coatings
- Ladle cover infill
- Aerospace industry

Typical Parameters

Description	TEMPMAX™ BULK
Classification Temperature (°C)	1600
Continuous Temperature Use Limit (°C)	1500
Chemical Composition (%)	
Al ₂ O ₃	71-73
SiO ₂	27-29
Leachable Chlorides	Trace
Color	White
Shot Content (%)	≤1
Fiber Diameter (μm)	3-6
Fiber Length (mm)	≥100

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

TEMPMAX™ BLANKET

TempMax™ blanket is high strength, needled insulating blanket that is made from TempMax™ bulk. The blanket contains no organic binders or other additives. The blanket resists corrosion, oxidation and reduction. TempMax™ blanket is widely used in the field of high-temperature insulation in various industries.



Features

Excellent thermal shock resistance
 Excellent thermal stability
 High tensile strength
 Low thermal conductivity
 Low shot content

Typical Applications

Furnace hot face lining in high-temperature industries
 Back-up insulation
 Burner block wraps
 Expansion joints
 Gaskets in furnaces

Typical Parameters

Description	TEMPMAX™ BLANKET
Classification Temperature (°C)	1600
Continuous Temperature Use Limit (°C)	1500
Chemical Composition (%)	
Al ₂ O ₃	71-73
SiO ₂	27-29
Leachable Chlorides	Trace
Color	White
Density (kg/m ³)	96/128
Tensile Strength (kPa)	≥80
Permanent Linear Shrinkage (%)	1400°C x24h<1.0
Thermal Conductivity (W/m·K)	
400°C	0.09
600°C	0.16
800°C	0.22
1000°C	0.28
1200°C	0.36
1400°C	0.45

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

TEMPMAX™ BOARD

TempMax™ board is manufactured in a wet forming process using TempMax™ bulk and binders. TempMax™ board has excellent thermal stability at very high operating temperatures. TempMax™ board can reduce energy costs and cycling times due to high insulating capability, as well as serving to protect refractory surfaces from thermal shock and chemical attack.



Features

- Excellent thermal shock resistance
- Can be machined, cut and shaped easily
- High rigidity and light weight
- Low thermal conductivity
- Low heat storage

Typical Applications

- High-temperature laboratory
- High-temperature furnaces and kilns
- Aerospace industry
- Back-up insulation to dense refractory linings
- Expansion joints

Typical Parameters

Description	TEMPMAX™ 140 BOARD	TEMPMAX™ 145 BOARD	TEMPMAX™ 160 LD BOARD	TEMPMAX™ 160 HD BOARD
Classification Temperature (°C)	1600	1600	1700	1700
Continuous Temperature Use Limit (°C)	1400	1450	1600	1600
Chemical Composition (%)				
Al ₂ O ₃	60	62	70	70
Al ₂ O ₃ +SiO ₂	98	98	98.5	98.5
Color	White	White	White	White
Density (kg/m ³)	300	300	250	400
Modules of Rupture (MPa)	≥0.3	≥0.3	≥0.3	≥0.3
Compressive Strength (MPa, 10% relative deformation)	0.25	0.25	0.15	0.3
Loss of Ignition (%)	≤8	≤8	≤8	≤8
Permanent Linear Shrinkage (%)	1400°C x24h≤2.0	1450°C x24h≤2.0	1600°C x24h≤1.5	1600°C x24h≤1.5
Thermal Conductivity (W/m·K)				
400°C	0.08	0.08	0.08	0.08
600°C	0.10	0.10	0.12	0.09
800°C	0.13	0.13	0.14	0.12
1000°C	0.16	0.15	0.17	0.15
1200°C	0.19	0.19	0.20	0.19

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

TEMPMAX™ MODULE

TempMax™ module is made from compressed alumina fiber blanket. The module is specially designed to meet the thermal insulation requirements of all-fiber lining between 1300 °C and 1500 °C . TempMax™ module is produced with various anchoring systems to enable quick, easy and efficient installation in most furnace linings. TempMax™ module has the advantages in corrosion resistance and long service life.



Features

Excellent thermal shock resistance
 Excellent chemical stability
 High-temperature stability
 Low thermal conductivity
 Low installation and repair costs

Typical Applications

Petrochemical
 Refining, iron and steel
 Non ferrous
 Ceramic and glass
 Heat treatment

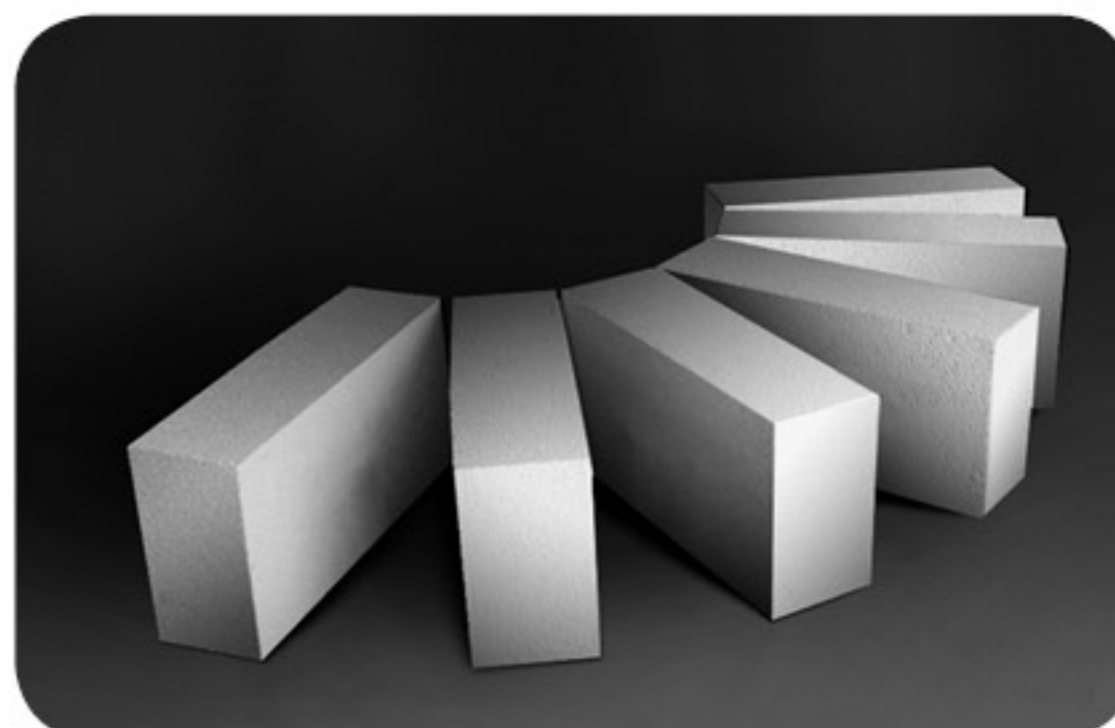
Typical Parameters

Description	TEMPMAX™ MODULE
Classification Temperature (°C)	1600
Continuous Temperature Use Limit (°C)	1500
Chemical Composition (%)	
Al ₂ O ₃	71-73
SiO ₂	27-29
Leachable Chlorides	Trace
Color	White
Density (kg/m ³)	128/160/196
Permanent Linear Shrinkage (%)	1400°C x24h<1.0
Thermal Conductivity (W/m·K)	
400°C	0.09
600°C	0.16
800°C	0.22
1000°C	0.28
1200°C	0.36
1400°C	0.45

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

INSULATING FIREBRICK

Luyang Insulating Firebrick is made from high-purity refractory powder and organic fillers which burn out during manufacture to give a uniform and controlled pore structure. The brick is compressed in vacuum and sintered under high temperature. Luyang Insulating Firebrick is widely used as hot face refractory lining or back-up insulation in various kinds of industrial furnaces.



Features

- Excellent thermal shock resistance
- Accurate and customized dimension
- High crushing strength
- Low thermal conductivity
- Low heat storage

Typical Applications

- Metallurgy industry
- Petrochemical industry
- Ceramics industry
- Aluminum industry
- Glass industry

Typical Parameters

Description	GRADE 23 BRICK	GRADE 26 BRICK	GRADE 28 BRICK	GRADE 30 BRICK
Classification Temperature (°C)	1300	1400	1500	1550
Chemical Composition (%)				
Al ₂ O ₃	40	56	67	73
SiO ₂	51	41	30	24
Fe ₂ O ₃	≤1.0	≤0.8	≤0.7	≤0.6
Density (kg/m ³)	600	800	900	1000
Modulus of Rupture (MPa)	0.9	1.5	1.8	2.0
Cold Crushing Strength (MPa)	1.2	2.4	2.6	3.0
Permanent Linear Change (%)	1230°C x24h≤0.3	1400°C x24h≤0.6	1510°C x24h≤0.7	1620°C x24h≤0.9
Thermal Conductivity (W/m·K)				
200°C	0.15	0.23	0.27	0.28
350°C	0.18	0.24	0.30	0.35
400°C	0.19	0.25	0.33	0.38
600°C	0.23	0.27	0.38	0.40

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

REFRACTORY MORTAR

Luyang refractory mortar is made from the same material powders of Luyang Insulating Firebrick in the same temperature grade, adding binders, moisturizers, additives and composite admixtures to formulate a new kind of masonry material. Luyang refractory mortar has two types, dry mortar and wet mortar.



Features

- High bonding strength
- High sealing performance
- High corrosion resistance
- Low shrinkage at high temperature
- Long service life

Typical Applications

- Construction of the insulating firebrick of the industrial furnace
- Prevent the incursion of air and heat into the masonry
- Prevent the erosion of slag and molten metal to the cracks of bricks

Typical Parameters

Description	GRADE 23 MORTAR	GRADE 26 MORTAR	GRADE 28 MORTAR	GRADE 30 MORTAR
Classification Temperature (°C)	1300	1400	1500	1550
Chemical Composition (%)				
Al ₂ O ₃	38	50	60	65
Fe ₂ O ₃	≤1.0	≤0.9	≤0.8	≤0.7
Application	GRADE 23 BRICK	GRADE 26 BRICK	GRADE 28 BRICK	GRADE 30 BRICK
Packing	Dry Mortar 50kg / Plastic Bag			
	Wet Mortar 25kg / Plastic Bucket			

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

MICROPOROUS BOARD

Luyang Microporous Board is an efficient insulation product based on advanced microporous insulation technology. At low temperature, it has a lower thermal conductivity than still air. The thermal conductivity increases very little with the increase of temperature. At high temperature, its insulation effect is 3-4 times higher than traditional insulation materials.

Luyang Microporous H Board has high compressive strength, covered with aluminum foil or glass fiber cloth. It is an excellent choice for the lightweight and energy-saving application of kiln.



Features

Excellent thermal shock resistance
 Excellent thermal stability
 Low thermal conductivity
 Low heat storage

Typical Applications

Back-up insulation in high-temperature furnaces
 Appliances insulation
 Fire protection equipment
 Electronic devices

Typical Parameters

Description	MICROPOROUS 60H BOARD	MICROPOROUS 90H BOARD	MICROPOROUS 105H BOARD
Recommended Temperature of Use (°C)	600	900	1050
Density (kg/m ³)	300/320	280/300	320
Modules of Rupture (MPa)	≥0.15	≥0.15	≥0.15
Compressive Strength (MPa, 10% relative deformation)	≥0.3	≥0.3	≥0.3
Permanent Linear Shrinkage (%)	600°C x24h≤2.0	900°C x24h≤2.0	1050°C x24h≤2.5
Thermal Conductivity (W/m·K)			
100°C	0.022	0.020	0.022
200°C	0.024	0.023	0.024
300°C	0.028	0.026	0.031
400°C	0.029	0.027	0.036
500°C	-	0.033	0.040
600°C	-	-	0.048
Covering Material	Aluminum Foil/PE Foil/Glass Fiber Cloth		
Standard Size (mm)	600x400x(10-50)		
	1000x500x(10-50)		

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

MICROPOROUS S BOARD

Luyang Microporous S Board is a flexible and efficient microporous insulation material formed by special process. It is covered with glass fiber cloth. Luyang Microporous S Board can be used as insulation materials for various kinds of pipes and complex spaces.



Features

Good fit to curved surfaces
Low thermal conductivity
Low heat storage
Non-combustibility

Typical Applications

Pipe insulation
Fire protection
Insulation for curved surfaces of high-temperature furnace walls and equipment

Typical Parameters

Description	MICROPOROUS 90S BOARD
Recommended Temperature of Use (°C)	900
Density (kg/m ³)	260/300
Modules of Rupture (MPa)	-
Compressive Strength (MPa, 10% relative deformation)	-
Permanent Linear Shrinkage (%)	900°C x24h≤2.0
Thermal Conductivity (W/m·K)	
100°C	0.022
200°C	0.025
300°C	0.027
400°C	0.029
500°C	0.033
Covering Material	Glass Fiber Cloth
Standard Size (mm)	600x400x(5-10)
	1000x500x(5-10)

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

LUYBLOC[®] MODULE

LuYbloc[®] module is a blocky monolithic fiber module which is made from high-purity synthetic materials. It is manufactured in a fully automated control continuous production line using ceramic fiber bulk slabs.

LuYbloc[®] module is installed with a new special anchor and installation tools to ensure high extrusion between modules, convenient and quick installations, firm positioning and safe structures.

LuYbloc[®] module is a brand-new and high-end product provided by Luyang to customers. It is a unique product in the application of ceramic fiber linings.



Features

Multiple directions compression-It can be compressed in any direction, which can achieve full expansion of the installation direction in the furnace lining and good thermal insulation.

Completed seamless structure-After calcination, the product is transformed into a high-strength, seamless and solid structure from a soft and compressible monolithic block, which is high integrity and firmed.

Low shrinkage in high temperature-The cold surface of the product can be closely attached to the furnace wall to achieve maximum extrusion between blocks, ensuring low shrinkage in high temperature and achieving structural integrity.

Customized-It is suitable for extensive planar structures and also for cutting and installation of shaped parts. Various shaped products can be manufactured according to the different shapes of the equipment.

Typical Parameters

Description	LuYbloc [®] Module 24			LuYbloc [®] Module 26		
Classification Temperature (°C)	1316			1430		
Color	White			White		
Shot Content (%)	≤10			≤10		
Density (kg/m ³)	160	192	240	160	192	240
Permanent Linear Shrinkage (%)	1200°C x24h≤3			1400°C 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		
1000°C	-			≤0.28		
Standard Size (mm)	Length	305				
	Width	305				
	Thickness	76-305				

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

LUYBLOC[®] MODULE 28

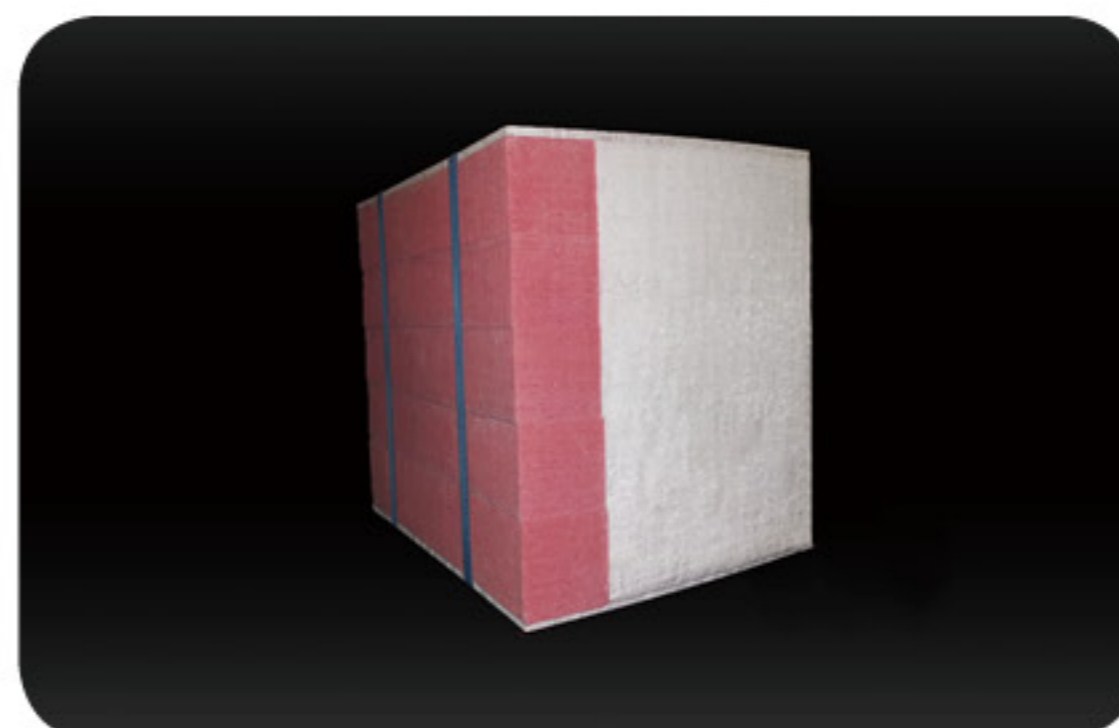
LuYbloc[®] Module 28 is a composited module which is based on LuYbloc[®] Module 26 and alumina fibers. It is a patented product of Luyang.

The hot surface is red and adopts alumina fibers. It can fully exert the high temperature resistance of alumina fibers, improving the using temperature and service life of the modules.

The cold surface is white and adopts LuYbloc[®] Module 26. It can be hardened at high temperatures and ensure structural robustness.

The thickness of alumina layers in hot surface can be adjusted to meet different furnace temperature requirements.

It can provide better solutions for heating resistant and energy-saving problems of high temperature ceramic kilns above 1250°C .



Features

Excellent thermal insulation performances

High rigidity and light weight

Good airflow scour resistance

Easy to install and firm structure

Excellent chemical stability

High fiber index

Good thermal shock resistance

No crystal powders and no slags

Typical Parameters

Description	LuYbloc [®] Module 28			
	I Type	II Type	III Type	
Continuous Temperature Use Limit (°C)	1250-1300	1300-1350	1350-1400	
Density (kg/m ³)	192	192	192	
Thermal Conductivity (W/m·K)				
600°C	≤0.14			
800°C	≤0.20			
1000°C	≤0.28			
Standard Size (mm) 300L x 260W x 300T	Thickness of Alumina Fibers	30	50	70
	Thickness of LuYbloc [®] Module 26	270	250	230

The data shown are typical average results of tests under standard procedures and are subject to variation. Results should not be used for specification purposes or creating any contractual obligation. For more information on the safety application or materials, please refer to the work practices and material safety data sheet.

Comparisons for LuYbloc[®] Module and Traditional Folded Module

Items	LuYbloc [®] Module	Traditional Folded Module
Structure	Monolithic structure	Folded structure
Compression	Compressed on-site Ensure completed fiber structures Can expand in four directions	Pre-compressed May damage fiber structures Only expand in two directions
Hot airflow scour resistance	Wind speed can reach 40-45m/s	Wind speeds is bout 25m/s
Cutting performances	Easy to cut on-site, quick and convenient construction, stable quality	Product modification is time-consuming and labor-intensive on-site

Application of LuYbloc[®] Module

LuYbloc[®] module can be used in various industrial fields for thermal insulation. The main applied industries are as followings:
Petrochemical industry Metallurgical industry Ceramics industry Glass industry Aluminum industry Electric power industry

Petrochemical Industry



Metallurgical Industry



PLANT



CERTIFICATE



APPLICATION



LUYANG

LUYUWANG



Consistent Quality,Reliable Solutions



LUYANG ENERGY-SAVING MATERIALS CO.,LTD.

Add:No.11 Yihe Road, Yiyuan County Zibo Shandong China P.C 256120

Tel: +86-(0)533-3288764

Fax:+86-(0)533-3260656

Email:international@luyang.com

Copyright© 12/2019 Luyang Energy-saving Materials Co.,Ltd,All Rights Reserved

Printed in China

We updated the products information constantly and confirm with us or our distributor the validity of the current data sheets herein the brochure before relying on any data or other information in this product Information sheet. A product sheet that has been superseded may contain incorrect, obsolete and/or irrelevant data and other information.

This brochure is meant as a quick guide to help you find useful information on thermal insulation and refractories. Should any incorrect information be provided, a grossly negligent fault from our side can be excluded. Nevertheless, we don't accept any liability for the topicality, correctness of this information since unintentional faults cannot be excluded and continuous updates not ensured. The brochure contains the images or descriptions of third parties. They help you get a complete overview of the spectrum of information and service available. As the contents of these images or descriptions do not necessarily reflect our views or position, we must therefore exclude any liability.