



North Refractories Co.LTD


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INSULATING FIREBRICK

GENERAL INFORMATION

 insulating firebricks are classified under temperature between 1300 °C and 1700 °C, manufactured from high purity alumina clay by mixing, press-forming, drying, sintering and machining. Bricks contain carefully-graded organic fillers which are burned out during sintering to give a uniform controllable pore structure. This technique makes product feature low thermal conductivity and excellent heat insulation.

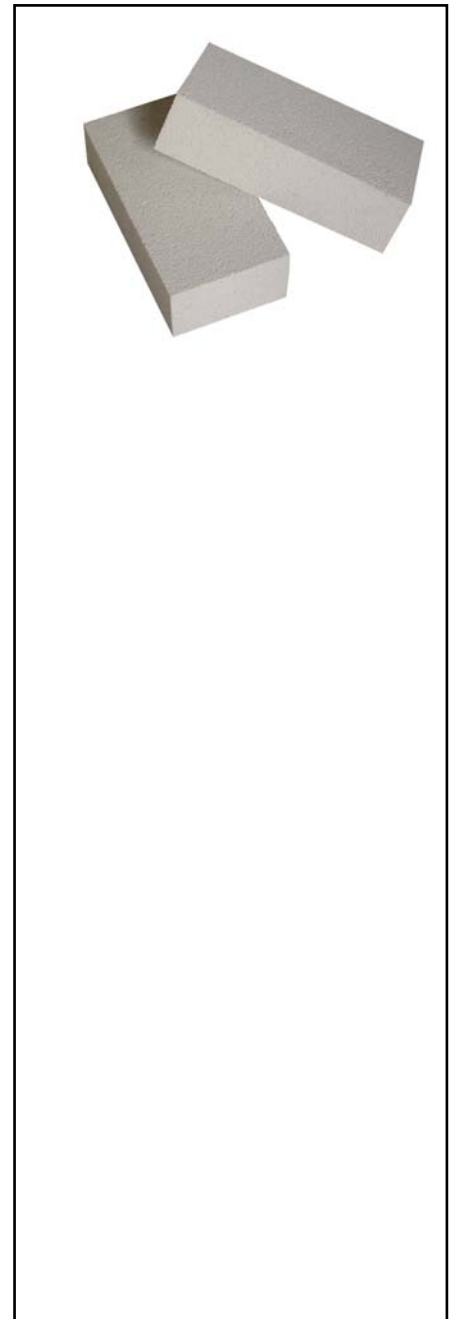
 insulating firebrick can be used as a hot face lining directly exposed to the heat or as a backup insulation layer in iron and steel mills, non ferrous foundries, petrochemical, ceramic, glass, cement and oil fired electric power generating plants.

ADVANTAGES

Light weight and low thermal conductivity allows thinner furnace walls
Maintain stable structural strength throughout ambient to maximum service temperature
Low heat storage results in rapid cooling and heating operation
Low iron and impurities to enhance reducing atmosphere
High thermal shock resistance in preventing spalling
Non standard sizes and shapes are available upon request

APPLICATIONS

Ceramic shuttle kilns
Metal heat treatment furnaces
Steel billet reheating furnaces
Oil refinery heaters
Laboratory furnaces
Backup insulation for all furnaces





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INSULATING FIREBRICK DATA SHEET

	GJM26 0.8	GJM26 1.0	GJM26 1.2	GJM28 0.9	GJM28 1.0	GJM28 1.2	GJM30 1.0	GJM30 1.2	GJM32 1.4	GJM32 1.5
Classification Temperature \leq °C	1430	1500	1500	1540	1580	1600	1650	1700	1750	1750
Continuous Working Temperature \leq °C	1330	1400	1400	1440	1480	1500	1550	1600	1700	1700
Bulk Density (g/cm³)\leq	0.8	1.0	1.2	0.9	1.0	1.2	1.0	1.2	1.4	1.5
C.C.R. (Mpa) \geq	1.6	2.0	2.5	2.1	2.4	2.5	2.5	3.5	3.5	4.5
Modulus of Rupture (Mpa)\geq	0.8	1.0	1.2	0.9	1.0	1.2	1.2	1.5	1.7	2.0
Permanent Linear Change after 12 hours soaking at temperature (%)	1400 1.0	1470 1.0	1470 1.0	1510 1.0	1550 1.0	1570 1.0	1620 1.0	1670 1.0	1680 1.0	1680 1.0
Thermal Conductivity at 800°C(W/m.k)\leq	0.35	0.42	0.52	0.36	0.40	0.45	0.44	0.52	0.56	0.58
Al₂O₃ \geq%	57	57	57	66	66	66	73	73	76	76
Fe₂O₃ \leq %	1.0	1.0	1.0	1.0	1.0	1.0	0.5	0.5	0.5	0.5

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CERAMIC FIBER BLANKET

GENERAL INFORMATION

 ceramic fiber blanket is made from high quality Gao-Ling clay, high purity alumina and silica oxides by spun or blown process. It is asbestos free. No chemical binder is added. Double-side needling provides blanket with great tensile or handling strength for easy installation. Blankets are available in various classified temperatures from 1260 °C to 1430°C.

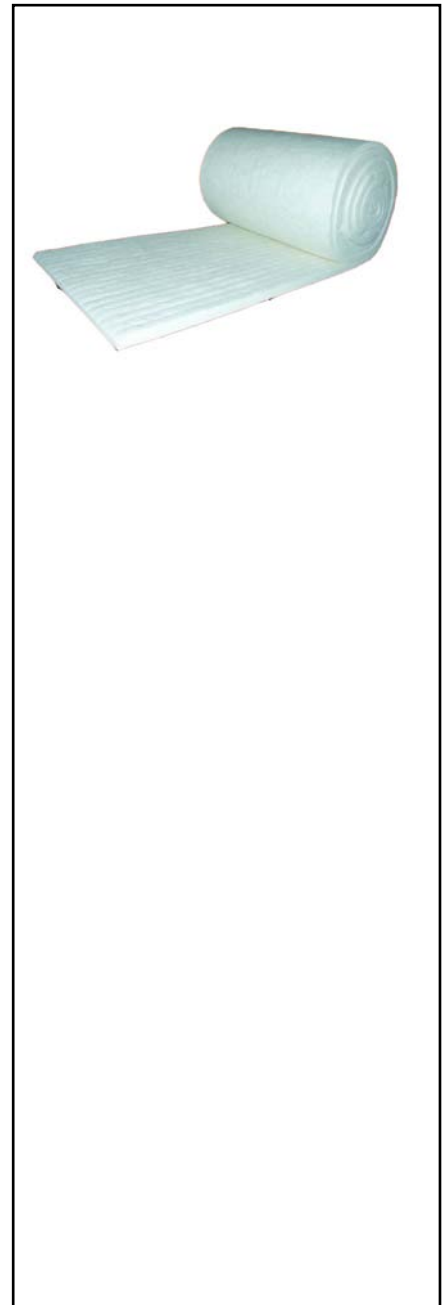
 ceramic fiber blanket is resistant to most chemicals attack except hydrofluoric, phosphoric acid and high pH alkali (Na_2O or K_2O). Its thermal and physical properties can not be affected by oil, steam and water.

ADVANTAGES

- Heat resistance
- Light weight
- Low thermal conductivity
- Low heat storage
- Flexible
- Resilient to thermal shock
- High tensile strength
- Corrosion resistance
- Easy to install
- Asbestos free

APPLICATION

- Petrochemical process heater refractory fiber lining
- Heat treating furnace or Intermittent (shuttle) kiln hot face lining
- General furnace backup insulation
- Heat seals for kiln car or furnace door
- Electrical insulator
- High temperature acoustic
- Fire protection





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CERAMIC FIBER BLANKET

TECHNICAL DATA

	STD	HP	HA	HZ
Classification Temperature(°C)	1260	1260	1350	1450
Working Temperature(°C)	1050	1100	1200	1350
Color	white	white	white	white
Bulk Density(kg/m³)		64, 96, 128, 160		
Thermal Conductivity (W/m.k)				
(Density 128kg/m³)				
800°C	0.15	0.176		
1000°C	0.17	0.22	0.18	0.23
1200°C			0.26	0.31
Thermal Shrinkage 24hrs				
(Density 128kg/m³)				
	1150°C	1250°C	1300°C	1350°C
(%)	≤ 3	≤ 3	≤ 3.5	≤ 3.5
Chemical Composition(%)				
AL ₂ O ₃	45-47	45-46	53-55	38-54
AL ₂ O ₃ +SiO ₂	98.5	99	99	82-90
ZrO ₂	—	—	—	10-18
Fe ₂ O ₃	< 0.4	< 0.3	< 0.2	< 0.2
K ₂ O+Na ₂ O	< 0.3	< 0.3	< 0.2	< 0.2
CaO+MgO	< 0.2		< 0.2	< 0.2

Standard Size (mm)

14400 × 610 × 12.5

7200 × 610 × 25

3600 × 610 × 50

Non-standard sizes are available upon request

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FIRECLAY BRICK

GENERAL INFORMATION

NR fireclay bricks are made from clinker clay by mixing, forming, drying, sintering and machining. The Al_2O_3 content ranges from 36% to 42%.

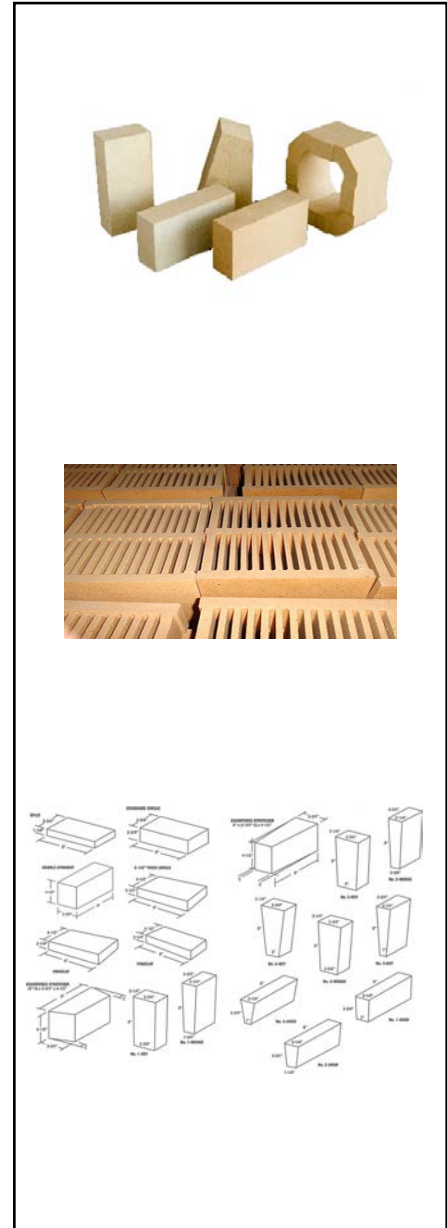
NR fireclay bricks feature stable mechanical strength and good thermal shock resistance, withstanding high temperature up to 1750°C. They are commonly applied as refractory lining directly exposed to heat or backup insulation layer in all kinds of industrial kiln or laboratory furnace.

ADVANTAGES

- Low thermal conductivity
- High refractoriness
- High mechanical strength
- Excellent thermal shock resistance
- Non standard sizes and shapes are available upon request

APPLICATIONS

- Petrochemical process heater
- Heat treatment furnace
- Ceramic firing kiln
- Cement rotary kiln
- Glass melting tank
- Backup insulation





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FIRECLAY BRICK TECHNICAL DATA

		ZGN42	NRGN42	NRRN40	NRRN40	NRRN36
$Al_2O_3 \geq$ %		42	42	42	40	36
$Fe_2O_3 \leq$ %		1.6	1.7	—	—	—
C.C.S. $Mpa \geq$		58.8	49	29.4	24.5	19.6
Refractoriness \geq °C		1750	1750	1750	1730	1690
Permanent Linear	1350°C × 2hrs	—	—	—	0~-0.3	0~-0.5
Change \leq %	1450°C × 3hrs	0~-0.2	0~-0.3	0~-0.4 (× 2hrs)	—	—
Refractoriness under Load						
	(0.2 Mpa) \geq	1450	1430	1400	1350	1300
Apparent Porosity \leq %		15	16	24	24	26

Note: 1) ZGN42 and GN42 are used in blast furnace

2) RN42, RN 40 and RN 36 are used in hot blast stove

3) Fireclay bricks can be designed and manufactured upon customers requirements

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CERAMIC FIBER BOARD

GENERAL INFORMATION

CMAX™ ceramic fiber boards are manufactured in a wet vacuum forming process by blending the chopped ceramic fiber with inorganic or organic binders for excellent abrasive resistance at high temperature.

CMAX™ ceramic fiber boards feature low thermal conductivity, high thermal stability and excellent thermal shock resistance. The products are classified as STD, HP, HA and HZ respectively corresponding to different maximum service temperature 1000°C, 1100°C, 1200°C and 1350°C.

ADVANTAGES

- Low heat storage
- Low thermal conductivity
- Excellent abrasive resistance
- Excellent thermal shock resistance
- Excellent chemical stability
- Even density and thickness
- Non standard sizes are available upon request.

APPLICATIONS

- Hot air duct lining
- Shuttle kiln with high gas velocity
- Laboratory furnace
- Kiln car insulation
- Die-cut high temperature seal



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CERAMIC FIBER BOARD TECHNICAL DATA

	STD	HP	HA	HZ
Classification Temperature	1260	1260	1350	1450
Working Temperature(°C)	1000	1100	1200	1350
Max. Working Temperature(°C)	1250	1260	1350	1450
Color	white	white	white	white
Bulk Density(kg/m³)	260~400	260~400	260~400	260~400
Thermal Conductivity (W/m.k)				
200°C	0.045	0.043	0.045	0.045
400°C	0.067	0.070	0.072	0.068
600°C	0.094	0.094	0.092	0.092
800°C	0.136	0.128	0.120	0.114
1000°C	0.152	0.150	0.143	0.146
1200°C	0.190	0.178	0.160	0.158
1300°C	-	-	-	0.170
Thermal Shrinkage 24hrs				
(%)	1200°C -3.3	1260°C -3.2	1350°C -3.6	1400°C -3.8
Chemical Composition(%)				
Al ₂ O ₃	45-47	47-49	53-55	38-54
Al ₂ O ₃ +SiO ₂	97-98.5	98-99	98.5-99	83-89
ZrO ₂	-	-	-	10-18

Size Available (mm)

Length: ≤ 1500

Width: ≤ 1200

Thickness: 6~50

Standard Size(mm):

900 × 600 × 20~50

Tolerance (mm) :

(-1, +2)

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