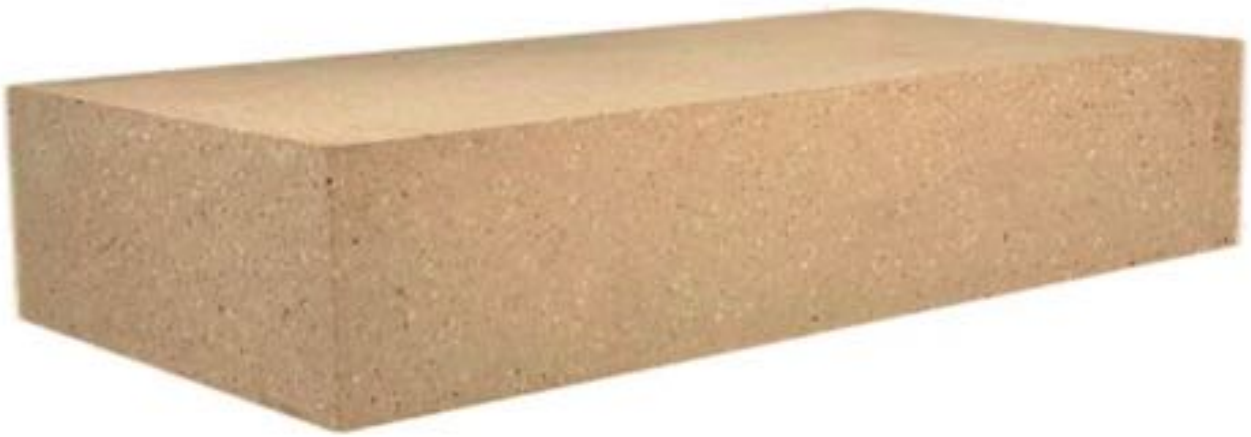
Wedge India

Fire Clay Bricks | Chamotte | Insulating Bricks

High Performance, Longer Life, High Temperature Resistance

WFB | Fire Clay Bricks

Fire clay brick refers to the high temperature resistant refractory clay products with Al2O3 content of 30%-50%. Fire clay bricks can resist the erosion of acid slag and acid gas; have good thermal performance and can withstand rapid cooling and rapid heating. The fire clay bricks are mainly used for heat boiler, glass kiln, cement kiln, chemical fertilizer gasification furnace, blast furnace, hot blast furnace, coking furnace and electric furnace. Fire Clay Bricks have high fire resistance, high density, low porosity, excellent creep performance at high temperature and good bulk stability. Fire clay is commonly found beneath coal seams and is used to make fire bricks. Fire clay has two major constituents: silica and alumina, with silica ranging from 60 to 70% and alumina ranging from 25 to 35%.



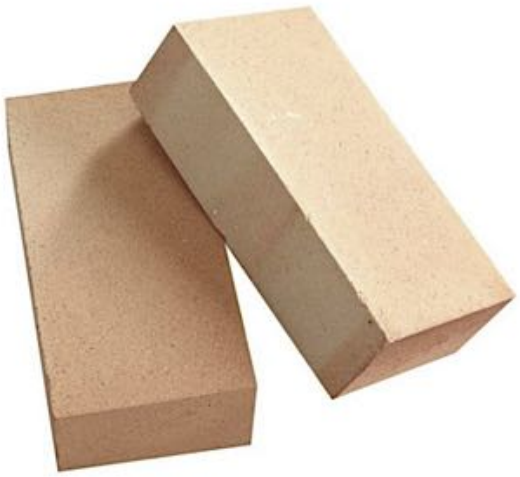
Fire brick is a type of refractory brick, tile or a block made of ceramic materials used in lining furnaces, kilns, fireboxes, and fireplaces. Fire bricks are manufactured to withstand high temperature and usually have a low thermal conductivity for greater energy efficiency. Dense firebricks are used in applications with extreme mechanical, chemical, or thermal stresses, such as the inside of a wood-fired kiln or a furnace, which is subject to abrasion from wood, fluxing from ash or slag, and high temperatures. Higher porosity Fire bricks can be used in less harsh working conditions such as in an electric- or natural gas-fired kiln, these are known as "kiln bricks". These types bricks have lesser strength but they are much lighter and easier to form and insulate far better than dense bricks.

Wedge

Principal raw materials for manufacturing of firebricks are fireclays, hydrated aluminum silicates, minerals of high aluminum oxide content, such as bauxite, and kyanite and sources of silica, including sand and quartzite; magnesia minerals, magnesite, dolomite, forsterite, and olivine; chromite, a solid solution of chromic oxide with the oxides of aluminum, iron, and magnesium; carbon as graphite or coke; and vermiculite mica. Minor raw materials are zirconia, zircon, thoria, beryllia, titania, and ceria, and other minerals containing rare-earth elements.

Features and Benefits of Fire Bricks

- Low thermal conductivity and high energy efficiency.
- High mechanical strength.
- High thermal resistance up to 1500 Degree C.
- Lower cost in comparison with alternate materials.
- High chemical resistance.
- High thermal shock resistance.
- Low shrinkage at high temperature.
- High compressive strength.
- High insulation performance.
- Resistance to high temperatures.
- Resistance to temperature fluctuations.
- Pressure resistance at higher temperatures.
- At higher temperatures lower expansion.
- Ability to resist reduction or oxidation.
- High abrasion resistance to dust, metal, slag, etc.
- Low thermal absorption at high temperatures.
- Consistency in size, shape, and composition.

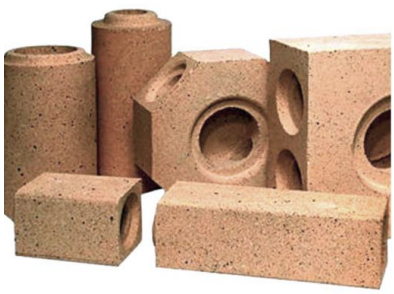


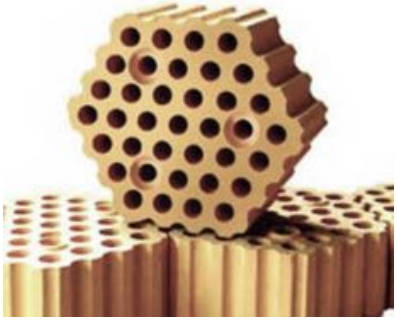
Applications of Fire Bricks

Fire clay bricks are typically used as linings for kilns, furnaces and boilers they possess mechanical strength and can be subjected to extreme thermal cycling and thermal shock. Fire clay bricks also have a high thermal mass which ensures they retain heat and provide excellent energy efficiency. Fire bricks are used to construct kilns, furnaces, and fireplaces. Main application include:

- Furnace construction
- Blast furnace／Hot blast stove
- Steel foundries
- Furnace in the nonferrous metal industry
- Coke oven and Gas furnace
- Glass industry
- Cement industry
- Safety lining of ladle
- Backup lining of boiler

HS Code, GST HSN of Fire Clay Bricks is 69029010





WFB30 HD, MD, LD, 34M | Technical Properties of Fire Clay Bricks

Quality	WFB30HD	WFB30MD	WFB30LD	WFB34M
Base Material	Fire Clay	Fire Clay	Fire Clay	Fire Clay
Al2O3 % ≥	30	30	30	34
SiO2 %	62	62	62	61
Fe2O3 %	1.4	1.8	3	1.2
Refractoriness ºC	1659	1659	1659	1710
PCE, Orton Cone	29	29	29	32
Bulk Density, g/cm3	2.11	1.9	1.9-2.0	2.21
Apparent Porosity, Vol %	12	26	26	11
Cold Crushing Strength, MPa (10.19 Kg/cm2)	80	25	20	90
Thermal Shock Resistance Water, Cycles	10			30
MOR at Ambient, Mpa	11			
RUL T0.5 ℃	1250	1350	1250	1300
Thermal Conductivity at 500 ℃ W/mK	1.19			1.79
Thermal Conductivity at 750 ℃ W/mK	1.31			1.91
Thermal Conductivity at 1000 ℃ W/mK	1.39			2.15

WFB 35MD, 35LD, 36M, 38M | Technical Properties of Fire Clay Bricks

Quality	WFB35MD	WFB35LD	WFB36M	WFB38M
Base Material	Fire Clay	Fire Clay	Fire Clay	Fire Clay
Al2O3 % ≥	35	35	36	38
SiO2 %	61	61	59.5	56
Fe2O3 %	2.05	3	1.2	1.9
Refractoriness ºC	1679	1710	1679	1750
PCE, Orton Cone	30	32	30	34
Bulk Density, g/cm3	2	1.95-2.1	2.19	2.18
Apparent Porosity, Vol %	25	24	13.5	18
Cold Crushing Strength, MPa (10.19 Kg/cm2)	35	25	70	45
Thermal Shock Resistance Water, Cycles			20	
RUL T0.5 ℃	1350	1280	1350	1300
Thermal Conductivity at 500 ℃ W/mK			1.19	
Thermal Conductivity at 750 ℃ W/mK			1.31	
Thermal Conductivity at 1000 ℃ W/mK			1.39	

WFB 38LD, 40MD, 41M, 42HD | Technical Properties of Fire Clay Bricks

Quality	WFB38LD	WFB40MD	WFB41M	WFB42HD
Base Material	Fire Clay	Fire Clay	Fire Clay	Fire Clay
Al2O3 % ≥	38	40	41	42
SiO2 %			54	
Fe2O3 %	2.8	2	1.5	2.2
Refractoriness ºC	1750	1698	1710	1710
PCE, Orton Cone	34	31	32	32
Bulk Density, g/cm3	2.0-2.1	2.05	2.22	2.1
Apparent Porosity, Vol %	23	23	16.5	25
Cold Crushing Strength, MPa (10.19 Kg/cm2)	30	40	60	42
Thermal Shock Resistance Water, Cycles			15	
RUL T0.5 ℃	1300	1400	1350	1420
Thermal Conductivity at 500 ℃ W/mK			1.19	
Thermal Conductivity at 750 ℃ W/mK			1.31	
Thermal Conductivity at 1000 ℃ W/mK			1.39	

WFB 45HD, 45LD, 45S, 454S | Technical Properties of Fire Clay Bricks

Quality	WFC45HD	WFB45LD	WFB45S	WFB454S
Base Material	Fire Clay	Fire Clay	Chamotte	Chamotte
Al2O3 % ≥	45	45	45	45.5
SiO2 %			50	50
Fe2O3 %	2.2	2.5	1.1	1.5
Refractoriness ºC	1710	1780	1780	1750
PCE, Orton Cone	32	35	35	34
Bulk Density, g/cm3	2.2	2.1-2.2	2.38	2.33
Apparent Porosity, Vol %	23	22	13	15.5
Cold Crushing Strength, MPa (10.19 Kg/cm2)	45	40	55	54
RUL T0.5 ℃	1450	1320	1470	1430
Thermal Expansion at 1000 ℃, %			0.67	0.56
Thermal Conductivity at 500 ℃ W/mK			1.38	1.4
Thermal Conductivity at 1000 ℃ W/mK			1.51	1.5

WFB 46H, 46S, 47M, 48M | Technical Properties of Fire Clay Bricks

Quality	WFB46H	WFB46S	WFB47M	WFB48M
Base Material	Fire Clay	Chamotte	Fire Clay	Fire Clay
Al2O3 % ≥	46	46	47	48
SiO2 %	48	50	48	48
Fe2O3 %	1.6	1.5	1.3	1.2
Refractoriness ºC	1659	1780	1780	1780
PCE, Orton Cone	29	35	35	35
Bulk Density, g/cm3	2.28	2.33	2.32	2.36
Apparent Porosity, Vol %	18	16	16	15
Cold Crushing Strength, MPa (10.19 Kg/cm2)	50	49	70	65
Thermal Shock Resistance Water, Cycles			15	30
MOR at Ambient, Mpa	9		10	12
RUL T0.5 ℃	1300	1430	1350	1470
Thermal Expansion at 1000 ℃, %		0.5	0.6	0.7
Thermal Conductivity at 500 ℃ W/mK	1.19	1.2	1.58	1.19
Thermal Conductivity at 750 ℃ W/mK	1.32		1.62	1.31
Thermal Conductivity at 1000 ℃ W/mK	1.43	1.3	1.71	1.39

WFB | Chamotte Bricks

Chamotte, Clay Fire Brick for Carbon Furnace belongs to silicon-aluminum series products, using clay clinker as aggregate, refractory clay as binder, which is Al_2O_3 content in 30-48% refractory products. Chamotte refractory bricks are produced with special casting materials and vibration molding technology. The product's resistance to molten glass is better than traditional casting products and stamping products. The products are especially suitable to build the bottom of furnace, cooling and working end side wall of glass furnace.

Features of Chamotte Bricks

- Good wear-resistance.
- Corrosion-resistant.
- Low permanent linear change on reheating.
- High dense structure.
- Good thermal shock stability.
- Low Porosity.
- Low Creep Rate.
- Volume Stability.

Application of Chamotte Bricks

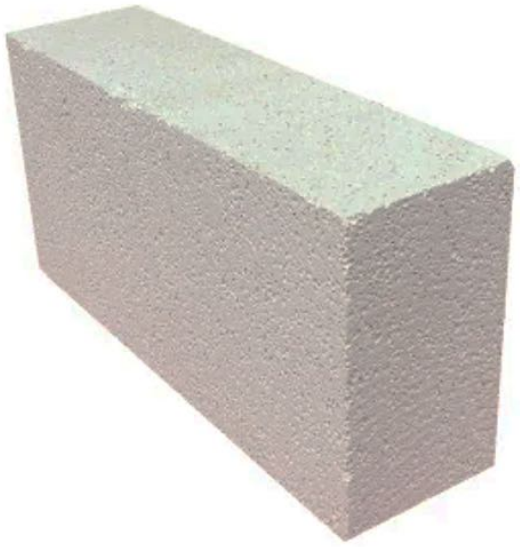
Mainly used for carbon furnace, baking furnace, heating boiler, glass furnace, cement kiln, fertilizer gasification furnace, blast furnace, the hot blast stove, coking furnace, furnace, casting and casting steel brick, etc.

WETON | Insulation Refractory Bricks

WETON are lightweight refractory insulation bricks most suitable for high temperature insulation up to 1600 Degree C. These bricks are produced from high purity raw materials to achieve lowest possible thermal conductivity without compromising on mechanical strength.

Feature & Advantages

- Low thermal conductivity at high temperatures
- Low bulk density, thus low heat storage
- Good high temperature resistance
- Reduced thermal shrinkage
- High thermal shock resistance
- High mechanical resistance

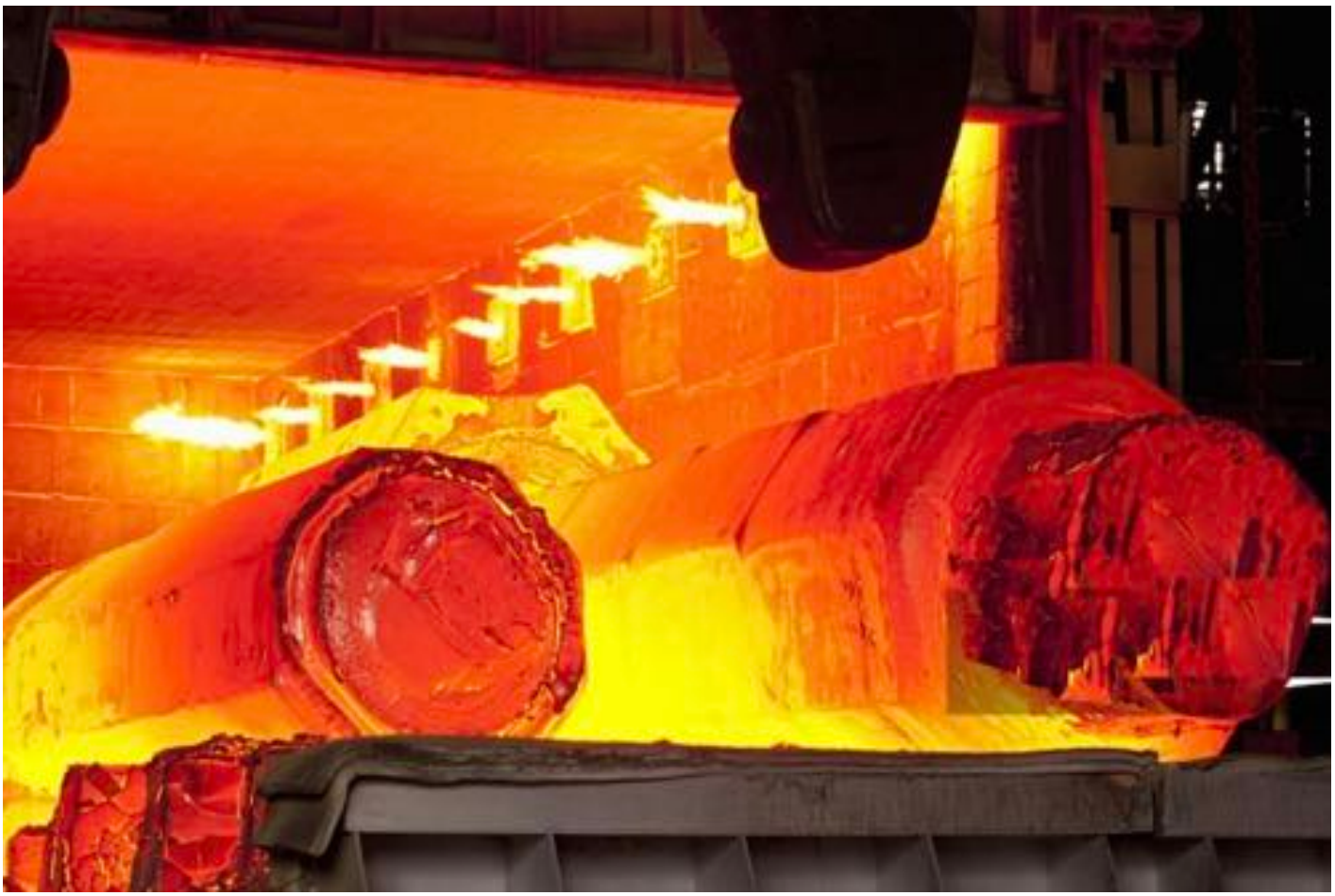


Applications

- Insulating layer in torpedo ladles
- Ceramic industry plants like chamber,
- Bogie hearth and tunnel kilns
- Anode baking furnaces
- Cracker and process plants
- Combustion chamber lining
- Insulation in reheating furnaces
- Walking beam furnaces
- Rapid roller kilns for cement
- Glass furnaces & Tunnel furnaces

WETON 23, 26, 28, 30, 32 | Technical Properties of Insulating Bricks

Qualities	WETON 23	WETON 26	WETON 28	WETON 30	WETON 32
Type	Soft	Hard	Hard	Hard	Hard
Colour	White	White	White	White	White
Classification Temperature; °C	1260	1430	1540	1650	1760
Bulk Density; Kg / CM3	600	800	890	1030	1250
Flexural Strength; Mpa	0.9	1.5	1.6	1.7	2
Cold Crushing Strength; MPa	1.2	2.4	2.6	2.8	3.4
Thermal Conductivity; W/m.k					
400	0.17	0.24	0.3	0.4	0.49
600	0.18	0.27	0.32	0.42	0.5
800	0.21	0.29	0.35	0.44	0.51
1000	0.24	0.32	0.38	0.45	0.53
1200		0.35	0.39	0.47	0.55
Al2O3; %	45	55	65	72	76
Fe2O3; %	0.7	0.6	0.3	0.3	0.3
SiO2; %	50	43	33	26	22
TiO2; %	1.2	1.1	0.9	0.5	0.3
CaO + MgO; %	0.7	0.3	0.2	0.3	0.2
K2O + Na2O; %	1.3	1.1	0.8	0.2	0.1



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