Future Refractories

An **ISO 9001 : 2008** Certified Company

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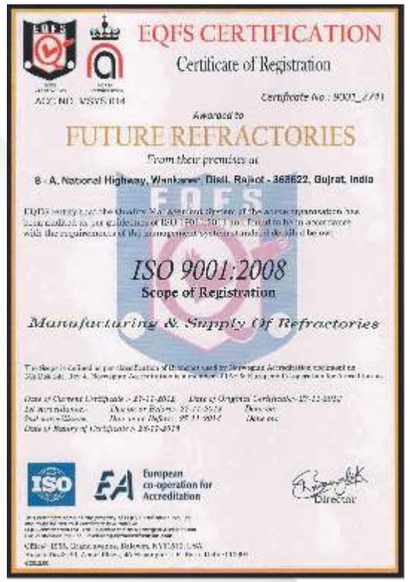
Refractory & Lining Products
for High Temperature Applications

Future Refractories

An **ISO 9001 : 2008** Certified Company

About us

FUTURE REFRACTORIES is situated in WANKANER (GUJARAT) and from a humble beginning this unit has grown into a large modern plant manufacturing all grades of high quality refractory and allied items. The products of the company enjoy a high reputation for quality and durability and are in great demand all over the country and overseas market.


EQFS CERTIFICATION
Certificate of Registration
Awarded to
FUTURE REFRACTORIES
From their premises at
B - A, National Highway, Wankaner, Distt. Rajkot - 368622, Gujrat, India
ISO 9001:2008
Scope of Registration
Manufacturing & Supply Of Refractories
European co-operation for Accreditation
Director

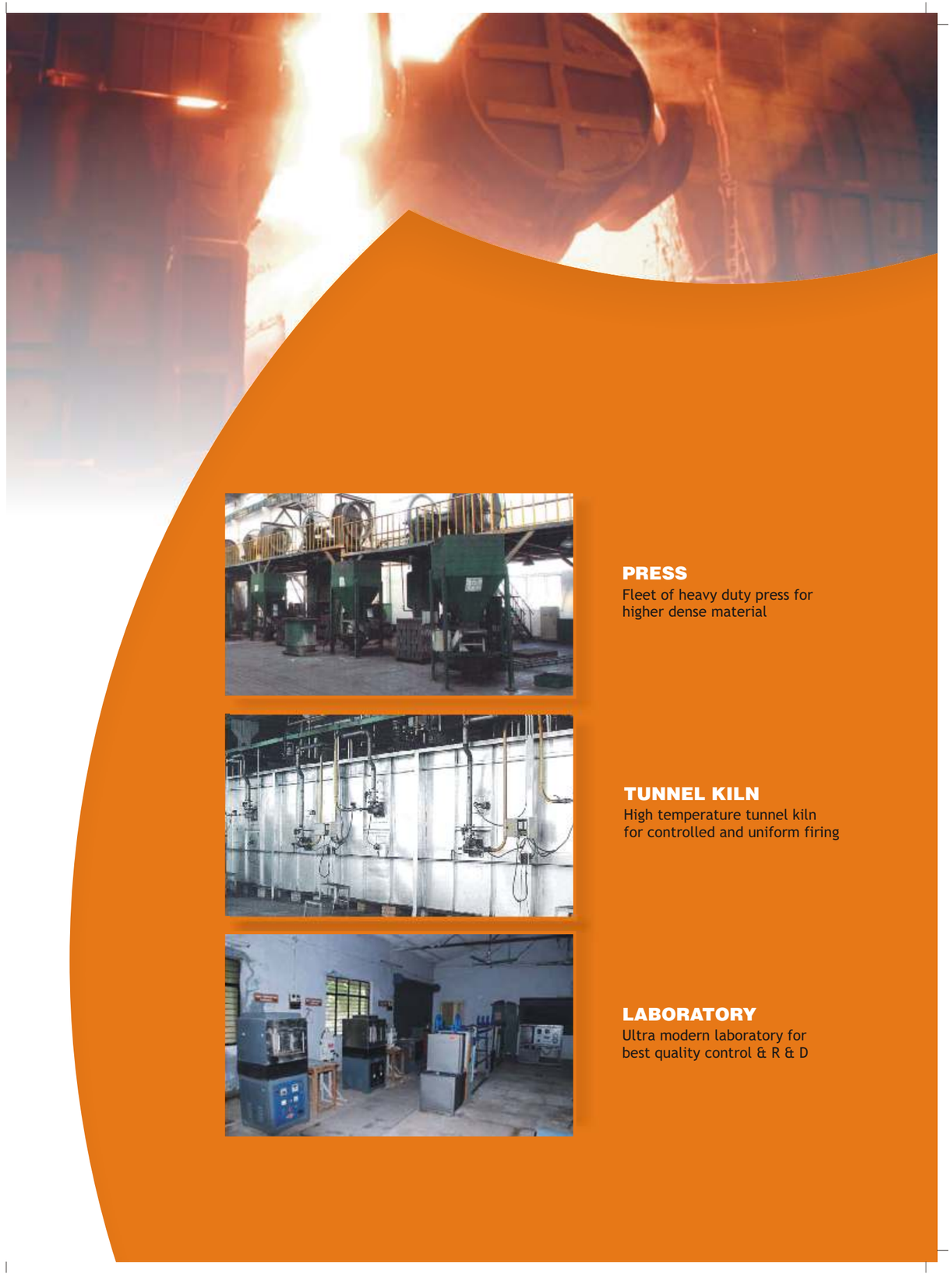
We have an excellent infrastructure comprising of modern machines and sophisticated equipment's which includes heavy duty presses, grinding unit with elevator, hoppers, screens and magnetic separators, high temperature tunnel kiln for firing of superior quality Refractories with strength specifications. We have our own laboratory for testing raw materials as well as end products and are also equipped with machine workshop for maintenance purpose and for making various intricate dies and pattern boxes. Besides standard shapes and sizes we specialize in manufacturing various intricate shapes and size of Refractories as per demand of our customers.

We have adequate and experience team of technical staff and full-fledged laboratory to ensure standard and uniform quality of all our products. Testing is conducted right from the stage of sourcing of raw material from mines to conversion into intermediate green stage and then to final product. Besides this we are also getting our bricks tested in various government, and other independent laboratories regularly to confirm results. We are focused on quality and customer satisfaction.

We have been supplying Refractories to **Cement, Aluminum, Steel, Sugar and Power plants** since long Our product range includes Moderate Heat Duty Bricks, High Heat Duty Bricks, High Alumina Bricks, Conventional Castables, Special High Range Castables, Insulation Bricks, Insulation Castables, Fireclay Mortars, Casting Powder, Nozzle Filling Compound (NFC), And Laddle Covering Compund We have been focusing on export market also and are open Can-F (Granule for close cast) to the refractory requirements of export, matching the strength specifications.

FUTURE REFRACTORIES is continuously thriving for excellence by coming out from the conventional method of manufacturing refractory item to most sophisticated and latest concept of production for quality and performance. Our main focus throughout has been on complete customer satisfaction. FUTURE REFRACTORIES follows strict quality assurance system to ensure full conformity of its Products to the required specification and also ensures timely deliveries.

For further details about our products etc please visit: **www.futurerefractories.com**



PRESS
Fleet of heavy duty press for higher dense material

TUNNEL KILN
High temperature tunnel kiln for controlled and uniform firing

LABORATORY
Ultra modern laboratory for best quality control & R & D

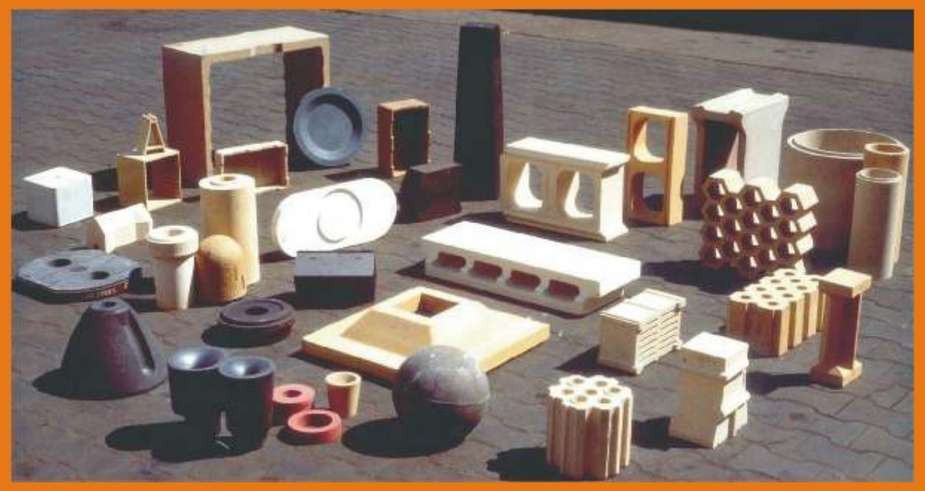
PRODUCT MIX

- High Alumina Bricks
- Special Dense Bricks
- High Temp Insulation Bricks
- Ultra Modern Monolithics
- Low Iron Bricks
- Casting Powder
- Nozzle Filling Compound
- Laddle Covering Compound

APLICATIONS

- Steel Industries
- Cement Industries
- Glass Industries
- Petrochemical Industries
- Chemical Industries
- Steel Casting
- Cock Owen Battery
- Fertilizer
- Power Plant Boiler

Various Shapes of **REFRACTORY BRICKS**



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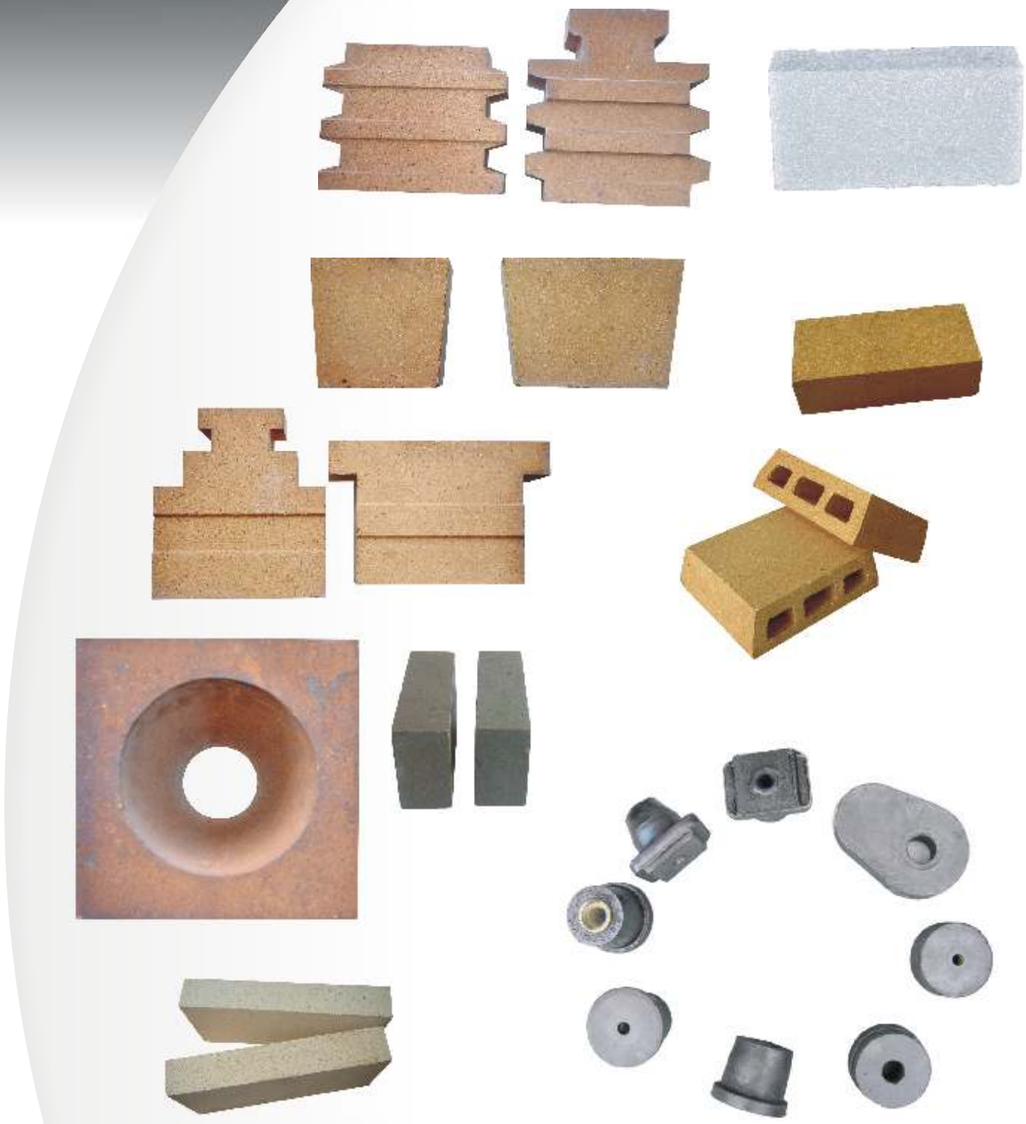


FR SILLIMANITE BRICKS

BRAND NAME	Al_2O_3 (%) min	Fe_2O_3 (%) max	B.D. Gms/cc min	P.C.E. orton min	App. Porosity max	C.C.S. k.g./cm^2 min	R.U.L. Ta^{0}C	P.L.C. ^{0}C/2Hrs
FR Sillimax I	58	2.0	2.4	36	22	400	1520	±1.0
FR Sillimax II	50	1.5	2.3	36	25	350	1550	±1.0
FR Sillimax III	62	1.5	2.5	36	15	500	1600	±0.8
FR Sillimax IV	58	1.5	2.3	36	23	400	1550	±1.0

LOW IRON & DENSE BRICKS

BRAND NAME	Al_2O_3 (%) min	Fe_2O_3 (%) max	B.D. Gms/cc min	P.C.E. orton min	App. Porosity max	C.C.S. k.g./cm^2 min	R.U.L. Ta^{0}C	P.L.C. ^{0}C/2Hrs
FR 40-S	40	2.0	2.2	33	22	350	1450	14500 ±0.6
FR 42-D	42	1.5	2.3	34	16	550	1480	14500 ±0.5
FR 45-S	45	2.0	2.25	33	21	400	1450	14500 ±0.8
FR 55-S	55	2.0	2.3	35	22	450	1480	15000 ±0.8
FR 60-S	60	2.0	2.35	36	22	450	1500	15000 ±0.8
FR 62-D	62	1.5	2.5	36	17	600	1500	15000 ±0.2
FR 70-S	70	2.5	2.65	37	23	500	1480	15000 ±2.0
FR 80-SP	80	2.3	2.75	37	22	500	1500	15500 ±2.0
FR 85-S	85	2.0	2.8	38	20	500	1500	15500 ±1.0

FIRE CLAY BRICKS HIGH ALUMINA BRICKS

BRAND NAME	Al_2O_3 (%) min	Fe_2O_3 (%) max	A.P. % Min	B.D. Gms/cc min	C.C.S. kgs/cm^2 min	P.C.E. orton min	R.U.L. Ta^{0}C Min.	P.L.C. % Max.
FR-30 (IS:6)	30	2.20	25	1.90	250	31.00	1350	±1.5 at 1350^{0}C/2 hrs
FR-40 (IS:8)	40	2.50	23	2.10	350	32.00	1400	±1.0 at 1450^{0}C/2 hrs
FR-45	45	2.60	21	2.20	370	32.00	1420	±1.5 at 1450^{0}C/2 hrs
FR-50	50	2.75	23	2.30	400	32.50	1430	±1.5 at 1450^{0}C/2 hrs
FR-55	55	2.90	23	2.40	400	33.00	1440	±1.5 at 1450^{0}C/2 hrs
FR-60	60	3.00	23	2.55	430	34.00	1450	±1.5 at 1500^{0}C/2 hrs
FR-65	65	3.00	23	2.60	450	34.50	1460	±2.0 at 1500^{0}C/2 hrs
FR-70	70	3.20	23	2.65	500	35.00	1470	±2.0 at 1500^{0}C/2 hrs
FR-80	80	3.50	21	2.75	600	37.00	1500	±2.5 at 1500^{0}C/2 hrs

Note : 1. The Above Data are on Average Result Basis. 2. Size Tolerance ± 1.5% Or 2mm Whichever is Greater

HIGH PURITY DENSE CASTABLES

BRAND NAME	A	K	C	M
Physical Properties				
Recommended Service Temp. ^{0}C (max)	1750	1600	1500	1700
Refractoriness ^{0}C (min) Orton (min)	1820 37	1683 31	1665 30	1800 36
Dry Density kg/m^3 (min)	2800	2200	2100	2600
Linear Change % (max)	± 1.0 1550^{0}C/3 hrs	± 1.5 1550^{0}C/3 hrs	± 1.0 1550^{0}C/3 hrs	± 1.0 1550^{0}C/3 hrs
CCS kg/cm^2 (min) 110^{0}C	600	350	350	550
Maximum Grain Size (mm)	5	5	5	5
Chemical Analysis				
Al_2O_3 (%) min	90	60	50	80
FeO_3 (%) max	0.8	1.0	1.5	1.5

HIGH PURITY INSULATING CASTABLES

BRAND NAME	FR CAST-7	FR CAST-9	FR CAST-11	FR CAST-13	FR CAST-15
Chemical Analysis					
Al_2O_3 % min	43	44	43	44	45
Fe_2O_3 % max	1.5	1.5	1.5	1.5	1.5
Physical Properties					
Service Temp. ^{0}C	1350	1350	1350	1350	1400
Bulk Density gms/cc	0.70	0.90	1.25	1.25	1.60
Water required for Casting %	30-35	27-32	30-35	27-32	23-28
Grain Size (mm)	6	6	6	6	6
CCS kgs/cm^2					
at 110 ^{0}C / 24 Hrs.	45	80	45	80	130
at 800 ^{0}C / 3 Hrs	30	40	30	40	75
at 1100 ^{0}C / 3 Hrs	40	40	40	40	75
at 1300 ^{0}C / 3 Hrs	50	50	50	50	90
Thermal Properties					
P.L.C.%					
after heating at 800^0 C/3hrs	±0.2	±0.2	±0.2	±0.2	±0.2
after heating at 1200^0 C/3hrs	±1.0	±0.8	±1.0	±0.8	±1.0
Thermal Conductivity kcal/m/hr/^{0}C					
at 300 ^{0}C HF	0.30	0.35	0.30	0.35	0.38
at 500 ^{0}C HF	0.38	0.32	0.38	0.32	0.42
at 800 ^{0}C HF	0.36	0.41	0.36	0.41	0.44

Note : Data represent typical average properties and do not constitute a specifications.

DENSE CASTABLES

BRAND NAME		FR CRETE	FR CRETE SUPER	FR CRETE SPECIAL
Physical Properties				
Recommended Service Temp. ^{0}C (max)		1400	1450	1350
Refractoriness ^{0}C (min)		1580	1680	1455
Dry Density kg/m^3 (min)		2100	2500	2250
Linear Change % (max)		± 1.0 1400^{0}C/2 hrs	± 1.5 1400^{0}C/3 hrs	± 0.8 1350^{0}C/2 hrs
CCS kg/cm^2 (min)	110^{0}C	250	350	400
	1350^{0}C	225	-	300
	1450^{0}C	-	450	-
Maximum Grain Size (mm)		5	5	5*
Chemical Analysis				
Al_2O_3 (%) min		45	70	45
FeO_3 (%) max		4	5	4

Note : Coarse grading can be supplied on request.

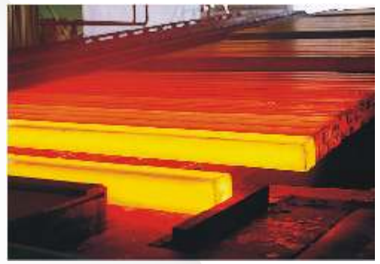
CHEMICAL BONDED PLASTIC REFRACTORY

PARTICULARS		FRCAST - 90 PR
Service Tem. °C (Max.)		1650
Refractoriness °C (Min)		1785
Bulk Density, gm/cc (Sample dried at 110° C for 24 h)		2.70
Cold Crushing Strength (kg/cm2) (Min)	110° C / 24h	650
	1300° C/5h	875
Permanent Linear Change (%) (Max)	1300° C/5h	-0.60
Chemical Analysis (%)	Al_20_3 (Nominal)	90.0
	Fe_20_3 (Max)	0.3
Abrasion Loss (ASTM C-704-93), cc (Max.)	at 110° C / 24h	5.0
	1300° C/5h	3.5
Binder Requirement (wt%)		9.5 - 10.0
Method of Application		Ramming (Hand / Machine)

LOW CEMENT CASTABLES

BRAND NAME		FR CAST LC-45	FR CAST LC-70	FR CAST LC-85	FR CAST LC-90
Max Service temp		1400^{0}C	1550^{0}C	1600^{0}C	1600^{0}C
Grading In mm		3	3	5	5
Water reqd in %		5-6.5	5-5.5	4.5-5.5	4.5-5.5
Setting		Chem./Hydraulic	Chem./Hydraulic	Chem./Hydraulic	Chem./Hydraulic
Chemical Analysis	% Al_2O_3	45 min	70 min	83.±3 min	90 min
	% Fe_2O_3	1.0 max	1.5 max	3.0 max	1.5 max
	% CaO	1.5 max	2.0 max	2.5 max	2.0 max
B.D. (gm/cc) (on vibrocast block)		2.30	2.75	2.85	2.90
C.C.S. in kg/cm^2 after drying at					
	110 ^{0}C 24 Hrs	350 min	350 min	400 min	450 min
	1200 ^{0}C 2 Hrs	250 min	270 min	300 min	300 min
	1400 ^{0}C 2 Hrs	500 min	-	-	-
	1500 ^{0}C 2 Hrs	-	500 min	600 min	600 min
PLC in %	at 1400 ^{0}C 2 Hrs	± 1.2	-	-	-
	at 1400 ^{0}C 2 Hrs	-	± 1.5	± 1.5	± 1.5

CASTING POWDER (Open Cast)



The company is a known Casting Powder Manufacturer, Exporter, and Supplier in India. The continuous Casting Powder is available with us for all types of steels and various casting formats like billets, blooms, and slabs.

How It Works
Casting Powder contains low melting constituents which instantly generate liquid slag which penetrates into the gap between the mould and the solidifying shell of the billet. Casting Powder is added in small amounts and continuously over the casting duration. The melting of the Casting Powder occurs slowly in layers. Hence, the top surface of the liquid metal in the billet / slab / bloom always remains protected from the atmosphere.

Benefits
- Lubrication
- Protection of liquid steel from atmospheric oxidation
- Promoting required heat transfer between the mould and solidifying shell

Uses
Traditionally Casting Powder is used for bloom and slab casting. Now designed for billet (open) casting also as an alternative to mould oil for some plants.

Chemical Analysis (Typical Value)
- SiO_2(%) 30.20 , CaO_2(%) 26.46 , MgO_2(%) 2.10, Al_20_3(%) 2.90, Na_2O(%) 4.03
- K_20(%) 1.85, F(%) 4.16 ,F.C(%) 18.21 loss On Ignition (%) 28.88
- Basicity 0.81 ,Softening point 1070 0 c,Melting Point 1140 0 c ,Bulk Density 0.6 gm/cc

Physical Properties
- (-180 to -200) Mesh
- Granuals

NOZZLE FILLING COMPOUND (NFC)

Carefully graded refractory nozzle filling compound which can be made as per requirement of customer's need for steel transfer ladle with slide gate system.

As it posses selected granulometry and high refractoriness, it does not sinter when in contact with molten steel around 1600 °C temperature with high ferrostatic head when kept in ladle nozzle-well cavity. Thus it results into free flowing when slide gate is opened and it comes out freely or with minor oxygen lancing establishing a very smooth stream from the ladle. Depending on nozzle diameter as well as holding time of molten metal in ladle, granulometry of nozzle filling compound and chemical composition of refractory filler change.

Available in three types

1. Chromite Base-Recommended for Mild Steel Production
2. Zircon Base-Recommended for Mild Steel Production &
3. Quartz Base

LADDLE COVERING COMPOUND

We are manufacturing, exporting and supplying the best quality Laddle covering compound. Our Laddle covering compound is made as per quality standards using optimum quality raw material. Laddle covering compound, offered by us, is free flowing in nature and used in tundish or ladle. Our Laddle covering compound is fairly priced.

Raw Material Used

- Almina
- Riceflakes

Chemical Properties

- Al_2O_3 45%
- SiO_2 55%

SYNTHETIC SLAG

There is an old saying in Steel making process - "Take care of Slag, Slag will take care of Steel". Improper composition of Synthetic Slag is very detrimental for the quality of steel as it can lead to harmful reversion of P, S, and unwanted oxides.

Converter slag is a byproduct that outcomes from the 4th phase of the metallurgical process, crushed to -5mm, consisted mainly of Fe-oxides (Fe total about 60%) and used mainly as aggregate for the production of special type of concrete for covering oil tubes, or other similar works, in several places in the world.

Highlights

- It is a special refining slag used for bearing steel making
- It has the actions of desulphurizing and deoxidizing

Advantages

- It has great effect of deoxidation and desulfurization in the molten steel
- The component is mixed uniformly and stably. It could greatly shorten the steelmaking time, efficiently remove impurities and improve the steel quality, and it is really a required additive for bearing steel making
- It could be used as a liquid steel cleanser during the bearing steel refining and reduced dust float pollution effectively

Chemical Composition

Brand	CaO_2(%)content	Al_2O_3(%)content	SiO2(%)content	MgO_2(%)content
Refining Slag	48~60	25~38	3~8	2~5