



Khetan

Khetan Enterprises

One Stop Solution For Steel Plant

**SILICA RAMMING MASS | TUNDISH BOARD
CASTING POWDER | NOZZLE FILLING COMPOUND | RADEX**

INTRODUCTION OF KHETAN ENTERPRISES

Khetan Enterprises welcome you to the flourishing world of Minerals Ores. Khetan group has witnessed impeccable growth since its inception in the year 1982. Under the sharp headship of our CEO, **Mr. Santosh Khetan**, we have attained an invincible position in the market. Khetan group is engaged in manufacturing, sourcing and selling of **SILICA RAMMING MASS, TUNDISH BOARD, CASTING POWDER, NOZZLE FILLING COMPOUND (NFC) & RADEX** in India as well as international market. Khetan group is considered as one of the best manufacturing unit having in-house advanced technologies to develop and manufacture high quality product with cost effectiveness.

Our more than 40 Years of experience in industry, National market leadership, Latest technology, sophisticated machinery and nature friendly ethics constitute is the key element of Khetan Group Which make us proud when we say we have achieved growth not at the cost of nature's damage. Khetan Group follows the motto of "**Quality First**". The organization ensures that best possible Availed Quality Reaches our customers.



SILICA RAMMING MASS

We are one of the leading manufacturer, supplier and exporter of entire range of Silica Ramming Mass having latest technology with vast application knowledge in this area. We have two art of factories one located in Jamshedpur and other in Dhalbhumgarh, Jharkhand in India . The activity of the factories are to manufacture and supply high quality Silica Ramming Mass for its customers need and being served successfully to all over India & abroad with best assurance in quality. Our plants are well equipped with production capacity of approx 72000 MT per annum.

PRODUCT DETAILS

- 1. Premium Silica Ramming Mass (KV – 165) :** This is a material made of best quality quartzite available on the globe. This material gives Extra 15% heat life in induction furnace in compare to Standard ramming mass.
- 2. Super Silica Ramming Mass (KV – 175) :** This is a material made of high purity Quartzite available in Jharkhand.

TYPICAL PROPERTIES OF OUR MATERIAL

Products	Ingredient	Max Temp	Max Grain	Silica	Al ₂ O ₃	Boric
Premium Silica Ramming Mass (KV – 165)	Quartzite	1720 ° C	5 mm	98.75%	0.05%	Nil
Super Silica Ramming Mass (KV – 175)	Quartzite	1700 ° C	6 mm	98.5%	0.08%	Nil
Premium Silica Ramming Mass (KV – 165) ith boric acid	Quartzite	1720 ° C	5 mm	98.75%	0.05%	1.2%
Super Silica Ramming Mass (KV – 175) with boric acid	Quartzite	1700 ° C	6 mm	98.5%	0.08%	1.2%



TUNDISH BOARD

Tundish Lining Boards manufactured by Khetan are known for its high insulation capacity and can be used in sequence at the most affordable price. Special features of Khetan's Tundish Boards are as enumerated below:

- It is made using Green Fuel to bake uniform Tundish Boards.
- Consistency of raw materials is ensured while making our Tundish Boards.
- Tundish Boards are tested in our lab in terms of physical and chemical properties.
- Our Tundish Boards help in saving energy significantly and also reduce consumption of refractory in tundishes.
- Our Tundish Boards help in improving turnaround time significantly which in turn helps in improving productivity.
- We manufacture Tundish Boards in acidic grade as per the need & Drawing of individual steel maker.
- It is also not required to pre-heat the tundish. Only nozzle warming for 15-20 minutes is enough.

PHYSICAL SPECIFICATION OF OUR PRODUCT ARE AS FOLLOWS:

Specification	Tundish Pad	Cones & Impact Pad
Bulk Density (gm/cm ³)	≥1.2	≥1.9
App. Porosity (%)	≥45	≥25
C.C.Strength (Kg/Cm ²)	25-30	45-50
Application Temp. Deg. C	≥1650	≥1650



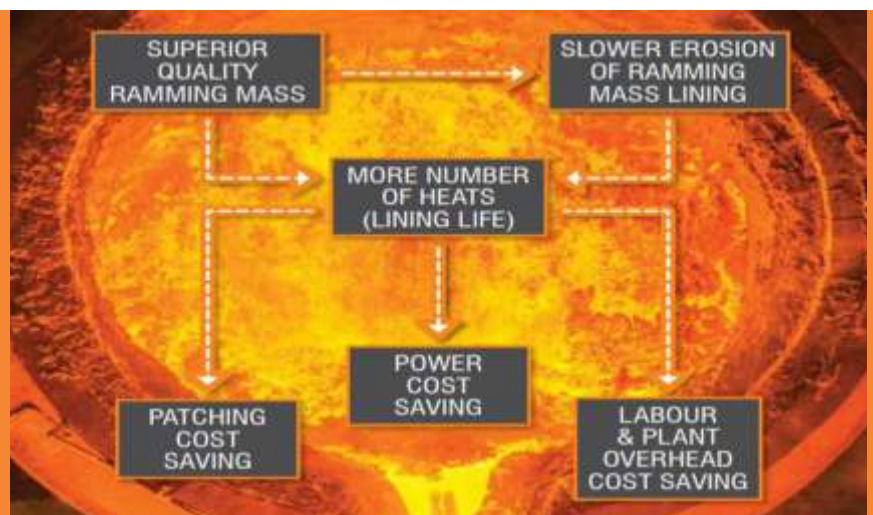
WHAT MAKES KHETAN SILICA RAMMING MASS SUPERIOR FROM OTHERS?

- Free of Iron Oxide (FeO).
- Suitable up to 1720°C.
- Grain –sizes mixed according to furnace requirement.
- Low down time for furnace lining.
- Minimum expansion and contraction at high temperature (treated).
- High electrical resistivity to prevent short circuiting.
- Pure quality (free from foreign particle).
- High corrosion resistance towards steel & slag.
- Moisture free and best quality packing.
- Quality testing - Batch wise testing.

HOW DO WE PROVIDE CUSTOMIZE LINING SOLUTIONS ?

- We don't view ramming mass as commodity but a lining solution to enhance furnace productivity .
- We just don't supply a product . We provide end – to - end solutions .
- Our team –
- Collects various data points of the plants parameters .
- R&D team analysis each data points and innovates customized solutions .
- Our patent – pending fully automated plant produces customized ramming mass according to different plant parameters .
- After trial , product performance is monitored and measured and our ramming mix is tweaked base on feedback received from customers to further increase heats .
- We are obsessed with increasing Client's productivity and reducing costs .

HOW KHETAN'S RAMMING MASS INCREASES PROFITABILITY



KIND OF DEFECTS AND POSSIBLE CAUSED AND REMEDIES :

A) CRACKS :

Radial cracks are mainly due to the gap formed between the coil and the insulation. When in use due to temperature rise the gas in the gap expands and causes cracks.

Vertical cracks can come if the grain size distribution and percentage of sintering agent is not properly adjusted to minimize the circumferential or linear contraction and expansion .

Horizontal cracks come due to sudden temperature fall of the crucibles .

So to avoid conditions following measures should be taken :

Radial cracks can occur if the coils are not rigidly fixed in the shell with yokes .

Horizontal cracks can be avoided by using good cover or hoods for the furnace .

Vertical cracks can be avoided by proper mix design and shell rigidity.

B) EXCESSIVE BOTTOM WEAR :

This is due to too high temperature for holding metal either when the starting block or after tapping the heat and before charging the solid charge . If the charge contains too much iron oxide , this can also happen .

So the above conditions must be avoided to stop this . Bottom patching is also recommended to meet the situation.

C) IRREGULAR WEAR :

This may be due to eccentric placing of former with respect of the axis of the coil . This can also be due to mechanical rubbing of the solid charge to the crucible .

D) METAL AND SLAG PENETRATION :

Metals like Pb , Zn due to their low MP and high vapour pressure , enter the voids of the lining and cause problems . Slag penetration is due to undesirable slag reaction of lining material to that of foreign oxide coming through charge or active elements in the charge getting oxidized and reacting with the lining .

E) METAL LEAKING :

Metal leaking through the packing area of the coil and the loose area between coil . The crucible is poor in tensile strength so any pressure from inside is not resisted is causing the lining to crack .

So to avoid this regular checking of these soil packing 's is necessary . The loose gap needs filling up through hot air setting castable refractory .

PRECAUTIONS TO BE TAKEN BEFORE & DURING RAMMING OF SILICA RAMMING MASS:

- Pre heat the mass in a tray of sheet to 120°C to remove traces of moisture.
- Density of rammed material should be uniform throughout the structure.
- Maximum layer of 50-75mm should be completed in one stroke.
- Layer should be scratched properly before ramming again.
- Lining should be finished in one start without any time gap.
- Ramming should be done in such a way that there is no gap formation.
- Boric acid should be properly mixed in accurate proportion.
- TEST: By hand picking a small amount of mass, make thick water slurry and dip PH paper in it. The presence of boric acid will report PH less than 7.

Casting Powder (Mould Flux)

Khetan Mould Flux are engineered materials used in Continuous Casting of Steel for Bloom, Billets, Slab, Round and Thin Slab. Loaded with the desirable physical and chemical attributes, the demand for **Casting Powder** that we offer is taking over the market. CASTING POWDER forms a very strong lubricating layer between solidifying metal and mould guaranteeing prevention of both metal and mould surface.



Benefits -

- **Protection of the steel meniscus** from re-oxidation.
- **Control of heat transfer** in the mold to prevent surface defects.
- **Thermal Insulation** to avoid premature solidification of the meniscus.
- **Absorption and dissolution of non-metallic inclusions** for steel cleanliness.
- **Lubrication** by preventing the solidified surface of the steel from sticking to the mold.

Nozzle Filling Compound (NFC)

We are looked upon as the most famed Nozzle Filling Compound Manufacturer in India. Ladle Nozzle Filling Compound (Nozzlex) is a free-flowing refractory particular material used in the ladle or tundish slide gate to prevent skulling and steel freeze-off and ensure easy opening at the start of casting. It is a highly refractory, granular product with selected particle size and distribution which remains flowable at high temperature, ensuring consistent and trouble free ladle slide gate operation.



Available In Three Types -

Quartz Base

Chromite Base

Zircon Base

Radex

We manufacture covering compounds used in ladle and tundish. Our covering compounds are highly insulating powder, which has very good expandability and spreadability, so that it expands and spreads instantly to cover entire molten steel surface in the ladle and tundish.



- Provide thermal insulation limiting heat-loss.
- Prevent "skull" formation of steel in the ladle/tundish.



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