



# Horizon

OCL India Refractory Newsletter



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## OCL Refractory Exports: Meteoric Rise.....

The export of OCL refractory products was significantly higher than 2007-08 year-on-year. The figures for CC refractories were close to 2 times, Castables, Precast, & Purging Plugs registered more than 2.5 times and Slide Plates increased more than 1.5 times. Silica increased by nearly 50% and Basic bricks figures remained steady.

## A YEAR THAT WAS: GLOBAL STEEL PRODUCTION

World crude steel production touched 1329.7 mill ton in 2008, a decrease of 1.2% compared to 2007. All steel producing nations, except Asia and Mid-East experienced decline, registering 1.9% and Mid East 1.2% growth rate. The EU, North America, South America & US registered negative growth rate ranging from 1.4% (South America) to 8.1% in US countries. China's production crossed 500 mill ton for the first time and accounted for 38% of world output.

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## From Editor's Den

**t**he cleansing action of the financial mess initiated by US government is appearing to lift the sunken moods of global economy. Though the impact on steel, cement and oil is yet to be felt, some semblance of hope is emerging. Stimulus initiatives set forth in China and other nations may aid recovery in the second half of the year. The Indian Steel Industry is trading along buoyed up by government boost on infrastructure. Public sector steel behemoth SAIL is spared the pains of production cuts.. With a projected growth of 6-6.5%, a stable steel and cement demand will keep the refractory industry moving. The economic slump has not led to significant decline in raw material prices of Magnesite, Bauxite, BFA, and WFA. Rather the prices are holding to slightly lowered figures from its peak of September'08. Downslide of furnace oil and coal prices has made but a marginal impact on input cost of refractory. Delays and shelving of major projects is putting levers on bulk production and holding back promises of any worthwhile growth. Only SAIL is going ahead with its expansion plans intact. With most developed countries slashing production, the iron ore production and export is on the back foot. Global steel prices are floating between \$450-600. It is a fact that steel output in 2008 was marginally less than 2007 by 1.2 %. Thanks to Indian GDP at 6% at least. The February growth figures of core industries have picked up compared to January this year. All export adventures will have to wait for another six months to one year. 2009 is going to be extremely challenging and demanding for global steel industry .If the announcements made at G-20 summit take concrete shape, a major upswing can be expected within a year. Till then, all the best.

*Sk. Bashir Mohammed*

## HOW IS THAT !!!

The crude steel output from the top 10 steel mills in 2008 accounted for 44% of China's total products, compared to 87% in the case of Korea's top 2 mills and Japan's 74% from its top 4 mills.

## Indian Steel Industry Scenario

- » **Tata Steel** plans to maintain full capacity production (which has risen to 6.8 mill ton) even as profit fell 50% year-on-year. The company expects fourth quarter to better with 50% hike projected in sales volume and also reduce its input cost by Rs.1500 per ton. The entire production will be managed with 4 new blast furnaces while older ones have been taken off production
- » **Indian steelmakers** increased production owing to marginal recovery from the construction and infra structure sector. A rise in demand from companies engaged in oil & gas, power, roads & railways, aviation, urban housing and telecommunication sectors has buoyed up the industry
- » **JSW surpassed Tata Steel** to become country's largest private sector steel producer with a total installed capacity of 7.8 mill ton. Though the commissioning got delayed for about six months, the company claimed to have taken shortest duration to commission a plant of this nature. It was done in 31 months. It has already commissioned a sinter plant and two blocks of coke oven batteries as a part of Rs.5300 Cr expansion project in Bellary, Karnataka
- » **The Government of India** recently announced a second stimulus package by cutting lending rates and withdrawing exemption from CVD in certain section of long steel. It also withdrew exemption from basic custom duty on Zn and Ferro Alloys
- » **Indian Stainless Steel** prices went down to almost half of that in 2007 because of steep fall in nickel prices. This led to dipping of imports by 70% to 6000 ton in Dec 08. Off late there was an influx of low cost imports from China, Taiwan, South Korea prompting industry to demand upward import duty by 15%
- » **JFE Corporation** said that it would cut production to 26 percent below first half output
- » **Japanese crude steel** production fell by nearly 37.8% in year to year basis as informed by JISF, in view of brutal production cut by car manufacturers and other industries
- » **Arcelor Mittal** will cut current quarter output by 45% and they expect the world demand of steel to shrink by 10%
- » **Indonesian** steelmakers are operating at 30-40% below capacity including Krakatau Steel, its largest steel maker, which has shut down 80% of its DRI capacity

## Iron Ore Production Cuts...

- » **Rio Tinto** – the global number two Iron ore producer is postponing \$ 2.15 billion expansion of Corumbar iron ore mines in Brazil due to the global crisis
- » **The iron ore** exported by India to China has declined as much as 13.31% due to slow down. The total volume plunged to 55.8 mill ton during April December 08 as compared to 64.38 MT in 2007

## Set Back

- » **The stimulus bill** signed by US President Obama in Feb '09 effectively shuts out companies from BRIC countries—four of the largest exporter of steel, from public contracts. That business will reserve 25% new steel order in 2009 & 2010

## Acquisitions

- » **Posco** is in talk to acquire Thainox from the Mahagitsiri Family of Thailand. Posco already holds a 15% stake in Thainox. This is a part of Posco to beef up its global business. Even NSC & JFE are interested to invest in upstream steel facilities in Thailand
- » **Vietnam** is all set to import 5 MT steel to cater its domestic auto, construction and other industries. Out of a total forecasted consumption of 9 MT, balance will be supplied by local firms.

## Investment Boom !

China state owned Chinalco unveiled Beijing's biggest ever investment in foreign company by putting 19.5 billion dollar in mining giant Rio Tinto of Australia, which would give it more leverage over resources and raw material that fuelled its economic boom.

## International steel horizon ... Slashes ..... Cuts .... Delays

As observers predict fall in world steel production between 10-14% in 2009, let us have a look across the spectrum.

- » **Nippon Steel Corp.** the second largest steelmaker may double its production cut by using a blast furnace for maintenance in the wake of plunge in demand from vehicle makers and builders. It will idle a 2.4 MT capacity furnace in Kimitsu Plant

We invite our customers to share their achievements and information regarding their expansion and innovations. We will be proud to publish these in our subsequent editions of newsletters.

## Leading Competitive Edge

### Emerging Trend on Flow Control Refractories : Workshop



With a vision to emerge as a provider of solution of flow control refractories, a workshop was organized by a team led by Sri J.N. Tiwari – ED (Refractory) consisting senior marketing and technology group members, at Taj Residency, Pune on 27th Feb 09. It was a day long program attended by esteemed customer representatives from West Zone. The participants comprising some leading lights from the steel fraternity shared the supplier-user platform to highlight their expectation and OCL effort to address the issues tangibly. The workshop addressed the solutions in a novel audio-visual format to highlight the “Emerging Trend on Flow Control Refractories”. The program was inaugurated by Sri D. Majumdar (COO, Kalyani Carpenter Special Steel Ltd) who generously appreciated and highlighted OCL’s effort in enhancing the performance of steel furnaces in India through R&D and joint initiatives. The presentations made by Dr. B.K. Panda, Dr. J.K. Sahu, Sri B.Prasad, Dr. U.Sengupta, Bashir Mohammed on application trends in CC, Slide Gate & Purging Plug systems was highly interactive & well received by customers. This will be followed by workshops at different zones in the country.

### Meeting of Minds : Seminar on “Refractories For Dri Process”



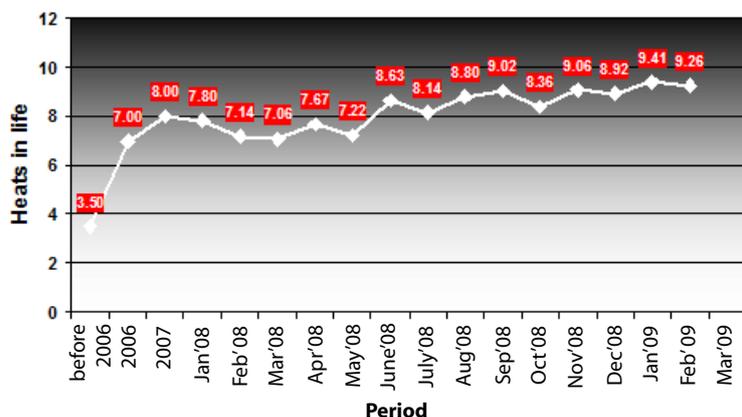
DISIR (Dalmia Institute of Scientific & Industrial Research), the R&D wing of OCL India, co-hosted a one day seminar on “Refractories for DRI Process” along with IRMA (Indian Refractory Makers Association), Kolkata. An enthusiastic Dr. B.K.Panda, Director DISIR -architect of the seminar, welcomed the guests with flowers and exuberance. The seminar was inaugurated by Chief Guest Syt M.H. Dalmia (President & CEO, OCL India Ltd) amidst chanting of Vedic hymns. The theme lecture was delivered by Guest of Honour Sri S.S.Mohanty(ED MM, Rourkela Steel Plant). The key note address was delivered by Sri S.Thawani (MD, Tata Sponge Iron Ltd). Dr.A.K.Chattopadhyay (Deputy MD, Tata Refractories Ltd) addressed the gathering with thought provoking observation on working conditions faced by refractory lining in the DRI process. The dignitaries represented the who-s-who of refractory, steel and sponge iron industries in the region. The technical lecture covered three sessions covering twelve papers by leading refractory makers. The program had a paper on pioneering work by DISIR in developing viable technology for using char and accretion given away as waste in the process. Interesting paper on design and application of monolithics was presented on behalf of OCL by Bashir Mohammed and B. Nag. A seminar proceeding was released with all technical papers.

The program was attended by around a hundred participants from refractory manufacturers, consultants and DRI producers.

The valedictory session was highly interactive where thoughts emerged to understand the destructive mechanism of Rotary Kiln lining and find ways to enhance the lining performance. The seminar ended on a highly successful mode.

## Innovative Edge.....

AVERAGE LIFE IN HEATS



Our technology group of Concast refractory has designed the Ladle shroud for a leading steelmaker adopting an innovative analytical approach, which resulted in the enhanced life from 3.5 heats to 9 heats in the period spanning from 2006 to Oct 2008. This led to a 20% reduced consumption and tangible cost cutting for our customer.

## Knowledge Bank



A new leaf was opened in the history of Indian refractory as Syt M.H. Dalmia (President & CEO) released a CD containing all the technical papers published by OCL and its R&D arm DISIR, at the inauguration ceremony of seminar of "Refractory for DRI-Process". The CD contains 170 papers from the entire spectrum of its products in an attractive reader-friendly format.

## New Generation Refractories for Cement Rotary Kiln

*N.Sahoo, J.N.Tiwari, S Swain & B.Mishra*

Cement manufacturing technique has under gone a sea change in the recent past. The wet process which had been the main technique until 1960 was replaced by dry process with suspension Preheater and later by Preheater with precalciner due to increasing demand of production capacity, energy efficiency promoted by necessity to decrease the air pollution.

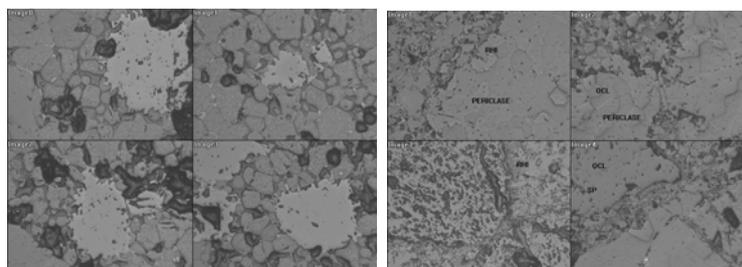
Since five decades basic bricks were used to line cement kiln where the basic bricks proved more than three times durable than the conventional high alumina bricks. Refractories for cement rotary kiln have progressed correspondingly with the cement manufacturing technique to have long trouble free operation. Development of ferrite bonded mag-chrome bricks ( composition C) for burning zone and Mag alumina spinel bricks ( Composition E) for transition zones of cement rotary kiln are found to be very effective. Table 1 shows the characteristics of Compositon C & Compositon E while table 2 shows the mineralogical phases present in these bricks.

	C	E
AP%	15.8,16.2	15.1,15.2
BD (gm/cc)	3.05, 3.06	3.02, 3.03
CCS (kg/cm <sup>2</sup> )	846, 921	765, 814
RUL ta °C	1710	1760
Spalling DIN 51068/2( Cycles)	7	10
Permeability n/m	6.5	8.3
MOE Gpa	18.3	17.4
MOR (kg/cm <sup>2</sup> )	165	132
Chemical (wt%)		
MgO	77.3	87.54
Cr <sub>2</sub> O <sub>3</sub>	6.9	-
Al <sub>2</sub> O <sub>3</sub>	3.1	10.63
Fe <sub>2</sub> O <sub>3</sub>	9.44	0.43
CaO	2.15	0.6
SiO <sub>2</sub>	0.88	0.37

Table1

	Major phases	Minor phase
C	Periclase, Chromite	Magnesio ferrite, Calcium ferrite
E	Periclase, Spinel	Corrundum

Table2



Microstructure of Brick

Microstructure of Brick E

The physical, chemical, thermal and thermo-mechanical properties were evaluated and compared with bricks imported from European countries for similar applications. Alkali attack and coating adherence test was performed and compared. The develop bricks shows very low permeability, superior resistance against alkali attack & high resistance to thermal spalling. These bricks are running successfully in different cement plants in India.

Your comments and suggestions may please be sent to [bmohammed@ocl.in](mailto:bmohammed@ocl.in)

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