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Bauxite Calcination Plant by Rotary Kiln with Fine Grinding Ball Mill

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|----------------------------------|-----------|
| Capacity: | 0 |
| Plant and machinery cost: | 0.00 Lakh |
| Working Capital: | 0.00 Lakh |
| Rate of return(ROR): | 0.00 % |
| Break Even Point (BEP): | 0.00 % |
| TCI: | 0.00 Lakh |
| Cost of Project: | 0.00 Lakh |

Bauxite Calcination Plant by Rotary Kiln with Fine Grinding Ball Mill. Refractory Grade Calcined Bauxite

Calcined bauxite is produced by sintering/calcining of low iron, low alkali containing raw bauxites at temperatures of 1600 - 1800 degree Celsius. In this calcination process the high refractory mineral phase's corundum and mullite are formed. Therefore calcined bauxite is one of the most important raw materials for the production of shaped and unshaped refractories for the steel industry, foundries, glass and cement plants. Calcined bauxite is available "run of kiln" i.e. uncrushed or in fractions and as ball milled powder according to customers' requirements, in bulk or bagged.

Calcined Bauxite is obtained by calcining (heating) superior grade Bauxite at high temperature (from 850 oC to 1600 oC). This removes moisture thereby increasing the alumina content. Compared to an alumina content of about 57 % to 58 % in raw Bauxite, Calcined Bauxite has an alumina content of 82 % to 86 %. The heating is carried out in rotary kilns. Calcination is done at different temperatures ranging from 850 oC to 1600 oC depending upon the customer's application.

Calcined bauxite is used in a number of applications:

- Refractory Grade Calcined Bauxite (CB - I and CB - II Grade): To make refractory grade, Bauxite is thermally treated at 1600 oC to produce Calcined Bauxite where the Alumina content is mostly above 82%.
- Brown Fused Alumina, Proppants and Road Surfacing : To make the above grades, Bauxite is thermally treated at 1000 oC – 1200 oC to produce Calcined Bauxite where the Alumina content is anywhere between 80-88% depending on the requirement.
- Anti-skid protection. Calcined Bauxite is an ideal aggregate for anti-skid applications. It is used extensively for vehicle skid prevention and on surfaces requiring additional safety. The bauxite may be trowelled into fresh concrete, added to paints or applied to surfaces using resin cements and adhesives.
- Anti-slip protection. This material is ideal for reducing the risk of pedestrians slipping and is used in many industrial, commercial and residential applications. These include pedestrian crosswalks, stairways, factory floors and work zones, sidewalks, ship decks, boat docks, pool decks, bathtubs, and
- High friction surface treatment (HFST). HFST is a cost-effective method to reduce skidding and is mainly used to make roadways safer. It is used on horizontal curves and ramps, intersections, steep grades, bridge decks, roundabouts and pavement surfaces. Studies have indicated that the application of HFST reduces vehicle crashes by up to 100%. The material is applied to surfaces using a polymer binder.
- Refractories. Refractories are insulating materials that maintain their strength and chemical properties at high temperatures. They are used to line boilers, furnaces, kilns, reactors, and GLM is one of the largest importers of refractory-grade bauxite, using only the highest quality materials for our products. Calcined bauxite is used globally for its anti-skid and high friction properties to make roadways safer. It is a strong and highly durable material, which makes it ideal to prevent slips on factory floors and other surfaces.

Calcined Bauxite Benefits

- Extreme hardness and wear resistance
- High resistance to weathering, abrasion, and polishing
- High durability
- Chemically stable when exposed to intense heat and acid or alkaline agents

Market Outlook

India currently imports 60% of its Calcined Bauxite from China. Spurred by expansion of domestic steel production, a scarcity of acceptable quality of bauxite from China and raising import cost, drives are now under way in India to produce high grade bauxite from domestic bauxite sources. At present, India is very minor producer of non-metallurgical bauxite, despite having occurrence of high grade bauxite in west coast

and central India. This is attributed to limited effort to test high grade bauxite occurrence in region outside the main bauxite producing area around Gujarat.

Demand for calcined bauxite in production of ceramic proppants is expected to grow by more than 5%py out to 2021 as North America and China target greater exploitation of unconventional oil and gas reservoirs.

Calcined Bauxite Production: India produces about 400,000 tons of calcined bauxite

Global Calcined Bauxite market size will increase to Million US\$ by 2025, from Million US\$ in 2017, at a CAGR of during the forecast period.

Demand for calcined bauxite-based refractories used principally in steel production continues unabated. The majority of standard refractory products incorporate a calcined or fire-treated form of bauxite for their raw material base. China is now also the leading producer of refractories. Outputs tends at about 23m. tonnes.

In the present paper, various aspects of calcined bauxite are discussed. India's present position is compared with leading high grade bauxite producers of World i.e. China and Guyana. Based on various R&D work, proposals are put forward to produce high grade bauxite in India by complex mining / sorting and beneficiation.

Bauxite and Alumina in Refractories

- World Refractories production ~39 million T
- Calcined Bauxite 1.6 million T
- BFA 1.2 million T Requires 1.4million T

Calcined Bauxite

- Alumina 1.9 Million Tonnes
- Tabular, WFA, CAC, calcined, spinel, mullite,

Ceramic Fibres

- Refractory clays and Magnesias still largest

Tags

Calcined Bauxite, Refractory Calcined Bauxite, Bauxite, Calcined, Calcination, Calcination of Bauxite, Refractory Bauxite Products, Calcined Bauxite Manufacture, Refractory Grade Calcined Bauxite, Refractory & Abrasive Grade Calcined Bauxite, Refractory Grade Bauxite, Calcined Bauxite Production, Calcined Bauxite Uses, Calcined Bauxite Manufacturing Plant, Manufacturing of Calcined Bauxite, Bauxite Calcination Plant, Bauxite Calcination Plant Cost, Calcined Bauxite Project, Profitable Calcined Bauxite Project, Calcined Bauxite Plant, Calcined Bauxite Processing, Production Cost of Calcined Bauxite, Bauxite Calcination Plant Grinding By Ball Mill, Grinding Bauxite Calcinations, Calcined Bauxite Grinding Balls, Bauxite Refractory Process Calcination, Project Report on Calcined Bauxite Manufacturing Industry, Detailed Project Report on Bauxite Calcination Plant Grinding By Ball Mill, Project Report on Bauxite Calcination Plant, Pre-Investment Feasibility Study on Calcined Bauxite Manufacturing, Techno-Economic feasibility study on Bauxite Calcination Plant Grinding By Ball Mill, Feasibility report on Calcined Bauxite

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