India Zinc Oxide Market By Process (Indirect Process, Direct Process, Wet Process, Others), By Application (Rubber and Tires, Ceramics and Glass, Pharmaceuticals and Cosmetics, Agriculture, Paints and Coatings, and Others), By Region, Competition, Forecast and Opportunities, 2019-2029

Market Report (3 business days) | 2023-10-03 | 73 pages | TechSci Research

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Report description:

The India Zinc Oxide Market achieved a milestone in 2023, reaching a total value of USD 387.34 million. It is poised for strong growth in the upcoming forecast period, with a projected Compound Annual Growth Rate (CAGR) of 4.33% through 2029 and is anticipated to reach at USD 491.08 million by 2029. Zinc oxide, characterized as an odorless white powder with the chemical formula ZnO, is known for its insolubility in water. Its applications are diverse, spanning cosmetics, dietary supplements, rubber, plastics, ceramics, cement, lubricants, pigments, meals, batteries, ferrites, fire retardants, and first-aid tapes. Whether it's enhancing cosmetics or playing a pivotal role in the production of automotive tires, ZnO is a crucial component across multiple industries.

While zinc oxide can be naturally occurring as the mineral zincite, the majority of it is synthesized. Notably, ZnO is employed in wide-band gap semiconductors, contributing to their exceptional characteristics. In its natural state, this semiconductor can undergo n-type doping due to oxygen vacancies or zinc interstitials. With attributes such as strong room-temperature luminescence, high electron mobility, wide band gap, and remarkable transparency, ZnO demonstrates its versatility and utility.

Key Market Drivers

1. Increasing Demand for Zinc Oxide in the Agriculture Industry

Zinc oxide, a versatile compound with numerous applications, is witnessing a significant increase in demand from the agriculture

industry in India. As the agricultural sector strives to enhance crop productivity and protect plants from pests and diseases, the use of zinc oxide as a key ingredient in fertilizers and animal feed supplements has gained prominence. This surge in demand from the agriculture industry is driving the growth of the zinc oxide market in India.

One of the main reasons for this rising demand is the recognition of zinc as an essential micronutrient for plants. Zinc plays a crucial role in various physiological processes, and its deficiency in soils can lead to reduced crop yields and poor plant health. To address this issue, zinc oxide is utilized in the production of zinc fertilizers. These fertilizers are formulated to provide crops with a readily available source of zinc, ensuring optimal growth, development, and yield.

The agriculture industry in India acknowledges the importance of zinc fertilizers in improving soil fertility and is increasingly adopting them to overcome zinc deficiencies in agricultural lands. By incorporating zinc oxide into fertilizers, farmers can ensure that their crops receive the necessary micronutrients for healthy growth and higher yields. This not only benefits the farmers by improving the quality and quantity of their produce but also contributes to the overall food security and economic growth of the country.

Furthermore, zinc plays a vital role in the nutrition and overall health of livestock. It is involved in immune function, reproduction, and growth. Zinc oxide is commonly used as a supplement in animal feed to fulfill the zinc requirements of livestock, including poultry, swine, and cattle. The agriculture industry in India, with its focus on animal husbandry and dairy farming, is witnessing a growing demand for zinc oxide-based feed supplements. These supplements ensure the well-being and productivity of animals, contributing to the overall growth and profitability of the livestock sector.

The increasing demand for zinc oxide from the agriculture industry can be attributed to the growing awareness among farmers and agricultural professionals about the benefits of zinc in crop production and animal nutrition. Government initiatives, educational programs, and agricultural extension services have played a significant role in disseminating knowledge about the importance of zinc and promoting its use. This heightened awareness has led to a higher adoption of zinc oxide-based products in farming practices across India.

Moreover, the Indian government's focus on improving agricultural productivity and addressing nutrient deficiencies has also contributed to the increasing demand for zinc oxide in the agriculture industry. Various policies and schemes have been introduced to encourage the use of micronutrient-rich fertilizers and supplements, including those containing zinc. These initiatives aim to enhance soil health, increase crop yields, and ensure sustainable agricultural practices. The supportive policy environment has created a favorable market for zinc oxide in India's agriculture sector, driving further growth and development in the industry.

2. Growing Demand for Zinc Oxide in the Pharmaceutical Industry

Zinc oxide, a versatile compound with various applications, is experiencing a surge in demand from the pharmaceutical industry in India. As the pharmaceutical sector expands to meet the growing healthcare needs of the population, zinc oxide has gained significant importance due to its numerous beneficial properties. This increasing demand from the pharmaceutical industry is acting as a major driver for the growth of the zinc oxide market in India.

Zinc oxide possesses inherent medicinal properties that make it a valuable ingredient in pharmaceutical formulations. It is known for its antibacterial, anti-inflammatory, and wound healing properties. These characteristics make zinc oxide an essential component in the production of topical ointments, creams, and lotions used for treating skin conditions such as wounds, burns, rashes, and acne. The pharmaceutical industry recognizes the therapeutic benefits of zinc oxide, leading to an increased demand for its inclusion in various medical products.

Moreover, zinc oxide is widely used in the manufacturing of sunscreens and skincare products due to its ability to provide effective protection against harmful ultraviolet (UV) rays. It acts as a physical sunscreen agent by reflecting and scattering UV radiation, thus preventing skin damage and reducing the risk of skin cancer. As awareness about the importance of sun protection increases, the demand for zinc oxide-based sunscreens and skincare products rises. The pharmaceutical industry in India is witnessing a growing demand for these products, contributing to the overall demand for zinc oxide.

Furthermore, the antifungal and antiviral properties of zinc oxide make it a valuable component in the production of pharmaceutical formulations used to combat fungal and viral infections. Zinc oxide exhibits inhibitory effects against various pathogens, including fungi and certain types of viruses. It is utilized in the production of antifungal creams, lotions, and powders, as well as antiviral medications. The rising incidence of fungal and viral infections in India has led to an increased demand for pharmaceutical products containing zinc oxide.

The Indian pharmaceutical industry has experienced significant growth in recent years, driven by factors such as increasing population, rising healthcare awareness, and government initiatives to promote affordable healthcare. This growth has created a higher demand for pharmaceutical products, including those containing zinc oxide. India's pharmaceutical industry is recognized globally for its production capabilities and high-quality medications. As the industry continues to expand, the demand for zinc oxide from pharmaceutical manufacturers in India is expected to further increase, contributing to the overall growth of the market.

3. Growing Demand for Zinc Oxide in the Ceramics and Glass Industry

Zinc oxide, with its remarkable opacifying and whitening properties, holds a significant position in the ceramics industry. It not only imparts opacity and brightness to ceramic products, elevating their aesthetic appeal, but also meets the rising demand for high-quality and visually captivating ceramics in India. This demand surge is fueled by multiple factors such as rapid urbanization, infrastructure development, and the ever

-evolving interior design trends. As manufacturers strive to produce ceramics with superior whiteness and opacity, the demand for zinc oxide continues to rise.

Moreover, zinc oxide plays a vital role in the production of various types of glass, especially flat glass and specialty glass utilized in diverse applications. Its incorporation enhances the durability, strength, and refractive properties of glass products, making them more versatile and reliable. The Indian glass industry, experiencing remarkable growth propelled by the expanding construction and automotive sectors, witnesses an increased need for zinc oxide. As the demand for glass products like windows, doors, automotive windshields, and solar panels surges, the importance of zinc oxide as a critical component in their manufacturing process becomes evident.

The construction and infrastructure sectors contribute significantly to the demand for ceramics and glass products in India. With rapid urbanization and infrastructure development projects taking place across the country, the requirement for ceramic tiles, sanitaryware, glass facades, and other construction materials sees a substantial increase. Zinc oxide, with its ability to enhance the properties of these products including strength, durability, and aesthetic appeal, becomes indispensable. The booming construction sector, driven by government initiatives and private investments, continues to fuel the demand for zinc oxide from the ceramics and glass industry.

Furthermore, the automotive industry emerges as another key driver of the zinc oxide market in India. Zinc oxide finds its application in the production of automotive glass, particularly windshields and windows, due to its ability to enhance strength and visibility. With the Indian automotive sector witnessing technological advancements, increasing vehicle production, and growing consumer demand for safety and comfort features, the demand for high-quality glass components in automobiles surges.

This, in turn, drives the need for zinc oxide as a crucial ingredient in automotive glass manufacturing. In conclusion, zinc oxide plays a multifaceted role in the ceramics, glass, and automotive industries in India. Its exceptional characteristics elevate the quality, durability, and aesthetic appeal of ceramic and glass products, meeting the ever-growing demand in various sectors including construction, infrastructure, and automotive. As these industries continue to thrive, the importance of zinc oxide as a fundamental component only grows stronger.

Key Market Challenges

Volatility in Prices and Availability of Raw Materials

The zinc oxide market in India is facing a significant challenge due to the volatility in prices and availability of raw materials, which has triggered a ripple effect throughout the industry. This issue not only impacts manufacturers but also affects consumers who rely on zinc oxide in various industries.

Zinc oxide, an essential component in sectors such as rubber, ceramics, paints, cosmetics, and pharmaceuticals, offers a wide range of properties, including UV protection, antimicrobial activity, and electrical conductivity. Despite its versatility, the market's growth is hindered by the unstable prices and limited availability of raw materials.

One of the key factors contributing to the price volatility is the intricate web of global market dynamics. Fluctuations in demand and supply, geopolitical tensions, and changing trade policies can result in sudden price spikes or declines. Given the highly susceptible nature of the zinc oxide market to these fluctuations, businesses find it challenging to plan their operations effectively.

Furthermore, the availability of raw materials poses a significant concern. Zinc, the primary raw material used in zinc oxide production, is extracted from zincite ores. However, the lack of availability of zincite ores has created a scarcity of raw materials, further exacerbating the problem. This scarcity not only affects pricing but also disrupts the supply chain, leading to delays in production and delivery.

Adding to the complexity is India's heavy dependence on imported raw materials to meet its zinc oxide requirements. This reliance makes the country vulnerable to international market dynamics. Any disruptions in the global zinc supply chain, such as trade disputes or logistical issues, can significantly impact the availability and cost of raw materials in India.

The consequences of the volatility in prices and availability of raw materials are felt throughout the entire value chain. Manufacturers face the perpetual dilemma of balancing their production costs with market demands, often resulting in reduced profit margins. Moreover, the uncertainty in pricing makes it challenging for businesses to establish long-term contracts or supply agreements with their customers.

On the consumer side, the fluctuating prices of zinc oxide can lead to increased costs for end products. Industries reliant on zinc oxide, such as cosmetics and pharmaceuticals, may need to absorb these price fluctuations. This, in turn, could not only affect their competitiveness in the market but also potentially impact consumer affordability.

In summary, the zinc oxide market in India is grappling with the challenges of price volatility and limited availability of raw materials. The complex dynamics of the global market, scarcity of zincite ores, and heavy dependence on imports further compound the issue. As a result, both manufacturers and consumers bear the consequences, making it crucial for stakeholders in the industry to find sustainable solutions to address these challenges.

Key Market Trends

Shift towards Sustainable Manufacturing

In recent years, the India zinc oxide market has witnessed a significant shift towards sustainable manufacturing practices. This trend is driven by the growing emphasis on environmental consciousness, regulatory requirements, and the increasing demand for eco-friendly solutions in various industries. The adoption of sustainable manufacturing practices is not only beneficial for the environment but also offers several advantages for businesses.

By embracing sustainable methods, manufacturers can reduce their carbon footprint, minimize waste generation, and conserve energy resources. This not only helps in preserving the environment but also contributes to cost savings and enhances brand reputation. One of the key drivers of this shift is the rising awareness of the environmental impact of traditional manufacturing processes.

Zinc oxide, a critical component in various industries such as rubber, ceramics, paints, cosmetics, and pharmaceuticals, has typically been produced using conventional methods that emit harmful pollutants and consume significant energy resources. However, the shift towards sustainable manufacturing aims to minimize the negative environmental footprint by adopting cleaner and greener production techniques.

Furthermore, environmental concerns and regulations play a vital role in driving this trend. Government bodies and international organizations are increasingly implementing stringent regulations to reduce carbon emissions, limit waste generation, and promote sustainable practices. As a result, manufacturers in the zinc oxide industry are compelled to improve their sustainability credentials to comply with these regulations and maintain their market position.

In addition to environmental benefits and regulatory compliance, the adoption of sustainable manufacturing practices also brings opportunities for innovation and market differentiation. By investing in research and development of sustainable technologies, manufacturers can stay ahead of the curve and offer eco-friendly solutions that meet the evolving needs of customers.

Overall, the shift towards sustainable manufacturing practices in the India zinc oxide market is a positive development that not only addresses environmental concerns but also offers long-term benefits for businesses, consumers, and the society as a whole.

Segmental Insights

Process Insights

Based on the category of process, the indirect process segment emerged as the dominant player in the Indian market for Zinc Oxide in 2022. This is attributable to its properties as it is considered the fastest and most productive method of production. The quality of ZnO manufactured depends upon the type of zinc used in the process.

For example, special high-grade with 99.99% zinc concentration is used for the production of gold seals or pharmaceutical grade, whereas ordinary with 99.95% concentration is adequate to produce zinc for the rubber industry. The maximum yield of ZnO from 1 ton of special high-grade zinc is 1.2 tons.

The direct or the American process is less preferred by industry players and involves the use of feedstock containing oxidized zinc-containing raw material. This process involves the initial production of zinc by reduction of zinc ore by heating with coal followed by oxidation of zinc in a similar way used in the indirect

process. This process provides a less purified form of ZnO and the high-grade requirement of pharmaceutical applications is a

major challenge for this process.

In addition, it's worth noting that the indirect process, which is the preferred method, ensures a higher purity level of ZnO due to the use of high-grade zinc. This purity is crucial for pharmaceutical applications where stringent quality standards are required. The indirect process also allows for greater control and precision in the production of ZnO, making it the preferred choice for industries that prioritize quality and efficiency.

Application Insights

The Rubber and Tires segment is projected to experience rapid growth during the forecast period. This is attributed to the significant growth of the tire industry, where a majority of the rubber produced is utilized for manufacturing automobile tires. Zinc oxide (ZnO) plays a crucial role in the vulcanization process of rubber, acting as a cross-linking or curing agent for halogen-containing elastomers such as polysulfides and neoprene. Its versatile applications in enhancing the durability and performance of rubber products make it an indispensable component in the tire manufacturing process.

Regional Insights

West India emerged as the dominant player in the India Zinc Oxide Market in 2022, holding the largest market share in terms of both value and volume. West India, renowned for its vibrant landscape and rich resources, boasts numerous zinc mines that serve as the primary source for zinc oxide production. The strategic location of these mines brings a remarkable advantage, significantly reducing transportation costs and rendering zinc oxide manufacturing in West India more economically viable.

Moreover, West India prides itself on a vast pool of highly skilled labor, a vital asset for the production of zinc oxide. The availability of such skilled labor at a comparatively lower cost compared to other regions in India further enhances the competitive edge of West India in the zinc oxide industry. In addition to its skilled workforce, West India boasts a well-developed infrastructure that plays a pivotal role in the smooth transportation and distribution of zinc oxide across the nation.

With a comprehensive network of well-maintained roads, efficient ports, and reliable railways, West India ensures seamless delivery of zinc oxide to various regions within India and facilitates its export to international markets. The combination of abundant zinc mines, skilled labor, and a well-established infrastructure positions West India as a prominent hub for zinc oxide production, catering to both domestic demands and global markets.

Key Market Players
Hindustan Zinc Limited
Kannan Group
Zinc-O-India
Prakash Chemicals International Pvt Ltd.
Himadri Chemicals
MLA Group of Industries
Silox India Private Limited
Report Scope:
In this report, the India Zinc Oxide Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:
□□India Zinc Oxide Market, By Process:
o□Indirect Process
o□Direct Process

o Wet Process
o Others
India Zinc Oxide Market, By Application:
o Rubber and Tires
o Ceramics and Glass
o Pharmaceuticals and Cosmetics
o Agriculture
o Paints and Coatings
o Others
India Zinc Oxide Market, By Region:
o North India
o East India
o West India
o South India
Competitive Landscape
Company Profiles: Detailed analysis of the major companies present in the India Zinc Oxide Market.
Available Customizations:
India Zinc Oxide Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:
Company Information
Detailed analysis and profiling of additional market players (up to five).

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