

Metal Chelates Market Assessment, By Product Type [Macronutrients, Micronutrients], By Form [Solid, Liquid], By Crop Type [Cereals and Grains, Fruits and Vegetables, Oilseeds and Pulses, Others], By Application [Foliar, Fertigation, Others], By Region, Opportunities and Forecast, 2017-2031F

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Report description:

Global metal chelates market is projected to witness a CAGR of 8.56% during the forecast period 2024-2031, growing from USD 391.40 million in 2023 to USD 755.06 million in 2031. The market growth across the globe is increasing at an exponential rate owing to their significance in agriculture, helping in the delivery of nutrients and improving crop yield. Metal chelates assist in making micronutrients in the soil available to plants. This is of utmost importance in areas that have low nutrient or alkaline soils, especially where direct nutrient application is used, resulting in low absorption efficiency. For this reason, metal chelates have evolved to become a favorite remedy for farmers wishing to increase the quantity and quality of crops produced with minimum inputs of fertilizers.

As the world's population continues to rise, there is an ever-growing demand for higher crop yield which has pushed the adoption of application of metal chelates among other advanced agricultural inputs. Furthermore, integrated farming systems are gradually emphasizing the use of chelated micronutrients, due to the fact that these materials help in combating fertilizer wastage and can therefore, be eco-friendly. Countries in developed regions such as North America and Europe are increasingly using metal chelates at a rapid pace. On the contrary, developing nations in regions, such as Asia-Pacific are quickly incorporating these compounds to sustain better crop yield in all diverse soil conditions.

The upsurge in investments in agriculture technology is further fueling innovations in chelating agents, targeting the development of sustainable and eco-friendly chelating agents. The metal chelates market is expected to witness considerable growth due to the sustained adoption of these efficient solutions as more farmers and agricultural business enterprises embrace them.

In October 2023, Nouryon Chemicals Holding B.V. launched its new innovative product, Dissolvine GL Premium, the most concentrated GLDA-based chelating agent in the market. With a renewable carbon index (RCI) of 56%, Dissolvine GL Premium is

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biobased due to its production from monosodium L-glutamic acid (MSG), a naturally occurring, bio-based amino acid. One of its unique qualities is its high solubility across a broad pH range, which is particularly helpful when creating concentrated liquid formulations.

Shift Towards Sustainable Farming to Catalyze Market Expansion

The transition to eco-friendly agriculture is one of the major factors impacting the growth of the global metal chelates market. The farming community and shift of agricultural enterprises from conventional farming practices into these modern sustainable practices to reduce their adverse effects on the environment while increasing crop yields and driving the adoption of sustainable chelating agents. Metal chelates help to improve the efficiency of nutrients, reducing the need for excessive fertilizer application and addressing the problem of nutrient runoff. As a result, there is less soil and water pollution, which is in line with the global regulatory requirements and encourages less harmful agricultural practices.

Moreover, using metal chelates in agricultural practices is beneficial for the preservation of resources as the use of chelated nutrients involves less volume than the application of conventional fertilizers. Due to the rise in ecological awareness, manufacturers have shifted to producing organic chelates that can break down and are thus more sustainable. Basically, the employment of metal chelates in sustainable agriculture practices contributes to the global agenda of sustaining food production whilst protecting the environment from degradation.

In August 2022, Innospec Inc., to meet the demands for superior chelating performance, along with easily biodegradable qualities and minimal environmental impact, created ENVIOMET C, which is a (S,S') ethylenediamine-N,N'-disuccinate (abbreviated EDDS), commercially available in liquid and powder form.

Soil Nutrient Deficiency to Influence the Market Demand

The use of metal chelates in agriculture can be attributed to the deficiency in soil nutrients. Almost everywhere, the soil is devoid of micronutrients, including iron, zinc, manganese, and others, most of the time due to high alkalinity or improper soil management. Without these nutrients, plants cannot grow at their full potential and will produce fewer and poorer-quality crops. The facilitation of the uptake of nutrients is the main contribution of metal chelates to this problem, regardless of the state of the soil.

Chelated nutrients have a higher form of stability and do not readily interact with soil constituents, thereby promoting their absorption by the plants. This application of nutrients is beneficial for nutrient-based high-value crops that need effective management of nutrients. With solutions for increasing productivity on low-nutrient soils, metal chelates have become more relevant. By helping to address the problem of nutrient deficiency in the soil, they help to grow better crops, increase production, and contribute to stronger agricultural systems around the world.

In June 2023, ICL Group, owned by Everris International B.V., introduced a chelate proven to be bioactive and biodegradable in soil. The new technology has a very high physiological effect and, on average, produces 2.5 bags more per hectare than the chelating chemical currently used in soybean farming.

Powder Form to Hold a Significant Market Share

The powdered metal chelates dominate the market due to their high stability, ease of use, and cost-effectiveness. The powdered forms of chelates are preferred by farmers and agriculture enterprises as they can easily be kept, transported, and applied without hassles, thus becoming favorable in most commercial farming activities. This form has the advantage of a longer shelf life than liquid forms, enabling users to control their stocks better.

Furthermore, powdered chelates are highly soluble in water, which makes them easy to use in precision application systems for the targeted application of nutrients. The economic advantages associated with the use of powdered chelates for the application of micronutrients reinforce their increasing use in developing regions of the world where costs are significantly lower. Due to the growing need for effective nutrient management strategies, the powdered form remains a major option for improving crop growth and yield and correcting nutrient deficiencies in soil in all parts of farming activities worldwide.

Capitalizing on the trend, in April 2024, Inolex, Inc. launched its latest ingredient, Spectrastat CHA, which is a powdered chelating agent that is entirely natural and not made from palm oil. It is part of the Spectrastat series of preservation products. According to the company, chelating agents generated from coconuts offer a sustainable source of caprylhydroxamic acid (CHA), which keeps working at neutral pH and stops mold and yeast from growing in formulas.

Asia-Pacific to be the Fastest Growing Market

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Asia-Pacific is the most rapidly developing geographical region of the global metal chelates market. It exhibits the fastest growth due to the progressive agricultural development of the region, along with proactive measures towards sustainable agriculture. Nations such as China, India, and several Southern Asian countries have commenced using modern farming technology in soil cultivation to feed the ever-rising population and improve areas that are deficient in crop-sustaining nutrients. Besides, due to the growing sensitization towards environmental sustainability, metal chelates that help enhance nutrient efficiency and reduce the pollutive effects of fertilizers have been embraced more.

Market development is further fueled by government initiatives in some countries that promote the efficient use of fertilizers and sustainable agriculture. Authorities are cooperating with businesses to provide authentication certificates to the products. For instance, in February 2023, Aries Chelamin, the flagship brand of micronutrient and specialty fertilizer maker Aries Agro Limited, received the ISI mark for chelated zinc from the Bureau of Indian Standards (BIS), being the sole brand in this category in the country to receive it. Using foliar sprays, soil application, microirrigation, precision farming, and drone delivery systems, Aries Chelamin offers a safe, environmentally friendly, and agronomically effective way to supplement zinc.

Future Market Scenario (2024 - 2031F)

□□The increasing focus on eco-friendly practices in agriculture is expected to positively impact the metal chelates market as they lower nutrient leaching and improve the application of fertilizers.

□□The increasing global population and the issues around food security will lead to the continued demand for high-yield solutions, particularly metal chelates, intended for use in soils that are deficient in nutrients.

□□The increasing prevalence of precision farming among farmers correlates with increased demand for metal chelates since these products facilitate effective management of nutrients and enhance crop productivity.

Key Players Landscape and Outlook

The market of metal chelates is characterized by intense competition amongst different market players who are more focused on creating new products and going green. A substantial amount of money is being channeled into research and development so as to develop more advanced and environmentally friendly chelates that meet the set standards and promote climate-friendly agricultural practices. Such innovations have resulted in the manufacture of more stable and efficient chelates that can be used in different soil types, thus enabling farmers to grow their crops with less nutrient runoff. Moreover, they are keen on widening the horizon in relatively new markets where modernized agriculture is rising.

Leveraging partnerships with local distributors and agricultural agencies is prevalent, enabling companies to expand and ensure their products are available to the targeted consumers. The market scenario is optimistic, and the growing population will spur growth, the increase in global food demand, the policies favoring the adoption of environmentally friendly farming practices, and the improved technologies that have been developed over the years for the management of nutrients.

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