

# **Global Chelants Market By Product (Sodium gluconate, Organphosphonates, Aminopolycarboxylate, Others), By Application (Household & industrial cleaning, Pulp & Paper, Chemical processing, Water treatment, Agrochemicals, Consumer products, Pharmaceutical, Others), By Region, Competition, Forecast and Opportunities, 2028**

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## **Abstracts**

The Global Chelants Market, valued at USD 8.10 billion in 2022, is poised for robust growth in the forecast period with a projected CAGR of 4.15% through 2028 and is anticipated to reach USD 10.26 billion by 2028. Chelants, also known as chelating agents, are chemical compounds that enable the simultaneous binding of two or more donor atoms or sites to the same metal ion, resulting in the formation of one or more rings. These metal complexes can exhibit optical activity in both the R and L configurations. The stability of these metal complexes is influenced by the matrix-forming pattern, with particular importance in highly saturated solutions, such as those involved in biological processes like serum or tissue. The kinetics and dynamics of metal toxicity, as well as the properties of chelating agents, rely on their ability to bind multiple donor atoms or sites to the same metal ion, forming one or more rings.

Chelating agents find primary utilization in various mainstream industries, including textiles, pulp and paper, and cleaning and detergents. The increasing health awareness and growing concerns over common diseases among consumers are expected to boost demand for these products in these industries, resulting in significant market growth. Chelating agents play a vital role in the pulp and paper industry, contributing to the

desired level of brightness in paper when used with hydrosulfite and hydrogen peroxide bleaches. Their capacity to form multiple coordinate bonds makes them applicable as nutritional supplements, contrast agents, and fertilizers. The rising consumer awareness regarding homecare products such as detergents and floor care products is anticipated to drive long-term market demand. Chelating agents also find key applications in various other industries, including agriculture, food and beverages, metalworking, personal care products, pharmaceuticals, textiles, water treatment, and oil field applications.

However, the continuous exposure to non-biodegradable chelating agents, particularly EDTA, poses hazardous effects on the environment, which may hinder market growth over the forecast period. The adverse effects of non-biodegradable chelating agents highlight the need to promote biodegradable and advanced chemicals, especially in the Asia Pacific region, which presents a significant opportunity for the market.

## Key Market Drivers

### 1. Growing Demand for Chelants in Agrochemicals Industry:

- Chelants, also known as chelating agents or sequestrants, are crucial across various industries due to their ability to form stable complexes with metal ions.
- The agrochemicals sector is a significant driver of the global chelants market, where chelants enhance the efficacy and stability of agricultural products, including fertilizers, pesticides, and herbicides.
- Chelants improve nutrient solubility and bioavailability in micronutrient fertilizers, resulting in healthier crops with improved growth and yield.
- They contribute to the effectiveness of pesticides by maintaining the stability and bioactivity of active ingredients, enabling precise and targeted pest control.
- Chelants stabilize pH levels in soil and plant environments, ensuring nutrient uptake, microbial activity, and overall plant health.

### 2. Increasing Demand for Chelants in the Pharmaceutical Industry:

- Chelants play a versatile role in pharmaceuticals, preserving drug stability, optimizing formulations, facilitating purification, and ensuring regulatory compliance.

- They sequester metal ions that can trigger degradation reactions or alter drug properties, ensuring consistent and reliable medication for patients.
- Chelants optimize drug formulation, enhancing the delivery of active ingredients to targeted areas within the body.
- They aid in maintaining appropriate pH levels during the pharmaceutical manufacturing process, minimizing metal ion-related impurities and regulatory non-compliance.
- Chelation therapy is employed in the treatment of metal poisoning, and chelation processes hold potential applications in targeted drug delivery and imaging agents.

### Key Market Challenges

#### 1. Decline in Consumption of Phosphate-Based Agents:

- Historically, phosphate-based chelating agents have been widely used, but environmental concerns have led to a shift away from their use.
- Discharge of phosphates into water bodies can contribute to nutrient pollution, prompting stricter regulations and a demand for more sustainable alternatives.

### Key Market Trends

#### 1. Growth in Technological Advancements:

- Advanced analytical techniques, computational modeling, and precision molecular structure adjustments are revolutionizing chelant formulation.
- Smart materials and responsive polymers enable selective metal binding triggered by specific factors like pH or temperature changes.
- Nanotechnology is enhancing chelation efficiency and driving innovation in areas such as drug delivery and catalysis.
- Automation and the Internet of Things (IoT) are optimizing chelant application through automated dosing systems and real-time monitoring.

## Segmental Insights

### 1. Product Insights:

- In 2022, the Aminopolycarboxylate (APCA) segment dominated the market and is expected to continue growing.
- The increased availability of biodegradable APCA products is driving growth in this segment, particularly in household and home care applications such as water treatment.
- ACPAs are used in the textile industry for the removal of salts and metal oxides from fabrics, enhancing end product shelf-life and reducing maintenance costs.

### 2. Application Insights:

- In 2022, the Pulp & Paper segment dominated the market.
- Chelating agents are used for bleaching wood pulp, recycled fibers, and cellulose-based materials, with a focus on chlorine-free bleaching processes and environmentally friendly agents.

## Regional Insights

### 1. Asia Pacific:

- The Asia Pacific region leads the global chelants market, driven by population growth, urbanization, and industrial activities, particularly in countries like China and India.
- Stricter environmental regulations have raised the need for effective wastewater treatment systems and driven demand for chelating agents.
- The region benefits from cost-effective labor and raw materials, enabling expanded manufacturing capacity to meet growing demand.

## Key Market Players

AkzoNobel N.V.

Archer Daniels Midland Company (ADM)

Cargill, Incorporated

BASF SE

Valero Energy Corporation

The Dow Chemical Company

Mitsubishi Rayon Co. Ltd.

Lanxess AG

Tate & Lyle PLC

Shandong IRO Chelating Chemical Co. Ltd.

#### Report Scope:

In this report, the Global Chelants Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

#### Chelants Market, By Product:

Sodium gluconate

Organphosphonates

Aminopolycarboxylate

Others

#### Chelants Market, By Application:

Household & industrial cleaning

Pulp & Paper

Chemical processing

Water treatment

Agrochemicals

Consumer products

Pharmaceutical

Others

Chelants Market, By Region:

Asia Pacific

North America

Europe

Middle East & Africa

South America

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Chelants Market.

Available Customizations:

Global Chelants 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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