

# **Chondroitin Sulfate Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028 Segmented By Source (Bovine, Poultry, Synthetic, Swine, Shark), By Application (Nutraceuticals, Personal Care & Cosmetics, Animal Feed, Pharmaceuticals, Others), By Region and Competition**

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## **Abstracts**

Global Desiccants Market has valued at USD987.65 million in 2022 and is anticipated to project robust growth in the forecast period with a CAGR of 4.65% through 2028.

Research and development (R&D) initiatives have played a pivotal role in the advancement of desiccants. Desiccants, known as hygroscopic products or materials, have the remarkable ability to absorb moisture from the surrounding environment. By effectively reducing humidity levels, desiccants help prevent the damage caused by moisture to various products.

There are two primary methods by which desiccants absorb moisture: physical absorption and chemical assimilation. Physical absorption involves the process of desiccants absorbing moisture and trapping it within surfaces or capillaries without altering the properties of the water. On the other hand, certain desiccants undergo a chemical reaction with moisture, resulting in the generation of a new substance. This is referred to as chemical assimilation. It is important to note that chemical absorption is irreversible, while physical absorption is reversible.

Common desiccants, such as zeolites and silica gel, function by physically absorbing moisture. These desiccants are widely utilized in various applications. For instance, in the shipment of food and pharmaceuticals, desiccants are employed to absorb moisture and maintain a controlled atmosphere, ensuring the preservation of product quality

during transportation. In the production of insulated windows, desiccants prevent moisture condensation on the panes, enhancing their longevity and performance. Furthermore, air conditioning systems utilize desiccants like zeolites to preserve the efficacy of the refrigerant by acting as drying components.

Zeolites also find application as dehydrating agents in the Grignard reaction, which necessitates the removal of water from solvents. This demonstrates the versatility and importance of desiccants in a wide range of industries.

The refrigerants market has witnessed the emergence of new technologies and products as a result of extensive R&D efforts. Researchers have focused on developing refrigerants with lower Global Warming Potential (GWP) compared to traditional Hydrofluorocarbons (HFCs). Hydrofluoroolefins (HFOs) have emerged as a promising alternative, offering significantly reduced GWP. Additionally, natural refrigerants like ammonia, carbon dioxide, and hydrocarbons have gained attention due to their zero Ozone Depletion Potential (ODP) and low GWP.

Through continuous research and development, the refrigerants industry is constantly evolving, driving innovation and sustainability in the field of cooling and climate control.

## Key Market Drivers

### Growing Demand of Desiccants in Food & Beverage Industry

Desiccants play a crucial role in the food and beverage industry. They are indispensable in maintaining the quality, freshness, and extended shelf-life of various food products by effectively controlling humidity levels in packaging. Desiccants such as silica gel, calcium oxide, and activated alumina are commonly utilized in food packaging to prevent spoilage caused by moisture.

The demand for desiccants in the food and beverage industry is on the rise due to several factors. Firstly, there is an increasing consumer preference for high-quality packaged food products with an even longer shelf life, ensuring that they stay fresh and tasty until consumed. Secondly, the global expansion of the food and beverage industry, particularly in emerging economies, is leading to higher demand for desiccants as more companies enter the market and strive to deliver top-notch products to their customers.

In addition to these factors, the growing trend towards convenience foods, including ready-to-eat meals and packaged snacks, is further driving the need for effective

humidity control solutions like desiccants. As people's lifestyles become more fast-paced and demanding, the demand for convenient food options that retain their quality and taste becomes increasingly important. Desiccants help ensure that these convenient food products maintain their freshness, texture, and flavor, providing consumers with a satisfying experience.

In conclusion, the growing demand for desiccants in the food and beverage industry is a significant driver of the global desiccants market. As consumer preferences continue to evolve and the industry expands, this demand for desiccants is expected to keep rising, leading to further growth in the desiccants market. Manufacturers and suppliers in the industry need to stay ahead of the curve by providing innovative desiccant solutions that meet the ever-increasing demands of the food and beverage sector.

### Growing Demand of Desiccants in Pharmaceutical Industry

Desiccants play a crucial role in the pharmaceutical industry. They are used to maintain the effectiveness and shelf life of various pharmaceutical products by controlling humidity levels in packaging. Desiccants, such as silica gel, activated alumina, and calcium oxide, are commonly used in pharmaceutical packaging to prevent degradation caused by moisture. These desiccants are carefully selected based on their moisture absorption properties, ensuring optimal protection for sensitive pharmaceutical formulations.

The demand for desiccants in the pharmaceutical industry is on the rise due to several factors. Firstly, there is an increasing need for high-quality pharmaceutical products with longer shelf life. As patients and healthcare providers demand more reliable and stable medications, pharmaceutical companies are investing in advanced packaging solutions that incorporate desiccants. These desiccants not only protect the integrity of the products but also safeguard patient safety.

Secondly, the global expansion of the pharmaceutical industry, especially in emerging economies, is leading to higher demand for desiccants. As more countries develop their healthcare infrastructure and witness a growth in pharmaceutical manufacturing, the need for desiccants as an essential component of packaging solutions is growing. This expansion of the pharmaceutical industry is driven by factors such as population growth, increasing healthcare awareness, and rising disposable incomes.

Moreover, the advancement in pharmaceutical manufacturing processes and the introduction of complex formulations necessitate the use of effective humidity control

solutions like desiccants. With the development of innovative drug delivery systems, such as biologics and controlled-release formulations, the stability of these sensitive pharmaceuticals becomes even more critical. Desiccants provide the necessary protection by absorbing moisture and preventing chemical degradation, ensuring the potency and efficacy of the medications.

In conclusion, the growing demand for desiccants in the pharmaceutical industry is a significant driver of the global desiccants market. As the industry evolves and expands, this demand is expected to continue rising, leading to further growth in the desiccants market. Pharmaceutical companies recognize the importance of maintaining product quality and patient safety, making desiccants an integral part of their packaging strategies. The continuous advancements in pharmaceutical manufacturing processes and the increasing complexity of formulations reinforce the need for effective humidity control solutions like desiccants.

## Key Market Challenges

### Limited Moisture Adsorption Capacity

Desiccants play a crucial role in maintaining a state of dryness in their surroundings by effectively absorbing moisture. These substances are widely used to preserve the quality and extend the shelf life of products by preventing moisture-related damage. However, one of the primary challenges faced by many desiccants is their limited moisture adsorption capacity. Once a desiccant reaches its maximum capacity, it becomes ineffective in absorbing further moisture.

This limitation becomes particularly significant in regions with high humidity levels or in applications where continuous exposure to moisture is a concern. The limited moisture adsorption capacity of desiccants can lead to various issues such as reduced product lifespan, compromised product quality, and increased costs due to the frequent need for desiccant replacement.

The global desiccants market faces significant challenges due to this limitation. The restricted use of desiccants in certain applications and the limitation in their moisture adsorption capacity can hinder market growth. Customers seeking long-term moisture protection solutions may explore alternative technologies or products that offer higher moisture adsorption capabilities.

Furthermore, frequent desiccant replacement due to their limited moisture absorption

capacity can result in increased operational costs. This aspect can make desiccants less appealing to cost-sensitive customers and negatively impact market demand.

To address these challenges, ongoing research and development efforts are focused on enhancing the moisture adsorption capacity of desiccants. By improving their effectiveness and expanding their applications, desiccants can offer more reliable and cost-effective moisture protection solutions, ensuring prolonged product lifespan and maintaining product quality in various industries.

## Key Market Trends

### Growing Focus on Sustainable Desiccant Solutions

Sustainability has emerged as a pivotal consideration for businesses worldwide, prompting industries to shift away from conventional desiccants. These traditional desiccants, while effective, often pose significant environmental challenges due to their non-renewable nature and disposal issues. In response, there is a growing inclination towards sustainable desiccant solutions that exhibit a lower environmental footprint.

This growing emphasis on sustainable desiccant solutions has profound implications for the global desiccants market. It is fostering a culture of innovation, driving the development of new products and technologies. For instance, numerous companies have begun offering desiccants crafted from natural materials such as clay and plant fibers. These sustainable alternatives are not only renewable but also biodegradable, making them an exceptionally eco-friendly choice.

Moreover, there is a surging demand for regenerative desiccants, which can be reused after effectively removing absorbed moisture through heating or other methods. This practice not only extends the lifespan of the desiccant but also reduces waste, further advancing sustainability efforts.

Furthermore, this trend is significantly influencing purchasing decisions within the market. Businesses that prioritize sustainability are increasingly inclined to opt for sustainable desiccant solutions, even if they come at a slightly higher cost. This shift in preference is reshaping market dynamics and influencing the strategies of desiccant manufacturers.

## Segmental Insights

## Type Insights

Based on the category of type, the silica gel segment emerged as the dominant player in the global market for desiccants in 2022. Silica gel, a desiccant widely used for its high surface area and strong affinity for water molecules, plays a crucial role in moisture control. With its porous structure, it effectively absorbs and retains moisture, making it a reliable choice for preserving dryness in a wide range of applications. From food packaging to electronics and pharmaceuticals, silica gel ensures optimal conditions by preventing moisture-related damage and degradation. Its versatility and effectiveness make it a go-to solution for maintaining product quality and extending shelf life.

## End User Insights

The food segment is projected to experience rapid growth during the forecast period. Desiccants play a vital role in the food industry by effectively maintaining the quality and safety of products. These moisture-absorbing agents are crucial in preventing spoilage, mold growth, and clumping in a wide range of food items, including spices, dried fruits, and packaged goods. By absorbing excess moisture, desiccants not only extend the shelf life of these products but also enhance their flavor and prevent caking, ensuring that they remain fresh, palatable, and of the highest quality for consumers to enjoy.

## Regional Insights

Asia Pacific emerged as the dominant player in the Global Desiccants Market in 2022, holding the largest market share in terms of value. The Asia-Pacific desiccant market is experiencing significant growth, primarily fueled by the expansion of the pharmaceutical industry in countries like China, India, and Japan. With India's pharmaceutical industry currently valued at USD 41 billion, it serves as a major contributor to the overall growth of the Asia-Pacific desiccant market.

Moreover, the expansion of the pharmaceutical industry is further supported by government investments, such as the Production Link Incentive (PLI) scheme in India. This scheme aims to enhance exports and manufacturing capabilities within the country, driving the demand for desiccants in the Asia-Pacific region. The increased focus on health and the growing concerns regarding product quality and integrity have also contributed to the expansion of the desiccant market in this region. As a result, the Asia-Pacific desiccant market is witnessing substantial growth, driven by a combination of factors that support the pharmaceutical industry and address the evolving needs of the market.

## Key Market Players

Fuji Silysia Chemical Ltd.

Desicca Chemical Pvt. Ltd.

TROPACK Packmittel GmbH

Oker-Chemie GmbH

Hengye, Inc.

Multisorb Technologies Inc

Clariant AG

Capitol Scientific, Inc.

W. R. Grace & Co.-Conn.

Evonik Industries AG

## Report Scope:

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

### Global Desiccants Market, By Type:

Silica Gel

Activated Alumina

Activated Charcoal

Zeolite

Calcium Chloride

Clay

Others

Global Desiccants Market, By End User:

Packaging

Food

Pharmaceutical

Electronics

Others

Global Desiccants Market, By Region:

North America

United States

Canada

Mexico

Europe

France

United Kingdom

Italy

Germany

Spain



Asia-Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Kuwait

Turkey

Egypt

Competitive Landscape

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

### Available Customizations:

Global Desiccants 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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