

Hydrogel Market Report and Forecast 2025-2034

Market Report | 2025-08-11 | 163 pages | EMR Inc.

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Report description:

The global hydrogel market reached approximately USD 28.91 Billion in 2024 . The market is projected to grow at a CAGR of 7.00% between 2025 and 2034, reaching a value of around USD 56.87 Billion by 2034 .

Hydrogel Market Growth

A hydrogel is a three-dimensional network structure of hydrophilic polymers held together by cross-links and is used in a wide number of applications. It has a lot of mechanical properties and is widely used in biomedical applications. It can absorb and retain a large amount of water and hence is used in various engineering applications.

The use of hydrogels in personal care and hygiene products is contributing majorly to the hydrogels market development. Hydrogels have become increasingly popular in the personal care and hygiene sector due to their unique properties, such as high-water content, softness, and flexibility, which closely mimic natural tissue. As more than half of the world population needs some form of vision correction, the use of contact lenses is significantly increasing. The use of hydrogel in contact lenses for greater comfort is further invigorating the market growth. Hydrogels are also widely used in medical fields for wound care, drug delivery systems, tissue engineering, and as components in medical devices such as contact lenses and implants.

Key Trends and Developments

Usage in biosensors; the advent of smart hydrogels; 3D printing of hydrogel; and innovations in hydrogel formulations are the major trends impacting the hydrogel market expansion

November 30th, 2023

Innosphere Ventures Fund made a follow-up investment in GelSana, an advanced wound care company, which underscores the innovative potential of GelSana's hydrogel technology in addressing the needs of advanced wound care.

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August 31st, 2023

HKU Biomedical Engineering team announced the development of an innovative hydrogel that can show promising results in the healing of wounds.

June 20th, 2023

FesariusTherapeutics, a biogenerative technology company, announced in their publication that DermiSphere, an innovative hydrogel can successfully treat full-thickness skin loss in a single step.

March 27th, 2023

SolasCure, a hydrogel development company, announced that it has completed a series B investment round to support its Aurase Wound Gel product.

Usage in biosensors

Hydrogels are used for immobilisation and the creation of protective layers to control diffusion and enhance biocompatibility.

Advent of smart hydrogels

These hydrogels are used as stimuli-responsive materials which can enable sensing and boost performance.

3D printing of hydrogel

Advances in 3D printing technology have enabled the fabrication of complex hydrogel structures with precise control over shape and size.

Innovations in hydrogel formulations

Research and development efforts are leading to new hydrogel formulations that offer enhanced properties, such as improved mechanical strength and longer degradation times.

Hydrogel Market Trends

Advances in 3D printing technology have revolutionized the field of biomedical engineering, particularly through the fabrication of complex hydrogel structures. Hydrogels, with their high water content and similarity to the natural extracellular matrix of many tissues, offer ideal characteristics for biomedical applications. The ability to 3D print these materials with precise control over shape, size, and microarchitecture has opened up new possibilities for creating customised implants and tissue scaffolds that can closely mimic the natural environment of biological tissues.

Key players in hydrogel market are readily gathering funds to scale up the product and enhance its development. In March 2023, SolasCure announced that it had completed a series B investment round which can aid Aurase Wound Gel. The development and potential commercialisation of this product suggest innovation in the field of wound care, potentially offering improved outcomes for patients with wounds.

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Hydrogel Industry Segmentation

"Hydrogel Market Report and Forecast 2025-2034" offers a detailed analysis of the market based on the following segments:

Market Breakup by Structure

- Amorphous
- Semi-Crystalline
- Crystalline

Market Breakup by Material

- Polyacrylate
- Polyacrylamide
- Silicone
- Others

Market Breakup by End Use

- Personal Care and Hygiene
- Pharmaceuticals and Healthcare
- Contact Lenses
- Agriculture
- Others

Market Breakup by Region

- North America
- Europe
- Asia Pacific
- Latin America
- Middle East and Africa

Hydrogel Market Share

Polyacrylate hydrogels maintain their dominance in the market as they possess superabsorbent properties

Polyacrylate hydrogels hold a significant share in the hydrogel market, particularly in the consumer goods sector, due to their superabsorbent properties. They are commonly used in personal care products such as diapers and sanitary napkins where high absorbency is crucial and in agriculture as soil conditioners to improve water retention and reduce irrigation needs. Their ability to absorb and retain large volumes of water or aqueous solutions far beyond their own mass makes them invaluable in applications requiring moisture control.

Polyacrylamide hydrogels are expected to witness sizeable growth in the coming years. Polyacrylamide hydrogels play a vital role in water treatment processes. They are used as flocculants in wastewater treatment to aggregate and settle suspended particles, making it easier to remove contaminants from water. This property is essential for both industrial wastewater treatment and municipal water purification systems, contributing to environmental protection and public health.

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The agriculture sector largely uses hydrogel due to its unique ability to significantly improve water retention in soil and deliver nutrients efficiently to plants

The agriculture sector occupies a major market share. Hydrogels can increase the water retention capacity of soils, and the net plant yield, and can also reduce drought impact on plants and enhance soil fertility. Additionally, the surging population growth, rapid climate change, and reduced arable lands have enhanced the demand for high-yield and sustainable agricultural practices, consequently boosting hydrogel demand. Hydrogels can also be engineered to absorb and release nutrients in a controlled manner which allows for more efficient use of fertilisers, reducing runoff and environmental pollution.

The pharmaceutical and healthcare sectors are anticipated to witness robust growth in the hydrogel market in the forecast period due to the unique properties of hydrogels and their compatibility with various medical applications. Hydrogels are extensively used in controlled drug delivery applications due to their ability to encapsulate drugs and release them at a controlled rate. The porous nature of hydrogels allows for the storage and gradual release of therapeutics, which can be tuned by altering the hydrogel's composition. In wound care, hydrogels have become indispensable due to their moisture-retaining properties, which create an optimal moist wound healing environment. This not only accelerates the healing process but also reduces pain and discomfort for the patient.

Leading Companies in Hydrogel Market

The market players are investing in research and development to develop new hydrogel formulations with enhanced properties to gain a competitive edge in the market

Cardinal Health, Inc.

Cardinal Health, Inc., founded in 1971 in Ohio, United States, specializes in medical and surgical products, pharmaceuticals, and healthcare supply chain services.

3M Co.

3M Co., established in 1902 in Minnesota, United States, offers a diverse range of products including adhesives, abrasives, laminates, passive fire protection, personal protective equipment, and window films.

Smith & Nephew

Smith & Nephew, originating in 1856 in London, United Kingdom, provides sports medicine products, arthroscopy products, trauma and extremities products, and joint replacement systems, among others.

Johnson & Johnson Services, Inc.

Johnson & Johnson Services, Inc., founded in 1886 in New Jersey, United States, is known for its Band-Aid Brand line of bandages, Tylenol medications, Johnson's Baby products, Neutrogena skin and beauty products, among others.

Other market players include CooperVision, Inc., among others. Players in the hydrogel market are actively engaging in a variety of strategic activities to expand their presence, drive innovation, and meet the growing demand across various application sectors such as healthcare, agriculture, personal care, and industrial uses.

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Hydrogel Market Analysis by Region

The Asia Pacific region is expected to witness robust growth in the market due to the rising disposable income, surging demand for hygiene and personal care products, and application of hydrogel in various other industrial sectors. Moreover, the increasing popularity of cosmetics and the penetration of international brands in countries such as Japan, South Korea, India, and China are propelling the market growth. With a large and ageing population in countries like China and Japan, the healthcare sector in the Asia Pacific is expanding rapidly. There's a growing demand for advanced wound care products, drug delivery systems, and tissue engineering, where hydrogels play a crucial role due to their biocompatibility and ability to mimic the natural tissue environment.

North America holds a significant share in the hydrogel market due to the increasing use of hydrogels in agriculture, biotechnology, and healthcare, among others. Europe is also anticipated to witness vigorous growth due to high per capita income and technological advancements.

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