

Hydrogel-based Drug Delivery System Market Size, Share & Trends Analysis Report By Polymer Origin (Natural, Synthetic, Hybrid), By Delivery Route, By Region, And Segment Forecast, 2024 - 2030

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Abstracts

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Hydrogel-based Drug Delivery System Market Growth & Trends

The global hydrogel-based drug delivery system market size is anticipated to reach USD 11.77 billion by 2030, according to a new report by Grand View Research, Inc. The market is expected to expand at a CAGR of 6.7% from 2024 to 2030. Hydrogels help in achieving spatial and temporal control over the release of the incorporated drug. Therefore, the surging demand for controlled release drug delivery system across many therapeutic areas is a key factor expected to contribute to market growth during the forecast period.

Hydrogel-based drug delivery systems deliver the therapeutic drug directly at the target site and in a sustained manner. This can leverage beneficial outcomes such as improved efficacy, reduced side effects, and decreased dosage for patients and formulators. Hydrogel-based drug delivery systems are appealing and have been used in many branches of medicine such as oncology, pain management, immunology, cardiology, and wound management.

The unique physical properties of hydrogel attract their interest in use for drug delivery applications. The porosity and drug loading capacity of hydrogels can be adjusted by modifying the density of cross-linking. This helps them to protect liable large drug molecules from degradation increasing the half-life. Many research studies have been

carried out t%li%examining the delivery of insulin orally using hydrogel systems. As patient compliance issues are frequently reported with injectable insulins such innovation is expected t%li%be a disruptive technology in the diabetes care market.

There are numerous clinical studies underway specific t%li%hydrogel-based drug delivery systems and various hydrogel technologies have already received regulatory approval for biomedical application. However, the technological challenges including the absence of defined regulatory guidelines, chemistry, complex manufacturing and control parameters, and practical adaptability are major roadblocks in the successful implementation in drug delivery use. For instance, the fabrication of hydrogel is complex and varies significantly depending upon the hydrogel systems.

Hydrogel-based Drug Delivery System Market Report Highlights

Based on polymer origin, the synthetic segment held the largest proportion of market share in 2023

The hybrid segment is expected t%li%witness the fastest growth rate over the forecast period owing t%li%the development of stimuli-responsive hydrogel technology

The synthetic segment is anticipated t%li%grow fast over the forecast period compared t%li%natural hydrogels due t%li%their high drug loading capacity and improved mechanical strength

Based on delivery route, the ocular segment accounted for the largest revenue share in 2023

The subcutaneous segment is expected t%li%grow at a healthy rate over the forecast period owing t%li%the increasing number of clinical and pre-clinical studies carried out

North America holds the largest revenue share in this market due t%li%the presence of key companies in the region doing R&D on specific hydrogel-based drug delivery systems

In Asia Pacific, the market is expected t%li%grow at the fastest rate over the forecast period due t%li%large patient base,

improving healthcare infrastructure, and surging demand for modern therapies

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