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Vietnam Controlled Release Drug Delivery Market By Technology (Wurster Technique, Coacervation, Micro Encapsulation, Implants, Transdermal, Targeted Delivery, Others), By Release Mechanism (Polymer Based Systems, Micro Reservoir Partition Controlled Drug Delivery Systems, Feedback Regulated Drug Delivery Systems, Activation-modulated Drug Delivery Systems, Chemically Activated), By Delivery Application (Metered Dose Inhalers, Injectable, Transdermal and Ocular Patches, Infusion Pumps, Oral Controlled-drug delivery Systems, and Drug Eluting Stents), By Region, Competition, Forecast and Opportunities, 2020-2030F

https://marketpublishers.com/r/V4BF39724D29EN.html
Date: January 2025
Pages: 82
Price: US$ 3,500.00 (Single User License)
ID: V4BF39724D29EN

Abstracts

Vietnam Controlled Release Drug Delivery Market was valued at USD 276.32 Million in 2024 and is expected to reach USD 455.63 Million by 2030 with a CAGR of 8.65% during the forecast period. The Vietnam controlled release drug delivery market is primarily driven by the growing demand for advanced drug delivery systems that improve treatment efficacy and patient compliance. As the healthcare sector evolves, controlled release technologies offer significant advantages, such as reducing the frequency of drug administration and enhancing therapeutic outcomes by maintaining consistent drug levels in the bloodstream. The rising prevalence of chronic diseases such as diabetes, cardiovascular conditions, and cancer, which require long-term medication, has further fueled the demand for controlled release formulations. In 2021,

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approximately 3.92% of Vietnam’s population aged 25–64 had both diabetes and hypertension, based on data from three rounds of the STEPs surveys. The surveys used consistent sampling methods, sample sizes, and study subjects (aged 18 to 69). Both the 2015 and 2021 surveys employed a two-stage random sampling method, covering 15% of the Vietnamese population across all 63 provinces. In the 2015 survey, the final sample sizes were 3,758 for Step 1, 3,036 for Step 2, and 2,816 for Step 3, with response rates of 97.4%, 78.7%, and 73.0%, respectively. The 2021 survey included 4,738 subjects in Step 1 (94.76% response rate) and 3,712 in Steps 2 and 3 (74.2% response rate). Advancements in biotechnology and the increasing adoption of personalized medicine are contributing to the market's growth. The pharmaceutical industry’s focus on improving drug stability, bioavailability, and patient convenience is propelling the development of innovative controlled release systems. As healthcare infrastructure improves and patients seek more effective treatments, the controlled release drug delivery market in Vietnam is poised for continued expansion.

Key Market Drivers

Increasing Prevalence of Chronic Diseases

One of the primary drivers of the controlled release drug delivery market in Vietnam is the rising prevalence of chronic diseases such as diabetes, cardiovascular diseases, cancer, and hypertension. Non-communicable diseases (NCDs) are responsible for an estimated 72% of the mortality burden and 66% of the disease burden in Vietnam, with key contributors including cardiovascular diseases (CVDs), cancer, diabetes, hypertension, and chronic obstructive pulmonary disease (COPD). The most common NCDs in the country include cardiovascular diseases (such as hypertension and coronary artery disease), diabetes, cancer, and chronic respiratory diseases like COPD. The increasing prevalence of hypertension and diabetes in Vietnam is particularly concerning, driven by factors such as rapid economic growth, an aging population, urbanization, and shifts in dietary habits and lifestyle. Chronic conditions often require long-term medication management to control symptoms, prevent complications, and improve the quality of life. Traditional drug delivery methods that necessitate frequent dosing can be inconvenient and challenging for patients to adhere to. Controlled release formulations, which provide consistent and sustained drug levels in the bloodstream over a prolonged period, are particularly suitable for these conditions. By reducing the frequency of drug administration, controlled release systems offer a more convenient and effective way to manage chronic diseases. This improvement in patient adherence to prescribed medication regimens is crucial in improving treatment outcomes, especially for long-term conditions where continuous drug therapy is essential. The

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need for better disease management systems in Vietnam, particularly among the growing aging population, makes controlled release drug delivery systems a vital solution. Consequently, the rise in chronic diseases is directly contributing to the growth of the controlled release drug delivery market in the country.

Patient Preference for Convenience and Compliance

Patient convenience is a significant driver of the controlled release drug delivery market in Vietnam. Patients with chronic conditions often struggle to comply with complex medication regimens, especially when they require multiple doses throughout the day. This issue is prevalent in Vietnam, where traditional drug delivery systems may not align with patients' daily routines. Controlled release systems, which allow for sustained drug release over an extended period, minimize the frequency of dosing, thus improving convenience and increasing patient adherence to prescribed treatments. These systems reduce the need for multiple medications or doses per day, simplifying therapy management for patients. As a result, patients are more likely to consistently take their medication as prescribed, improving overall treatment efficacy. This preference for convenience is driving the adoption of controlled release drug delivery systems, particularly among individuals with chronic illnesses who require ongoing medication. With the demand for patient-centric healthcare increasing, the convenience offered by controlled release technologies remains a key factor in the market's growth.

Improvement in Healthcare Infrastructure

The improvement in healthcare infrastructure in Vietnam is also playing a crucial role in driving the controlled release drug delivery market. As the healthcare sector in Vietnam modernizes, hospitals, clinics, and pharmacies are increasingly adopting advanced medical technologies, including controlled release drug delivery systems. In December 2024, an Australian biotechnology company is developing what may become Vietnam's first AI-powered hospital. The MedArmor AI Hospital will focus on a preventive healthcare model, prioritizing early disease detection and timely interventions, supported by AI and virtual care technologies. The hospital will primarily operate using virtual technologies, such as video conferencing, to provide care. Additionally, it will offer telestroke management, electronic intensive care units, and online consultations between healthcare providers.

The expansion of both public and private healthcare facilities has made it easier for patients to access state-of-the-art treatments, which include novel drug delivery methods. Increased investment in healthcare infrastructure, coupled with a rise in the

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availability of specialized healthcare professionals, has facilitated the widespread use of controlled release systems. As healthcare facilities adopt more sophisticated medical technologies, they are likely to offer controlled release drug products as part of their standard care offerings, making them more accessible to the population. This improvement in healthcare infrastructure is essential for the continued growth of the market, as it provides the foundation necessary for the adoption and integration of advanced drug delivery technologies.

Rise of Personalized Medicine

The rise of personalized medicine is another key driver of the controlled release drug delivery market in Vietnam. Personalized medicine, which tailors medical treatment to individual patients based on their genetic makeup, lifestyle, and environmental factors, is gaining traction worldwide. In Vietnam, the shift toward personalized treatment plans is creating demand for more precise and efficient drug delivery systems. Controlled release technologies are ideal for personalized medicine, as they allow for better management of drug doses and release schedules tailored to individual patients' needs. The ability to customize drug release profiles based on specific patient conditions will improve therapeutic outcomes and minimize side effects. As personalized medicine becomes more widespread in Vietnam, controlled release drug delivery systems will play a critical role in ensuring the success of these treatments. The increasing use of personalized medicine is therefore driving the growth of the controlled release drug delivery market.

Growing Pharmaceutical Industry Investment

The increasing investment in Vietnam's pharmaceutical industry is a major factor propelling the growth of the controlled release drug delivery market. Both domestic and international pharmaceutical companies are recognizing the potential of the Vietnamese market, driven by the country's large population and improving healthcare system. These companies are investing heavily in the research, development, and commercialization of controlled release drug delivery systems. In January 2025, Vietnam has begun the construction of its first plasma-based biopharmaceutical production plant, situated in the high-tech park of Thu Duc City, Ho Chi Minh City. The groundbreaking project is led by Binh Viet Duc Co., Ltd., with the goal of decreasing dependence on imported plasma-based treatments and reducing costs for patients, according to Radio the Voice of Vietnam (VOV).

By investing in R&D, pharmaceutical companies are introducing more effective,

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efficient, and patient-friendly formulations, which are gaining popularity in the market. Pharmaceutical companies are focusing on expanding the availability of these advanced drug delivery systems through improved distribution networks and partnerships with healthcare providers. As the pharmaceutical industry continues to grow and invest in innovative drug delivery technologies, the controlled release drug delivery market in Vietnam will continue to expand.

Key Market Challenges

High Cost of Development and Production

One of the most significant challenges in the controlled release drug delivery market in Vietnam is the high cost of developing and producing these advanced systems. Controlled release formulations often involve complex technologies, such as specialized polymers, nano-carriers, and advanced drug encapsulation methods, which can significantly increase production costs. The research and development (R&D) process for controlled release systems is also resource-intensive, requiring extensive clinical trials, regulatory approvals, and substantial investment in infrastructure. These high costs are often passed on to consumers, which can make controlled release drug products more expensive than conventional drug delivery methods.

In Vietnam, where a large segment of the population still faces financial barriers to accessing healthcare, the higher cost of controlled release medications can limit market penetration. This is especially true in rural areas, where disposable incomes are lower and the cost of innovative treatments can be a significant deterrent for patients. Local manufacturers may lack the resources and technology to produce these advanced systems domestically, forcing them to rely on expensive imports, which can further drive up the price. Although the pharmaceutical market is expanding, the affordability of controlled release drugs remains a key challenge. For these systems to become widely accessible, it is essential for the cost of production to decrease, which would require innovations in manufacturing processes, economies of scale, and government support for cost-effective solutions.

Regulatory Challenges and Approval Delays

Another challenge facing the Vietnam controlled release drug delivery market is navigating the complex and often delayed regulatory processes. The regulatory environment for drug products in Vietnam is still evolving, and while the government has made efforts to modernize healthcare regulations, the approval process for new drugs

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and drug delivery systems can be slow and cumbersome. Controlled release drug products, being relatively new in comparison to conventional drug formulations, require more extensive testing and validation before they can be approved for use in the market. This includes proving the safety, efficacy, and consistency of the drug release over time, which involves detailed clinical trials and regulatory submissions.

The slow pace of regulatory approval can delay the entry of innovative controlled release drugs into the Vietnamese market, hindering their potential to address unmet medical needs. Regulatory frameworks may not always align with the latest advancements in drug delivery technology, requiring companies to meet stringent and sometimes outdated requirements. These regulatory hurdles can discourage foreign investment and innovation in the sector, as pharmaceutical companies may perceive the process as too time-consuming and expensive. Inconsistent regulatory practices across regions in Vietnam can create challenges for manufacturers and distributors trying to enter the market. A more streamlined, transparent, and harmonized regulatory environment would be crucial to facilitating the quicker adoption of controlled release drug delivery systems in Vietnam.

Key Market Trends

Technological Innovations in Drug Delivery Systems

Technological innovations have played a pivotal role in the rapid growth of the controlled release drug delivery market in Vietnam. Advances in materials science, particularly the development of biocompatible polymers, biodegradable materials, and novel drug carriers, have significantly enhanced the efficacy and reliability of controlled release systems. Newer drug delivery technologies such as nano-carriers, liposomes, and microspheres have improved the precision of drug release, ensuring that active ingredients are released at optimal times and at the right dosage. These innovations are allowing for more tailored treatments for patients, ensuring that the drug is released at the right site in the body for maximum therapeutic effect. Innovations in manufacturing processes have made it easier to produce controlled release systems at scale, reducing costs and improving the availability of these products. Technological advancements are also helping to address the challenges posed by traditional drug delivery methods, such as poor bioavailability and inconsistent drug release profiles. As these innovations continue to evolve, the controlled release drug delivery market in Vietnam is expected to expand further, offering more efficient and targeted treatments for a wide range of conditions.

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Advancements in Biotechnology and Pharmaceutical Development

The rapid advancements in biotechnology and pharmaceutical research are significantly driving the Vietnam controlled release drug delivery market. Biotechnology has enabled the development of novel therapeutic agents, such as biologics, peptides, and monoclonal antibodies, which require advanced drug delivery systems for effective administration. These new classes of drugs often have specific requirements in terms of bioavailability, stability, and therapeutic efficacy, which traditional drug delivery systems may not fully address. Controlled release drug delivery systems allow for the precise and targeted release of these complex drugs over an extended period, improving their effectiveness and reducing side effects. The advancements in polymer science and nano-technologies have enhanced the development of controlled release systems, making them more efficient and versatile. As Vietnam continues to invest in biotechnology research and development, the adoption of controlled release drug delivery methods will expand, enabling better treatment outcomes for patients. The technological evolution in drug formulation is, therefore, one of the most influential factors contributing to the growth of the market.

Segmental Insights

Technology Insights

Based on the Technology, Microencapsulation is currently the most dominant method in the Vietnam controlled release drug delivery market. Microencapsulation involves enclosing drugs within a polymer or lipid-based coating to control the release rate and protect the drug from degradation. This technique is widely used because of its flexibility, cost-effectiveness, and ability to address the challenges of sustained and controlled drug delivery. It is especially advantageous in the context of oral drug formulations, which are the most common route of administration in Vietnam.

The growing demand for oral drug delivery systems in Vietnam is driven by the country’s increasing burden of chronic diseases such as diabetes, hypertension, and cardiovascular conditions, which require long-term medication. Microencapsulation offers a solution by providing sustained drug release, reducing the frequency of dosing and improving patient adherence. This is particularly important in the Vietnamese healthcare market, where patient compliance with complex medication regimens is often a challenge. By incorporating microencapsulation into drug formulations, pharmaceutical companies can help improve treatment outcomes, especially for patients with chronic illnesses, while also enhancing the convenience of treatment.

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Microencapsulation is particularly effective in protecting sensitive drugs from environmental factors, such as light, heat, or moisture, which can degrade the active pharmaceutical ingredients. In the humid and tropical climate of Vietnam, this feature is crucial for ensuring the stability and efficacy of the drug. Microencapsulation allows for the controlled release of the active drug over a period of time, ensuring that the therapeutic effect is sustained and side effects are minimized. This method also enables the use of combination therapies, where multiple drugs can be encapsulated together to be released in a controlled manner, addressing various aspects of disease management simultaneously.

Release Mechanism Insights

Based on the Release Mechanism, Polymer-Based Systems are currently the most dominant in the Vietnam controlled release drug delivery market. Polymer-based systems have gained widespread adoption due to their versatility, cost-effectiveness, and ability to deliver drugs in a controlled, sustained manner. These systems utilize polymers, such as natural or synthetic biopolymers, to encapsulate or bind the drug, allowing for a regulated release over time. Polymer-based systems are particularly suited for the delivery of both small molecule drugs and biologics, making them highly versatile and applicable to a wide range of therapeutic areas.

The primary reason for the dominance of polymer-based systems in Vietnam is their adaptability in addressing a variety of drug delivery challenges, particularly in chronic disease management. Chronic diseases such as diabetes, cardiovascular disease, and hypertension are on the rise in Vietnam, necessitating long-term medication regimens. Polymer-based controlled release systems offer the advantage of reducing the frequency of dosing, which is essential for improving patient compliance. This is particularly critical in a market like Vietnam, where adherence to prescribed treatments can be a challenge due to the need for multiple daily doses of medication. By using polymer-based systems, drugs are released gradually, allowing patients to take fewer doses and maintain consistent therapeutic levels. Polymer-based systems are also highly adaptable to various forms of drug delivery, including oral, injectable, and even topical routes. The flexibility to customize the release profile based on the drug’s characteristics and therapeutic requirements is another key advantage driving the use of polymer-based systems in Vietnam. For instance, oral controlled release formulations are common in the country, where the majority of drug delivery is still via tablets and capsules. Polymer-based formulations, such as matrix systems or coating-based systems, are well-suited for these oral drug delivery products, ensuring a consistent release of the active pharmaceutical ingredient over an extended period.

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Regional Insights

Southern Vietnam is currently the dominant region in the Vietnam controlled release drug delivery market. This dominance can be attributed to several key factors, including the region's developed healthcare infrastructure, higher economic growth, and concentration of pharmaceutical companies and healthcare providers. Southern Vietnam, particularly the Ho Chi Minh City area, is the economic hub of the country, hosting a large number of pharmaceutical manufacturers, distributors, and healthcare facilities. As the largest city in Vietnam, Ho Chi Minh City serves as a focal point for the introduction of new healthcare technologies, including advanced drug delivery systems like controlled release formulations.

The rapid urbanization and increasing healthcare investment in Southern Vietnam have played a pivotal role in driving the demand for controlled release drug delivery systems. Urban areas, including Ho Chi Minh City, are home to a more affluent and health-conscious population, which is more likely to seek out advanced drug delivery solutions. The demand for controlled release systems, especially for managing chronic diseases such as diabetes, hypertension, and cardiovascular conditions, is higher in these urban centers. These patients often require long-term medication, and controlled release systems offer a more convenient and effective solution by reducing the frequency of dosing and improving adherence to prescribed regimens.

In addition, the region benefits from a better-developed healthcare infrastructure, with access to modern hospitals, clinics, and pharmacies. This infrastructure supports the use of advanced drug delivery systems, as healthcare providers in Southern Vietnam are more equipped to adopt and implement these new technologies. The presence of key pharmaceutical companies, both domestic and international, in this region has facilitated the distribution and availability of controlled release drug products. These companies are investing in R&D, developing new formulations, and leveraging the region's access to modern manufacturing facilities to meet the growing demand for controlled release drugs. The greater purchasing power in Southern Vietnam also makes it an attractive market for the introduction of higher-priced advanced drug delivery systems. While the cost of controlled release products may be a barrier in rural and less developed areas, patients in urban centers are often more willing to invest in these products due to their benefits, such as reduced dosing frequency and improved treatment outcomes. The higher concentration of patients with chronic diseases in Southern Vietnam has also contributed to the region's leadership in the controlled release drug delivery market, as these patients are more likely to benefit from long-term

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drug therapies facilitated by controlled release systems.

Key Market Players

Merck Vietnam Co., Ltd

JNTL Consumer Health (Vietnam) Co. Ltd.

Pfizer (Vietnam) Limited Company

AstraZeneca Vietnam Co., Ltd.

Croda Vietnam

DSM Nutritional Products Vietnam Ltd

Evonik Vietnam LLC

B. Braun Vietnam Co., Ltd.

DHG Pharmaceutical Joint Stock Company

Mekophar Chemical and Pharmaceutical JSC

Report Scope:

In this report, the Vietnam Controlled Release Drug Delivery Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Vietnam Controlled Release Drug Delivery Market, By Technology:

Wurster Technique

Coacervation

Micro Encapsulation

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Implants

Transdermal

Targeted Delivery

Others

Vietnam Controlled Release Drug Delivery Market, By Release Mechanism:

Polymer Based Systems

Micro Reservoir Partition Controlled Drug Delivery Systems

Feedback Regulated Drug Delivery Systems

Activation-modulated Drug Delivery Systems

Chemically Activated

Vietnam Controlled Release Drug Delivery Market, By Delivery Application:

Metered Dose Inhalers

Injectable

Transdermal & Ocular Patches

Infusion Pumps

Oral Controlled-drug delivery Systems

Drug Eluting Stents

Vietnam Controlled Release Drug Delivery Market, By Region:

Southern Vietnam

Northern Vietnam

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Central Vietnam

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Vietnam Controlled Release Drug Delivery Market.

Available Customizations:

Vietnam Controlled Release Drug Delivery Market report with the given market data, TechSci 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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