Pharmaceutical Spray Drying - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

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Report description:

The Pharmaceutical Spray Drying Market size is estimated at USD 2.20 billion in 2025, and is expected to reach USD 3.16 billion by 2030, at a CAGR of 7.47% during the forecast period (2025-2030).

The initial phase of the pandemic has had a substantial impact on the growth of the pharmaceutical spray drying market owing to the significant decline in manufacturing processes and restricted demand and supply of drugs. The government of several countries has reported that active pharmaceutical ingredients are in short supply because of the COVID-19 pandemic. Likewise, according to the Pharmaceutical Export Promotion Council (PHARMEXCIL), in 2021, the COVID-19 pandemic resulted in a massive spike in medicine prices due to increased demand for drugs to treat a variety of diseases, including HIV, cancer, epilepsy, and malaria.

However, the recovery from the shortage and increasing use of pharmaceutical spray drying for COVID-19 drugs, drug applications, and vaccines have positively impacted the market. For instance, according to the study titled, 'Spray freeze-dried niclosamidenanocrystals embedded dry powder for high dose pulmonary delivery,' published in February 2023, niclosamide(NCL) has shown potential applications for treating COVID-19. However, the development of new formulations for effective niclosamide(NCL) delivery is still challenging. In such cases, niclosamide-embedded dry powder for inhalation (NeDPI) was fabricated by a novel spray freeze-drying technology, making it easier for drug delivery.

Therefore, such instances indicate that the market initially witnessed slow growth owing to supply chain disruption. However, with the recovery from shortage and increasing use of pharmaceutical spray drying for COVID-19 drugs and vaccines, the market witnessed a positive impact during the pandemic and is expected to continue the upward trend over the forecast period.

The increasing prevalence of chronic diseases, technological advancements, improvements in the stability of products, and increasing research and development spending are the major factors propelling market growth.

According to the journal published in February 2022 by PharmTech, the increased development of biologic-based drugs has fueled the demand for spray drying as an alternative for the manufacturing and processing of biologics instead of the more traditional liquid or lyophilized solid forms. The new pharmaceutical spray drying methods offer remarkable control over the properties of the manufactured powders, with significant downstream advantages. With adequate process development, spray drying can also enable amorphous solid dispersion (ASDs) formulations that are directly compressible, thus bypassing the need for granulation prior to tableting. Thus, owing to such technological advancements, the majority of pharmaceutical companies are adopting spray drying over traditional methods.

In addition, increasing cases of chronic diseases are also propelling market growth. For instance, according to the data published by the International Diabetes Federation in 2021, around 537.0 million adults are living with diabetes, and by 2030, around 643.0 million people are expected to live with diabetes. It also reported that 3 out of 4 adults live with diabetes, and around 1 out of 2 adults (240.0 million) are living with undiagnosed diabetes. Similarly, according to the report published by the International Diabetes Federation in 2021, more than 1.2 million adolescents and children are living with type 1 diabetes.

Furthermore, according to the American Cancer Society Colorectal Cancer Statistics in 2023, over 153,020 adults are estimated to be diagnosed with colorectal cancer in 2023 in the United States. These numbers include 106,970 new cases of colon cancer and 46,050 new cases of rectal cancer in the United States, as pharmaceutical spray drying is a technique preferred by most pharmaceutical companies to produce quality drugs. Increasing cases of chronic diseases are anticipated to boost the demand for quality drug development for treatment, which in turn may boost the demand for spray-drying techniques. Thus, the high prevalence of chronic diseases is expected to positively impact the market growth over the forecast period.

However, the high cost associated with spray drying and the requirement of experienced operators is likely to hinder the market growth over the forecast period.

Pharmaceutical Spray Drying Market Trends

Excipient Production Segment is Expected to Witness Considerable Growth Over the Forecast Period

- Pharmaceutical excipients are substances other than the active pharmaceutical ingredient (API) that have been appropriately evaluated for safety and are intentionally included in a drug delivery system. Manufacturing dry particles by the spray-drying method proceeds in such a way that excipients are dissolved in aqueous or organic solvents, after which the solution thus obtained is sprayed through a narrow atomization nozzle with high pressurized air at a temperature higher than the vaporization point of the solvent. The fine droplets thus emitted are quickly dried, followed by a collection of particles generated by a cyclone mechanism. The particle size is regulated by the concentration of excipients in the solution and the pressure given to the airflow.
- The advantages of excipients and increasing research work are the major drivers for the market. Excipients are essential to the formulation of drug products because they enable the effective delivery of drug substances and can account for as much as 80-90% of the drug product formulation. For branded drugs, novel excipients could be used to optimize drug product performance and presentation and possibly develop candidates that were deemed undevelopable, leading to transformative medicines with optimized patient presentations. Hence, considering the advantages of these molecules, pharmaceutical companies are investing huge amounts in manufacturing these excipients; therefore, there is increasing use of spray drying for the exception production, posting the segment growth.
- In addition, increasing research work is also anticipated to propel the segment growth. For instance, in September 2021, the UInted States Food and Drug Administration (USFDA launched a new pilot program to review novel excipients for use in meeting

unmet needs in formulating new drug products. Through this program, the FDA intends to raise the development of excipients that may be useful in scenarios where excipient manufacturers and drug developers have cited prior difficulty in using existing excipients. Such initiatives by the government are expected to boost segment growth over the forecast period.
- Additionally, the rising demand for pharmaceuticals, new investments in the facilities for excipient production, and government initiatives to promote domestic manufacturing of drugs and other pharmaceutical products are expected to boost the market's growth over the forecast period. For instance, in June 2023, Croda, Inc. started constructing its new Pennsylvania facility to enhance its pharmaceutical excipients manufacturing capacity. As per the company, the new facility will be involved in manufacturing ingredients for drug delivery systems used in novel therapeutic drugs such as mRNA vaccines and gene editing therapies. Hence, the launch of new excipient manufacturing facilities is expected to boost the demand for spray dryers as they are one of the essential components for excipient production.
- Therefore, owing to the enormous significance of the spray drying technique in excipient production, the advantages offered by this technique and an increasing number of excipient manufacturing facilities are expected to boost segment growth over the forecast period.

North America is Expected to held Largest Share Over the Forecast Period

- North America is anticipated to have a significant share owing to factors such as the presence of major pharmaceutical players, high demand for pharmaceutical products, technological advancement, and high pharmaceutical research and development expenditure in the region. The increasing company focus on expansion and adopting business strategies to withhold their position in the market is likely to boost the growth of the market.
- For instance, in January 2022, Eurofins (Contract Development and Manufacturing Organization) announced the expansion of its existing spray dry development and production services in North America. With this expansion, Eurofins can further complement a broad range of services specializing in solubility enhancement for clinical development and small-scale commercial programs.
- The increasing burden of chronic diseases and increasing investment in pharmaceutical research and development activities are some of the major driving factors that are expected to drive the pharmaceutical spray drying market in the region over the forecast period. For instance, according to the 2022 report of the American Cancer Society, about 1.9 million cases of cancer were reported in the country in 2022, with breast cancer being the most prevalent form of cancer.
- Moreover, with the rising demand for dried pharmaceutical products, companies are acquiring advanced spray-drying technologies to enhance their production and workflow. Such acquisitions are further expected to boost the market's growth in the United States over the forecast period.
- For instance, in May 2023, Experic, a contract development and manufacturing organization (CDMO) and clinical trial supply services company serving the biopharmaceutical industry, announced the addition of spray drying capabilities to support the formulation and development of biopharmaceuticals.
- Therefore, owing to the high prevalence of chronic diseases and investment in active pharmaceutical ingredient manufacturing facilities, the pharmaceutical spray drying market is expected to grow in North America over the forecast period.

Pharmaceutical Spray Drying Industry Overview

The pharmaceutical spray drying market is fragmented due to the presence of various players in the market. Some prominent players are vigorously making acquisitions and joint ventures with other companies to consolidate their market positions across the globe. Some of the players who are dominating the market are GEA Group Aktiengesellschaft, Shandong Tianli Drying Equipment Corporation Ltd, Buchi Labortecknik AG, European SprayDry Technologies, and Labplant, among others.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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