

## **Polyvinylidene Fluoride (Pvdf) Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)**

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### **Report description:**

The polyvinylidene fluoride (PVDF) market is expected to reach over 55,650 tons by the end of this year, and it is expected to register a CAGR of ~21.23% during the forecast period.

The COVID-19 pandemic in 2020 did leave a negative impact on the market for a short while. However, the industry has recovered since then. Steady growth in electronics, automotive, aerospace, oil and gas, and chemical processing industries has positively impacted the market since then, thereby driving the market studied.

### **Key Highlights**

The factors driving the growth of the market studied are the desirable properties of PVDF compared to other fluoropolymers, increasing demand for PVDF-based materials from the electrical and electronics sector, and increasing demand for PVDF resins as a binder in lithium-ion battery manufacturing.

Some of the factors restraining the demand for the market studied include the declining automotive industry. PVDF is used in wiring insulation purposes, plastic optical fibers, fuel transport systems, and coatings in the automobile industry, and continuous decline in automotive sector adversely affects the PVDF market.

Technological advancements in various applications of PVDF is expected to provide growth opportunity in the future.

Asia-Pacific dominated the global market, with the majority of the consumption coming from China, ASEAN Countries, and Japan.

### **Polyvinylidene Fluoride Market Trends**

Li-ion Batteries Segment Dominated the Market

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One of the important areas in which PVDF is used in lithium-ion batteries is binders. In lithium-ion batteries, the binder can be considered a key component. The major function of the binders in lithium-ion batteries is to act as an effective dispersion agent to connect the electrode species together and then steadily adhere them to the current collectors.

PVDF is one of the most common binders used for the cathode of lithium-ion batteries because of its superior electrochemical and thermal stability and good adhesion between the current collectors and electrode films.

By the adhesion between the current collectors and electrode films obtained by PVDF Binder for Li-ion Battery Electrodes, the longer cycle life and higher energy density can be obtained at even lower PVDF binder addition. Also, the polar functional groups in the PVDF binder result in lower internal energy.

Additionally, long-term stability can be ensured by the PVDF's excellent chemical resistance in the aggressive environment of lithium-ion batteries, which includes organic carbonates and lithium salts.

Lithium-ion batteries are used in various applications, such as power backup/UPS, mobiles, laptops, and other commonly used consumer electronic goods, as they can last way longer between charges while maintaining a high current output. This makes it the perfect battery for most modern needs. As people spend more time on mobile phones and laptops, lithium-ion batteries can make sure that they are on-the-go and spend minimal time attached to a charging cord.??

Lithium-ion batteries can also be characterized as energy storage systems that rely on insertion reactions. Energy storage systems, usually batteries, are essential for all types of electric vehicles, including hybrid electric vehicles (HEVs), plug-in hybrid electric vehicles (PHEVs), and all-electric vehicles (EVs).? These batteries also have a high power-to-weight ratio, high energy efficiency, good high-temperature performance, and low self-discharge, due to which their applications in electric vehicles have been rapidly increasing.?

It is projected that between 2020 and 2030, the global demand for lithium-ion batteries will increase elevenfold, reaching over two terawatt-hours in 2030. Much of this growth can be attributed to the rising popularity of electric vehicles, which predominantly rely on lithium-ion batteries for power.

The global lithium-ion battery market is expected to significantly grow as well. While valued at about USD 40.5 billion in 2020, the market should reach the size of around USD 91.9 billion in 2030. Lithium-ion battery production capacity worldwide is thus projected to significantly increase, reaching over two terawatt-hours in 2028. Thus, the demand for PVDF from battery manufacturing is expected to grow simultaneously.

According to IEA, in 2030, global electric vehicle sales are expected to reach 23 million as per the New Policies Scenario (excluding two-/three-wheelers). In the EV30@30 Scenario, in 2030, around 70% of the vehicle sales in China are likely to be EVs. Also, it is estimated that the global market share of EVs will reach 30% (245 million vehicles) by 2030.

Such developments are expected to drive the market through the forecast period.

## China to Dominate the Asia-Pacific Region

The Asia-Pacific region was largely dominated by China. The end-user industries involving the usage of PVDF in China include oil and gas, electrical and electronics, chemical processing, automotive, aerospace and defense, and building and construction industries.

China is the largest base for electronics production in the world. Electronic products, such as smartphones, TVs, and other personal electronic devices, recorded the highest growth in the electronics segment. The country serves the domestic demand for electronics and exports electronic output to other countries. ?

Semiconductors form a major part of the electronics segment, which involves the usage of PVDF. The semiconductor sales value in China stood at USD 15.66 billion in the month of June 2021, while in May 2021, it stood at USD 15.51 billion. China is also home to 73% of lithium cell manufacturing capacity.

Further, Kureha, a company in the PVDF market, is expanding with a production ramp-up in China. The ongoing capacity

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expansion at the Iwaki Factory, which is scheduled to complete in January 2022, is intended to support the growing growth demand for PVDF binders. Kureha aims to further strengthen its PVDF production capability in stages and in alignment with market growth to pursue business expansion.

The chemical industry in China is a major source of employment and revenue generation. Many manufacturing industries utilize PVDF in pipes and fittings to protect the fluids flowing in them. Thus, the chemical processing industry is a major factor influencing the PVDF market in the country.

China is one of the largest manufacturers of aircraft and one of the largest markets for domestic air passengers. Moreover, the aircraft parts and assembly manufacturing sector in the country has been growing at a rapid pace, with the presence of over 200 small aircraft parts manufacturers. The Chinese airline companies are planning to purchase about 7,690 new aircraft in the next 20 years, which were valued at approximately USD 1.2 trillion, which is further expected to raise the market demand of PVDF in the country.

Additionally, China controls 80% of the world's lithium refining and 77% of the world's cell capacity, dominating the lithium-ion battery production in the global market.

All such developments in the country are expected to drive the market for PVDF in China in the years to come.

### Polyvinylidene Fluoride Market Competitor Analysis

The polyvinylidene fluoride (PVDF) market is highly consolidated, and the top four players accounted for a significant share. The top players include Arkema Group, Solvay, Kureha Corporation, Dyneon LLC (3M Company), and Dongyue Group (not in any particular order)

Additional Benefits:

The market estimate (ME) sheet in Excel format

3 months of analyst support

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