

Thin-Film Encapsulation (TFE) Market by Application (OLED Display, OLED Lighting, and Thin-Film Photovoltaic), Deposition Type (Inorganic Layers (PECVD, ALD) and Organic Layers (Inkjet Printing and VTE), Vertical and Region - Global Forecast to 2027

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Abstracts

The thin-film encapsulation (TFE) market is estimated to grow from USD 92 million in 2022 to reach

USD 223 million by 2027; it is expected to grow at a CAGR of 19.4% from 2022 to 2027. The growth of the thin-film encapsulation (TFE) market can be attributed to growing use of thin-film barriers in flexible and organic electronic devices and rising trend of TFE using inkjet printing technology.

“The flexible OLED display thin-film encapsulation (TFE) market for automobile displays is expected to grow at the highest CAGR from 2022 to 2027”

OLED displays are gradually emerging as the most preferred display technology among automobile companies such as General Motors, Audi, Toyota, Volkswagen, and Mercedes-Benz. With stabilized ASP and improvement in the reliability of OLED technology, the adoption of OLED displays in the automotive industry is likely to increase in the coming years. In November 2021, Continental earned its first major order for OLED displays in a production vehicle from a global vehicle manufacturer, with a total order value of around USD 1 billion. The multi-display stretches from the driver's area to the center console and integrates two screens, which are optically bonded behind a curved glass surface.

“Thin-film encapsulation (TFE) market for consumer electronics vertical is expected to

hold the largest share during the forecast period.”

The consumer electronics segment is expected to continue to account for the largest size of the TFE market during the forecast period. The consumer electronics vertical includes products such as smartphones, television sets, smart wearables, PC monitors and laptops, and tablets—all of which have significant shares in the global TFE market. The growth of OLED displays in the consumer vertical is expected to drive the TFE market growth.

“The thin-film encapsulation (TFE) market in Europe is expected to grow at the second highest CAGR during forecast period.”

Europe is an important region due to the presence of various developers and manufacturers of flexible OLED lighting panels, flexible solar cells, flexible batteries, and architectural materials across different European countries. The substantial growth of the automotive and manufacturing industries in the region is one of the key drivers for the growth of the TFE market in Europe. The rising demand for OLEDs by the automotive and advertising markets will contribute significantly to the growth of the TFE market in the region.

Breakdown of the profile of primary participants:

By Company Type: Tier 1 – 30%, Tier 2 – 50%, and Tier 3 – 20%

By Designation: C-level Executives – 30%, Directors – 45%, Others - 25%

By Region: North America – 20%, Europe – 30%, Asia Pacific – 45%, and RoW – 5%

Key players in the thin-film encapsulation (TFE) market are Samsung SDI Co., Ltd. (South Korea); LG Chem (South Korea); 3M (US); Toppan Inc. (Japan); Ergis Group (Poland); Veeco Instruments Inc. (US); Universal Display Corporation (US); Applied Materials, Inc. (US); Kateeva (US); Toray Industries, Inc. (Japan); tesa (Germany); Ajinomoto Fine-Techno Co., Inc. (Japan); Coat-X (Switzerland); and Borealis AG (Austria).

Research Coverage

Based on deposition type, the TFE market has been segmented into inorganic layer deposition and organic layer deposition. Based on application, the TFE market has been segmented into flexible OLED display, flexible OLED lighting, thin-film photovoltaics, and others. Based on vertical, the TFE market has been segmented into consumer electronics, automotive, sports and entertainment, transportation, retail, hospitality, and BFSI, industrial and enterprise, education, healthcare, aerospace and defense, and others. Based on region, the TFE market has been segmented into North America, Europe, Asia Pacific, and Rest of the World (RoW).

Reasons to Buy Report

The report would help market leaders/new entrants in the following ways:

1. This report segments the TFE market comprehensively and provides the closest approximations of the overall market size, as well as that of the subsegments across deposition types, applications, verticals, and regions.
2. The report helps stakeholders understand the pulse of the market and provides information on key market drivers, restraints, challenges, and opportunities.
3. This report would help stakeholders understand their competitors better and gain more insights to enhance their position in the business. The competitive landscape provides market share analysis and company evaluation quadrant for the key players operating in the TFE market.

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*Details on Business overview, Products offered, Recent Developments, MNM view might not be captured in case of unlisted companies.

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About

According to the new market research report "Thin-Film Encapsulation (TFE) Market by Application (OLED Display, Lighting, Thin-Film Photovoltaics), Deposition Technology (Inorganic Layers (PECVD, ALD) and Organic Layers (Inkjet Printing and VTE)), and Geography - Global Forecast to 2023", The thin-film encapsulation market for materials is expected to grow from USD 31.7 Million in 2018 to USD 101.1 Million by 2023, at a CAGR of 26.1% between 2018 and 2023.

The leading suppliers of thin-film encapsulation equipment and materials in the market are:

Samsung SDI (Novaled) (South Korea),

LG Chem (South Korea),

Universal Display Corp. (UDC) (US),

Applied Materials (US),

3M (US),

Veeco Instruments (US),

Kateeva (US),

Toray Industries (Japan),

BASF (Rolic) (Germany),

Meyer Burger (Switzerland),

Aixtron (Germany),

Bystronic Glass (Germany),

AMS Technologies (Germany), and

Angstrom Engineering (Canada).

Key innovators profiled in this report include Beneq (Finland), Encapsulix (France), Lotus Applied Technology (US), Vitriflex (US), and Picdodeon (Finland).

The thin-film encapsulation market for materials covers the thin-film organic and inorganic barriers used at the manufacturing level of flexible OLED displays, flexible OLED lighting, thin-film photovoltaics, and other products. The need for thin-film barriers in flexible and organic devices, trend of thin-film encapsulation using inkjet printing technology, and rapid adoption of flexible OLED displays for smartphones and smart wearables significantly drive the market growth. The growing investments in the OLED technology and manufacturing facilities and rising adoption of thin-film solar cells are likely to provide lucrative opportunities for the market players in the near future.

Rising demand for flexible OLED displays and flexible OLED lighting solutions is driving the growth of thin-film encapsulation market for materials

OLED displays accounted for the largest share of the thin-film encapsulation market for materials, in terms of value, in 2017. Samsung SDI and LG Chem develop thin-film encapsulation materials for flexible OLED displays. These companies are also working with thin-film encapsulation equipment suppliers, such as Kateeva and Applied Materials. The thin-film encapsulation market for materials in OLED lighting applications is expected to grow at the highest CAGR of 31.8% during the forecast period.

APAC is expected to hold the largest market share between 2018 and 2023

APAC accounted for the largest share of the thin-film encapsulation market for materials in 2017. Major display panel and brand product manufacturers are based in China, Japan, Taiwan, South Korea, and Hong Kong. South Korea witnessed the highest demand for thin-film encapsulation materials in 2017 owing to presence of industry leaders such as Samsung and LG Display in the country. Further, the demand for thin-film encapsulation materials from China is expected to increase rapidly during 2018-2023 as various Chinese players, such as BOE Technology and CSOT, are planning to construct facilities to manufacture flexible OLED panels.

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