**Executive Summary**

**Global Vinyl Ester Resin Market Size, By Volume, 2015, 2020, 2021E, 2025F & 2030F (Thousand Tonnes)**

**CAGR 2015-2020**

**1.74%**

**CAGR 2021E-2030F**

**5.30%**

*Source: TechSci Research*

Global demand of vinyl ester resin is anticipated to reach 1224 thousand tonnes in 2030 growing with a healthy CAGR of 5.30% for the forecasted period. Currently, the global demand of vinyl ester stands at 753 thousand tonnes due to rising demand from various end use industries like marine, renewables, construction, chemical etc. Major players operating in global vinyl ester resin market are AOC – Aliancys, INEOS Composites, Scott Bader Company Ltd., etc. The market leader, AOC – Aliancys has its production facilities in Europe, North America and Asia-Pacific regions. Globally, China is the largest demand generating country for vinyl ester resin.

**Global Vinyl Ester Resin Market Size, By Application, By Volume, 2020**

*Others include Défense, Aerospace, Electrical and electronics etc.*

*Source: TechSci Research*

Pipes and Tanks is the major application of vinyl ester resin which accounts for around 60% share due to its excellent properties such as corrosion, thermal and chemical resistance. The chemical also provides very good mechanical strength such as tensile and flexural due to which its demand from renewables such as wind energy is rising at a rapid pace. Its use in marine such as yachts and boats protect the parts from corrosion and various chemicals.

**Global Vinyl Ester Resin Market Share, By Type, By Volume, 2020**

*Others include Urethane Modified vinyl ester resin, Elastomer Modified vinyl ester resin etc.*

*Source: TechSci Research*

Bisphenol-A, F, S vinyl ester resin is the major type of vinyl ester resin accounts for around 50% share which possess resistance to various organic and inorganic acids, alkalis, salt solutions and oxidizing chemicals etc. Novolac vinyl ester resin provides high temperature performance, corrosion, and chemical resistance, pultrusion and carbon fibre which possess around 27% share of the demand. Brominated vinyl ester resin also possesses same properties as bisphenol A but is not majorly used.

**Global Vinyl Ester Resin Market Share, By Region, By Volume, 2020**

*Source: TechSci Research*

Asia-Pacific and Europe region account for the largest share in global vinyl ester resin market, on account of presence of major infrastructure development projects and chemical industry in these two regions. Further, growing investments in the renewables industry are positively impacting this sector, globally. Growing construction and infrastructure developments in the regions are further resulting in increasing consumption of vinyl ester resin in pipes and tanks industry.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameters**  **Table 1: Global Vinyl Ester Resin Demand-Supply Scenario, 2015-2030F (Thousand Tonnes)** | **2015** | **2020** | **2021E** | **2025F** | **2030F** |
| **Global Vinyl Ester Resin Capacity** | 938 | 985 | 1020 | 1025 | 1030 |
| **Global Vinyl Ester Resin Production** | 748 | 773 | 823 | 882 | 946 |
| **Global Vinyl Ester Resin Demand** | 691.84 | 753.98 | 769.23 | 908.83 | 1224.47 |
| **Global Vinyl Ester Resin Demand (Y-O-Y Growth Rate, %)** | 0.00% | -7.11% | 2.02% | 5.23% | 6.58% |

In 2020, the global vinyl ester resin industry witnesses a de-growth of around -7.77% compared to 2019 with the major demand of vinyl ester being used in pipes and tanks application. The demand from marine and renewables sector has also shown upward trend contributing to the increase in demand.

China and USA are having major vinyl ester resin producing capacities across the globe. Further, more capacities are expected to be commissioned in Asia Pacific region to meet the ongoing demand across the globe. AOC, INEOS Composites, Swancor Holding, Showa Denko are leading global supplier of vinyl ester resin with broad range of product portfolio.

**Global Advanced Composites Production, By Volume, 2013-2017 (Million Tons)**

**Revenue Analysis of leading Global Epoxy Resin Manufacturers, By Value (USD Million), 2018-2020**

*Source: TechSci Research*

*Source: Annual Reports*

-2.07%

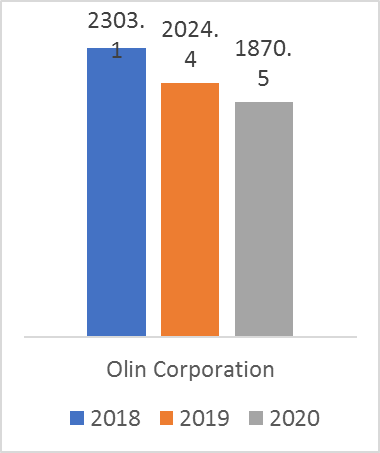
-9.76%

-2.26%

-0.90%

-12.10%

-7.60%



-12.10%

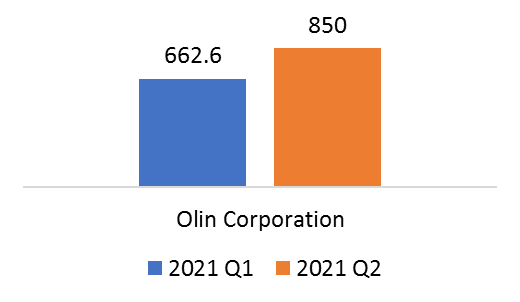
-7.60%

-0.90%

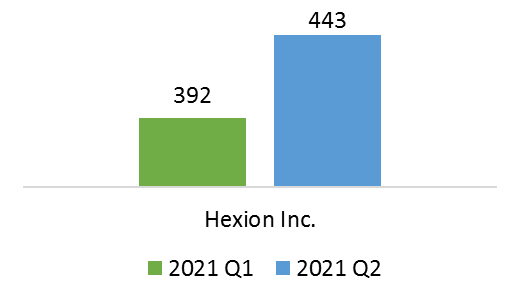
-2.26%

-9.76%

-2.07%



28%



13%

*Source: Annual Reports*

Through revenue analysis of global epoxy resin manufacturers, the revenues of major players have been declining since 2018 due to decrease in the prices of epoxy resin and disruption in the supply chain management. Due to Covid-19, the demand and prices of epoxy further reduced which affected the revenues of companies.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Company** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021E** | **2025F** | **2030F** |
| AOC – Aliancys (3 Plants) | 135.00 | 135.00 | 145.00  **Table 1: Global Vinyl Ester Resin Capacity, By Company (Thousand Tonnes), 2015-2030F (Continued)** | 145.00 | 145.00 | 145.00 | 145.00 | 145.00 | 145.00 |
| INEOS Composites (3 Plants) | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 105.00 | 105.00 | 105.00 | 105.00 |
| Swancor Holding Co., Ltd. | 60.00 | 60.00 | 60.00 | 60.00 | 70.00 | 70.00 | 70.00 | 70.00 | 70.00 |
| Scott Bader Company Ltd. (3 Plants) | 55.00 | 55.00 | 55.00 | 55.00 | 55.00 | 55.00 | 55.00 | 55.00 | 55.00 |
| Showa Denko K.K. (3 Plants) | 55.00 | 55.00 | 55.00 | 55.00 | 55.00 | 55.00 | 85.00 | 85.00 | 85.00 |
| Polynt-Reichhold (3 Plants) | 40.36 | 40.36 | 40.36 | 50.36 | 50.36 | 50.36 | 50.36 | 50.36 | 50.36 |
| Eternal Chemical (China) Co., Ltd. (3 Plants) | 40.00 | 40.00 | 40.00 | 40.00 | 45.00 | 45.00 | 45.00 | 50.00 | 50.00 |
| Sino Polymer (2 Plants) | 38.00 | 38.00 | 38.00 | 38.00 | 38.00 | 38.00 | 38.00 | 38.00 | 38.00 |
| DIC Corporation | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 |
| Hexion Inc. | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 |
| Poliya (2 Plants) | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 |
| Allnex Group | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 |
| Interplastic Corporation | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 |
| Reinhold Gmbh | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 |
| Saudi Arabia Industria Resins Ltd. | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 |
| En Chuan Chemical Industries Co., Ltd. | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 |
| Sewon Chemical | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| Innovative Resins Pvt. Ltd. | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 |
| Orson Chemicals | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 |
| Crystic Resins India Private Limited | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| Satyen Polymers Pvt. Ltd. | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| Mechemco Resins Pvt Ltd | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 |
| Moras Chemicals India Pvt. Ltd. | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 |
| Ashland Global Holdings Inc. | 55.00 | 55.00 | 60.00 | 60.00 | 60.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Others | 232.28 | 232.28 | 232.28 | 234.28 | 234.28 | 234.28 | 239.28 | 239.28 | 244.28 |
| **Total** | **938.12** | **938.12** | **953.12** | **965.12** | **980.12** | **985.12** | **1020.12** | **1025.12** | **1030.12** |

The current Global capacity of Vinyl Ester resin is approximately 985 thousand tonnes and is expected to reach around 1030 thousand tonnes by 2030. This increase in capacity Is led by robust rise in demand of vinyl ester resin. Major manufacturing company like INEOS Composites had acquired the Ashland’s composite business in 2019. Ashland has 25 MTPA facility in Germany and 30 MTPA facility in USA. Similarly, in 2020, Showa Denko K.K, Japanese Vinyl Ester Resin Producer had completed its expansion of VER production line to almost double of its existing capacity through its Chinese subsidiary Shanghai Showa Highpolymer Co., Ltd. (SSHP). Also, in 2014 Chinese Vinyl Ester resin market leader Sino Polymer Co. Ltd announced strategy cooperation with Europe’s Nord Composites under which Nord Composite would produce Sino Polymer’s MFE brand of VER in its plant located in Italy as well as Nord Composites had been authorized to do business with MFE brand of VER in France, Italy, and UK markets. Further, Several Manufacturers are Planning to invest strongly in Vinyl Ester Resin capacity expansion owing to its increasing applications in pipe & tanks, electronics & communication, and marine applications. Major manufacturers like AOC – Aliancys, Swancor Holding Co., Ltd., Showa Denko K.K. etc. have increased or have plans to increase their capacity owing to the rising demand from end user industries.

*Source: UNEP, Frankfurt School-UNEP Centre*

**Table 2: Global Vinyl Ester Resin Production, By Company (Thousand Tonnes), 2015-2030F**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Company** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021E** | **2025F** | **2030F** |
| AOC - Aliancys | 117.20 | 117.51 | 118.91 | 119.26 | 119.90 | 111.91 | 112.61 | 120.31 | 128.01 |
| INEOS Composites | 28.58 | 29.60 | 31.20 | 32.00 | 32.69 | 81.09 | 81.49 | 88.99 | 97.81 |
| Swancor Holding Co., Ltd. | 43.89 | 47.15 | 50.15 | 50.77 | 60.08 | 55.71 | 58.51 | 63.05 | 66.91 |
| Showa Denko K.K. | 43.53 | 45.02 | 45.74 | 46.38 | 46.95 | 45.07 | 71.17 | 75.02 | 80.67 |
| Scott Bader Company Ltd. | 45.29 | 45.87 | 46.06 | 46.18 | 46.93 | 44.84 | 46.02 | 47.31 | 49.82 |
| Polynt-Reichhold | 32.83 | 32.97 | 33.05 | 41.20 | 41.35 | 39.83 | 39.80 | 42.26 | 43.05 |
| Eternal Chemical (China) Co., Ltd. | 30.90 | 31.45 | 32.03 | 31.98 | 36.24 | 34.23 | 35.39 | 43.07 | 46.27 |
| Sino Polymer | 30.44 | 30.93 | 31.40 | 31.58 | 31.59 | 29.10 | 30.96 | 32.05 | 33.43 |
| Poliya | 25.56 | 25.75 | 25.89 | 26.04 | 26.34 | 25.35 | 25.90 | 26.80 | 27.89 |
| Hexion Inc. | 23.82 | 24.31 | 24.49 | 24.38 | 25.04 | 23.90 | 24.86 | 25.11 | 25.42 |
| DIC Corporation | 22.48 | 24.47 | 24.70 | 24.90 | 24.95 | 23.68 | 24.61 | 25.72 | 27.22 |
| Saudi Arabia Industria Resins Ltd. | 15.15 | 16.08 | 16.84 | 16.36 | 16.54 | 15.70 | 17.20 | 17.80 | 19.40 |
| Reinhold Gmbh | 15.44 | 15.80 | 15.96 | 15.92 | 16.29 | 14.85 | 15.65 | 16.40 | 18.00 |
| Interplastic Corporation | 14.97 | 15.03 | 14.90 | 15.16 | 15.23 | 14.45 | 14.28 | 15.38 | 15.51 |
| Allnex Group | 14.91 | 15.25 | 14.99 | 15.33 | 15.67 | 14.42 | 14.58 | 16.00 | 18.00 |
| En Chuan Chemical Industries Co., Ltd. | 7.22 | 7.40 | 7.60 | 8.08 | 8.46 | 7.31 | 7.69 | 8.68 | 9.27 |
| Sewon Chemical | 2.44 | 2.56 | 2.59 | 2.62 | 2.65 | 2.53 | 2.62 | 2.76 | 2.88 |
| Innovative Resins Pvt. Ltd. | 1.36 | 1.38 | 1.45 | 1.50 | 1.53 | 1.43 | 1.33 | 1.51 | 1.63 |
| Orson Chemicals | 0.56 | 0.57 | 0.60 | 0.62 | 0.63 | 0.59 | 0.55 | 0.62 | 0.67 |
| Satyen Polymers Pvt. Ltd. | 0.46 | 0.45 | 0.47 | 0.48 | 0.52 | 0.49 | 0.42 | 0.48 | 0.55 |
| Crystic Resins India Private Limited | 0.44 | 0.44 | 0.45 | 0.46 | 0.50 | 0.47 | 0.41 | 0.46 | 0.54 |
| Mechemco Resins Pvt Ltd | 0.29 | 0.31 | 0.31 | 0.33 | 0.34 | 0.31 | 0.32 | 0.36 | 0.38 |
| Moras Chemicals India Pvt. Ltd. | 0.32 | 0.31 | 0.32 | 0.32 | 0.30 | 0.29 | 0.30 | 0.31 | 0.33 |
| Ashland Global Holdings Inc. | 44.71 | 45.26 | 49.34 | 50.10 | 50.55 | 0.00 | 0.00 | 0.00 | 0.00 |
| Others | 170.54 | 174.61 | 186.17 | 188.22 | 191.06 | 171.25 | 181.67 | 195.99 | 214.90 |
| **Total** | **733.33** | **750.47** | **775.59** | **790.16** | **812.33** | **758.81** | **808.32** | **866.43** | **928.57** |

The Current Global Production of Vinyl Ester Resin Stood at around 758 thousand tonnes and is expected to reach around 928 thousand tonnes. The Increase in production is led by mainly strong demand of vinyl ester resin in downstream fibre reinforced plastic (FRP) applications. Asia pacific region holds approximately 44 % of the total production capacity contributed by major players Jinling AOC Resins Co., Ltd., SHOWA DENKO K.K., Sino Polymer, INEOS Composites among others. In 2020, COVID-19 pandemic affected the production as major plants were shut due to lockdown measures. Total production value in 2020 saw a decline of approximately 8% as compared to 2019 production level. However, it is expected that in 2021, approximately 7% production growth is expected owing to pent up demand created by covid shutdowns in 2020. Global Players such as INEOS Composites, Interplastic Corporation, AOC, LLC are strongly investing in their production capacity to meet the growing demand.

**Global Advanced Composites Market Share, By Region, By Value, 2017 & 2023F**

*Source: TechSci Research*

**2020**

**2015**

*Source: TechSci Research*

**Table 2: Global Vinyl Ester Resin Capacity By Location, By Company (Thousand Tonnes), 2015-2030F**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Region** | **Country** | **Location** | **Company** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021E** | **2025F** | **2030F** |
| Asia Pacific | India | Silvassa, Dadra And Nagar Haveli | Orson Chemicals | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 | 0.72 |
| Asia Pacific | India | Pune, Maharashtra | Reichhold India Pvt. Ltd. | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 |
| Asia Pacific | India | Valsad, Gujarat | Moras Chemicals India Pvt. Ltd. | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 |
| Asia Pacific | India | Bhiwadi, Rajasthan | Innovative Resins Pvt. Ltd. | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 |
| Asia Pacific | India | Dombivli, Maharashtra | Mechemco Resins Pvt Ltd | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 |
| Asia Pacific | India | Mumbai, Maharashtra | Satyen Polymers Pvt. Ltd. | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| Asia Pacific | India | Faridabad, Harayana | Crystic Resins India Private Limited | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 | 0.60 |
| Asia Pacific | China | Jiangsu | INEOS Composites | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 |
| Asia Pacific | China | Shanghai | Sino Polymer | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 |
| Asia Pacific | China | Jiangsu | Eternal Chemical (China) Co., Ltd. | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 |
| Asia Pacific | China | Shanghai | Showa High Polymer Singapore Pte Ltd | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 50.00 | 50.00 | 50.00 |
| Asia Pacific | China | Jiangsu | Jinling AOC Resins Co., Ltd. | 70.00 | 70.00 | 70.00 | 70.00 | 70.00 | 70.00 | 70.00 | 70.00 | 70.00 |
| Asia Pacific | Japan | Itabashi-ku, Tokyo | DIC Corporation | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 |
| Asia Pacific | Japan | Kawasaki | Showa Denko K.K. | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 |
| Asia Pacific | South Korea | Daedeok-gu, Daejeon | Sewon Chemical | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| Asia Pacific | Singapore | Sgx Centre 1 | Showa High Polymer Singapore Pte Ltd | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 |
| Asia Pacific | Taiwan | Kaohsiung | Eternal Materials Co.,Ltd. Lu-chu Plant | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 |
| Asia Pacific | Taiwan | Changhua | En Chuan Chemical Industries Co., Ltd. | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 |
| Asia Pacific | Taiwan | Nantou | Swancor Holding Co., Ltd. | 120.00 | 120.00 | 120.00 | 120.00 | 120.00 | 120.00 | 120.00 | 120.00 | 120.00 |
| Asia Pacific | Malaysia | Changshu, Jiangsu Province | Eternal Materials（malaysia）sdn.Bhd. | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 |
| Asia Pacific | Asia Pacific |  | Total | 427.12 | 427.12 | 427.12 | 427.12 | 442.12 | 442.12 | 477.12 | 482.12 | 487.12 |
| Europe | Germany | Marl | Ashland Global Holdings Inc. | 40.00 | 40.00 | 40.00 | 40.00 | 40.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Europe | Germany | Marl | INEOS Composites | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 40.00 | 40.00 | 40.00 | 40.00 |
| Europe | Germany | Frankfurt | Allnex Group | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 |
| Europe | Germany | Dusslinge | Reinhold Gmbh | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 |
| Europe | France | Drocourt | Scott Bader Company Ltd. | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 |
| Europe | Italy | Monfalcone | Sino Polymer | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 | 18.00 |
| Europe | Italy | Brembate Sopra | Polynt S.P.A. | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| Europe | Switzerland | Schaffhausen | AOC - Aliancys | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 |
| Europe | Netherlands | Ohio | Hexion Inc. | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 |
| Europe | Russia | Pisticci | Poliya | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 |
| Europe | United Kingdom | Wollaston | Scott Bader Company Ltd. | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 |
| Europe | Europe |  | Total | 208.00 | 208.00 | 208.00 | 208.00 | 208.00 | 213.00 | 213.00 | 213.00 | 213.00 |
| North America | USA | Pittsburgh | INEOS Composites | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 |
| North America | USA | Houston | Polynt-reichhold | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 |
| North America | USA | Minnesota, | Interplastic Corporation | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 |
| North America | USA | California | AOC, LLC | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| North America | USA | Wilmington | Ashland Global Holdings Inc. | 70.00 | 70.00 | 70.00 | 70.00 | 70.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| North America | North America |  | Total | 200.00 | 200.00 | 215.00 | 225.00 | 225.00 | 225.00 | 225.00 | 225.00 | 225.00 |
| MEA | UAE | Dubai | Scott Bader Company Ltd. | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 |
| MEA | Saudi Arabia | Jubail | Saudi Arabia Industria Resins Ltd. | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 |
| MEA | Turkey | Istanbul | Poliya | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 |
| MEA | MEA |  | Total | 83.00 | 83.00 | 83.00 | 83.00 | 83.00 | 83.00 | 83.00 | 83.00 | 83.00 |

**Table 4: Global Vinyl Ester Resin Operating Efficiency, By Company (Thousand Tonnes), 2015-2030F**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Company** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021E** | **2025F** | **2030F** |
| AOC - Aliancys | 86.81% | 87.04% | 82.01% | 82.25% | 82.69% | 77.18% | 77.66% | 78.14% | 78.14% |
| INEOS Composites | 71.45% | 74.00% | 78.00% | 80.00% | 81.72% | 77.23% | 77.60% | 81.20% | 81.81% |
| Swancor Holding Co., Ltd. | 73.15% | 78.58% | 83.58% | 84.61% | 85.83% | 79.58% | 83.58% | 85.87% | 87.97% |
| Showa Denko K.K. | 79.15% | 81.85% | 83.16% | 84.32% | 85.36% | 81.95% | 83.73% | 85.43% | 85.43% |
| Scott Bader Company Ltd. | 82.35% | 83.39% | 83.75% | 83.96% | 85.33% | 81.53% | 83.67% | 84.40% | 84.52% |
| Polynt-Reichhold | 81.33% | 81.70% | 81.90% | 81.81% | 82.11% | 79.10% | 79.02% | 82.91% | 83.25% |
| Eternal Chemical (China) Co., Ltd. | 77.25% | 78.63% | 80.08% | 79.96% | 80.54% | 76.07% | 78.64% | 80.87% | 83.75% |
| Sino Polymer | 80.09% | 81.40% | 82.62% | 83.11% | 83.13% | 76.59% | 81.49% | 81.97% | 83.11% |
| Poliya | 85.21% | 85.82% | 86.30% | 86.81% | 87.81% | 84.50% | 86.35% | 87.77% | 87.79% |
| Hexion Inc. | 79.42% | 81.03% | 81.64% | 81.26% | 83.46% | 79.67% | 82.87% | 83.08% | 83.29% |
| DIC Corporation | 74.94% | 81.55% | 82.32% | 83.00% | 83.18% | 78.94% | 82.03% | 82.74% | 82.74% |
| Saudi Arabia Industria Resins Ltd. | 75.73% | 80.40% | 84.18% | 81.79% | 82.72% | 78.49% | 86.00% | 87.00% | 87.00% |
| Reinhold Gmbh | 77.22% | 79.02% | 79.82% | 79.62% | 81.43% | 74.23% | 78.23% | 80.00% | 80.00% |
| Interplastic Corporation | 74.84% | 75.16% | 74.49% | 75.81% | 76.14% | 72.26% | 71.39% | 76.52% | 76.64% |
| Allnex Group | 74.53% | 76.23% | 74.93% | 76.63% | 78.33% | 72.12% | 72.92% | 74.00% | 77.00% |
| En Chuan Chemical Industries Co., Ltd. | 72.23% | 74.04% | 75.96% | 80.77% | 84.62% | 73.08% | 76.92% | 80.77% | 84.62% |
| Sewon Chemical | 81.20% | 85.32% | 86.28% | 87.23% | 88.20% | 84.33% | 87.33% | 89.00% | 89.00% |
| Innovative Resins Pvt. Ltd. | 75.55% | 76.58% | 80.58% | 83.28% | 84.86% | 79.72% | 73.62% | 77.63% | 82.23% |
| Orson Chemicals | 77.93% | 78.96% | 82.96% | 85.66% | 87.24% | 82.10% | 76.00% | 80.01% | 84.61% |
| Crystic Resins India Private Limited | 76.53% | 75.55% | 77.50% | 79.45% | 86.53% | 81.40% | 70.67% | 74.58% | 76.53% |
| Satyen Polymers Pvt. Ltd. | 74.15% | 73.17% | 75.12% | 77.07% | 84.15% | 79.02% | 68.29% | 72.20% | 74.15% |
| Mechemco Resins Pvt Ltd | 72.51% | 77.28% | 78.06% | 82.00% | 84.50% | 76.40% | 80.22% | 85.00% | 86.90% |
| Moras Chemicals India Pvt. Ltd. | 87.53% | 85.55% | 89.20% | 89.85% | 83.74% | 79.39% | 82.54% | 82.74% | 82.74% |
| Ashland Global Holdings Inc. | 81.29% | 82.28% | 82.23% | 83.51% | 84.25% | 0.00% | 0.00% | 0.00% | 0.00% |

**Figure 2: Global Vinyl Ester Resin Market Share, By Application, By Volume, 2015–2030F**

Pipes and Tanks serves as the major application of vinyl ester resin which contributes around 59% of the total demand due to its excellent properties of corrosion, chemical and thermal resistance. The rising demand from renewable sector such as wind energy also serves as the major driving factor for the vinly ester resin market.

**Figure 3: Global Vinyl Ester Resin Market Share, By Type, By Volume, 2015–2030F**

Bisphenol-A, F, S vinyl ester resin is the major type of vinyl ester res

**Figure 4: Global Vinyl Ester Resin Market Share, By Sales Channel, By Volume, 2015–2030F**

**Figure 5: Global Vinyl Ester Resin Market Share, By Region, By Volume, 2021E & 2030F**

**Figure 6: Global Vinyl Ester Resin Market Share, By Company, By Volume, 2020**

*Others include Reichhold LLC 2, Sino Polymer, Poliya Composite Resins and Polymers, Inc., Hexion Inc., DIC Corporation*

*Source: TechSci Research*

Top 6 companies control around 53% share in global Vinyl Ester Resin market. AOC Aliancys is leading the market followed by INEOS Composites and Swancor Holding Co., LTD. The major drivers identified for their growth are robust supply chain management clubbed with proposed expansion plans for upcoming Vinyl Ester Resin manufacturing facilities.

**ASIA PACIFIC VINYL ESTER RESIN MARKET OUTLOOK**

**Figure 21: Asia Pacific Vinyl Ester Resin Market Size, By Volume (Thousand Tonnes), 2015–2030F**

**2021E-2030F**

**CAGR**

**6.44% By Volume**

**2015-2020**

**CAGR**

**2.50% By Volume**

Asia Pacific’s vinyl ester resin demand is anticipated to increase at a CAGR of around 8% from approximately current demand of 407 thousand tonnes to around 931 thousand tonnes in 2030. Exports are higher as compared to imports due to presence of major vinyl ester resin producers in the region. Total export in 2020 stood at around 17.81 while import stood at around 14 thousand tonnes. Increasing export is attributed to mainly increasing demand of vinyl ester resin from fiber reinforced plastic (FRP) application in pipe and tank industry. Average operating rate in Asia pacific region varies from around 78% to 84% and is expected to reach 94% in 2030. Demand supply gap is expected to reach 392 thousand tonnes in 2030 from 0.94 thousand tonnes in 2022. However, several manufacturers are investing heavily in capacity expansion to meet the growing demand of vinyl ester resin in the region.

**Figure 22: Asia Pacific Vinyl Ester Resin Capacity & Production (Thousand Tonnes), 2015-2030F**

The Current Asia Pacific capacity of Vinyl Ester resin stood at around 442 thousand tonnes and is expected to reach approximately 459 thousand tonnes. The major dominant player in Asia Pacific vinyl ester resin includes Swancor Holding Co., LTD., Jinling AOC Resins Co., Ltd., INEOS Composites, Showa which holds around 46% of total Asia Pacific capacity. Manufacturers are adding new capacities to meet the growing demand of vinyl ester resin in the region. in 2020, Showa Denko K.K, Japanese Vinyl Ester Resin Producer had completed its expansion of VER production line to almost double of its existing capacity through its Chinese subsidiary Shanghai Showa Highpolymer Co., Ltd. (SSHP). New Players are also entering the vinyl ester resin market due to its increasing demand from fiber reinforced plastics (FRP) application, paints and coating and marine industry among others. Furthermore, Government of India’s “Make In India” initiative to give impetus to composite industry by increasing the per capita consumption of fiber reinforced plastics (FRP) products is going to attract investors for capacity addition of vinyl ester resin to meet the customer demand.

**Figure 23: Asia Pacific Vinyl Ester Resin Production Operating Rate (Percentage), 2015-2030F**

**Asia-Pacific Refinery Throughput, By Country, 2016-2020 (‘000 Barrels per Day)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Country** | **2016** | **2017** | **2018** | **2019** | **2020** |
| **China** | 9,599 | 10,155 | 10,684 | 11,084 | 9,452 |
| **India** | 4,462 | 4,475 | 4,561 | 4,930 | 3802 |
| **Japan** | 3,453 | 3,289 | 3,258 | 3,280 | 2963 |
| **South Korea** | 2,484 | 2,516 | 2,784 | 2,928 | 2349 |
| **Indonesia** | 822 | 848 | 836 | 885 | 802 |
| **Rest of Asia-Pacific** | 4,756 | 4,582 | 4,685 | 4,736 | 4136 |

**Figure 20: China IIP Growth Rate, 2013-2017**

**Figure 24: Asia Pacific Vinyl Ester Resin Market Share, By Application, By Volume, 2015–2030F**

**Figure 25: Asia Pacific Vinyl Ester Resin Market Share, By Type, By Volume, 2015–2030F**

**Figure 26: Asia Pacific Vinyl Ester Resin Market Share, By Sales Channel, By Volume, 2015–2030F**

**EUROPE VINYL ESTER RESIN MARKET OUTLOOK**

**Figure 7: Europe Vinyl Ester Resin Market Size, By Volume (Thousand Tonnes), 2015–2030F**

**2021E-2030F**

**CAGR**

**4.26% By Volume**

**2015-2020**

**CAGR**

**0.75% By Volume**

Europe current capacity of vinyl ester resin stood at 233 thousand tonnes. Major vinyl ester resin player in Europe includes INEOS Composites, Hexion Inc, Scott Bader Company Ltd., and AOC – Aliancys among others. These Companies hold approximately 52% share of total capacity in Europe as of 2020.Further, INEOS Composites acquired Ashland Holdings resin business in 2019. Ashland has 40 MTPA facility in Germany and 70 MTPA facility in USA which has now become INEOS Composites business. Another major player Scott Bader company Ltd has 15 MTPA capacity in France as well as 20 MTPA Capacity in United Kingdom. Further, Scott Bader made strategic investment of more than 1.2 million Euro in 2017 to add capacity addition for its composite business led by strong demand of Scott Bader products from its customer. Many new players are expected to enter Europe vinyl ester resin market due to favourable government policies and strong demand of the vinyl ester resin led by growing demand of renewable energy such as wind energy, solar energy which has vinyl ester resin application.

**Figure 8: Europe Vinyl Ester Resin Capacity & Production (Thousand Tonnes), 2015-2030F**

Europe’s current capacity of vinyl ester resin stood at 233 thousand tonnes. Major vinyl ester resin player in Europe includes INEOS Composites, Hexion Inc, Scott Bader Company Ltd., and AOC – Aliancys among others. These Companies hold approximately 52% share of total capacity in Europe as of 2020.Further, INEOS Composites acquired Ashland Holdings resin business in 2019. Ashland has 40 MTPA facility in Germany and 70 MTPA facility in USA which has now become INEOS Composites business. Another major player Scott Bader company Ltd has 15 MTPA capacity in France as well as 20 MTPA Capacity in United Kingdom. Further, Scott Bader made strategic investment of more than 1.2 million Euro in 2017 to add capacity addition for its composite business led by strong demand of Scott Bader products from its customer. Many new players are expected to enter Europe vinyl ester resin market due to favorable government policies and strong demand of the vinyl ester resin led by growing demand of renewable energy such as wind energy, solar energy which has vinyl ester resin application.

**European Countries Real Estate Investment, 2020 (USD Billion)**

|  |  |
| --- | --- |
| **Countries** | **Investment (USD Billion)** |
| Germany | 57 |
| France | 28 |
| Netherland | 14 |
| Spain | 12 |
| Italy | 9 |

**Figure 10: Europe Vinyl Ester Resin Market Share, By Application, By Volume, 2015–2030F**

**Figure 12: Europe Vinyl Ester Resin Market Share, By Sales Channel, By Volume, 2015–2030F**

**MIDDLE EAST & AFRICA VINYL ESTER RESIN MARKET OUTLOOK**

**Figure 38: Middle East & Africa Vinyl Ester Resin Market Size, By Volume (Thousand Tonnes), 2015–2030F**

**2021E-2030F**

**CAGR**

**3.57% By Volume**

**2015-2020**

**CAGR**

**1.86% By Volume**

*Source: TechSci Research*

MEA’s demand of vinyl ester resin is expected to grow at a CAGR of approximately 4.99% during the forecast period and expected to reach around 88 thousand tonnes in 2030 from 55 thousand tonnes in 2020. Since very small number of players are manufacturing vinyl ester resin in MEA, imports are higher than exports. Total import in 2020 stood at around 2.15 thousand tonnes while total export stood at around 0.30 thousand tonnes. However, there was decrease in import demand in 2020 as compared to 2019 due to COVID-19 pandemic. Average operating rate in MEA region varies from around 79% to 80% and is expected to reach 93% in 2030. Though demand supply gap is expected to reach approximately 29 thousand tonnes in 2030, companies are ramping up production and investing into capacity addition to meet the demand supply gap in the region.

**Figure 39: Middle East & Africa Vinyl Ester Resin Capacity & Production (Thousand Tonnes), 2015-2030F**

*Source: TechSci Research*

Total capacity of vinyl ester resin in MEA region stood at around 83 thousand tonnes as of 2020. The major vinyl ester resin producer includes Scott Bader Company Ltd., Saudi Arabia Industria Resins Ltd., and Poliya . These companies hold 66% share of total capacity in MEA region. Scott Bader is market leader in composite business with customer base in Middle East, North Africa, Central & West Africa, and the Far East Regions. There is no major capacity expansion in MEA region as of 2020 however, many new players are expected to invest into capacity addition to tap the growing demand of vinyl ester resin led by strong growth in automotive, renewable sectors. The major demand in the region comes from pipes and tanks applications where it is used as a lining system making it chemical, corrosion and thermal resistance. The demand from renewables and marine also contributes to the increasing demand of vinyl ester resin.

**Figure 40: Middle East & Africa Vinyl Ester Resin Production Operating Rate (Percentage), 2015-2030F**

*Source: TechSci Research*

**Table 10: Projects Planned and Underway in Middle East Region, By Sector, By Value, As of 2020 (USD Million)**

|  |  |  |
| --- | --- | --- |
| **S. No.** | **Sector** | **Value (USD Million)** |
| 1. | Construction | 80,080 |
| 2. | Oil & Gas | 67,036 |
| 3. | Power | 29,019 |
| 4. | Water | 8,732 |
| 5. | Chemical | 565 |
| 6. | Industrial | 250 |

**Figure 41: Middle East & Africa Vinyl Ester Resin Market Share, By Application, By Volume, 2015–2030F**

*Others include Défense, Aerospace, Electrical and electronics etc.*

*Source: TechSci Research*

**Figure 42: Middle East & Africa Vinyl Ester Resin Market Share, By Type, By Volume, 2015–2030F**

*Others include Urethane Modified vinyl ester resin, Elastomer Modified vinyl ester resin etc.*

*Source: TechSci Research*

**Figure 43: Middle East & Africa Vinyl Ester Resin Market Share, By Sales Channel, By Volume, 2015–2030F**

**MARKET DYNAMICS**

**Market Drivers**

***Government support in India to increase per capita consumption of FRP composites***

Driven by strong demand from various end use industries such as wind energy, transportation, electrical and electronics, defense, aerospace, pipes and tanks, construction and marine, the composite industry, also known as fiber-reinforced plastics (FRP) industry, will also be supporting government’s ‘Make in India’ initiatives giving big push to future market of vinyl ester resin. In 2021, per capita consumption of composites in United States and China is 11.4 kg and 2.8 kg, respectively. The per capita consumption in India stood at 0.36 kg which is among the lowest.

***Growing usage as Lining System in Industrial Applications***

In number of industrial applications, vinyl ester resin lining systems are used for water treatment, chemical processing, and air pollution control, to mineral processing which provides unparallel corrosion resistance in fiberglass reinforces plastic tanks, ducting, stacks & chimneys, scrubbers, pipes and other components. Therefore, vinyl ester resin liners fit best for the most challenging industrial environments due to its properties of high heat resistance, exceptional durability and minimal maintenance requirements.

***Robust Growth of Construction Sector***

With rising urban population and public and private sector investments in construction projects, the overall construction market is witnessing rapid growth. The demand for vinyl ester resin in building & construction industry has been rising over the last few years owing to their varied Types including pipes and tanks. Robust growth in construction sector in Japan coupled with implementation of favourable government policies to support construction and infrastructure growth are the primary factors expected to influence the demand.

**Figure 22: APAC Construction Sector Contribution to GDP, 2013-2019, (%)**

*Source: World Bank*

**Figure 23: Japan Total Construction Investments, By Value (USD Million), 2015-2019**

*Source: TechSci Estimates*

***Ageing Infrastructure***

The ageing infrastructure is driving opportunities for building materials including VER based FRP tanks. Most of the infrastructure such as roads, water supply and sewerage system were constructed in developed nations are 30-40 years old. The government and local civic bodies incur huge maintenance cost hence there is an urgent need for repair.

**Table 3: Europe Percentage of Infrastructure that is minimum 50 years old, 2018, 2023 & 2033**

|  |  |  |  |
| --- | --- | --- | --- |
|  | 2018 | 2023 | 2033 |
| Highway Bridges | Approx. 25% | Approx. 39% | Approx. 63% |
| Tunnels | Approx. 20% | Approx. 27% | Approx. 42% |
| River Management Facilities | Approx. 32% | Approx. 42% | Approx. 62% |
| Sewage Pipes | Approx. 4% | Approx. 8% | Approx. 21% |

**Market Challenges**

***Fragmented market of composites industry in China and India***

The fragmented composite industry in India and China which consist of around 15000 stakeholders in the value chain including small, mid-sized and large players across these two countries. Also, the lack of awareness among end- user industries is the major challenge for the growth of vinyl ester which also impacts the margin of the industry. Lack of regulatory framework, absence of a recycling policy and standardization of end-use products are some of the major challenges for the composites industry. Global composites market is highly fragmented with more than 1000 mid and small regional players operate in the market.

|  |  |
| --- | --- |
| **Composite Manufacturers** | |
| Teijin Ltd. | PPG Industries, Inc. |
| Toray Industries, Inc. | Huntsman Corporation LLC |
| Owens Corning | SGL Group |
| Reliance Composites | Hexcel Corporation |
| Crest Composites | DuPont |
| Momentive Performance Materials, Inc | Weyerhaeuser Company |

***High Volatility in Raw Material Prices***

Styrene, epoxy resin, methacrylic acid, etc., are few of the raw materials majorly used in the production of construction sealants and bonding such as butyl rubber, acrylic urethane, silicone rubber sealant, etc. Over the years, raw materials used in sealants industry have observed price fluctuations globally. Diligently working on product selling prices to react to changes in raw material cost and simultaneously maintaining market share is a key challenge for construction sealants producers.

**Styrene and Epoxy Resin Prices, 2017-2021E (USD per Ton)**

**MARKET TRENDS & DEVELOPMENTS**

***Capacity Expansion by existing players in APAC region***

With growing demand for Vinyl Ester Resin in various sector such as wind energy, transportation, electrical and electronics, defense, aerospace, pipes and tanks, construction and marine, companies have started investing in expanding manufacturing facilities. Moreover, companies are increasingly focusing on developing nations due to availability of cheap labor such as China and India. For instance, Showa Denko Group completes expansion of lines to produce vinyl ester in Shanghai due to increasing demand of the product in electronic parts such as Liquid Crystal Displays (LCDs) and touch panels on account of the progress in telecommunication technologies.

***Emerging applications***

The emerging application of vinyl ester resin is electronics and telecommunication due to its use in the process to produce electronic parts including LCDs and touch panels which has been rapidly increasing in APAC region mainly in China. Moreover, its application in pipes and tanks, marine industry, defence, transportation etc. has been rapidly increasing due to its excellent corrosion resistance and chemical resistance properties thereby increasing the use of vinyl ester as corrosion resistance inner lining material. Vinyl Ester resins usage in the making of pipes and tanks also adds to the increasing demand due to increasing population, industrialization and urbanization. Growing utilization of Vinyl Ester Resin in electronics and telecommunications is likely to increase its foothold in the market over coming years.

***Mergers and Acquisitions***

Merger & acquisition activities are becoming prevalent in the vinyl ester resin market globally. In 2019, INEOS Composites acquired Ashland Composites. Additionally, Polynt and Reichhold also had a merger in the same year to expand and increase its market share. Showa Denko, which is stronger in the market of vinyl ester resin, is continuously expanding its capacity to cater the increasing demand in China.

***Growing Focus towards Research & Development***

Composites market is witnessing presence of various market players which in turn has resulted in growing focus towards the research and development activities for new applications such as pipes and tanks and marine. For instance, Swancor Holdings Ltd. product SWANCOR 901 is a Bisphenol-A type epoxy vinyl ester resin which is currently being researched for new applications. Vinyl ester resin properties of corrosion resistance and thermal resistance makes them the best fit for industrial applications which is used as lining system for tanks and pipes.