**3.2.1. Asia Pacific Demand Supply Outlook**

**Asia Pacific Epoxy Resin Demand, By Volume (Thousand Tonnes), 2015–2030F**

* Highly versatile Epoxy resin demand witnessed a healthy growth where demand increased by CAGR 5.05% by volume on year-on-year basis from 2015-2020.
* Epoxy resins find its varied application as its high chemical and electrical resistivity serves several critical industries. Because of its varied applications, Epoxy resins caters to important sectors and find high utility in end user products which binds demand growth of Epoxy resins to global GDP.
* High utility of Epoxy resins makes them ideal for key industries like electronics and electrical, paints and adhesives and various others. Continuous queries from Europe and North America have kept consumption levels relatively strong in APAC region along with robust domestic consumption and that trend is likely to persist in coming years.
* Traditionally, 2nd quarter has been regarded as the peak season in terms of demand where APAC Epoxy resins attract a healthy number of inquiries from around the globe.
* Consolidating on strong consumption sentiment, demand of epoxy resins is likely to continue the upward trend and it is projected that in the next decade, demand is expected to grow by CAGR of more than 5% from 2021-2030.

**3.2.1.3. Demand By Application**

**Asia Pacific Epoxy Resin Demand, By Application, By Volume, 2015–2030F**

* Characteristics including superior durability, strong adhesion and high resistivity towards chemicals renders Epoxy resins appropriate fit for several key industries. Paints and Coatings, Electrical and Electronics and Construction form the key sectors of application which consume majority of demand volume. Along with these sectors, applications in Composite materials and Adhesives make Epoxy resins, a widely used product.
* Paints and Coatings industry witnessed a major boost in 2016 where the industry gained on account of strong performances from construction and automotive sectors. However, since then stabilization has been observed in paints and coatings sector epitomizing the slowdown in economies in APAC region. Furthermore, demand measured a sharp decline in 2020 due to consumption weakening from the key application sectors.
* Strong signs of improvement have been evident in 2021 for paints and coatings industry as construction sector accelerated consumption after the slump of 2020. On the back of demand strengthening from downstream sectors, it has been estimated that Paints and Coatings industry will be revived in terms of demand by application and is projected to consolidate on 2021 impetus.
* Decline in 2020 meant that the upward trending streak since 2015 in terms of demand by application for electronics and electrical industry came to a premature halt. However, the industry is likely to recover from 2020 drop and is estimated to pick up pace in terms of demand in 2021. Furthermore, upward trend is projected in the coming decade. Furthermore, there is an increasing trend in the demand for lightweight, cost-effective, and compact electronics which bodes well
* Construction sector has been a consistent performing sector with a stable demand outlook from 2015 till now. Similar pattern is expected in the current year and in the coming decade. Commercial construction, Private housing along with infrastructure developments are currently in the forefront while commercial construction is likely to lead in the coming years.
* Technological advancements in the material sciences are likely to affirmatively impact the demand growth trajectory for composite materials after the decline in demand in 2020 due to halt in manufacturing activities around the globe. Aerospace and defense industries are paving for improved consumption and spearheading demand for composite materials. Furthermore, Wind energy infrastructure

**3.2.1.4. Demand By Type**

**Asia Pacific Epoxy Resin Demand, By Type, By Volume, 2015–2030F**

* In APAC region, Bisphenol A (BPA) based Epoxy resins continues to pull strong number in terms of demand by type. However, increasing awareness towards harmful impacts of BPA and advent of several alternatives for production of Epoxy resins have resulted in consumers opting for comparatively safer alternatives.
* Recently, Bisphenol F based Epoxy resins have gained traction in the market and is likely to consolidate on the demand numbers in the coming years.
* Despite a dip in demand for BPA based Epoxy resins in last few years, they continue to dominate the market and are likely to maintain a large segment of demand in the coming decade.

**3.2.1.5. Demand By Grade**

**Asia Pacific Epoxy Resin Demand, By Grade, By Volume, 2015–2030F**

* Liquid epoxy resin remained the most widely used grade of epoxy which is heavily used across various sectors of applications and likely to grow further in coming years.
* Solid epoxy resin was also not far behind from liquid epoxy in absolute terms whose demand is likely to remain stable.
* Demand in semi-solid epoxy resin has witnessed a negative growth and will further decline in coming years.

**3.2.3. Europe Epoxy Resin Demand Supply Outlook**

**Europe Epoxy Resin Demand, By Volume (Thousand Tonnes), 2015–2030F**

* A continuous growth in demand was observed since 2015 till 2019 where 599 thousand tons of Epoxy resins demand was measured in 2019 compared to 507 thousand tons in 2015.
* This has been due to increasing consumption of Epoxy resins from downstream automotive and construction sectors. Paints and Coatings industry along with Electronics and Electricals industry have garnered strong numbers in terms of volume.
* Although, 2020 slowed demand growth as automotive sector suffered in the wake of covid-pandemic. Demand accelerated as construction sector in Europe is flourishing in 2021 and pulling some outstanding demand numbers for Epoxy resins, however automotive sector remained muted in major part of 2021.
* Demand for Epoxy is likely to remain in the uptrend in the coming decade on the back of robust consumption volumes from downstream sectors.

**3.2.3.3. Demand By Application**

**Europe Epoxy Resin Demand, By Application, By Volume, 2015–2030F**

* Paints and Coatings industry along with Electronics and Electricals industry have garnered strong demand by application. Acrylic resins are expected to measure the fastest growth in coming years.
* Use of advanced technologies like nanotechnology along with inclination towards eco-friendly paints provide ample opportunities for paints and coatings sector to grow in coming years.
* Advancements in material science have augured well for both electronics as well as composite materials. Stretchable conductive materials along with application diversity have been few of the various advantages that advancements in material science have brought and continue to pave way for many more.
* Improvements in 3-D technologies as well as advent of Internet of Things (IoT) has been revolutionary and further fuelling the growth for electronics in the market.
* Housing, commercial buildings and infrastructure development have been driving the construction sector in Europe and that trend is likely to continue in the short term.
* In Germany, a total of 368,400 dwellings construction was permitted in 2020, which increased by 2.2% compared to 2019, as per Federal Statistical Office, Germany. Moreover, United Kingdom has planned to invest 1-2 % of GDP in infrastructure development across the country as part of its National Productivity Investment Fund (NPIF).

**3.2.3.4. Demand By Type**

**Europe Epoxy Resin Demand, By Type, By Volume, 2015–2030F**

* Bisphenol A based epoxy resins are still widely used across various end user industries and in key application sectors. Lack of awareness as well as high prices of other alternatives have adversely impacted the growth potential of other alternatives-based epoxy resins.
* Among the alternatives, Bisphenol F has been gaining in terms of demand emulating APAC demand pattern and likely to garner improved demand in coming years while BPA based epoxy resin will overshadow other types of epoxy resins.

**3.2.4. North America Demand Supply Outlook**

**North America Epoxy Resin Demand, By Volume (Thousand Tonnes), 2015–2030F**

* Demand outlook in the coming years appears to be optimistic for Epoxy resin in terms of demand where flourishing construction sector is likely to lead, and it has been projected that demand will cross 400 thousand tons in coming years.
* However, increasing awareness towards harmful effects of epoxy resins may hinder the growth of demand as it may spur consumers to opt for alternatives of epoxy resins.
* Strong growth of construction sector along with increasing affinity towards electronics and electricals is expected to be at the forefront for epoxy resin demand growth.
* USA dominated the market in the North American region and likely to continue its stronghold on the market in the coming decade.
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**3.2.4.3. Demand By Application**

**North America Epoxy Resin Demand, By Application, By Volume, 2015–2030F**

* Owing to its strong binding ability and long durability, epoxy resin finds its varied applications in paints and coatings sector. Epoxy resin is heavily used in concrete reinforcing due to their flexible applicability while automotive, marine, and aerospace apply epoxy coatings for corrosion protection as primers. It also provides protective coatings to industrial flooring.
* Rapid growth in industrial coatings as well as automotive coatings is likely to propel paints and coatings sector growth in coming years.
* USA forms the largest electronics market by size and is likely to further expand in coming years given the rising demand for electronics and advancements in technologies through increasing number of R&D centers across the country. Additionally, these factors have resulted in electronics sector growing with steady pace in last few years. Growth in electronics sectors is likely to stimulate epoxy resin demand.
* Despite a decline in demand from construction sector in 2020, world’s largest construction sector is likely to move ahead and recover from 2020 slump which’s evident from rapid growth of construction sector in 2021.
* Furthermore, it has been estimated that government funding has been increased in residential buildings in comparison to non-residential buildings
* Construction sector demand growth will further determined by the range of factors including rising costs of raw materials where Plywood and other raw materials have observed significant gains while shortage of laborer will be another factor fate impacting construction of both residential and non-residential buildings.

**3.2.5. South America Epoxy Resin Demand Supply Outlook**

**South America Epoxy Resin Demand, By Volume (Thousand Tonnes), 2015–2030F**

* The South American epoxy resin market grew at an average CAGR of 0.81% in terms of volume during the period 2015-2020.
* As the South American market recovers to its pre pandemic levels of economic activity, the demand for resins in general is going to increase significantly.
* The decade spanning 2021-2030 could see South American nations making major investments in Infrastructure thus creating demand for the resin industry.
* Epoxy resin has major applications in adhesives, composites, construction, electrical and electronics industry, paints and coatings etc.
* In the backdrop of an emerging global consensus on a sustainable development agenda, demand for epoxy resin is expected to find greater application in Green Buildings and wind turbine industry.
* Resin chemistry advances have made it possible to process thermosets at the production speeds of thermoplastics and close to those of stamped steel. Processes allowing for faster cure times for epoxy resins have made its usage more conducive for the automotive industry.
* The South American epoxy resin market demand is expected to grow at a CAGR of close to 4% in volume terms and reaching a total capacity of 125 thousand tons in absolute terms by 2030.

**3.2.5.3. Demand By Application**

**South America Epoxy Resin Demand, By Application, By Volume, 2015–2030F**

* The future of epoxy resin in the composites industry in South America looks good with opportunities in the transportation, marine, wind energy, aerospace, pipe & tank, construction, electrical and electronics, and consumer goods.
* Epoxy provides superior properties over other thermoset such as polyester, vinyl ester, etc. in the areas of improved adhesion, chemical and heat resistance along with enhanced mechanical performance.
* The major drivers of growth for this market are increasing use of epoxy resin in aerospace, electrical and electronic, wind energy, and pipe & tank.
* Emerging trends, which have a direct impact on the dynamics of epoxy resin in the composites industry, include the development of new generation epoxy resin systems that include faster cure cycles, easier demolding, and more process versatility and the use of hybrid epoxy in electrical and electronics applications.
* South America being an emerging market is expected to see robust growth rates across sectors like aviation, construction (incl. green buildings), electronics, automotive, telecommunication, roads and railways, renewable energy etc., which in turn would create demand for the resins market.
* Thus, our forecast for the decade (2021 to 2030) predicts a strong growth in demand by volume across various verticals concerning epoxy resin market as shown in the bar graph below.

**3.2.5.4. Demand By Type**

**South America Epoxy Resin Demand, By Type, By Volume, 2015–2030F**

* The Bisphenol A Based epoxy resin is the most widely used epoxy type as it finds its application in protective coatings, industrial maintenance paints, underwater coatings, structural adhesives and civil engineering applications. The demand for this type is expected cross the hundred-thousand-ton mark by 2030.
* The Bisphenol F based epoxy resin type finds its applications in coatings, civil engineering, adhesives, electrical insulating materials, and reactive intermediates. Its demand by volume in absolute terms is expected to increase by 50% by 2030.
* The Epoxy phenol Novolac based Resin type finds its usage in high temperature structural adhesives, electrical laminates, high performance composites, and molded parts. Its demand is expected to double by 2030.
* The cycloaliphatic Epoxy Resin type finds its application in exterior coatings and adhesives, potting compounds and encapsulations for electronics and electrical components, gel coats, laminates, fiber composites, and various cationic and UV curable resin products. Demand in absolute terms for this resin type is also expected to double by 2030.

**3.2.5.6. Demand By Grade**

**South America Epoxy Resin Demand, By Type, By Volume, 2015–2030F**

* The demand for liquid grade epoxy resin type is expected to increase by more than twenty thousand tons in absolute terms by 2030.
* The demand for semi-solid and solid grade resin types is expected to increase by three thousand tons and twelve thousand tons in absolute terms respectively by 2030.