Market Forecast

According to MRFR analysis, the Global Abrasion-Resistant Coatings Market is projected to register a **CAGR of over 6%** to reach **USD 11.8 Billion** by the end of 2025.

Abrasive resistant coatings are extensively used to reduce or eliminate wear, extending the lifetime of products. These coatings are used in applications, where lubrications are not suitable. Additionally, these coatings exhibit superior wear attributes and chemical resistance and are employed to strengthen mechanical properties, such as hardness and toughness.

The factors influencing the growth of the market include the expanding end-use industries across the globe, wherein these coatings find uses in various interior and exterior applications. The high demand for oxide coatings due to their low volatile organic components (VOC) is the key driver of the global market growth. The oil & gas industry widely uses abrasive resistant coatings in various types of equipment such as pumps, separators, shakers, and drills. Pertaining to the stringent regulations such as the Clean Air Act and Clean Water Act for environmental protection is expected to fuel the demand for oxide coatings.

Increasing investment in the manufacturing sectors worldwide is another major factor expected to drive the demand for abrasive resistant coatings. According to the Organization for Economic Co-operation and Development (OECD), the US has been an attractive manufacturing location relative to other countries in recent years. In 2016, 45% of foreign direct investment in the US was in the manufacturing sector. Thus, the manufacturing sector is witnessing significant growth in the US as compared to France, Canada, and the UK.

The increasing manufacturing activities in the oil & gas, marine, power generation, transportation, and other industries is projected to boost the demand for abrasion-resistant coatings during the review period.

Market Synopsis

Abrasion-resistant coatings help industrial parts and equipment last longer and perform better while minimizing maintenance requirements and replacement costs. The ingredients used in these coatings are tungsten carbide, chrome oxide ceramics, aluminum oxide ceramics, and others. These coatings protect the metal surfaces and act as a barrier to inhibit the contact between chemical compounds or corrosive materials. Abrasion-resistant coatings are also called a protective metal coating.

These coatings are widely used in end-use industries such as oil & gas, marine, power generation, transportation, mining, and construction, among others.

Pricing Analysis

The price of abrasion-resistant coatings depends upon the resin or ceramic being used to manufacture the coatings. The raw materials for polymer production include oil, natural gas, and coal. The fluctuating price of petroleum-based raw materials due to the supply-demand gap affect the final prices for polymer-based coatings. The major ceramic raw materials include kaolinite, alumina, silicon carbide, tungsten carbide, and others. The raw materials for ceramic coatings are metals and elements found in nature. Factors such as changing geological and weather conditions, environmental regulations, and energy cost play vital role in the manufacturing of ceramic-based coatings.

Market USP
An inclination toward environmentally friendly products.

Market Drivers

- Stringent regulations associated with VOC emissions
- Increase in the number of manufacturing industries has surged the demand for abrasion-resistant coatings
- Growth of the end-use industries across the globe

Market Restraints

- High capital investment restraining market growth

Segmentation

By Type

- Metal/Ceramic: Ceramic coatings are further segmented into oxide coatings, carbide coatings, nitride coatings, and others. They are dense, resistant to wear, corrosion, heat, and inert to most acids, alkalis, and solvents. Ceramic coatings are often used for wear and corrosion resistance and to provide low friction surfaces. These coatings are more expensive due to costly thermal spray process involved; however, the overall life cycle cost is lower as compared to polymer-based coatings due to less maintenance involved with ceramic coatings.

- Polymer: Polymer-based abrasion-resistant coatings are classified into epoxy, polyurethane, polyester, fluoropolymer, and others. They can be applied to a wide range of substrates such as metals, ceramics, wood as well as synthetic materials. The polymer-based coatings can be used up to a temperature of 536°F. They are widely used in general industrial and manufacturing applications such as in refineries, chemical plants, and marine equipment, such as offshore drilling platforms and merchant ships.

By End Use

- Oil & Gas: The increasing investments in the oil & gas exploration and processing due to the rising use of petroleum products as fuel and raw materials for a wide range of chemical products, including pharmaceuticals, fertilizers, solvents, and plastics is driving the demand for abrasion resistant coatings in this sector. Tubing, pipes, fasteners, pumps, seals, and bearings are being coated with the abrasion-resistant coatings, as they are a subject to the harsh effects of chemicals, water, and sea salt spray.

- Marine: The marine industry is expected to witness significant growth during the review period. This is attributed to the need for abrasive resistant coatings in the submerged, deck, cargo, and tank applications.

- Power Generation: Abrasive resistant coatings are used in the power generation industry for wind turbine blades, concrete cooling towers, valves, containment vessels, nuclear components, generators, dam structure, and turbines. The increasing investment in the power generation sector due the increased demand for high-tech electronic devices coupled with the growing population and high disposable income has augmented the need for energy, thereby driving the demand for abrasion-resistant coatings. The segment is expected to account for the largest market share in 2018.

- Transportation: Abrasion-resistant coatings are used in the automotive industry in spline shafts, sliding door, seat rails,
battery housings, fuel and brake lines, handrails and safety equipment, and springs, brackets, clips, and safety belt fasteners. It is also used in windshields and windscreens, canopies, lights, sun/moon roofs, cockpit instrument clusters, panel displays, and gauges.

- Mining: In the mining industry, the extraction of minerals represents significant wear of plant components such as ball mills, hydro cyclones, chutes, conveyor belt systems, slurry pumps, and others.

- Construction: Abrasion-resistant coatings are widely used in floorings due to benefits such as avoiding scuff and scratch marks that make floor less attractive in commercial environments and public spaces, saving time and money on floor repair or replacement due to a worn surface or unattractive look.

- Others: The others segment includes paper & pulp, electronics & semiconductors, and petrochemical industries.

By Region

- North America: The North American market for abrasion-resistant coatings is driven by the expanding industrial sector in the region.

- Europe: Europe is the largest regional abrasion-resistant coatings market. This is due to the growth of the transportation, reconstruction, and power generation industries in the region. Major contributors to the market growth include Germany, the UK, France, and Russia.

- Asia-Pacific: Asia-Pacific is the fastest-growing regional market on account of the rapid industrialization and urbanization in the region. The growth potential is in emerging economies such as India, South Korea, Thailand, Malaysia, and others.

- Middle East & Africa: Presence of large oil & gas reserves as well as an infrastructural hub in the region is the key factor driving the demand for abrasion-resistant coatings in the region.

- Latin America: The Latin American market is projected to witness high demand for abrasion-resistant coatings due to the growing industrial sector.

Key Players

- Akzo Nobel NV
- Saint-Gobain
- Jotun A/S
- The Sherwin-Williams Company
- Hempel A/S
- Praxair Surface Technologies Inc.
- PPG Industries
- Evonik Industries
- Sika AG
- Arkema SA
- Hardide Plc
- Henkel
**MARKET SEGMENTATION**

- **Metal/Ceramic** segment is expected to exhibit the highest CAGR during the assessment period. These coatings comprise of oxide coatings, outside coatings, nitride coatings, and cermet coatings. The increasing demand for metal-ceramic coatings is attributed to the low VOC content of the oxide coatings. In September 2019, Saint-Gobain launched the Ceramic bond nitride coatings of the Aluminum USA in Nashville, US.

- **Power Generation** is projected to be the largest segment during the review period. The ever-increasing demand for energy in all the end-use industries is a key driver of the ablation resistant coatings in power generation industry. According to the US Energy Information Administration, the global energy production stood at 95.7 Quadrillion Btu while the consumption stood at 101.23 Quadrillion Btu in 2018.

- Asia-Pacific emerged as the fastest-growing regional market in 2018. The high potential in the region for growth of power generation industry drives the demand for abrasion-resistant coatings, increasing production and sales of automobiles in countries such as India, Thailand, and Indonesia propel the demand for these coatings. According to the International Organization of Motor Vehicle Manufacturers, the automobile production in these countries stood at 5,174,443 units, 2,157,584 units, and 1,343,714 units respectively in 2018.

**STAKEHOLDERS CONSIDERED**

- Manufacturers
- Suppliers
- Distributors
- Wholesalers
- Retailers
- Traders

**KEY COMPANIES PROFILED**

- AKZO NOBIL NV (The Netherlands)
- SAINT-GOBAIN (France)
- JOTUN A/S (Norway)
- THE SHERWIN-WILLIAMS COMPANY (US)
- PRAXAIR SURFACE TECHNOLOGIES INC. (US)
- HEMPEL A/S (Denmark)

**FACTORS STUDIED FOR MARKET FORECAST**

**DRIVERS**
- Stringent regulations associated with VOC emissions
- Increase in the number of manufacturing industries has surged the demand for abrasion-resistant coatings
- Growth of the end-use industries across the globe

**RESTRATNT**
- High capital investment restraining market growth
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