

Geosynthetics Market- Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028 By Material (Polypropylene, Polyethylene, Polyester and Others), By Type (Geotextile, Geomembrane, Geocomposite, Geosynthetic Liner and Others), By Function (Separation, Drainage, Filtration, Reinforcement and Moisture Barrier), By Application (Construction, Transportation, Environmental and Others), By Region, Competition

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Abstracts

The Global Geosynthetics Market is projected to witness significant growth, with an expected increase from USD 12.62 billion in 2022 to USD 21.13 billion by 2028, reflecting a CAGR of 9.66% during the forecast period. Geosynthetics, which refer to terrain stabilization products, play a crucial role in addressing civil engineering challenges. These products, including geomembranes, geotextiles, geogrids, geonets, and geosynthetic liners, are primarily made from polyester, polystyrene, polypropylene, polyvinyl chloride, and polyethylene materials. Geosynthetics systems find extensive applications in various geotechnical and civil engineering projects such as coastal engineering, dams, canals, retaining walls, railroads, reservoirs, embankments, airfields, and roadways.

The international market for geosynthetics has experienced a substantial surge in demand over the past few years, primarily driven by the expansion of the construction sector. Additionally, factors like industrialization, rapid urbanization, population growth, and changing demographics in both developing and developed nations are expected to contribute to the market's growth at an accelerated pace throughout the forecast period.

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Furthermore, the presence of numerous laws and regulations governing the use of geosynthetics to enhance infrastructure safety and level terrain is anticipated to be a significant driving factor for the market's expansion in the coming years.

Key Market Drivers:

Increasing investments in waste management in emerging economies.

The rapid growth of population and urbanization is contributing to a significant rise in solid and liquid waste levels worldwide. The increasing environmental consciousness has resulted in higher demand for effective waste and water management initiatives. Geosynthetics play a crucial role as landfill caps, preventing fluid migration into landfills and reducing the generation of leachate and associated treatment costs after closure. Moreover, geosynthetics are extensively utilized in various water management activities, addressing public concerns regarding severe and widespread water pollution. The application of geosynthetic liner systems in waste treatment lagoons at wastewater treatment plants helps safeguard valuable water resources such as lakes, rivers, ponds, aquifers, and reservoirs, thereby driving the demand for geosynthetics in the forecast period.

Growing Construction Industry Shall Drive Market.

Geosynthetic materials are utilized in various stages of construction activities to effectively control evaporation, improve drainage, enhance infrastructure strength, and mitigate erosion. This promotes the longevity and safety of structures. These materials play a crucial role in subgrade separation, reinforcement, and stabilization. Additionally, they offer the advantage of simplifying construction processes, leading to increased road lifespan and reduced future maintenance requirements. Geosynthetics also contribute to accident prevention by withstanding vertical differential settlements and significant lateral deformations. Geotextiles or geogrids are employed to enhance performance or reduce the thickness of permanent roads.

The growing investment in infrastructure in countries such as the U.S., Germany, Poland, the U.K., Russia, Australia, and India, driven by government initiatives, is expected to drive the overall growth of the industry. Construction practices and pavement designs require high-quality materials to meet various infrastructure standards. Favorable EU policies and increased funding efforts have enhanced the competitiveness of the railway sector, leading to improved environmental awareness and increased overall transportation desirability.



Key Market Challenges:

Raw material costs change as a result of crude oil price swings. The key factors that influence the pricing of finished products are the cost and availability of raw materials. The market price of crude oil directly affects a wide range of materials used in the production of geotextiles, including polyethylene, ethylene propylene diene, polypropylene, and PVC polymers. Changes in petroleum product prices directly impact the cost of the raw resources required to meet geotechnical specifications. However, due to the ongoing epidemic, most governments have imposed restrictions on both domestic and international travel. Consequently, there has been a significant decline in the demand for transportation fuel, which has had a notable impact on crude oil prices.

Installation Damage Threat May Restrict the Market:

Geotextiles are utilized in the construction of waste landfills, tunnels, ponds, dams, roads, and railways. During the installation process, geotextiles may experience damages that can lead to unavoidable alterations in their mechanical, hydraulic, and physical properties. These modifications must be taken into account when designing infrastructure with geotextiles. However, it is necessary to assess the damages occurring during installation through field tests or laboratory tests. Additionally, geogrids can suffer damages when exposed to low temperatures and UV light, potentially impacting the overall market demand during installation. The extent of damage varies with the temperature at the installation site, further impeding the growth of the geogrids market. Evaluating the damages occurring during installation can be achieved through laboratory tests or field tests.

Key Market Trends:

Soil Erosion Control, Better Drainage, and Soil Conservation using Geosynthetics

Soil erosion is a common occurrence due to the slow natural development rate of soil in recent years. Therefore, it is recommended to employ optimal solutions to artificially prevent soil erosion. Erosion management is crucial not only for providing stability to structures against landslides but also for safeguarding our planet and soil formations from failures caused by rain, gravity, or various other factors. Geosynthetics play a significant role in surface soil erosion management by blocking or limiting soil or particle movements on slopes. Geotextiles protect river banks against erosion caused by currents or lapping and act as filters when combined with natural or artificial



enrockments. The choice between woven and nonwoven geotextiles depends on the soil composition, with woven textiles being suitable for soils with larger particle sizes due to their greater pores, while nonwovens are employed in areas with clay or silt soils. It is crucial for these materials to have high permeability when hydraulic uplift is anticipated. Geotextiles are widely used for drainage, erosion control, and cost-effective ground modification, while geogrids are commonly employed for soil and aggregate reinforcement. Geomembranes are utilized for soil-fluid separation and enhancing soil shear strength, and geocomposites/geoweb are essential in drainage applications.

Rising demand from the mining and oil & gas industries

The mining industry is a significant consumer of geosynthetics, driven by the demand for metals and minerals, especially from Asia. China stands out as a leading producer of rare-earth metals, gold, copper, coal, limestone, iron & steel, while India has attracted notable investments in the iron & steel industry. Additionally, South America has emerged as a preferred investment destination for major global mining companies, with key countries like Brazil, Peru, and Chile boasting large mining capacities and witnessing increased foreign investments in the past five years. The expected growth of the geosynthetics market during the forecast period is fueled by the increasing adoption of advanced extraction processes in mining activities.

Segmental Insights

Type Insights

Geotextiles are expected to dominate the market during the forecast period. The increasing utilization of geotextiles in construction applications, including railroads, roads, harbors, landfills, and drainage structures, to enhance soil stabilization, along with government infrastructure spending, is anticipated to drive industry growth. The growing awareness of the functional benefits of geotextiles, such as flexibility, high tensile strength, permeability, and superior load-bearing capacity, has led to their increased adoption in soil erosion, road construction, drainage, pavement repair, and agriculture industries.

These geotextiles are typically composed of synthetic materials like PVC, polyethylene, or polypropylene, which, when appropriately embedded, contribute to soil stabilization and erosion prevention. Notably, companies like GSE Solmax offer environmental nonwoven geotextiles made of polypropylene, needle-punched, and engineered fibers designed for soil stabilization, drainage, liner protection, filtration, and separation



applications to meet specific customer requirements.

Regional Insights:

The Asia-Pacific (APAC) region is poised to dominate the market during the forecast period. The region's rapid expansion is driving significant growth in the geosynthetics industry. The markets of China, India, and other APAC nations are experiencing notable expansion, fostering regional market growth. Population growth, urbanization, and industrialization in the area are the primary drivers of market expansion. The increasing demand for waste management systems and investments in infrastructure development are key factors fueling the consumption of geosynthetics in the region.

Key Market Players

Agru America Inc.

Avintiv Inc. (Berry Global Inc.)

Belton Industries Inc.

Bonar Corporation

Contech Engineered Solutions LLC (A Quikrete Company)

Geo-Synthetics LLC

Huesker Synthetic GmbH

Jinan GTM Building Materials Co. Ltd

Low & Bonar PLC

Tessilbrenta SRL

Report Scope:

In this report, the Global Geosynthetics Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:



Global Geosynthetics Market, By Material:

Polypropylene

Polyethylene

Polyester

Others

Global Geosynthetics Market, By Type:

Geotextile

Geomembrane

Geocomposite

Geosynthetic Liner

Others

Global Geosynthetics Market, By Function:

Separation

Drainage

Filtration

Reinforcement

Moisture Barrier

Global Geosynthetics Market, By Application:

Construction

Transportation

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Environmental

Others

Global Geosynthetics Market, By Region:

North America

Europe

South America

Middle East & Africa

Asia Pacific

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Geosynthetics Market.

Available Customizations:

Global Geosynthetics Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).



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