

Global Geosynthetics Market - Types, Raw Materials and Applications

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Report description:

Geosynthetics Market Trends and Outlook

Geosynthetics can be described as synthetic materials that are usually made from polymers, such as polypropylene, polyethylene or polyester and used in civil engineering, construction and environmental applications. The design of these materials enables in enhancing the mechanical and physical properties of soil, providing functions, such as separation, reinforcement, filtration, drainage and containment. Some of the most widely used Geosynthetics include Geotextiles (permeable fabrics), Geomembranes (impermeable liners), Geogrids (grid-like structures for reinforcement), Geonets (drainage nets) and Geocomposites (combinations of these materials). Owing to their durability, versatility and cost-effectiveness, the major areas where Geosynthetics are employed include road & railroad construction, landfills, erosion control, water management and infrastructure development.

The global market for Geosynthetics is estimated at US\$17.7 billion in 2024 and is projected to reach US\$27.6 billion by 2030 at a CAGR of 7.7% between the two years. Various factors are responsible for driving the global demand for Geosynthetics, one of which includes infrastructure development in emerging economies. Countries, such as China, India and Brazil are witnessing rapid urbanization and government investments in transportation, housing and energy infrastructure, thereby encouraging the market for these materials.

A case in point is India targeting a road-building initiative of 60 km per day by the end of 2025 that would require a substantial quantity of Geosynthetics for soil reinforcement and durability. These cost-effective solutions are also being adopted to comply with stricter policies on waste management, water conservation and erosion control in the areas of landfill containment and protection of water resources. In addition to reducing reliance on natural materials, such as aggregates, the use of Geosynthetics also lowers construction costs and extends the lifetime of structures. The rate at which the worldwide population is growing, projected to reach an uncontrollable 9.7 billion by 2050, has been promoting construction and waste management requirements, which again are highly dependent on Geosynthetics for scalable solutions.

An important trend influencing the market for Geosynthetics is a manifest shift towards making Geosynthetics using recycled or biodegradable materials because of ecological concerns and regulatory pressures. As a result, companies are adopting innovative techniques to minimize their production-related carbon footprints and support sustainability targets. Another trend gaining

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foothold is the development of high-performance geocomposites, which combine multiple functionalities, such as drainage and reinforcement in a single package. Such innovations are found to improve efficiency in applications, such as landfill liners and road stabilization.

Geosynthetics Regional Market Analysis

Asia-Pacific stands out as the leading global market for Geosynthetics, estimated to account for a share of 44.8% in 2024, and is also likely to emerge as the fastest growing at a forecast CAGR of 9% during 2024-2030. Massive investments in transportation infrastructure across the region, such as highways, railways and airports are fueling demand for Geosynthetics. Rapid urbanization and population explosion in several countries of the region are further propelling demand for solutions that promote land stabilization, waste management and water conservation, all of which require Geosynthetics, such as Geotextiles and Geomembranes.

Asia-Pacific has also been an important mining region, with countries, such as Australia, China and India being home to vast volumes of natural resources. Mining activities in the region are being well supported by the use of Geosynthetics for applications that include heap leach pads, tailings management and environmental protection. Ecological challenges, such as soil erosion, flooding & landfill management, and a growing awareness about the same are further driving Asia-Pacific's market for geosynthetic solutions (geomembranes for waste containment and geogrids for sustainable construction). The cost-effectiveness and versatility of Geosynthetics, coupled with policy initiatives and investments supporting infrastructure and green activities, are all instrumental in creating a favorable environment for the burgeoning Geosynthetics market in Asia-Pacific.

Geosynthetics Product Type Market Analysis

With an estimated share of 49% in 2024, Geotextiles lead the global market for Geosynthetics by product type. This can be attributed to the versatility, cost-effectiveness and wide range of applications of Geotextiles. These permeable fabrics, normally made from synthetic polymers, such as polypropylene or polyester, exhibit outstanding performance in separation, filtration, drainage, reinforcement and protection functions. Geotextiles are widely utilized in infrastructure projects, such as roads, railways, embankments and landfills, thereby giving credence to them holding a prime position in the overall Geosynthetics market. This segment's dominance would continue over the forecast period owing to their superior performance compared to alternatives and the important role they play in sustainable construction activities.

Geosynthetics Raw Material Market Analysis

By type of raw material used to make Geosynthetics, Polypropylene (PP) leads the global market with a share estimated at over 42% in 2024. The dominance of PP can be attributed to its widespread application in producing geotextiles and geomembranes that need to be lightweight, high in strength, durable and resistant to moisture and biological degradation. PP-based Geosynthetics are widely utilized in critical infrastructure projects, such as roads, landfills and erosion control systems, further reinforcing their leading position in the market. In terms of growth, though, the global market for Polyester as used in making Geosynthetics is likely to clock the fastest compounded annual rate of 8.2% over 2024-2030. A major factor driving growth for this material in Geosynthetics includes an increasing demand for materials with excellent tensile strength, chemical resistance and UV stability, especially in geotextiles and geogrids used for stabilizing and reinforcing soil. The growing demand for Polyester as a raw material for Geosynthetics is also being positively impacted by innovations in high-performance polyester formulations that are ideal for durable and cost-effective solutions in infrastructure and environmental applications.

Geosynthetics Function Market Analysis

Reinforcement, accounting for an estimated share of 28% in 2024, constitutes the major function of Geosynthetics worldwide, the

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demand for which is also primed to post the fastest CAGR of 8.6% between 2024 and 2030. This functional area has a critical role to play in enhancing the structural stability and load-bearing capacity of soil and other materials in civil engineering projects. Geogrids, geotextiles and geocells are some of the key Geosynthetics utilized for reinforcing embankments, retaining walls, slopes and road bases. An overall spurt in infrastructure development, such as highways, railways and urban expansion projects are driving the market for Geosynthetics in reinforcement functions for ensuring durability and safety under heavy loads or challenging soil conditions.

Geosynthetics Application Market Analysis

Among the various application areas for Geosynthetics, Waste Management is expected to hold pole position with a 2024 share estimated at 25.1%. This application includes the extensive use of Geosynthetics, such as geomembranes, geotextiles and geocomposites in landfill construction, containment systems and waste disposal facilities. On the other hand, the global market for Geosynthetics as applied for Erosion Control will likely log the fastest CAGR of about 8.8% during the 2024-2030 analysis period. Major contributors for this include growing ecological concerns and the need for preventing soil degradation. Polyester-based geotextiles, geogrids and geocells are extensively utilized for stabilizing slopes, protecting coastlines and reinforcing riverbanks against erosion caused by water, wind and human activities.

Geosynthetics Market Report Scope

This global report on Geosynthetics analyzes the market based on product type, raw material, function and application for the period 2021-2030 with projections from 2024 to 2030 in terms of value in US\$. In addition to providing profiles of major companies operating in this space, the latest corporate and industrial developments have been covered to offer a clear panorama of how and where the market is progressing.

Key Metrics

Historical Period: 2021-2023

Base Year: 2024

Forecast Period: 2024-2030

Units: Value market in US\$

Companies Mentioned: 80+

Geosynthetics Market by Geographic Region

- ☐☐ North America (The United States, Canada and Mexico)
- ☐☐ Europe (France, Germany, Italy, Russia, Spain, The United Kingdom and Rest of Europe)
- ☐☐ Asia-Pacific (China, Japan, India, South Korea and Rest of Asia-Pacific)
- ☐☐ South America (Argentina, Brazil and Rest of South America)
- ☐☐ Middle East & Africa

Geosynthetics Market by Product Type

- ☐☐ Geocomposites
- ☐☐ Geofoams
- ☐☐ Geogrids
- ☐☐ Geomembranes
- ☐☐ Geonets
- ☐☐ Geotextiles
- ☐☐ Other Geosynthetics (Primarily Geocells, Geomeshes & Geosynthetic Clay Liners)

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Geosynthetics Market by Raw Material

- Polyester
- Polyethylene
- Polypropylene
- Polyvinyl Chloride
- Other Raw Materials (Primarily Polyamide & Polystyrene)

Geosynthetics Market by Function

- Barrier/Containment
- Drainage
- Filtration
- Reinforcement
- Separation
- Other Functions (Primarily Erosion Control & Protection/Cushioning)

Geosynthetics Market by Application

- Civil Construction & Soil Reinforcement
- Erosion Control
- Mining
- Transportation Infrastructure
- Waste Management
- Water & Wastewater Management
- Other Applications (Primarily Drainage Systems, Energy and Marine & Coastal Structures)

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- Advanced Drainage Systems, Inc.
- AGRU Kunststofftechnik GmbH
- Amvic Building Systems
- Asahi Kasei Advance Corp
- Atarfil SL
- Atlas Molded Products
- Beaver Plastics Ltd
- Belton Industries, Inc.
- Benchmark Foam, Inc.
- Berry Global, Inc.
- Carlisle Construction Materials
- Carthage Mills, Inc.
- CETCO (Minerals Technologies, Inc.)
- Climax Synthetics Pvt Ltd
- Contech Engineered Solutions LLC
- CTM Geosynthetics
- Drew Foam Companies
- DuPont
- Enviro Geosynthetics Pvt. Ltd.
- Expol Ltd.
- Feicheng Lianyi Engineering Plastics Co Ltd.
- Fibertex Nonwovens A/S
- Fiberweb PLC
- Fibromat (M) Sdn Bhd.
- Foamex
- Freudenberg Performance Materials
- Galaxy Polystyrene LLC
- Garware Technical Fibres Ltd.
- Gayatri Polymers & Geo-synthetics
- Geo Synthetics LLC

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- []Geotrst Environmental Science Technology
- []Glen Raven, Inc.
- []Global Synthetics Pty Ltd
- []Gorantla Geosynthetics Pvt Ltd
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