TEK SOLUTIONS

Enabling Technologies

Geosynthetics Division

ABOUT OUR COMPANY

KTEK Solutions is a dynamic and forward-thinking company specialising in the supply and distribution of advanced materials and sustainable solutions for infrastructure, environmental protection, and engineering applications. Our core portfolio includes **geosynthetics products, speciality chemicals, natural fibres** such as **jute** and **coir**, and other **innovative engineering materials** that cater to the evolving needs of civil, environmental, and geotechnical industries.

Founded with a vision to bridge the gap between innovation and real-world application, KTEK Solutions delivers products that meet international standards for performance, durability, and sustainability.

Our commitment to quality and technical excellence positions us as a trusted partner in delivering tailored solutions for a wide range of sectors including roads and highways, railways, coastal and river protection, landfills, mining, and agriculture.

Geosynthetics : Concept & Functions

Geosynthetics are synthetic materials (typically made from polymers like polyester, polypropylene, or HDPE) used in civil engineering, construction, and environmental applications to enhance soil stability, control erosion, manage water flow, and provide structural reinforcement. They are manufactured in various forms, including:

- Geotextiles (woven or non-woven fabrics for filtration and separation)
- Geogrids (grid-like structures for soil reinforcement)
- Geomembranes (impermeable sheets for containment)
- Geocells (honeycomb-like structures for soil confinement)
- Geonets (drainage composites)
- Geocomposites (combinations of different geosynthetics for multifunctional use)

Basic Functions of Geosynthetics:

Geosynthetics perform several key functions in engineering and environmental projects:

1. Reinforcement

- Strengthens weak soils to support roads, embankments, and retaining walls.
- Reduces the need for excessive excavation and natural aggregates.
- Example: Geogrids in road construction prevent cracking and sinking.

2. Separation

- Prevents mixing of different soil layers (e.g., subgrade and aggregate in pavements).
- Maintains structural integrity and prolongs the lifespan of infrastructure.
- Example: Geotextiles between soil and gravel in railway tracks.

3. Filtration

- Allows water to pass while retaining soil particles, preventing clogging.
- Used in drainage systems, riverbanks, and coastal protection.
- Example: Non-woven geotextiles in subsurface drainage systems.

4. Barrier (Containment)

- Blocks the passage of liquids or gases (e.g., in landfills, ponds, or mining sites).
- Example: HDPE geomembranes in landfill liners to prevent toxic leaks.

5. Drainage

- Facilitates water flow to reduce hydrostatic pressure in structures.
- Example: Geocomposites in retaining walls to prevent water buildup.

6. Erosion Control

- Protects slopes, shorelines, and riverbanks from water and wind erosion.
- Example: Geocells filled with vegetation or rocks to stabilize hillsides.

OUR OFFERINGS

- Non-Woven Geotextile
- Woven Geotextile
- Geogrids (Knitted & Woven) and Extruded Geogrids
- High Strength Geocomposite and HDPE Geomembrane
- Geocell and GeoNet Drainage
- Geobags and Geomattress
- Paving Fabric and Silt Fence
- Geotextile Tube and Weed Shield Geotextile
- Drainage Composite and Geosynthetic Clay Liner (GCL)
- Flex Grid and Mining Grid

Non-Woven Geotextiles

Non-woven geotextiles are synthetic fabric materials made from randomly arranged polyester or polypropylene fibers bonded mechanically (needle punching), thermally, or chemically. Unlike woven geotextiles, they have a felt-like structure, providing high permeability and filtration properties

Features:

- High Permeability – Allows water flow while preventing soil erosion.
- Filtration & Separation – Prevents soil mixing while letting water pass.
- Puncture & Tear Resistance – Durable under heavy loads.
- Chemical & UV Resistant – Long-lasting in harsh environments.

Application:

- Road & Railway Construction (soil separation, subgrade stabilization)
- Drainage Systems (filtration layer in landfills, retaining walls)
- Erosion Control (slopes, riverbanks, coastal protection)
- Landfill Liners & Caps (filtration & protection layer)

Specifications:

GSM	120	200	300	400	500
Roll Length (m)	100	100	100	50	50
Width (m)	4.5	4.5	4.5	4.5	4.5

Woven Geotextiles

Woven geotextiles are synthetic fabrics made by interlacing polypropylene or polyester yarns in a structured, grid-like pattern. They offer high tensile strength and stability, making them ideal for reinforcement and load-bearing applications. We have at our disposal geotextiles made from Polypropylene (PP) and Polyester (PET).

Features:

- High Tensile Strength – Resists stretching and deformation under heavy loads.
- Low Elongation – Maintains structural integrity under stress.
- Durability – Resists UV, chemicals, and biological degradation.
- Permeability Control – Allows controlled water flow while preventing soil erosion.

Application:

- Road & Railway Construction (soil separation, subgrade stabilization)
- Embankment & Slope Stabilization (prevents soil movement)
- Retaining Walls & Foundations (load distribution)
- Railway Track Support (reduces settlement)

Specifications:

Tensile Strength:

PP – 40/40, 45/30, 50/50, 60/60, 70/70, 80/80, 100/120, 120/120, 175/175, 200/200, 300/300 kN/m

PET – 80/50, 100/50, 200/50,400/50, 600/50, 800/50, 1000/50, 1200/50, 1600/50, 2000/100, 80/80, 100/100, 150/150, 200/200, 300/300, 400/400, 500/500, 600/600 kN/m

Width: PP – 4.6m or 5.2m ; **PET –** 3.5m, 4.5m, or 5.2m

Length: PP – 100m, 200m or 300m ; **PET –** 50m, 100m, 200m or 300m

Geogrids (Knitted & Woven)

Geogrids are high-strength, flexible geosynthetic materials made from interlocking polyester (PET) or polypropylene (PP) yarns. These geogrids are manufactured using advanced knitting technology, creating a stable mesh structure that provides excellent tensile strength and soil reinforcement capabilities. Their high strength, durability, and ease of installation make them ideal for infrastructure development. KTEK Solutions is also a supplier of woven geogrids.

Features:

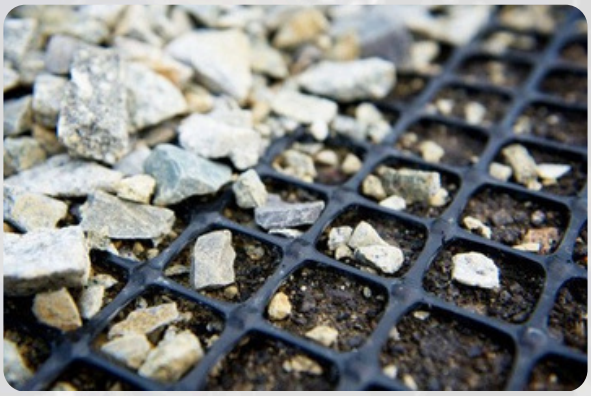
- HighTensile Strength
- Flexibility & Durability
- Excellent Interlock with Soil
- Lightweight & Easy Installation
- Permeability
- Cost-Effective

Application:

- Reduces rutting and extends the lifespan of asphalt and unpaved roads.
- Prevents soil slippage and erosion in steep slopes & embankments.
- Retaining Walls
- Railway Ballast Reinforcement
- Landfill Liners & Covers

Extruded Geogrids

Extruded geogrids are high-strength polymer mesh structures manufactured through an extrusion and stretching process, typically using materials like polypropylene (PP) or high-density polyethylene (HDPE). These geogrids feature a uniform grid pattern with integral junctions, providing excellent tensile strength, durability, and soil stabilization capabilities. They are widely used in civil engineering, construction, and infrastructure projects to reinforce soil, improve load distribution, and prevent erosion.



Features:

- HighTensile Strength
- Excellent Durability
- Rigid Structure
- Lightweight & Easy to Install
- Optimal Soil Interlock
- Cost-Effective

Application:

- Road & Pavement Reinforcement
- Retaining Walls & Slope Stabilization
- Foundation Support
- Erosion Control
- Mining & Heavy Industrial Applications

High-Strength Geocomposites

High-strength Geocomposites are used to provide superior reinforcement, drainage, filtration, and separation in civil and geotechnical applications. These composites combine multiple geosynthetic layers (such as geotextiles, geogrids, or geomembranes) to enhance performance in demanding environments. They are widely used in infrastructure projects to improve stability, reduce construction time, and extend the lifespan of structures.

Features:

- HighTensile Strength
- Durability
- Excellent Drainage & Filtration
- Lightweight & Easy Installation
- Customizable Production and OEM

Application:

- Road & Railway Construction
- Retaining Walls & Slopes
- Landfills & Containment Systems
- Embankments & Foundations
- Coastal & Erosion Control
- Mining & Industrial Sites

Specifications:

Tensile Strength: 50/15, 100/15, 150/15, 200/15, 50/50, 100/100, 150/150, 200/200 kN/m
Width: 1 - 5.3m
Length: 50 - 300m
Customized production available.

HDPE Geomembrane

High-Density Polyethylene (HDPE) Geomembrane is a durable, impermeable synthetic liner widely used in environmental, hydraulic, and industrial applications. It is manufactured from high-density polyethylene resin, offering excellent chemical resistance, UV stability, and long-term performance in harsh conditions.

Features:

- High Chemical Resistance
- Excellent Durability & Longevity
- Low Permeability
- Flexibility & Strength
- Weldable & Customizable
- Non-toxic and safe for potable water and agricultural applications.

Application:

- Landfill Liners & Caps
- Wastewater Ponds
- Mining (Heap Leach Pads, Tailings Ponds)
- Reservoirs & Canals – Reduces water seepage losses.
- Potable Water Storage
- Pond Liners Tunnel & Roof Waterproofing
- Lining for Oil Pits & Refineries

Geocell

Geocell (also known as cellular confinement system) is a three-dimensional, honeycomb-like structure made from high-density polyethylene (HDPE), polyester, or other polymeric materials. It is used in civil engineering and construction for soil stabilization, erosion control, and load support. When filled with soil, gravel, or concrete, geocells create a rigid mat that distributes loads evenly, enhancing the strength and durability of weak or unstable ground.

Features:

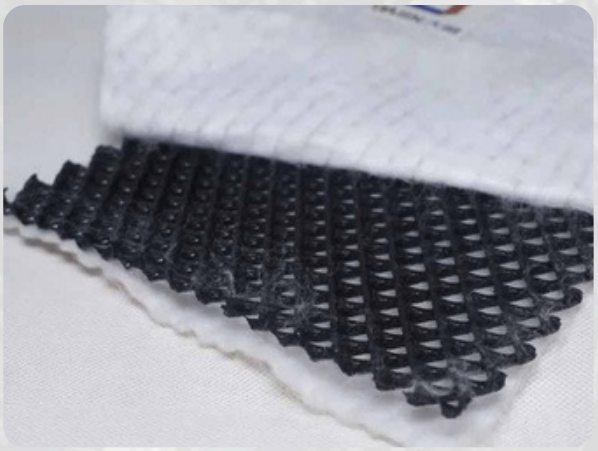
- High Strength & Durability
- Flexible & Modular Design
- Load Distribution
- Erosion Control
- Permeability

Application:

- Road & Pavement Construction
- Slope & Embankment Stabilization
- Retaining Walls & Earth Reinforcement
- Railway Ballast Reinforcement
- Channel & Shoreline Protection
- Military & Temporary Access Roads

GeoNet Drainage

GeoNet drainage systems consist of high-performance drainage cores wrapped in geotextile filters, providing superior water collection, distribution, and filtration. GeoNet drains are widely used in applications such as landfills, retaining walls, sports fields, green roofs, and road construction to prevent water buildup and enhance structural stability.



Features:

- High Flow Capacity
- Durable & Chemically Resistant
- Lightweight & Easy to Install
- High Tensile & Compression Strength

Application:

- Landfill & Waste Management
- Civil & Infrastructure Projects
- Landscaping & Green Infrastructure
- Mining & Environmental Protection
- Tunnel & Underground Drainage

Geobags

Geobags are engineered geotextile containers filled with soil, sand, or other locally available materials. They are used for erosion control, slope stabilization, and coastal protection. Made from high- strength woven or non woven geotextiles, geobags are durable, permeable, and resistant to UV degradation.

Features:

- High Strength & Durability
- Permeability
- Flexibility
- Eco-Friendly
- Corrosion & Chemical Resistance
- Easy Installation

Application:

- Erosion Control
- Flood Protection
- Land Reclamation
- Retaining Structures
- Gabion Alternative

Geomattress

A Geomattress is a three-dimensional erosion control and slope stabilization system made from high-strength geotextile fabrics filled with sand, soil, or concrete. It provides a flexible, durable, and permeable structure to prevent soil erosion, enhance vegetation growth, and protect riverbanks, shorelines, and embankments.

Features:

- Erosion Resistance
- Flexible & Permeable
- Eco-Friendly
- Durable & UV-Resistant
- Easy Installation
- Cost-Effective

Application:

- Prevents scouring and erosion
- Resists wave action and tidal forces
- Stabilizes embankments and hillsides
- Controls erosion in stormwater systems
- Bridge Abutment Protection

Specifications:

Tensile Strength: 50/50, 60/60, 80/80, 100/100 kN/m

Thickness : 100mm, 150mm, 200mm, 500mm

Paving Fabric

Paving fabric, also known as geotextile paving interlayer, is a specialized non-woven or woven geotextile used in road construction and asphalt overlay systems. It acts as a stress-absorbing membrane interlayer (SAMI) to extend pavement life by reducing cracks and improving durability.

Features:

- Crack Prevention – Minimizes reflective cracking from old pavement layers.
- Waterproofing – Reduces water infiltration, preventing subgrade damage.
- Flexibility & Strength – Withstands traffic loads & small movements.
- Bond Enhancement – Improves adhesion between asphalt layers.

Application:

- Asphalt Overlays
- Pavement Rehabilitation
- Airport Runways & Taxiways
- Bridge Decks for waterproofing & crack control

Specifications:

Roll size - 2.75, 2.85, 5.5 m (length and width can be customized according to requirement).

Silt Fence

Silt protector (or silt fence) is a geosynthetic barrier made of high-strength woven geotextiles that floats in water with floats, booms. It is used to control sediment runoff and prevent soil erosion in construction sites, slopes, and drainage areas. Typically made from woven or non-woven geotextiles, it filters out silt and sediment while allowing water to pass through.

Features:

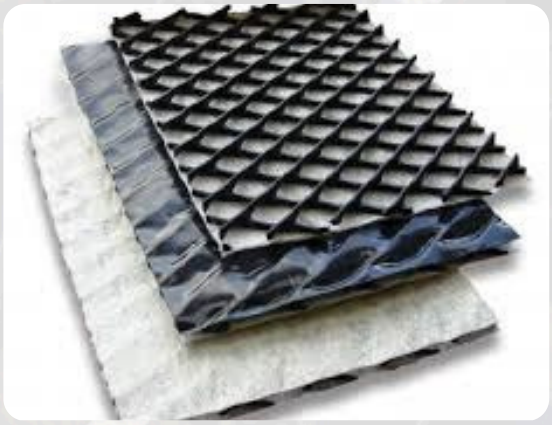
- Erosion Control
- UV & Tear Resistant
- Permeable Fabric
- Easy Installation

Application:

- Construction Sites (temporary sediment control)
- Slope & Embankment Protection
- Stormwater Management (along drainage channels)
- Landfill & Mining Sites (soil retention)

Drainage Composites

Drainage composites are engineered materials designed to efficiently manage water flow in geotechnical, civil, and environmental applications. These composites typically consist of a geotextile filter layer bonded to a high-permeability core (such as a geonet or geomembrane), providing superior drainage while preventing soil clogging.



Features:

- Resistant to chemical, biological, and UV degradation.
- High Flow Capacity
- Filtration & Separation
- Lightweight & Flexible
- Cost-Effective

Application:

- Construction Sites (temporary sediment control)
- Slope & Embankment Protection
- Storm water Management (along drainage channels)
- Landfill & Mining Sites (soil retention)

Geosynthetic Clay Liner (GCL)

A Geosynthetic Clay Liner (GCL) is an engineered hydraulic barrier composed of a layer of sodium bentonite clay sandwiched between two geotextiles or bonded to a geomembrane. GCLs are widely used in environmental and geotechnical applications to provide low-permeability sealing for containment systems. They are commonly used in landfills, ponds, mining, and infrastructure projects.

Features:

- High Hydraulic Performance High Flow Capacity
- Self-seal minor punctures or cracks properties
- Lightweight & Easy Installation
- Chemical Resistance
- Durability & Longevity
- Flexibility & Conformability
- Cost-Effective

Application:

- Landfills (Base & Cover Systems)
- Ponds & Canals
- Heap Leach Pads
- Tailings Storage Facilities
- Tunnels & Underground Structures
- Road & Railway Embankments
- Roof Gardens & Green Roofs – Prevents water leakage.
- Reservoirs & Decorative Lakes – Ensures water retention.

3D Flex Grid

3D FLEX GRID is an advanced biaxial geogrid designed for soil reinforcement, slope stabilization, and erosion control in challenging terrains. Its unique three-dimensional flexible structure provides superior load distribution, making it ideal for roadways, embankments, retaining walls, and landfill applications.

Features:

- HighTensile Strength
- Flexible & Durable
- 3D Structure
- Easy Installation
- Cost-Effective

Application:

- Road & Railway Construction
- Retaining Walls & Slopes
- Landfills & Erosion Control
- Mining & Industrial Sites

Geotextile Tube

Geotextile tubes are large, permeable fabric containers filled with sand, sludge, or sediment. They are manufactured from woven high tenacity polypropylene multifilament yarns or monofilament yarns, which are woven in a stable network such that the yarns retain their relative position.

Features:

- Easy Installation and filling
- High Tensile Strength
- Permeability
- UV and Chemical Resistance
- Cost-Effective
- Eco-Friendly
- Customizable Sizes & Volumes

Application:

- Shoreline Protection & Flood Control Barriers
- Revetments and Dune Stabilization
- Supports marine habitats while protecting coastlines
- Municipal & Industrial Sludge Treatment
- Contaminated Sediment Containment
- Wastewater lagoon liners
- Silt Barriers

Specifications:

Tensile Strength - 50/50, 60/60, 70/105, 90/120, 120/120, 200/200, 250/250, 300/300, 350/350 kN/m

Diameter - 1.0m to 8.0m

Circumference - 5m to 60m

Length - 20, 30, 50, 100, 120m

Weed Shield Geotextile

The Weed Shield Geotextile is an innovative, high-performance weed control solution designed for agricultural, horticultural, and landscaping applications. It provides an effective barrier against unwanted weed growth while allowing water and nutrients to penetrate the soil, promoting healthy plant development.

Features:

- Made from high-quality, UV-stabilized material for extended use.
- Allows air, water, and nutrients to reach plant roots while blocking weeds.
- Reduces the need for chemical herbicides, promoting sustainable farming.
- Lightweight and flexible, suitable for various terrains and crop layouts.
- Reinforced edges prevent fraying, ensuring multiple seasons of use.
- Available in rolls or pre-cut sheets to fit different field dimensions.

Application:

- Ideal for row crops, orchards, and vineyards to minimize weed competition.
- Perfect for flower beds, vegetable gardens, and pathways.
- Helps maintain weed-free growing environments.
- Stabilizes soil while preventing invasive weed growth.

Specifications:

Size - 1.6x300
GSM - 150
CBR Puncture Resistance - 1400 N
Tensile Strength - 74 kN/m
Material - Non-Woven (PP)

Mining Grid

Mining grids are high-strength geosynthetic materials designed to provide reinforcement, stabilisation, and load distribution in mining and civil engineering applications. These grids are typically made from high-density polyethene (HDPE) or polyester, offering exceptional tensile strength and resistance to environmental degradation. Our advanced mining grid solutions enhance slope stability, improve haul road performance, and support soil reinforcement in tailings storage facilities (TSF) and heap leach pads.

Features:

- High Tensile Strength
- Chemical & UV Resistance
- Aperture Stability
- Flexibility & Conformability
- Easy Installation
- Cost-Effective

Application:

- Longwall Recovery System
- Mine roof/back support
- Rib and wall support
- Highwall Protection
- Replacement of steel wire mesh
- Prevention of loose rocks and safety protection
- Tunnel protection and underground civil engineering

Specifications:

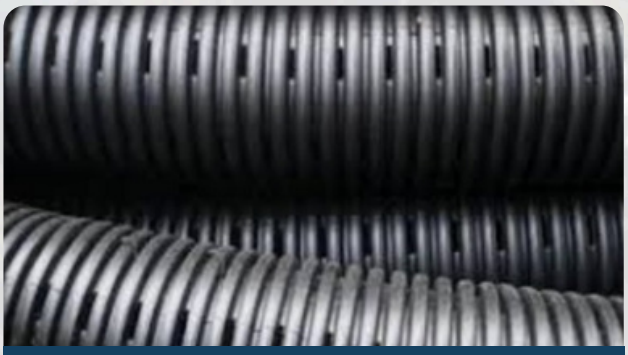
Tensile Strength - 50/50, 60/60, 100/80, 200/200, 400/400, 600/400, 600/600, 800/800, 1000/100 kN/m
Width - 5 - 20m
Length - 100 - 400m

SPECIAL PRODUCTS

Filterpoint Revetment

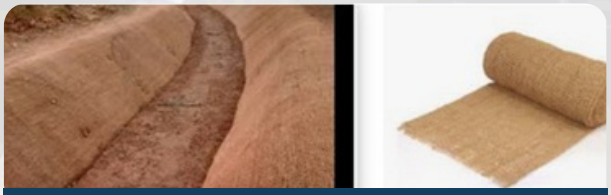
Uniform Revetment

Articulating Block Revetments



Geo Pipe

Jute Geotextile



Coir Geotextile

Gabion Box

Our Manufacturers' Certifications & Memberships

International Geosynthetics Society

ASTM INTERNATIONAL
Standards Worldwide

ISO 9001:2015

ISO 14001:2015

CE

सत्यमेव जयते
MoRTH
Ministry of Road Transport and Highways

MSME
सूक्ष्म, लघु एवं मध्यम उद्यम
MICRO, SMALL & MEDIUM ENTERPRISES

INDIAN ROADS CONGRESS

Let's Work Together

KTEK Solutions provides high-performance geosynthetics to tackle global infrastructure and environmental challenges.

Our geotextiles, geomembranes, and geogrids enhance resilience in roads, railways, and embankments while promoting sustainable construction. We deliver innovative water management solutions for drainage and flood control, along with eco-safe containment systems for landfills and mining.

Our cost-effective materials extend project lifespans and reduce maintenance needs. Committed to quality, we meet international standards to support safer, more sustainable development worldwide.

At KTEK Solutions, our core strength lies in the **MSL Concept – Marketing, Sourcing & Liaisoning**. This integrated approach allows us to act as a strategic bridge between manufacturers, buyers, and industry stakeholders, ensuring a seamless flow of products, knowledge, and value across markets.

From mega-infrastructure projects to critical environmental protection systems, KTEK Solutions partners with governments, engineers, and contractors to create climate-adaptive, future-ready geosynthetic solutions.

Join us on the journey to build, protect, and connect what truly matters!

Contact Us

Registered Office:

Address: First Floor, Dr. Kalinath Bhawan, 47 Dr. Kalinath Road, Khalpara, Siliguri, West Bengal 734005, India

Phone: +91 - 98300 05394

+91 - 81019 23543

+91 - 98746 09083

Email: info@kteksolutions.in / solutionsktek@gmail.com

Regional Presence:

Delhi NCR | Kolkata | Chennai | Bangalore | Gangtok

Get in touch

+91 98300 05394

info@kteksolutions.in

www.kteksolutions.in

Thank You

GST IN: 19ATKPL6525C1ZM
MSME: UDYAM-WB-06-0052997