# CCI NON-WOVEN GEOTEXTILE

**LONG FIBER FILAMENT NEEDLE PUNCHED GEOTEXTILE**

## PRODUCT DESCRIPTION:

Long fiber filament needle punched geotextile is a specialized material extensively employed in civil engineering and construction projects for its multifaceted functionalities. Comprising long synthetic fibers, mainly polypropylene, the material undergoes a needle punching process wherein barbed needles interlace the fibers, creating a cohesive structure. This technique enhances the geotextile's strength, stability, and filtration capabilities. Geotextiles, in general, serve crucial roles in infrastructure development, including soil stabilization, drainage improvement, filtration, and erosion control.

## PROPERTIES:

1. **Material Composition**: These geotextiles are typically made from polypropylene. The long fiber filaments provide strength and durability to the material.
2. **Needle Punching**: The manufacturing process involves needle punching, where barbed needles mechanically interlock the fibers, creating a stable and durable structure without the need for adhesives or binders.
3. **High Strength**: Long fiber filaments contribute to the geotextile's high tensile strength, making it capable of withstanding significant loads and stresses.
4. **Permeability**: Needle punched non-woven geotextiles are designed to be permeable, allowing water to pass through while retaining soil particles. This property facilitates drainage, filtration, and separation of soil layers.
5. **Durability**: These geotextiles exhibit excellent resistance to UV degradation, chemical degradation, and biological degradation, ensuring long-term performance in various environmental conditions.
6. **Flexibility**: Despite their strength, long fiber filament needle punched geotextiles remain flexible, conforming to irregular surfaces and accommodating ground movement without compromising their integrity.
7. **Erosion Control**: By stabilizing soil and preventing erosion, these geotextiles help maintain the integrity of slopes, embankments, and other earth structures, reducing maintenance costs and environmental impacts.
8. **Filtration**: The porous structure of the geotextile allows water to flow through while trapping soil particles, preventing clogging of drainage systems and maintaining hydraulic efficiency.
9. **Separation**: Long fiber filament needle punched geotextiles act as a barrier between different soil layers, preventing mixing and maintaining the integrity of engineered structures.
10. **Installation Ease**: These geotextiles are typically lightweight and easy to handle, allowing for efficient installation even in challenging terrain.

## APPLICATION:

1. **Road Construction**: Used as a separation and filtration layer between subgrade soil and aggregate base courses to prevent the mixing of materials and improve the structural integrity of roads and highways.
2. **Railway Infrastructure**: Employed for stabilization and reinforcement of railway embankments, preventing soil erosion and maintaining track stability.
3. **Retaining Walls**: Installed behind retaining walls to provide drainage and soil reinforcement, reducing hydrostatic pressure and preventing soil movement.
4. **Erosion Control**: Applied on slopes, riverbanks, and shorelines to prevent soil erosion caused by water runoff, wave action, or wind, preserving the integrity of natural and engineered structures.
5. **Landfill Engineering**: Used as a barrier to control leachate migration and gas emissions in landfills, providing environmental protection and enhancing landfill stability.
6. **Stormwater Management**: Integrated into stormwater management systems as a filtration and separation layer to control sedimentation, improve water quality, and manage runoff.
7. **Subsurface Drainage**: Installed beneath roads, sports fields, and landscaping features to facilitate subsurface drainage, preventing waterlogging and maintaining soil stability.
8. **Pond and Lake Liners**: Utilized as a protective barrier in pond and lake construction to prevent seepage and maintain water containment.
9. **Coastal Protection**: Deployed in coastal engineering projects to stabilize shorelines, control erosion, and protect infrastructure from wave action and tidal forces.
10. **Vegetated Reinforcement**: Combined with vegetation for bioengineering applications to reinforce soil, promote vegetation growth, and enhance ecological restoration efforts.

## SPECIFICATION:

100 g/m$^2$ – 800 g/m$^2$

## SIZE OF PACKAGE:

Width 2-6m, Length 30-100m (or per request)

**Filament spunbond nonwovens Geotextile Specifications (GB/T 17639-2008)**

| Item | Values | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Specification | 100 | 150 | 200 | 300 | 400 | 500 | 600 | 800 |
| Thickness, mm | 0.8 | 1.2 | 1.6 | 2.2 | 2.8 | 3.4 | 4.2 | 5.5 |
| Longitudinal and Transverse Rupture Strength, kN/m | 4.5 | 7.5 | 10.0 | 15.0 | 20.0 | 25.0 | 30.0 | 40.0 |
| Intensity to the Standard Vertical and Horizontal Elongation, % | 40 - 80 | | | | | | | |
| CBR Bursting Strength, kN | 0.8 | 1.6 | 1.9 | 2.9 | 3.9 | 5.3 | 6.4 | 7.9 |
| Vertical and Horizontal Tear, kN | 0.14 | 0.21 | 0.28 | 0.42 | 0.56 | 0.70 | 0.82 | 1.10 |
| Sieve Size, mm | 0.05 – 0.20 | | | | | | | |
| Vertical Permeability Coefficient, K= 1.0- 9.9 cm/s | Kx($10^{-1}$ ~ $10^{-3}$) | | | | | | | |
| Width Variation, % | -0.5 | | | | | | | |
| Deviation of mass per unit area, % | -5 | | | | | | | |

## STORAGE:

- It must be stored in original package
- Stored in dry conditions, protected from direct sunlight, and other environmental conditions.



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