

# Geotextile Products

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# Meeting Your Geotextile Needs

While ADS pipe has become the industry standard for drainage pipe, ADS can also provide you with a comprehensive line of geotextiles.

Ground conditions do not affect ADS geotextiles, which are strong, compatible with the environment, chemically inert and durable. The line of ADS products include woven and needlepunched nonwoven fabrics for soil stabilization and reinforcement, erosion control, separation, filtration and drainage.

The woven and nonwoven fabrics available through ADS represent the highest quality of geotextiles in the industry today and can be found at ADS sales and service locations throughout the country. Geotextiles have been combined with drainage pipe on numerous projects to become a state-of-the-art practice in civil engineering and waste containment applications.

With the combination of drainage pipe and geotextiles, ADS offers its customers unparalleled availability, service and support. Whether it's for heavy construction, major civil engineering projects or a home septic system, you'll find the right fabric.



## Product Selection Guide

Matching the correct ADS geotextile product with your application is vital to the success of a project. Refer to the chart below to begin the process of selecting the appropriate ADS product for your project.

Application	Specification	Category	Nonwoven Product Number	Woven Product Number
Subsurface Drainage	AASHTO M288	Class 1 Class 2 Class 3	0801T 0601T 0451T	- - -
Roadway Separation	AASHTO M288	Class 1 Class 2 Class 3	0801T 0601T 0451T	250W 200W
Roadway Stabilization	AASHTO M288	Class 1	0801T	315W
Erosion Control	AASHTO M288	Class 1 Class 2 Class 3	0801T 0601T 0451T	104F 104F
Railroad Stabilization	AREMA/Ch. 1, Part 10	Regular Heavy Extra Heavy	1201T 1601T 1701T	- - -
Leachate Collection/Detection	EPA/GRI Report No. 15	- -	0651T 0861T	111F 111F

# Nonwoven Geotextiles

ADS markets a full line of nonwoven geotextiles, which are used to stabilize roadways and can be used on drainage systems to filter solid particles. The use of nonwoven geotextiles will increase the performance life of structures. ADS nonwoven geotextiles are produced of high quality, needle-punched, staple fiber geotextiles. Continuous filaments of polypropylene are extruded, fibers are cut, opened, laid into a web, needle-punched, heat-set and rolled to create a nonwoven geotextile.

When building a road, designing an erosion control plan or installing a subsurface drainage system, ADS needle-punched nonwoven geotextiles have proven benefits. The nonwoven geotextiles are approved by local, state and federal agencies, including the Federal Highway Administration, U.S. Army Corps of Engineers, the EPA and AASHTO. Nonwovens can be used on numerous civil engineering applications:

- Subsurface Drainage
- Roadway Separation
- Railroad Stabilization
- Hard Armor Underlayment
- Landfill Leachate Collection
- Underground Retention/Detention Systems

## Subsurface Drainage

In subsurface drainage applications, nonwoven lightweight and medium weight geotextiles are excellent filters. The subsurface water passes into the drainage pipe for proper channelling through the fabric's needle-punch construction. In addition, adjacent soils are prevented from clogging the system and causing expensive repairs. Nonwoven geotextiles, when selected properly, are effective in most soils, especially where silt and clay are prominent.

## Roadway Separation/Railroad Stabilization

Road life is extended by preventing fine soil particles from migrating and mixing into aggregate and the ballast base course by using an ADS nonwoven geotextile directly on the subgrade. ADS 0451 meets AASHTO M288 Class 3 standards and ADS 0801 exceeds the requirements for Class 1 textiles used in roadways.



**To improve roadway life utilize a nonwoven fabric to separate native soil and aggregate.**



**Paving fabric provides additional support to asphalt layers on roadways.**



**Robust nonwovens stabilize subgrades and extend road life.**

### **Hard Armor Underlayment**

Two of the leading causes of failure in hard armor, such as rock riprap or concrete block systems along shorelines and waterways, are soil migration and hydrostatic pressure buildup. To relieve the hydrostatic pressure and prevent the soil migration beneath the hard armor erosion control systems use ADS nonwoven geotextiles to act as a filter. As outlined in AASHTO M288, ADS 801 and 451 each meet the requirements for Class 1 and Class 3 erosion control geotextiles, respectively.

### **Landfill Leachate Collection**

Medium-weight ADS nonwoven geotextiles can filter soil and waste, while allowing water and leachate to pass, when the geotextile is placed in contact with drainage stone or a geonet. If designed correctly, ADS nonwoven geotextiles can lead to proper leachate management in landfill cells and rapid surface water collection and removal in closure plans.

### **Subsurface Retention/Detention Systems**

Subsurface retention/detention systems provide maximum use of land, require little maintenance and do not diminish the aesthetics of the development. Large diameter pipe is used in underground storm retention systems to hold runoff until the surrounding soil accepts it. Detention systems use large diameter pipe to hold runoff that exceeds the allowable amount and then releases it through an outlet at a controlled rate.

Playing a key role in the efficiency of retention/detention systems are nonwoven geotextiles. Geotextiles surround the pipe and angular stone backfill to prevent soil intrusion into the angular stone backfill/water storage area. ADS 601 and 801 nonwoven geotextiles meet AASHTO M288 Class 2 separation requirements for such applications.



**ADS nonwoven geotextiles act as a filter to relieve hydrostatic pressure and prevent soil migration beneath hard armor, such as rock riprap.**



**A geotextile used as a trench liner allows water to pass into the pipe, while filtering out soil fines and protecting the pipe from clogs.**

# Woven Slit Tape Geotextile

After extruding and slitting a polypropylene film, the manufacturing process, which is ISO®-9002 certified, weaves individual flat yarns into geotextiles featuring high tensile strengths at low elongation (high tensile modulus). These characteristics distribute loads, reduce rutting and extend the life of paved and unpaved roadways.

## Unpaved roadways

ADS woven geotextiles help save time and money on unpaved roadways. The woven geotextile saves on aggregate placement and repair costs based on constructing and maintaining an unpaved roadway. Soft subgrades, covered with the appropriate geotextile, stabilize access or haul roads by spreading applied loads over a wider foundation, reducing rutting and preventing contamination by the subgrade soil. This will allow better traffic flow, improve the roadway's long-term use and lower maintenance costs.

The California Bearing Ratio (CBR) is used to measure a subgrade's strength. ADS woven geotextiles are able to perform different functions based on the subgrade's strength. The functions range from reinforcement on weak subgrades, which have a CBR  $\leq 3\%$ , to separation on firm foundation soils, which have a CBR  $\geq 8\%$ . Stronger woven geotextiles will be used on weaker subgrades and a less robust woven geotextile can be used on a better soil.



**ADS woven geotextiles can reduce aggregate thickness in unpaved roadways. The geotextile stabilizes roads by spreading loads over a wider foundation, reduces rutting and prevents contamination by the subgrade soil.**



**A woven geotextile is placed on a roadway prior to paving. An ADS woven geotextile allows aggregate layers to maintain their original design thickness.**

### **Paved Roadways**

ADS offers an inexpensive way of life extension on paved roadways and parking lots by using the “W” series of ADS woven geotextiles. The leading cause of pavement failure is subgrade continuation. One way highway engineers counter this is to thicken aggregate layers by using sacrificial aggregate to offset the expected losses. An ADS high modulus woven geotextile can be placed directly on the subgrade during construction and will separate the aggregate from the fine soils below. This method keeps the subgrade from intruding into the aggregate and improves the roadway’s subsurface drainage. ADS woven geotextiles allows the aggregate layers to maintain their original thickness despite the rigors of heavy truck traffic.



**Paved roads and parking lots have a longer expected life with the use of an ADS woven geotextile, which will permanently separate the subgrade from the aggregate.**

### **Wovens For Sediment Control**

ADS woven geotextiles are effective in controlling sediment runoff on construction sites if the geotextiles are fastened to posts and properly installed. The woven silt fences are recognized by the EPA as a Best Management Practice (BMP) and offer UV resistance, strength and hydraulic properties.

### **Picking The Right Woven Geotextile**

ADS offers three standard woven geotextiles for stabilization, reinforcement and soil separation on paved and unpaved roadways. ADS 200W, 250W and 315W meet AASHTO M288 construction requirements. For demanding soil reinforcement exceeding the AASHTO criteria, ADS offers high strength woven geotextiles. ADS’ unique weaves form strong fabrics with high-tensile strengths and superior hydraulics for very soft soils or other critical soil reinforcement applications.



**Silt fences trap sediment before it can pollute surface waterways.**

# Woven Monofilament Geotextile

Extruded polypropylene monofilaments are woven together to create a stable construction fabric in ADS woven monofilament geotextiles. The woven fabric is a premium filter that is resistant to soil and biological clogging. A range of filtration fabrics offer designers several choices for percent open area (POA), which is the single most important property in the selection of a woven geotextile filter. These fabrics are used primarily for:

- Subsurface Drainage
- Hard Armor Underlayment
- Landfill Leachate Collection

## Hard Armor Underlayment

Woven monofilament geotextiles, ADS 104F and 111F, retain particles to prevent soil migration, but allow water to continue to flow through the fabric. The monofilament woven geotextiles offer various hydraulic and filtration properties such as percent open area, apparent opening size and water flow rate. Cutoff pipe drains used above hard armor systems are often beneficial to the structure.

## Subsurface Drainage

ADS 104F and 111F are ideal filtration products for subsurface drainage systems. A monofilament geotextile wrapped around a drainage pipe offers resistance to soil particle clogging, which adds service life to the drainage structure. All ADS woven monofilament geotextiles exceed AASHTO M288 physical requirements for Class 2 subsurface drainage and permanent erosion control.

## Landfill Leachate Collection

ADS 111F and 117F woven monofilament geotextiles have excellent filtration characteristics when used to surround the gravel in leachate collection systems in solid waste landfills. The geotextile has less surface area for biological growth to help eliminate long-term clogging concerns.

Five years of testing conducted at the Geosynthetics Research Institute resulted in a recommendation to the U.S. EPA that, when using a woven monofilament geotextile in leachate collection systems, a minimum POA of 10 percent should be specified. Some industry experts are more conservative and opt for ADS 117F, which possesses the properties required to ensure long-term functionality.





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