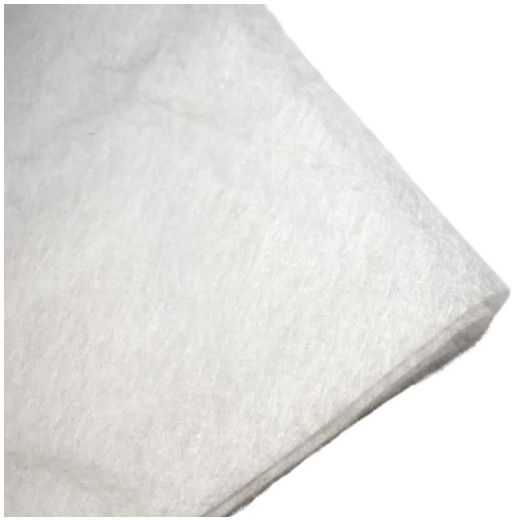
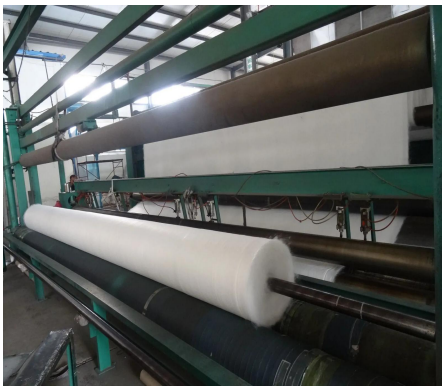


PP (Polypropylene) Filament Spunbond Needle Punched Nonwoven Geotextile

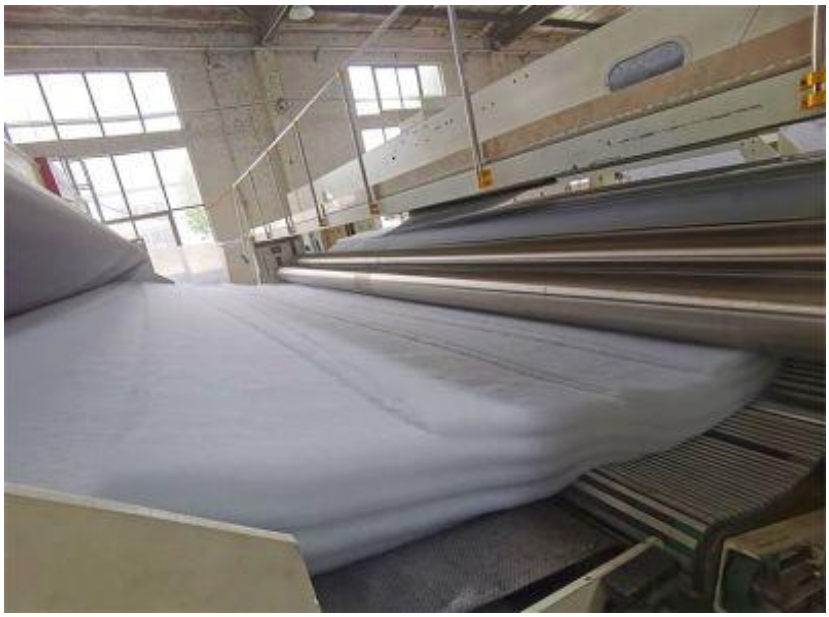
PP filament spunbond needle punched nonwoven geotextile is made from polypropylene as raw material through processes such as spinning, air flow net laying, and needle punching. High strength, aging resistance, acid and alkali resistance, abrasion resistance, good flexibility, easy construction, widely used in garbage disposal sites, river treatment, slope protection, road maintenance, artificial lake bottom waterproof layer, etc.

Polypropylene filament spunbond needle punched nonwoven geotextile, abbreviated as “PP filament spunbond needle punched nonwoven geotextile”.



[PP (Polypropylene) Filament Spunbond Needle Punched Nonwoven Geotextiles]

Its physical and mechanical properties such as fracture strength and puncture resistance have obvious advantages, which are 2-3 times higher than conventional products. It has good acid and alkali resistance and good hot melt adhesion, and is used for reverse filtration, reinforcement, isolation, and drainage in highways, railways, landfill sites, embankments, coastal engineering, and other projects.



[PP (Polypropylene) Filament Spunbond Needle Punched Nonwoven Geotextiles]

Polypropylene filament spunbond needle punched nonwoven geotextile is made of polypropylene as the raw material. Through the needle punching process, different fibers are interwoven, entangled, and fixed to standardize the fabric.

PP filament spunbond needle punched nonwoven geotextile has the advantages of high strength, strong resistance to piercing, strong resistance, corrosion resistance, anti-microorganism, aging resistance, high temperature resistance, superior water permeability, filtering, soil preservation and other advantages.

PP Filament Spunbond Needle Punched Nonwoven Geotextile Features:

- PP filament spunbond needle punched nonwoven geotextile is a permeable material, so it has good filtration and isolation function;
- PP filament spunbond needle punched nonwoven geotextile has good drainage performance due to its fluffy structure;
- PP filament spunbond needle punched nonwoven geotextile has good puncture resistance, so it has good protective performance;
- PP filament spunbond needle punched nonwoven geotextile has good friction coefficient and tensile strength, and has geotextile reinforcement protection and filtration performance;
- Compared with polyester filament geotextile, it has higher strength, stronger tear and puncture resistance, especially acid and alkali resistance. It can be in long term contact with alkaline materials such as cement, fly ash, and lime, and can maintain stable performance in alkaline environments without hydrolysis.

Geotextile Products: POLYPROPYLENE FILAMENT SPUNBOND NEEDLE PUNCHED NONWOVEN GEOTEXTILES

APPLICATION

- Reinforcement of the pavement, repair the cracks on the road, and prevent reflection of cracks on the road;
- Filter layer of the dam surface of the trimal dam, the filter layer of the drainage system in the soil back to fill the soil;
- Filter layer around the drainage dark pipe or crushed drainage drainage ditch;
- The isolation layer between highways, airports, railway scum and artificial stacks and the foundation;
- Highways (including temporary roads) railways, embankments, earth rock dams, airports, sports fields and other projects are used to strengthen the weak foundation.

SPECIFICATIONS OF PP FILAMENT SPUNBOND NEEDLE PUNCHED NONWOVEN GEOTEXTILE

TECHNICAL STANDARD FOR PP FILAMENT SPUNBOND NEEDLE PUNCHED NONWOVEN GEOTEXTILE GB T17639-2008

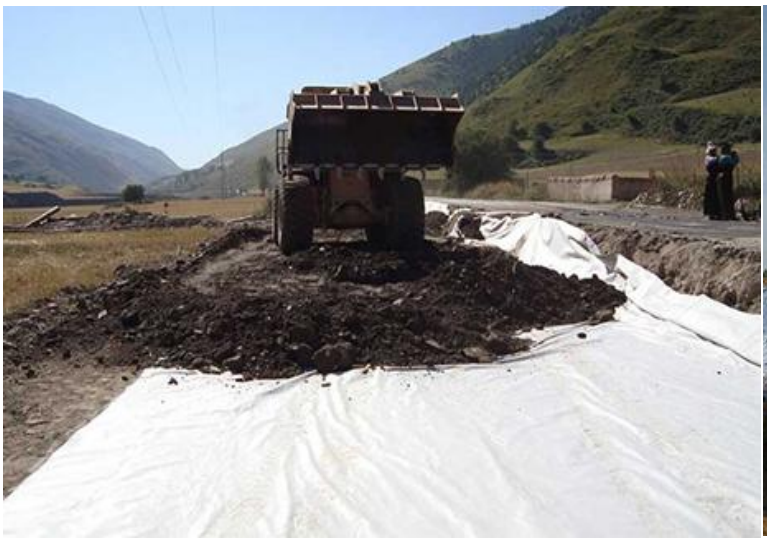
Item	Index								
Nominal breaking strength	4.5	7.5	10	15	20	25	30	40	50
Longitudinal and transverse rupture strength, kN/m ≥	4.5	7.5	10.0	15.0	20.0	25.0	30.0	40.0	50.0
Standard strength corresponds to elongation,%	40~80								
CBR burst strength /kN ≥	0.8	1.6	1.9	2.9	3.9	5.3	6.4	7.9	8.5
Longitudinal to tear strength /kN ≥	0.14	0.21	0.28	0.42	0.56	0.7	0.82	1.1	1.25
Equivalent aperture O_{90} /mm	0.05~0.20								
Thickness /mm ≥	0.8	1.2	1.6	2.2	2.8	3.4	4.2	5.5	6.8
Width deviation, %	-0.5								
Deviation of mass per unit area, %	-5								

TECHNICAL STANDARD FOR PP FILAMENT SPUNBOND NEEDLE PUNCHED NONWOVEN GEOTEXTILE ASTM STANDARD

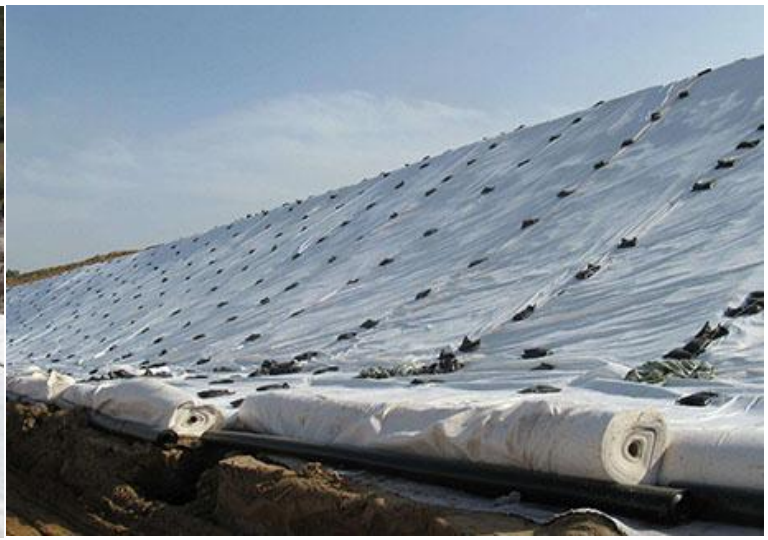
Index Properties	Test Method	Unit	Values											
Weight	ASTM D5261	g/m²	100	125	150	200	250	300	350	400	450	500	550	600
Ultimate Tensile Strength	ASTM D4595	≥kN/m	3.5	5.0	6.0	8.5	11	13	15	18.5	21	23	26	28
Tensile Elongation	ASTM D4595	%	50											
Grab Tensile Strength	ASTM D4632	≥N	270	360	460	550	750	930	1040	1180	1350	1400	1560	1720
Grab Elongatior	ASTM D4632	%	50											
Trapezoid Tear Strength	ASTM D4533	≥N	110	140	165	220	275	330	385	445	505	560	616	640
CBR Puncture Strength	ASTM D6241	≥N	500	770	1120	1600	2150	2430	2920	3390	3700	4110	5300	5500
Puncture Resistance	ASTM D4833	≥N	141	201	261	382	454	565	726	817	931	970	1028	1130
Drop Cone Resistance(hole-φ)	BS EN 918	mm	39	36	33	30	27	24	20	16	15	15	14	13
Hydraulic Properties														
Apparent Opening Size O_{90}	ASTM D4751	≤mm	0.13	0.12	0.12	0.12	0.12	0.11	0.10	0.09	0.08	0.08	0.08	0.08
Permeability	ASTM D4491	cm/s	0.41	0.41	0.41	0.41	0.40	0.40	0.39	0.39	0.39	0.39	0.39	0.39
Physical Identification Properties														
Thickness	ASTM D5199	mm	1.0	1.3	1.7	2.1	2.4	2.5	2.8	3.0	3.2	3.5	3.6	3.8
Roll Width	-	m	4-6											

Geotextile Products: POLYPROPYLENE FILAMENT SPUNBOND NEEDLE PUNCHED NONWOVEN GEOTEXTILES

PROJECTS CASE OF THE PP FILAMENT SPUNBOND NEEDLE PUNCHED NONWOVEN GEOTEXTILE



[Road Reinforcement in Italy]



[Slope Protection in Finland]

GEOTEXTILE CONSTRUCTION

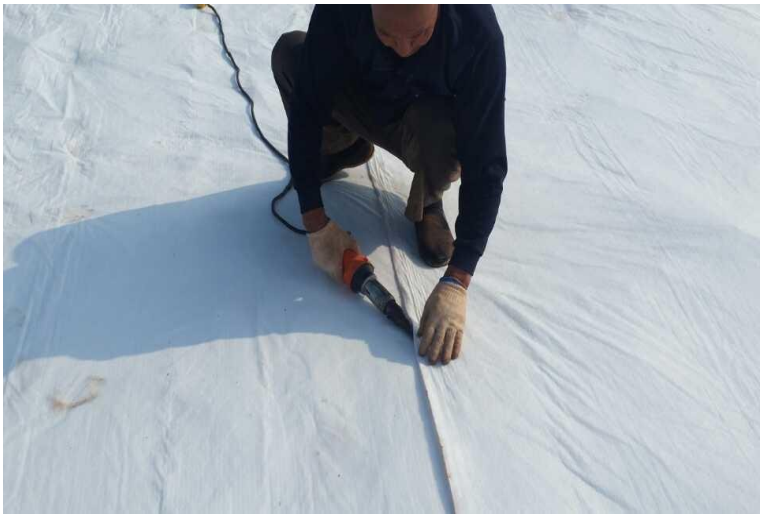
The roller laying method is carried out manually, and the first step is to ensure the smoothness of the cloth surface, leaving a certain gap during construction to allow for external deformation of the material. At the same time, it should be noted that after installation, certain protective measures should be taken to prevent dust, soil and other substances from entering the geotextile layer. If there is a needle leakage, the needle leakage area must be re stitched and reinforced. If the laying project is carried out on a slope, the high end of the actual slope should be fixed during the laying process. After the fixation is completed, long silk geotextile should be rolled down along the slope and laid. After rolling, the cloth surface should be in a taut state. If the laying surface is flat, sand bags need to be used for fixation during the laying process. After a section of the geotextile is laid, the sand bags cannot be removed until the upper layer of material is laid.

COMPARISON BETWEEN PP GEOTEXTILE AND PET GEOTEXTILE

- The special structure of polypropylene gives it excellent acid and alkali resistance, especially its alkali resistance is superior to polyester. When used in underground engineering with strong soil acidity and alkalinity for protection, reinforcement, waterproofing, and seepage prevention, its effect is better than polyester.
- The surface friction coefficient of polypropylene fibers is small, the friction between fibers is small, and the wear resistance is good. The anti vibration friction performance is much better than that of polyester.
- Polypropylene has good hydrophobicity and does not absorb water, making it superior to polyester in water supply and drainage engineering applications.
- Polypropylene fiber needle punched geotextile has higher strength than polyester needle punched geotextile with the same weight, and the longitudinal and transverse strengths are equal.

APPLICATION SCENARIOS

- PP filament spunbond needle punched nonwoven geotextile can be used for slope protection to increase the stability.
- PP filament spunbond needle punched nonwoven geotextile as the isolation layer for road bed.
- PP filament spunbond needle punched nonwoven geotextile can be used for highway to strengthen soft foundation.
- PP filament spunbond needle punched nonwoven geotextile is suitable for dam to dissipate gap water pressure.



Filament geotextile has good mechanical function, good water permeability, corrosion resistance, aging resistance, isolation, anti filtration, drainage, protection, stability, reinforcement and other functions, can adapt to uneven base course, can resist external force damage, creep is small, and can still maintain its original function under long-term load. Even when exposed to an environment of nearly 20 ℃ for a short period of time, its performance remains almost unchanged. Through extensive experiments and practice, it has been proven that long filament geotextiles have long-term corrosion resistance to various natural soils, moisture, and microorganisms.

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