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# Technical Bulletin

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## Premium Woven Geotextiles for Roadway Stabilization

Amoco's premium woven geotextiles, 2044 and 2016, are ideal for stabilizing paved and unpaved road construction over very soft soils. These 'next generation' geotextiles combine the high strength and modulus of geogrids (see Figure 1) with the separation and drainage properties vital to construction over soft soils.

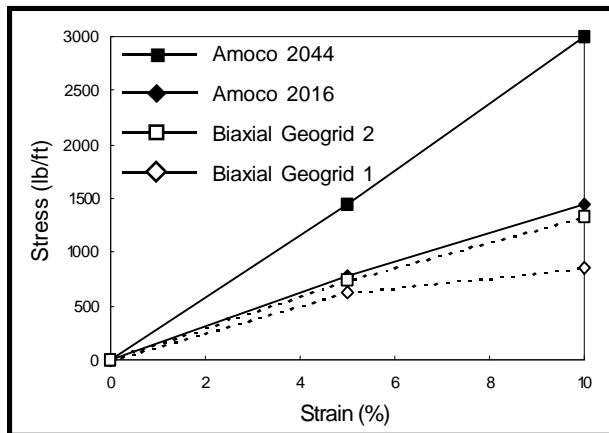


Figure 1 - Stress-strain relationship of Amoco geotextiles and biaxial polypropylene geogrids

### Reduced Cost for Accessing Difficult Sites

Site access can be difficult and costly when constructing over soft and saturated soils. Amoco's premium woven geotextiles provide an essential working platform, making it easy for construction equipment to get on site and begin work. These fabrics

have high modulus values which minimize aggregate fill depth requirements and can eliminate the need for costly undercutting and over-excavation. Amoco's premium woven geotextiles can reduce aggregate fill requirements by as much as 50%.

### Increased Long-Term Roadway Performance

Research performed by Virginia Tech determined that geotextiles substantially improve performance of flexible pavements (Smith et al., 1994). Amoco woven geotextiles doubled or tripled the service life of test sections constructed over moderate to soft soils (CBR between 2 and 4.5 %). Biaxial polypropylene geogrids studied in this research had no affect on the pavement performance. The study demonstrates that separation of the weak soil from the base course aggregate is the key to increased service life.

Contaminating a road base aggregate with just 8% additional fine soil particles can decrease the aggregate strength by up to 80% (Jorenby and Hicks, 1986). As shown in Figure 2, geotextiles prevent this contamination through their separation function, thereby preserving the strength and original design thickness of the aggregate

layer. When typical roadway materials are used, geogrids are unable to provide separation of aggregate and fine subgrade soil (Koerner and Koerner, 1994, and FHWA, 1989).

## Amoco Fabrics and Fibers Company

Amoco offers a complete line of woven and nonwoven geotextiles to improve the performance of highways, unpaved roads, parking lots, airports, loading docks, and storage areas. For additional technical assistance on the use of Amoco geotextiles in roadway stabilization applications, contact Amoco at (800) 445-SPEC.

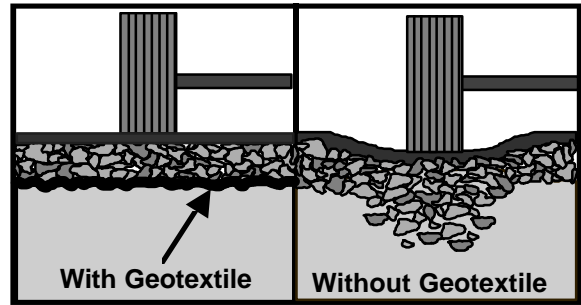


Figure 2 - Effect of geotextile on road base integrity.

### References

Jorenby, B.N. and Hicks, R.G. (1986), "Base Course Contamination Limits," Transportation Research Record 1095, Transportation Research Board and National Research Council, Washington DC, pp 86-101.

Koerner, R.M. and Koerner G.R. (1994), "Separation: Perhaps the Most Underestimated Geotextile Function," *Geotechnical Fabrics Report*, IFAI, St. Paul, MN, January, pp 4-10.

Smith, T.E., Brandon, T.L., Al-Qadi, I.L., Lacina, B.A., Bhutta, S.A., and Hoffman, S.E. (1994), *Laboratory Behavior of Geogrid and Geotextile Reinforced Flexible Pavements*, Virginia Tech, Blacksburg, VA, December.

Federal Highway Administration (1989) *Geotextile Design and Construction Guidelines*, U.S. Department of Transportation, FHWA, Publication No. FHWA-HI-90-001.

**For more information on Amoco's complete line of geotextiles  
call us at 800-445-SPEC**

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