



Geosynthetics in Road Engineering

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Roads and highway are of utmost importance to the development of any country. Due to systematic traffic of heavy vehicles, climate conditions and mechanical properties of the materials used in their constructions, highway pavements may last considerably less than expected.



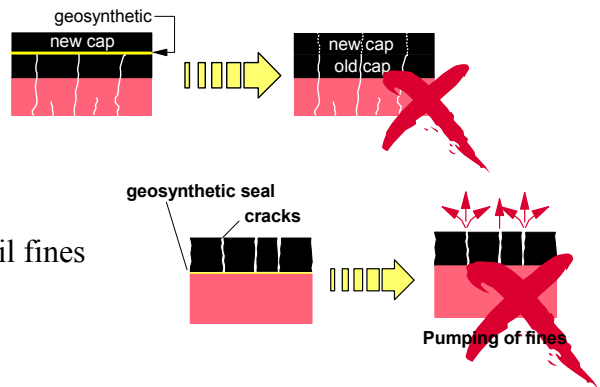
Damages in a conventional pavement



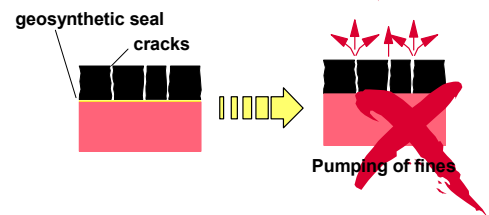
Geosynthetic in pavement construction^(*)

In this sense, geosynthetics can be effectively used to

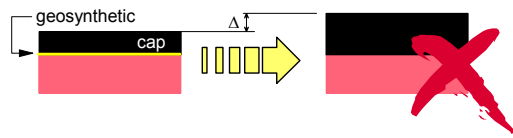
- Reduce or avoid reflective cracking



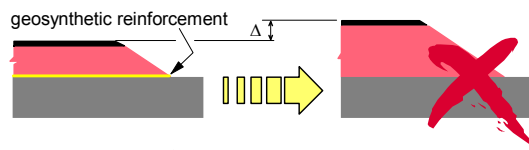
- Work as a barrier to avoid pumping of soil fines



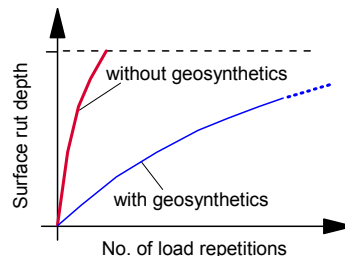
- Reduce asphalt cap thickness



- Reduce pavement thickness



- Increase the lifetime of the pavement.



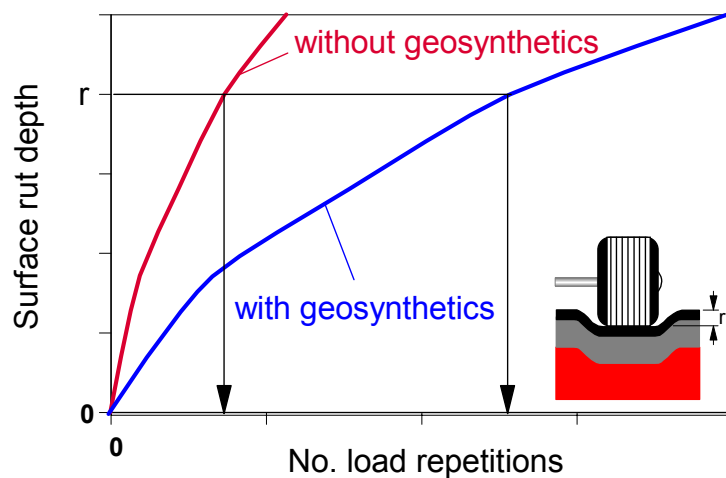
The efficiency of the geosynthetics as reinforcement in a pavement can be estimated by the Efficiency Factor (E):

$$E = \frac{N_r}{N_u}$$

N_r = number of load repetitions up to failure for the reinforced pavement.

N_u = number of load repetitions up to failure for the unreinforced pavement.

Available data in the literature present values of E as high as 16, which shows that considerable increases on the pavement lifetime can be achieved with the use of geosynthetic as reinforcement or separation. Field observations and research results confirm the improvements of pavement performance due to geosynthetic utilization.



Increase of pavement life time due to the use of geosynthetic reinforcement

If properly specified and installed, geosynthetics can be cost-effective and improve the performance and durability of pavements. Additional information on the application of geosynthetics in pavements and other fields of geotechnical and geoenvironmental engineering can be found at www.geosyntheticssociety.org.

(*) Courtesy of Dr. Lilian R. Rezende (University of Goias, Brazil).

About the IGS

The **International Geosynthetics Society (IGS)** is a non-profit organization dedicated to the scientific and engineering development of geotextiles, geomembranes, related products and associated technologies. The IGS promotes the dissemination of technical information on geosynthetics through a newsletter (IGS News) and through its two official journals (Geosynthetics International - www.geosynthetic-international.com and Geotextiles and Geomembranes - www.elsevier.com/locate/geotextmem). Additional information on the IGS and its activities can be obtained at www.geosyntheticssociety.org or contacting the IGS Secretariat at IGSsec@aol.com

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