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Clogging Reduction Design Factor for Geosynthetics Used in Sustainable Urban Drainage Systems and Roads

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Abstract : Sustainable urban drainage systems (SUDS) are more often used in order to prevent floods, water treatment, fight against pollution, urban heat island effect, and global warming in applications like green roofs, permeable pavements, and others. Furthermore, geosynthetics are also worldwide used as a part of drainage systems in road construction. Geotextiles are an essential part of both, and one of the main geotextile properties in those applications is permeability, whose behavior is not well established along its service life. In this paper, clogging reduction design factors for an estimated service life of 25 years are experimentally obtained for five different geotextiles used in SUDS and roads combined with two different soils and with two pollutants, motor oil, and lime, in order to evaluate chemical clogging, too. The effect of characteristic opening size and other characteristics of the geosynthetics are also discussed in order to give civil engineers, together with the clogging reduction factors, a better long-time design of geotextiles used in their SUDS and roads.

Keywords : geotextiles, drainage, clogging, reduction factor
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