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Geosynthetic barriers - Test method for determining the resistance to roots

Géomembranes et géosynthétiques bentonitiques - Méthode d'essai pour la détermination de la résistance aux racines

Geosynthetische Dichtungsbahnen - Prüfverfahren zur Bestimmung des Widerstandes gegen Wurzeln

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Foreword

This Technical Specification (CEN/TS 14416:2005) has been prepared by Technical Committee CEN/TC 189 “Geosynthetics”, the secretariat of which is held by IBN.

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Introduction

This Technical Specification defines a method for testing the resistance of the geosynthetic barrier to penetration by roots. Such resistance is a requirement for many uses of geosynthetic barriers.

The standard does not purport to address all of the safety problems, if any, associated with its use.

1 Scope

This CEN Technical Specification covers a laboratory procedure for the testing of the resistance of polymeric, bituminous or clay geosynthetic barriers to root penetration.

2 Normative references

Not applicable.

3 Principle

A section of geosynthetic barrier is placed in soil into which seeds are sown. Six to eight weeks later the geosynthetic barrier is examined to see whether it has been penetrated by the roots of the young plants.

4 Apparatus

The following equipment shall be used:

— four dry unglazed clay flower pots approximately 220 mm high. The diameter of the base of the flower pot shall be approximately 140 mm, the diameter of the top 250 mm, and the cone angle (angle between side and central axis) approximately 13º. A band about 40 mm wide shall be painted on the inside of the pot, about 100 mm above the base, and allowed to dry;

— lime-free soil (pH 5 to 6), mixed with a little loam;

NOTE Compost should not be used;

— seeds of lupin (lupinus alba);

— silicone mastic sealant;

— bitumen 85/40;

— glass tubes.

5 Procedure

— Fill the pots with the soil as far as the lower edge of the painted band.

— Cut three discs of geosynthetic barrier to cover the soil exactly.

— Place the geosynthetic barrier on the soil of three of the pots with the upper side uppermost.

— Carefully seal the gap between geosynthetic barrier and pot with the sealant.

— Prepare the fourth pot in which the geosynthetic barrier is replaced by a 20 mm thick layer of bitumen 85/40.

NOTE 85/40 is an oxidized grade bitumen with a softening point of (85 ± 5) ºC and a penetration temperature of (40 ± 5) ºC.