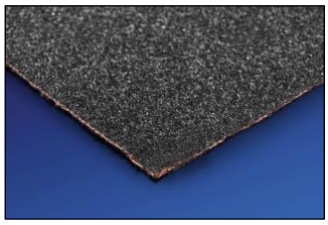
1. Description

A geocomposite root barrier system consisting of a copper sheet mechanically encapsulated between a woven polypropylene geotextile and a high strength nonwoven polypropylene geotextile. The copper acts as a signal layer that all plants avert their growth from. The copper foil only releases minute quantities of the copper ion that does not constitute an ecosystem burden, or impact on groundwater.



2. Applications

CuTex geocomposite can provide a direct protection of utilities infrastructures such as foundations and drains from root intrusion, landfill caps and green roofs. It will also provide protection to roads, railways and dams.

3. Features

Plant shoot/root primordia (growth tips) are averse to growing into the vicinity of copper concentrations. The roots/shoots turn their growth in a different direction when confronted with the copper foil. These principles make CuTex a suitable barrier for Japanese Knotweed growth as well as all other plants. Most of the Japanese Knotweed rhizome exists in the upper layers of topsoil: it has been established that, in an infected area, 14,000kg/ha dry weight of Knotweed may exist in the top 250mm (Brock, 1994).

	Test Standard	Unit	Mean Values
4. Mechanical Properties			
Static puncture (CBR)	EN ISO 12236	kN	3
Tensile strength (MD/CMD)	EN ISO 10319	kN/m	20 / 15
5. Filter Properties			
Water permeability v_{H50}	EN ISO 11058	l/(m²·s)	6
6. Physical Properties			
Thickness	EN ISO 9863-1	mm	3
Copper layer thickness		µm	18
Carbon black content (geotextile)			1% active carbon black for UV stability
Standard colour (geotextile)			Black
Polymer (geotextile)			100% virgin polypropylene
Resistance to roots	PD CEN/TS 14416:2014		Pass

a) Mean values indicate the arithmetic mean derived from the samples taken for any one test as defined in the standard – usually an overall mean of five samples.
b) MD: Machine Direction (longitudinal to the roll). CMD: Cross Machine Direction (across the roll).
c) Tensile testing is performed using extensometers.

	Test Standard	Values
7. Durability – Composite		
Weathering 50 MJ/m² (1 month)	EN ISO 12224	>90% Retained Strength
Microbiological resistance	EN ISO 12225	No loss in strength
Resistance to acids & alkalis	EN ISO 14030	No loss in strength
Oxidation at 112 days (100 years)	EN ISO 13438	>90% Retained Strength

8. Testing

In order to demonstrate the bio-barrier performance of the proprietary CuTex barrier system a laboratory test was undertaken by the Centre for Plant Sciences at Leeds University. The test was based on "Resistance to Roots - PD CEN/TS 14416:2014" using both Lupin (as per standard) and Japanese Knotweed, which lasted 8 weeks. When completed, it was evident that none of the plants were able to grow through our bio-barrier: the roots that made their way down to the copper foil were either stopped or took lateral route. None of the rootlets penetrated any of the needlepunched holes, demonstrating the growth inhibited effect caused by the chemical properties of the copper foil insert.

It should be noted that the CuTex barrier is a permeable system, which gives it an advantage against impermeable barriers that block the normal circulation of water and nutrients in the ecosystem.

9. Storage

The geocomposites are supplied in packaging designed to protect the product from damage during handling, storage, and degradation as a result of UV exposure. The product should be kept in appropriate packaging until such time that it is required for installation. The product is clearly and indelibly marked with the product name along the edge of the roll at regular intervals no greater than 5m. The packaging is labelled clearly to identify the product supplied in accordance with EN ISO 10320: Geotextile and Geotextile related products – Identification on site. Use slings where provided. Product weights are given on roll tickets. Use equipment appropriate to weight and dimension. Store and handle in accordance with good occupational health and safety practice.

	Unit	Values			
10. Dimensions					
Standard roll dimensions (length x width)	m	25 x 2.6	25 x 5.2	50 x 2.6	50 x 5.2
Approximate roll weight	Kg	50	100	100	200

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