

**1. DESCRIPTION**

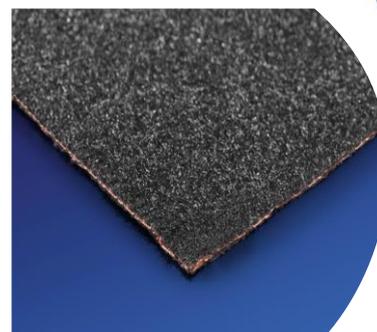
A geocomposite root barrier systems consisting of a copper sheet mechanically encapsulated between a woven polypropylene geotextile and a high strength nonwoven polypropylene geotextile. The copper acts as a signal layer that all plants avert their growth from. The copper foil only releases minute quantities of the copper ion. These do 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 a protection to roads, railways and dams.

**3. FEATURES**

Plant shoot/root primordia (growth tips) are averse to growing into the vicinity of copper concentrations. In essence, 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. The majority 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	Unit	MEAN VALUES
<b>4. MECHANICAL PROPERTIES</b>			
Static Puncture (CBR)	EN ISO 12236	kN	2.5
Tensile Strength (MD/CMD)	EN ISO 10319	kN/m	20
Tensile Elongation (MD/CMD)	EN ISO 10319	%	35
<b>4. FILTER PROPERTIES</b>			
Water Permeability	EN ISO 11058	l/s/m <sup>2</sup>	3.10 <sup>-4</sup>
<b>5. PHYSICAL PROPERTIES</b>			
Copper Thickness	EN ISO 9863-1	μ	18
Carbon Black Content (Geotextile)			1% active carbon black
Standard Colour			Black
Polymer			100% Virgin Polypropylene

Notes:

- 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. Mean values are subject to tolerances based on 95% confidence limits as published on the product CE declaration of performance.
- b) Nominal Value (indicates an average manufacturing norm and not a controlled performance parameter).
- c) MD: Machine Direction (longitudinal to the roll).
- d) CMD: Cross Machine Direction (across the roll).
- e) Tensile testing is performed using extensometers.

	Test	VALUES
<b>6. DURABILITY – GEOTEXTILE</b>		
Weathering 50J/m <sup>2</sup> (1 month)	EN 12224	>90% Retained Strength
Microbiological resistance	EN 12225	No loss in strength
Resistance to acids & alkalis	EN 14030	No loss in strength
Oxidation at 85 days (100 years)	EN 13438	>90% Retained Strength



PBA Solutions are the appointed distributors for CuTex  
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**7. INSTALLATION**

It is recommended that 150mm or a suitable layer of the Knotweed contaminated area is removed and disposed in the correct manner. The excavation should extend 7m beyond the extent of the Knotweed growth in all directions where possible. The whole of the excavated area should then be covered with CuTex. The CuTex should be anchored into a 2m deep trench around the periphery so as to provide a barrier to lateral knotweed growth. Adjacent sheets of CuTex should be overlapped or folded into a pleat. Once in place, the CuTex should be backfilled with at least 200mm of well graded material with a grain size no larger than 50mm. Joints can be taped, heat joined or stainless steel pegs if so required.

**8. TESTING**

All materials are tested every 6000m<sup>2</sup> in an UKAS accredited ISO 17025 laboratory to all mechanical properties prior to release.

In order to demonstrate the bio-barrier performance of the proprietary CuTex barrier system a laboratory test was undertaken by REC Ltd. The test was performed on a mixture of plant species including mustard, docks, meadow grass and Japanese Knotweed within a peat and compost based soil matrix. The trial was monitored over a duration of six months in which period it was evident that the rhizome fragments of Japanese Knotweed were actively growing beneath the Cutex barrier. The field trial was conducted within a climate controlled environment (20°C) with daily addition of moisture to the surface of the soil.

Upon careful exhumation of the CuTex barrier, it was evident that none of the plants were able to grow through the bio-barrier. Typically, 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 capable of transferring moisture through the geotextile sandwich and copper foil and therefore not prone to water logging in field conditions. The laboratory trial proved that there was no water logging of the soil above the barrier.

**9. STORAGE**

The geocomposites are supplied in packaging designed to protect the product from damage during handling and 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 hygiene and safety practice.

6.DIMENSIONS	VALUES			
	Standard Roll Dimensions (m)	25 x 2.6	25 x 5.2	50 x 2.6
Standard Roll Weight (Kg)	38.5	77	77	154



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