

## Cutex

- 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. 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)		%	35
<b>5. Filter Properties</b>			
Water Permeability $V_{H50}$	EN ISO 11058	$l/(m^2 \cdot s)$	$3 \cdot 10^{-4}$
<b>6. Physical Properties</b>			
Copper Thickness (nominal)	EN ISO 9863-1	$\mu$	18
Carbon Black Content (geotextile)			1% Active Carbon Black
Standard Colour			Black
Polymer			100% Virgin Polypropylene



Flexible Lining Products is a trading style of Greentech Ltd.

Rabbit Hill Business Park, Great North Road, Arkendale, Knaresborough HG5 0FF

UK. Tel: +44 (0)1423 332100

Fax: +44 (0)1423 332101

Email: sales@green-tech.co.uk

Web: www.green-tech.co.uk

	Test	Values
<b>7. Durability</b>		
Weathering 50 MJ/m <sup>2</sup> (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** - 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 biobarrier. 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, 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.

	Unit	Values			
<b>10. Dimensions</b>					
Standard Roll Length	m	25	25	50	50
Standard Roll Width	m	2.6	5.2	2.6	5.2
Approximate Roll Weight	kg	38.5	77	77	154

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