

CONCRETE CANVAS®

Concrete on a Roll

ROOT RESISTANCE TESTING

- 
RAIL
- 
ROAD
- 
MINING
- 
PETROCHEM
- 
AGRO
- 
UTILITIES
- 
PUBLIC WORKS
- 
DEFENCE
- 
DESIGN
- 
SHELTER

- 
Winner
Technical Innovation Award
- 
Innovation Award
ICE Wales Cymru Awards 2017
- 
2014 Fast Track 100
16th fastest growing company in the UK.
- 
2014 Queen's Award
for Enterprise in Innovation
- 
2013
Macrobert Award
Finalist
- 
2013 Innovation Award Winner
Ralltex Exhibition
- 
2012 R&D 100
Award winner
R&D Magazine
- 
2009 Winner
Material ConneXion Medium Award
Material of the Year
- 
D&AD Yellow Pencil Award
Winner
Product Design

Root Resistance Testing

Based on testing to - DD CEN/TS 14416:2005 "Resistance to Roots"

Concrete Canvas® GCCM (Geosynthetic Cementitious Composite Mat) products have been independently tested by BICS Laboratories Ltd, UK, to assess the Material's resistance to root penetration on 5mm Concrete Canvas® GCCM (CC5™). The test method used is based on DD CEN/TS 14416:2005 "Determination of the Resistance to Roots".

The test method involves placing a fully cured sample of CC5™ of diameter 100mm and thickness 5mm, including a typical overlap joint, into soil into which plant seeds are sown. The joint was a standard 'adhesive sealant' overlap joint bonded using a single 6mm bead of 'CT1 sealant'. The plants are then grown over a 10 week period. At the end of the test the samples were examined to see whether the barrier or joints have been penetrated by the roots of the growing plants.

Summary of Results

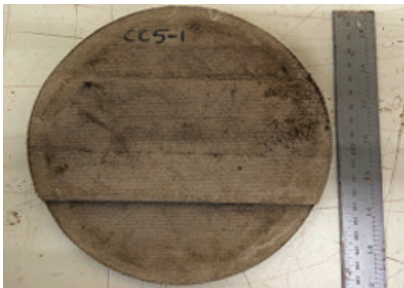


Figure 1: Upper surface after test. No root penetration



Figure 2: Joint after test. No root penetration

Both the exposed (top) side and underside of the material was examined and in all cases there was no evidence of root penetration through either the material or the joint.



BICS Laboratories Ltd

Reliable testing, Superior service

T +44 (0) 1484 717776 F +44 (0) 1484 717757
E info@bics-labs.co.uk W www.bics-labs.co.uk

REPORT

GEOSYNTHETICS TEST REPORT

REPORT REFERENCE: BS-J861/b

Report Date 05/08/2014
Client Concrete Canvas Ltd, Pontypridd, CF37 5SP
Contact William Crawford
Contract Reference N/A
Client PO/Ref No TBA

Material Tested 5mm Concrete Canvas
Date Received 23/05/2014
Sample IDs CC5-1, CC5-2 & CC5-3 {Overlap Sections}

Tests Requested Determination of the Resistance to Roots - DD CEN/TS 14416:2005

If you have any questions or require additional information, please do not hesitate to contact us.

Report Authorisation:

Ryan Hackney
Laboratory Manager
05/08/2014



Cert No. 7495
ISO 9001

Page 1 of 5

This test report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

BICS Laboratories Ltd, Unit 2, Little John Mill, Oak Hill Road, Brighouse, West Yorkshire, HD6 1SN
Directors: Clifford Butt, Shazeena N. Iqbal Company Registration Number: 4213030



BICS Laboratories Ltd

Unit 2, Little John Mill, Oak Hill Road, Brighouse, West Yorkshire HD6 1SN
T +44 (0) 1484 717776 F +44 (0) 1484 717757
E info@bics-labs.co.uk W www.bics-labs.co.uk

GEOSYNTHETICS TEST RESULTS

CONCRETE CANVAS LTD

P.O NO: TBA

Material: 5mm Concrete Canvas

Sample ID: CC5

Test Method: Resistance to Roots - DD CEN/TS 14416:2005

Report Ref No: BS-J861/b

Dates Tested: 23/05-01/08/2014

1.0 Method

Three samples of CC5 overlap sections (Figure 1) were placed in soil into which seeds of lupin were sown. The seeds were grown during the period 23/05/2014 - 01/08/2014. At the end of the test the samples were examined to see whether the barrier/joints had been penetrated by the roots of the young plants.

2.0 Results

Both the exposed (top) side of the barrier and the underside of the barrier have been inspected, and there is no evidence of penetration (either through the material or the joint) from the roots on any of the samples tested. Photographs have been taken to show both surfaces and joints of the test samples.

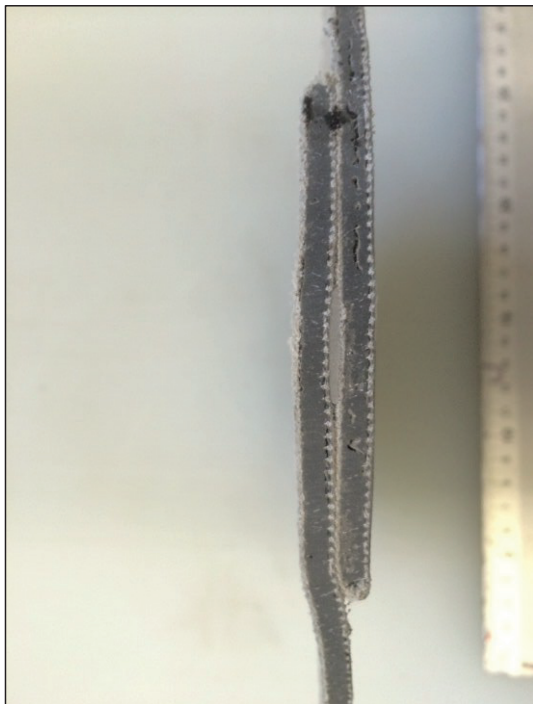


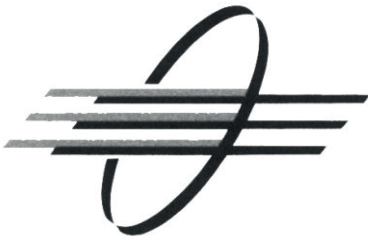
Figure 1. Typical overlap section (joint) prior to exposure



Figure 2. Typical root system at the CC5 interface after testing

BICS Laboratories Ltd. neither accepts responsibility for nor makes claim as to the final use and purpose of the material. Unless otherwise detailed sample sizes and related test items comply with the listed test method. Test results relate only to the sample(s) supplied. The company also observes and maintains client confidentiality.

CONFIDENTIAL TEST REPORT



BICS Laboratories Ltd

Unit 2, Little John Mill, Oak Hill Road, Brighouse, West Yorkshire HD6 1SN
T +44 (0) 1484 717776 F +44 (0) 1484 717757
E info@bics-labs.co.uk W www.bics-labs.co.uk

GEOSYNTHETICS TEST RESULTS CONCRETE CANVAS LTD P.O NO: TBA

Material: 5mm Concrete Canvas
Sample ID: CC5
Test Method: Resistance to Roots - DD CEN/TS 14416:2005

Report Ref No: BS-J861/b
Dates Tested: 23/05-01/08/2014

3.0 Photographs

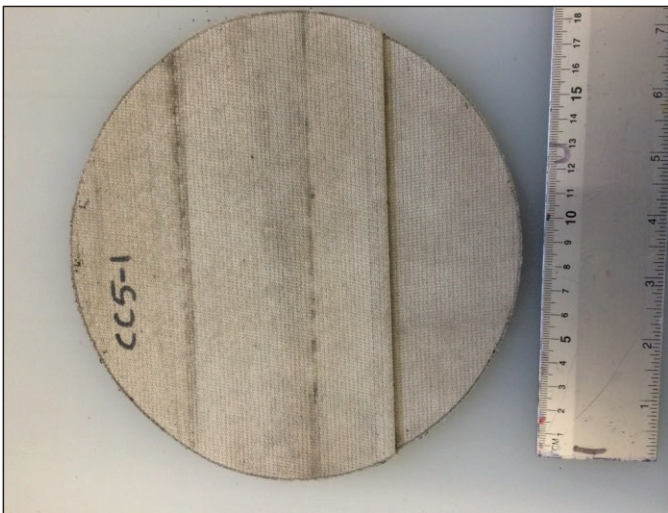


Figure 3. CC5-1 Before the test (upper surface)



Figure 4. CC5-1 Before the test (lower surface)

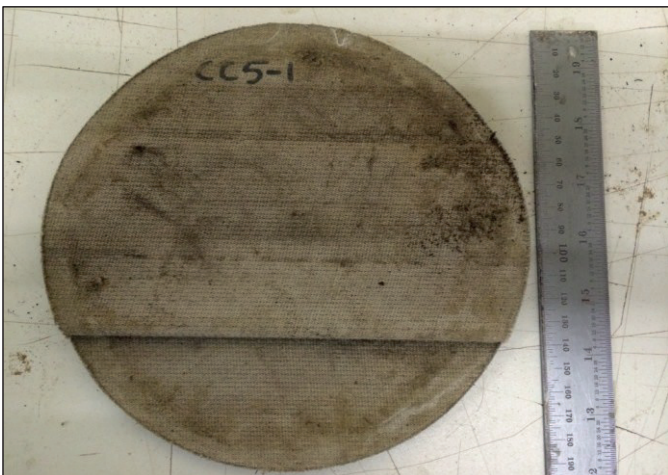


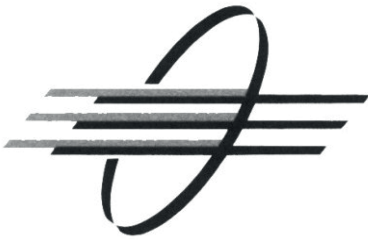
Figure 5. CC5-1 After the test (upper surface), no root penetration



Figure 6. CC5-1 joint after the test, no root penetration

BICS Laboratories Ltd. neither accepts responsibility for nor makes claim as to the final use and purpose of the material.
Unless otherwise detailed sample sizes and related test items comply with the listed test method. Test results relate only to the sample(s) supplied.
The company also observes and maintains client confidentiality.

CONFIDENTIAL TEST REPORT



BICS Laboratories Ltd

Unit 2, Little John Mill, Oak Hill Road, Brighouse, West Yorkshire HD6 1SN
T +44 (0) 1484 717776 F +44 (0) 1484 717757
E info@bics-labs.co.uk W www.bics-labs.co.uk

GEOSYNTHETICS TEST RESULTS CONCRETE CANVAS LTD P.O NO: TBA

Material: 5mm Concrete Canvas
Sample ID: CC5
Test Method: Resistance to Roots - DD CEN/TS 14416:2005

Report Ref No: BS-J861/b
Dates Tested: 23/05-01/08/2014

3.0 Photographs



Figure 7. CC5-2 Before the test (upper surface)

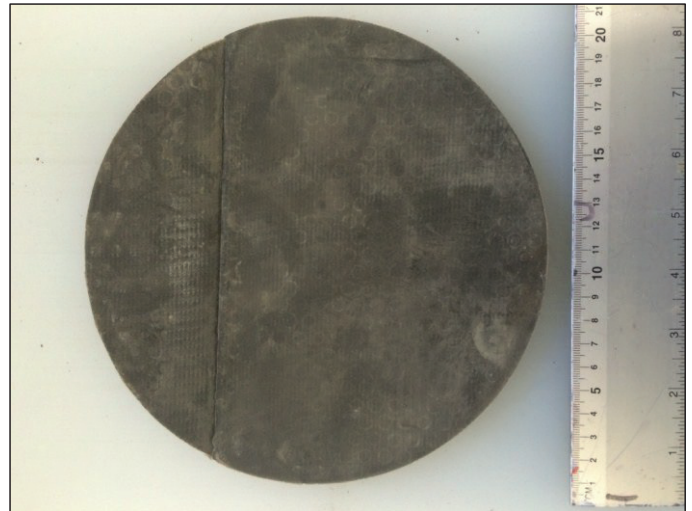


Figure 8. CC5-2 Before the test (lower surface)



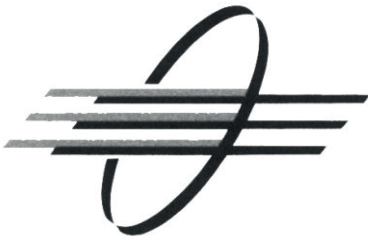
Figure 9. CC5-2 After the test (upper surface), no root penetration



Figure 10. CC5-2 joint after the test, no root penetration

BICS Laboratories Ltd. neither accepts responsibility for nor makes claim as to the final use and purpose of the material.
Unless otherwise detailed sample sizes and related test items comply with the listed test method. Test results relate only to the sample(s) supplied.
The company also observes and maintains client confidentiality.

CONFIDENTIAL TEST REPORT



BICS Laboratories Ltd

Unit 2, Little John Mill, Oak Hill Road, Brighouse, West Yorkshire HD6 1SN
T +44 (0) 1484 717776 F +44 (0) 1484 717757
E info@bics-labs.co.uk W www.bics-labs.co.uk

GEOSYNTHETICS TEST RESULTS CONCRETE CANVAS LTD P.O NO: TBA

Material: 5mm Concrete Canvas
Sample ID: CC5
Test Method: Resistance to Roots - DD CEN/TS 14416:2005

Report Ref No: BS-J861/b
Dates Tested: 23/05-01/08/2014

3.0 Photographs



Figure 11. CC5-3 Before the test (upper surface)

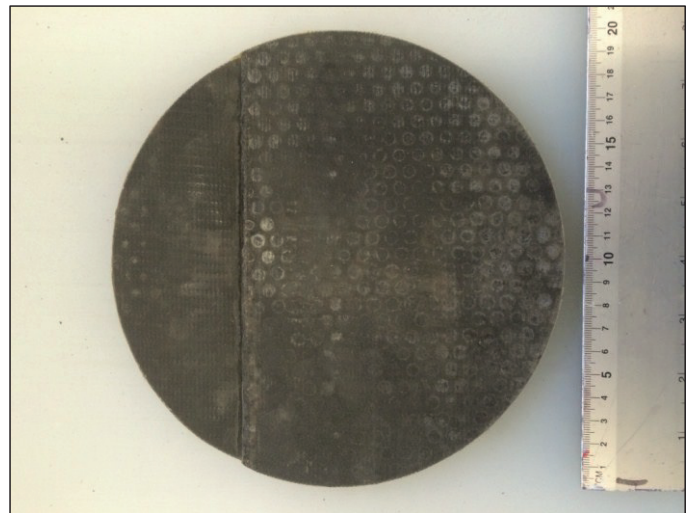


Figure 12. CC5-3 Before the test (lower surface)



Figure 13. CC5-3 After the test (upper surface), no root penetration



Figure 14. CC5-3 joint after the test, no root penetration

BICS Laboratories Ltd. neither accepts responsibility for nor makes claim as to the final use and purpose of the material.
Unless otherwise detailed sample sizes and related test items comply with the listed test method. Test results relate only to the sample(s) supplied.
The company also observes and maintains client confidentiality.

CONFIDENTIAL TEST REPORT