



EXPLORATION ASSOCIATES LIMITED

Gregsons Building,
Northumberland Yard, East Howdon, Wallsend, Tyne & Wear NE28 0QD.
Tel: (091) 263 3303. Fax: (091) 262 3690

TEST CERTIFICATE

Debermination of "Pull Out" strength of Tecroc C.S. Grout broadly in accordance with BS5080: Part 1 1993 - Structural Fixing in Concrete and Masonary Part 1 Method of Test for Tensile Loading.

Client: Tecroc Products Ltd

Address: Holly Lane Ind Est
Atherstone
Warwickshire

Requested by: P Bradnam - Tecroc
J Hindmarsh (MT208) - Exploration Associates

Product Ref: Tecroc C S Grout

Batch Ref: E A Materials Laboratory

Date of test: 2nd February 1994

Bars: McAlloy 20mm diameter bar with 1 no McAlloy 520 nut.

Age of Grout at test 1 day

Maximum load achieved*¹ 34.3kN which corresponds to a bond strength of 1.56N/mm²

Failure mode:bar/grout interface

Procedure: A structural concrete block was cored in order to achieve a 50mm diameter hole approximately 400mm deep. Tecroc C.S Grout was batched in accordance with the manufacturers instructions, a 500mm length of McAlloy 20mm diameter bar was cast into the block with Tecroc C.S Grout to a depth of 350mm. This was allowed to cure in a room with an ambient temperature of between 12°C ± 5°C (average temperature 15°C) until the required test date was reached. The samples were then tested on a 500kN tensile test machine until failure occurred. Test certificates of the compressive strength of the structural concrete block and 28 day results of the Tecroc C.S Grout are enclosed in this report.

Approved By

M Cox (Materials Laboratory Supervisor)

THIS TEST IS NOT N.A.M.A.S. ACCREDITED





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Requested by: P Bradnam - Tecroc
J Hindmarsh (MT208) - Exploration Associates

Product Ref: Tecroc C S Grout
Batch Ref: E A Materials Laboratory
Date of test: 4th February 1994
Bars: McAlloy 20mm diameter bar with 1 no McAlloy 520 nut.

Age of Grout at test 3 days

Maximum load achieved*¹ 88.3kN which corresponds to a bond strength of 4.02N/mm²

Failure mode:bar/grout interface

Procedure: A structural concrete block was cored in order to achieve a 50mm diameter hole approximately 400mm deep. Tecroc C.S Grout was batched in accordance with the manufacturers instructions, a 500mm length of McAlloy 20mm diameter bar was cast into the block with Tecroc C.S Grout to a depth of 350mm. This was allowed to cure in a room with an ambient temperature of between 12°C ± 5°C (average temperature 15°C) until the required test date was reached. The samples were then tested on a 500kN tensile test machine until failure occurred. Test certificates of the compressive strength of the structural concrete block and 28 day results of the Tecroc C.S Grout are enclosed in this report.

Approved By

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A subsidiary of Northumbrian Water Group Plc

Registered in England and Wales. Registered No. 2355437.
Registered Office: Northumbria House, Regent Centre, Gosforth, Newcastle upon Tyne.
Offices in: Chester (0244) 288200. Bridgend (0656) 646588. High Wycombe (0628) 532323.
Leamington Spa (0926) 431007. Scotland (041) 221 9866

TESTING
No. 1026



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Client: Tecroc Products Ltd

Address: Holly Lane Ind Est
Atherstone
Warwickshire

Requested by: P Bradnam - Tecroc
J Hindmarsh (MT208) - Exploration Associates

Product Ref: Tecroc C S Grout

Batch Ref: E A Materials Laboratory

Date of test: 1st March 1994

Bars: McAlloy 20mm diameter bar with 1 no McAlloy 520 nut.

Age of Grout at test 7 days

Maximum load achieved*1 137kN which corresponds to a bond strength of 6.23N/mm²

Failure mode:bar/grout interface

Procedure: A structural concrete block was cored in order to achieve a 50mm diameter hole approximately 400mm deep. Tecroc C.S Grout was batched in accordance with the manufacturers instructions, a 500mm length of McAlloy 20mm diameter bar was cast into the block with Tecroc C.S Grout to a depth of 350mm. This was allowed to cure in a room with an ambient temperature of between 12°C ± 5°C (average temperature 15°C) until the required test date was reached. The samples were then tested on a 500kN tensile test machine until failure occurred. Test certfificates of the compressive strength of the structural concrete block and 28 day results of the Tecroc C.S Grout are enclosed in this report.

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Requested by: P Bradnam - Tecroc
J Hindmarsh (MT208) - Exploration Associates

Product Ref: Tecroc C S Grout

Batch Ref: E A Materials Laboratory

Date of test: 15th February 1994

Bars: McAlloy 20mm diameter bar with 1 no McAlloy 520 nut.

Age of Grout at test 14 days

Maximum load achieved*1 168kN which corresponds to a bond strength of 7.64N/mm²

Failure mode:bar/grout interface

Procedure:

A structural concrete block was cored in order to achieve a 50mm diameter hole approximately 400mm deep. Tecroc C.S Grout was batched in accordance with the manufacturers instructions, a 500mm length of McAlloy 20mm diameter bar was cast into the block with Tecroc C.S Grout to a depth of 350mm. This was allowed to cure in a room with an ambient temperature of between 12°C ± 5°C (average temperature 15°C) until the required test date was reached. The samples were then tested on a 500kN tensile test machine until failure occurred. Test certificates of the compressive strength of the structural concrete block and 28 day results of the Tecroc C.S Grout are enclosed in this report.

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Product Ref: Tecroc C S Grout

Batch Ref: E A Materials Laboratory

Date of test: 1st March 1994

Bars: McAlloy 20mm diameter bar with 1 no McAlloy 520 nut.

Age of Grout at test 28 days

Maximum load achieved*1 184kN which corresponds to a bond strength of 8.37N/mm²

Failure mode:bar/grout interface

Procedure: A structural concrete block was cored in order to achieve a 50mm diameter hole approximately 400mm deep. Tecroc C.S Grout was batched in accordance with the manufacturers instructions, a 500mm length of McAlloy 20mm diameter bar was cast into the block with Tecroc C.S Grout to a depth of 350mm. This was allowed to cure in a room with an ambient temperature of between 12°C ± 5°C (average temperature 15°C) until the required test date was reached. The samples were then tested on a 500kN tensile test machine until failure occurred. Test certificates of the compressive strength of the structural concrete block and 28 day results of the Tecroc C.S Grout are enclosed in this report.

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