

Accreditation Certificate

MTS Ltd.

19 Kernanstown Industrial Estate, Carlow

Testing Laboratory

Registration number: 120T


is accredited by the Irish National Accreditation Board (INAB) to undertake testing as detailed in the Schedule bearing the Registration Number detailed above, in compliance with the International Standard ISO/IEC 17025:2005 2nd Edition "General Requirements for the Competence of Testing and Calibration Laboratories" (This Certificate must only be read in conjunction with the Annexed Schedule of Accreditation)

Date of award of accreditation: 16:12:2002

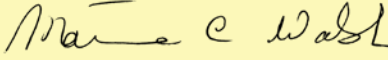
Date of last renewal of accreditation: 12:09:2007

Expiry date of this certificate of accreditation: 16:12:2012

This Accreditation shall remain in force until further notice subject to continuing compliance with INAB accreditation criteria, ISO/IEC 17025 and any further requirements specified by the Irish National Accreditation Board.

Manager: 

Mr Tom Dempsey

Chairperson: 

Dr Máire Walsh

Issued on 12 September 2007

Organisations are subject to annual surveillance and are re-assessed every five years. The renewal date on this Certificate confirms the latest date of renewal of accreditation. To confirm the validity of this Certificate, please contact the Irish National Accreditation Board.

The INAB is a signatory of the European co-operation for Accreditation (EA) Testing Multilateral Agreement (MLA) and the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement.

Schedule of Accreditation

(Annex to Accreditation Certificate)



Permanent Laboratory:

Category A & B

MTS LTD.

Construction Materials Testing Laboratory

| | |
|---|---|
| Initial Registration Date : | 9-October-2000 |
| Postal Address: | Permanent Lab: |
| <i>(Address of other locations as they apply)</i> | MTS Ltd 19 Kernanstown Industrial Estate Carlow |
| Telephone: | +353 (0) 59 9130044 |
| Fax: | +353 (0) 59 9133944 |
| E-mail: | info@mtsltd.ie |
| Contact Name: | Mr Michael Quinn |
| Facilities: | Public testing service |

Schedule of Accreditation



Permanent Laboratory:
 Category A & B

THE IRISH NATIONAL ACCREDITATION BOARD (INAB) is the Irish body for the accreditation of organisations including laboratories.

Laboratory accreditation is available to testing and calibration facilities operated by manufacturing organisations, government departments, educational institutions and commercial testing/calibration services. Indeed, any organisation involved in testing, measurement or calibration in any area of technology can seek accreditation for the work it is undertaking.

Each accredited laboratory has been assessed by skilled specialist assessors and found to meet criteria which are in compliance with ISO/IEC 17025 or ISO/IEC 15189 (medical laboratories). Frequent audits, together with periodic inter-laboratory test programmes, ensure that these standards of operation are maintained.

Testing and Calibration Categories:

- Category A:** Permanent laboratory calibration and testing where the laboratory is erected on a fixed location for a period expected to be greater than three years.
- Category B:** Site calibration and testing that is performed by staff sent out on site by a permanent laboratory that is accredited by the Irish National Accreditation Board.
- Category C:** Site calibration and testing that is performed in a site/mobile laboratory or by staff sent out by such a laboratory, the operation of which is the responsibility of a permanent laboratory accredited by the Irish National Accreditation Board.
- Category D:** Site calibration and testing that is performed on site by individuals and organisations that do not have a permanent calibration/testing laboratory. Testing may be performed using
- (a) portable test equipment
 - (b) a site laboratory
 - (c) a mobile laboratory or
 - (d) equipment from a mobile or site laboratory

Standard Specification or Test Procedure Used:

The standard specification or test procedure that is accredited is the issue that is current on the date of the most recent visit, unless otherwise stated.

Glossary of Terms

Facilities:

- Public calibration/testing service:** Commercial operations which actively seek work from others.
- Conditionally available for public calibration/testing:** Established for another primary purpose but, more commonly than not, is available for outside work.
- Normally not available for public calibration/testing:** Unavailable for public calibration/testing more often than not.

Laboratory users wishing to obtain assurance that calibration or test results are reliable and carried out to the Irish National Accreditation Board criteria should insist on receiving an accredited calibration certificate or test report. Users should contact the laboratory directly to ensure that this scope of accreditation is current. INAB will, on request, verify the status and scope.

Scope of Accreditation



MTS LTD

Permanent Laboratory:
Category A

Construction Materials Testing Laboratory

| INAB Classification number (P9) Materials/products tested | Type of test/properties measured Range of measurement | Standard specifications Equipment/techniques used |
|--|--|--|
| 212 Concrete | | |
| .22 Curing Test Specimens in the Laboratory | Concrete Curing | BS 1881:Part 111:1983 EN 12390-2:2009 |
| .23 Compressive strength of Moulded Specimens | Determination of compressive strength (Loads from 50-2000kN) | BS 1881 Part 116:1983 EN 12390-3:2009 |
| .24 Compression tests on Hardened Concrete cores | Determination of compressive strength (Loads from 50-2000kN) | EN 12504-1:2009 |
| .27 Mass per Unit Volume of Hardened Concrete | Determination of Density | BS 1881:Part 114:1983 EN 12390-7:2009 |
| 216 Aggregates | | |
| .03 Sample preparation | Methods for reducing laboratory samples | EN 932-2:1999 |
| .12 Particle density and water absorption | Determination of: (i) Particle density on a saturated and surface-dried basis (ii) Particle density on an oven dried basis (iii) Apparent particle density (iv) Water absorption | EN 1097-6:2000 |

Scope of Accreditation



MTS LTD

Permanent Laboratory:
Category A

Construction Materials Testing Laboratory

| INAB Classification number (P9) Materials/products tested | Type of test/properties measured Range of measurement | Standard specifications Equipment/techniques used |
|--|--|---|
| 216 Aggregates | | |
| .13 Sieve Analysis | Particle size distribution <ul style="list-style-type: none"> • Washing & sieving • Dry sieving | BS 812:Part 103.1:1985 I.S.5 Part 3:1990 EN 933-1:1997 |
| .16 Particle Shape | Flakiness Index Shape Index | BS 812:Part 105:section 105.1:1989 EN 933-3:1997 EN 933-4: 2008 |
| .20 Aggregate Crushing Value | Aggregate Crushing Value for particle size 10mm & greater (loads from 50-2000 Kn) Ten Percent Fines Value (loads from 50-2000 Kn) - for particle size 10mm & greater - dry and soaked | BS 812:Part 110:1990 BS 812:Part 111:1990 |
| | Aggregate Impact Value | BS 812:Part 112:1990 |
| .22 Los Angeles value | Determination of resistance to fragmentation-Los Angeles value | EN 1097-2:1998 |

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Construction Materials Testing Laboratory

Permanent Laboratory:

Category A

| INAB Classification number (P9) Materials/products tested | Type of test/properties measured Range of measurement | Standard specifications Equipment/techniques used |
|--|---|---|
| 216 Aggregates | | |
| .22 Los Angeles Value | Modified for railway ballast | IS EN 1097-2:1998 modified in accordance with EN 13450:2002 Annex C |
| .23 Soundness test | Magnesium Sulphate test (excluding simple petrographical description) | EN 1367-2:1998 |
| .33 Degradation tests | Micro Deval | IS EN 1097-1:1996 |
| | Micro Deval modified for railway ballast | IS EN 1097-1:1996 modified in accordance with EN 13450:2002 Annex E |
| .34 Moisture Content | Determination of Water Content | BS 812:Part 109:1990:Cl 6 EN 1097-5:2009 |
| .42 Crushed faces | Determination of the percentage of crushed and broken surfaces | EN 933-5: 1998 Amd 1 2004 |

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|--|---|--|
| 216 Aggregates | | |
| .99 Other Tests <i>Methylene Blue Test</i> | Methylene Blue Test 0-2mm fraction in fine aggregate or in all-in aggregates | EN 933-9:2009 |
| <i>Test for geometrical properties</i> | Shell Content in coarse aggregates | EN 933-7:1998 |
| <i>Unbound and hydraulically bound mixtures</i> | Laboratory reference density and water content Vibrating Hammer | EN 13286-4:2003 |
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| INAB Classification number (P9) Materials/products tested | Type of test/properties measured Range of measurement | Standard specifications Equipment/techniques used |
|--|--|--|
| 217 Bituminous Materials | | |
| .01 Sampling | Preparatory treatment for analysis | EN 12697-28: 2000 |
| .11 Bitumens | Bituminous Mixtures Binder and Grading Analysis Rolling Bottle Method Rolling bottle Method (I) volume calculation Rolling bottle Method (I) Pressure Filter Binder Content by Ignition Method Determination of particle size distribution Determination of dimensions of a bituminous specimen Soluble binder content Determination of Maximum Density | BS 598-102:1996 BS 598-102:2003 EN 12697-1: 2006 Cl. B3.1 EN 12697-1: 2006 Cl. B2.2 EN 12697-39:2004 EN 12697-2: 2002 +A1 2007 EN 12697-29: 2002 EN 12697-1: 2006 EN 12697-5: 2009 |

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Permanent Laboratory:

Category A

Construction Materials Testing Laboratory

| INAB Classification number (P9) Materials/products tested | Type of test/properties measured Range of measurement | Standard specifications Equipment/techniques used |
|--|--|---|
| 217 Bituminous Materials | | |
| .41 Bitumen Emulsions | Percentage refusal density(PRD) Hot sand test Distillation: (a) Oil Distillate % by Volume (0-5%) (b) Residue % by mass (40-80%) Penetration at 25oC (0-350x0.1mm) Sieve Test % by mass Viscosity (Redwood No 2) (10-100 secs) Softening Point (25 -200oC) Demulsibility (40-100%) Particle Polarity Storage Stability | BS 598-104:1989 BS 598-104:2005 BS 598-108:2005 ASTM D244:2000 EN 1431:2009 EN 1426:2007 ASTM D244 2000 BS 434 Part 1:1984 EN 1427:2007 ASTM D244:2000 ASTM D244:2000 EN 1430:2009 ASTM D244:2000 |

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Permanent Laboratory:

Category A

Construction Materials Testing Laboratory

| INAB Classification number (P9) Materials/products tested | Type of test/properties measured Range of measurement | Standard specifications Equipment/techniques used |
|--|---|--|
| 217 Bituminous Materials | | |
| .41 Bitumen Emulsions | Solubility | EN 12592:2007 |
| | Water content | ASTM D244:2000 EN 1428:2000 |
| | Sieve test (Residue on 0.500mm sieve) | EN 1429:2009 |
| | Breaking Value | EN 13075-1: 2009 |
| | Determination of Bulk Density for Bituminous Specimens | EN 12697-6: 2003 |
| | Determination of Void Characteristics of Bituminous Specimens | EN 12697-8: 2003 |
| | Determination of the Affinity between Aggregate and Bitumen | EN 12697-11: 2005 Part B |

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| INAB Classification number (P9) Materials/products tested | Type of test/properties measured Range of measurement | Standard specifications Equipment/techniques used |
|--|---|---|
| 218 Soils .11 Classification Tests | Liquid limit-Cone Penetrometer <ul style="list-style-type: none"> Definitive Method One point Method Plastic Limit Plasticity Index Determination of Moisture Content Uniformity Coefficient Determination of Particle Size Distribution (wet sieving method) Particle Density | BS 1377 Part 2:1990 Clause 4.3 BS 1377 Part2:1990 Clause 4.4 BS 1377 Part2:1990 Clause 5 BS1377 Part2:1990 Clause 5.4 BS 1377 Part2:1990 Clause 3.2 BS 6100:1992 Clause 2.2.1 BS 1377 Part 2:1990 Clause 9.2 BS 1377 Part2:1990 Clause 8.2 |
| .31 Compaction & Density Tests | Moisture Condition Value California Bearing Ratio (CBR) Static(Loads 0.4-50Kn) 2.5Kg Rammer 4.5Kg Rammer Vibrating Hammer | BS1377 Part 4:1990 Clause 5 BS1377 Part 4:1990 Section7 |

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Permanent Laboratory:

Category A

Construction Materials Testing Laboratory

| INAB Classification number (P9) Materials/products tested | Type of test/properties measured Range of measurement | Standard specifications Equipment/techniques used |
|---|---|--|
| 218 Soils .31 Compaction & Density Tests | Optimum Moisture Content (OMC) 2.5Kg Rammer 4.5Kg Rammer Vibrating hammer | BS 1377 Part 4:1990 Section3 |
| 222 Masonry Units and Segmental Pavers .20 Dimensional tests | Dimensional Tests | IS 20 Part 1:1987 Appendix A |
| .30 Strength tests | Strength Tests | IS 20 Part 1:1987 Appendix D |
| .50 Density Tests | Density Tests | IS 20 Part 1:1987 Appendix B |
| 224 Road pavements and surfaces .30 Surface characteristics | Method for Measurement of Slip/Skid Resistance of a Surface - the Pendulum Test Natural Stone Test Methods Determination of the slip resistance - the Pendulum Test | EN 13036-4: 2003 EN 14231: 2003 |

Scope of Accreditation



MTS LTD

Permanent Laboratory:
Category A

Construction Materials Testing Laboratory

| INAB Classification number (P9) Materials/products tested | Type of test/properties measured Range of measurement | Standard specifications Equipment/techniques used |
|--|--|--|
| 235 Pedestrial surfaces | | |
| .01 Wet pendulum frictional resistance | Pendulum testers: slip resistance of pedestrian surfaces | BS 7976-2: 2002 |
| .02 Dry floor frictional resistance | Pendulum testers: slip resistance of pedestrian surfaces | BS 7976-2: 2002 |
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Scope of Accreditation



MTS LTD

Permanent Laboratory:

Category B

Construction Materials Testing Laboratory

| INAB Classification number (P9) Materials/products tested | Type of test/properties measured Range of measurement | Standard specifications Equipment/techniques used |
|--|--|--|
| 212 Concrete .01 Sampling | Spot sample and composite sample | EN 12350-1:2009 |
| .12 Consistency | Slump test | EN 12350-2:2009 |
| .21 Making and curing test specimens in the field | Making and curing concrete cubes | EN 12390-2:2009 |
| 216 Aggregates .01 Sampling | Sampling of aggregates | EN 932-1:1997 |
| 217 Bituminous Materials .01 Sampling | Macadams/Ashpalts | EN 12697-27: 2000 |
| .99 Other Materials <i>Roads and Paved Areas</i> | Measurement of texture depth by Sand Patch Test method Measurement of Pavement Surface macrotexture depth using Volumetric Patch Technique-Glass Beads In situ density testing using Nuclear density meter (NDM) | BS 598:Part105:2000 CI 5 EN 13036-1:2001 BS 1377: Part 9: 1990 Section 2.5 |

Scope of Accreditation



MTS LTD

Construction Materials Testing Laboratory

Permanent Laboratory:
Category B

| INAB Classification number (P9) Materials/products tested | Type of test/properties measured Range of measurement | Standard specifications Equipment/techniques used |
|--|---|--|
| 218 Soils .01 Sampling | Sampling of soils | Documented in-house method CD 004/IHT001.02.1 |
| .31 Compaction & Density Tests | Determination of In-situ density by Sand Replacement Method Moisture Condition Value In-situ density testing using Nuclear density meter(NDM) Determination of In-Situ Density by Core Cutter Method Density and Unit Weight of Soil and Rock in Place by the Sand Replacement Method | BS 1377:Part 9:1990 Clause 2.2 BS 1377:Part 4:1990 Clause5 BS 1377:Part 9:1990 Section 2.5 BS 1377-9: 1990 Clause 2.4 ASTM D4914: - 08 |
| .41 Strength & consolidation tests | Plate bearing test Including conversion to empirical equivalent CBR value Loads up to 138kPa | Documented in-house method CD004/IHT001.01.1 based on BS 1377-9:1990 |
| .99 Other materials | Rolling Straight Edge | DIHM:CD004/IHT003.03.01 based on TRL SR 290 |

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Permanent Laboratory:
Category B

Construction Materials Testing Laboratory

| INAB Classification number (P9) Materials/products tested | Type of test/properties measured Range of measurement | Standard specifications Equipment/techniques used |
|---|---|--|
| 224 Road pavements and surfaces .30 Surface characteristics | Method for Measurement of Slip/Skid Resistance of a Surface - the Pendulum Test Natural Stone Test Methods Determination of the slip resistance - the Pendulm Test | EN 13036-4: 2003 EN 14231: 2003 |
| 235 Pedestrial surfaces .01 Wet pendulum frictional resistance | Pendulum testers: slip resistance of pedestrian surfaces | BS 7976-2: 2002 |
| .02 Dry floor frictional resistance | Pendulum testers: slip resistance of pedestrian surfaces | BS 7976-2: 2002 |
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