Irish National Accreditation Board

Accreditation Certificate

Reagecon Diagnostics Ltd.

Shannon Free Zone, Shannon, Co. Clare

Testing Laboratory

Registration number: 264T

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 be read in conjunction with the Annexed Schedule of Accreditation)***

Date of award of accreditation: **12:07:2010**
Date of last renewal of accreditation: **14:07:2016**
Expiry date of this certificate of accreditation: **14:07:2021**

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:_____ **Chairperson:** _____

Dr Adrienne Duff Mr Tom O'Neill

Issued on 14 July 2016

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.

The Metropolitan Building, James Joyce Street, Dublin 1, Ireland Tel 1890 289 389 E-mail inab@inab.ie Web inab@inab.ie

Schedule of Accreditation

(Annex to Accreditation Certificate)

Permanent Laboratory:

Category A

REAGECON DIAGNOSTICS LTD

Chemical Testing Laboratory

Initial Registration Date :	**12-July-2010**
Postal Address:	Shannon Free Zone
(Address of other locations	Shannon
as they apply)	Co Clare
Telephone:	+353 (61) 472622
Fax:	+353 (61) 472642
E-mail:	John.barron@reagecon.ie
Contact Name:	John Barron
Facilities:	Normally not available for Public testing

Schedule of Accreditation

Permanent Laboratory:
Category A

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 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

Reagecon Diagnostics Ltd

Chemical 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
795 .11	**Laboratory Reagents** Chemical Tests		Documented In-House method by Electrometry
	Standard Buffer Solutions	pH 0.98 to 13.05	TPPHB
	Solid Buffers	pH 3.98 to 10.02	TPPHC
	Aqueous General Reagents	pH 0.98 to 13.05	TPPHG

795 .11	**Laboratory Reagents** Chemical Tests		Documented In-House Methods using titrimetry, based on ASTM E200-08 (See Note 1)
	Sodium Thiosulphate by redox reaction	0.0099M to 1.001M	TPATRX1
	Iodine by redox reaction	0.0499M to 0.5005M	TPATRX2
	Acetous Perchloric Acid	0.0998M to 0.1002M	TPAHCLO
	Silver Nitrate by argentometric titration	0.0499M to 1.002M	TPAGNO
	EDTA by complexiметric titration	0.00998M to 1.002M	TPEDTA

Scope of Accreditation

Reagecon Diagnostics Ltd

Permanent Laboratory:

Category A

Chemical Testing Laboratory

INAB Classification number (P9) Materials/products tested		Type of test/properties measured Range of measurement	Standard specifications Equipment/techniques used
795	**Laboratory Reagents**		Documented In-House volumetric methods based on methods from Vogel: Quantitative Inorganic Analysis, 4th Edition:- TPATPPT1
.11	Chemical Tests		
	Chloride Solutions	Chloride Solutions 0.0099M to 0.0905M Chloride Solutions 0.0998M to 4.008M	
	Acid Solutions *Monobasic Acids*	Monobasic Acids 0.0249M - 10.01M 0.0099M – 0.0240M	TPATA Acid Base Titration
	Dibasic Acids	Dibasic Acids 0.0249M – 10.01M	
	Base Solutions *Hydroxide Ion*	Hydroxide Ion 0.0199M – 0.0491M 0.0499M – 10.01M	TPATB Acid Base Titration
	General Reagents	Conductivity 4.95 to 505,000 µS/cm @ 25 deg C Conductivity at 1.25 to 1.35 µS/cm @ 25 deg C	TPCOND

Note 1. ASTM: American Society for Testing and Materials

Scope of Accreditation

Reagecon Diagnostics Ltd

Permanent Laboratory:

Category A

Chemical Testing Laboratory

INAB Classification number (P9) Materials/products tested		Type of test/properties measured Range of measurement	Standard specifications Equipment/techniques used
795 .11	**Laboratory Reagents** Chemical Tests	Analysis of elements in the range 49µg/Kg to 1.48mg/Kg for the following:- Beryllium Boron Sodium Magnesium Aluminium Phosphorus Potassium Calcium Vanadium Chromium Manganese Iron Cobalt Nickel Copper Zinc Gallium Arsenic Selenium Rubidium Strontium Silver Cadmium Caesium	Documented In-House method TPICP by ICP-MS, based on US EPA Method 6020A

Scope of Accreditation

Reagecon Diagnostics Ltd

Permanent Laboratory:

Category A

Chemical Testing Laboratory

INAB Classification number (P9) Materials/products tested		Type of test/properties measured Range of measurement	Standard specifications Equipment/techniques used
795 .11	**Laboratory Reagents** Chemical Tests	Analysis of elements in the range 49µg/Kg to 1.48mg/Kg for the following:- Barium Lanthanum Cerium Praseodymium Neodymium Samarium Europium Gadolinium Dysprosium Holmium Eribium Thulium Ytterbium Thallium Lead Thorium Uranium	Documented In-House method TPICP by ICP-MS, based on US EPA Method 6020A

Scope of Accreditation

Reagecon Diagnostics Ltd

Permanent Laboratory:

Category A

Chemical Testing Laboratory

INAB Classification number (P9) Materials/products tested		Type of test/properties measured Range of measurement	Standard specifications Equipment/techniques used
795 .11	**Laboratory Reagents** Chemical Tests	Analysis of elements in the range 49µg/Kg to 1.48mg/Kg for the following:- Hofnium Molybdenum Niobium Antimony Tin Tantalum Tellurium Titanium Tungsten Zirconium Silicon range 86µg/Kg to 1.48mg/Kg	Documented In-House method TPICP by ICP-MS, based on US EPA Method 6020A
795 .11	**Laboratory Reagents** Chemical Tests	Analysis of elements metals for the following:- Sulphur:- range 1.50mg/Kg to 3.50mg/Kg Metals over the range 47µg/Kg to 1.41mg/Kg Ruthenium Palladium Rhenium Osmium Iridium Platinum Gold	Documented In-House method TPCIPPR by ICP-MS, based on US EPA Method 6020A

Scope of Accreditation

Reagecon Diagnostics Ltd

Permanent Laboratory:

Category A

Chemical Testing Laboratory

INAB Classification number (P9) Materials/products tested		Type of test/properties measured Range of measurement	Standard specifications Equipment/techniques used
795 .11	**Laboratory Reagents** Chemical Tests	Analysis of Mercury over the range 47µg/Kg to 1.41mg/Kg	Documented In-House method TPICPHG by ICP-MS, based on US EPA Method 6020A
795 .11	**Laboratory Reagents** Chemical Tests	Analysis of elements for the following elements:- Lithium (Li 6) range 48µg/Kg to 1.43mg/Kg Lithium (Li 7) range 50µg/Kg to 1.49mg/Kg Scandium - range 48µg/Kg to 1.43mg/Kg Germanium - range 48µg/Kg to 1.43mg/Kg Yttrium - range 50µg/Kg to 1.49mg/Kg Rhodium - range 48µg/Kg to 1.43mg/Kg Indium - range 48µg/Kg to 1.43mg/Kg Terbium - range 48µg/Kg to 1.43mg/Kg Lutetium - range 48µg/Kg to 1.43mg/Kg Bismuth - range 48µg/Kg to 1.43mg/Kg	Documented In-House method TPCPIS by ICP-MS, based on US EPA Method 6020A

Scope of Accreditation

Reagecon Diagnostics Ltd

Permanent Laboratory:

Category A

Chemical Testing Laboratory

INAB Classification number (P9) Materials/products tested	Type of test/properties measured Range of measurement	Standard specifications Equipment/techniques used
795 **Laboratory Reagents** .11 Chemical Tests	Determination of Total Acid Number from 0.09 mg/g KOH to 4.70 mg/g KOH	Documented in-house test method TP-TAN in accordance with ASTM D664, Test Method A
795 **Laboratory Reagents** .11 Chemical Tests	Determination of Total Base Number from 0.9 mg/g KOH to 75 mg/g KOH	Documented in-house test method TP-TBN in accordance with ASTM D2896, Test Method A
795 **Laboratory Reagents** .11 Chemical Tests	Determination of the following metals in the concentration range 100-1000 mg/L for the following elements: Bismuth Calcium Cadmium Cobalt Copper Indium Iron Manganese Nickel Scandium Tin Vanadium Lead	Documented in-house test method TPCOMPLEX by Complexiметric (EDTA) titration based on the primary methods described in Applied Complexometry-Pribil, Rudolf - Pergamon Press - 1982

Scope of Accreditation

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO.264T

Reagecon Diagnostics Ltd

Permanent Laboratory:

Category A

Chemical Testing Laboratory

INAB Classification number (P9) Materials/products tested		Type of test/properties measured Range of measurement	Standard specifications Equipment/techniques used
795 .12	**Laboratory Reagents** Physico-Chemical Test	Density of liquid materials range 0.65 to 1.034 g/ml	Documented In-House method TPDMA5000M by vibrational methods, based on ASTM D4052
.12	Physico-Chemical Test	Refractive Index range 1.33310 to 1.65812nD Brix Value range 5% to 60% wt/wt	Documented In-House method TPRIA 01, based on OIML R142
.12	Physico-Chemical Test	Osmolality range 50 to 3000 mOsm/kg H2O	Documented In-House method TPOSM 1500 and TPOSM - 3000, based on USP - 785 and EP - 7.0
795 .11	Laboratory Reagents Chemical Tests	Determination of (TOC) Total Organic Carbon Range 500 µg/l to 50.0mg/l C	Documented In-House Method TPTOC
795 .11	Laboratory Reagents Chemical Tests	Determination of (TIC) Total Inorganic Carbon Range 500 µg/l to 50.0 mg/l C	Documented In-House Method TPTOC
795 .11	Laboratory Reagents Chemical Tests	Determination of Total Base Number (TBN) 0.9 – 75 mg/g KOH	Documented In-House Method based on ASTM D4379-11 TPTBNUO / Automatic Titration
795 .12	Laboratory Reagents Physical Tests	Determination of Density 0.63 – 1.63 g/ml in the working temperature 15°C to 50°C	ASTM D1480-15 TPPYC / Bingham Pycnometer

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Chemical Testing Laboratory

INAB Classification number (P9) Materials/products tested	Type of test/properties measured Range of measurement	Standard specifications Equipment/techniques used
795 Laboratory Reagents .12 Physical Tests	Viscosity Measurement - Kinematic Viscosity and Dynamic Viscosity Temperature Range +20°C to +60°C - Kinematic Viscosity Range 0.85 to 110000 cSt Temperature Range +20°C to +60°C - Dynamic Viscosity Range 0.55 to 99000 mPa.s	ASTM D2162-14 Master Ubbelohde Capillary Viscometers / Viscometry