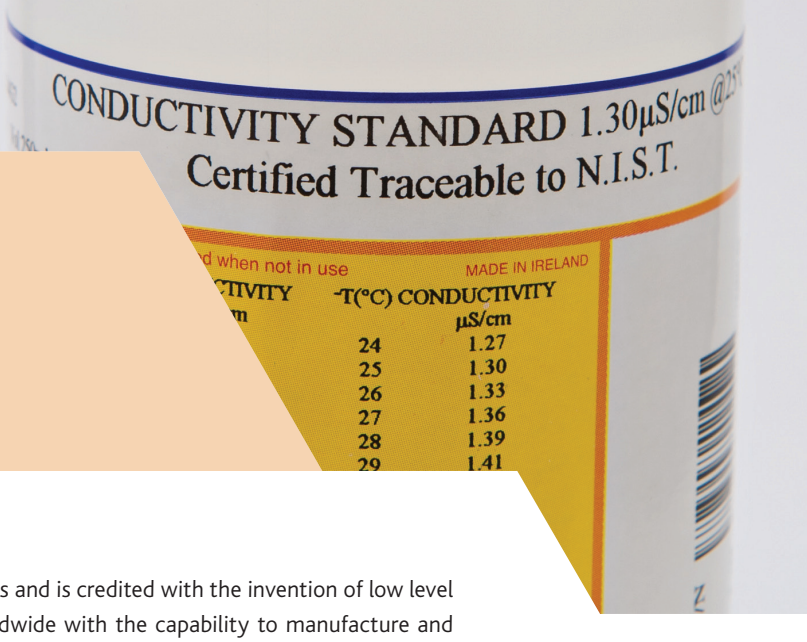


Conductivity Standards

Introduction

Reagecon is the world's largest producer of conductivity standards and is credited with the invention of low level aqueous standards. The company is still the only producer worldwide with the capability to manufacture and stabilise these products at such low levels of conductivity. This low range of standards includes 1.3µS ±0.5µS - the lowest aqueous conductivity standard available worldwide. The following summary details the principle features and benefits of this exciting range of products.

Extensive range of values

Reagecon offer over 45 different values of Conductivity and Total Dissolved Solids (TDS) standards, ranging from as low as 1.3µS/cm to as high as 500,000µS/cm. Customised or bespoke values can be manufactured on demand.

Matrix Matched

The matrix of a solution is defined as "the components of the sample other than the analyte". In all analytical measurements, it is of utmost importance that the matrix of the standard and the sample are the same. As conductivity measurement is, in the main, a water quality measurement, the standard used should also have an aqueous matrix. Reagecon's conductivity standards are all aqueous based, thereby eliminating any errors attributable to matrix mismatch.

Non-Hazardous

As Reagecon's conductivity standards are aqueous, they are non-hazardous. They offer the following benefits over solvent-based conductivity standards

- Ease and cost of shipping, without the need to provide hazardous goods' paperwork
- Reduced Health & Safety requirements for storage and use
- Ease and cost of disposal - solvent-based conductivity standards require expensive, specialised disposal to comply with environmental regulations.

Guaranteed Stability

As a result of the extensive R&D that led to our innovative manufacturing process, Reagecon can guarantee the stability of their complete range of conductivity standards over their entire shelf life. The stability offered by Reagecon's conductivity standards varies from that of their competitors in one vital area. We can guarantee that our conductivity standards will remain within specification, (up to their expiry date), right through their working life, regardless of when the bottle was first opened provided Good Laboratory Practise is adhered to. This eliminates the need to open a fresh bottle of standard every time the product is used. (The 1.30µS/cm conductivity standard is packaged in single-dose bottles and each bottle when opened can only be used once.) The shelf life of the products from their date of manufacture are given below.

Conductivity Value (µS/cm)	Shelf Life
1.3 & 3	3 months
5 & 10	6 months
20 - 147	12 months
200 - 500,000	18 months

Accuracy

All standards have a specification of ± 1%, except 1.30µS/cm, which has a specification of 1.25 - 1.35µS/cm. This high level of accuracy enables the standards to be used as calibrators and/or controls in fulfilment of the most exacting industrial statutory requirements, for example the United States Pharmacopoeia monograph for Water for Injection.

Accreditation

Reagecon's conductivity measurement has been covered in the scope of our accreditation to ISO 17025 "General Requirements for the competence of Calibration and Testing Laboratories" and its predecessor, EN 45001, since 1990. ISO/IEC 17025 (INAB Ref. 264T). Achieving accreditation involves fulfilling many highly technical criteria, including fully validating our test methods and instrumentation systems and characterising our measurement uncertainty. Reagecon's accreditation proves the technical competence of our personnel, the technical validity of our test procedures and the traceability of our measurements. Therefore, in purchasing a conductivity standard from us, not only do you have transparent traceability to primary standards, but you also have confidence that our standards are of a well-defined and tightly controlled specification.

All values are Certified & Traceable

Comprehensive Certificates of Analysis are available for all of Reagecon's conductivity standards, including detailed information on:

- Product Number
- Lot Number
- Expiry Date
- Mean specific conductance
- Date of Measurement
- Assay Limits
- Test Method Used
- Uncertainty of Measurement and Traceability Data

The complete range is traceable to primary standards from the United States National Institute for Standards and Technology (NIST). The traceability of these standards is proven by the inclusion of conductivity testing in our ISO 17025 accreditation. It is a fundamental requirement of ISO 17025 that traceability is proven.

Characterised Temperature Coefficient of Variation

Reagecon's standards are aqueous based and consequently have a very low temperature coefficient of variation. A table of conductivity variation with temperature is printed on the label of each bottle. This feature provides the user with all the information necessary to use the products across the full range of measurement temperatures encountered for their application. Non-aqueous standards have a very high coefficient of variation which leads to measurement error and renders the products totally unsuitable for non-temperature controlled conditions, or field work.

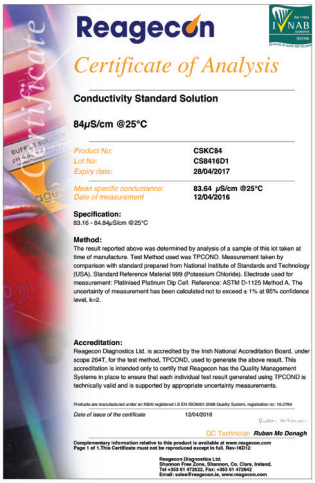
Unparalleled Technical Support

We have been manufacturing conductivity standards for over 20 years. In that time, we have built up a vast resource of technical expertise on all aspects of conductivity measurement. The members of Reagecon's Technical Services Department have written a comprehensive series of papers covering all of the practical requirements for accurate conductivity measurement.

These papers and the Reagecon book, "A Practical Guide to Accurate Conductivity Measurement" are available via our website - www.reagecon.com Our Technical Services team is always on hand to answer any questions regarding the selection and use of conductivity instruments, sensors and standards.

Conductivity Standards

Product No.	Description	Pack Size
CSKC13	1.30 µS/cm @25°C	250ml
CSKC136	1.30 µS/cm @25°C	6 x 250ml
CSKC5	5 µS/cm @25°C	500ml
CSKC1025	10 µS/cm @25°C	250ml
CSKC10256	10 µS/cm @25°C	6 x 250ml
CSKC10	10 µS/cm @25°C	500ml
CSKC10-10L	10 µS/cm @25°C	10L
CSKC1325	13.25 µS/cm @25°C	500ml
CSKC13.4	13.4 µS/cm @25°C	500ml
CSKC15-250ml	15 µS/cm @25°C	250ml
CSKC15	15 µS/cm @25°C	500ml
CSKC20	20 µS/cm @25°C	500ml
CSKC238	23.8 µS/cm @25°C	500ml
CSKC238-1L	23.8 µS/cm @25°C	1L
CSKC238-5L	23.8 µS/cm @25°C	5L
CSKC25-250ml	25 µS/cm @25°C	250ml
CSKC25	25 µS/cm @25°C	500ml
CSKC50	50 µS/cm @25°C	500ml
CSKC8425	84 µS/cm @25°C	250ml
CSKC84	84 µS/cm @25°C	500ml
CSKC84-5L	84 µS/cm @25°C	5L
CSKC84-25L	84 µS/cm @25°C	25L
CSKC100	100 µS/cm @25°C	500ml
CSKC100-5L	100 µS/cm @25°C	5L
CSKCS-250ml	147 µS/cm @25°C	250ml
CSKCS	147 µS/cm @25°C	500ml
CSKCS-10L	147 µS/cm @25°C	10L
CSKC150	150 µS/cm @25°C	500ml
CSKC185	185 µS/cm @25°C	500ml
CSKC200	200 µS/cm @25°C	500ml
CSKC200-5L	200 µS/cm @25°C	5L
CSKC250	250 µS/cm @25°C	500ml
CSKC300	300 µS/cm @25°C	500ml
CSKC300-5L	300 µS/cm @25°C	5L
CSKC400	400 µS/cm @25°C	500ml
CSKC400-5L	400 µS/cm @25°C	5L
CSKC50025	500 µS/cm @25°C	250ml
CSKC500256	500 µS/cm @25°C	6 x 250ml
CSKC500	500 µS/cm @25°C	500ml
CSKC500-5L	500 µS/cm @25°C	5L



Reagecon

Certificate of Analysis

Conductivity Standard Solution

84µS/cm @25°C

Product No:	**CSKC84**
Lot No:	**CS8416D1**
Expiry date:	**26/04/2017**
Mean specific conductance:	**83.64 µS/cm @25°C**
Date of measurement	**12/04/2016**

Specification:
83.16 - 84.84µS/cm @25°C

Method:
The result reported above was determined by analysis of a sample of this lot taken at time of manufacture. Test Method used was TPCOND. Measurement taken by comparison with standard prepared from National Institute of Standards and Technology (USA), Standard Reference Material 999 (Potassium Chloride). Electrode used for measurement: Platinised Platinum Dip Cell. Reference: ASTM D-1125 Method A. The uncertainty of measurement has been calculated not to exceed ± 1% at 95% confidence level, k=2.

Accreditation:
Reagecon Diagnostics Ltd. is accredited by the Irish National Accreditation Board, under scope 2047, for the test method, TPCOND, used to generate the above result. This accreditation is intended only to certify that Reagecon has the Quality Management Systems in place to ensure that each individual test result generated using TPCOND is technically valid and is supported by appropriate uncertainty measurements.

Products are manufactured under an NSAI registered LS EN ISO9001:2008 Quality System, registration no: 16.2769

Date of issue of the certificate 12/04/2016

QC Technician *Ruban Mc Donagh*

Complementary information relative to this product is available at www.reagecon.com
Page 1 of 1.This Certificate must not be reproduced except in full. Rev-10012

Reagecon Diagnostics Ltd.
Shannon Free Zone, Shannon, Co. Clare, Ireland.
Tel +353 61 472022, Fax: +353 61 472642
Email: sales@reagecon.ie, www.reagecon.com

Product No.	Description	Pack Size
CSKC600-5L	600 µS/cm @25°C	5L
CSKC718	718 µS/cm @25°C	500ml
CSKC1000	1,000 µS/cm @25°C	500ml
CSKC1000-10L	1,000 µS/cm @25°C	10L
CSKCL-50ml	1,413 µS/cm @25°C	50ml
CSKCL01	1,413 µS/cm @25°C	100ml
CSKCL-250ml	1,413 µS/cm @25°C	250ml
CSKCL	1,413 µS/cm @25°C	500ml
CSKCL1	1,413 µS/cm @25°C	1L
CSKCL-5L	1,413 µS/cm @25°C	5L
CSKCL-10L	1,413 µS/cm @25°C	10L
CSKC2M	2,000 µS/cm @25°C	500ml
CSKC2M-10L	2,000 µS/cm @25°C	10L
CSKC2500	2,500 µS/cm @25°C	500ml
CSKC2500-10L	2,500 µS/cm @25°C	10L
CSKC3M	3,000 µS/cm @25°C	500ml
CSKC3M-10L	3,000 µS/cm @25°C	10L
CSKC5M	5,000 µS/cm @25°C	500ml
CSKC5M-10L	5,000 µS/cm @25°C	10L
CSKC7M	7,000 µS/cm @25°C	500ml
CSKC7M - 5L	7,000 µS/cm @25°C	5L
CSKC10M	10,000 µS/cm @25°C	500ml
CSKC10M-10L	10,000 µS/cm @25°C	10L
CSKC12880-50ML	12,880 µS/cm @25°C	50ml
CSKC12880	12,880 µS/cm @25°C	500ml
CSKC12880-1L	12,880 µS/cm @25°C	1L
CSKC12880-10L	12,880 µS/cm @25°C	10L
CSKC1325M	13,250 µS/cm @25°C	500ml
CSKC13400	13,400 µS/cm @25°C	500ml
CSKC15M	15,000 µS/cm @25°C	500ml
CSKC20M	20,000 µS/cm @25°C	500ml
CSKC20M-10L	20,000 µS/cm @25°C	10L
CSKC30M	30,000 µS/cm @25°C	500ml
CSKC30M-10L	30,000 µS/cm @25°C	10L
CSKC35M	35,000 µS/cm @25°C	500ml
CSKC40M	40,000 µS/cm @25°C	500ml
CSKC50M	50,000 µS/cm @25°C	500ml
CSKC50M-10L	50,000 µS/cm @25°C	10L
CSKC58700	58,700 µS/cm @25°C	500ml
CSKC60M	60,000 µS/cm @25°C	500ml
CSKC80M	80,000 µS/cm @25°C	500ml
CSKC80M-10L	80,000 µS/cm @25°C	10L

Product No.	Description	Pack Size
CSKC84M	84,000 µS/cm @25°C	500ml
CSKC100M	100,000 µS/cm @25°C	500ml
CSKC100M-10L	100,000 µS/cm @25°C	10L
CSKC111800	111,800 µS/cm @25°C	500ml
CSKC150M	150,000 µS/cm @25°C	500ml
CSKC150M-10L	150,000 µS/cm @25°C	10L
CSKC200M	200,000 µS/cm @25°C	500ml
CSKC200M-5L	200,000 µS/cm @25°C	5L
CSKC200M-10L	200,000 µS/cm @25°C	10L
CSKC300M	300,000 µS/cm @25°C	500ml
CSKC300M-10L	300,000 µS/cm @25°C	10L
CSKC350M	350,000 µS/cm @25°C	500ml
CSKC350M-10L	350,000 µS/cm @25°C	10L
CSKC400M	400,000 µS/cm @25°C	500ml
CSKC450M	450,000 µS/cm @25°C	500ml
CSKC450M-10L	450,000 µS/cm @25°C	10L
CSKC500M	500,000 µS/cm @25°C	500ml
CSKC500M-10L	500,000 µS/cm @25°C	10L

Non Accredited Values Available

Product No.	Description	Pack Size
CSKC2	2 µS/cm @25°C	250ml
CSKC3	3 µS/cm @25°C	250ml

* Other Values Available upon Request

TDS Standard

Product No.	Description	Pack Size
CS1382-50ml	1382 ppm NaCl @25°C	50ml
CS1382	1382 ppm NaCl @25°C	500ml