Calibration Standards

Salinity

Nutrients

Conductivity

Iodate

OSIL

Iodate Standards

These high precision standards are available for the laboratory determination of dissolved oxygen in seawaters. The standards comprise 0.01 Normal Potassium Iodate solutions which are used to standardise the thiosulphate solution in the widely used Winkler titration method.

Oxygen standards are supplied in packs of 5 x 100ml and 10 x 100ml brown glass bottles.

Performance Evaluation (PE) Samples

Designed to be used as part of ongoing quality assurance programmes, these uniquely coded samples are supplied to the laboratories for analysis. After analysis the laboratory-determined value is sent to Ocean Scientific, who issue a certificate showing the true value, the analysts' value and any error.

PE Samples for salinity, phosphate, silicate, nitrite, nitrate and ammonia are available.

Atlantic Seawater

This filtered natural ocean water has a salinity of 35. It may be used for a wide range of applications, including; field probe calibration/checks, chemical analysis, particle studies and any other applications which require open-ocean seawater.

The label value is quoted in salinity and in specific conductance (mS/cm) with a confidence of ± 0.2%.

Atlantic seawater is available in packs of 4 x 5L bottles or 10 x 500ml bottles.

Calibration (for salinity or conductivity)

Atlantic seawater may be used as a secondary standard solution for the calibration of field salinity or conductivity probes. Important points to remember;

- Specific conductance (conductivity) is temperature dependent. The label shows a table of conductivities at various temperatures for seawater
- Salinity is not temperature dependent
- Minimise evaporation/contamination of the seawater. Re-seal the bottle after use and do not re-use the seawater

Analysis Service

We can provide chemical analysis of aqueous samples for a range of parameters including Salinity, Nutrients and Suspended Solids. Competitive contract rates apply for multiple samples.

Units of Measure

Specific Conductance
= conductivity = milliSiemens per cm = mS cm^{-1} = mmho cm^{-1}
1mS cm^{-1} = 1000uS cm^{-1} = 0.1 S m^{-1}

Salinity
(no units) = Practical Salinity according to the Practical Salinity Scale (1978).

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Practical Salinity (PSS78)

A seawater of practical salinity 35 has a conductivity ratio of unity at 15°C with a KCl solution containing a mass of 32.4356g KCl in a mass of 1 kg of solution

We are ISO9001 accredited for the production of seawater calibration standards.

CERTIFICATE NO. 8686

Salinity Standards

IAPSO Standard Seawater

Standard Seawater, as approved by the International Association for Physical Sciences of the Ocean (IAPSO), is the only transfer standard for Practical Salinity that is recognised by all the major oceanographic bodies.

The standards, which have a precisely known electrical conductivity ratio, are used for the calibration of salinity measurement devices. For over 100 years the comparability of salinity data world-wide has depended on the widespread use of this standard for calibrating laboratory and in-situ instruments.

IAPSO Standard Seawater is available in sealed glass bottles, each containing ca.200ml of natural seawater. The bottle label carries information on its conductivity ratio (K15) and salinity according to the Practical Salinity Scale 1978 (PSS78).

The bottle is made from pharmaceutical-grade glass, which minimises any interactions with the seawater and thereby increases the shelf-life of the product.

The bottle's narrow-neck is sealed with a halobutyl, polymer-coated bung, providing a totally impervious barrier to evaporation. A secure, tamper-evident seal is made with a colour-coded alloy crimp-cap.

Shelf-life

We recommend that for high-accuracy work, the Standards have a minimum shelf-life of 3 years. For further information please refer to Culkin, F. and Ridout, P.S. (1998), 'Stability of IAPSO Standard Seawater', j.atmos. & oceanic tech., 15, 1072-1075.

Standards are available in a range of salinities from 10 to 38;

P-Series

Normal Standard Seawater, (S=35) is accurately calibrated in electrical conductivity ratio (K15) and in salinity. This is the main single-point calibration standard for salinity measurement.

10L-Series

Low Salinity Standard Seawater, (S=10) is accurately calibrated in conductivity ratio for the temperature range 15°C to 30°C. This standard provides an additional calibration point for low salinity work, e.g. Baltic Sea.

30L-Series

Low Salinity Standard Seawater, (S=30) is accurately calibrated in conductivity ratio for the temperature range 15°C to 30°C. This standard is used in conjunction with P-Series to determine instrument offset and linearity at lower salinities.

38H-Series

High Salinity Standard Seawater, (S=38) is accurately calibrated in conductivity ratio for the temperature range 15°C to 30°C. This standard is used in conjunction with P-Series to determine instrument offset and linearity at higher salinities, e.g. Mediterranean Sea.

Linearity Pack

When analysing samples at salinities away from 35, it is important to know the accuracy of the salinometers' offset across the working range to improve data quality. Developed to enable the linearity of instruments to be checked more easily, this pack contains;

4 x P-Series, 2 x 38H-Series, 2 x 30L-Series and 2 x 10L-Series, complete with full instructions.

Nutrient Standards

Nutrient Standard Solutions (NSS)

Concentrated solutions of phosphate, nitrite, nitrate, silicate and ammonia are available for the preparation of working standards.

NSS should be diluted with Low Nutrient Seawater (LNS) or de-ionised water to prepare working standards for the measurement of nutrients in seawater/ freshwater samples respectively.

NSS Concentrations

Phosphate	100µM
Nitrite	100µM
Nitrate	1000µM
Silicate	1000µM
Ammonia	10000µM

Freshwater Nutrient Standards Kit (FNSK)

For the preparation of non-marine working standards, this kit contains concentrates of Nutrient Standard Solutions (50ml each of phosphate, nitrite, nitrate, silicate, ammonia) and de-ionised water (2 x 1 Litre) for the preparation of fresh standards. Each kit contains full instructions.

Low Nutrient Seawater (LNS)

Seawater matrix salts affect the kinetics and colour intensities of the colorimetric methods widely used in the determination of dissolved nutrients. In order to eliminate these salt effects, it is essential that working calibration solutions are prepared in a seawater matrix.

Low Nutrient Seawater (LNS) can be used for the preparation of fresh standards, as a refractive-index blank, or as wash solutions. For lower accuracy work, LNS may also be used to define the zero-concentration calibration points.

LNS has defined maxima for phosphate, nitrite, nitrate and silicate. Owing to atmospheric effects, the ammonia concentration (although low at the time of bottling), cannot be guaranteed.

LNS is available in packs of 10 x 1 Litre bottles.

Marine Nutrient Standards Kit (MNSK)

Calibration of analytical systems for nutrients in seawater requires standards to be prepared in seawater. This kit contains concentrates of Nutrient Standard Solutions (50ml each of phosphate, nitrite, nitrate, silicate, ammonia) and Low Nutrient Seawater (2 x 1 Litre) for the preparation of fresh standards. Each kit contains full instructions.