Electrode Care & Maintenance Solutions

Introduction

pH is one of the most frequently and universally made measurements in science. Despite the number of people involved in pH measurement, the practical fundamentals governing it are not widely understood. The literature sometimes offers conflicting advice on how it is best measured and there is often uncertainty about the correct option available to deal with individual measurement applications. What is often not fully appreciated is that the vast majority of pH problems are related to the correct selection, care or maintenance of the electrode with particular emphasis on the reference electrode.

This brief technical note deals specifically with the correct choice of reference electrode filling solution and the compatibility of the filling solution with the sample being measured. It is important to keep two key considerations in mind as part of the selection process of the electrode filling solution. Firstly, the issue of the compatibility between the filling solution and the sample relates not only to direct pH measurement but also direct Ion and Redox measurement. It is also relevant to the use of all three sensors when performing potentiometric titrations. Secondly, the direct experience of the analyst, the operating instructions of the electrode or the detail contained within the test method being followed, may be of most value in the selection of the correct filling solution.

Correct choice of Electrode Filling Solution (Electrolyte)

A good electrolyte must fulfil a number of conditions. The equitransference of the cation/anion combination should be as close as possible to being equimobile, have constant chloride activity, be of high electrical conductance and as non-chemically reactive as possible.

Concentrated or saturated Potassium Chloride (KCl) fulfils all of these conditions to a greater or lesser extent and is the filling solution of choice in either potentiometric titrations or direct pH, redox or ion measurements where silver/silver chloride or calomel reference electrodes are used.

However, saturated KCl is only sparingly soluble below 20˚C, so if the measurements are carried out below this temperature weaker concentrations of this salt needs to be used. By way of example, 3.5M KCl remains in solution down to 15˚C and 2M KCl will remain in solution down to -5˚C. However, the lower the concentration of KCl the higher the liquid junction potential error that will arise in the measurement. For work at very low temperatures, 1.5M KCl dissolved in equal volumes of water and glycerin can be used. (KCl does not crystalize out of solution in this mixture until the temperature reaches -30˚C). This mixture will introduce even greater liquid junction errors.

The use of KCl in any concentration may be problematic in the following situations:

1. The following ions can react with Cl^- to form insoluble precipitates that block the diaphragm, Hg^{++}, Cu^{++}, Ag^+, Pb^{++} In such cases, a double junction electrode must be used with the outer chamber containing either Potassium Nitrate or Ammonium Sulphate at various concentrations. However, the potassium may also react with anions like Perchlorate (ClO^-_4) to form Potassium Perchlorate ($KClO_4$) which is sparingly soluble. In this situation Ammonium Sulfate can also be used as the filling solution in the outer chamber.
2. Some electrode manufacturers recommend the use of 3M KCl or 4M KCl saturated with Silver Chloride (AgCl) as the filling solution of choice. In this instance silver may react with several halides including bromides or iodides or may react with cyanides. Most importantly, silver may also react with sulfide which manifests itself in blackening of the diaphragm due to blockage. There may also be ingress of the sulfide into the electrode which will cause poisoning of the reference system, as well as high false liquid junction potentials. In this instance, silver free KCl can be used either as a primary electrolyte or in the outer junction of a double junction electrode.

3 2M Potassium Nitrate (KNO_3) + 0.001M Potassium Chloride may be used specifically for measurement of samples containing silver halides or used for argentimetric titrations where silver billet electrodes are used.

4 For pH measurement or titration in non-aqueous media or organic solvents, Lithium Chloride in Ethanol, Methanol, Isopropanol or Glacial Acetic Acid must be used as a filling solution in both the inner and outer chamber.

These hints are for guidance purposes and will help in the majority of applications. However, such hints can never be exhaustive or sufficiently comprehensive to cover all types of samples encountered.

Electrode Filling Solutions

Product No.	Description	Pack Size
EFS3005	3M Potassium Chloride (KCL), free from Silver ion	50ml
EFS3	3M Potassium Chloride (KCl), free from Silver ion	100ml
EFS3-250ML	3M Potassium Chloride (KCl), free from Silver ion	250ml
EFS35	3M Potassium Chloride (KCl), free from Silver ion	500ml
EFS301	3M Potassium Chloride (KCl), free from Silver ion	1L
EFS351	3.5M Potassium Chloride (KCl) free from Silver ion	100ml
EFS3511	3.5M Potassium Chloride (KCl) free from Silver ion	1L
EFS35AC	3.5M Potassium Chloride (KCl), saturated with AgCl	100ml
EFS35AC5	3.5M Potassium Chloride (KCl), saturated with AgCl	500ml
EFS381	3.8M Potassium Chloride (KCl), free from Silver ion	100ml
EFS3810	3.8M Potassium Chloride (KCl) free from Silver ion	1L
EFS4	4M Potassium Chloride (KCl), free from Silver ion	100ml
LKCL	Saturated Potassium (KCl), free from Silver ion	100ml
LKCL1	Saturated Potassium (KCl), free from Silver ion	1L
EFS3AC	3M Potassium Chloride (KCl), saturated with AgCl	100ml
EFS3AC-250ML	3M Potassium Chloride (KCl), saturated with AgCl	250ml
EFS3AC5	3M Potassium Chloride (KCl), saturated with AgCl	500ml
EFS4AC	4M Potassium Chloride (KCl), saturated with AgCl	100ml
EFSPS	Saturated Potassium Sulphate K_2SO_4	100ml
EFS2AS	Double Junction Bridge Solution 2M Ammonium Sulphate$(NH_4)_2SO_4$	100ml
EFS2-250ML	Double Junction Bridge Solution 2M Ammonium Sulphate$(NH_4)_2SO_4$	250ml
EFSAMO1	Ammonia	100ml
EFS01AS	Double Junction Bridge Solution 0.1M Ammonium Sulphate	100ml
EFSKNO	Double Junction Bridge Solution 10% w/v Potassium Nitrate	100ml
EFSLICL	Non-Aqueous Filling Solution; 1M Lithium Chloride (LiCl), dissolved in isopropanol	100ml
EFSLIET	Non-Aqueous Filling Solution; 1M Lithium Chloride (LiCl), dissolved in ethanol	100ml
EFSLIGA	Non-Aqueous Filling Solution; 1M lithium Chloride (LiCl), dissolved in glacial acetic acid	100ml
EFSDO	Dissolved Oxygen Electrolyte	100ml
EFSLIAPP	Low Ionic Strength Applications	100ml
EFSNACLO4	Saturated Sodium Perchlorate in Glacial Acetic Acid	100ml
EFSBR5	Preparation Cell Electrolyte for ASTM D1492 (Bromine)	5L

Electrode Cleaning Solutions

Designed to extend the useful life of your PH electrode.

Product No.	Description	Pack Size
ECS1	(Pepsin/Hydrochloric Acid) for removal of proteins	100ml
ECS-250ML	(Pepsin/Hydrochloric Acid) for removal of proteins	250ml
ECS	(Pepsin/Hydrochloric Acid) for removal of proteins	500ml
ECSF	(Pepsin/Hydrochloric Acid) for removal of proteins	1L
IECS	Inorganic (Thiourea/Hydrochloric Acid); for removal of sulphide	100ml
IECS5	Inorganic (Thiourea/Hydrochloric Acid); for removal of sulphide	500ml
IECS1	Inorganic (Thiourea/Hydrochloric Acid); for removal of sulphide	1L
OECS1	Organic Cleaning Solutions	100ml
OECS	Organic Cleaning Solutions	500ml
OECS5	Organic Cleaning Solutions	5L
ERS	Electrode Regeneration Solution	100ml
ECHPS	Rinse Solution, High Purity Water for Rinsing Electrodes	500ml
ERSS5	Electrode Rinse Solution	500ml

Electrode Storage Solutions

Product No.	Description	Pack Size
ESS001	pH Electrode Storage Solution	100ml
ESS5	pH Electrode Storage Solution	500ml
ESS01	pH Electrode Storage Solution	1L
ESS05	pH Electrode Storage Solution	5L

Electrode Care & Maintenance Kit

This is a unique Kit designed to help calibrate, clean and extend the useful life of your pH electrodes.

Contents include:

- pH buffers in twin neck bottles - 1 x 500ml each of pH 4.00/7.00/10.00 @ 20°C
- Electrode Storage Solution - 1 x 500ml
- Electrode Cleaning Solution - 1 x 100ml each of Biological, Organic and Inorganic Solutions
- Filling Solution 1 x 100ml each of 3M KCl/AgCl and 4M KCl
- Pipettes (2)
- Regeneration Solution - 1 x 100ml
- Instruction card and GLP Log Book

Product No.	Description	Pack Size
RCMK1	REAGECARE pH Electrode Care & Maintenance Kit	Kit

Redox Standards

Summary of Features & Benefits:

- Widest range of values and pack options available in the market
- Very high specifications (±5mV)
- Extensive technical advice on the measurement techniques available
- Detailed Safety Data Sheets available online
- Enquiries for customized or bulk options welcome
- All products certified with proven verifiable accuracy and uncertainty of measurement

During its working life a Redox electrode undergoes no change of zero point or slope. Redox is an absolute measurement expressed in millivolts (unlike pH, which is an artificial logarithmic scale using values of 1 - 14). Therefore, redox electrodes do not require calibration and the standards act as control materials rather than calibration standards. Such control standards not only control the functionality of the sensing and reference electrode, but also control the analyst's technique, environmental conditions and the operation of the measurement meter (pH meter in millivolt mode).

If the measurement of the control material is outside the expected values, it may be due to any or several of the following reasons:

- Poor connections or a short circuit within the electrodes or between the electrodes and meter.
- Incompatibility between the reference electrode and sample, in particular the use of incorrect electrolyte.
- Contamination or poisoning of reference system or reference electrolyte.
- Blocked or contaminated diaphragm.
- Incorrect choice of sensing electrode.

In choosing an electrode, broadly, but not exclusively the analyst can chose between platinum or gold and chose several different options as to how the platinum or gold is configured on the electrode.

Although, platinum is more commonly used, it may give erroneous results in low ionic strength solutions or, when its surface is passivated or roughened. It may also show poor results in strongly oxidizing solutions. On the other hand gold is totally unsuitable in the presence of or due to the formation of gold cyanide or gold halide complexes in the sample. Although substantial guidance is offered in the literature on which metal to use, the specific experience of the user, is the most important determinant of the final choice.

Redox Standards

All values quoted are potentials of Platinum Electrode v Ag/AgCl reference (3M KCl)

Value	Product No. 500ml	Product No. 10L	Product No. 10L Bag In Box
124mV @25°C	RS124	RS12410	RSB12410
200mV @25°C	RS200	RS20010	RSB20010
220mV @25°C	RS220	RS22010	RSB22010
250mV @25°C	RS250	RS25010	RSB25010
300mV @25°C	RS300	RS30010	RSB30010
358mV @25°C	RS358	RS35810	RSB35810
400mv @25°C	RS400	RS40010	RSB40010
440mV @25°C	RS440	RS44010	RSB44010
465mV @25°C	RS465	RS46510	RSB46510
468mV @25°C	RS468	RS46810	RSB46810
475mV @25°C	RS475	RS47510	RSB47510
600mV @25°C	RS600	RS60010	RSB60010
650mV @25°C	RS650	RS65010	RSB65010

Turbidity Standards

Summary of Features & Benefits:

- Non toxic and non carcinogenic
- 2 year shelf life for all values
- Highly accurate
- Traceable to NIST
- US EPA approved
- Ready to use - our range covers the full turbidity measurement range

Reagecon's turbidity standards for ratio and non-ratio instruments are composed of suspended polymer microspheres. These turbidity standards remove the handling, stability and accuracy problems associated with traditional Formazin turbidity standards; (for detailed comparison, see Table 1).

Turbidity Measurement

Accurate and precise laboratory or online analytical measurement can be influenced by the following 6 key parameters:

- Measuring Instrument
- The Operator
- Measuring Accessories
- Standards and Reference Material
- The Sample
- Measuring Environment

The technical validation, comparability, quality control/assurance, proficiency testing and traceability of any analysis require significant attention to detail of all these parameters. Turbidity measurement is no different in this respect.

The Standard / Reference Material

The nephelometric turbidity meter is designed to be routinely standardised with a known light scattering standard. As with all analytical standards or reference materials, a turbidity standard should fulfil the following criteria:

- Provide traceability.
- Demonstrate the accuracy of results.
- Calibrate the equipment and methodology.
- Monitor the user performance.
- Validate the test.
- Facilitate comparability i.e. to ensure that when the correct procedures have been followed the same analysis of the same materials will produce results that agree with each other whenever they are performed.

Standards and Reference materials should be produced and characterised in a technically competent manner, should be homogenous, stable, certified and have available a known uncertainty of measurement. Presently, there are only two types of standards recognised and approved by the USEPA, Standard Methods, ASTM and other regulatory agencies, these are formazin or formazin derived standards and suspended polymer microspheres.

Table 1: Comparison of Reagecon Polymer Microsphere & Formazin Turbidity Standards

Feature	Reagecon Polymer Microspheres	Formazin
Toxicity	Non-toxic. No special handling or disposal requirements	Very toxic, contains a known carcinogen. Requires special handling and disposal
Particle shape & size	Well defined spherical shape. Mean diameter is 0.06µm with a distribution between 0.01 and 0.2µm.	Irregular shape and distribution. Mean diameter is 3µm with a distribution between 1 and 20µm.
Shelf life	Does not deteriorate or settle out. A long stable shelf life at all concentrations.	Flocculates and deteriorates. Lower concentrations change value within days, or hours, after preparation.
Particle suspension	Particles stay in suspension. Mixing is discouraged as it entrains air.	Particles settle quickly, suspension must be continuously mixed. Mixing induces shearing.
Traceability	Certified traceable to NIST Reference Material 1690	Non traceable
Precision (batch to batch)	Mean of SD's 0±0.00	Mean of SD's 0.9±0.2
Inter-instrument reproducibility	0.5 ±0.0	0.8±0.2
Stability	0.1 – 4000 NTU (1 year)	4000 NTU (3 months). Need for dilutions to be prepared daily or weekly.
Accuracy	Highly accurate for Reagecon Polymer Microspheres	±10% (4000 NTUs) up to ±30% for dilute working standards.

Description	Product No. Ratio 100 ml	Product No. Ratio 500 ml	Product No. Non Ratio 100 ml	Product No. Non Ratio 500 ml
Turbidity Std 0.0 NTU	CRSR-0-100	CRSR-0-500	CRS-0.0-100	CRS-0.0-500
Turbidity Std 0.1 NTU	CRSR-0.1-100	CRSR-0.1-500	CRS-0.1-100	CRS-0.1-500
Turbidity Std 0.2 NTU	CRSR-0.2-100	CRSR-0.2-500	CRS-0.2-100	CRS-0.2-500
Turbidity Std 0.4 NTU	CRSR-0.4-100	CRSR-0.4-500	CRS-0.4-100	CRS-0.4-500
Turbidity Std 0.5 NTU	CRSR-0.5-100	CRSR-0.5-500	CRS-0.5-100	CRS-0.5-500
Turbidity Std 1 NTU	CRSR-1-100	CRSR-1-500	CRS-1-100	CRS-1-500
Turbidity Std 1.8 NTU	CRSR-1.8-100	CRSR-1.8-500	CRS-1.8-100	CRS-1.8-500
Turbidity Std 2 NTU	CRSR-2-100	CRSR-2-500	CRS-2-100	CRS-2-500
Turbidity Std 4 NTU	CRSR-4-100	CRSR-4-500	CRS-4-100	CRS-4-500
Turbidity Std 5 NTU	CRSR-5-100	CRSR-5-500	CRS-5-100	CRS-5-500
Turbidity Std 10 NTU	CRSR-10-100	CRSR-10-500	CRS-10-100	CRS-10-500
Turbidity Std 20 NTU	CRSR-20-100	CRSR-20-500	CRS-20-100	CRS-20-500
Turbidity Std 40 NTU	CRSR-40-100	CRSR-40-500	CRS-40-100	CRS-40-500
Turbidity Std 50 NTU	CRSR-50-100	CRSR-50-500	CRS-50-100	CRS-50-500
Turbidity Std 60 NTU	CRSR-60-100	CRSR-60-500	CRS-60-100	CRS-60-500
Turbidity Std 90 NTU	CRSR-90-100	CRSR-90-500	CRS-90-100	CRS-90-500
Turbidity Std 100 NTU	CRSR-100-100	CRSR-100-500	CRS-100-100	CRS-100-500
Turbidity Std 150 NTU	CRSR-15-100	CRSR-150-500	CRS-150-100	CRS-150-500
Turbidity Std 200 NTU	CRSR-200-100	CRSR-200-500	CRS-200-100	CRS-200-500
Turbidity Std 400 NTU	CRSR-400-100	CRSR-400-500	CRS-400-100	CRS-400-500
Turbidity Std 500 NTU	CRSR-500-100	CRSR-500-500	CRS-500-100	CRS-500-500
Turbidity Std 800 NTU	CRSR-800-100	CRSR-800-500	CRS-800-100	CRS-800-500
Turbidity Std 1000 NTU	CRSR-1000-100	CRSR-1000-500	CRS-1000-100	CRS-1000-500
Turbidity Std 4000 NTU	CRSR-4000-100	CRSR-4000-500	CRS-4000-100	CRS-4000-500

Chemical Oxygen Demand

Chemical Oxygen Demand (COD) Standards

Reagecon's offering includes a comprehensive range of COD Standards. These standards are ideal for use as Control Standards to verify that correct analysis for COD has taken place. Achieving an acceptable result for the Control Standard will improve confidence in sample readings for this important environmental parameter.

Product No.	Description	Pack Size
COD10	COD Calibration Standard 10ppm	500ml
COD20	COD Calibration Standard 20ppm	500ml
COD50	COD Calibration Standard 50ppm	500ml
COD100	COD Calibration Standard 100ppm	500ml
COD200	COD Calibration Standard 200ppm	500ml
COD500	COD Calibration Standard 500ppm	500ml
COD600	COD Calibration Standard 600ppm	500ml
COD1000	COD Calibration Standard 1000ppm	500ml
COD1300	COD Calibration Standard 1300ppm	500ml
COD1500	COD Calibration Standard 1500ppm	500ml
COD2000	COD Calibration Standard 2000ppm	500ml
COD3000	COD Calibration Standard 3000ppm	500ml
COD5000	COD Calibration Standard 5000ppm	500ml
COD6000	COD Calibration Standard 6000ppm	500ml
COD10M	COD Calibration Standard 10000ppm	500ml
COD20M	COD Calibration Standard 20000ppm	500ml
COD30K	COD Calibration Standard 30000ppm	1L
COD60M5	COD Calibration Standard 60000ppm	500ml

Chemical Oxygen Demand (COD) Reagents

Reagecon's product offering includes reagents for the two accepted methods for measuring COD at concentrations less than 400mg/l. Where the concentration is greater than 400mg/l, the sample must be diluted.

Product No.	Description	Pack Size
WTR50W	Chemical Oxygen Demand COD Reagent (1977 method)	2.5L
CODMS	Chemical Oxygen Demand COD 20% w/v Mercury (II) Sulphate in 10% w/v Sulphuric Acid	500ml
KC2002F	Chemical Oxygen Demand COD Potassium Dichromate 0.0208M (0.125N) Solution	1L
AGN01001	Chemical Oxygen Demand COD Reagent Silver Nitrate 1000g/L	100ml
AGS1W	Chemical Oxygen Demand COD 1% w/v Silver Sulphate in Sulphuric Acid Solution	2.5L
AGS1H	Chemical Oxygen Demand COD 1% w/v Silver Sulphate in Sulphuric Acid Solution	500ml
PFS1	Indicator Solution Ferroin Indicator	100ml

* Methodology as per the Department of the Environment (U.K.) "Chemical Oxygen Demand (Dichromate Value) of Polluted and Waste Waters" published in 1977 and revised in 1986.

Chemical Oxygen Demand (COD) Vials

Reagecon's COD Reagent Vials can be used in conjunction with the Aqualytic PC Spectro, PC Compact Vario and all Hach® spectrophotometers. This compatibility is proven in the Reagecon Technical Publication. [1] Reagecon also offer a collection and disposal service in certain territories for used vials that complies with all relevant dangerous goods disposal and environmental regulations.

Product No.	Description	Pack Size
420720	Measuring Range 0-150mg/L	pk25
420720R	Measuring Range 0-150mg/L with compliant disposal	pk25
420721	Measuring Range 0-1500mg/L	pk25
420721R	Measuring Range 0-1500mg/L with compliant disposal	pk25
420722	Measuring Range 0-15000mg/L	pk25
420722R	Measuring Range 0-15000mg/L with compliant disposal	pk25

[1] A comparative study of the performance of Reagecon COD vials and Hach® COD vials using the Hach® DR/2010 photometer. Authors: John J. Barron, Colin Ashton & Leo Geary - Technical Services Department, Reagecon Diagnostics Ltd., Shannon Free Zone, County Clare, Ireland.

Ion Selective Electrode Standards & Ionic Strength Adjustors

Introduction

Ion Selective Electrodes, (ISEs) allow specific and quantitative measurement of a wide range of cations, anions and some dissolved gases. These ions can be measured directly like pH measurement, indirectly (see below) or by titrimetry. ISEs respond selectively to the relevant ion activity exactly like pH electrodes respond to hydrogen ion activity. Like pH electrodes, they require a suitable reference electrode, preferably a double junction system. They also require a pH or ion meter and a selection of filling solutions for the outer and inner chambers of the reference electrode. In some instances the reference and sensing electrodes may be combined into one unit.

Types of Measurement

Direct measurement is performed exactly like the measurement of pH. The electrode is calibrated using two concentrations of the relevant standard which are chosen to bracket the expected value of the sample. More than two calibration standards may be used for better linearity or more accurate measurement and a standard curve of mV reading versus concentration of various standards can be constructed.

However, the measurement technique deviates from pH in that both sample and standards require the addition of an Ionic Strength Adjustor (ISA). The addition of this solution confers the following benefits:

- The ionic strength of the adjustor is much higher than the ionic strength of the sample or standard so it keeps the ionic strength of both high, constant and similar and thus enables what is effectively activity measurement to be read as concentration.
- The ionic strength adjustor (which should never react with the sample or standard chemically) also keeps the pH value constant in some instances. This combined with high ionic strength and the chemistry of the ISA suppresses or eliminates interfering ions.
- The ISA when added to sample and standard eliminates any matrix, hysteresis or erroneous liquid junction potentials that might affect the accuracy of the test result.
- Indirect measurement methodologies include the use of standard addition, sample addition, standard subtraction and sample subtraction. Such methods offer advantages that include:
- Calibration need only be performed occasionally or not at all, therefore only ISA needs to be added to the sample.
- The possibility of error due to a temperature co-efficient of variation between the sample and standard is largely eliminated.
- The ion concentration of solid samples can be measured.
- The range of types of ions measured and the versatility of the technique is greatly enhanced by careful and considered selection of the optimal indirect method. This is true, in particular, with standard or sample subtraction, where precipitation or complexation may be performed, or where the counter ion to that contained in the standard is measured.

Use of Controls

As with all analytical measurements, no test should be performed without the use of control material. The control should be treated in exactly the same way as the sample including the addition of ISA, thereby picking up any error in the measurement technique, whether it be due to the analyst, environment, meter, sensors or sample in line with the execution of good laboratory produce. Reagecons ISE standards, diluted to a suitable concentration, are particularly suitable for use as control material.

ISE Standards & ISA Solutions

Reagecon is world leader in the development, manufacture, testing and stabilising of chemical and physical standards and reagents. Our ISE standards and ISA's are an important part of our offering. The range of standards is extensive, accurate, traceable and produced to have minimal uncertainty of measurement. They can be used for:

- Calibration
- Instrument Qualification
- Control
- Method Validation

Both ISE standards or ISA reagents can be customised for individual customer requirements and can be supplied in bulk quantities for process or online applications.

Ion Selective Electrode Standards

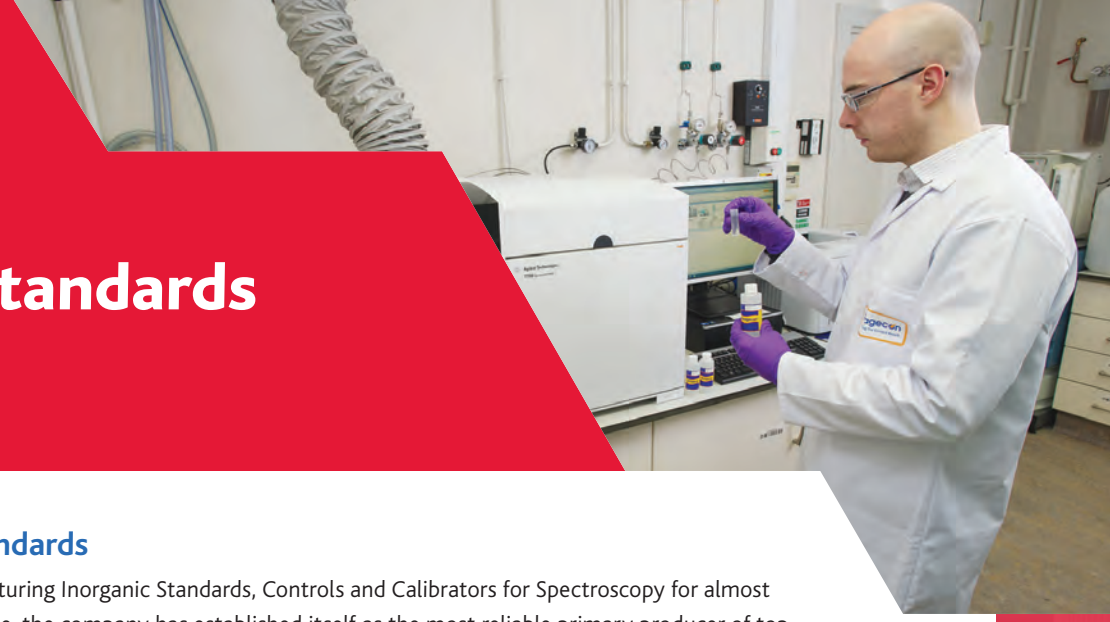
Product No.	Description	Pack Size
ISEF10005	Fluoride 100ppm	500ml
ISEF1005	Fluoride 10ppm	500ml
ISENH55	Ammonia 1000ppm as N	5L
ISENH1005	Ammonia 100ppm as N	500ml
ISENH1005-5L	Ammonia 100ppm as N	5L
NH0-5-P-500	Ammonia Standard 0.5ppm as NH_3	500ml
NH2-5-P-500	Ammonia Standard 2.5 ppm as NH_3	500ml
NH3101	Ammonia Standard 1mg/l as as NH_3	100ml
ISEF101	Fluoride 10ppm	1L
ISEF11	Fluoride 1ppm	1L
ISENH4105	Ammonium 10ppm as NH_4	500ml
ISENH41005	Ammonium 100ppm as NH_4	500ml
ISENH45	Ammonium 1000ppm as NH_4	500ml
ISENH500	Ammonia 500ppm	500ml
ISENH5	Ammonia 1000ppm as N	500ml
ISEBA5	Barium 1000ppm	500ml
ISEBR5	Bromide 1000ppm	500ml
ISECD5	Cadmium 1000ppm	500ml
ISECA10	Calcium 10ppm	500ml
ISECA1005	Calcium 100ppm	500ml
ISECA5	Calcium 1000ppm	500ml
ISECO5	Carbon Dioxide 1000ppm	500ml
ISECL10005	Chloride 100ppm	500ml
ISECL5	Chloride 1000ppm	500ml
ISECU5	Copper 1000ppm	500ml
ISECN025	Cyanide 1000ppm	250ml
ISECN5	Cyanide 1000ppm	500ml
ISEF1	Fluoride 1ppm	500ml
ISEF5	Fluoride 1000ppm	500ml
ISEI5	Iodide 1000ppm	500ml
ISEPB5	Lead 1000ppm	500ml
ISEMG5	Magnesium 1000ppm	500ml
ISEHG5	Mercury 1000ppm	500ml
ISEN105	Nitrate 10ppm as NO_3	500ml
ISEN105-5L	Nitrate 10ppm as NO_3	5L
ISEN1005	Nitrate 100ppm as NO_3	500ml
ISEN1005-5L	Nitrate 100ppm as NO_3	5L

Product No.	Description	Pack Size
ISEN5	Nitrate 1000ppm as NO_3	500ml
ISEN5-5L	Nitrate 1000ppm as NO_3	5L
NITRATE025PPM	Nitrate Standard 25ppm as N	1L
NITRITE025PPM	Nitrite Standard 25ppm as N	1L
NO2-0.3-100	Nitrite Standard in Water 0.3mg/l	100ml
NO2-6-100	Nitrite Standard in Water 6mg/L	100ml
NO3-6-100	Nitrate Standard in Water 6mg/l	100ml
P10001	Phosphate Solution 1000ppm	1L
P1005	Phosphate Solution 100ppm	500ml
ISENO5	Nitrogen Oxide 1000ppm as NO_2	500ml
ISEPCL5	Perchlorate 1000ppm	500ml
ISEK5	Potassium 1000ppm	500ml
ISEAG5	Silver 1000ppm	500ml
ISENA5	Sodium 1000ppm	500ml
ISES5	Sulphide 1000ppm	500ml
ISESCO5	Sulphur Dioxide 1000ppm	500ml
ISESC5	Thiocyanate 1000ppm	500ml
ISEWH5	Water Hardness Standard 1000ppm $CaCO_3$	500ml

Ionic Strength Adjuster Solutions

Product No.	Description	Pack Size
ISANH5	Ammonia 10M NaOH	500ml
ISANH45	Ammonium 4M LiCl	500ml
ISABA5	Barium 4M LiCl	500 ml
ISABR5	Bromide 5M $NaNO_3$	500 ml
ISACD5	Cadmium 5M $NaNO_3$	500 ml
ISACA5	Calcium 4M KCl	500 ml
ISACO5	Carbon Dioxide Solution	500 ml
ISACL5	Chloride 5M $NaNO_3$	500 ml
ISACU5	Copper 5M $NaNO_3$	500 ml
ISACN5	Cyanide 10M NaOH	500 ml
TISAF5	Fluoride TISAB3	500 ml
TISAF55	Fluoride TISAB3	5L
ISAI5	Iodide 5M $NaNO_3$	500 ml
ISAPB5	Lead 2.5M $NaNO_3$	500 ml
ISAMG5	Magnesium 4M KCl	500 ml
ISAHG5	Mercury 5M $NaNO_3$	500 ml
ISAN5	Nitrate 2M $(NH_4)_2SO_4$	500 ml
ISAPCL5	Perchlorate 2M $(NH_4)_2SO_4$	500 ml
ISAK5	Potassium 5M NaCl	500 ml
ISAAG5	Silver 5M $NaNO_3$	500 ml
ISANA5	Sodium Based Standard	500 ml
ISAS5	Sulphide 10M NaOH	500 ml
ISASO5	Sulphur Dioxide 2M H_2SO_4	500 ml
ISASC5	Thiocyanate 5M $NaNO_3$	500 ml
ISAWH5	Water Hardness 4M KCl Solution	500 ml

ICP-MS/ ICP-OES Standards



ICP-MS/ICP-OES Standards

Reagecon have been manufacturing Inorganic Standards, Controls and Calibrators for Spectroscopy for almost two decades. During that time, the company has established itself as the most reliable primary producer of top quality standards. Our customer base in over 80 countries is testament of our efforts to be leaders in a changing field where limits of detection and purity are becoming ever more demanding. Whether your application is ICP-MS, ICP-OES or whether you require a single element or multi-element mixture, our products are manufactured, tested and stabilised to such a high level, that they can be used on all of these instruments.

Quality Control

All metal raw materials are assayed by titration and ICP-MS prior to manufacture. Separate CRM's are used to control or calibrate the titration and ICP-MS respectively. This dual process enables the assays to be cross-checked against each other, provides two layers of traceability and quantifies the combined level of impurities in the starting material. The product is then manufactured gravimetrically using the mass balance approach: 100% - sum of all impurities (w/w). The assay of the final product is certified using the gravimetric result corrected for density. Prior to bottling, the finished product is again tested and verified using an ICP-MS instrument calibrated with appropriate CRM's.

Certification

Reagecon's ICP-MS and ICP-OES Standards are prepared gravimetrically on a weight/weight basis from the purest available raw materials on the market. Both solute and solvent are weighed on balances calibrated by Reagecon's engineers using OIML traceable weights. Reagecon holds ISO/IEC 17025 accreditation for calibration of laboratory balances (INAB Ref:265C). The resulting Balance Certificate of Calibration is issued in accordance with the requirements of ISO/IEC 17025.

Traceability

The content of the starting material for each single element or multi-element standard is established by titration. The resulting analysis is directly traceable to a relevant NIST standard where available. All of the resulting uncertainties of measurement are calculated according to EURACHEM/CITAC guidelines and reported as expanded uncertainties at the 95% confidence level. Reagecon has ISO/IEC 17025 (INAB Ref:264T) accreditation for several classes of titrimetric analysis relevant to the assay of Raw Materials, for the manufacture of ICP-MS and ICP-OES standards.

Verification of Raw Materials

The concentration of the target element of each raw material is then verified using a high performance state of the art calibrated ICP-MS instrument. The calibration of the ICP-MS is completed using high purity ISO Guide 34 certified reference materials or other internationally accepted materials (e.g. BAM from Germany). This verification procedure serves three distinct but critical purposes.

- It provides a completely independent check of the accuracy and validity of the titration assay.
- It provides traceability by comparison to a second reference, which is independent from the first Reference Material.
- It determines the level of trace elemental impurities in the starting raw materials.

Elemental Metallic Impurities

All Reagecon Standards are manufactured from the purest available raw materials. At least thirty-three star ting materials are metals of > 99.999% purity. Several others are at least 99.995% pure. Most of the remaining metals or salts of metals are at least 99.99% pure. The level of impurities are quantified using ICP-MS and are measured and reported both on the starting materials and on the finished product. All of Reagecon's ICP-MS standards are manufactured in a Class 10,000 (ISO 7) clean room environment.

Final Assay & Result

Each batch of Reagecon's finalised ICP-MS standards are subjected to an assay on the instrument prior to bottling. This assay verifies the target element assay and verifies that the level of impurities have not changed significantly during the manufacturing process. The results are then reported and certified in mg/Kg and mg/L on the basis of weight and the density measurement of the standard. All of the volumetric, titrimetric and gravimetric functions are carried out under a highly regulated temperature regime, using equipment calibrated by Reagecon's engineers. Reagecon holds ISO/IEC 17025 accreditation for temperature calibration in the range of -196 to +1200°C (INAB Ref:265C). The density measurements are also highly temperature dependent and are carried out in Reagecon's specialised Density Laboratory. Reagecon is ISO/IEC 17025 Accredited (INAB Ref:264T), for density measurement using an Oscillating U-Tube Method in accordance with the ASTM D4052 method. The company is an extensive producer of density standards.

ICP-MS Single Element Standards

Product No.	Starting Material and its Purity %	Matrix	Conc µg/ml	Pack Size
Aluminium				
PAL1D2	AL 99.999	5% HNO_3	1	100ml
PAL1A2	AL 99.999	2 - 5% HNO_3	100	100ml
PAL2A2	AL 99.999	2 - 5% HNO_3	1,000	100ml
PAL2B2	AL 99.999	2 - 5% HNO_3	1,000	250ml
PAL2C2	AL 99.999	2 - 5% HNO_3	1,000	500ml
PAl2B4-500ML	AL 99.999	3.5% HNO_3	1,000	500ml
PAL4A2	AL 99.999	2 - 5% HNO_3	10,000	100ml
PAL4B2	AL 99.999	2 - 5% HNO_3	10,000	250ml
PAl4B4-500ML	AL 99.999	3.5% HNO_3	10,000	500ml
PAL2A3	AL 99.999	5% HCl	1,000	100ml
PAL2B3	AL 99.999	2 - 5% HCl	1,000	250ml
PAL2C3	AL 99.999	5% HCl	1,000	500ml
PAL4A3	AL 99.999	5% HCl	10,000	100ml
PAL4B3	AL 99.999	2 - 5% HCl	10,000	250ml
PAL4C3	AL 99.999	2 - 5% HCl	10,000	500ml

Product No.	Starting Material and its Purity %	Matrix	Conc µg/ml	Pack Size
Antimony				
PSB1A4	Sb 99.999	1% HF + 5% HNO_3	100	100ml
PSB2A4	Sb 99.999	1% HF + 5% HNO_3	1,000	100ml
PSB2C4	Sb 99.999	1% HF + 5% HNO_3	1,000	500ml
PSB4A4	Sb 99.999	1% HF + 5% HNO_3	10,000	100ml
PSB2A5	Sb 99.999	10% HCl	1,000	100ml
PSB2C5	Sb 99.999	10% HCl	1,000	500ml
PSB4A5	Sb 99.999	10% HCl	10,000	100ml
PSB2A11	Sb 99.999	1% HCl	1,000	100ml
PSB2B4	$C_8H_4K_2O_{12}.3H_2O$	6% Tart. Acid	1,000	250ml
PSB4B4	$C_8H_4K_2O_{12}.3H_2O$	6% Tart. Acid, tr. HNO_3	10,000	250ml
PSB2B5	Sb 99.999	20% HCl	1,000	250ml
PSB4B5	Sb 99.999	20% HCl	10,000	250ml
Arsenic				
PAS01D6	As 99.999	2 % HNO_3	10	50ml
PAS01A6	As 99.999	2 % HNO_3	10	100ml
PAS1A2	As 99.999	2 - 5% HNO_3	100	100ml
PAS1C3	As 99.999	2 - 5% HNO_3	100	500ml
PAS2A2	As 99.999	2 - 5% HNO_3	1,000	100ml
PAS2B2	As 99.999	2 - 5% HNO_3	1,000	250ml
PAS2C2	As 99.999	2 - 5% HNO_3	1,000	500ml
PAS2C2-1000ml	As 99.999	2 - 5% HNO_3	1,000	1L
PAS4A2	As 99.999	2 - 5% HNO_3	10,000	100ml
PAS4B2	As 99.999	2 - 5% HNO_3	10,000	250ml
PAS4B4-500ml	As 99.999	3.5% HNO_3	10,000	500ml
PAS2B3	As 99.999	2 - 5% HCl	1,000	250ml
PAS4B3	As 99.999	2 - 5% HCl	10,000	250ml
PAS52C2	As 99.999	0.5M HNO_3	100	500ml
Barium				
PBA1A2	$BaCO_3$ 99.999	2 - 5% HNO_3	100	100ml
PBA2A2	$BaCO_3$ 99.999	2 - 5% HNO_3	1,000	100ml
PBA2B2	$BaCO_3$ 99.999	2 - 5% HNO_3	1,000	250ml
ICP-GLO-BA-100	$BaCO_3$ 99.999	0.5M HNO_3	1,000	100ml
PBA2C2	$BaCO_3$ 99.999	2 - 5% HNO_3	1,000	500ml
PBA4A2	$BaCO_3$ 99.999	2 - 5% HNO_3	10,000	100ml
PBA4B2	$BaCO_3$ 99.999	2 - 5% HNO_3	10,000	250ml
PBa4B4-500ML	$BaCO_3$ 99.999	3.5% HNO_3	10,000	500ml
PBA2A3	$BaCO_3$ 99.999	2% HCl	1,000	100ml
PBA2B3	$BaCO_3$ 99.999	2-5% HCl	1,000	250ml
PBA2C3	$BaCO_3$ 99.999	2% HCl	1,000	500ml
PBA4A3	$BaCO_3$ 99.999	2% HCl	10,000	100ml
PBA4B3	$BaCO_3$ 99.999	2-5% HCl	10,000	250ml

ICP-MS Single Element Standards

Product No.	Starting Material and its Purity %	Matrix	Conc µg/ml	Pack Size
Beryllium				
PBE1A2	BeO 99.99	2 - 5% HNO_3	100	100ml
PBE2A2	BeO 99.99	2 - 5% HNO_3	1,000	100ml
PBE2B2	BeO 99.99	2 - 5% HNO_3	1,000	250ml
PBE2C2	BeO 99.99	2 - 5% HNO_3	1,000	500ml
PBE4A2	BeO 99.99	2 - 5% HNO_3	10,000	100ml
PBE4B2	BeO 99.99	2 - 5% HNO_3	10,000	250ml
PBe4B4-500ML	BeO 99.99	3.5% HNO_3	10,000	500ml
Bismuth				
PBI1A6	Bi 99.999	2 - 5% HNO_3	100	100ml
PBi1A6-125ml	Bi 99.999	2 - 5% HNO_3	100	125ml
PBi1A6-500ml	Bi 99.999	2 - 5% HNO_3	100	500ml
PBI2A6	Bi 99.999	2 - 5% HNO_3	1,000	100ml
PBI2C6	Bi 99.999	2 - 5% HNO_3	1,000	500ml
PBI4A6	Bi 99.999	2 - 5% HNO_3	10,000	100ml
PBI4C2-500ml	Bi 99.999	2 - 5% HNO_3	10,000	500ml
PBI2B6	Bi 99.999	10% HNO_3	1,000	250ml
PBI4B6	Bi 99.999	10% HNO_3	10,000	250ml
PBI2C1L	Bi 99.999	1.5M HNO_3	1,000	1L
Boron				
PB1A7	H_3BO_3 99.99	H_2O	100	100ml
PB2A7	H_3BO_3 99.99	H_2O	1,000	100ml
PB2B7	H_3BO_3 99.99	H_2O	1,000	250ml
ICP-GLO-B-100	H_3BO_3 99.99	0.5M NH_4	1,000	100ml
PB2C7	H_3BO_3 99.99	H_2O	1,000	500ml
PB3C7	H_3BO_3 99.99	H_2O	5,000	100ml
PB3A7	H_3BO_3 99.99	H_2O	5,000	500ml
PB4A7	H_3BO_3 99.99	H_2O	10,000	100ml
PB4B7	H_3BO_3 99.99	H_2O	10,000	250ml
PB4N-250ML	H_3BO_3 99.99	0.5N $HN0_3$	10,000	250ml
Cadmium				
PCD01D6	Cd 99.999	2% HNO_3	10	50ml
PCD01A6	Cd 99.999	2% HNO_3	10	100ml
PCD1A2	Cd 99.999	2 - 5% HNO_3	100	100ml
PCD1C3	Cd 99.999	2 - 5% HNO_3	100	500ml
PCD2A2	Cd 99.999	2 - 5% HNO_3	1,000	100ml
PCD2B2	Cd 99.999	2 - 5% HNO_3	1,000	250ml
PCD2C2	Cd 99.999	2 - 5% HNO_3	1,000	500ml
PCD2C4	Cd 99.999	0.5M HNO_3	1,000	500ml
PCD4A2	Cd 99.999	2 - 5% HNO_3	10,000	100ml
PCD4B2	Cd 99.999	2 - 5% HNO_3	10,000	250ml
PCd4B4-500ML	Cd 99.999	3.5% HNO_3	10,000	500ml
PCD2A3	Cd 99.999	2% HCl	1,000	100ml
PCD2B3	Cd 99.999	2-5% HCl	1,000	250ml
PCD2C3	Cd 99.999	2% HCl	1,000	500ml
PCD4B3	Cd 99.999	2-5% HCl	10,000	250ml

Product No.	Starting Material and its Purity %	Matrix	Conc µg/ml	Pack Size
Calcium				
PCA1A2	$CaCO_3$ 99.995	2 - 5% HNO_3	100	100ml
PCA2A2	$CaCO_3$ 99.995	2 - 5% HNO_3	1,000	100ml
PCA2B2	$CaCO_3$ 99.995	2 - 5% HNO_3	1,000	250ml
PCA2B4-500ML	$CaCO_3$ 99.995	3.5% HNO_3	1,000	500ml
PCA2C2	$CaCO_3$ 99.995	2 - 5% HNO_3	1,000	500ml
PCA5A2	$CaCO_3$ 99.995	2 - 5% HNO_3	5,000	100ml
PCA4A2	$CaCO_3$ 99.995	2 - 5% HNO_3	10,000	100ml
PCA4B2	$CaCO_3$ 99.995	2 - 5% HNO_3	10,000	250ml
PCA4C2	$CaCO_3$ 99.995	2 - 5% HNO_3	10,000	500ml
PCa4B4-500ML	$CaCO_3$ 99.995	3.5% HNO_3	10,000	500ml
PCA2A3	$CaCO_3$ 99.995	2% HCl	1,000	100ml
PCA2B3	$CaCO_3$ 99.995	2-5% HCl	1,000	250ml
PCA2C3	$CaCO_3$ 99.995	2% HCl	1,000	500ml
PCA4A3	$CaCO_3$ 99.995	2% HCl	10,000	100ml
PCA4B3	$CaCO_3$ 99.995	2-5% HCl	10,000	250ml
PCA4C3	$CaCO_3$ 99.995	2-5% HCl	10,000	500ml
Carbon				
PC2A7	Tartaric Acid 99.7	H_2O	1,000	100ml
PC2B7	Tartaric Acid 99.7	H_2O	1,000	250ml
PC4B7	Tartaric Acid 99.7	H_2O	10,000	250ml
Cerium				
PCE1A2	CeO_2 99.99	2 - 5% HNO_3	100	100ml
PCE2A2	CeO_2 99.99	2 - 5% HNO_3	1,000	100ml
PCE2B2	CeO_2 99.99	2 - 5% HNO_3	1,000	250ml
PCE2C2	CeO_2 99.99	2 - 5% HNO_3	1,000	500ml
PCE4A2	CeO_2 99.99	2 - 5% HNO_3	10,000	100ml
PCE4B2	CeO_2 99.99	2 - 5% HNO_3	10,000	250ml
PCE4B4-500ML	CeO_2 99.99	3.5% HNO_3	10,000	500ml
Cesium				
PCS1A2	CsCl 99.999	2 - 5% HNO_3	100	100ml
PCS2A2	CsCl 99.999	2 - 5% HNO_3	1,000	100ml
PCS2B2	CsCl 99.999	2 - 5% HNO_3	1,000	250ml
PCS2C2	CsCl 99.999	2 - 5% HNO_3	1,000	500ml
PCS4A2	CsCl 99.999	2 - 5% HNO_3	10,000	100ml
PCS4B2	CsCl 99.999	2 - 5% HNO_3	10,000	250ml
Chloride				
PCL2A7	NaCl 99.99	H_2O	1,000	100ml

ICP-MS Single Element Standards

Product No.	Starting Material and its Purity %	Matrix	Conc µg/ml	Pack Size
Chromium				
PCR1A2	$Cr(NO_3)_3{\cdot}9H_2O$ 99.99+	2 - 5% HNO_3	100	100ml
PCR1C3	$Cr(NO_3)_3{\cdot}9H_2O$ 99.99+	2 - 5% HNO_3	100	500ml
PCR2A2	$Cr(NO_3)_3{\cdot}9H_2O$ 99.99+	2 - 5% HNO_3	1,000	100ml
PCR2B2	$Cr(NO_3)_3{\cdot}9H_2O$ 99.99+	2 - 5% HNO_3	1,000	250ml
PCR2C2	$Cr(NO_3)_3{\cdot}9H_2O$ 99.99+	2 - 5% HNO_3	1,000	500ml
PCR4A2	$Cr(NO_3)_3{\cdot}9H_2O$ 99.99+	2 - 5% HNO_3	10,000	100ml
PCR4B2	$Cr(NO_3)_3{\cdot}9H_2O$ 99.99+	2 - 5% HNO_3	10,000	250ml
PCR4B4-500ML	$Cr(NO_3)_3{\cdot}9H_2O$ 99.99+	3.5% HNO_3	10,000	500ml
PCR2C3	Cr 99.995	2% HCl	1,000	500ml
PCR4A3	Cr 99.995	2% HCl	10,000	100ml
PCR4B3	Cr 99.995	2-5% HCl	10,000	250ml
PCR4C3	Cr 99.995	2-5% HCl	10,000	500ml
PCR2A7	Cr 99.995	2% HCl	1,000	100ml
PCR2B3	Cr 99.995	2-5% HCl	1,000	250ml
PCR2A5	$Cr(NO_3)_3{\cdot}9H_2O$ 99.99+	H_2O	1,000	100ml
PCR2B7	$Cr(NO_3)_3{\cdot}9H_2O$ 99.99+	H_2O	1,000	250ml
PCR4B7	$Cr(NO_3)_3{\cdot}9H_2O$ 99.99+	H_2O	10,000	250ml
Cobalt				
PCO1A2	Co 99.995	2 - 5% HNO_3	100	100ml
PCO1C3	Co 99.995	2 - 5% HNO_3	100	500ml
PCO2A2	Co 99.995	2 - 5% HNO_3	1,000	100ml
PCO2B2	Co 99.995	2 - 5% HNO_3	1,000	250ml
PCO2C2	Co 99.995	2 - 5% HNO_3	1,000	500ml
PCO2C3	Co 99.995	0.5M HNO_3	1,000	500ml
PCO4A2	Co 99.995	2 - 5% HNO_3	10,000	100ml
PCO4B2	Co 99.995	2 - 5% HNO_3	10,000	250ml
PCo4B4-500ML	Co 99.995	3.5% HNO_3	10,000	500ml
PCO2B3	Co 99.995	2-5% HCl	1,000	250ml
PCO4A3	Co 99.995	2% HCl	10,000	100ml
PCO4B3	Co 99.995	2-5% HCl	10,000	250ml
PCO4C3	Co 99.995	2% HCl	10,000	500ml

Product No.	Starting Material and its Purity %	Matrix	Conc µg/ml	Pack Size
Copper				
PCU1A2	Cu 99.999	2 - 5% HNO_3	100	100ml
PCU1C3	Cu 99.999	2 - 5% HNO_3	100	500ml
PCU2A2	Cu 99.999	2 - 5% HNO_3	1,000	100ml
PCU2B2	Cu 99.999	2 - 5% HNO_3	1,000	250ml
PCU2C2	Cu 99.999	2 - 5% HNO_3	1,000	500ml
PCU4A2	Cu 99.999	2 - 5% HNO_3	10,000	100ml
PCU4B2	Cu 99.999	2 - 5% HNO_3	10,000	250ml
PCu4B4-500ML	Cu 99.999	3.5% HNO_3	10,000	500ml
PCU2A3	Cu 99.999	2% HCl	1,000	100ml
PCU2B3	Cu 99.999	2-5% HCl	1,000	250ml
PCU2C3	Cu 99.999	2% HCl	1,000	500ml
PCU4A3	Cu 99.999	2% HCl	10,000	100ml
PCU4B3	Cu 99.999	2-5% HCl	10,000	250ml
PCU4C3	Cu 99.999	2-5% HCl	10,000	500ml
Dysprosium				
PDY1A2	DY_2O_3 99.99+	2 - 5% HNO_3	100	100ml
PDY2A2	DY_2O_3 99.99+	2 - 5% HNO_3	1,000	100ml
PDY2B2	DY_2O_3 99.99+	2 - 5% HNO_3	1,000	250ml
PDY2C2	DY_2O_3 99.99+	2 - 5% HNO_3	1,000	500ml
PDY4A2	DY_2O_3 99.99+	2 - 5% HNO_3	10,000	100ml
PDY4B2	DY_2O_3 99.99+	2 - 5% HNO_3	10,000	250ml
Eribium				
PER1A2	Er_2O_3 99.99+	2 - 5% HNO_3	100	100ml
PER2A2	Er_2O_3 99.99+	2 - 5% HNO_3	1,000	100ml
PER2B2	Er_2O_3 99.99+	2 - 5% HNO_3	1,000	250ml
PER2C2	Er_2O_3 99.99+	2 - 5% HNO_3	1,000	500ml
PER4A2	Er_2O_3 99.99+	2 - 5% HNO_3	10,000	100ml
PER4B2	Er_2O_3 99.99+	2 - 5% HNO_3	10,000	250ml
Europium				
PEU1A2	Eu_2O_3 99.999	2 - 5% HNO_3	100	100ml
PEU2A2	Eu_2O_3 99.999	2 - 5% HNO_3	1,000	100ml
PEU2B2	Eu_2O_3 99.999	2 - 5% HNO_3	1,000	250ml
PEU2C2	Eu_2O_3 99.999	2 - 5% HNO_3	1,000	500ml
PEU4A2	Eu_2O_3 99.999	2 - 5% HNO_3	10,000	100ml
PEU4B2	Eu_2O_3 99.999	2 - 5% HNO_3	10,000	250ml
Gadolinium				
PGD1A2	Gd_2O_3 99.995	2 - 5% HNO_3	100	100ml
PGD2A2	Gd_2O_3 99.995	2 - 5% HNO_3	1,000	100ml
PGD2B2	Gd_2O_3 99.995	2 - 5% HNO_3	1,000	250ml
PGD2C2	Gd_2O_3 99.995	2 - 5% HNO_3	1,000	500ml
PGD4A2	Gd_2O_3 99.995	2 - 5% HNO_3	10,000	100ml
PGD4B2	Gd_2O_3 99.995	2 - 5% HNO_3	10,000	250ml

ICP-MS Single Element Standards

Product No.	Starting Material and its Purity %	Matrix	Conc µg/ml	Pack Size
Gallium				
PGA1A2	Ga 99.999	2 - 5% HNO_3	100	100ml
PGA2A2	Ga 99.999	2 - 5% HNO_3	1,000	100ml
PGA2B2	Ga 99.999	2 - 5% HNO_3	1,000	250ml
PGA2C2	Ga 99.999	2 - 5% HNO_3	1,000	500ml
PGA4A2	Ga 99.999	2 - 5% HNO_3	10,000	100ml
PGA4B2	Ga 99.999	2 - 5% HNO_3	10,000	250ml
Germanium				
PGE1A7	Ge 99.999	1% HF + 5% HNO_3	100	100ml
PGE2A7	Ge 99.999	1% HF + 5% HNO_3	1,000	100ml
PGE2B7	Ge 99.999	1% HF + 5% HNO_3	1,000	250ml
PGE2C7	Ge 99.999	1% HF + 5% HNO_3	1,000	500ml
PGE4A7	Ge 99.999	1% HF + 5% HNO_3	10,000	100ml
PGE4B7	Ge 99.999	1% HF + 5% HNO_3	10,000	250ml
Gold				
PAU001A2	Au 99.998	5% HCl	1	100ml
PAU1A8	Au 99.998	5% HCl	100	100ml
PAU2A8	Au 99.998	5% HCl	1,000	100ml
PAU2B8	Au 99.998	5% HCl	1,000	250ml
PAU2C8	Au 99.998	5% HCl	1,000	500ml
PAU4A8	Au 99.998	5% HCl	10,000	100ml
PAU001C8	Au 99.998	10% HCl	1	500ml
PAU002C8	Au 99.998	10% HCl	2	500ml
PAU005C8	Au 99.998	10% HCl	5	500ml
PAU4B8	Au 99.998	10% HCl	10,000	250ml
PAU4B8-500ml	Au 99.998	10% HCl	10,000	500ml
PAU-1G/L	Au 99.998	2M HCl	1,000	250ml
PAU-3G/L	Au 99.998	2M HCl	3,000	250ml
PAU-10G/L	Au 99.998	2M HCl	10,000	250ml
Hafnium				
PHF1A3	Hf 99.9	1% HF + 5% HNO_3	100	100ml
PHF2A3	Hf 99.9	1% HF + 5% HNO_3	1,000	100ml
PHF2C3	Hf 99.9	1% HF + 5% HNO_3	1,000	500ml
PHF4A3	Hf 99.9	1% HF + 5% HNO_3	10,000	100ml
PHF2B3	$HfOCl_2.8H_2O$ 99.9	2 - 5% HCl	1,000	250ml
PHF4B3	$HfOCl_2.8H_2O$ 99.9	2 - 5% HCl	10,000	250ml

Product No.	Starting Material and its Purity %	Matrix	Conc µg/ml	Pack Size
Holmium				
PHO1A3	Ho_2O_3 99.999	2 - 5% HNO_3	100	100ml
PHO2A2	Ho_2O_3 99.999	2 - 5% HNO_3	1,000	100ml
PHO2B2	Ho_2O_3 99.999	2 - 5% HNO_3	1,000	250ml
PHO2C2	Ho_2O_3 99.999	2 - 5% HNO_3	1,000	500ml
PHO4A2	Ho_2O_3 99.999	2 - 5% HNO_3	10,000	100ml
PHO4B2	Ho_2O_3 99.999	2 - 5% HNO_3	10,000	250ml
Indium				
PIN1A2	In 99.999	2 - 5% HNO_3	100	100ml
PIN1A2-125ml	In 99.999	2 - 5% HNO_3	100	125ml
PIN1A2-500ml	In 99.999	2 - 5% HNO_3	100	500ml
PIN2A2	In 99.999	2 - 5% HNO_3	1,000	100ml
PIN2B2	In 99.999	2 - 5% HNO_3	1,000	250ml
PIN2C2	In 99.999	2 - 5% HNO_3	1,000	500ml
PIN2B4-500ML	In 99.999	3.5% HNO_3	1,000	500ml
PIN4A2	In 99.999	2 - 5% HNO_3	10,000	100ml
PIN4B2	In 99.999	2 - 5% HNO_3	10,000	250ml
PIN4C2	In 99.999	2 - 5% HNO_3	10,000	500ml
Iridium				
PIR1A8	$(NH_4)_2IrCl_6$ 99.998	5% HCl	100	100ml
PIR2A8	$(NH_4)_2IrCl_6$ 99.998	10% HCl	1,000	100ml
PIR2B8	$(NH_4)_2IrCl_6$ 99.998	10% HCl	1,000	250ml
PIR2C8	$(NH_4)_2IrCl_6$ 99.998	5% HCl	1,000	500ml
PIR4A8	$(NH_4)_2IrCl_6$ 99.998	5% HCl	10,000	100ml
PIR4B8	$(NH_4)_2IrCl_6$ 99.998	10% HCl	10,000	250ml
Iron				
PFE1A2	Fe 99.999	2 - 5% HNO_3	100	100ml
PFE1C3	Fe 99.999	2 - 5% HNO_3	100	500ml
PFE2A2	Fe 99.999	2 - 5% HNO_3	1,000	100ml
PFE2B2	Fe 99.999	2 - 5% HNO_3	1,000	250ml
PFE2B4-500ML	Fe 99.999	3.5% HNO_3	1,000	500ml
ICP-GLO-FE-100	Fe 99.999	0.5M HNO_3	1,000	100ml
PFE2C2	Fe 99.999	2 - 5% HNO_3	1,000	500ml
PFE4A2	Fe 99.999	2 - 5% HNO_3	10,000	100ml
PFE4B2	Fe 99.999	2 - 5% HNO_3	10,000	250ml
PFE4C2	Fe 99.999	2 - 5% HNO_3	10,000	500ml
PFE4B4-500ML	Fe 99.999	3.5% HNO_3	10,000	500ml
PFE2A3	Fe 99.999	2 - 5% HCl	1,000	100ml
PFE2B3	Fe 99.999	2 - 5% HCl	1,000	250ml
PFE2C3	Fe 99.999	2 - 5% HCl	1,000	500ml
PFE4A3	Fe 99.999	2 - 5% HCl	10,000	100ml
PFE4B3	Fe 99.999	2 - 5% HCl	10,000	250ml
PFE4C3	Fe 99.999	2 - 5% HCl	10,000	500ml

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Product No.	Starting Material and its Purity %	Matrix	Conc µg/ml	Pack Size
Lanthanum				
PLA1A2	LA_2O_3 99.999	2 - 5% HNO_3	100	100ml
PLA2A2	LA_2O_3 99.999	2 - 5% HNO_3	1,000	100ml
PLA2B2	LA_2O_3 99.999	2 - 5% HNO_3	1,000	250ml
PLA2C2	LA_2O_3 99.999	2 - 5% HNO_3	1,000	500ml
PLA4A2	LA_2O_3 99.999	2 - 5% HNO_3	10,000	100ml
PLA4B2	LA_2O_3 99.999	2 - 5% HNO_3	10,000	250ml
Lead				
PPB01D6	Pb 99.999	2% HNO_3	10	50ml
PPB01A6	Pb 99.999	2% HNO_3	10	100ml
PPB1A2	Pb 99.999	2 - 5% HNO_3	100	100ml
PPB1C3	Pb 99.999	2 - 5% HNO_3	100	500ml
PPB2A2	Pb 99.999	2 - 5% HNO_3	1,000	100ml
PPB2B2	Pb 99.999	2 - 5% HNO_3	1,000	250ml
PPB2C2	Pb 99.999	2 - 5% HNO_3	1,000	500ml
PPB4A2	Pb 99.999	2 - 5% HNO_3	10,000	100ml
PPB4B2	Pb 99.999	2 - 5% HNO_3	10,000	250ml
PPB4B4-500ML	Pb 99.999	3.5% HNO_3	10,000	500ml
Lithium				
PLI1A2	Li_2CO_3 99.997	2 - 5% HNO_3	100	100ml
PLi1A2-500ml	Li_2CO_3 99.997	2 - 5% HNO_3	100	500ml
PLI2A2	Li_2CO_3 99.997	2 - 5% HNO_3	1,000	100ml
PLI2B2	Li_2CO_3 99.997	2 - 5% HNO_3	1,000	250ml
PLI2C2	Li_2CO_3 99.997	2 - 5% HNO_3	1,000	500ml
PLI4A2	Li_2CO_3 99.997	2 - 5% HNO_3	10,000	100ml
PLI4B2	Li_2CO_3 99.997	2 - 5% HNO_3	10,000	250ml
PLI2C4	Li_2CO_3 99.997	0.5M HNO_3	1,000	500ml
PLI2A3	Li_2CO_3 99.997	2 - 5% HCl	1,000	100ml
PLI2B3	Li_2CO_3 99.997	2 - 5% HCl	1,000	250ml
PLI2C3	Li_2CO_3 99.997	2 - 5% HCl	1,000	500ml
PLI4A3	Li_2CO_3 99.997	2 - 5% HCl	10,000	100ml
PLI4B3	Li_2CO_3 99.997	2 - 5% HCl	10,000	250ml
Lutetium				
PLU1A2	Lu_2O_3 99.99	2 - 5% HNO_3	100	100ml
PLU2A2	Lu_2O_3 99.99	2 - 5% HNO_3	1,000	100ml
PLU2B2	Lu_2O_3 99.99	2 - 5% HNO_3	1,000	250ml
PLU2C2	Lu_2O_3 99.99	2 - 5% HNO_3	1,000	500ml
PLU4A2	Lu_2O_3 99.99	2 - 5% HNO_3	10,000	100ml
PLU4B2	Lu_2O_3 99.99	2 - 5% HNO_3	10,000	250ml

Product No.	Starting Material and its Purity %	Matrix	Conc µg/ml	Pack Size
Magnesium				
PMG1A2	Mg 99.99	2 - 5% HNO_3	100	100ml
PMG2A2	Mg 99.99	2 - 5% HNO_3	1,000	100ml
PMG2B2	Mg 99.99	2 - 5% HNO_3	1,000	250ml
PMG2C2	Mg 99.99	2 - 5% HNO_3	1,000	500ml
PMG2B4-500ML	Mg 99.99	3.5% HNO_3	1,000	500ml
PMG2C4	Mg 99.99	0.5M HNO_3	1,000	500ml
PMG5A2	Mg 99.99	2 - 5% HNO_3	5,000	100ml
PMG4A2	Mg 99.99	2 - 5% HNO_3	10,000	100ml
PMG4B2	Mg 99.99	2 - 5% HNO_3	10,000	250ml
PMG4B4-500ML	Mg 99.99	3.5% HNO_3	10,000	500ml
PMG2A3	Mg 99.99	2 - 5% HCl	1,000	100ml
PMG2B3	Mg 99.99	2 - 5% HCl	1,000	250ml
PMG2C3	Mg 99.99	2 - 5% HCl	1,000	500ml
PMG4A3	Mg 99.99	2 - 5% HCl	10,000	100ml
PMG4B3	Mg 99.99	2 - 5% HCl	10,000	250ml
PMG4C3	Mg 99.99	2 - 5% HCl	10,000	500ml
Manganese				
PMN1D2	Mn 99.98	5% HNO_3	1	100ml
PMN1A2	Mn 99.98	2 - 5% HNO_3	100	100ml
PMN1C3	Mn 99.98	2 - 5% HNO_3	100	500ml
PMN2A2	Mn 99.98	2 - 5% HNO_3	1,000	100ml
PMN2B2	Mn 99.98	2 - 5% HNO_3	1,000	250ml
PMN2C2	Mn 99.98	2 - 5% HNO_3	1,000	500ml
PMN2C3	Mn 99.98	0.5M HNO_3	1,000	500ml
PMN4A2	Mn 99.98	2 - 5% HNO_3	10,000	100ml
PMN4B2	Mn 99.98	2 - 5% HNO_3	10,000	250ml
PMN4B4-500ML	Mn 99.98	3.5% HNO_3	10,000	500ml
PMN4C3	Mn 99.98	2-5% HCl	10,000	500ml

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Product No.	Starting Material and its Purity %	Matrix	Conc µg/ml	Pack Size
Mercury				
PHG0001A2	Hg 99.999+	5% HNO_3	0.1	100ml
PHG0005A2	Hg 99.999+	5% HNO_3	0.5	100ml
PHG001A2	Hg 99.999+	5% HNO_3	1	100ml
PHG001A6	Hg 99.999+	2 - 5% HNO_3	1	100ml
PHG6A6	Hg 99.999+	10% HNO_3	1	100ml
PHG002A2	Hg 99.999+	5% HNO_3	2	100ml
PHG7A2	Hg 99.999+	2 - 5% HNO_3	5	100ml
PHG005A2	Hg 99.999+	5% HNO_3	5	100ml
PHG10C3	Hg 99.999+	5% HNO_3	10	50ml
ICP-Hg-CYM	Hg 99.999+	5% HNO_3	10	100ml
PHG10C2	Hg 99.999+	5% HNO_3	10	500ml
PHG34-10-20ML	Hg 99.999+	10% HNO_3	10	20 mL
PHG1A6	Hg 99.999+	2 - 5% HNO_3	100	100ml
PHG1C3	Hg 99.999+	2 - 5% HNO_3	100	500ml
PHG2A4	Hg 99.999+	4% HNO_3	100	100ml
PHG2C3	Hg 99.999+	2M HNO_3	100	500ml
PHG2A6	Hg 99.999+	2 - 5% HNO_3	1,000	100ml
PHG2B6	Hg 99.999+	10% HNO_3	1,000	250ml
PHG2A2	Hg 99.999+	2 - 5% HNO_3	1,000	100ml
PHG2C6	Hg 99.999+	2 - 5% HNO_3	1,000	500ml
PHG4A6	Hg 99.999+	2 - 5% HNO_3	10,000	100ml
PHG4B6	Hg 99.999+	10% HNO_3	10,000	250ml
Molybdenum				
PMO1A7	Mo 99.999	2% NH_4OH	100	100ml
PMO1C3	Mo 99.999	2% NH_4OH	100	500ml
PMO2A7	Mo 99.999	2% NH_4OH	1,000	100ml
PMO2B7	Mo 99.999	2% NH_4OH	1,000	250ml
PMO2C1L	Mo 99.999	H_2O	1,000	1L
PMO2C7	Mo 99.999	2% NH_4OH	1,000	500ml
PMO4A7	Mo 99.999	2% NH_4OH	10,000	100ml
PMO4B4-500ML	Mo 99.999	3.5% NH_4OH	10,000	500ml
PMO4B7	Mo 99.999	H_2O	10,000	250ml
PMO2A10	$(NH_4)6Mo_7O_{24}·4H_2O$ 99.9	2 - 5% HNO_3, tr. HF	1,000	100ml
PMO2A11	(NH4)6Mo7O24·4H2O 99.9	1% HCl	1,000	100ml
Neodymium				
PND1A2	Nd_2O_3 99.99	2 - 5% HNO_3	100	100ml
PND2A2	Nd_2O_3 99.99	2 - 5% HNO_3	1,000	100ml
PND2B2	Nd_2O_3 99.99	2 - 5% HNO_3	1,000	250ml
PND2C2	Nd_2O_3 99.99	2 - 5% HNO_3	1,000	500ml
PND4A2	Nd_2O_3 99.99	2 - 5% HNO_3	10,000	100ml
PND4B2	Nd_2O_3 99.99	2 - 5% HNO_3	10,000	250ml

Product No.	Starting Material and its Purity %	Matrix	Conc µg/ml	Pack Size
Nickel				
PNI1A2	Ni 99.999	2 - 5% HNO_3	100	100ml
PNI1C3	Ni 99.999	2% HNO_3	100	500ml
PNI2A2	Ni 99.999	2 - 5% HNO_3	1,000	100ml
PNI2B2	Ni 99.999	2 - 5% HNO_3	1,000	250ml
PNI2C2	Ni 99.999	2 - 5% HNO_3	1,000	500ml
PNI4A2	Ni 99.999	2 - 5% HNO_3	10,000	100ml
PNI4B2	Ni 99.999	2 - 5% HNO_3	10,000	250ml
PNI4B4-500ML	Ni 99.999	3.5% HNO_3	10,000	500ml
PNI4C3	Ni 99.999	2 - 5% HCl	10,000	500ml
Niobium				
PNB1A9	Nb 99.9+	1% HF + 5% HNO_3	100	100ml
PNB2A9	Nb 99.9+	1% HF + 5% HNO_3	1,000	100ml
PNB2C9	Nb 99.9+	1% HF + 5% HNO_3	1,000	500ml
PNB4A9	Nb 99.9+	1% HF + 5% HNO_3	10,000	100ml
PNB2B9	Nb 99.9+	H_2O, tr. HF	1,000	250ml
PNB4B9	Nb 99.9+	H_2O, tr. HF	10,000	250ml
Osmium				
ICP-HR-15	$(NH_4)2OsCl_6$ 99.99	H_2O	100	500ml
ICP-HR-15HCL	$(NH_4)2OsCl_6$ 99.99	2% HCl	100	500ml
POS2A2-100	$(NH_4)2OsCl_6$ 99.99	5% HCl	1,000	100ml
POS2A2	$(NH_4)2OsCl_6$ 99.99	5% HCl	1,000	1L
POsS4B4-500ML	$(NH_4)2OsCl_6$ 99.99	5% HCl	10,000	500ml
Palladium				
PPD1A8	Pd 99.999	5% HCl	100	100ml
PPD2A8	Pd 99.999	5% HCl	1,000	100ml
PPD2B8	Pd 99.999	5% HCl	1,000	250ml
PPD2C8	Pd 99.999	5% HCl	1,000	500ml
PPB4H8	Pd 99.999	5% HCl	10,000	30 mL
PPD4B8	Pd 99.999	5% HCl	10,000	250ml
PPD2A9	Pd 99.999	10% HCl	1,000	100ml
Phosphorus				
PP1A7	$NH_4H_2PO_4$ 99.999	0.05% H_2SO_4	100	100ml
PP2A7	$NH_4H_2PO_4$ 99.999	0.05% H_2SO_4	1,000	100ml
PP2C7	$NH_4H_2PO_4$ 99.999	0.05% H_2SO_4	1,000	500ml
PP4A7	$NH_4H_2PO_4$ 99.999	0.05% H_2SO_4	10,000	100ml
PP1C3	$NH_4H_2PO_4$ 99.999	H_2O	100	500ml
PP2B7	$NH_4H_2PO_4$ 99.999	H_2O	1,000	250ml
PP2B4-500ML	$NH_4H_2PO_4$ 99.999	H_2O	1,000	500ml
PP5A7	$NH_4H_2PO_4$ 99.999	H_2O	5,000	100ml
PP4B7	$NH_4H_2PO_4$ 99.999	H_2O	10,000	250ml
PP4B4-500ML	$NH_4H_2PO_4$ 99.999	H_2O	10,000	500ml
PP2A2	$NH_4H_2PO_4$ 99.999	2 - 5% HNO_3	1,000	100ml
PP2C7-1000ML	$NH_4H_2PO_4$ 99.999	2% HNO_3	1,000	1L
PP4A2	$NH_4H_2PO_4$ 99.999	2 - 5% HNO_3	10,000	100ml

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Product No.	Starting Material and its Purity %	Matrix	Conc µg/ml	Pack Size
Phosphate				
PPT2C3	$NH_4H_2PO_4$ 99.999	H_2O	1,000	500ml
Platinum				
PPT1A8	Pt 99.995	5% HCl	100	100ml
PPT2A8	Pt 99.995	5% HCl	1,000	100ml
PPT2B8	Pt 99.995	5% HCl	1,000	250ml
PPT2C8	Pt 99.995	5% HCl	1,000	500ml
PPT4A8	Pt 99.995	5% HCl	10,000	100ml
PPT2A13	Pt 99.995	10% HCl	1,000	100ml
PPT4B8	Pt 99.995	10% HCl	10,000	250ml
PPT2C1L	Pt 99.995	2M HCl	1,000	1L
Potassium				
PK1A2	KNO_3 99.999	2 - 5% HNO_3	100	100ml
PK2A2	KNO_3 99.999	2 - 5% HNO_3	1,000	100ml
PK2B2	KNO_3 99.999	2 - 5% HNO_3	1,000	250ml
PK2C2	KNO_3 99.999	2 - 5% HNO_3	1,000	500ml
PK2B4-500ML	KNO_3 99.999	3.5% HNO_3	1,000	500ml
PK5A2	KNO_3 99.999	2 - 5% HNO_3	5,000	100ml
PK4A2	KNO_3 99.999	2 - 5% HNO_3	10,000	100ml
PK4B2	KNO_3 99.999	2 - 5% HNO_3	10,000	250ml
PK4B4-500ML	KNO_3 99.999	3.5% HNO_3	10,000	500ml
PK2A3	KCl 99.999	H_2O	1,000	100ml
PK2C3	KCl 99.999	H_2O	1,000	500ml
PK4A3	KCl 99.999	H_2O	10,000	100ml
PK2B3	KCl 99.999	2-5% HCl	1,000	250ml
PK4B3	KCl 99.999	2-5% HCl	10,000	250ml
Praseodymium				
PPR1A2	Pr_6O_{11} 99.999	5% HCl	100	100ml
PPR2A2	Pr_6O_{11} 99.999	5% HCl	1,000	100ml
PPR2B2	Pr_6O_{11} 99.999	2 - 5% HNO_3	1,000	250ml
PPR2C2	Pr_6O_{11} 99.999	5% HCl	1,000	500ml
PPR4A2	Pr_6O_{11} 99.999	5% HCl	10,000	100ml
PPR4B2	Pr_6O_{11} 99.999	2 - 5% HNO_3	10,000	250ml
Rhenium				
PRE1A7	NH_4ReO_4 99.999	H_2O	100	100ml
PRE2A7	NH_4ReO_4 99.999	H_2O	1,000	100ml
PRE2B7	NH_4ReO_4 99.999	H_2O	1,000	250ml
PRE2C7	NH_4ReO_4 99.999	H_2O	1,000	500ml
PRE4A7	NH_4ReO_4 99.999	H_2O	10,000	100ml
PRE4B7	NH_4ReO_4 99.999	H_2O	10,000	250ml
PRE2A2	NH_4ReO_4 99.999	2 - 5% HNO_3	1,000	100ml

Product No.	Starting Material and its Purity %	Matrix	Conc µg/ml	Pack Size
Rhodium				
PRH2A2	$(NH_4)_3RhCl_6$ 99.99	5% HNO_3	100	100ml
PRH2A6	$(NH_4)_3RhCl_6$ 99.99	2 - 5% HNO_3	100	100ml
PRH1A8	$(NH_4)_3RHCl_6$ 99.99	5% HCl	100	100ml
PRH2A8	$(NH_4)_3RHCl_6$ 99.99	5% HCl	1,000	100ml
ICP-CYMRH-100	$(NH_4)_3RHCl_6$ 99.99	3% HNO_3	1,000	100ml
PRH2C8	$(NH_4)_3RHCl_6$ 99.99	5% HCl	1,000	500ml
PRH4A8	$(NH_4)_3RHCl_6$ 99.99	5% HCl	10,000	100ml
PRH2B3144	$(NH_4)_3RHCl_6$ 99.99	10% HCl	1,000	100ml
PRH2B8	$(NH_4)_3RHCl_6$ 99.99	10% HCl	1,000	250ml
PRH4B8	$(NH_4)_3RHCl_6$ 99.99	10% HCl	10,000	250ml
Rubidium				
PRB1A2	$RbNO_3$ 99.99	2 - 5% HNO_3	100	100ml
PRB2A2	$RbNO_3$ 99.99	2 - 5% HNO_3	1,000	100ml
PRB2B2	$RbNO_3$ 99.99	2 - 5% HNO_3	1,000	250ml
PRB2C2	$RbNO_3$ 99.99	2 - 5% HNO_3	1,000	500ml
PRB4A2	$RbNO_3$ 99.99	2 - 5% HNO_3	10,000	100ml
PRB4B2	$RbNO_3$ 99.99	2 - 5% HNO_3	10,000	250ml
Ruthenium				
PRU1A8	$(NH_4)_3RuCl_6$ 99.99	5% HCl	100	100ml
PRU2A8	$(NH_4)_3RuCl_6$ 99.99	5% HCl	1,000	100ml
PRU2C8	$(NH_4)_3RuCl_6$ 99.99	5% HCl	1,000	500ml
PRU4A8	$(NH_4)_3RuCl_6$ 99.99	5% HCl	10,000	100ml
PRU2B8	$(NH_4)_3RuCl_6$ 99.99	10% HCl	1,000	250ml
PRU3A8	$(NH_4)_3RuCl_6$ 99.99	10% HCl	5,000	100ml
PRU3B8	$(NH_4)_3RuCl_6$ 99.99	10% HCl	10,000	100ml
PRU4B8	$(NH_4)_3RuCl_6$ 99.99	10% HCl	10,000	250ml
Samarium				
PSM1A2	Sm_2O_3 99.99	2 - 5% HNO_3	100	100ml
PSM2A2	Sm_2O_3 99.99	2 - 5% HNO_3	1,000	100ml
PSM2B2	Sm_2O_3 99.99	2 - 5% HNO_3	1,000	250ml
PSM2C2	Sm_2O_3 99.99	2 - 5% HNO_3	1,000	500ml
PSM4A2	Sm_2O_3 99.99	2 - 5% HNO_3	10,000	100ml
PSM4B2	Sm_2O_3 99.99	2 - 5% HNO_3	10,000	250ml
Scandium				
PSC1A2	Sc_2O_3 99.999	2 - 5% HNO_3	100	100ml
PSC1A2-500ml	Sc_2O_3 99.999	2 - 5% HNO_3	100	500ml
PSC2A2	Sc_2O_3 99.999	2 - 5% HNO_3	1,000	100ml
PSC2B2	Sc_2O_3 99.999	2 - 5% HNO_3	1,000	250ml
PSC2C2	Sc_2O_3 99.999	2 - 5% HNO_3	1,000	500ml
PSC4A2	Sc_2O_3 99.999	2 - 5% HNO_3	10,000	100ml
PSC4B2	Sc_2O_3 99.999	2 - 5% HNO_3	10,000	250ml
PSC2B4-500ML	Sc_2O_3 99.999	3.5% HNO_3	1,000	500ml

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Product No.	Starting Material and its Purity %	Matrix	Conc µg/ml	Pack Size
Selenium				
PSE001A5	SeO_2 99.9	1% HCl	1	100ml
PSE005A5	SeO_2 99.9	1% HCl	5	100ml
PSE010A5	SeO_2 99.9	1% HCl	10	100ml
PSE9A2	Se 99.999	2 - 5% HNO_3	0.5	100ml
PSE1A2	Se 99.999	2 - 5% HNO_3	100	100ml
PSE1C3	Se 99.999	2 - 5% HNO_3	100	500ml
PSE2A2	Se 99.999	2 - 5% HNO_3	1,000	100ml
PSE2B2	Se 99.999	2 - 5% HNO_3	1,000	250ml
PSE2C2	Se 99.999	2 - 5% HNO_3	1,000	500ml
PSE4A2	Se 99.999	2 - 5% HNO_3	10,000	100ml
PSE4B2	Se 99.999	2 - 5% HNO_3	10,000	250ml
PSE2C3	Se 99.999	0.5M HNO_3	1,000	500ml
Silicon				
PSI05A5	Na_2SiO_3 99.9	1% HCl	50	100ml
PSI1A5	Na_2SiO_3 99.9	1% HCl	100	100ml
PSI1A9	$(NH_4)_2SiF_6$ 99.99	0.05% HF	100	100ml
PSI2A9	$(NH_4)_2SiF_6$ 99.99	0.05% HF	1,000	100ml
PSI2C9	$(NH_4)_2SiF_6$ 99.99	0.05% HF	1,000	500ml
PSI4A9	$(NH_4)_2SiF_6$ 99.99	0.05% HF	10,000	100ml
PSI4C9	$(NH_4)_2SiF_6$ 99.99	0.05% HF	10,000	500ml
PSI2A7	Na_2SiO_3 99.9	H_2O	1,000	100ml
PSI2B7	Na_2SiO_3 99.9	H_2O	1,000	250ml
PSI2C7	Na_2SiO_3 99.9	H_2O	1,000	500ml
PSI4A7	Na_2SiO_3 99.9	H_2O	10,000	100ml
PSI4B7	Na_2SiO_3 99.9	H_2O	10,000	250ml
PSi4B4-500ML	Na_2SiO_3 99.9	H_2O	10,000	500ml
ICP-GLO-SI-100	$(NH_4)_2SiF_6$ 99.99	1M HNO_3 + 1- 2% HF	1,000	100ml
PSI2A10	$(NH_4)_2SiF_6$ 99.99	2 - 5% HNO_3, tr. HF	1,000	100ml
PSI2C10	$(NH_4)_2SiF_6$ 99.99	2 - 5% HNO_3, tr. HF	1,000	500ml
PSI2A2	Na_2SiO_3 99.9	2 - 5% HNO_3	1,000	100ml
PSI2C2	Na_2SiO_3 99.9	2 - 5% HNO_3	1,000	500ml
PSI2B9	$(NH_4)_2SiF_6$ 99.99	H_2O, tr. HF	1,000	250ml
PSI4B9	$(NH_4)_2SiF_6$ 99.99	H_2O, tr. HF	10,000	250ml
Silver				
PAG1A2	Ag 99.999	2 - 5% HNO_3	100	100ml
PAG2A2	Ag 99.999	2 - 5% HNO_3	1,000	100ml
PAG2B2	Ag 99.999	2 - 5% HNO_3	1,000	250ml
PAG2C2	Ag 99.999	2 - 5% HNO_3	1,000	500ml
PAG4A2	Ag 99.999	2 - 5% HNO_3	10,000	100ml
PAG4B2	Ag 99.999	2 - 5% HNO_3	10,000	250ml
PAG4B4-500ml	Ag 99.999	3.5% HNO_3	10,000	500ml

Product No.	Starting Material and its Purity %	Matrix	Conc µg/ml	Pack Size
Sodium				
PNA10A2	$NaNO_3$ 99.99	2 - 5% HNO_3	10	500ml
PNA1A2	$NaNO_3$ 99.99	2 - 5% HNO_3	100	100ml
PNA2A2	$NaNO_3$ 99.99	2 - 5% HNO_3	1,000	100ml
PNA2B2	$NaNO_3$ 99.99	2 - 5% HNO_3	1,000	250ml
PNA2B4-500ML	$NaNO_3$ 99.99	3.5% HNO_3	1,000	500ml
PNA2C2	$NaNO_3$ 99.99	2 - 5% HNO_3	1,000	500ml
PNA5A2	$NaNO_3$ 99.99	2 - 5% HNO_3	5,000	100ml
PNA4A2	$NaNO_3$ 99.99	2 - 5% HNO_3	10,000	100ml
PNA4B4-500ML	$NaNO_3$ 99.99	3.5% HNO_3	10,000	500ml
PNA2A3	NaCl 99.999	H_2O	1,000	100ml
PNA2C3	NaCl 99.999	H_2O	1,000	500ml
PNA4A3	NaCl 99.999	H_2O	10,000	100ml
PNA2B3	NaCl 99.999	2 - 5% HCl	1,000	250ml
PNA4B3	NaCl 99.999	2 - 5% HCl	10,000	250ml
PNA4C3	NaCl 99.999	2 - 5% HCl	10,000	500ml
Strontium				
PSR1A2	$SrCO_3$ 99.995	2 - 5% HNO_3	100	100ml
PSR2A2	$SrCO_3$ 99.995	2 - 5% HNO_3	1,000	100ml
PSR2B2	$SrCO_3$ 99.995	2 - 5% HNO_3	1,000	250ml
PSR2C2	$SrCO_3$ 99.995	2 - 5% HNO_3	1,000	500ml
PSR4A2	$SrCO_3$ 99.995	2 - 5% HNO_3	10,000	100ml
PSR4B2	$SrCO_3$ 99.995	2 - 5% HNO_3	10,000	250ml
PSR4B4-500ML	$SrCO_3$ 99.995	3.5% HNO_3	10,000	500ml
PSR2A3	$SrCO_3$ 99.995	2 - 5% HCl	1,000	100ml
PSR2B3	$SrCO_3$ 99.995	2 - 5% HCl	1,000	250ml
PSR2C3	$SrCO_3$ 99.995	2 - 5% HCl	1,000	500ml
PSR4A3	$SrCO_3$ 99.995	2 - 5% HCl	10,000	100ml
PSR4B3	$SrCO_3$ 99.995	2 - 5% HCl	10,000	250ml
Sulphur				
PS015A5	H_2SO_4 99.9	1% HCl	15	100ml
PS030A5	H_2SO_4 99.9	1% HCl	30	100ml
PS1A7	$(NH_4)2SO_4$ 99.999	H_2O	100	100ml
PS1C9	$(NH_4)2SO_4$ 99.999	H_2O	100	500ml
PS2A7	$(NH_4)2SO_4$ 99.999	H_2O	1,000	100ml
PS2B7	$(NH_4)2SO_4$ 99.999	H_2O	1,000	250ml
PS2C7	$(NH_4)2SO_4$ 99.999	H_2O	1,000	500ml
PS5A7	$(NH_4)2SO_4$ 99.999	H_2O	5,000	100ml
PS4A7	$(NH_4)2SO_4$ 99.999	H_2O	10,000	100ml
PS4B7	$(NH_4)2SO_4$ 99.999	H_2O	10,000	250ml
PS4B4-500ML	$(NH_4)2SO_4$ 99.999	H_2O	10,000	500ml
PS4A2	$(NH_4)2SO_4$ 99.999	2 - 5% HNO_3	10,000	100ml

ICP-MS Single Element Standards

Product No.	Starting Material and its Purity %	Matrix	Conc µg/ml	Pack Size
Tantalum				
PTA1A9	Ta 99.98	1% HF + 5% HNO_3	100	100ml
PTA2A9	Ta 99.98	1% HF + 5% HNO_3	1,000	100ml
PTA2B9	Ta 99.98	1% HF + 5% HNO_3	1,000	250ml
PTA2C9	Ta 99.98	1% HF + 5% HNO_3	1,000	500ml
PTA4A9	Ta 99.98	1% HF + 5% HNO_3	10,000	100ml
PTA4B9	Ta 99.98	H_2O, tr. HF	10,000	250ml
Tellurium				
PTE1A10	Te 99.999	20% HCl	100	100ml
PTE2A10	Te 99.999	20% HCl	1,000	100ml
PTE2C10	Te 99.999	20% HCl	1,000	500ml
PTE2A11	Te 99.999	1% HCl	1,000	100ml
PTE2A8	Te 99.999	10% HCl	1,000	100ml
PTE2B8	Te 99.999	10% HCl	1,000	250ml
PTE2B10	Te 99.999	5% HNO_3	1,000	250ml
PTE4B11	Te 99.999	20% HNO_3	10,000	250ml
PTE4B9	Te 99.999	30% HCl	10,000	100ml
PTE4B12	Te 99.999	30% HCl	10,000	250ml
Terbium				
PTB1A2	Tb_4O_7 99.999	2 - 5% HNO_3	100	100ml
PTB1A2-125ml	Tb_4O_7 99.999	2 - 5% HNO_3	100	125ml
PTB1A2-500ml	Tb_4O_7 99.999	2 - 5% HNO_3	100	500ml
PTB2A2	Tb_4O_7 99.999	2 - 5% HNO_3	1,000	100ml
PTB2B2	Tb_4O_7 99.999	2 - 5% HNO_3	1,000	250ml
PTB2C2	Tb_4O_7 99.999	2 - 5% HNO_3	1,000	500ml
PTB4A2	Tb_4O_7 99.999	2 - 5% HNO_3	10,000	100ml
PTB4B2	Tb_4O_7 99.999	2 - 5% HNO_3	10,000	250ml
Thallium				
PTL1A2	$TlNO_3$ 99.9995	2 - 5% HNO_3	100	100ml
PTL2A2	$TlNO_3$ 99.9995	2 - 5% HNO_3	1,000	100ml
PTL2B2	$TlNO_3$ 99.9995	2 - 5% HNO_3	1,000	250ml
PTL2C2	$TlNO_3$ 99.9995	2 - 5% HNO_3	1,000	500ml
PTL4A2	$TlNO_3$ 99.9995	2 - 5% HNO_3	10,000	100ml
PTL4B2	$TlNO_3$ 99.9995	2 - 5% HNO_3	10,000	250ml
PTl4B4-500ML	Tl 99.99	20% HCl	10,000	500ml
Thorium				
PTH1A2	ThO_2 99.95	2 - 5% HNO_3	100	100ml
PTH2A2	ThO_2 99.95	2 - 5% HNO_3	1,000	100ml
PTH2B2	ThO_2 99.95	2 - 5% HNO_3	1,000	250ml
PTH2C2	ThO_2 99.95	2 - 5% HNO_3	1,000	500ml
PTH4A2	ThO_2 99.95	2 - 5% HNO_3	10,000	100ml
PTH4B2	ThO_2 99.95	2 - 5% HNO_3	10,000	250ml
PTh4B4-500ML	ThO_2 99.95	3.5% HNO_3	10,000	500ml

Product No.	Starting Material and its Purity %	Matrix	Conc µg/ml	Pack Size
Thulium				
PTM1A2	Tm_2O_3 99.99	2 - 5% HNO_3	100	100ml
PTM2A2	Tm_2O_3 99.99	2 - 5% HNO_3	1,000	100ml
PTM2B2	Tm_2O_3 99.99	2 - 5% HNO_3	1,000	250ml
PTM2C2	Tm_2O_3 99.99	2 - 5% HNO_3	1,000	500ml
PTM4A2	Tm_2O_3 99.99	2 - 5% HNO_3	10,000	100ml
PTM4B2	Tm_2O_3 99.99	2 - 5% HNO_3	10,000	250ml
Tin				
PSN1A5	Sn 99.999	1% HF + 5% HNO_3	100	100ml
PSN2A5	Sn 99.999	1% HF + 5% HNO_3	1,000	100ml
PSN2C5	Sn 99.999	1% HF + 5% HNO_3	1,000	500ml
PSN2C5-1000ML	Sn 99.999	1% HF + 5% HNO_3	1,000	1L
PSN4A5	Sn 99.999	1% HF + 5% HNO_3	10,000	100ml
PSN2A13	Sn 99.999	10% HCl	1,000	100ml
PSN2C13	Sn 99.999	10% HCl	1,000	500ml
PSN4A19	Sn 99.999	20% HCl	10,000	100ml
PSN2A10	Sn 99.999	H_2O, tr. HF	10	100ml
PSN2A11	Sn 99.999	1% HCl	1,000	100ml
PSN2B13	Sn 99.999	1% HNO_3, 1% HF	1,000	250ml
PSN2B5	Sn 99.999	20% HCl, 1% HF	1,000	250ml
PSN4B5	Sn 99.999	20% HCl, 1% HF	10,000	100ml
PSN2C4	Sn 99.999	2M HCl	1,000	500ml
PSN4B19	Sn 99.999	2% HNO_3	10,000	250ml
PSN4B4-500ML	Sn 99.999	3.5% HNO_3	10,000	500ml
Titanium				
PTI1A9	Ti 99.98	1% HF + 5% HNO_3	100	100ml
PTI2A9	Ti 99.98	1% HF + 5% HNO_3	1,000	100ml
PTI2C9	Ti 99.98	1% HF + 5% HNO_3	1,000	500ml
PTI4A9	Ti 99.98	1% HF + 5% HNO_3	10,000	100ml
PTI2A10	Ti 99.98	2 - 5% HNO_3, tr. HF	1,000	100ml
PTI2A6	Ti 99.98	2 - 5% HNO_3	1,000	100ml
PTI2B5	Ti 99.98	20% HCl	1,000	250ml
PTI4B5	Ti 99.98	20% HCl	10,000	250ml
PTI4B4-500ML	Ti 99.98	20% HCl	10,000	500ml
PTI2B9	Ti 99.98	H_2O, tr. HF	1,000	250ml
PTI4B9	Ti 99.98	H_2O, tr. HF	10,000	250ml
Tungsten				
PW2A7	W 99.99+	2% NH_4OH	1,000	100ml
PW2B7	W 99.99+	2% NH_4OH	1,000	250ml
PW2C7	W 99.99+	2% NH_4OH	1,000	500ml
PW4A7	W 99.99+	2% NH_4OH	10,000	100ml
PW4B7	W 99.99+	2% NH_4OH	10,000	250ml
PW2A14	W 99.99+	1% HNO_3 + 2% HF	1,000	100ml
PW2B14	W 99.99+	1% HNO_3 + 2% HF	1,000	250ml
PW4B15	W 99.99+	2% HNO3 + 5% HF	10,000	250ml

ICP-MS Single Element Standards

Product No.	Starting Material and its Purity %	Matrix	Conc µg/ml	Pack Size
Uranium				
PU1A2	U_3O_8 99.95	2 - 5% HNO_3	100	100ml
PU2A2	U_3O_8 99.95	2 - 5% HNO_3	1,000	100ml
PU2B2	U_3O_8 99.95	2 - 5% HNO_3	1,000	250ml
PU2C2	U_3O_8 99.95	2 - 5% HNO_3	1,000	500ml
PU4B4-500ML	U_3O_8 99.95	3.5% HNO_3	10,000	500ml
Vanadium				
PV1A19	NH_4VO_3 99.95+	2 - 5% HNO_3	100	100ml
PV2A19	NH_4VO_3 99.95+	2 - 5% HNO_3	1,000	100ml
PV2C19	NH_4VO_3 99.95+	2 - 5% HNO_3	1,000	500ml
PV4A19	NH_4VO_3 99.95+	2 - 5% HNO_3	10,000	100ml
PV2B19	NH_4VO_3 99.95+	2% HNO_3	1,000	250ml
PV2B3	V_2O_4 99.0	2% HCl	1,000	250ml
PV4B16	NH_4VO_3 99.95+	15% HNO_3	10,000	250ml
PV4B18	V_2O_4 99.0	15% HCl	10,000	250ml
PV4B4-500ML	NH_4VO_3 99.95+	10% HNO_3	10,000	500ml
Ytterbium				
PYB2A2	Yb_2O_3 99.99	2 - 5% HNO_3	1,000	100ml
PYB2B2	Yb_2O_3 99.99	2 - 5% HNO_3	1,000	250ml
PYB2C2	Yb_2O_3 99.99	2 - 5% HNO_3	1,000	500ml
PYB4A2	Yb_2O_3 99.99	2 - 5% HNO_3	10,000	100ml
PYB4B2	Yb_2O_3 99.99	2 - 5% HNO_3	10,000	250ml
Yttrium				
PY1A2	Y_2O_3 99.999	2 - 5% HNO_3	100	100ml
PY1A2-125ml	Y_2O_3 99.999	2 - 5% HNO_3	100	125ml
PY1C3	Y_2O_3 99.999	2 - 5% HNO_3	100	500ml
PY2A2	Y_2O_3 99.999	2 - 5% HNO_3	1,000	100ml
PY2B2	Y_2O_3 99.999	2 - 5% HNO_3	1,000	250ml
PY2C2	Y_2O_3 99.999	2 - 5% HNO_3	1,000	500ml
PY4A2	Y_2O_3 99.999	2 - 5% HNO_3	10,000	100ml
PY4B2	Y_2O_3 99.999	2 - 5% HNO_3	10,000	250ml
PY4B2-500ml	Y_2O_3 99.999	2 - 5% HNO_3	10,000	500ml

Product No.	Starting Material and its Purity %	Matrix	Conc µg/ml	Pack Size
Zinc				
PZN1A2	Zn 99.999	2 - 5% HNO_3	100	100ml
PZN1C3	Zn 99.999	2 - 5% HNO_3	100	500ml
PZN2A2	Zn 99.999	2 - 5% HNO_3	1,000	100ml
PZN2B2	Zn 99.999	2 - 5% HNO_3	1,000	250ml
PZN2C2	Zn 99.999	2 - 5% HNO_3	1,000	500ml
PZN4A2	Zn 99.999	2 - 5% HNO_3	10,000	100ml
PZN4B4-500ML	Zn 99.999	3.5% HNO_3	10,000	500ml
PZN2A3	Zn 99.999	2% HCl	1,000	100ml
PZN2B3	Zn 99.999	2 - 5% HCl	1,000	250ml
PZN2C3	Zn 99.999	2% HCl	1,000	500ml
PZN4A3	Zn 99.999	2% HCl	10,000	100ml
PZN4B3	Zn 99.999	2 - 5% HCl	10,000	250ml
PZN4C3	Zn 99.999	2 - 5% HCl	10,000	500ml
Zirconium				
PZR1A2	Zr 99.98	1% HF + 5% HNO_3	100	100ml
PZR2A2	Zr 99.98	1% HF + 5% HNO_3	1,000	100ml
PZR2C2	Zr 99.98	1% HF + 5% HNO_3	1,000	500ml
PZR2C2-1000ml	Zr 99.98	1% HF + 5% HNO_3	1,000	1L
PZR4A2	Zr 99.98	1% HF + 5% HNO_3	10,000	100ml
PZR2B2	Zr 99.98	2 - 5% HNO_3	1,000	250ml
PZR4B2	Zr 99.98	2 - 5% HNO_3	10,000	250ml
PZR2B8	$ZrOCl_2.8H_2O$ 99.5	10% HCl	1,000	250ml

ICP - MS Multi Element Standards

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Tuning Standard, 33 Elements				
REICPTUNE33A	Ag	5	20% Hydrochloric Acid & tr. Hydrofluoric Acid	100ml
	As	20		
	Ba	5		
	Be	20		
	Bi	5		
	Cd	20		
	Co	5		
	Cr	5		
	Cu	5		
	Ge	10		
	In	5		
	Ir	5		
	Li	5		
	Lu	5		
	Mg	10		
	Mn	5		
	Mo	10		
	Na	5		
	Ni	10		
	Pb	10		
	Pd	10		
	Ru	10		
	Sb	10		
	Sc	5		
	Sn	10		
	Sr	5		
	Tb	2.5		
	Th	5		
	Ti	5		
	Tl	5		
	U	5		
	V	5		
	Y	2.5		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Calibration Standard, 29 Elements				
REICPCAL29A	Ag	10	2-5% Nitric Acid	100ml
	Al	10		
	As	100		
	B	100		
	Ba	10		
	Be	100		
	Bi	10		
	Ca	1000		
	Cd	10		
	Co	10		
	Cr	10		
	Cu	10		
	Fe	100		
	Ga	10		
	K	10		
	Li	10		
	Mg	10		
	Mn	10		
	Mo	10		
	Na	10		
	Ni	10		
	Pb	10		
	Rb	10		
	Se	100		
	Sr	10		
	Te	10		
	Tl	10		
	U	10		
	V	10		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Calibration Standard, 26 Elements				
REICPCAL26A	Ag	10	2-5% Nitric Acid	100ml
	Al	10		
	As	10		
	Ba	10		
	Be	10		
	Ca	10		
	Cd	10		
	Co	10		
	Cr	10		
	Cs	10		
	Cu	10		
	Fe	10		
	Ga	10		
	K	10		
	Li	10		
	Mg	10		
	Mn	10		
	Na	10		
	Ni	10		
	Pb	10		
	Rb	10		
	Se	10		
	Sr	10		
	Tl	10		
	U	10		
	V	10		
Multi Element Tuning Standard, 25 Elements				
REICPTUNE25A	Ag	10	5% Nitric Acid & tr. Hydrofluoric Acid & tr. Tartaric Acid	100ml
	Al	10		
	As	10		
	Ba	10		
	Be	10		
	Ca	1000		
	Cd	10		
	Co	10		
	Cr	10		
	Cu	10		
	Fe	1000		
	K	1000		
	Mg	1000		
	Mn	10		
	Mo	10		
	Na	1000		
	Ni	10		
	Pb	10		
	Sb	10		
	Se	10		
	Sr	10		
	Ta	10		
	Th	10		
	U	10		
	V	10		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Verification Standard, 24 Elements according to Test Method 200.8				
REICPVER24A	Ag	10	2-5% Nitric Acid	100ml
	Al	10		
	As	10		
	Ba	10		
	Be	10		
	Ca	10		
	Cd	10		
	Co	10		
	Cr	10		
	Cu	10		
	Fe	10		
	K	10		
	Mg	10		
	Mn	10		
	Mo	10		
	Na	10		
	Ni	10		
	Pb	10		
	Sb	10		
	Se	10		
	Th	10		
	Tl	10		
	U	10		
	V	10		
Multi Element Tuning Standard, 23 Elements				
REICPTUNE23A	Al	100	2-5% Nitric Acid	100ml
	B	100		
	Ba	100		
	Be	100		
	Bi	100		
	Ca	100		
	Cd	100		
	Co	100		
	Cr	100		
	Cu	100		
	Fe	100		
	Ga	100		
	K	100		
	Li	100		
	Mg	100		
	Mn	100		
	Na	100		
	Ni	100		
	Pb	100		
	Se	100		
	Sr	100		
	Te	100		
	Tl	100		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Standard, 23 Elements				
ICP23A20	As	100	5% Nitric Acid & 0.2% Hydrofluoric Acid	100ml
	Be	100		
	Ca	100		
	Cd	100		
	Co	100		
	Cr	100		
	Cu	100		
	Fe	100		
	Li	100		
	Mg	100		
	Mn	100		
	Mo	100		
	Ni	100		
	P	100		
	Pb	100		
	Sb	100		
	Se	100		
	Sn	100		
	Sr	100		
	Ti	100		
	Tl	100		
	V	100		
	Zn	100		
Multi Element Calibration Standard, 21 Elements according to Test Method 200.7				
REICPCAL21A	Ag	50	5% Nitric Acid	100ml
	As	500		
	B	200		
	Ba	200		
	Be	200		
	Ca	1000		
	Cd	200		
	Ce	200		
	Co	200		
	Cr	200		
	Cu	200		
	K	1000		
	Mg	1000		
	Mn	200		
	Ni	200		
	P	1000		
	Pb	200		
	Se	500		
	Sr	200		
	Tl	500		
	V	200		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Verification Standard, 21 Elements according to Test Method 200.7				
REICPVER21A	Ag	100	5% Nitric Acid	100ml
	As	100		
	B	100		
	Ba	100		
	Be	100		
	Ca	100		
	Cd	100		
	Ce	100		
	Co	100		
	Cr	100		
	Cu	100		
	Hg	100		
	Mg	100		
	Mn	100		
	Ni	100		
	P	100		
	Pb	100		
	Se	100		
	Sr	100		
	Tl	100		
	V	100		
Multi Element Verification Standard, 21 Elements according to Test Method 200.7				
REICPVER21B	Ag	20	5% Nitric Acid	100ml
	As	100		
	B	100		
	Ba	100		
	Be	100		
	Ca	100		
	Cd	100		
	Ce	100		
	Co	100		
	Cr	100		
	Cu	100		
	K	500		
	Mg	100		
	Mn	100		
	Ni	100		
	P	500		
	Pb	100		
	Se	100		
	Sr	100		
	Tl	100		
	V	100		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Standard, 21 Elements				
ICP21-100-100	As	100	2-5% Nitric Acid & tr. Hydrofluoric Acid	100ml
	Be	100		
	Ca	100		
	Cd	100		
	Co	100		
	Cr	100		
	Cu	100		
	Fe	100		
	Li	100		
	Mg	100		
	Mn	100		
	Mo	100		
	Ni	100		
	Pb	100		
	Sb	100		
	Se	100		
	Sr	100		
	Ti	100		
	Tl	100		
	V	100		
	Zn	100		
Multi Element Calibration Standard, 20 Elements according to Test Method 6020				
REICPCAL20A	Ag	10	2% Nitric Acid & tr. Tartaric Acid	100ml
	As	10		
	Ba	10		
	Be	10		
	Ca	10		
	Cd	10		
	Co	10		
	Cr	10		
	Cu	10		
	Fe	10		
	K	10		
	Mg	10		
	Mn	10		
	Na	10		
	Ni	10		
	Pb	10		
	Sb	10		
	Se	10		
	Tl	10		
	V	10		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Verification Standard, 20 Elements				
REICPVER20A	As	100	5% Nitric Acid & tr. Hydrofluoric Acid &tr. Tartaric Acid	100ml
	Be	100		
	Ca	100		
	Cd	100		
	Co	100		
	Cr	100		
	Cu	100		
	Fe	100		
	Li	100		
	Mg	100		
	Mn	100		
	Mo	100		
	Ni	100		
	Pb	100		
	Sb	100		
	Se	100		
	Sr	100		
	Ti	100		
	Tl	100		
	V	100		
Multi Element Calibration Standard, 19 Elements				
REICPCAL19A	Ag	10	5% Nitric Acid & tr. Hydrofluoric Acid & tr. Tartaric Acid	100ml
	Al	10		
	As	10		
	Ba	10		
	Be	10		
	Cd	10		
	Co	10		
	Cu	10		
	Fe	1000		
	Mg	1000		
	Mn	10		
	Na	1000		
	Pb	10		
	Sb	10		
	Sr	10		
	Th	10		
	Tl	10		
	U	10		
	V	10		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Standard, 19 Elements				
ICP-HR-195	Al	100	2-5% Nitric Acid	500ml
	As	100		
	Ba	100		
	Bi	100		
	Ca	100		
	Cd	100		
	Co	100		
	Cr	100		
	Cu	100		
	Mg	100		
	Mn	100		
	Mo	100		
	K	100		
	Pb	100		
	Ni	100		
	Se	100		
	Ti	100		
	V	100		
	Zn	100		
Multi Element Standard, 19 Elements				
ICP19A10	Al	100	2% Nitric Acid	100ml
	Ba	5		
	Be	1		
	Bi	200		
	B	15		
	Cd	20		
	Cr	25		
	Co	20		
	Cu	30		
	Ga	150		
	In	200		
	Fe	15		
	Pb	200		
	Mn	5		
	Ni	50		
	Ag	50		
	Sr	1		
	Tl	40		
	Zn	20		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Standard, 18 Elements				
ICP-JM-ME4A	Al	8	5% Hydrochloric Acid	500ml
	Ca	4		
	Ce	4		
	Co	4		
	Cr	4		
	Cu	4		
	Fe	4		
	Ni	4		
	P	4		
	S	4		
	Zn	4		
	K	4		
	La	4		
	Si	4		
	Mg	1.6		
	Mn	1.6		
	Na	1.6		
	Pd	1.6		
Multi Element Standard, 18 Elements				
ICP-JM-ME10A	Al	20	5% Hydrochloric Acid	500ml
	Ca	10		
	Ce	10		
	Co	10		
	Cr	10		
	Cu	10		
	Fe	10		
	Ni	10		
	P	10		
	S	10		
	Zn	10		
	K	10		
	La	10		
	Si	10		
	Mg	4		
	Mn	4		
	Na	4		
	Pd	4		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Verification Standard, 18 Elements				
REICPVER18A	As	100	5% Nitric Acid & tr. Hydrofluoric Acid & tr. Tartaric Acid	100ml
	Be	100		
	Ca	100		
	Cd	100		
	Co	100		
	Cr	100		
	Cu	100		
	Fe	100		
	Mg	100		
	Mn	100		
	Mo	100		
	Ni	100		
	Pb	100		
	Sb	100		
	Se	100		
	Th	100		
	Tl	100		
	V	100		
Multi Element Standard, 18 Elements				
ICPM002	Ag	100	5% Nitric Acid	125ml
	Al	100		
	As	100		
	Ba	100		
	Be	100		
	Cd	100		
	Co	100		
	Cr	100		
	Cu	100		
	Mn	100		
	Ni	100		
	Pb	100		
	Se	100		
	Th	100		
	Tl	100		
	U	100		
	V	100		
	Zn	100		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Standard, 18 Elements				
ICP-MIX1-CYM	As	10	2% Nitric Acid	100ml
	Cd	10		
	Se	10		
	Cr	10		
	Cu	10		
	Ni	100		
	Pb	100		
	Zn	100		
	Ba	100		
	Al	100		
	B	100		
	Be	100		
	Co	100		
	Fe	100		
	Mn	100		
	Sr	100		
	Tl	100		
	V	100		
Multi Element Verification Standard, 17 Elements according to Test Method 6010				
REICPVER17A	Ag	10	5% Nitric Acid & tr. Hydrofluoric Acid & tr. Tartaric Acid	100ml
	Al	200		
	As	15		
	Ba	200		
	Be	5		
	Cd	5		
	Co	50		
	Cr	10		
	Cu	25		
	Fe	100		
	Mn	15		
	Ni	40		
	Pb	10		
	Sb	60		
	Se	35		
	Tl	25		
	V	50		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Spiking Standard, 17 Elements				
REICPSPIK17A	Ag	25	5% Nitric Acid & tr. Hydrofluoric Acid & tr. Tartaric Acid	100ml
	Al	2000		
	As	1000		
	Ba	1000		
	Be	25		
	Cd	25		
	Co	100		
	Cr	200		
	Fe	2000		
	Mn	200		
	Mo	200		
	Ni	200		
	Pb	200		
	Sb	200		
	Se	1000		
	Tl	200		
	V	200		
Multi Element Calibration Standard, 17 Elements according to Test Method 200.8				
REICPCAL17A	Al	10	5% Nitric Acid &tr. Tartaric Acid	100ml
	As	10		
	Be	10		
	Cd	10		
	Co	10		
	Cr	10		
	Cu	10		
	Mn	10		
	Mo	10		
	Ni	10		
	Pb	10		
	Sb	10		
	Se	10		
	Th	10		
	Tl	10		
	U	10		
	V	10		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Calibration Standard, 17 Elements according to Test Method 200.8				
REICPCAL17B	Al	10	5% Nitric Acid & tr. Tartaric Acid	100ml
	As	10		
	Be	10		
	Cd	10		
	Co	10		
	Cr	10		
	Cu	10		
	Mn	10		
	Mo	10		
	Ni	10		
	Pb	10		
	Sb	10		
	Se	50		
	Th	10		
	Tl	10		
	U	10		
	V	10		
Multi Element Calibration Standard, 17 Elements				
REICPCAL17D	Ag	100	2-5% Nitric Acid	100ml
	Al	100		
	As	100		
	Ba	100		
	Be	100		
	Cd	100		
	Co	100		
	Cr	100		
	Cu	100		
	Mn	100		
	Ni	100		
	Pb	100		
	Se	100		
	Th	100		
	Tl	100		
	U	100		
	V	100		
Multi Element Calibration Standard, 17 Elements according to Test Method 200.8				
REICPCAL17E	Ag	20	2-5% Nitric Acid	100ml
	Al	20		
	As	20		
	Ba	20		
	Be	20		
	Cd	20		
	Co	20		
	Cr	20		
	Cu	20		
	Mn	20		
	Ni	20		
	Pb	20		
	Se	20		
	Th	20		
	Tl	20		
	U	20		
	V	20		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Calibration Standard, 17 Elements according to Test Method 200.8				
REICPCAL17F	Al	10	5% Nitric Acid & tr. Tartaric Acid	100ml
	As	10		
	Be	10		
	Cd	10		
	Co	10		
	Cr	10		
	Mg	10		
	Mn	10		
	Mo	10		
	Ni	10		
	Pb	10		
	Sb	10		
	Se	10		
	Th	10		
	Tl	10		
	U	10		
	V	10		
Multi Element Verification Standard, 16 Elements				
REICPVER16A	Ag	10	5% Nitric Acid & tr. Hydrofluoric Acid	100ml
	Al	300		
	As	10		
	Ba	100		
	Be	10		
	Cd	10		
	Co	5		
	Cr	20		
	Cu	20		
	Mn	5		
	Ni	10		
	Pb	10		
	Sb	20		
	Se	50		
	Ta	10		
	V	10		
Multi Element Interference Standard, 16 Elements according to Test Method 05.2				
REICPINTF16A	Ag	10	5% Nitric Acid & tr. Hydrofluoric Acid	100ml
	Al	10		
	As	10		
	Ba	10		
	Be	10		
	Cd	10		
	Co	10		
	Cr	10		
	Cu	10		
	Mn	10		
	Ni	10		
	Pb	10		
	Sb	10		
	Se	10		
	Tl	10		
	V	10		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Interference Standard, 16 Elements according to Test Method 200.7				
REICPINTF16B	Ag	300	5% Nitric Acid	100ml
	As	1000		
	Ba	300		
	Be	100		
	Ca	300		
	Co	300		
	Cr	300		
	Cu	300		
	Hg	50		
	K	20000		
	Mn	200		
	Ni	300		
	Pb	1000		
	Se	500		
	Tl	1000		
	V	1000		
Multi Element Calibration Standard, 16 Elements				
REICPCAL16A	Ag	10	2-5% Nitric Acid	100ml
	Al	10		
	Ca	10		
	Co	10		
	Cr	10		
	Cs	10		
	Cu	10		
	Fe	10		
	K	10		
	Li	10		
	Mg	10		
	Mn	10		
	Na	10		
	Ni	10		
	Rb	10		
	Sr	10		
Multi Element Calibration Standard, 16 Elements				
REICPCAL16B	Al	100	2-5% Nitric Acid	100ml
	As	100		
	Ba	100		
	Be	100		
	Bi	100		
	Ca	100		
	Cs	100		
	Ga	100		
	In	100		
	K	100		
	Li	100		
	Mg	100		
	Na	100		
	Rb	100		
	Se	100		
	Sr	100		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Verification Standard, 16 Elements				
REICPVER16B	Ag	10	Nitric Acid & tr. Hydrofluoric Acid	100ml
	Al	10		
	As	10		
	Ba	10		
	Be	10		
	Cd	10		
	Co	10		
	Cr	10		
	Cu	10		
	Mn	10		
	Ni	10		
	Pb	10		
	Sb	10		
	Se	10		
	Tl	10		
	V	10		
Multi Element Standard, 16 Elements				
ICP-LAN16-100	Ce	100	5% Nitric Acid	100ml
	La	100		
	Nd	100		
	Pr	100		
	Dy	20		
	Er	20		
	Eu	20		
	Gd	20		
	Ho	20		
	Lu	20		
	Sc	20		
	Sm	20		
	Tb	20		
	Tm	20		
	Y	20		
	Yb	20		
Multi Element Calibration Standard, 15 Elements according to Test Method 200.8				
REICPCAL15B	Al	10	5% Nitric Acid & tr. Hydrofluoric Acid	100ml
	As	10		
	Be	10		
	Cd	10		
	Co	10		
	Mn	10		
	Mo	10		
	Ni	10		
	Pb	10		
	Sb	10		
	Se	10		
	Th	10		
	Tl	10		
	U	10		
	V	10		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Interference Standard, 15 Elements according to Test Method 6010				
REICPINTF15A	Ag	20	5% Nitric Acid & tr. Hydrofluoric Acid	100ml
	As	10		
	Ba	50		
	Be	50		
	Cd	100		
	Co	50		
	Cr	50		
	Cu	50		
	Mn	50		
	Ni	100		
	Pb	5		
	Sb	60		
	Se	5		
	Tl	10		
	V	50		
Multi Element Tuning Standard, 15 Elements				
REICPTUNE15A	B	10	Nitric Acid tr. Hydrochloric Acid	100ml
	Ba	10		
	Co	10		
	Fe	10		
	Ga	10		
	In	10		
	K	10		
	Li	10		
	Lu	10		
	Na	10		
	Rh	10		
	Sc	10		
	Th	10		
	U	10		
	Y	10		
Multi Element Interference Standard, 15 Elements according to Test Method 200.7				
REICPINTF15B	Ag	300	2-5% Nitric Acid	100ml
	As	1000		
	Ba	300		
	Be	100		
	Cd	300		
	Co	300		
	Cr	300		
	Cu	300		
	K	20000		
	Mn	200		
	Ni	300		
	Pb	1000		
	Se	500		
	Tl	1000		
	V	300		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Standard, 15 Elements				
ICP15A10	Al	100	2-5% Nitric Acid	100ml
	Ba	100		
	Ca	100		
	Cd	100		
	Co	100		
	Cr	100		
	Cu	100		
	Fe	100		
	Mg	100		
	Mn	100		
	Na	100		
	Ni	100		
	Pb	100		
	Ti	100		
	Zn	100		
Multi Element Standard, 15 Elements				
ICPMIX15-100	Al	1000	5% Nitric Acid	100ml
	Ba	1000		
	Ca	1000		
	Cd	1000		
	Co	1000		
	Cr	1000		
	Cu	1000		
	Fe	1000		
	Mg	1000		
	Mn	1000		
	Na	1000		
	Ni	1000		
	Pb	1000		
	Ti	1000		
	Zn	1000		
Multi Element Verification Standard, 14 Elements				
REICPVER14A	Ag	20	5% Nitric Acid tr. Hydrochloric Acid	100ml
	As	20		
	Be	10		
	Cd	10		
	Co	100		
	Cr	20		
	Cu	50		
	Mn	30		
	Ni	80		
	Pb	6		
	Sb	120		
	Se	10		
	Tl	20		
	V	100		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Calibration Standard, 14 Elements				
REICPCAL14A	Al	500	5% Nitric Acid	100ml
	As	100		
	Be	100		
	Cd	25		
	Co	100		
	Cr	100		
	Cu	100		
	Fe	100		
	Hg	100		
	Mn	100		
	Ni	100		
	Pb	100		
	Se	25		
	V	250		
Multi Element Calibration Standard, 14 Elements				
REICPCAL14B	B	100	Nitric Acid & tr. Hydrofluoric Acid	100ml
	Ge	100		
	Hf	100		
	Mo	100		
	Nb	100		
	P	100		
	Re	100		
	S	100		
	Sb	100		
	Si	100		
	Sn	100		
	Ta	100		
	Ti	100		
	W	100		
Multi Element Calibration Standard, 14 Elements				
REICPCAL14C	Al	5	5% Nitric Acid & tr. Hydrofluoric Acid	100ml
	As	5		
	Ba	5		
	Cd	5		
	Co	5		
	Cr	5		
	Cu	5		
	K	50		
	Mn	5		
	Mo	5		
	Ni	5		
	Pb	5		
	Se	5		
	Sr	5		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Calibration Standard, 14 Elements				
REICPCAL14D	Al	50	2-5% Nitric Acid	100ml
	As	50		
	Ba	50		
	Cd	50		
	Co	50		
	Cr	50		
	Cu	50		
	K	500		
	Mn	50		
	Mo	50		
	Ni	50		
	Pb	50		
	Se	50		
	Sr	50		
Multi Element Calibration Standard, 13 Elements				
REICPCAL13A	As	10	2-5% Nitric Acid & tr. Hydrofluoric Acid	100ml
	B	10		
	Ba	10		
	Be	10		
	Bi	10		
	Cd	10		
	Ga	10		
	In	10		
	Pb	10		
	Sb	10		
	Se	10		
	Tl	10		
	V	10		
Multi Element Calibration Standard, 13 Elements				
REICPCAL13B	Al	500	2-5% Nitric Acid	100ml
	As	100		
	Be	100		
	Cd	25		
	Co	100		
	Cr	100		
	Cu	100		
	Fe	100		
	Mn	100		
	Ni	100		
	Pb	100		
	Se	25		
	V	250		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Standard, 13 Elements				
ICP13-MIX-100	Al	100	2% Nitric Acid	100ml
	Ba	100		
	Fe	100		
	V	100		
	Zn	100		
	Cu	50		
	Mn	50		
	Pb	20		
	Ni	10		
	Be	5		
	Cd	5		
	Co	5		
	Cr	5		
Multi Element Standard, 12 Elements				
ICP12MIX3A	Al	100	2-5% Nitric Acid	100ml
	As	100		
	Ba	100		
	Cd	100		
	Cu	100		
	K	100		
	Mg	100		
	Mn	100		
	P	100		
	Pb	100		
	Se	100		
	Zn	100		
Multi Element Standard, 12 Elements				
ICP-STL-136	Al	1000	2-5% Nitric Acid & tr. Hydrofluoric Acid	500ml
	As	1000		
	Ba	1000		
	Cd	1000		
	Cu	1000		
	Cr	1000		
	Fe	1000		
	Ni	1000		
	Pb	1000		
	Se	1000		
	V	1000		
	Zn	1000		
Multi Element Standard, 12 Elements				
ICP12-100-100	Ag	100	2-5% Nitric Acid tr. Hydrofluoric Acid	100ml
	As	100		
	Cd	100		
	Cr	100		
	Cu	100		
	Fe	100		
	Mn	100		
	Ni	100		
	Pb	100		
	Sb	100		
	Se	100		
	Zn	100		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Standard, 12 Elements				
ICP12-10-100	Be	10	2% Nitric Acid	100ml
	Co	10		
	Cs	10		
	In	10		
	Li	10		
	Mg	10		
	Pb	10		
	Sc	10		
	Tb	10		
	Tm	10		
	U	10		
	Y	10		
Multi Element Standard, 12 Elements				
ICP12-102-100	Ag	10	2-5% Nitric Acid & tr. Hydrofluoric Acid	100ml
	As	10		
	Cd	10		
	Cr	10		
	Cu	10		
	Fe	10		
	Mn	10		
	Ni	10		
	Pb	10		
	Sb	10		
	Se	10		
	Zn	10		
Multi Element Standard, 12 Elements				
ICP12-50-100	Be	50	2% Nitric Acid	100ml
	Co	50		
	Ca	50		
	In	50		
	Li	50		
	Mg	50		
	Pb	50		
	Sc	50		
	Tb	50		
	Tm	50		
	U	50		
	Y	50		
Multi Element Standard, 12 Elements				
ICP12-KEF-100	B	10	2% Nitric Acid & tr. Hydrofluoric Acid	100ml
	Ge	10		
	Mo	10		
	Nb	10		
	P	10		
	Re	10		
	S	10		
	Si	10		
	Ta	10		
	Ti	10		
	W	10		
	Zr	10		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Calibration Standard, 12 Elements				
REICPCAL12A	Ag	100	2-5% Nitric Acid	100ml
	Cd	100		
	Co	100		
	Cr	100		
	Cu	100		
	Fe	100		
	Hg	100		
	Mn	100		
	Ni	100		
	Pb	100		
	Tl	100		
	V	100		
Multi Element Standard, 12 Elements				
ICPMIX12-100	Bi	100	2% Nitric Acid & tr. Hydrofluoric Acid	100ml
	Cd	100		
	Co	100		
	Cu	100		
	Fe	100		
	Pb	100		
	Mn	100		
	Ni	100		
	Ag	100		
	Sn	100		
	Ti	100		
	Zn	100		
Multi Element Tuning Standard, 11 Elements				
REICPTUNE11A	Ba	10	5% Nitric Acid	100ml
	Be	10		
	Ce	10		
	Co	10		
	In	10		
	Li	10		
	Mg	10		
	Pb	10		
	Tb	10		
	U	10		
	Y	10		
Multi Element Verification Standard, 11 Elements				
REICPVER11A	Ag	100	5% Nitric Acid	100ml
	Ba	500		
	Be	200		
	Cd	250		
	Co	500		
	Cu	500		
	Fe	500		
	Mn	500		
	Ni	500		
	Pb	500		
	Tl	500		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Verification Standard, 11 Elements according to Test Method 6020				
REICPVER11B	Ag	20	5% Nitric Acid	100ml
	Ba	100		
	Be	40		
	Cd	50		
	Co	100		
	Cu	100		
	Fe	100		
	Mn	100		
	Ni	100		
	Pb	100		
	Tl	100		
Multi Element Standard, 11 Elements				
ICP-MIX-CYM12	Ge	1000	3.5% Nitric Acid & 0.5% Hydrofluoric Acid	250ml
	Hf	1000		
	Mo	1000		
	Nb	1000		
	Si	1000		
	Sn	1000		
	Ta	1000		
	Te	1000		
	Ti	1000		
	W	1000		
	Zr	1000		
Multi Element Interference Standard, 11 Elements				
REICPINTF11A	Ag	100	2-5% Nitric Acid	100ml
	Ba	50		
	Be	50		
	Cd	100		
	Co	50		
	Cr	50		
	Cu	50		
	Mn	50		
	Ni	100		
	Pb	100		
	V	50		
Multi Element Standard, 11 Elements				
ICP11-MIX-100	As	20	2% Hydrochloric Acid	100ml
	La	20		
	Li	20		
	Mo	20		
	Mn	20		
	Ni	20		
	Sc	20		
	Na	20		
	P	100		
	S	100		
	K	100		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Standard, 10 Elements				
ICP-10-1000-100	Ti	1000	5% Nitric Acid & 1% Hydrochloric Acid	100ml
	V	1000		
	Cr	1000		
	Mn	1000		
	Ni	1000		
	Bi	1000		
	Cu	1000		
	Mo	1000		
	Pb	1000		
	U	1000		
Multi Element Standard, 10 Elements				
ICP-STD3-100	Au	10	10% Hydrochloric Acid	100ml
	Hf	10		
	Ir	10		
	Pd	10		
	Pt	10		
	Rh	10		
	Ru	10		
	Sb	10		
	Sn	10		
	Te	10		
Multi Element Standard, 10 Elements				
ICP10-1000-100	Al	1000	2% Nitric Acid	100ml
	B	1000		
	Ca	1000		
	Cu	1000		
	Fe	1000		
	K	1000		
	Li	1000		
	Mg	1000		
	Mo	1000		
	Na	1000		
Multi Element Standard, 10 Elements				
ICP10-MIX-100	P	10	2% Nitric Acid	100ml
	K	5		
	Ni	5		
	Al	1		
	Cu	1		
	Mn	1		
	Ba	0.2		
	Ca	0.2		
	Mg	0.2		
	Zn	0.2		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Standard, 10 Elements				
ICP10MIX1A	Se	40	2-5% Nitric Acid	100ml
	Cu	100		
	Li	100		
	Ni	100		
	Sr	100		
	Zn	100		
	Al	200		
	Fe	200		
	P	500		
	B	1000		
Multi Element Standard, 10 Elements				
ICP10-MIX2-100	P	10	5% Nitric Acid	100ml
	K	5		
	Ni	5		
	Al	1		
	Cu	1		
	Mn	1		
	Ba	0.2		
	Ca	0.2		
	Mg	0.2		
	Zn	0.2		
Multi Element Standard, 10 Elements				
ICP10-STATION-1	Al	2.5	1% Hydrochloric Acid	100ml
	Co	2.5		
	Cr	2.5		
	Fe	2.5		
	Ni	2.5		
	Mn	2.5		
	Zn	2.5		
	Cu	2		
	P	1.65		
	Sn	1		
Multi Element Standard, 10 Elements				
ICP10-STATION-2	Al	5	1% Hydrochloric Acid	100ml
	Co	5		
	Cr	5		
	Fe	5		
	Ni	5		
	Mn	5		
	Zn	5		
	Cu	4		
	P	3.25		
	Sn	2		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Calibration Standard, 10 Elements				
REICPCAL10A	Be	100	5% Nitric Acid	100ml
	Co	20		
	In	10		
	Li	50		
	Mg	25		
	Sc	25		
	Tb	5		
	Tl	10		
	U	5		
	Y	10		
Multi Element Interference Standard, 10 Elements according to Test Method 6020				
REICPINTF10A	Ag	5	2% Nitric Acid	100ml
	As	10		
	Cd	10		
	Co	20		
	Cr	20		
	Cu	20		
	Mn	20		
	Ni	20		
	Se	10		
	V	20		
Multi Element Spiking Standard, 10 Elements				
REICPSPIK10A	Ag	5	5% Nitric Acid	100ml
	Be	5		
	Cd	5		
	Co	50		
	Cu	25		
	Fe	100		
	Mn	50		
	Ni	50		
	Pb	50		
	Ti	200		
Multi Element Calibration Standard, 10 Elements according to Test Method 6010				
REICPCAL10B	Ag	200	5% Nitric Acid	100ml
	Ba	1000		
	Be	400		
	Cd	500		
	Co	1000		
	Fe	1000		
	Mn	1000		
	Ni	1000		
	Pb	1000		
	Tl	1000		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Calibration Standard, 10 Elements according to Test Method 6010				
REICPCAL10C	Al	1000	20% Hydrochloric Acid	100ml
	As	1000		
	Ca	10000		
	Cr	1000		
	K	10000		
	Mg	10000		
	Na	10000		
	Sb	1000		
	Se	1000		
	V	1000		
Multi Element Calibration Standard, 10 Elements				
REICPCAL10D	Al	20	2% Nitric Acid & tr. Hydrofluoric Acid	100ml
	Be	5		
	Co	10		
	Cu	10		
	Fe	20		
	Mn	10		
	Ni	10		
	Sn	5		
	Tl	5		
	V	20		
Multi Element Tuning Standard, 10 Elements				
REICPTUNE10A	Ba	10	2-5% Nitric Acid	100ml
	Be	10		
	Bi	10		
	Ce	10		
	Co	10		
	In	10		
	Li	10		
	Ni	10		
	Pb	10		
	U	10		
Multi Element Calibration Standard, 10 Elements according to Test Method 200.7				
REICPCAL10G	Ag	50	2-5% Nitric Acid	100ml
	As	1000		
	B	100		
	Ba	100		
	Ca	1000		
	Cd	200		
	Cu	200		
	Mn	200		
	Se	500		
	Sr	100		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Standard USP 232/233 Compliance 1, 10 Elements				
REICPUSP1	As	15	7% Nitric Acid	100ml
	Cd	5		
	Cr	250		
	Cu	2500		
	Hg	15		
	Mn	2500		
	Mo	250		
	Ni	250		
	Pb	10		
	V	250		
Multi Element Tuning Solution 5, 10 Elements				
REICPTUNE5	Ba	10	5% Nitric Acid	100ml
	Be	10		
	Bi	10		
	Ce	10		
	Co	10		
	In	10		
	Li	10		
	Ni	10		
	Pb	10		
	U	10		
Multi Element Interference Standard, 9 Elements according to Test Method 6020				
REICPINTF9A	Ag	10	5% Nitric Acid & tr. Tartaric Acid	100ml
	Al	10		
	As	10		
	Co	10		
	Cr	10		
	Mn	10		
	Ni	10		
	Se	10		
	V	10		
Multi Element Standard, 9 Elements				
ICPMIX-9-100	Ag	1000	2-5% Nitric Acid	100ml
	Cd	1000		
	Cr	1000		
	Cu	1000		
	Fe	1000		
	Mn	1000		
	Ni	1000		
	Pb	1000		
	Zn	1000		
Multi Element Calibration Standard, 9 Elements				
REICPCAL10H	Be	10	2-5% Nitric Acid	100ml
	Bi	10		
	Ce	10		
	Co	10		
	In	10		
	Mg	10		
	Ni	10		
	Pb	10		
	U	10		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Tuning Standard, 9 Elements				
REICPTUNE9A	Fe	10	Hydrochloric Acid & tr. Hydrofluoric Acid	100ml
	K	10		
	La	10		
	Mg	5		
	Mn	5		
	P	10		
	S	50		
	Sc	10		
	Ti	10		
Multi Element Tuning Standard, 9 Elements				
REICPTUNE9B	Ba	10	2-5% Nitric Acid	100ml
	Be	10		
	Ce	10		
	Co	10		
	In	10		
	Mg	10		
	Pb	10		
	Th	10		
	Tl	10		
Multi Element Standard, 9 Elements				
ICP-WY-95	K	1000	2% Nitric Acid	500ml
	Ca	500		
	P	400		
	Na	240		
	Mg	100		
	Fe	10		
	Zn	6		
	Cu	1		
	Mn	1		
Multi Element Standard, 9 Elements				
ICP-MET-9-100	Cr	100	2% Nitric Acid	100ml
	Pb	100		
	Mn	100		
	Cu	100		
	Ni	100		
	Cd	100		
	Sb	100		
	As	100		
	Fe	100		
Multi Element Standard, 8 Elements				
ICP-TG-85	Ca	50	0.1% Nitric Acid	500ml
	K	13		
	Mg	10		
	Na	10		
	Cu	0.6		
	Zn	0.6		
	Mn	0.6		
	Fe	0.6		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Interference Standard, 8 Elements according to Test Method 6010				
REICPINTF8A	Be	50	5% Nitric Acid	100ml
	Cd	100		
	Co	50		
	Cu	50		
	Mn	50		
	Ni	100		
	Pb	100		
	S	100		
Multi Element Spiking Standard, 8 Elements				
REICPSPIK8B	B	1000	5% Nitric Acid	100ml
	Ca	10000		
	K	10000		
	Li	1000		
	Mg	10000		
	Na	10000		
	P	1000		
	Sr	1000		
Multi Element Standard, 8 Elements				
MSICPS002	Si	1000	5% Nitric Acid & 1% Hydrofluoric Acid	100ml
	S	1000		
	Mo	1000		
	W	1000		
	Ti	1000		
	Nb	1000		
	Hf	1000		
	Ta	1000		
Multi Element Calibration Standard, 8 Elements				
REICPCAL8A	Ge	10	Hydrochloric Acid & tr. Nitric Acid	100ml
	Hf	10		
	Mo	10		
	Nb	10		
	Sn	10		
	Ta	10		
	Ti	10		
	W	10		
Multi Element Standard, 8 Elements				
ICP-MUL8	Al	100	2% Nitric Acid	100ml
	Ca	100		
	Fe	100		
	K	100		
	Na	100		
	S	100		
	Si	100		
	Zn	100		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Standard, 8 Elements				
ICP-MUL8-250ML	Ca	10000	2% Nitric Acid	250ml
	Cu	20		
	Fe	200		
	Mg	1000		
	Mn	10		
	K	10000		
	Na	5000		
	Zn	100		
Multi Element Calibration Standard, 8 Elements				
REICPCAL8B	Au	10	10% Hydrochloric Acid	100ml
	Ir	10		
	Pd	10		
	Pt	10		
	Re	10		
	Rh	10		
	Ru	10		
	Te	10		
Multi Element Calibration Standard, 8 Elements				
REICPCAL8C	Ag	200	2-5% Nitric Acid	100ml
	Be	100		
	Co	1000		
	Cr	200		
	Cu	500		
	Mn	300		
	Ni	8000		
	V	1000		
Multi Element Standard, 8 Elements				
ICP-MIX8	Co	20	2% Nitric Acid tr. Hydrofluoric Acid	250ml
	Mo	20		
	Sn	20		
	Tl	20		
	As	10		
	Sb	10		
	Se	10		
	V	10		
Multi Element Standard, 7 Elements				
ICPMIX7-100	Ti	100	5% Nitric Acid & tr. Hydrofluoric Acid	100ml
	W	100		
	Gd	100		
	Pd	100		
	Rb	100		
	Te	100		
	Th	100		
Multi Element Internal Standard, 7 Elements				
REICPIS7A	Bi	100	5% Nitric Acid	100ml
	Ga	100		
	In	100		
	Li	100		
	Sc	100		
	Tb	100		
	Y	100		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Internal Standard, 7 Elements				
REICPIS7B	Bi	20	5% Nitric Acid	100ml
	Ga	20		
	In	20		
	Li	100		
	Sc	100		
	Tb	20		
	Y	20		
Multi Element Internal Standard, 7 Elements				
REICPIS7C	Bi	100	5% Nitric Acid	100ml
	Ge	100		
	In	100		
	Li	100		
	Lu	100		
	Sc	100		
	Tb	100		
Multi Element Spiking Standard, 7 Elements				
REICPSPIK7A	Al	200	20% Hydrochloric Acid	100ml
	As	200		
	Ba	200		
	Cr	20		
	Sb	50		
	Se	200		
	V	50		
Multi Element Internal Standard, 7 Elements according to Test Method 200.8				
REICPIS7D	Bi	10	5% Nitric Acid	100ml
	In	10		
	Li	10		
	Lu	10		
	Sc	10		
	Te	10		
	Y	10		
Multi Element Internal Standard, 7 Elements according to Test Method 6020				
REICPIS7E	Bi	10	2% Nitric Acid	100ml
	Ho	10		
	In	10		
	Li	10		
	Sc	10		
	Tb	10		
	Y	10		
Multi Element Verification Standard, 7 Elements				
REICPVER7A	Ag	100	5% Nitric Acid & tr. Hydrofluoric Acid	100ml
	Al	100		
	B	100		
	Ba	100		
	K	1000		
	Na	100		
	Si	50		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Verification Standard, 7 Elements				
REICPVER7B	Ag	50	5% Nitric Acid & tr. Hydrofluoric Acid	100ml
	Al	100		
	B	100		
	Ba	100		
	K	1000		
	Na	100		
	Si	500		
Multi Element Calibration Standard, 7 Elements according to Test Method 200.8 & 05.2				
REICPCAL7A	Ag	25	2% Nitric Acid	100ml
	As	25		
	Ba	500		
	Cd	5		
	Cr	25		
	Pb	25		
	Se	5		
Multi Element Calibration Standard, 7 Elements				
REICPCAL7B	Cr	10	2-5% Nitric Acid & tr. Hydrofluoric Acid	100ml
	Hf	100		
	Ir	100		
	Sb	100		
	Sn	100		
	Ta	100		
	Ti	100		
Multi Element Calibration Standard, 7 Elements				
REICPCAL7C	As	100	2-5% Nitric Acid	100ml
	Be	100		
	Cd	100		
	Ni	100		
	Pb	100		
	Se	100		
	Tl	100		
Multi Element Standard, 7 Elements				
ICP7A20	Ag	50	5% Nitric Acid & 0.2% Hydrofluoric Acid	100ml
	Al	100		
	B	100		
	Ba	100		
	Na	100		
	K	1000		
	Si	500		
Multi Element Standard, 7 Elements				
ICP-MIX-CYM1	As	500	2% Nitric Acid	100ml
	Pb	500		
	Cu	100		
	Mn	100		
	Zn	100		
	Se	200		
	Be	50		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Tuning Standard, 6 Elements				
REICPTUNE6A	Ba	10	1% Nitric Acid	100ml
	Ce	10		
	Co	10		
	In	10		
	Mg	10		
	Pb	10		
Multi Element Calibration Standard, 6 Elements				
REICPCAL6A	Al	200	5% Nitric Acid	100ml
	Ca	1000		
	Cr	20		
	K	400		
	Na	200		
	Ni	20		
Multi Element Calibration Standard, 6 Elements				
REICPCAL6B	Ba	500	2% Nitric Acid	100ml
	Ca	500		
	K	100		
	Mg	100		
	Mo	500		
	Na	500		
Multi Element Calibration Standard, 6 Elements				
REICPCAL6C	Au	100	10% Hydrochloric Acid	100ml
	Ir	100		
	Pd	100		
	Pt	100		
	Rh	100		
	Ru	100		
Multi Element Calibration Standard, 6 Elements				
REICPCAL6D	Ir	100	15% Hydrochloric Acid	100ml
	Os	100		
	Pd	100		
	Pt	100		
	Rh	100		
	Ru	100		
Multi Element Calibration Standard, 6 Elements according to Test Method 200.7				
REICPCAL6E	Be	100	2-5% Nitric Acid	100ml
	Fe	1000		
	Mg	1000		
	Ni	200		
	Pb	1000		
	Tl	500		
Multi Element Standard USP 232/233 Compliance, 6 Elements				
REICPUSP2	Ir	100	15% Hydrochloric Acid	100ml
	Os	100		
	Pd	100		
	Pt	100		
	Rh	100		
	Ru	100		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element USP 232/233 Compliance 6 Elements				
REICPUSPIV	Ir	10	15% Hydrochloric Acid	100ml
	Os	10		
	Pd	10		
	Pt	10		
	Rh	10		
	Ru	10		
Multi Element Tuning Standard, 6 Elements				
REICPTUNE7A	Ba	10	2-5% Nitric Acid	100ml
	Ce	10		
	Co	10		
	In	10		
	Li	10		
	U	10		
Multi Element Internal Standard, 6 Elements				
REICPIS2	Bi	100	3% Nitric Acid	100ml
	In	100		
	Li	100		
	Sc	100		
	Tb	100		
	Y	100		
Multi Element Standard, 6 Elements				
ICP-MUL06	Al	100	2% Nitric Acid	100ml
	As	100		
	Cd	100		
	Cu	100		
	Fe	100		
	Pb	100		
Multi Element Standard, 5 Elements				
ICP-MS10042	Ce	10	2% Nitric Acid	100ml
	Co	10		
	Li	10		
	Tl	10		
	Y	10		
Multi Element Standard, 5 Elements				
STD-GLO-5-500	Al	1000	6% Nitric Acid	500ml
	Ca	1000		
	K	1000		
	Mg	1000		
	Na	1000		
Multi Element Standard, 5 Elements				
ICP-VL-51	Mg	1500	2% Nitric Acid	100ml
	Fe	100		
	K	25		
	S	25		
	Mn	5		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Tuning Solution, 5 Elements				
REICPTUNE6	Ca	10	5% Nitric Acid	100ml
	Fe	10		
	K	10		
	Li	10		
	Na	10		
Multi Element Calibration Standard, 5 Elements according to Test Method 6020				
REICPCAL5A	Ca	2000	5% Nitric Acid	100ml
	Fe	2000		
	K	2000		
	Mg	2000		
	Na	2000		
Multi Element Interference Standard, 5 Elements according to Test Method 200.7				
REICPINTF5A	Al	1200	5% Nitric Acid	100ml
	Ca	6000		
	Fe	5000		
	Mg	3000		
	Na	1000		
Multi Element Calibration Standard, 5 Elements according to Test Method 200.7				
REICPCAL5D	Be	50	2% Nitric Acid & tr. Hydrofluoric Acid	100ml
	Cd	150		
	Mn	100		
	Pb	500		
	Se	200		
Multi Element Calibration Standard, 5 Elements according to Test Method 200.7				
REICPCAL5E	Ba	100	5% Nitric Acid	100ml
	Co	100		
	Cu	100		
	Fe	10000		
	V	100		
Multi Element Calibration Standard, 5 Elements according to Test Method 200.7				
REICPCAL5F	Ag	50	5% Nitric Acid & tr. Hydrofluoric Acid	100ml
	B	100		
	Mg	1000		
	Sb	200		
	Tl	200		
Multi Element Tuning Standard, 5 Elements according to Test Method 200.8 & 05.2				
REICPTUNE5C	Be	10	5% Nitric Acid	100ml
	Co	10		
	In	10		
	Mg	10		
	Pb	10		
Multi Element Calibration Standard, 5 Elements				
REICPCAL5H	Ca	1000	2-5% Nitric Acid	100ml
	Fe	1000		
	K	1000		
	Mg	1000		
	Na	1000		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Calibration Standard, 5 Elements				
REICPCAL5I	Ca	500	2-5% Nitric Acid	100ml
	Fe	500		
	K	500		
	Mg	500		
	Na	500		
Multi Element Verification Standard, 5 Elements				
REICPVER5A	Be	10	2-5% Nitric Acid tr. Hydrofluoric Acid	100ml
	Co	10		
	In	10		
	Ti	10		
	U	10		
Multi Element Calibration Standard, 5 Elements				
REICPCAL5J	Ca	1000	2-5% Nitric Acid	100ml
	Fe	1000		
	Li	1000		
	Tl	1000		
	Y	1000		
Multi Element Tuning Standard, 5 Elements				
REICPTUNE5A	Ce	10	2-5% Nitric Acid	100ml
	Co	10		
	Li	10		
	Tl	10		
	Y	10		
Multi Element Calibration Standard, 5 Elements				
REICPCAL5K	Al	1000	2-5% Nitric Acid	100ml
	Cd	500		
	Pb	1000		
	Se	1000		
	Tl	1000		
Multi Element Calibration Standard, 5 Elements				
REICPCAL5L	As	500	2-5% Nitric Acid	100ml
	Cd	250		
	Pb	500		
	Se	500		
	Tl	500		
Multi Element Calibration Standard, 5 Elements				
REICPCAL5N	As	100	2-5% Nitric Acid	100ml
	Cd	50		
	Pb	30		
	Se	50		
	Tl	100		
Multi Element Calibration Standard, 5 Elements according to Test Method 200.7				
REICPCAL5O	K	2000	5% Nitric Acid & 1% Hydrofluoric Acid	100ml
	Li	500		
	Mo	1000		
	Na	1000		
	Ti	1000		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Calibration Standard, 5 Elements according to Test Method 200.7				
REICPCAL5P	Al	3000	2-5% Nitric Acid	100ml
	Ca	15000		
	Fe	12500		
	Mg	7500		
	Na	2500		
Multi Element Internal Standard, 5 Elements according to Test Method 200.8				
REICPIS5A	Bi	20	2-5% Nitric Acid	100ml
	In	20		
	Sc	20		
	Tb	20		
	Y	20		
Multi Element Tuning Standard, 5 Elements according to Test Method 200.8				
REICPTUNE5B	Be	10	2-5% Nitric Acid	100ml
	Co	10		
	In	10		
	Mg	10		
	Pb	10		
Multi Element Standard, 5 Elements				
ICPM003	K	500	2% Nitric Acid	125ml
	Na	500		
	Ca	500		
	Mg	500		
	Fe	500		
Multi Element Standard, 5 Elements				
ICP-MIX2	Sc	100	2% Nitric Acid	125ml
	Y	100		
	In	100		
	Tb	100		
	Bi	100		
Multi Element Standard, 5 Elements				
REICPTUNE1	Ce		2% Nitric Acid	100ml
	Co			
	Li			
	Tl			
	Y			
Multi Element Standard, 5 Elements				
REICPTUNE5A1	Ce	10	2-5% Nitric Acid	100ml
	Co	10		
	Li	10		
	Ti	10		
	Y	10		
Multi Element Standard, 5 Elements				
ICPMIX5-100	Ir	100	5% Hydrochloric Acid	100ml
	Pd	100		
	Pt	100		
	Rh	100		
	Ru	100		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Standard, 5 Elements				
ICP-MIX3-CYM	Ca	1000	2% Nitric Acid	100ml
	Mg	1000		
	K	1000		
	Na	1000		
	P	1000		
Multi Element Standard, 4 Elements				
ICPMIX4-100	Pd	100	10% Hydrochloric Acid	100ml
	Pt	100		
	Sb	100		
	Sn	100		
Multi Element Calibration Standard, 4 Elements				
REICPCAL4A	As	100	2% Nitric Acid	100ml
	Cr	100		
	Fe	100		
	Se	100		
Multi Element Calibration Standard, 4 Elements				
REICPCAL4B	Ca	100	5% Nitric Acid	100ml
	Fe	100		
	K	100		
	Na	100		
Multi Element Tuning Standard, 4 Elements				
REICPTUNE4A	Ce	10	5% Nitric Acid	100ml
	Li	10		
	Tl	10		
	Y	10		
Multi Element Calibration Standard, 4 Elements according to Test Method 200.8				
REICPCAL4R	Ca	1000	2% Nitric Acid	100ml
	K	1000		
	Mg	1000		
	Na	1000		
Multi Element Calibration Standard, 4 Elements according to Test Method 200.8				
REICPCAL4C	Ag	100	5% Nitric Acid	100ml
	Ba	100		
	Cu	100		
	Fe	100		
Multi Element Calibration Standard, 4 Elements according to Test Method 200.8				
REICPCAL4D	Ca	10000	2% Nitric Acid	100ml
	Mg	1000		
	Na	10000		
	P	1000		
Multi Element Interference Standard, 4 Elements according to Test Method 6010				
REICPINTF4A	Al	5000	20% Hydrochloric Acid	100ml
	Ca	5000		
	Fe	2000		
	Mg	5000		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Tuning Standard, 4 Elements according to Test Method 6020				
REICPTUNE4C	Co	10	5% Nitric Acid	100ml
	In	10		
	Li	10		
	Ti	10		
Multi Element Verification Standard, 4 Elements according to Test Method 200.7				
REICPVER4B	As	10	5% Nitric Acid	100ml
	Pb	10		
	Se	10		
	Ti	10		
Multi Element Calibration Standard, 4 Elements				
REICPCAL4E	Ca	500	2% Nitric Acid	100ml
	K	100		
	Mg	100		
	Na	500		
Multi Element Calibration Standard, 4 Elements				
REICPCAL4F	Ba	1000	2-5% Nitric Acid	100ml
	Ca	1000		
	Mg	1000		
	Sr	1000		
Multi Element Calibration Standard, 4 Elements				
REICPCAL4G	Cd	10	2-5% Nitric Acid	100ml
	Cu	800		
	Ni	200		
	Pb	500		
Multi Element Calibration Standard, 4 Elements				
REICPCAL4H	Ca	10000	2-5% Nitric Acid	100ml
	K	10000		
	Mg	10000		
	Na	10000		
Multi Element Calibration Standard, 4 Elements				
REICPCAL4I	Ca	1000	2-5% Nitric Acid	100ml
	K	1000		
	Mg	1000		
	Na	1000		
Multi Element Calibration Standard, 4 Elements according to Test Method 6010				
REICPCAL4J	Ca	5000	2-5% Nitric Acid	100ml
	K	5000		
	Mg	5000		
	Na	5000		
Multi Element Calibration Standard, 4 Elements				
REICPCAL4K	Mo	100	5% Nitric Acid & 1% Hydrofluoric Acid	100ml
	Sb	100		
	Sn	100		
	Ti	100		
Multi Element Interference Standard, 4 Elements				
REICPINTF4C	Al	5000	2-5% Nitric Acid	100ml
	Ca	5000		
	Fe	2000		
	Mg	5000		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Calibration Standard, 4 Elements according to Test Method 200.7				
REICPCAL4L	Ce	200	2-5% Nitric Acid	100ml
	Co	200		
	P	1000		
	V	200		
Multi Element Calibration Standard, 4 Elements according to Test Method 200.7				
REICPCAL4M	B	500	5% Nitric Acid & 1% Hydrofluoric Acid	100ml
	Mo	300		
	Si	230		
	Ti	1000		
Multi Element Calibration Standard, 4 Elements				
REICPCAL4N	Ce	10	2-5% Nitric Acid	100ml
	Li	10		
	Tl	10		
	Y	10		
Multi Element Standard, 4 Elements				
ICP-LX-4-25	Sn	1	7% Hydrochloric Acid	250ml
	Au	1		
	Pd	1		
	Rh	1		
Multi Element Tuning Solution 2, 4 Elements				
REICPTUNE2	Ce	10	2% Nitric Acid	100ml
	Li	10		
	Tl	10		
	Y	10		
Multi Element Standard, 4 Elements				
ICPM001	Mo	100	5% Nitric Acid & 0.5% Hydrofluoric Acid	125ml
	Sb	100		
	Sn	100		
	Ti	100		
Multi Element Standard, 4 Elements				
ICP-MIX1	Li	10	2% Nitric Acid	125ml
	Y	10		
	Ce	10		
	Tl	10		
Multi Element Standard, 4 Elements				
ICP-MIX2-CYM	Mo	10	5% Nitric Acid & 0.5% Hydrofluoric Acid	100ml
	Sb	10		
	Sn	100		
	Ti	100		
Multi Element Standard, 4 Elements				
ICP-SDHT-401	Na	25	2.5% Glucose Monohydrate	100ml
	K	100		
	Mg	5		
	Ca	50		
Multi Element Standard, 4 Elements				
ICP-THE-4-100	K	200	10% Nitric Acid	100ml
	Mg	400		
	Na	1000		
	Ca	2000		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Standard, 3 Elements				
ICPMIX3-100	Pt	100	10% Hydrochloric Acid	100ml
	Sb	100		
	Sn	100		
Multi Element Interference Standard, 3 Elements according to Test Method 6010				
REICPINTF3A	Ba	50	20% Hydrochloric Acid	100ml
	Cr	50		
	V	50		
Multi Element Calibration Standard, 3 Elements according to Test Method 200.7				
REICPCAL3A	As	500	2% Nitric Acid & tr. Hydrofluoric Acid	100ml
	Mo	100		
	Si	100		
Multi Element Calibration Standard, 3 Elements				
REICPCAL3B	Au	100	10% Hydrochloric Acid	100ml
	Pd	100		
	Pt	100		
Multi Element Tuning Standard, 3 Elements				
REICPTUNE3A	Ce	10	1% Nitric Acid	100ml
	Co	10		
	Li	10		
Multi Element Calibration Standard, 3 Elements according to Test Method 200.7				
REICPCAL3C	Al	1000	2-5% Nitric Acid	100ml
	Cr	500		
	Hg	200		
Multi Element Standard, 3 Elements				
ICP-PS-325M	Ga	50	5% Nitric Acid & 0.5% Hydrochloric Acid	250ml
	Ir	10		
	Rh	10		
Multi Element Standard, 3 Elements				
ICP-HR-35	Ag	100	2-5% Nitric Acid & tr. Hydrofluoric Acid	500ml
	Sb	100		
	Sn	100		
Multi Element Standard, 3 Elements				
ICP-MET-3-100	Hg	100	2% Hydrochloric Acid	100ml
	Ca	100		
	Mg	100		
Multi Element Standard, 3 Elements				
ICP-MIX10	Co	20	2% Nitric Acid	125ml
	V	20		
	P	100		
Multi Element Standard, 3 Elements				
ICP-PS325M	Ga	50	5% Nitric Acid & 0.5% Hydrochloric Acid	250ml
	Ir	10		
	Rh	10		
Multi Element Standard, 3 Elements				
ICP-PC-35A	Ag	10	2% Nitric Acid	500ml
	Hg	10		
	Tl	10		

Product No.	Elements	Conc µg/ml	Matrix	Pack Size
Multi Element Standard, 3 Elements				
MSICP001	As	100	5% Nitric Acid	100ml
	Mn	100		
	Pb	100		
Multi Element Standard, 3 Elements				
MXSTD301	Chloride	1000	H2O	100ml
	Sulphate	1000		
	Nitrate	200		
Multi Element Standard, 3 Elements				
ICP3-100-100	K	500	2% Nitric Acid	100ml
	Mg	500		
	P	500		
Multi Element Standard, 2 Elements				
ICP2MIX-100	Fe	500	2% Nitric Acid	100ml
	Mn	500		
Multi Element Standard, 2 Elements				
ICP2MIX2-100	Cd	100	2-5% Nitric Acid	100ml
	Pb	100		
Multi Element Standard, 2 Elements				
MEICP2	Si	100	5% Nitric Acid & 1% Hydrofluoric Acid	100ml
	W	100		
Multi Element Tuning Standard, 2 Elements according to Test Method 200.7				
REICPTUNE2A	Cu	10	5% Nitric Acid	100ml
	Pb	10		
Multi Element Calibration Standard, 2 Elements according to Test Method 200.8				
REICPCAL2A	Mo	20	Nitric Acid tr. Hydrofluoric Acid	100ml
	Sb	20		
Multi Element Standard, 2 Elements				
ICP-HR-25	S	100	H_2O	500ml
	Si	100		

Ion Chromatography Standards

These standards are prepared, tested, certified and verified by following the exact same regime as already presented for ICP-MS Standards. The raw material specifications are in most cases identical to the materials used for ICP-MS. Additionally, the elemental cations are also analysed by ICP-MS. All results are verified on a state of the art Ion Chromatograph, which is calibrated using high purity ISO Guide 34 accredited standards, similar in concentration to the products listed below.

Controlled Environment

Reagecon's standards are manufactured in a highly controlled clean room environment using:

- High purity starting materials
- Ultra-pure water, specially treated for Mass Spectroscopy Standards
- High purity matrix materials
- Pre-leached and pre-cleaned bottles

Options

Reagecon offers more options than almost any other manufacturer.

- At least 18 anion and 18 cation standards
- Many multi - element mix's
- Concentration options
- Pack size options
- Customised Standards

All at the highest quality and at an affordable price.

Verification of Raw Materials

All metal raw materials are assayed by titration and ICP-MS prior to manufacture. Separate CRM's are used to control or calibrate the titration and ICP-MS respectively. This dual process enables the assays to be cross-checked against each other, provides two layers of traceability and quantifies the combined level of impurities in the starting material. The product is then manufactured gravimetrically using the mass balance approach: 100% - sum of all impurities (w/w). The assay of the final product is certified using the gravimetric result corrected for density. Prior to bottling, the finished product is again tested and verified using an ICP-MS instrument calibrated with appropriate CRM's and a state of the art Ion Chromatograph.

Certification

Reagecon's Ion Chromatography Standards are prepared gravimetrically on a weight/weight basis from the purest available raw materials on the market. Both solute and solvent are weighed on balances calibrated by Reagecon's engineers using OIML traceable weights. Reagecon holds ISO/IEC 17025 accreditation for calibration of laboratory balances (INAB Ref:265C). The resulting Balance Certificate of Calibration is issued in accordance with the requirements of ISO/IEC 17025.

Traceability

The content of the starting material for each single element or multi-element standard is established by titration. The resulting analysis is directly traceable to a relevant NIST standard where available. All of the resulting uncertainties of measurement are calculated according to EURACHEM/CITAC guidelines and reported as expanded uncertainties at the 95% confidence level. Reagecon holds ISO/IEC 17025 (INAB Ref:264T) accreditation for several classes of titrimetric analysis relevant to the assay of Raw Materials, for the manufacture of Ion Chromatography Standards.

Elemental Metallic Impurities

All Reagecon Standards are manufactured from the purest available raw materials. For cations a lot of the starting materials are metals of > 99.999% purity. Several others are at least 99.995% pure. Most of the remaining metals or salts of metals are at least 99.99% pure. The level of impurities are quantified using ICP-MS and are measured and reported both on the starting materials and on the finished product. All of Reagecon's Ion Chromatography standards are manufactured in a Class 10,000 (ISO 7) clean room environment.

Final Assay & Result

Each batch of Reagecon's finalised IC standards are subjected to an assay on the ICP-MS or IC prior to bottling. This assay verifies the target element assay and verifies that the level of impurities have not changed significantly during the manufacturing process. The results are then reported and certified in mg/Kg and mg/L on the basis of weight and the density measurement of the standard. All of the volumetric, titrimetric and gravimetric functions are carried out under a highly regulated temperature regime, using equipment calibrated by Reagecon's engineers. Reagecon holds ISO/IEC 17025 accreditation for temperature calibration in the range of -196 to +1200°C (INAB Ref:265C). The density measurements are also highly temperature dependent and are carried out in Reagecon's specialised Density Laboratory. Reagecon is ISO/IEC 17025 (INAB Ref:264T) Accredited, for density measurement using an Oscillating U-Tube Method in accordance with the ASTM D4052 method. The company is an extensive producer of density standards and the range is presented in our compendium of Physical and Chemical Standards.

Anion Standards

Product No.	Ion	Starting Material	Matrix	Concentration	Pack Size
Acetate					
ICAU35	CH_3COO^-	Sodium Acetate	H_2O	0.1mg/ml (100ppm)	100ml
ICAT35	CH_3COO^-	Sodium Acetate	H_2O	0.2mg/ml (200ppm)	100ml
ICAS35	CH_3COO^-	Sodium Acetate	H_2O	1mg/ml (1,000ppm)	100ml
Bromate					
ICAS3301	BrO_3^-	Potassium Bromate	H_2O	1mg/ml (1,000ppm)	100ml
ICAS3301-50ml	BrO_3^-	Potassium Bromate	H_2O	1mg/ml (1,000ppm)	50ml
ICAS3305	BrO_3^-	Potassium Bromate	H_2O	1mg/ml (1,000ppm)	500ml
Bromide					
ICAU01	Br^-	KBr	H_2O	0.1mg/ml (100ppm)	100ml
ICAT01	Br^-	KBr	H_2O	0.2mg/ml (200ppm)	100ml
ICAS01	Br^-	KBr	H_2O	1mg/ml (1,000ppm)	100ml
ICAS01-50ml	Br^-	KBr	H_2O	1mg/ml (1,000ppm)	50ml
ICAB01	Br^-	KBr	H_2O	1mg/ml (1,000ppm)	500ml
Chlorate					
ICACL001	ClO_3^-	Potassium Chlorate	H_2O	1mg/ml (1,000ppm)	100ml
ICACL001-50ml	ClO_3^-	Potassium Chlorate	H_2O	1mg/ml (1,000ppm)	50ml

Anion Standards

Product No.	Ion	Starting Material	Matrix	Concentration	Pack Size
Chloride					
ICAU02	Cl^-	KCl	H_2O	0.1mg/ml (100ppm)	100ml
ICAT02	Cl^-	KCl	H_2O	0.2mg/ml (200ppm)	100ml
ICAS02	Cl^-	KCl	H_2O	1mg/ml (1,000ppm)	100ml
ICAB02	Cl^-	KCl	H_2O	1mg/ml (1,000ppm)	500ml
ICAS021	Cl^-	KCl	H_2O	1mg/ml (1,000ppm)	1L
ICAS02-10000	Cl^-	KCl	H_2O	10mg/ml (10,000ppm)	500ml
Chlorite					
ICAS321	ClO_2^-	Sodium Chlorite	H_2O	1mg/ml (1,000ppm)	100ml
ICAS321-50ml	ClO_2^-	Sodium Chlorite	H_2O	1mg/ml (1,000ppm)	50ml
Chromate					
ICAX29	CrO_4^{2-}	$NH_4Cr_2O_7$	H_2O	0.002mg/ml (2ppm)	100ml
ICAU29	CrO_4^{2-}	$NH_4Cr_2O_7$	H_2O	0.1mg/ml (100ppm)	100ml
ICAT29	CrO_4^{2-}	$NH_4Cr_2O_7$	H_2O	0.2mg/ml (200ppm)	100ml
ICAS29	CrO_4^{2-}	$NH_4Cr_2O_7$	H_2O	1mg/ml (1,000ppm)	100ml
ICAB29	CrO_4^{2-}	$NH_4Cr_2O_7$	H_2O	1mg/ml (1,000ppm)	500ml
Cyanide					
ICAZ08	CN^-	NaCN	H_2O	0.0001mg/ml (0.1ppm)	100ml
ICAU08	CN^-	NaCN	H_2O	0.1mg/ml (100ppm)	100ml
ICAS08	CN^-	NaCN	H_2O	1mg/ml (1,000ppm)	100ml
ICAB08	CN^-	NaCN	H_2O	1mg/ml (1,000ppm)	500ml
Fluoride					
ICAU03	F^-	NaF	H_2O	0.1mg/ml (100ppm)	100ml
ICAT03	F^-	NaF	H_2O	0.2mg/ml (200ppm)	100ml
ICAT411	F^-	NaF	H_2O	0.5mg/ml (500ppm)	1L
ICAS03	F^-	NaF	H_2O	1mg/ml (1,000ppm)	100ml
ICAS03-B	F^-	NaF	H_2O	1mg/ml (1,000ppm)	250ml
ICAB03	F^-	NaF	H_2O	1mg/ml (1,000ppm)	500ml
Formate					
ICAU34	$HCOO^-$	Sodium Formate	H_2O	0.1mg/ml (100ppm)	100ml
ICAT34	$HCOO^-$	Sodium Formate	H_2O	0.2mg/ml (200ppm)	100ml
ICAS34	$HCOO^-$	Sodium Formate	H_2O	1mg/ml (1,000ppm)	100ml
ICAB34	$HCOO^-$	Sodium Formate	H_2O	1mg/ml (1,000ppm)	500ml
Iodide					
ICAU40	I^-	NH_4I	H_2O	0.1mg/ml (100ppm)	100ml
ICAT40	I^-	NH_4I	H_2O	0.2mg/ml (200ppm)	100ml
ICAS40	I^-	NH_4I	H_2O	1mg/ml (1,000ppm)	100ml
ICAB40	I^-	NH_4I	H_2O	1mg/ml (1,000ppm)	500ml
Nitrate					
ICAU04	NO_3^-	NH_4NO_3	H_2O	0.1mg/ml (100ppm)	100ml
ICAT04	NO_3^-	NH_4NO_3	H_2O	0.2mg/ml (200ppm)	100ml
ICAS04	NO_3^-	NH_4NO_3	H_2O	1mg/ml (1,000ppm)	100ml
ICAS04-B	NO_3^-	NH_4NO_3	H_2O	1mg/ml (1,000ppm)	250ml
ICAB04	NO_3^-	NH_4NO_3	H_2O	1mg/ml (1,000ppm)	500ml
ICAS04-10000	NO_3^-	NH_4NO_3	H_2O	10mg/ml (10,000ppm)	500ml

Anion Standards

Product No.	Ion	Starting Material	Matrix	Concentration	Pack Size
Nitrite					
ICA11305	NO_2^-	$NaNO_2$	H_2O	0.03mg/ml (30ppm)	500ml
ICAU11	NO_2^-	$NaNO_2$	H_2O	0.1mg/ml (100ppm)	100ml
ICAS151005	NO_2^-	$NaNO_2$	H_2O	0.1mg/ml (100ppm)	500ml
ICAS151001	NO_2^-	$NaNO_2$	H_2O	0.1mg/ml (100ppm)	1L
ICAS11	NO_2^-	$NaNO_2$	H_2O	1mg/ml (1,000ppm)	100ml
ICAS11-B	NO_2^-	$NaNO_2$	H_2O	1mg/ml (1,000ppm)	250ml
ICAB11	NO_2^-	$NaNO_2$	H_2O	1mg/ml (1,000ppm)	500ml
ICAS11-10000	NO_2^-	$NaNO_2$	H_2O	10mg/ml (10,000ppm)	500ml
Oxalate					
ICAU13	$(COO)_2^{2-}$	$K_2C_2O_4$	H_2O	0.1mg/ml (100ppm)	100ml
ICAT13	$(COO)_2^{2-}$	$K_2C_2O_4$	H_2O	0.2mg/ml (200ppm)	100ml
ICAS13	$(COO)_2^{2-}$	$K_2C_2O_4$	H_2O	1mg/ml (1,000ppm)	100ml
ICAB13	$(COO)_2^{2-}$	$K_2C_2O_4$	H_2O	1mg/ml (1,000ppm)	500ml
Phosphate					
ICAU05	PO_4^{3-}	$NH_4H_2PO_4$	H_2O	0.1mg/ml (100ppm)	100ml
ICAT05	PO_4^{3-}	$NH_4H_2PO_4$	H_2O	0.2mg/ml (200ppm)	100ml
ICAS05	PO_4^{3-}	$NH_4H_2PO_4$	H_2O	1mg/ml (1,000ppm)	100ml
ICAS05-B	PO_4^{3-}	$NH_4H_2PO_4$	H_2O	1mg/ml (1,000ppm)	250ml
ICAB05	PO_4^{3-}	$NH_4H_2PO_4$	H_2O	1mg/ml (1,000ppm)	500ml
ICAS051	PO_4^{3-}	$NH_4H_2PO_4$	H_2O	1mg/ml (1,000ppm)	1L
ICAS05-10000	PO_4^{3-}	$NH_4H_2PO_4$	H_2O	10mg/ml (10,000ppm)	500ml
Silica					
ICAU12	SiO_2	Na_2O_3Si	H_2O	0.1mg/ml (100ppm)	100ml
ICAT12	SiO_2	Na_2O_3Si	H_2O	0.2mg/ml (200ppm)	100ml
ICAS12	SiO_2	Na_2O_3Si	H_2O	1mg/ml (1,000ppm)	100ml
ICAB12	SiO_2	Na_2O_3Si	H_2O	1mg/ml (1,000ppm)	500ml
ICAB12-1L	SiO_2	Na_2O_3Si	H_2O	1mg/ml (1,000ppm)	1L
ICAD12-1L	SiO_2	Na_2O_3Si	H_2O	0.01mg/ml (10ppb)	1L
Sulphate					
ICAU06	SO_4^{2-}	$(NH_4)_2SO_4$	H_2O	0.1mg/ml (100ppm)	100ml
ICAT06	SO_4^{2-}	$(NH_4)_2SO_4$	H_2O	0.2mg/ml (200ppm)	100ml
ICAS0650	SO_4^{2-}	$(NH_4)_2SO_4$	H_2O	0.05mg/ml (50ppm)	500ml
ICAS06	SO_4^{2-}	$(NH_4)_2SO_4$	H_2O	1mg/ml (1,000ppm)	100ml
ICAB06	SO_4^{2-}	$(NH_4)_2SO_4$	H_2O	1mg/ml (1,000ppm)	500ml
ICAS061	SO_4^{2-}	$(NH_4)_2SO_4$	H_2O	1mg/ml (1,000ppm)	1L
Tartrate					
ICAU36	$(CHOH)_2(COO)_2^{2-}$	Tartaric Acid	H_2O	0.1mg/ml (100ppm)	100ml
ICAT36	$(CHOH)_2(COO)_2^{2-}$	Tartaric Acid	H_2O	0.2mg/ml (200ppm)	100ml
ICAS36	$(CHOH)_2(COO)_2^{2-}$	Tartaric Acid	H_2O	1mg/ml (1,000ppm)	100ml
ICAB36	$(CHOH)_2(COO)_2^{2-}$	Tartaric Acid	H_2O	1mg/ml (1,000ppm)	500ml

Cation Standards

Product No.	Ion	Starting Material	Matrix	Concentration	Pack Size
Aluminium					
ICCU06	Al^{3+}	$Al(NO_3)_3$	H_2O	0.1mg/ml (100ppm)	100ml
ICCT06	Al^{3+}	$Al(NO_3)_3$	H_2O	0.2mg/ml (200 ppm)	100ml
ICCS06	Al^{3+}	$Al(NO_3)_3$	H_2O	1mg/ml (1,000ppm)	100ml
ICCB06	Al^{3+}	$Al(NO_3)_3$	H_2O	1mg/ml (1,000ppm)	500ml
Ammonium					
ICCU01	NH_4^+	NH_4Cl	H_2O	0.1mg/ml (100ppm)	100ml
ICCT01	NH_4^+	NH_4Cl	H_2O	0.2mg/ml (200ppm)	100ml
ICCS01	NH_4^+	NH_4Cl	H_2O	1mg/ml (1,000ppm)	100ml
ICCB01	NH_4^+	NH_4Cl	H_2O	1mg/ml (1,000ppm)	500ml
ICCS01-10000	NH_4^+	NH_4Cl	H_2O	10mg/ml (10,000ppm)	500ml
Barium					
ICCU44	Ba^{2+}	$Ba(NO_3)_2$	H_2O	0.1mg/ml (100ppm)	100ml
ICCT44	Ba^{2+}	$Ba(NO_3)_2$	H_2O	0.2mg/ml (200ppm)	100ml
ICCS44	Ba^{2+}	$Ba(NO_3)_2$	H_2O	1mg/ml (1,000ppm)	100ml
ICCB44	Ba^{2+}	$Ba(NO_3)_2$	H_2O	1mg/ml (1,000ppm)	500ml
Cadmium					
ICCU09	Cd^{2+}	Cd Metal	0.005% HNO_3	0.1mg/ml (100ppm)	100ml
ICCS09	Cd^{2+}	Cd Metal	0.005% HNO_3	1mg/ml (1,000ppm)	100ml
ICCB09	Cd^{2+}	Cd Metal	0.005% HNO_3	1mg/ml (1,000ppm)	500ml
Calcium					
ICCU08	Ca^{2+}	$Ca(NO_3)_2$	H_2O	0.1mg/ml (100ppm)	100ml
ICCT08	Ca^{2+}	$Ca(NO_3)_2$	H_2O	0.2mg/ml (200ppm)	100ml
ICCS08	Ca^{2+}	$Ca(NO_3)_2$	H_2O	1mg/ml (1,000ppm)	100ml
ICCB08	Ca^{2+}	$Ca(NO_3)_2$	H_2O	1mg/ml (1,000ppm)	500ml
ICCCA01	Ca^{2+}	$Ca(NO_3)_2$	H_2O	1.5mg/ml (1,500ppm)	100ml
ICCCA05	Ca^{2+}	$Ca(NO_3)_2$	H_2O	1.5mg/ml (1,500ppm)	500ml
Cesium					
ICCU91	Cs^+	$CsNO_3$	H_2O	0.1mg/ml (100ppm)	100ml
ICCT91	Cs^+	$CsNO_3$	H_2O	0.2mg/ml (200ppm)	100ml
ICCS91	Cs^+	$CsNO_3$	H_2O	1mg/ml (1,000ppm)	100ml
ICCB91	Cs^+	$CsNO_3$	H_2O	1mg/ml (1,000ppm)	500ml
Cobalt					
ICCU15	Co^{2+}	Co Metal	0.005% HNO_3	0.1mg/ml (100ppm)	100ml
ICCS15	Co^{2+}	Co Metal	0.005% HNO_3	1mg/ml (1,000ppm)	100ml
ICCB15	Co^{2+}	Co Metal	0.005% HNO_3	1mg/ml (1,000ppm)	500ml
ICCS95	Co^{2+}	Co Metal	0.5% HNO_3	1mg/ml (1,000ppm)	100ml
Copper					
ICCU16	Cu^{2+}	Cu Metal	0.005% HNO_3	0.1mg/ml (100ppm)	100ml
ICCS16	Cu^{2+}	Cu Metal	0.005% HNO_3	1mg/ml (1,000ppm)	100ml
ICCB16	Cu^{2+}	Cu Metal	0.005% HNO_3	1mg/ml (1,000ppm)	500ml
Iron					
ICCU12	Fe^{2+}	$Fe(NO_3)_3$	0.005% HNO_3	0.1mg/ml (100ppm)	100ml
ICCT12	Fe^{2+}	$Fe(NO_3)_3$	H_2O	0.2mg/ml (200ppm)	100ml
ICCS12	Fe^{2+}	$Fe(NO_3)_3$	0.005% HNO_3	1mg/ml (1,000ppm)	100ml
ICCB12	Fe^{2+}	$Fe(NO_3)_3$	0.005% HNO_3	1mg/ml (1,000ppm)	500ml

Product No.	Ion	Starting Material	Matrix	Concentration	Pack Size
Lead					
ICCU19	Pb^{2+}	$Pb(NO_3)_2$	0.005% HNO_3	0.1mg/ml (100ppm)	100ml
ICCS19	Pb^{2+}	$Pb(NO_3)_2$	0.005% HNO_3	1mg/ml (1,000ppm)	100ml
ICCB19	Pb^{2+}	$Pb(NO_3)_2$	0.005% HNO_3	1mg/ml (1,000ppm)	500ml
Lithium					
ICCU02	Li^{+}	$LiNO_3$	0.005% HNO_3	0.1mg/ml (100ppm)	100ml
ICCT02	Li^{+}	$LiNO_3$	H_2O	0.2mg/ml (200ppm)	100ml
ICCS02	Li^{+}	$LiNO_3$	0.005% HNO_3	1mg/ml (1,000ppm)	100ml
ICCB02	Li^{+}	$LiNO_3$	0.005% HNO_3	1mg/ml (1,000ppm)	500ml
Magnesium					
ICCU07	Mg^{2+}	$Mg(NO_3)_2$	H_2O	0.1mg/ml (100ppm)	100ml
ICCT07	Mg^{2+}	$Mg(NO_3)_2$	H_2O	0.2mg/ml (200ppm)	100ml
ICCMG01	Mg^{2+}	$Mg(NO_3)_2$	H_2O	0.5mg/ml (500ppm)	100ml
ICCMG05	Mg^{2+}	$Mg(NO_3)_2$	H_2O	0.5mg/ml (500ppm)	500ml
ICCS07	Mg^{2+}	$Mg(NO_3)_2$	H_2O	1mg/ml (1,000ppm)	100ml
ICCB07	Mg^{2+}	$Mg(NO_3)_2$	H_2O	1mg/ml (1,000ppm)	500ml
Manganese					
ICCU11	Mn^{2+}	Mn Metal	0.005% HNO_3	0.1mg/ml (100ppm)	100ml
ICCT11	Mn^{2+}	Mn Metal	H_2O	0.2mg/ml (200ppm)	100ml
ICCS11	Mn^{2+}	Mn Metal	0.005% HNO_3	1mg/ml (1,000ppm)	100ml
ICCB11	Mn^{2+}	Mn Metal	0.005% HNO_3	1mg/ml (1,000ppm)	500ml
Nickel					
ICCU14	Ni^{2+}	Ni Metal	0.005% HNO_3	0.1mg/ml (100ppm)	100ml
ICCS14	Ni^{2+}	Ni Metal	0.005% HNO_3	1mg/ml (1,000ppm)	100ml
ICCB14	Ni^{2+}	Ni Metal	0.005% HNO_3	1mg/ml (1,000ppm)	500ml
ICCS96	Ni^{2+}	Ni Metal	0.5% HNO_3	1mg/ml (1,000ppm)	100ml
Potassium					
ICCU03	K^{+}	KNO_3	0.005% HNO_3	0.1mg/ml (100ppm)	100ml
ICCT03	K^{+}	KNO_3	H_2O	0.2mg/ml (200 ppm)	100ml
ICCK01	K^{+}	KNO_3	0.005% HNO_3	0.2mg/ml (200 ppm)	100ml
ICCK05	K^{+}	KNO_3	0.005% HNO_3	0.2mg/ml (200 ppm)	500ml
ICCS03	K^{+}	KNO_3	0.005% HNO_3	1mg/ml (1,000ppm)	100ml
ICCB03	K^{+}	KNO_3	0.005% HNO_3	1mg/ml (1,000ppm)	500ml
ICCKS03	K^{+}	KNO_3	H_2O	1mg/ml (1,000ppm)	100ml
ICCKB03	K^{+}	KNO_3	H_2O	1mg/ml (1,000ppm)	500ml
Rubidium					
ICCU92	Rb^{+}	$RbNO_3$	0.005% HNO_3	0.1mg/ml (100ppm)	100ml
ICCS92	Rb^{+}	$RbNO_3$	0.005% HNO_3	1mg/ml (1,000ppm)	100ml
ICCB92	Rb^{+}	$RbNO_3$	0.005% HNO_3	1mg/ml (1,000ppm)	500ml
Sodium					
ICCU04	Na^{+}	$NaNO_3$	0.005% HNO_3	0.1mg/ml (100ppm)	100ml
ICCT04	Na^{+}	$NaNO_3$	H_2O	0.2mg/ml (200ppm)	100ml
ICCNA01	Na^{+}	$NaNO_3$	0.005% HNO_3	0.5mg/ml (500ppm)	100ml
ICCNA05	Na^{+}	$NaNO_3$	0.005% HNO_3	0.5mg/ml (500ppm)	500ml
ICCS04	Na^{+}	$NaNO_3$	0.005% HNO_3	1mg/ml (1,000ppm)	100ml
ICCB04	Na^{+}	$NaNO_3$	0.005% HNO_3	1mg/ml (1,000ppm)	500ml

Product No.	Ion	Starting Material	Matrix	Concentration	Pack Size
Strontium					
ICCU43	Sr^{2+}	$Sr(NO_3)_2$	0.005% HNO_3	0.1mg/ml (100ppm)	100ml
ICCT43	Sr^{2+}	$Sr(NO_3)_2$	H_2O	0.2mg/ml (200ppm)	100ml
ICCS43	Sr^{2+}	$Sr(NO_3)_2$	0.005% HNO_3	1mg/ml (1,000ppm)	100ml
ICCB43	Sr^{2+}	$Sr(NO_3)_2$	0.005% HNO_3	1mg/ml (1,000ppm)	500ml
Zinc					
ICCU33	Zn^{2+}	Zn Metal	0.005% HNO_3	0.1mg/ml (100ppm)	100ml
ICCS33	Zn^{2+}	Zn Metal	0.005% HNO_3	1mg/ml (1,000ppm)	100ml
ICCB33	Zn^{2+}	Zn Metal	0.005% HNO_3	1mg/ml (1,000ppm)	500ml

IC Multi-Element Standards

IC Multi-Element Standard, 9 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC9-100-100	NH_4^+	100	H_2O, tr. HNO_3	100ml
	Ba^{2+}	100		
	Ca^{2+}	100		
	K^+	100		
	Li^+	100		
	Na^+	100		
	Mg^{2+}	100		
	Mn^{2+}	100		
	Sr^{2+}	100		
IC Multi-Element Standard, 8 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC7MIX5B	F^-	0.08	H_2O	250ml
	NO_2^-	0.08		
	Br^-	0.08		
	NO_3^-	0.15		
	PO_4^{3-}	0.15		
	CrO_4	0.15		
	Cl^-	3		
	SO_4^{2-}	3		
IC Multi-Element Standard, 8 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC-LGC-8-100	Li^+	100	0.005% HNO_3	100ml
	Na^+	100		
	NH_4^+	100		
	K^+	100		
	Ca^{2+}	100		
	Mg^{2+}	100		
	Sr^{2+}	100		
	Ba^{2+}	100		

IC Multi-Element Standard, 8 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA7MIX10B	F^-	1.5	H_2O	250ml
	NO_2^-	1.5		
	Br^-	1.5		
	NO_3^-	3.5		
	PO_4^{3-}	3.5		
	CrO_4	3.5		
	Cl^-	70		
	SO_4^{2-}	35		

IC Multi-Element Standard, 8 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA7MIX1B	F^-	0.08	H_2O	250ml
	NO_2^-	0.08		
	Br^-	0.08		
	NO_3^-	0.015		
	PO_4^{3-}	0.015		
	CrO_4	0.015		
	Cl^-	0.3		
	SO_4^{2-}	0.15		

IC Multi-Element Standard, 8 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA7MIX2B	F^-	0.02	H_2O	250ml
	NO_2^-	0.02		
	Br^-	0.02		
	NO_3^-	0.03		
	PO_4^{3-}	0.03		
	CrO_4	0.03		
	Cl^-	0.6		
	SO_4^{2-}	0.3		

IC Multi-Element Standard, 8 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA7MIX3B	F^-	0.04	H_2O	250ml
	NO_2^-	0.04		
	Br^-	0.04		
	NO_3^-	0.04		
	PO_4^{3-}	0.04		
	CrO_4	0.04		
	Cl^-	0.8		
	SO_4^{2-}	0.4		

IC Multi-Element Standard, 8 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA7MIX4B	F^-	0.06	H_2O	250ml
	NO_2^-	0.06		
	Br^-	0.06		
	NO_3^-	0.07		
	PO_4^{3-}	0.07		
	CrO_4	0.07		
	Cl^-	1.5		
	SO_4^{2-}	1.5		

IC Multi-Element Standard, 8 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA7MIX5B	F^-	0.08	H_2O	250ml
	NO_2^-	0.08		
	Br^-	0.08		
	NO_3^-	0.15		
	PO_4^{3-}	0.15		
	CrO_4	0.15		
	Cl^-	3		
	SO_4^{2-}	3		

IC Multi-Element Standard, 8 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA7MIX6B	F^-	0.15	H_2O	250ml
	NO_2^-	0.15		
	Br^-	0.15		
	NO_3^-	0.3		
	PO_4^{3-}	0.3		
	CrO_4	0.3		
	Cl^-	6		
	SO_4^{2-}	6		

IC Multi-Element Standard, 8 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA7MIX7B	F^-	0.3	H_2O	250ml
	NO_2^-	0.3		
	Br^-	0.3		
	NO_3^-	0.5		
	PO_4^{3-}	0.5		
	CrO_4	0.5		
	Cl^-	10		
	SO_4^{2-}	8		

IC Multi-Element Standard, 8 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA7MIX8B	F^-	0.4	H_2O	250ml
	NO_2^-	0.4		
	Br^-	0.4		
	NO_3^-	0.8		
	PO_4^{3-}	0.8		
	CrO_4	0.8		
	Cl^-	30		
	SO_4^{2-}	15		

IC Multi-Element Standard, 8 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA7MIX9B	F^-	0.75	H_2O	250ml
	NO_2^-	0.75		
	Br^-	0.75		
	NO_3^-	1.5		
	PO_4^{3-}	1.5		
	CrO_4	1.5		
	Cl^-	55		
	SO_4^{2-}	25		

IC Multi-Element Standard, 7 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA7-MIX1-500	F^-	1000	H_2O	1L
	Cl^-	1000		
	Br^-	1000		
	NO_2^-	1000		
	NO_3^-	1000		
	PO_4^{3-}	1000		
	SO_4^{2-}	1000		
IC Multi-Element Standard, 7 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC-MIX1	F^-	25	H_2O	250ml
	Cl^-	25		
	NO_2^-	25		
	Br^-	25		
	NO_3^-	25		
	PO_4^{3-}	25		
	SO_4^{2-}	25		
IC Multi-Element Standard, 7 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA-DX-711	F^-	20	H_2O	100ml
	Cl^-	30		
	Br^-	100		
	NO_2^-	100		
	NO_3^-	100		
	PO_4^{3-}	150		
	SO_4^{2-}	150		
IC Multi-Element Standard, 7 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICMIX-7-100	Br^-	1000	H_2O	100ml
	Cl^-	1000		
	F^-	1000		
	NO_2^-	1000		
	NO_3^-	1000		
	PO_4^{3-}	1000		
	SO_4^{2-}	1000		
IC Multi-Element Standard, 7 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC-NHS-7	Na^+	2500	5% HNO_3	250ml
	Ca^{2+}	100		
	K^+	100		
	Mg^{2+}	100		
	Zn^{2+}	5		
	Al^{3+}	0.5		
	Hg^{2+}	0.05		

IC Multi-Element Standard, 7 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA7-MIX-CYM-1000ml	F^-	2	H_2O	1L
	Cl^-	300		
	NO_2^-	10		
	Br^-	5		
	NO_3^-	100		
	PO_4^{3-}	100		
	SO_4^{2-}	400		

IC Multi-Element Standard, 7 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA7-MIX-CYM-500ml	F^-	2	H_2O	500ml
	Cl^-	300		
	NO_2^-	10		
	Br^-	5		
	NO_3^-	100		
	PO_4^{3-}	100		
	SO_4^{2-}	400		

IC Multi-Element Standard, 7 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA-DX-721	PO_4^{3-}	200	H_2O	100ml
	Cl^-	100		
	Br^-	100		
	NO_2^-	100		
	NO_3^-	100		
	SO_4^{2-}	100		
	F^-	20		

IC Multi-Element Standard, 7 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA7-100-75	Cl^-	100	H_2O	75ml
	F^-	100		
	Br^-	100		
	NO_2^-	100		
	NO_3^-	100		
	SO_4^{2-}	100		
	PO_4^{3-}	100		

IC Multi-Element Standard, 7 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA7-50-100	F^-	50	H_2O	100ml
	Cl^-	50		
	Br^-	50		
	NO_2^-	50		
	NO_3^-	50		
	PO_4^{3-}	50		
	SO_4^{2-}	50		

IC Multi-Element Standard, 7 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA7-50-500	F^-	50	H_2O	500ml
	Cl^-	50		
	Br^-	50		
	NO_2^-	50		
	NO_3^-	50		
	PO_4^{3-}	50		
	SO_4^{2-}	50		

IC Multi-Element Standard, 7 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA7-CYM-100	Cl^-	1000	H_2O	100ml
	NO_3^-	1000		
	SO_4^{2-}	1000		
	PO_4^{3-}	1000		
	F^-	100		
	Br^-	100		
	NO_2^-	100		

IC Multi-Element Standard, 7 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA7-CYM-250	Cl^-	1000	H_2O	250ml
	NO_3^-	1000		
	SO_4^{2-}	1000		
	PO_4^{3-}	1000		
	F^-	100		
	Br^-	100		
	NO_2^-	100		

IC Multi-Element Standard, 7 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA-ENV-6-5	F^-	100	H_2O	500ml
	NO_2^-	1000		
	NO_3^-	1000		
	PO_4^{3-}	1000		
	SO_4^{2-}	1000		
	Br^-	1000		
	Cl^-	1000		

IC Multi-Element Standard, 7 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICASP725	F^-	10	H_2O	250ml
	Cl^-	10		
	Br^-	10		
	NO_2^-	10		
	NO_3^-	10		
	PO_4^{3-}	10		
	SO_4^{2-}	10		

IC Multi-Element Standard, 7 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICASS07	Br^-	10	H_2O	250ml
	Cl^-	10		
	F^-	10		
	NO_3^-	10		
	NO_2^-	10		
	PO_4^{3-}	10		
	SO_4^{2-}	10		

IC Multi-Element Standard, 7 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC-GLO-7-100	Cl^-	1000	H_2O	100ml
	SO_4^{2-}	1000		
	NO_3^-	1000		
	Br^-	100		
	NO_2^-	100		
	PO_4^{3-}	100		
	F^-	100		

IC Multi-Element Standard, 7 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC-SYN-7	Cl^-	100	H_2O	100ml
	Br^-	100		
	NO_2^-	100		
	NO_3^-	100		
	SO_4^{2-}	100		
	F^-	20		
	PO_4^{3-}	200		

IC Multi-Element Standard, 7 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA-LIS-601	F^-	50	H_2O	100ml
	Cl^-	1000		
	Br^-	100		
	NO_2^-	20		
	NO_3^-	200		
	PO_4^{3-}	15		
	SO_4^{2-}	5000		

IC Multi-Element Standard, 7 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC-MIX3	F^-	100	H_2O	500ml
	PO_4^{3-}	100		
	Cl^-	200		
	NO_2^-	20		
	Br^-	40		
	NO_3^-	20		
	SO_4^{2-}	5000		

IC Multi-Element Standard, 6 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC-GLO-6-500	Br^-	1000	H_2O	500ml
	NO_3^-	1000		
	Cl^-	1000		
	PO_4^{3-}	1000		
	F^-	1000		
	SO_4^{2-}	1000		

IC Multi-Element Standard, 6 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC-MIX4	Li^+	20	H_2O	250ml
	Na^+	20		
	NH_4^+	20		
	K^+	20		
	Mg^{2+}	40		
	Ca^{2+}	40		

IC Multi-Element Standard, 6 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC-LGC-6-100	F^-	100	H_2O	100ml
	Cl^-	100		
	SO_4^{2-}	100		
	NO_3^-	100		
	NO_2^-	100		
	PO_4^{3-}	100		

IC Multi-Element Standard, 6 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA-10PPM-6	F^-	10	H_2O	100ml
	Cl^-	10		
	Br^-	10		
	NO_3^-	10		
	PO_4^{3-}	10		
	SO_4^{2-}	10		

IC Multi-Element Standard, 6 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC-DX-611	Ca^{2+}	1000	H_2O	100ml
	NH_4^+	400		
	Na^+	200		
	K^+	200		
	Mg^{2+}	200		
	Li^+	50		

IC Multi-Element Standard, 6 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA-BMS-65	NO_3^-	200	H_2O	500ml
	SO_4^{2-}	200		
	PO_4^{3-}	200		
	Br^-	100		
	F^-	100		

IC Multi-Element Standard, 6 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC6-100-100	NO_2^-	100	H_2O	100ml
	NO_3^-	100		
	Cl^-	100		
	SO_4^{2-}	100		
	F^-	100		
	PO_4^{3-}	100		

IC Multi-Element Standard, 6 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA6-10-100	F^-	10	H_2O	100ml
	Cl^-	10		
	Br^-	10		
	NO_3^-	10		
	PO_4^{3-}	10		
	SO_4^{2-}	10		

IC Multi-Element Standard, 6 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA6-CYM	Cl^-	1000	H_2O	250ml
	PO_4^{3-}	1000		
	NO_3^-	1000		
	SO_4^{2-}	1000		
	F^-	100		
	Br^-	100		

IC Multi-Element Standard, 6 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA6-MIX1-500	F^-	100	H_2O	500ml
	Br^-	100		
	Cl^-	1000		
	NO_3^-	1000		
	PO_4^{3-}	1000		
	SO_4^{2-}	1000		

IC Multi-Element Standard, 6 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA6-MIX2-100	F^-	1000	H_2O	100ml
	Cl^-	1000		
	SO_4^{2-}	1000		
	NO_2^-	1000		
	NO_3^-	1000		
	PO_4^{3-}	1000		

IC Multi-Element Standard, 6 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA6-MIX-THG	NO_3^-	100	H_2O	100ml
	PO_4^{3-}	100		
	Cl^-	250		
	SO_4^{2-}	250		
	NO_2^-	10		
	F^-	30		

IC Multi-Element Standard, 6 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC-DX-621	Li^+	50	H_2O	100ml
	Na^+	200		
	NH_4^+	250		
	Mg^{2+}	250		
	Ca^{2+}	500		
	K^+	500		

IC Multi-Element Standard, 6 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC-CL-7E6	Cl^-	2500	H_2O	500ml
	SO_4^{2-}	2500		
	NO_3^-	300		
	F^-	50		
	NO_2^-	75		
	Br^-	75		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC-MX-WRC5	Na^+	100	H_2O	500ml
	K^+	100		
	Ca^{2+}	400		
	Mg^{2+}	200		
	NH_4^+	100		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA-DX-51	F^-	20	H_2O	100ml
	Cl^-	30		
	NO_3^-	100		
	PO_4^{3-}	150		
	SO_4^{2-}	150		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA5-MIX1-500	F^-	100	H_2O	500ml
	Cl^-	1000		
	NO_3^-	1000		
	SO_4^{2-}	1000		
	PO_4^{3-}	1000		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA5-MIX2-100	F^-	10	H_2O	100ml
	Cl^-	10		
	SO_4^{2-}	10		
	NO_2^-	10		
	NO_3^-	10		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC5-1000-75	Li^+	1000	2-5% HNO_3	75ml
	Na^+	1000		
	K^+	1000		
	Mg^{2+}	1000		
	Ca^{2+}	1000		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC5MIX10B	Ca^{2+}	15	H_2O	250ml
	K^+	15		
	Mg^{2+}	15		
	Na^+	15		
	NH_4^+	15		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC5-MIX1-100	Na^+	40	H_2O	100ml
	NH_4^+	40		
	K^+	40		
	Mg^{2+}	40		
	Ca^{2+}	200		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC5MIX11B	Ca^{2+}	20	H_2O	250ml
	K^+	20		
	Mg^{2+}	20		
	Na^+	20		
	NH_4^+	20		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC5MIX12B	Ca^{2+}	5000	H_2O	250ml
	K^+	5000		
	Mg^{2+}	5000		
	Na^+	5000		
	NH_4^+	5000		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC5MIX13B	Ca^{2+}	10000	H_2O	250ml
	K^+	10000		
	Mg^{2+}	10000		
	Na^+	10000		
	NH_4^+	10000		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC5MIX14A	Ca^{2+}	20	H_2O	100ml
	K^+	2		
	Mg^{2+}	20		
	Na^+	10		
	NH_4^+	2		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC5MIX1B	Ca^{2+}	0.1	H_2O	250ml
	K^+	0.1		
	Mg^{2+}	0.1		
	Na^+	0.1		
	NH_4^+	0.1		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC5MIX2B	Ca^{2+}	0.25	H_2O	250ml
	K^+	0.25		
	Mg^{2+}	0.25		
	Na^+	0.25		
	NH_4^+	0.25		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC5MIX3B	Ca^{2+}	0.5	H_2O	250ml
	K^+	0.5		
	Mg^{2+}	0.5		
	Na^+	0.5		
	NH_4^+	0.5		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC5MIX4B	Ca^{2+}	0.75	H_2O	250ml
	K^+	0.75		
	Mg^{2+}	0.75		
	Na^+	0.75		
	NH_4^+	0.75		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC5MIX5B	Ca^{2+}	1	H_2O	250ml
	K^+	1		
	Mg^{2+}	1		
	Na^+	1		
	NH_4^+	1		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC5MIX6B	Ca^{2+}	2.5	H_2O	250ml
	K^+	2.5		
	Mg^{2+}	2.5		
	Na^+	2.5		
	NH_4^+	2.5		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC5MIX7B	Ca^{2+}	5	H_2O	250ml
	K^+	5		
	Mg^{2+}	5		
	Na^+	5		
	NH_4^+	5		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC5MIX8B	Ca^{2+}	7.5	H_2O	250ml
	K^+	7.5		
	Mg^{2+}	7.5		
	Na^+	7.5		
	NH_4^+	7.5		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC5MIX9B	Ca^{2+}	10	H_2O	250ml
	K^+	10		
	Mg^{2+}	10		
	Na^+	10		
	NH_4^+	10		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC5-MIX-THG	NH_4^+	10	H_2O	100ml
	Na^+	100		
	K^+	30		
	Mg^{2+}	50		
	Ca^{2+}	50		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICCSS06	Ca^{2+}	10	2% HNO_3	250ml
	Li^+	10		
	Mg^{2+}	10		
	K^+	10		
	Na^+	10		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA5MIX2A	F^-	8	H_2O	100ml
	Cl^-	24		
	NO_3^-	16		
	PO_4^{3-}	16		
	SO_4^{2-}	16		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA5-TYD-500	F^-	100	H_2O	500ml
	Cl^-	250		
	NO_3^-	500		
	SO_4^{2-}	500		
	PO_4^{3-}	1000		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA-AIT-5-100	Cl^-	1000	H_2O	100ml
	PO_4^{3-}	1000		
	NO_2^-	1000		
	NO_3^-	1000		
	SO_4^{2-}	1000		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA5-TYD-ST-I	F^-	100	H_2O	500ml
	Cl^-	250		
	NO_3^-	500		
	SO_4^{2-}	500		
	PO_4^{3-}	1000		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICAS501	F^-	100	H_2O	100ml
	Cl^-	100		
	NO_2^-	200		
	PO_4^{3-}	200		
	SO_4^{2-}	200		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC-10PPM-5	Li^+	10	H_2O	100ml
	Na^+	10		
	K^+	10		
	Mg^{2+}	10		
	Ca^{2+}	10		

IC Multi-Element Standard, 5 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICMIX-5-100	NH_4^+	1000	H_2O	100ml
	Ca^{2+}	1000		
	Mg^{2+}	1000		
	K^+	1000		
	Na^+	1000		

IC Multi-Element Standard, 4 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC-NHS-4-500	Na^+	100	H_2O	500ml
	K^+	10		
	Mg^{2+}	1		
	Ca^{2+}	5		

IC Multi-Element Standard, 4 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC-SDN5-100	Na^+	25	H_2O	100ml
	K^+	100		
	Mg^{2+}	5		
	Ca^{2+}	50		

IC Multi-Element Standard, 4 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC-SDN5-500	Na^+	25	H_2O	500ml
	K^+	100		
	Mg^{2+}	5		
	Ca^{2+}	50		

IC Multi-Element Standard, 4 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC4-MIX1-100	Na^+	1000	H_2O	100ml
	Mg^{2+}	1000		
	Ca^{2+}	1000		
	K^+	1000		

IC Multi-Element Standard, 4 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC4-MIX1-250	Na^+	1000	H_2O	250ml
	Mg^{2+}	1000		
	Ca^{2+}	1000		
	K^+	1000		

IC Multi-Element Standard, 4 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC4MIX2A	Na^+	10	H_2O	100ml
	Mg^{2+}	10		
	Ca^{2+}	10		
	K^+	10		

IC Multi-Element Standard, 4 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC-NHS-4	Na^+	100	H_2O	100ml
	K^+	10		
	Mg^{2+}	1		
	Ca^{2+}	5		

IC Multi-Element Standard, 4 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC4-1000-500	Cl^-	1000	H_2O	500ml
	NO_3^-	1000		
	SO_4^{2-}	1000		
	NO_2^-	1000		

IC Multi-Element Standard, 4 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC4-100-100	Cl^-	100	H_2O	100ml
	NO_3^-	100		
	SO_4^{2-}	100		
	NO_2^-	100		

IC Multi-Element Standard, 4 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA4MIX2A	Cl^-	10	H_2O	100ml
	NO_2^-	2		
	NO_3^-	2		
	SO_4^{2-}	20		

IC Multi-Element Standard, 4 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA4-SER	Cl^-	100	H_2O	100ml
	NO_3^-	100		
	SO_4^{2-}	100		
	NO_2^-	100		

IC Multi-Element Standard, 4 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC4-1002-100	Ca^{2+}	100	H_2O	100ml
	Mg^{2+}	100		
	Na^+	100		
	K^+	100		

IC Multi-Element Standard, 4 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA-TG-45	PO_4^{3-}	10	H_2O	500ml
	NO_3^-	300		
	NH_4^+	150		
	Cl^-	3000		

IC Multi-Element Standard, 4 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA-MX-WRC4	Cl^-	1000	H_2O	500ml
	NO_3^-	200		
	PO_4^{3-}	100		
	SO_4^{2-}	1200		

IC Multi-Element Standard, 4 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC-CL-6E4	Cl^-	2500	H_2O	500ml
	SO_4^{2-}	2500		
	NO_3^-	300		
	F^-	50		

IC Multi-Element Standard, 4 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC-CL-8E4	Cl^-	75	H_2O	500ml
	SO_4^{2-}	75		
	NO_3^-	3		
	F^-	1		

IC Multi-Element Standard, 4 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICCMX01	Ca^{2+}	1500	H_2O	100ml
	Mg^{2+}	500		
	Na^+	500		
	K^+	250		

IC Multi-Element Standard, 4 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICCMX05	Ca^{2+}	1500	H_2O	500ml
	Mg^{2+}	500		
	Na^+	500		
	K^+	250		

IC Multi-Element Standard, 4 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC-MIX2	F^-	1	H_2O	250ml
	Cl^-	250		
	SO_4^{2-}	250		
	NO_3^-	50		

IC Multi-Element Standard, 3 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA-TG-35	PO_4^{3-}	100	H_2O	500ml
	NH_4^+	1000		
	NO_3^-	1000		

IC Multi-Element Standard, 3 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC-NHS-3	Na^+	200	H_2O, tr. HNO_3	100ml
	K^+	10		
	Mg^{2+}	2		

IC Multi-Element Standard, 3 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC3-1000-500	F^-	1000	H_2O	500ml
	PO_4^{3-}	1000		
	Br^-	1000		

IC Multi-Element Standard, 3 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC3-2-1000-100	F^-	1000	H_2O	100ml
	PO_4^{3-}	1000		
	Br^-	1000		

IC Multi-Element Standard, 3 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC3-2-1000-500	Cl^-	1000	H_2O	500ml
	NO_3^-	1000		
	SO_4^{2-}	1000		

IC Multi-Element Standard, 3 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA3-MIX1-100	SO_4^{2-}	1000	H_2O	100ml
	F^-	1000		
	Cl^-	1000		

IC Multi-Element Standard, 3 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA3-MIX1-250	SO_4^{2-}	1000	H_2O	250ml
	F^-	1000		
	Cl^-	1000		

IC Multi-Element Standard, 3 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA3-MIX1-500	SO_4^{2-}	1000	H_2O	500ml
	F^-	1000		
	Cl^-	1000		

IC Multi-Element Standard, 3 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA3-MIX2-500	Cl^-	150	H_2O	500ml
	NO_3^-	100		
	SO_4^{2-}	500		

IC Multi-Element Standard, 3 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA3-MIX3-100	F^-	10	H_2O	100ml
	SO_4^{2-}	10		
	Cl^-	10		

IC Multi-Element Standard, 3 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA3-MIX3-A	F^-	10	H_2O	100ml
	SO_4^{2-}	10		
	Cl^-	10		

IC Multi-Element Standard, 3 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA3-SER	F^-	1000	H_2O	100ml
	PO_4^{3-}	1000		
	Br^-	1000		

IC Multi-Element Standard, 3 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA3-TYD-ST-II	Cl^-	1000	H_2O	500ml
	NO_3^-	1000		
	SO_4^{2-}	1000		

IC Multi-Element Standard, 3 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA3-TYD-ST-II	Cl^-	1000	H_2O	500ml
	NO_3^-	1000		
	SO_4^{2-}	1000		

IC Multi-Element Standard, 3 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA-AIT-35	Cl^-	1000	H_2O	500ml
	NO_3^-	1000		
	SO_4^{2-}	1000		

IC Multi-Element Standard, 3 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA-MIX-301	Br^-	1000	H_2O	100ml
	NO_3^-	1000		
	SO_4^{2-}	1000		

IC Multi-Element Standard, 3 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA-MIX-TYD	F^-	1000	H_2O	500ml
	Br^-	1000		
	PO_4^{3-}	1000		
IC Multi-Element Standard, 3 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICA-MX3-250	F^-	100	H_2O	250ml
	NO_2^-	100		
	PO_4^{3-}	100		
IC Multi-Element Standard, 3 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
IC-FBA-CUSTOM-100ML	K^+	5000	1% HNO_3	100ml
	MG^{2+}	5000		
	P	300		
IC Multi-Element Standard, 2 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
ICC-AIT-2-100	K^+	1000	H_2O	100ml
	Na^+	1000		
IC Multi-Element Standard, 2 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
REICA2MIX1D	CH_3COO^-	100	H_2O	50ml
	SO_3^{2-}	100		
IC Multi-Element Standard, 2 Elements				
Product No.	Elements	Conc. µg/ml	Matrix	Pack Size
REICA2MIX1A	CH_3COO^-	100	H_2O	100ml
	SO_3^{2-}	100		

Atomic Absorption Standards

Reagecon manufacture an extensive range of aqueous AA Standards. These include standards for the measurement of the most common alkali and transition metals.

There are two types of Atomic Absorption Spectrometry, (AAS). Flame Atomic Absorption Spectrometry, (FAAS) and Graphite Furnace Atomic Absorption Spectrometry (GFAAS).

Flame Atomic Absorption Spectrometry, (FAAS) either an air/acetylene or a nitrous oxide/acetylene flame can be used to evaporate the solvent and dissociate the sample into its component atoms. When light from a hollow cathode lamp (selected based on the element to be determined) passes through the cloud of atoms, the atoms of interest absorb the light from the lamp. This is measured by a detector, and used to calculate the concentration of that element in the original sample. The use of a flame limits the excitation temperature reached by a sample to a maximum of approximately 2600°C (with the Nitrous Oxide / acetylene flame). For many elements this is not a problem. However, there are a number of refractory elements like V, Zr, Mo and B which do not perform well with a flame source. This is because the maximum temperature reached, even with the N_2O/acetylene flame, is insufficient to break down compounds of these elements. As a result, flame AAS sensitivity for these elements is not as good as other elemental analysis techniques.

FAAS is an inexpensive technique that is rapid for a few selected elements however it has poor sensitivity (high detection limits), is limited to single element determination each time and requires a large amount of sample. It has a narrow linear range.

Graphite Furnace Atomic Absorption Spectrometry (GFAAS) - This technique is essentially the same as FAAS, except the flame is replaced by a small, electrically heated graphite tube, or cuvette, which is heated to a temperature up to 3000°C to generate the cloud of atoms. The higher atom density and longer residence time in the tube improve furnace AAS detection limits by a factor of up to 1000x compared to flame AAS, down to the sub-ppb range. However, because of the temperature limitation and the use of graphite cuvettes, refractory element performance is still somewhat limited.

GFAAS is relatively inexpensive and requires small sample volume, it has excellent sensitivity (low detection limits) however it is also limited to single element determination and has a narrow linear range.

Single Element Atomic Absorption Standards

Product No.	Description	Pack Size
AAALH	Aluminium Standard 1000ppm in 0.5M Nitric Acid	500ml
AAALM	Aluminium Standard 10000ppm in 1M Nitric Acid	500ml
AASBH	Antimony Standard 1000ppm in Water	500ml
AASBM	Antimony Standard 10000ppm in Water	500ml
AAASH	Arsenic (III) Standard 1000ppm in 1M Hydrochloric Acid	500ml
AAASM	Arsenic (III) Standard 10000ppm in 1M Hydrochloric Acid	500ml
AAAS05H	Arsenic (V) Standard 1000ppm in 1M Nitric Acid	500ml
AA-GLO-BA-500	Barium Standard 1000ppm Ba, as Barium Nitrate in 0.5M Nitric Acid, (trac. to NIST)	500ml
AABAH	Barium Standard 1000ppm in 0.5M Nitric Acid	500ml

Product No.	Description	Pack Size
AABAM	Barium Standard 10000ppm in 1M Nitric Acid	500ml
AABEH	Beryllium Standard 1000ppm in 1M Hydrochloric Acid	500ml
AABEM	Beryllium Standard 10000ppm in 1M Hydrochloric Acid	500ml
AABIH	Bismuth Standard 1000ppm in 0.5M Nitric Acid	500ml
AABIM	Bismuth Standard 10000ppm in 1M Nitric Acid	500ml
AA-GLO-B-500	Boron Standard 1000ppm B, as Boric Acid in Water, (traceable to NIST)	500ml
AAB-H	Boron Standard 1000ppm in Water	500ml
AAB-M	Boron Standard 10000ppm in Water	500ml
AACDH	Cadmium Standard 1000ppm in 0.5M Nitric Acid	500ml
AACDM	Cadmium Standard 10000ppm in 1M Nitric Acid	500ml
AACAD1	Calcium Standard 1ppm in 2% Nitric Acid	500ml
AACAD2	Calcium Standard 2ppm in 2% Nitric Acid	500ml
AACAD3	Calcium Standard 3ppm in 2% Nitric Acid	500ml
AACAD5	Calcium Standard 5ppm in 2% Nitric Acid	500ml
AACAH10A	Calcium Standard 10ppm in 0.5M Nitric Acid	100ml
AACAH10C	Calcium Standard 10ppm in 0.5M Nitric Acid	500ml
AACA1005	Calcium Standard 100ppm in Nitric Acid	500ml
AACA01	Calcium Standard 1000ppm in 0.5M Nitric Acid	100ml
AACAH	Calcium Standard 1000ppm in 0.5M Nitric Acid	500ml
AACAH1	Calcium Standard 1000ppm in 0.5M Nitric Acid	1L
AACAM	Calcium Standard 10000ppm in 1M Nitric Acid	500ml
AACEH1	Cerium Standard 1000ppm in 2.5% Nitric Acid	100ml
AACEH	Cerium Standard 1000ppm in 2.5% Nitric Acid	500ml
AACSH	Cesium Standard 1000ppm in 1M Nitric Acid	500ml
AACSM	Cesium Standard 10000ppm in 1M Nitric Acid	500ml
AA-BAE-STD12	Chromium Standard 0.1ppm in 2% Nitric Acid	250ml
AA-BAE-STD13	Chromium Standard 0.3ppm in 2% Nitric Acid	250ml
AA-BAE-STD14	Chromium Standard 0.65ppm in 2% Nitric Acid	250ml
AACRH	Chromium Standard 1000ppm in 0.5M Nitric Acid	500ml
AACRM	Chromium Standard 10000ppm in 1M Nitric Acid	500ml
AACOH	Cobalt Standard 1000ppm in 0.5M Nitric Acid	500ml
AACOM	Cobalt Standard 10000ppm in 1M Nitric Acid	500ml
AACUR	Copper Standard 1ppm in 2% Nitric Acid	100ml
AACU2PM100	Copper Standard 2ppm in 2% Nitric Acid	500ml
AACU20PB50	Copper Standard 20ppb in 2% Nitric Acid	50ml
AACUH	Copper Standard 1000ppm in 0.5M Nitric Acid	500ml
AACUH-250ML	Copper Standard 1000ppm in 0.5M Nitric Acid	250ml
AACUM	Copper Standard 10000ppm in 1M Nitric Acid	500ml
AAEUH	Europium Standard 1000ppm in 2% Nitric Acid	500ml
AAGDH	Gadolinium Standard 1000ppm in 1M Hydrochloric Acid	500ml
AAGDM	Gadolinium Standard 10000ppm in 1M Hydrochloric Acid	500ml
AAGAH	Gallium Standard 1000ppm in 1M Hydrochloric Acid	500ml

Product No.	Description	Pack Size
AAGAM	Gallium Standard 10000ppm in 1M Hydrochloric Acid	500ml
AAGEH	Germanium Standard 1000ppm in 1% Hydrofluoric Acid & 5% Nitric Acid	500ml
AAAU10	Gold Standard 10ppm in 5% Hydrochloric Acid	500ml
AAAU5	Gold Standard 1000ppm in 0.5N Hydrochloric Acid	500ml
AAAUH	Gold Standard 1000ppm in 2M Hydrochloric Acid	500ml
AAAUM	Gold Standard 10000ppm in 2M Hydrochloric Acid	500ml
AAINH	Indium Standard 1000ppm in 1M Nitric Acid	500ml
AAINM	Indium Standard 10000ppm in 1M Nitric Acid	500ml
AAIRH	Iridium Standard 1000ppm in 10% Hydrochloric Acid	500ml
AAIRM	Iridium Standard 10000ppm in 10% Hydrochloric Acid	500ml
AAFEN	Iron Standard 1ppm in 2% Nitric Acid	100ml
AAFEH	Iron Standard 1000ppm in 0.5M Nitric Acid	500ml
AAFEH-250ML	Iron Standard 1000ppm in 0.5M Nitric Acid	250ml
AAFEM	Iron Standard 10000ppm in 1M Nitric Acid	500ml
AALAH	Lanthanum Standard 1000ppm in 1M Nitric Acid	500ml
AALAM	Lanthanum Standard 10000ppm in 1M Nitric Acid	500ml
AAPBH-250ML	Lead Standard 1000ppm in 0.5M Nitric Acid	250ml
AAPBH	Lead Standard 1000ppm in 0.5M Nitric Acid	500ml
AAPBM	Lead Standard 10000ppm in 1M Nitric Acid	500ml
AALIH	Lithium Standard 1000ppm in 0.5M Nitric Acid	500ml
AALIM	Lithium Standard 10000ppm in 1M Nitric Acid	500ml
AALUH	Lutetium Standard 1000ppm in 2% Nitric Acid	500ml
AAMGH	Magnesium Standard 1000ppm in 0.5M Nitric Acid	500ml
AAMGM	Magnesium Standard 10000ppm in 1M Nitric Acid	500ml
AAMNE	Manganese Standard 1ppm in 2% Nitric Acid	100ml
AAMNH	Manganese Standard 1000ppm in 1M Hydrochloric Acid	500ml
AAMNH-250ML	Manganese Standard 1000ppm in 1M Hydrochloric Acid	250ml
AAMNH/2HNO3	Manganese Standard 1000ppm in 2% Nitric Acid	100ml
AAMNM	Manganese Standard 10000ppm in 1M Hydrochloric Acid	500ml
AAHG1	Mercury Standard 1ppm in 0.5M Nitric Acid	500ml
AAHG10	Mercury Standard 10ppm in 0.5M Nitric Acid	500ml
AAHG100	Mercury Standard 100ppm in 0.5M Nitric Acid	500ml
AAHGH	Mercury Standard 1000ppm in 0.5M Nitric Acid	500ml
AAHGM	Mercury Standard 10000ppm in 1M Nitric Acid	500ml
AAMOH	Molybdenum Standard 1000ppm in Water	500ml
AAMOM	Molybdenum Standard 10000ppm in Water	500ml
AANI05	Nickel Standard 0.05ppm in 5% Nitric Acid	500ml
AANIH	Nickel Standard 1000ppm in 0.5M Nitric Acid	500ml
AANIM	Nickel Standard 10000ppm in 1M Nitric Acid	500ml
AAPDF	Palladium Standard 10ppm in 10% Hydrochloric Acid	50ml
AAPDH	Palladium Standard 1000ppm in 1M Hydrochloric Acid	500ml
AAPDM	Palladium Standard 10000ppm in 1M Hydrochloric Acid	500ml

Product No.	Description	Pack Size
AAP-H	Phosphorus Standard 1000ppm in Water	500ml
AAP-M	Phosphorus Standard 10000ppm in Water	500ml
AAPTF	Platinium Standard 10ppm in 10% Hydrochloric Acid	50ml
AAPTH	Platinium Standard 1000ppm in 1M Hydrochloric Acid	500ml
AAPTM	Platinium Standard 10000ppm in 1M Hydrochloric Acid	500ml
AAKD1	Potassium Standard 1ppm in 2% Nitric Acid	500ml
AAKD2	Potassium Standard 2ppm in 2% Nitric Acid	500ml
AAKD5	Potassium Standard 5ppm in 2% Nitric Acid	500ml
AAKH10A	Potassium Standard 10ppm in 0.5M Nitric Acid	100ml
AAKH10C	Potassium Standard 10ppm in 0.5M Nitric Acid	500ml
AAKH-250ML	Potassium Standard 1000ppm in 0.5M Nitric Acid	250ml
AAK-H	Potassium Standard 1000ppm in 0.5M Nitric Acid	500ml
AAKH1	Potassium Standard 1000ppm in 0.5M Nitric Acid	1L
AAK-M	Potassium Standard 10000ppm in 0.5M Nitric Acid	500ml
AARHE	Rhodium Standard 1ppm in 10% Hydrochloric Acid	50ml
AARHH	Rhodium Standard 1000ppm in 1M Nitric Acid	500ml
AARHM	Rhodium Standard 10000ppm in 1M Nitric Acid	500ml
AASMH	Samarium Standard 1000ppm in 2-5% Nitric Acid	500ml
AASMH1	Samarium Standard 1000ppm in 2-5% Nitric Acid	100ml
AASEH	Selenium Standard 1000ppm in 0.5M Nitric Acid	500ml
AASEM	Selenium Standard 10000ppm in 1M Nitric Acid	500ml
AASIH	Silicon Standard 1000ppm in Water	500ml
AA-GLO-SIL-100	Silicon Standard 1000ppm Silicon as Sodium Silicate in Water	100ml
AASIM	Silicon Standard 10000ppm in Water	500ml
AAAGH	Silver Standard 1000ppm in 0.5M Nitric Acid	500ml
AAAGM	Silver Standard 10000ppm in 1M Nitric Acid	500ml
AANAD05	Sodium Standard 0.5ppm in 2% Nitric Acid	500ml
AANAD1	Sodium Standard 1ppm in 2% Nitric Acid	500ml
AANAD2	Sodium Standard 2ppm in 2% Nitric Acid	500ml
AANAH10A	Sodium Standard 10ppm in 0.5M Nitric Acid	100ml
AANAH10C	Sodium Standard 10ppm in 0.5M Nitric Acid	500ml
AANA1005	Sodium Standard 100ppm in Hydrochloric Acid	500ml
AANAH	Sodium Standard 1000ppm in 0.5M Nitric Acid	500ml
AANAH1	Sodium Standard 1000ppm in 0.5M Nitric Acid	1L
AANAH-250ML	Sodium Standard 1000ppm in 0.5M Nitric Acid	250ml
AANASP	Sodium Standard 1000ppm in 1M Nitric Acid	500ml
AANAM	Sodium Standard 10000ppm in 1M Nitric Acid	500ml
AASRH	Strontium Standard 1000ppm in 0.5M Nitric Acid	500ml
AASRM	Strontium Standard 10000ppm in 1M Nitric Acid	500ml
AAS-H	Sulphur Standard 1000ppm in Water	500ml
AAS-M	Sulphur Standard 10000ppm in Water	500ml
AATEH	Tellurium Standard 1000ppm in 1M HCl	500ml
AATEM	Tellurium Standard 10000ppm in 1M HCl	500ml

Product No.	Description	Pack Size
AATLA	Thallium Standard 1ppm in 2% Nitric Acid	100ml
AA-TL-1-250	Thallium Standard 1ppm in 2% Nitric Acid	250ml
AATL15	Thallium Standard 1ppm in 2% Nitric Acid	500ml
AA-TL-2-250	Thallium Standard 2ppm in 2% Nitric Acid	250ml
AATL25	Thallium Standard 2ppm in 2% Nitric Acid	500ml
AA-TL-3-250	Thallium Standard 3ppm in 2% Nitric Acid	250ml
AATL35	Thallium Standard 3ppm in 2% Nitric Acid	500ml
AA-TL-4-250	Thallium Standard 4ppm in 2% Nitric Acid	250ml
AATL45	Thallium Standard 4ppm in 2% Nitric Acid	500ml
AA-TL-5-250	Thallium Standard 5ppm in 2% Nitric Acid	250ml
AATL55	Thallium Standard 5ppm in 2% Nitric Acid	500ml
AA-TL-10-250	Thallium Standard 10ppm in 2% Nitric Acid	250ml
AATL105	Thallium Standard 10ppm in 2% Nitric Acid	500ml
AA-TL-25-250	Thallium Standard 25ppm in 2% Nitric Acid	250ml
AATLH	Thallium Standard 1000ppm in 0.5M Nitric Acid	500ml
AATLM	Thallium Standard 10000ppm in 0.5M Nitric Acid	500ml
AATTH	Thorium Standard 1000ppm in 1M Nitric Acid	500ml
AATTM	Thorium Standard 10000ppm 1M Nitric Acid	500ml
AASNH	Tin Standard 1000ppm in 1M Hydrochloric Acid	500ml
AASNM	Tin Standard 10000ppm in 1M Hydrochloric Acid	500ml
AATIH	Titanium Standard 1000ppm in Water	500ml
AATIM	Titanium Standard 10000ppm in Water	500ml
AAW-H	Tungsten Standard 1000ppm in Water	500ml
AAW-M	Tungsten Standard 10000ppm in Water	500ml
AAUH	Uranium Standard 1000ppm in 1M Nitric Acid	500ml
AAUM	Uranium Standard 10000ppm in 1M Nitric Acid	500ml
AAV-H	Vanadium Standard 1000ppm in 0.5M Nitric Acid	500ml
AAV-M	Vanadium Standard 10000ppm in 0.5M Nitric Acid	500ml
AAYBH	Ytterbium Standard 1000ppm in 2% Nitric Acid	500ml
AAZNC	Zinc Standard 1ppm in Nitric Acid	100ml
AAZNH	Zinc Standard 1000ppm in 0.5M Nitric Acid	500ml
AAZNH-250ML	Zinc Standard 1000ppm in 0.5M Nitric Acid	250ml
AAZNM	Zinc Standard 10000ppm in 0.5M Nitric Acid	500ml
AAZN501	Zinc Standard 5000ppm in 2-5% Nitric Acid	100ml
AAZN502	Zinc Standard 5000ppm in 2-5% Nitric Acid	250ml
AAZN505	Zinc Standard 5000ppm in 2-5% Nitric Acid	500ml
AAZRH	Zirconium Standard 1000ppm in 1M Hydrochloric Acid	500ml
AAZRM	Zirconium Standard 10000ppm in 1M Hydrochloric Acid	500ml

Multi Element Standards

Product No.	Description	Pack Size
AA-BAE-STD10	Multi Element Standard Ag, Zn 0.75ppm in 2% Nitric Acid	250ml
AA-BAE-STD3	Multi Element Standard Cu,Ni,Pb,Cd 3ppm in 2% Nitric Acid	250ml
AA-BAE-STD8	Multi Element Standard Ag, Zn 0.25ppm in 2% Nitric Acid	250ml
AA-BAE-STD9	Multi Element Standard Ag, Zn 0.50ppm in 2% Nitric Acid	250ml
AA-BIB-3-100	Multi Element Standard Cd, Pb, Ni @1000ppm in 2% Nitric Acid	100ml
AA-BIB-3-500	Multi Element Standard Cd, Pb, Ni @1000ppm in 2% Nitric Acid	500ml
AAMIX13A	Multi Element Standard 13 elements @10µg/ml	100ml
AAMIX13B	Multi Element Standard 13 elements @100µg/ml	100ml
AAS16-100	Multi Element Standard at 1mg/L in 5% Nitric Acid	100ml
AAS16-250	Multi Element Standard at 1mg/L in 5% Nitric Acid	250ml
AAS16-500	Multi Element Standard at 1mg/L in 5% Nitric Acid	500ml

Releasing Agents for Atomic Absorption

Product No.	Description	Pack Size
RA1N05	Release Agent 1.0% Lanthanum in Nitric Acid	500ml
RA1CO5	Release Agent 1.0% Lanthanum in Hydrochloric Acid	500ml
RA5NO5	Release Agent 5.0% Lanthanum in Nitric Acid	500ml
RA5C05	Release Agent 5.0% Lanthanum in Hydrochloric Acid	500ml

Matrix Modifier Solutions for Graphite Furnace AA

Description	Product No. 100ml	Product No. 500ml
AA Matrix Modifer Solution for Graphic Furnace Ammonium Dihydrogen Phosphate	MMS101	MMS105
AA Matrix Modifer Solution for Graphic Furnance Ammonium Nitrate	MMS201	MMS205
AA Matrix Modifer Solution for Graphic Furnance Calcium Nitrate	MMS301	MMS305
AA Matrix Modifer Solution for Graphic Furnance Lanthanum Chloride	MMS401	MMS405
AA Matrix Modifer Solution for Graphic Furnance Lanthanum Nitrate	MMS501	MMS505
AA Matrix Modifer Solution for Graphic Furnace Magnesium Nitrate	MMS601	MMS605
AA Matrix Modifer Solution for Graphic Furnance Nickel Nitrate	MMS701	MMS705
AA Matrix Modifer Solution for Graphic Furnance Palladium Nitrate	MMS801	MMS805
AA Matrix Modifer Solution for Graphic Furnance Palladium Nitrate	MMS901	MMS905
AA Matrix Modifer Solution for Graphic Furnance Palladium Nitrate	MMS1001	MMS1005

Flame Photometry Standards

Summary of Features & Benefits:

- Single and multielement solutions available
- Wide range of values and elements
- A very high accuracy supported by a certificate of analysis which can be downloaded online
- Products are non hazardous, non toxic and SDS (Safety Data Sheets) can also be downloaded
- All products manufactured and tested in a GLP (Good Laboratory Practice) environment

The Principle of Flame Photometry

The benefits of measuring electromagnetic radiation emitted by atoms subjected to flame excitation has been recognised for over 150 years in analytical chemistry. In the intervening period instrumentation capable of exploiting this principle has been developed, refined and commercialised by several companies using a number of technologies. Flame photometry is particularly suitable for measuring the concentration of Alkali and Alkaline Earth metals in several matrices by exploiting a characteristic of such metals whereby, their atoms reach an excited state at a lower temperature than most other metals. The instrument operates on the principle that the metals are thermally dissociated into atoms and the electrons in some of these atoms are excited by the flame. When the excited atoms return to their normal state, they emit electromagnetic radiation which lies mainly in the visible region. The wavelengths of this radiation are easily isolated by an optical filter from those of most other elements and then converted to an electric signal. This signal is a direct function of the concentration of the particular metal in the sample, control or standard. The spectra produced are simple, free of interference and well suited to quantifiable measurement.

Calibration & Control

Flame Photometry Standards may be used to:

1) Calibrate the instrument in preparation for testing
2) Control the entire testing process to include:
   - The flame photometer
   - Sample
   - Operator
   - Measuring environment

   Any of these four factors can influence the accuracy and precision of the analysis and give erroneous results.
3) Perform instrument qualification
4) Assist in method validation of a particular flame photometry technique

Industrial Standards

Product No.	Description	Concentration	Pack Size
FIBA1	Barium	1,000ppm	500ml
FIBA3	Barium	3,000ppm	500ml
FIBA10M	Barium	10,000ppm	500ml
FICA1	Calcium	1,000ppm	500ml
FICA2	Calcium	2,000ppm	500ml
FICA10M	Calcium	10,000ppm	500ml
FICS1	Cesium	1,000ppm	500ml
FILI1	Lithium	1,000ppm	500ml
FILi10M	Lithium	10,000ppm	500ml
FINA1	Sodium	1,000ppm	500ml
FINA10M	Sodium	10,000ppm	500ml
FIK1	Potassium	1,000ppm	500ml
FIK10M	Potassium	10,000ppm	500ml
FISR1	Strontium	1,000ppm	500ml
FIRB1	Rubidium	1,000ppm	500ml

Clinical Standards

Product No.	Description	Pack Size
FCNK3	Sodium 100mmol/l and Potassium 100 mmol/l	500ml
FCNK4	Sodium 120mmol/l and Potassium 2 mmol/l	500ml
FCNK5	Sodium 140mmol/l and Potassium 5 mmol/l	500ml
FCNK1	Sodium 160mmol/l and Potassium 8 mmol/l	500ml
FCNK2	Sodium 160mmol/l and Potassium 80 mmol/l	500ml
FCLI001	Lithium 1 mmol/l	500ml
FCNK6-M	Sodium 30mmol/l and Potassium 20mmol/l	100ml
FCNK6-S	Sodium 30mmol/l and Potassium 20 mmol/l	2ml
FCNK7-M	Sodium 60mmol/l and Potassium 40mmol/l	100ml
FCNK7-S	Sodium 60mmol/l and Potassium 40mmol/l	2ml
FCNK8-M	Sodium 90mmol/l and Potassium 60mmol/l	100ml
FCNK8-S	Sodium 90mmol/l and Potassium 60mmol/l	2ml
FCNK9-M	Sodium 120mmol/l and Potassium 80mmol/l	100ml
FCNK9-S	Sodium 120mmol/l and Potassium 80mmol/l	2ml
FCNK10-M	Sodium 150mmol/l and Potassium 100mmol/l	100ml
FCNK10-S	Sodium 150mmol/l and Potassium 100mmol/l	2ml
FCNK11-M	Sodium 180mmol/l and Potassium 120mmol/l	100ml
FCNK11-S	Sodium 180mmol/l and Potassium 120mmol/l	2ml
FCNK12-M	Sodium 210mmol/l and Potassium 140mmol/l	100ml
FCNK12-S	Sodium 210mmol/l and Potassium 140mmol/l	2ml

Multi-Element Linearity Standards

Product No.	Description	Concentration	Pack Size
FPLE5		Low	500ml
	Barium	28.8ppm	
	Calcium	18.2ppm	
	Lithium	1.91ppm	
	Potassium	2.09ppm	
	Sodium	2.15ppm	
FPME5		Medium	500ml
	Barium	105ppm	
	Calcium	52.4ppm	
	Lithium	5.42ppm	
	Potassium	5.37ppm	
	Sodium	5.67ppm	
FPHE5		High	500ml
	Barium	510ppm	
	Calcium	112ppm	
	Lithium	10.0ppm	
	Potassium	11.4ppm	
	Sodium	11.3ppm	
FPHK3	Combination of FPLE5, FPME5 & FPHE5	As above	3 x 500ml

Analytical Volumetric Solutions & Indicators

The Principle of Titrimetry

Titrimetry or measurement by titration includes a set of widely used analytical techniques, some of which have been in widespread use for almost 200 years. Volumetric titration dates back at least to the work of French chemist Gay-Lussac, who devised a method in 1835 to determine the purity of Silver, using standardised Sodium Chloride as the titrant.

The principle of all titrimetry involves the determination of the quantity of the reagent of known concentration (titrant), that is required to react completely with an unknown analyte. Volumetric titrimetry involves measuring the volume of the solution of known concentration (titrant) consumed, gravimetric titrimetry measures the mass of the reagent consumed and coulometric titration measures a direct electrical current of known magnitude that consumes the analyte. In coulometry, the time it takes to complete the electrochemical reaction, is the measurand.

An analytical volumetric solution (also called titrant, standard titrant or standard solution) is a reagent of known concentration that is added from a burette or other dispensing apparatus to a sample (analyte) until a reaction between the two liquids is judged to be complete. This completeness (end point) is usually observed in a manual titration by the production of a physical change read visually as the titrant is added to the analyte. Such a change may include an appearance, disappearance or change of colour or appearance/disappearance of turbidity (cloudiness). Nowadays, instruments are widely used to detect the end points by detection of any of several properties or characteristics of the analyte solution including colour, turbidity, temperature, refractive index, potential difference, current or conductivity. In simple terms titrimetry is broadly divided into two main classifications - manual and instrumental - irrespective of how the end point is detected. In the case of manual titrations, indicator, titrant or analyte change of colour is by far the most important method of end point detection. Therefore, the availability of a wide selection of indicators is an integral part of any offering of Analytical Volumetric Solutions. This compendium carries by far the most extensive offering of both indicators and titrants available in the market place. The end point in automatic titration is indicated most commonly by a change in potential of an electrode that responds to the concentration of the reagent or the analyte.

Analysis by titration brings a large number of benefits to the analyst including the following:

- Relatively easy to perform (although high accuracy manual titration requires practice, dexterity, experience and sound judgement)
- Rapid, cheap and versatile
- Accurate, reproducible, traceable and comparable

Furthermore, titration reactions should exhibit defined stoichiometry, be quantitative, establish equilibrium that is definite and fast, and provide unambiguous results.

Types of Titration Reactions

Acid/Base reactions (also called neutralisation titrations)

These are used to determine either the amount of acid/base in an analyte or substances that can be converted to an acid/base. They may also sometimes be used to track the progress of chemical reactions that produce or consume hydrogen ions. The titrants are always strong acids or bases and include hydrochloric acid, perchloric acid, sulphuric acid, sodium hydroxide, potassium hydroxide and sometimes barium hydroxide. Weak acids or bases are not used because they react incompletely with the analyte. The colour indicator used in an acid base titration is a weak acid/base itself which in its undissociated form differs in colour from its conjugate acid or base form. Typical elements suitable to this type of titration method include carbon, nitrogen, chlorine, bromine and fluorine. Pretreatment of these elements converts the element to an inorganic acid or base that is then titrated. An example is nitrogen which occurs in a wide range of forms both organic, inorganic or as a constituent of biological materials. Therefore, a methodology for nitrogen measurement in amine groups such as the Kjeldahl method is extremely important in determining the protein content in grains, meats, and other human or animal foodstuffs. In addition to amines, others like esters and hydroxyl functional groups can also be determined. In addition, inorganic compounds such as carbonates, ammonium salts and several other NOx species can be determined.

Fields of Application

- Acid content in wine, milk, ketchup, fruit juice (etc)
- Content of HCl, HNO_3, H_2SO_4, NaOH, KOH
- Alkalinity determination in water
- TAN and TBN in petroleum products, edible or inedible oils and fats
- Determination of boric acid in cooling fluids of nuclear power stations
- Determination of free or total acidity in plating baths
- Determination of active ingredients in drugs or raw materials for the pharmaceutical industry
- Total nitrogen determination by Kjeldahl
- Wide range of inorganic, organic or biological species that possess inherent acidic or basic properties
- Use of chemical treatment that converts an analyte to an acid or base followed by titration with standardised strong acid or base

Oxidation/Reduction Titrations

These titrations may be performed manually or potentiometrically. In manual titrations, if indicators are used, they change colour upon being oxidized or reduced, independently of the chemical nature of the titrant or analyte. Instead, they depend on changes in the electropotential of the oxidation reduction system. Examples of such indicators include:

- Iron (III) complexes of orthophenothrolines
- Starch solutions
- Potassium thiocyanate

The principle of this type of titration involves a reaction between an oxidising and reducing pair, e.g. titration of iron (II) with cerium (IV) sulphate

- **Oxidising agents (examples)**
  - Iodine (Iodometry), potassium dichromate, potassium permanganate, potassium bromate, cerium (IVammonium nitrate, cerium (IV) ammonium sulphate, cerium (IV) hydrogen sulphate, cerium hydroxide, chlorine
- **Reducing agents (examples)**
  - Sodium thiosulphate, oxalic acid, iron ammonium (II) sulphate (Mohr's salt), hydrogen peroxide, phenylarsine oxide (PAO), iron (II) ethylene diamine sulphate

Fields of Application

- *Environment*
  - COD of water
  - Oxidation capacity of water by permanganate
- *Food and beverage*
  - Determination of free and total SO_2 in water, wine, alcohol, dried fruit etc
- *Pharmaceuticals*
  - Vitamin C determination
  - Surface treatment
  - Titration of copper or tin using iodine
  - Titration of chromium (VI)
- *Petrochemicals*
  - Determination of water in hydrocarbons

Complexometric Titrations

Complexometric reactions have many applications in chemical analysis and in science in general. Their use in titrometry is a very important one of these applications. The reaction end point is detected either potentiometrically or manually using an indicator, whereby, a metal ion reacts appropriately with a ligand to form a complex. EDTA is the most widely used titrant in complexometric reactions although the use of other chemicals similar to EDTA are described in the literature; e.g. nitrilotriacetic acid. Generally, organic dyes that form complexes with metal ions to form chelates are used as indicators, a commonly used one being Eriochrome Black T. Methods have been developed, validated and published for detection or quantification of almost every metal in the periodic table with the exception of the Alkalii metals using EDTA complexation. This includes methods for at least 40 metals developed in our metals laboratory in Reagecon, with more at development or validation stage.

This methodology is regularly used to determine the concentration of divalent cations such as calcium, magnesium, copper, lead, zinc, cadmium, aluminium

Fields of application

- *Environment*
  - Total hardness of water (Ca^{2+} and Mg^{2+}).
- *Surface treatment*
  - Determination of Cu^{2+}, Ni^{2+}, Pb^{2+}, Zn^{2+} in plating baths

Precipitation Titrations

This analytical methodology is based on reactions that yield compounds of limited solubility. There is not a very wide range of precipitating agents that can be used gainfully in titrometry and silver nitrate is by far the most important. These titrations, (also called argentometric titration) is where silver nitrate is used as the titrant. Silver nitrate can be used for determination of halides (Cl-, I-, Br-) and anions that behave like halides (SCN-, CN-, CNO-). It can also be used for determination of Mercaptans and organic materials that include Fatty Acids. Indicators typically used for precipitation titrations include sodium chromate, fluorescein and iron (III). A wide range of standardised silver nitrate titrants are available, some of which are standardised to specifically give a one to one equivalence with sodium chloride in various food stuffs.

Fields of Application

- *Environment*
  - Determination of chloride in water
- *Food and beverage*
  - Determination of chloride in many finished products (cooked meats, dairy products, etc.)
- *Precious metals*
  - Determination of silver
- *Pharmaceuticals*
  - Titration of halides

Analytical Volumetric Solutions

Description	Product No. 1L	Product No. 2.5L	Product No. 5L
Acetic acid 0.1M (0.1N)	CH20101		CH20105
Acetic acid 0.5M (0.5N)	CH20051		CH20055
Acetic acid 1.0M (1.0N)	CH21001		CH21005
Acetic acid 2.0M (2.0N)	CH22001		CH22005
Acetic acid 5.0M (5.0N)	CH25001		
Ammonia 0.1M (0.1N)	NH20101		NH20105
Ammonia 1.0M (1.0N)	NH21001		
Ammonia 2M in 1-Propanol	NH1P22001		NH1P22005
Ammonium Chloride 0.05M	NH4CL041		
Ammonium Chloride 0.1M	NHCL011		
Ammonium Hydroxide 0.5M	NH2051		
Ammonium Hydroxide 5M	NH32501		
Ammonium Hydroxide 6M	NH32601	NH326W	
Ammonium Iron (II) Sulphate 0.1M	NHS2011		
Ammonium Sulphate 0.5M (1.0N)	AS2051		AS2055
Ammonium Thiocyanate 0.05M (0.05N)		AT20050W	
Ammonium Thiocyanate 0.1M (0.1N)	AT2010F	AT2010W	
Ammonium Thiocyanate 1.0M (1.0N)	AT21F	AT21W	
Barium Chloride 0.05M (0.1N)	BACL20051		BACL20055
Barium Chloride 0.5M (1.0N)	BACL2051		BACL2055
Barium Chloride 1.0M (2.0N)	BACL2101		BACL2105
Barium Perchlorate 0.005M Alcoholic Solution	BACLO200051		
Benzethonium Chloride 0.004M (Hyamine 1622 Solution)	HY0041		HY0045
Benzethonium Chloride 0.04M (Hyamine 1622 Solution)	HY041		HY045
Boron Tribromide 1M in Dichloromethane		BDCMW	
Bromine (Bromate/Bromide) 0.05M (0.1N)	BR20101		BR20105
Bromine (Bromate/Bromide) 0.25M (0.5N)	BR20251		

Analytical Volumetric Solutions

Description	Product No. 1L	Product No. 2.5L	Product No. 5L
Calcium Acetate 1.0M	CAAC2101		CAAC2105
Calcium Chloride 0.005M (0.01N)	CACL20051		CACL20055
Calcium Chloride 0.0125M (0.025N)	CACL2001251		CACL2001255
Calcium Chloride 0.02M (0.04N)	CACL20021		CACL20025
Calcium Chloride 0.01M (0.02N)	CACL20011		CACL20015
Calcium Chloride 1.0 M (2.0N)	CACL101		
Calcium Chloride 0.5M (1.0N)	CACL2051		CACL2055
Cerium IV sulphate 0.05M (0.05N)	CS20051		CS20055
Cerium IV sulphate 0.1M (0.1N)	CS2011		CS2015
Cerium IV sulphate 0.2M (0.2N)	CS20251		CS20255
Cerium IV sulphate 1.0M (1.0N)	CS2101		CS2105
Citric Acid 1.0M	CA1010		
Copper II Chloride 0.5M (0.5N)	CUCL2051		CUCL2055
Copper II Sulphate 0.1M (0.1N)	CUS02011		CUS02015
Copper II Sulphate 0.5M (0.5N)	CUS02051		CUS02055
Copper Sulphate Hydrate Solution 0.2g/l			CSPHOS15000
Cupric Solution 0.168M (0.168N)	CU201681		CU201685
Di-Potassium Oxalate 0.05M	KO20051		KO20055
EDTA (DiSodium Salt) 0.027M (0.054N)	EDB200271		
EDTA (DiSodium salt) 0.01M (0.02N)	ED20011		ED20015
EDTA (DiSodium salt) 0.1M (0.2N)	ED2011		ED2015
EDTA (DiSodium Salt) 0.002M (0.004N)	ED200021		ED200025
EDTA (DiSodium Salt) 0.01785M (0.0357N)	ED2003571		
EDTA (DiSodium Salt) 0.02M (0.04N)	ED20021		
EDTA (DiSodium Salt) 0.025M (0.05N)	ED200251		
EDTA (DiSodium Salt) 0.05M (0.10N)	ED20051		
Ferric Chloride 0.01M	F0011		
Formic Acid 0.1M			F20105
Hydrochloric Acid 0.01M (0.01N)	H20011		H20015
Hydrochloric Acid 0.02M (0.02N)	H20021		H20025
Hydrochloric Acid 0.027M (0.027N)	H200271		
Hydrochloric Acid 0.0357M (0.0357N)	H2003571		H2003575
Hydrochloric Acid 0.05M (0.05N)	H20051		H20055
Hydrochloric Acid 0.0714M (0.0714N)	H2007141		
Hydrochloric Acid 0.1M (0.1N)	H20101		H20105
Hydrochloric Acid 0.233M (0.233N)			H202335
Hydrochloric Acid 0.25M (0.25N)	H20251		H20255
Hydrochloric Acid 0.2M (0.2N)	H20201		H20205
Hydrochloric Acid 0.357M (0.357N)	H203571		H203575
Hydrochloric Acid 0.5M (0.5N)	H20501		H20505
Hydrochloric Acid 0.714M (0.714N)	H207141		

Description	Product No. 1L	Product No. 2.5L	Product No. 5L
Hydrochloric Acid 1.0M (1.0N)	H21001		H21005
Hydrochloric Acid 1.8M (1.8N)			H21805
Hydrochloric Acid 15%			RH15WW100
Hydrochloric Acid 2.0M (2.0N)	H22001		H22005
Hydrochloric Acid 2.7M (2.7N)	H22701		
Hydrochloric Acid 3.57M (3.57N)	H23571		H23575
Hydrochloric Acid 3.0M (3.0N)	H23001		H23005
Hydrochloric Acid 4.0M (4.0N)	H24001		H24005
Hydrochloric Acid 5.0M (5.0N)	H25001		H25005
Hydrochloric Acid 6.0M (6.0N)	H26001		H26005
Hydrochloric Acid 8.0M (8.0N)			H28005
Hydrochloric Acid 0.5167M (0.5167N)	H2051671		
Hydrochloric Acid 0.773M (0.773N)	H207331		
Hydrofluoric Acid 0.05N 0.05M (0.05N)	HF20051		HF20055
Iodine 0.01M (0.02N)	I2001F		
Iodine 0.005M (0.01N)	I20005F		
Iodine 0.02365M (0.0473N)	I20023F		
Iodine 0.025M (0.05N)	I20025F	I20025W	
Iodine 0.05M (0.1N)	I2005F	I2005W	
Iodine 0.5M (1.0N)	I2050F	I2050W	
Iron (II) Sulphate 0.1M (0.1N)	FES2011		
Iron (II) Sulphate 0.2M (0.2N)	FES2021		FES2025
Iron (III) Chloride 1.0M	FECL211		FECL215
Lactic Acid 0.1M	CH6011		
Lead (II) Acetate 0.05M	PBA20051		PBA20055
Lead (II) Acetate 0.5M	PBA2051		PBA2055
Lead (II) Nitrate 0.5M (1.0N)	PBN02051		PBN02055
Lead Nitrate 0.01M (0.02N)	PB20011		
Lead Nitrate 0.1M (0.2N)	PB2011		
Magnesium Chloride 0.01M (0.02N)	MG20011		MG20015
Magnesium Chloride 0.1M (0.2N)	MG2011		MG2015
Magnesium Sulphate 0.01M (0.01N)	MGS020011		
Magnesium Sulphate 0.09M (0.09N)	MS0091		
Magnesium Sulphate 0.1M (0.1N)	MGS02011		MGS02015
Manganese (II) Chloride 0.05M (0.05N)	MNCL20051		MNCL20055
Manganese (II) Chloride 0.5M (0.5N)	MNCL2051		MNCL2055
Mercury (I) Nitrate 0.1M (0.2N)	HGN2011		HGN2015
Mercuric (II) Nitrate 0.05M (0.1N)	HGN20051		
Mercury (II) Nitrate 0.01M (0.02N)	HGN20011		HGN20015
Mercury (Il) Nitrate 0.01N (0.005M)	HGN200051		HGN200055
Methanolic Hydrochloric Acid 0.5N		MH2050	

Analytical Volumetric Solutions

Description	Product No. 1L	Product No. 2.5L	Product No. 5L
Morpholine 0.5N in Methanol		MD2050	
Nickle (II) Chloride 0.5M (0.5N)	NICL20051		NICL20055
Nitric Acid 0.01M (0.01N)	NO20011		
Nitric Acid 0.02M (0.02N)	NO20021		NO20025
Nitric Acid 0.1M (0.1N)	NO20101		NO20105
Nitric Acid 0.5% w/v Solution			N05WV5
Nitric Acid 1.0M (1.0N)	NO21001		NO21005
Nitric Acid 2.0M (2.0N)	NO22001		NO22005
Nitric Acid 4.0M (4.0N)	NO24001		NO24005
Nitric Acid 5.0M (5.0N)	NO25001		
Nitric Acid 6.0M (6.0N)	NO26001		
Nitric Acid 8.0M (8.0N)	NO28001		NO28005
Oxalic Acid 0.005M (0.01N)	OA200051		
Oxalic Acid 0.025M (0.05N)	OA200251		OA200255
Oxalic Acid 0.10M (0.2N)	OA2011		
Oxalic Acid 0.05M (0.1N)	OA20051		OA20055
Oxalic Acid 0.25M (0.5N)	OA20251		
Oxalic Acid 0.5M (1.0N)	OA2051		OA2055
Perchloric Acid 0.1N in 1.4 Dioxan	PD201F	PD201W	
Perchloric Acid 0.01M (0.01N) in Acetic Acid	P2001F		
Perchloric Acid 0.1M (0.1N) in Acetic Acid	P2010F	P2010W	
Perchloric Acid 0.5M (0.5N) in Acetic Acid	P2050F		
Phenylarsine Oxide 0.00564M	CH500561		
Phosphorous Tribromide 1M	PBR3DCM		
Potassium Biiodate 0.025N	HK2O0025F		
Potassium Biiodate 0.1N	HK2O01F		
Potassium Bromate 0.1M	KB201F		
Potassium Bromate/Bromide 0.0167M (0.1N)	KB20016F	KB20016W	
Potassium Bromide 0.5M	KBR205F		
Potassium Bromide 1M	KBR21F		
Potassium Chloride 0.01M (0.01N)	KCL20011		
Potassium Chloride 0.1M (0.1N)	KCL2011		
Potassium Chloride 0.2M (0.2N)	KCL2021		KCL2025
Potassium Chloride 0.5M (0.5N)	KCL2051		
Potassium Chloride 1.0M (1.0N)	KCL2101		KCL2105
Potassium Dichromate 0.02M (0.120N)	KC20021		
Potassium Dichromate 0.0208M (0.125N)		KC2002W	
Potassium Dichromate 0.0167M (0.1N)	KC20016F	KC20016W	
Potassium Dichromate 0.04M (0.24N)	KCR24F		
Potassium Dichromate 0.25M (1.5N)	KC20251		

Description	Product No. 1L	Product No. 2.5L	Product No. 5L
Potassium Dichromate 0.041M (0.25N)	KC20041F	KC20041W	
Potassium Dichromate 0.167M (1.0N)	KC2016F	KC2016W	
Potassium Dichromate 10mg/l	KC010F		
Potassium Dichromate 1870mg/l	KCR18701		
Potassium Ferricyanide 0.1M (0.1N)	KFE2011		KFE2015
Potassium Fluoride 20%			KF2O5
Potassium Fluoride 60% w/v			KF60
Potassium Hydrogen Phthalate 0.1M (0.1N)	PHP2011		PHP2015
Potassium Hydroxide 0.1N in Ethanol	ETKOH01F	ETKOH01W	
Potassium Hydroxide 0.1N in Methanol	MKOH01F	MKOH01W	
Potassium Hydroxide 0.05M (0.05N)	KOH20051		KOH20055
Potassium Hydroxide 0.1M (0.1N)	KOH20101		KOH20105
Potassium Hydroxide 0.223M (0.223N)			KOH202235
Potassium Hydroxide 0.23M (0.23N)			KOH20235
Potassium Hydroxide 0.5M (0.5N)	KOH20501		KOH20505
Potassium Hydroxide 0.5N in Ethanol	ETKOH05F	ETKOHO5W	
Potassium Hydroxide 0.5N in Methanol	MKOH205F	MKOH205W	
Potassium Hydroxide 1.0M (1.0N)	KOH21001		KOH21005
Potassium Hydroxide 1.0M (1.0N) in Ethanol	ETKOH1F	ETKOH1W	
Potassium Hydroxide 1.0M (1.0N)in Methanol	MKOH1F	MKOH1W	
Potassium Hydroxide 10.0M (10.0N)	KOH2101		KOH2105
Potassium Iodate 0.0147M (0.08833N)		PI2008W	
Potassium Iodate 0.025M (0.15N)		PI20025W	
Potassium Iodate 0.01667M (0.1N)	PI20016F	PI20016W	
Potassium Iodate 0.05M (0.3N)	PI2005F	PI2005W	
Potassium Iodate/Iodide 0.00333M (0.02N)		PII2002W	
Potassium Iodide 0.1M (0.1N)	KI2011		KI2015
Potassium Iodide 1.0M (1.0N)	KI2101		KI2105
Potassium Iodide 1.8M (1.8N)		KI218W	
Potassium Iodide 3.0M (3.0N)	K12301		K12305
Potassium Permanganate 0.002M (0.01N)	PP20002F		
Potassium Permanganate 0.01M (0.5N)	PP2001F	PP2001W	
Potassium Permanganate 0.02M (0.1N)	PP2002F	PP2002W	
Potassium Permanganate 0.2M (1.0N)	PP2020F	PP2020W	
Potassium Thiocyanate 0.02M (0.02N)	KT2002F	KT2002W	
Potassium Thiocyanate 0.05M (0.05N)	KT2005F	KT2005W	
Potassium Thiocyanate 0.1M (0.1N)	KT201F	KT201W	
Potassium Thiocyanate 1.0M (1.0N)	KT210F	KT210W	
Silver Nitrate 0.0141M (0.0141N)		N20014W	
Silver Nitrate 0.0192M (0.0192N)	N20019F		
Silver Nitrate 0.01M (0.01N) in Isopropyl Alcohol	PN20010F		

Analytical Volumetric Solutions

Description	Product No. 1L	Product No. 2.5L	Product No. 5L
Silver Nitrate 0.01M (0.01N)	N20010F		
Silver Nitrate 0.01M (0.01N) in Methanol	MN20010F		
Silver Nitrate 0.025M (0.025N)	N20025F		
Silver Nitrate 0.0282M (0.0282N)		N20028W	
Silver Nitrate 0.02M (0.02N)	N20020F	N20020W	
Silver Nitrate 0.04M (0.04N)	N2004F	N2004W	N20045
Silver Nitrate 0.05M (0.05N)	N20050F	N20050W	
Silver Nitrate 0.085M (0.085N)		N20085W	
Silver Nitrate 0.1N in Methanol	MN2010F		
Silver Nitrate 0.1M (0.1N)	N20100F	N20100W	N201005
Silver Nitrate 0.1709M (0.1709N)	N201709F	N201709W	
Silver Nitrate 0.5M (0.5N)	N2050F		
Silver Nitrate 1.0M (1.0N)	N21000F	N21000W	
Sodium Acetate 0.2M	SA02F		
Sodium Acetate 0.3M	SA03MOLF1		
Sodium Acetate 2M	SA2F		
Sodium Arsenite 0.005M (0.01N)	SA200005F		
Sodium Arsenite 0.05M (0.1N)	SA2005F	SA2005W	
Sodium Arsenite 0.15M (0.3N)	SA2015F		
Sodium Borohydride 0.4 % in 0.05N NaOH	NABH404F		
Sodium Carbonate 0.05M (0.1N)	SC20051		SC20055
Sodium Carbonate 0.5M (1.0N)	SC20501		SC20505
Sodium Chloride 0.05M (0.05N)	NACL20051		NACL20055
Sodium Chloride 0.068M (0.068N)			NACL200685
Sodium Chloride 0.1M (0.1N)	NACL2011		NACL2015
Sodium Chloride Solution at 0.9% w/w	NACL09WW1		
Sodium Hydroxide (Low in Carbonate) 0.115M (0.115N)	S21151LC		
Sodium Hydroxide (Low in Carbonate) 0.5M (0.5N)	S20501LC		S20505LC
Sodium Hydroxide (Low in Carbonate) 1.0M (1.0N)	S21001LC		S21005LC
Sodium Hydroxide 0.01M (0.01N)	S20011		S20015
Sodium Hydroxide 0.02M (0.02N)	S20021		S20025
Sodium Hydroxide 0.05M (0.05N)	S20051		S20055
Sodium Hydroxide 0.111M (0.111N)	S20111		S20115
Sodium Hydroxide 0.1332M (0.1332N)	S2013321		
Sodium Hydroxide 0.156M (0.156N)	S215601		
Sodium Hydroxide 0.1M (0.1N)	S20101		S20105
Sodium Hydroxide 0.1M (0.1N) (Low in Carbonate)	S20101LC		S20105LC
Sodium Hydroxide 0.204M (0.204N)	S202041		
Sodium Hydroxide 0.25M (0.25N) 5L Bag In Box			SB20255
Sodium Hydroxide 0.25M (0.25N)	S20251		S20255

Description	Product No. 1L	Product No. 2.5L	Product No. 5L
Sodium Hydroxide 0.2M (0.2N)	S20201		S20205
Sodium Hydroxide 0.3125M (0.3125N)	S2031251		
Sodium Hydroxide 0.313M (0.313N) 5L Bag in Box			SB203135
Sodium Hydroxide 0.313M (0.313N)	S203131		S203135
Sodium Hydroxide 0.33M (0.33N)	S20331		
Sodium Hydroxide 0.35465M (0.35465N)	S2035461		S2035465
Sodium Hydroxide 0.4M (0.4N)	S20401		
Sodium Hydroxide 0.5M (0.5M)	S20501		S20505
Sodium Hydroxide 0.5M (0.5N) Bag in Box			SB20505
Sodium Hydroxide 0.6M (0.6N)			S2065
Sodium Hydroxide 0.714M (0.714N)	S207141		
Sodium Hydroxide 1.0M (1.0N) 5L Bag in Box			SB21005
Sodium Hydroxide 1.0M (1.0N)	S21001		S21005
Sodium Hydroxide 1.2M (1.2N)	S21201		SB21205
Sodium Hydroxide 1.666M (1.666N)	S216661		
Sodium Hydroxide 10M (10N)	S10001		S10005
Sodium Hydroxide 2.0M (2.0N)	S22001		S22005
Sodium Hydroxide 2.5M (2.5N)	S22501		S22505
Sodium Hydroxide 3.0M (3.0N)	S23001		S23005
Sodium Hydroxide 3.57M (3.57N)	S23571		S23575
Sodium Hydroxide 4M (4N)	S24001		
Sodium Hydroxide 5.0M (5.0N)	S25001		S25005
Sodium Hydroxide 5.0M (5.0N) from USP Grade Raw Material	S25001SP		
Sodium Hydroxide 6M (6N)	S26001		
Sodium Hydroxide Solution 20% w/v	S20WV1		
Sodium Lauryl (Dodecyl) Sulphate 0.02M (0.02N)	SLS0021		
Sodium Lauryl (Dodecyl) Sulphate 0.1M (0.1N)	SLS011		
Sodium Nitrite 0.1M (0.1N)	NANO011		
Sodium Nitrite 0.2M (0.2N)	NANO021		
Sodium Nitrite 0.5M (0.5N)	NANO051		NANO055
Sodium Nitrite 1M (1.0N)	NANO11		
Sodium Nitrite 4M (4.0N)	NANO041		
Sodium Oxalate 0.025M	NAC00251		
Sodium Oxalate 0.05M	NAX0051		
Sodium Oxalate 0.5M	NAC051		
Sodium Sulphite 5% Zero Dissolved Oxygen Solution	NAS51		NAS55
Sodium Thiocyanate 0.1M (0.1N)	NAT20101		NAT20105
Sodium Thiocyanate 1.0M (1.0N)	NAT21001		NAT21005
Sodium Thiosulphate 0.0125M (0.0125N)	T2001251		

Description	Product No. 1L	Product No. 2.5L	Product No. 5L
Sodium Thiosulphate 0.01M (0.01N)	T20011		T20015
Sodium Thiosulphate 0.025M (0.025N)	T200251		
Sodium Thiosulphate 0.02M (0.02N)	T20021		
Sodium Thiosulphate 0.0551M (0.0551N)	T2005511		T2005515
Sodium Thiosulphate 0.05M (0.05N)	T20051		T20055
Sodium Thiosulphate 0.1M (0.1N)	T20101		T20105
Sodium Thiosulphate 0.2M (0.2N)	T20201		T20205
Sodium Thiosulphate 0.5M (0.5N)	T20501		
Sodium Thiosulphate 1.0M (1.0N)	T21001		T21005
Sodium Thiosulphate 2.0M (2.0N)	T22001		
Sulphuric Acid 0.005M (0.01N)	SU200051		
Sulphuric Acid 0.01M (0.02N)	SU20011		SU20015
Sulphuric Acid 0.02M (0.04N)	SU20041		
Sulphuric Acid 0.025M (0.05N)	SU200251		
Sulphuric Acid 0.0416M (0.0832N)	SU2004161		SU2004165
Sulphuric Acid 0.05M (0.1N)	SU20051		SU20055
Sulphuric Acid 0.1M (0.2N)	SU20101		SU20105
Sulphuric Acid 0.1275M (0.255N)	SU2012751		SU2012755
Sulphuric Acid 0.128M (0.256N)			SU201285
Sulphuric Acid 0.13M (0.26N)	SU20131		SU20135
Sulphuric Acid 0.175M (0.350N)			SU20155
Sulphuric Acid 0.25M (0.5N)	SU20251		SU20255
Sulphuric Acid 0.319M (0.638N)	SU203191		SU203195
Sulphuric Acid 0.5M (1.0N)	SU20501		SU20505
Sulphuric Acid 0.9M (1.8N)	SU2091		SU2095
Sulphuric Acid 1.0M (2.0N)	SU21001		SU21005
Sulphuric Acid 2.0M (4.0N)	SU222001	SU2200J	
Sulphuric Acid 2.5M (5.0N)	SU22501		SU22505
Sulphuric Acid 3.0M (6.0N)	SU23001		SU23005
Sulphuric Acid 5.0M (10.0N)	SU25001		SU25005
Sulphuric Acid 5.0M (10.0N) Special Specific Preparation	SU2500-SP1		
Tetra Butylammonium Fluoride 1M in THF CA 5% Water		TBAF125	
Tetra Butylammonium Phosphate 0.5M conc in HPLC Grade water	TBAP1L		
Zinc Chloride 0.1M (0.1N)	ZNCL20101		ZNCL20105
Zinc Chloride 0.5M (0.5N)	ZNCL20501		ZNCL20505
Zinc Sulphate 0.02M (0.02N)	ZS021		
Zinc Sulphate 0.05M (0.05N)	ZNS000501		ZNSO00505
Zinc Sulphate 0.1M (0.1N)	ZS011		ZNSO0105

Concentrated Volumetric Solutions

Each Ampoule is supplied in its own box, full instructions are printed on the box.

Description	Ampoule to make 1L
Acetic Acid 1.0M (1.0N)	CHC101L
Ammonia 0.1M (0.1N)	NH4C011L
Ammonia 1.0M (1.0N)	NH4C101L
Ammonium Thiocyanate 0.1M (0.1N)	NHTC011L
EDTA (DiSodium salt) 0.01M (0.02N)	EDC0011L
EDTA (DiSodium salt) 0.05M (0.05N)	ETC0051L
EDTA (DiSodium salt) 0.1M (0.2N)	EDC0101L
Hydrochloric Acid 0.1M (0.1N)	HC0101L
Hydrochloric Acid 0.2M (0.2N)	HC0201L
Hydrochloric Acid 0.5M (0.5N)	HC0501L
Hydrochloric Acid 1.0M (1.0N)	HC1001L
Iodine 0.005M (0.01N)	IC00051L
Iodine 0.025M (0.05N)	IC025G1L
Iodine 0.05M (0.1N)	IC0051GL
Nitric Acid 1.0M (1.0N)	NOC101L
Oxalic Acid 0.05M (0.1N)	OA20051L
Potassium Chloride 0.01M (0.01N)	KCL0101L
Potassium Permanganate 0.02M (0.1N)	PCO021GL
Silver Nitrate 0.0282M (0.0282N)	NC00281L
Silver Nitrate 0.1M (0.1N)	NC0101L
Sodium Hydroxide 0.1M (0.1N)	SC0101L
Sodium Hydroxide 0.5M (0.5N)	SC0501L
Sodium Hydroxide 1.0M (1.0N)	SC1001L
Sodium Thiosulphate 0.0125M (0.0125N)	TC00121L
Sodium Thiosulphate 0.1M (0.1N)	TC0101L
Sulphuric Acid 0.01M (0.02N)	SUC0011L
Sulphuric Acid 0.05M (0.1N)	SUC0051L
Sulphuric Acid 0.5M (1.0N)	SUC051L

Indicator Solutions

Product No.	Description	Pack Size
ALRED01	Alizarine Red Solution 125ml	125ml
ALREDH	Alizarine Red Solution 500ml	500ml
AZVIO01	Azo Violet Indicator, 0.1% (w/v) Alcoholic Solution	125ml
1012602	Bromocresol Green - Methyl Red Mixed Indicator	100ml
BRCGM05	Bromocresol Green Indicator, 0.04% (w/v) in Methanol	500ml
BRCG0105	Bromocresol Green Indicator, 0.1% (w/v) Aqueous Solution	500ml
BRCG010125	Bromocresol Green Indicator, 0.1%	125ml
BRCGIPA0105	Bromocresol Green Indicator, 0.1% (w/v) in IPA	500ml
BRCG105	Bromocresol Green Indicator, 1% (w/v) Aqueous Solution	500ml
BRCG05	Bromocresol Green Indicator, 0.04%	500ml
BRCG1501	Bromocresol Green Indicator, 1%	100ml
BRPBB02M05	Bromocresol Purple - Bromothymol Blue Mixed Indicator 0.2% (w/v) in Methanol	500ml
BRP01M05	Bromocresol Purple Indicator, 0.1 % (w/w) in Methanol	500ml
BRP0105	Bromocresol Purple Indicator, 0.1% (w/v) Aqueous Solution	500ml
BRP0405	Bromocresol Purple Indicator, 0.4% (w/v) Aqueous Solution	500ml
BRP1M05	Bromocresol Purple Indicator, 1 % (w/w) in Methanol	500ml
BRP105	Bromocresol Purple Indicator, 1% (w/v) Aqueous Solution	500ml
1012701	Bromocresol Purple Indicator Solution 0.04%	100ml
BRBPIPA05	Bromophenol Blue Indicator, 0.04% (w/v) in Isopropyl Alcohol	500ml
BRBP00505	Bromophenol Blue Indicator, 0.05% Aqueous Solution	500ml
BRBP0105	Bromophenol Blue Indicator, 0.1% (w/v) Aqueous Solution	500ml
BRBPIPA0105	Bromophenol Blue Indicator, 0.1% (w/v) in Isopropyl Alcohol	500ml
BRPB040125	Bromophenol Blue Indicator 0.4%	125ml
BRBP0405	Bromophenol Blue Indicator, 0.4% Aqueous Solution	500ml
BRBP0125	Bromophenol Blue Indicator, 0.04% Aqueous Solution	125ml
BRBP05	Bromophenol Blue Indicator, 0.04% Aqueous Solution	500ml
BRTH00205	Bromothymol Blue Indicator, 0.02% (w/v) Aqueous Solution	500ml
BRTHIPA00205	Bromothymol Blue Indicator, 0.02% (w/v) in Isopropyl Alcohol	500ml
BRTHIPA00405	Bromothymol Blue Indicator, 0.04% (w/v) in Isopropyl Alcohol	500ml
BRTH040125	Bromothymol Blue Indicator 0.4%	125ml
BRTH040250	Bromothymol Blue Indicator 0.4%	250ml
BRTH0125	Bromothymol Blue Indicator, 0.04%	125ml
BRTH025	Bromothymol Blue Indicator, 0.04%	250ml
BRTH05	Bromothymol Blue Indicator, 0.04%	500ml
CALM00505	Calmagite Indicator, 0.05% (w/v) Aqueous Solution	500ml
CALM0105	Calmagite Indicator, 0.1% (w/v) Aqueous Solution	500ml
CALM0605	Calmagite Indicator, 0.6% (w/v) Aqueous Solution	500ml
CALM105	Calmagite Indicator, 1%	500ml
CAUB0105	Caustic Blue Indicator, 0.1% (w/v) Aqueous Solution	500ml

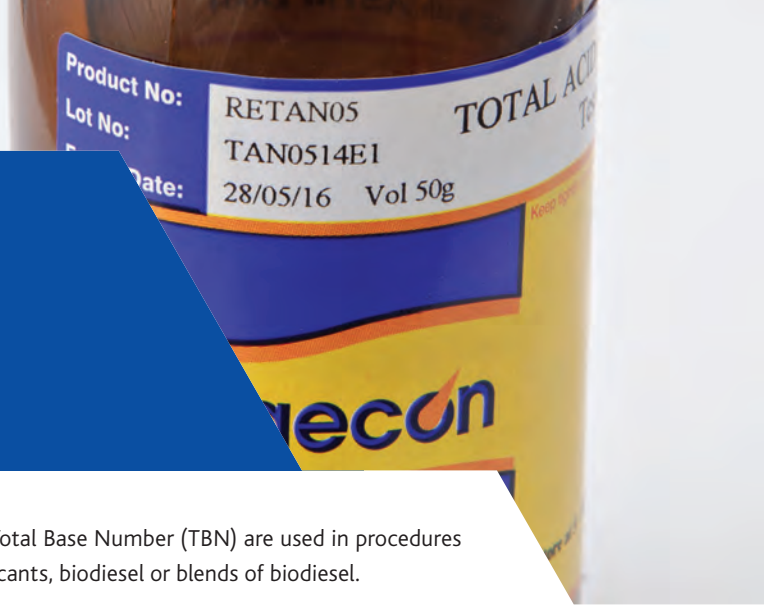
Product No.	Description	Pack Size
CPR05	Chlorophenol Red Indicator, 0.04%	500ml
COR105	Congo Red Indicator 0.1%	500ml
COR01005	Congo Red Indicator 0.1% (w/v) Aqueous Solution	500ml
COR01001	Congo Red Indicator 0.1% (w/v) Aqueous Solution	1L
COR1005	Congo Red Indicator, 1% (w/v) Aqueous Solution	500ml
CRER0405	Cresol Red Indicator, 0.04% (w/v) Aqueous	500ml
CRER205	Cresol Red Indicator, 0.2% (w/v) Aqueous	500ml
CVSOLN011	Crystal Violet Indicator, 0.1% (w/v) in Glacial Acetic Acid, for Non Aqueous Titrations	100ml
CVSOLN021	Crystal Violet Indicator, 0.2% (w/v) in Glacial Acetic Acid, for Non Aqueous Titrations	100ml
CVSOLN1	Crystal Violet Indicator 1% in Glacial Acetic Acid	100ml
1022901	Crystal Violet Solution (Non-aqueous indicator)	100ml
DPC05	Diphenylcarbazone 0.1%	500ml
DPCBRBP05	Diphenylcarbazone-Bromophenol Blue Mixed Indicator	500ml
EOW00051	Eosin Y TS, 0.5% (w/v) Aqueous Solution, Adsorption Indicator for Argentometric Titrations	1L
EOW0011	1% Eosin Y in Purified water	1L
EOW0015	1% Eosin Y in Purified water	5L
EBB05	Indicator Solution Erichrome Blue Black R	500ml
EBB1	Indicator Solution Erichrome Blue Black R	1L
EBB5	Indicator Solution Erichrome Blue Black R	5L
EBB10	Indicator Solution Erichrome Blue Black R	10L
EBTT05	Eriochrome Black T Indicator in Triethanolamine, Water Hardness Indicator	500ml
EBTNACL105	Eriochrome Black T Indicator, 1% (w/w) in Sodium Chloride	500ml
EBTNACL0205	Eriochrome Blue Black R Indicator, 0.2% (w/w) in Sodium Chloride	500ml
ETVI01M05	Ethyl Violet Indicator, 0.1% w/v in 50% Methanol	500ml
FS010105	Fehlings Solution No. 1	500ml
FS0101	Fehlings Solution No. 1	1L
FS01015	Fehlings Solution No. 1	2.5L
FS010205	Fehlings Solution No. 2	500ml
FS0102	Fehlings Solution No. 2	1L
FS01025	Fehlings Solution No. 2	2.5L
FEALI1	Indicator Solution Ferric Alum	1L
1037702	European Pharmacopoeia Reagent Ferric Ammonium Sulphate R2	1L
PFS1	Indicator Solution Ferroin Indicator	100ml
FEI0011	Ferroin Indicator, 0.01 Molar	1L
FEI00251	Ferroin Indicator, 0.025 Molar	1L
TB04F	Indicator Thymol Blue Alcoholic Solution 0.04%	500ml
TBO8F	Indicator Thymol Blue, 0.08% (w/v) in Methanol	1L

Indicator Solutions

Product No.	Description	Pack Size
INDCA05	Indicator Indigo Carmine	500ml
FEA25	Indicator Solution Iron Alum (Volhard)	250ml
MGI00505	Indicator Malachite Green, 0.05% (w/v) Aqueous Solution	500ml
MBTHI00505	MBTH Indicator, 0.05%	500ml
MBTHI0505	MBTH Indicator, 0.5% (w/v) Aqueous Solution	500ml
MCP00405	Indicator m-Cresol Purple, 0.04% (w/v) Aqueous	500ml
MCP0105	Indicator m-Cresol Purple, 0.1% (w/v) Aqueous	500ml
MCP05	Indicator m-Cresol Purple, 0.4%	500ml
MTPSI01	Indicator Metalphthalein-Screened RS	100ml
MOXCI05	Indicator Methyl Orange - Xylene Cyanol Indicator Solution	500ml
MTR050125	Indicator Methyl Orange 0.1%	125ml
MTR05025	Indicator Methyl Orange Alcoholic Solution 0.1%	250ml
M004F	Indicator Methyl Orange 0.04%	500ml
MPRIPA1505	Indicator Methyl Purple, in dilute IPA (15% v/v)	500ml
MTR060125	Indicator Methyl Red 0.1%	125ml
MTR06025	Indicator Methyl Red Alcoholic Solution 0.1%	250ml
1055102	Methyl Red Indicator Solution 0.02%	100ml
MTBLU0050250	Indicator Methylene Blue, 0.05%	250ml
MTBLU010250	Indicator Methylene Blue, 0.1%	250ml
MTBLU10250	Indicator Methylene Blue 1%	250ml
PR045	Indicator Phenol Red 0.04% Solution	500ml
PR105	Indicator Phenol Red 0.1% (w/v) Aqueous Solution	500ml
PR505	Indicator Phenol Red 0.5% (w/v) Aqueous Solution	500ml
PR1005	Indicator Phenol Red 1% (w/v) Aqueous Solution	500ml
1063601	Phenol Red Indicator Solution	100ml
IPT01J	Indicator Phenolphthalein 0.1%	100ml
IPT01D	Indicator Phenolphthalein 0.1%	250ml
IPT01H	Indicator Phenolphthalein 0.1%	500ml
IPT01F	Indicator Phenolphthalein 0.1%	1L
IPT02H	Indicator Phenolphthalein 0.2%	500ml
IPT05H	Indicator Phenolphthalein 0.5%	500ml
IPT05F	Indicator Phenolphthalein Alcoholic Solution 0.5%	1L
IPT05W	Indicator Phenolphthalein Alcoholic Solution 0.5%	2.5L
IPT10125	Indicator Phenolphthalein 1%	125ml
IPT1025	Indicator Phenolphthalein 1%	250ml
IPT10H	Indicator Phenolphthalein 1%	500ml
IPT10F	Indicator Phenolphthalein 1%	1L
IPT10F-D	Indicator Phenolphthalein 1% (in IMS and HDPE bottle)	1L
IPT10W	Indicator Phenolphthalein Alcoholic Solution 1.0%	2.5L
IPT201	Indicator Solution Phenolphthalein 2% in Ethanol	1L
IPT205	Indicator Solution Phenolphthalein 2% in Ethanol	5L

Product No.	Description	Pack Size
IPT2025	Indicator Solution Phenolphthalein 2% in Ethanol	25L
IPT16W	Indicator Phenolphthalein 1.6%	2.5L
PCS5	Indicator Solution Potassium Chromate 5%	500ml
MOS05	Indicator Screened Methyl Orange Alcoholic Solution 0.1%	500ml
ST105	Starch Solution 1%	500ml
ST1001	Starch Solution 1%	1L
ST205	Starch Indicator 2%	500ml
ST0055	Starch Indicator, 0.05% (w/v)	500ml
ST0101	Starch Indicator 0.1%	1L
ST0205	Starch Indicator, 0.2% (w/v) Aqueous Solution	500ml
ST0255	Starch Indicator, 0.25% (w/v) Aqueous Solution	500ml
ST0305	Starch Indicator, 0.3% (w/v)	500ml
ST0505	Starch Indicator 0.5% (w/v)	500ml
ST0505P	Starch Indicator, with 0.5% Potassium Iodide	500ml
ST505P	Starch Indicator, with 5% Potassium Iodide	500ml
SO0405	Indicator Sulfo Orange, 0.04%	500ml
SO405	Indicator Sulfo Orange, 0.4%	500ml
SO0105	Indicator Sulfo Orange, 0.1% (w/v) (Tropaeolin O) Aqueous Solution	500ml
1090701	Thymolphthalein 0.05% Indicator Solution	100ml
UN1005	Universal Indicator Solution	50 mL
UN101	Universal Indicator Solution	100ml
UN105	Universal Indicator Solution	500ml
UN10025	Universal Indicator Solution	2.5L
UNB1010	Universal Indicator Solution	10L
UN1025	Universal Indicator Solution	25L
VANG5H	Van Gieson Stain 500ml	500ml
TAIND0250	TA Indicator - Phenolphthalein Free	250ml
TAIND0500	TA Indicator - Phenolphthalein Free	500ml
TAIND1000	TA Indicator - Phenolphthalein Free	1L
TASHI010	Indicator Solution for Mixed Sulphur	100ml
TASHI025	Tashiro Indicator (Methyl Red/Methylene Blue in Ethanol)	250ml
TASHI050H	Tashiro Indicator (Methyl Red/Methylene Blue in Ethanol)	500ml
TASHI100F	Tashiro Indicator (Methyl Red/Methylene Blue in Ethanol)	1L
THPH010125	Thymolphthalein Indicator 0.1%	125ml
TECMXI01	Tecator Mixed Indicator	100ml
ADW	Indicator Acid Decolouriser	2.5L
KR01	Indicator Kovac's Indole Reagent	100ml
PAN0125	PAN Indicator 0.1%	125ml

Total Acid Number/ Total Base Number Standards & Reagents



The products listed in this section for Total Acid Number (TAN) and Total Base Number (TBN) are used in procedures to test and control the acidic or basic constituents in petroleum, lubricants, biodiesel or blends of biodiesel.

Total Acid Number (TAN)

The procedures for the measurement of this parameter (laid down in various ASTM methods) vary depending on sample solubility in materials such as Toluene or Propan-2-ol, the dissociation constants of the acids in water, or the nature of the test sample. Therefore, the methodology used for lubricants maybe be different from the methodology used for biodiesel. In new and used oils the constituents that maybe considered to have acidic characteristics include organic acids, inorganic acids, esters, phenolic compounds, lactones, resins, salts of heavy metals, acid salts of polybasic acids, and additives such as inhibitors and detergents.

The test method is used to indicate relative changes that occur in oil during use under oxidising conditions regardless of the colour or other properties of the oil. The method is also used as a guide in the quality control of lubricating oil formulations or as a measure of lubricant degradation. It is not intended to measure an absolute acidic property that can be used to predict performance of oil under working conditions. There is no known relationship between corrosion of bearings and acid number. The methodology of performing the test involves dissolving the sample in a titration solvent and titrating potentiometrically as an acid/base titration with alcoholic potassium hydroxide.

Total Base Number (TBN)

The constituents of oils and lubricants that may be considered to have basic characteristics include organic bases, inorganic bases, amino compounds, salts of weak acids (soaps), basic salts of polyacidic bases and salts of heavy metals. The test methodology involves dissolving the sample in an anhydrous mixture of chlorobenzene/glacial acetic acid and titrating potentiometrically with a solution of perchloric acid in glacial acetic acid. Both new and used petroleum products can contain basic constituents that are present as additives. The test is sometimes used as a measure of lubricant degradation but any condemning limits based on the test must be established on an individual basis.

The following list of products are a selection of Solvents, Titrants, Standards, Buffers and Electrolytes specifically formulated for the testing of TAN and TBN using ASTM methods D664 and D2896 respectively.

Reagents, Titrants & Standards for ASTM D664: Acid Number of Petroleum Products by Potentiometric Titration

Product No.	Description	Pack Size
EFSLIET	Electrolyte: 1M Lithium Chloride in Ethanol	100ml
104025	Buffer pH 4.00 - 25˚C	1L
107025	Buffer pH 7.00 - 25˚C	1L
111025	Buffer pH 11.00 - 25˚C	1L
PH20101	0.1M Hydrochloric Acid in propan-2-ol	1L
PH201005	0.1M Hydrochloric Acid in propan-2-ol	500ml
KOH01F	0.1M Potassium Hydroxide in propan-2-ol	1L
KOH01H	0.1M Potassium Hydroxide in propan-2-ol	500ml
KOH001F	0.01M Potassium Hydroxide in propan-2-ol	1L
KOH001H	0.01M Potassium Hydroxide in propan-2-ol	500ml
TANSOLVF	TAN Titration Solvent. Per litre: 500mls toluene, 495mls propan-2-ol, 5mls water	1L
TANSOLVW	TAN Titration Solvent. Per litre: 500mls toluene, 495mls propan-2-ol, 5mls water	2.5L
TANSOLVF10	TAN Titration Solvent. Per litre: 500mls toluene, 495mls propan-2-ol, 5mls water	10L
TANSOLVF20	TAN Titration Solvent. Per litre: 500mls toluene, 495mls propan-2-ol, 5mls water	20L

Reagents, Titrants & Standards for ASTM D2896: Base Number of Petroleum Products by Potentiometric Titration

Product No.	Description	Pack Size
P2010F	0.1M Perchloric Acid in glacial acetic acid	1L
P2010H	0.1M Perchloric Acid in glacial acetic acid	500ml
EFSNACLO4	Electrolyte: saturated sodium perchlorate in glacial acetic acid	100ml
TBNSOLV1F	TBN Titration solvent - 2:1 chlorobenzene and glacial acetic acid	1L
TBNSOLV1W	TBN Titration solvent - 2:1 chlorobenzene and glacial acetic acid	2.5L
TBNSOLV1F10	TBN Titration solvent - 2:1 chlorobenzene and glacial acetic acid	10L
TBNSOLV1F20	TBN Titration solvent - 2:1 chlorobenzene and glacial acetic acid	20L
NAAC010F	0.1N Sodium Acetate in glacial acetic acid	1L
104025	Buffer pH 4.00 - 25˚C	1L
107025	Buffer pH 7.00 - 25˚C	1L
111025	Buffer pH 11.00 - 25˚C	1L
TBNSOLV2F	TBN Titration solvent - 0.4M tetraethylammonium bromide in ethylene glycol	1L
TBNSOLV2W	TBN Titration solvent - 0.4M tetraethylammonium bromide in ethylene glycol	2.5L

TAN Standards: All in a Synthetic Base Oil Matrix

Product No.	Description	Pack Size
RETAN0.5	TAN standard: 0.5 mg/g KOH	50g
RETAN01	TAN standard: 0.1mg/g KOH	50g
RETAN01R	TAN standard: 0.1mg/g KOH	100g
RETAN01S	TAN standard: 0.1mg/g KOH	3 x 100g
RETAN05	TAN standard: 0.5 mg/g KOH	50g
RETAN05R	TAN standard: 0.5 mg/g KOH	100g
RETAN05S	TAN standard: 0.5 mg/g KOH	3 x 100g
RETAN10	TAN standard: 1.0 mg/g KOH	50g
RETAN10R	TAN standard: 1.0 mg/g KOH	100g
RETAN10S	TAN standard: 1.0 mg/g KOH	3 x 100g
RETAN15	TAN standard, 1.5mg/g KOH	50g
RETAN15R	TAN standard: 1.5 mg/g KOH	100g
RETAN15S	TAN standard: 1.5 mg/g KOH	3 x 100g
RETAN20	TAN standard: 2.0mg/g KOH	50g
RETAN20R	TAN standard: 2.0 mg/g KOH	100g
RETAN20S	TAN standard: 2.0 mg/g KOH	3 x 100g
RETAN25	TAN standard: 2.5mg/g KOH	50g
RETAN25R	TAN standard: 2.5 mg/g KOH	100g
RETAN25S	TAN standard: 2.5 mg/g KOH	3 x 100g
RETAN30	TAN standard: 3.0mg/g KOH	50g
RETAN30R	TAN standard: 3.0 mg/g KOH	100g
RETAN30S	TAN standard: 3.0 mg/g KOH	3 x 100g
RETAN45	TAN standard: 4.5 mg/g KOH	50g
RETAN45R	TAN standard: 4.5 mg/g KOH	100g
RETAN45S	TAN standard: 4.5 mg/g KOH	3 x 100g

TBN Standards: All in a Synthetic Base Oil Matrix

Product No.	Description	Pack Size
RETBN1	TBN Standard: 1.0 mg/g KOH	50g
RETBN1R	TBN Standard: 1.0 mg/g KOH	100g
RETBN1S	TBN Standard: 1.0 mg/g KOH	3 x 100g
RETBN3	TBN Standard: 3.0 mg/g KOH	50g
RETBN3R	TBN Standard: 3.0 mg/g KOH	100g
RETBN3S	TBN Standard: 3.0 mg/g KOH	3 x 100g
RETBN6	TBN Standard: 6.0 mg/g KOH	50g
RETBN6R	TBN Standard: 6.0 mg/g KOH	100g
RETBN6S	TBN Standard: 6.0 mg/g KOH	3 x 100g
RETBN10	TBN Standard: 10 mg/g KOH	50g
RETBN10R	TBN Standard: 10 mg/g KOH	100g
RETBN10S	TBN Standard: 10 mg/g KOH	3 x 100g
RETBN15	TBN Standard: 15 mg/g KOH	50g
RETBN15R	TBN Standard: 15 mg/g KOH	100g
RETBN15S	TBN Standard: 15 mg/g KOH	3 x 100g
RETBN30	TBN Standard: 30 mg/g KOH	50g
RETBN30R	TBN Standard: 30 mg/g KOH	100g
RETBN30S	TBN Standard: 30 mg/g KOH	3 x 100g
RETBN40	TBN Standard: 40 mg/g KOH	50g
RETBN40R	TBN Standard: 40 mg/g KOH	100g
RETBN40S	TBN Standard: 40 mg/g KOH	3 x 100g
RETBN70	TBN Standard: 70 mg/g KOH	50g
RETBN70R	TBN Standard: 70 mg/g KOH	100g
RETBN70S	TBN Standard: 70 mg/g KOH	3 x 100g

Colour Standards

Summary of Features & Benefits:

Commercial Benefits

- For use as calibration and/or quality control standards
- Presented in high quality tamper evident bottles
- Customised standards available
- Various pack sizes available
- Ready to Use

Technical Benefits

- Produced in accordance with ASTM (D1500,
- D6045, D1209) APHA, ACS, EP & USP methods
- Consistency of product - Independent, Traceable, Certified
- Certificates of Analysis and Safety Data Sheets available online

Reagecon manufactures the full range of ASTM, Saybolt, Platinum-Cobalt, Gardner, European Pharmacopeia and United States Pharmacopeia Colour Standards for use with ASTM, APHA, ACS, European and United States Pharmacopeia standard methods. The ASTM standard methods include D1500, D6045 and D1209. The products can be used to calibrate, control, qualify and validate colour measurement instruments.

The products range from:

- ASTM Colour Standard Sample A05- A7
- Saybolt Colour Standards S+30 to S-15
- Platinum-Cobalt Scale No. 0 - No. 1000
- Gardner Colour Standards GARD02-GARD18
- European Pharmacopeia Standards (Opalescence, Primary and Standard Solutions)

These products are prepared gravimetrically on a weight/weight basis. Both solute and solvent are weighed on a balance calibrated by Reagecon engineers using OIML traceable weights. Reagecon holds ISO 17025 accreditation for calibration of laboratory balances (INAB Ref:265C). The resulting Balance Certificate of Calibration is issued in accordance with the requirements of ISO/IEC 17025. The concentration of each standard is verified using a high performance top of the range calibrated spectrophotometer. The calibration of the spectrophotometer is controlled using high purity ISO Guide 34 accredited spectrophotometric standards.

ASTM Colour Standards

Description	Product No. 100ml	Product No. 500ml
ASTM Colour Standard less than 0.5	ASTMA051	ASTMA055
ASTM Colour Standard A1	ASTMA101	ASTMA105
ASTM Colour Standard A3	ASTMA301	ASTMA305
ASTM Colour Standard A5	ASTMA501	ASTMA505
ASTM Colour Standard A7	ASTMA701	ASTMA705

Saybolt Colour Standards

Description	Product No. 100ml	Product No. 500ml
Colour Standard Saybolt +30	SAYP301	SAYP305
Colour Standard Saybolt +25	SAYP251	SAYP255
Colour Standard Saybolt +19	SAYP191	SAYP195
Colour Standard Saybolt +15	SAYP151	SAYP155
Colour Standard Saybolt +12	SAYP121	SAYP125
Colour Standard Saybolt +0	SAYP01	SAYP05
Colour Standard Saybolt -10	SAYN101	SAYN105
Colour Standard Saybolt -15	SAYN151	SAYN155

Standard Solutions

Product No.	Description	Pack Size
EP703	European Pharmacopoeia Standard Solution B (Brown)	100ml
EP704	European Pharmacopoeia Standard Solution BY (Brownish Yellow)	100ml
EP705	European Pharmacopoeia Standard Solution GY (Greenish Yellow)	100ml
EP706	European Pharmacopoeia Standard Solution Y (Yellow)	100ml
EP707	European Pharmacopoeia Standard Solution R (Red)	100ml

Reagents as Outlined in Chapter 2 of European Pharmacopeia

Product No.	Description	Pack Size
EPPOS01	European Pharmacopoeia Reagent Primary Opalesence Suspension	100ml

Platinum-Cobalt Colour Standards* (Hazen)

Product No.	Description	Pack Size
HAZ0	Colour Standard Platinum Cobalt 0 (0 Hazen units)	1L
HAZ5	Colour Standard Platinum Cobalt 5 (5 Hazen units)	1L
HAZ10	Colour Standard Platinum Cobalt 10 (10 Hazen units)	1L
HAZ15	Colour Standard Platinum Cobalt 15 (15 Hazen units)	1L
HAZ20	Colour Standard Platinum Cobalt 20 (20 Hazen units)	1L
HAZ25	Colour Standard Platinum Cobalt 25 (25 Hazen units)	1L
HAZ30	Colour Standard Platinum Cobalt 30 (30 Hazen units)	1L
HAZ40	Colour Standard Platinum 40 (40 Hazen units)	1L
HAZ50	Colour Standard Platinum Cobalt 50 (50 Hazen units)	1L
HAZ505	Colour Standard Platinum Cobalt 50 (50 Hazen units)	5L
HAZ80	Colour Standard Platinum Cobalt 80 (80 Hazen units)	1L
HAZ100	Colour Standard Platinum Cobalt 100 (100 Hazen units)	1L
HAZ1005	Colour Standard Platinum Cobalt 100 (100 Hazen units)	5L
HAZ150	Colour Standard Platinum Cobalt 150 (150 Hazen units)	1L
HAZ1505	Colour Standard Platinum Cobalt 150 (150 Hazen units)	5L
HAZ200	Colour Standard Platinum Cobalt 200 (200 Hazen units)	1L
HAZ2005	Colour Standard Platinum Cobalt 200 (200 Hazen units)	5L
HAZ250	Colour Standard Platinum Cobalt 250 (250 Hazen units)	1L
HAZ400	Colour Standard Platinum Cobalt 400 (400 Hazen units)	1L
HAZ500-500ml	Colour Standard Platinum Cobalt 500 (500 Hazen units)	500ml
HAZ500	Colour Standard Platinum Cobalt 500 (500 Hazen units)	1L
HAZ5005	Colour Standard Platinum Cobalt 500 (500 Hazen units)	5L
HAZ1000	Colour Standard Platinum Cobalt 1000 (1000 Hazen units)	1L

* Standards with intermediate Platinum-Cobalt values are available on request

USP (631) Colour Standard

Product No.	Description	Pack Size
USPCS101	Colour Standard USP (631) Cupric Sulfate CS	100ml
USPCS102	Colour Standard USP (631) Ferric Chloride CS	100ml
USPCS103	Colour Standard USP (631) Cobaltous Chloride CS	100ml

Gardner Colour Standards**

Product No.	Description	Pack Size
GARD011	Colour Standard Gardner 1	100ml
GARD021	Colour Standard Gardner 2	100ml
GARD02	Colour Standard Gardner 2	500ml
GARD031	Colour Standard Gardner 3	100ml
GARD041	Colour Standard Gardner 4	100ml
GARD04	Colour Standard Gardner 4	500ml
GARD051	Colour Standard Gardner 5	100ml
GARD061	Colour Standard Gardner 6	100ml
GARD06	Colour Standard Gardner 6	500ml
GARD071	Colour Standard Gardner 7	100ml
GARD081	Colour Standard Gardner 8	100ml
GARD08	Colour Standard Gardner 8	500ml
GARD091	Colour Standard Gardner 9	100ml
GARD101	Colour Standard Gardner 10	100ml
GARD10	Colour Standard Gardner 10	500ml
GARD111	Colour Standard Gardner 11	100ml
GARD121	Colour Standard Gardner 12	100ml
GARD12	Colour Standard Gardner 12	500ml
GARD131	Colour Standard Gardner 13	100ml
GARD141	Colour Standard Gardner 14	100ml
GARD14	Colour Standard Gardner 14	500ml
GARD151	Colour Standard Gardner 15	100ml
GARD161	Colour Standard Gardner 16	100ml
GARD16	Colour Standard Gardner 16	500ml
GARD171	Colour Standard Gardner 17	100ml
GARD181	Colour Standard Gardner 18	100ml

** Standards with intermediate Gardner values are available on request

Colouration - Primary Solutions

Product No.	Description	Pack Size
EPBS01	European Pharmacopoeia Reagent Coloration - Primary Solution Blue	100ml
EPRS01	European Pharmacopoeia Reagent Coloration - Primary Solution Red	100ml
EPYS01	European Pharmacopoeia Reagent Coloration - Primary Solution Yellow	100ml

Spectrophotometry Standards

Summary of Features & Benefits:

Commercial Benefits

- Can be used with all UV-VIS Spectrophotometers
- Permanently sealed cuvettes available
- No Waste
- Ready to Use
- Standards also available in 100ml amber bottles - economy of scale

Technical Benefits

- National Institute of Standards and Technology (NIST) Traceable
- Produced with salts sourced directly from NIST where applicable
- All standards certified at multiple slit widths
- Certified measurement uncertainties
- Consistency of product - Independent, Traceable, Certified
- Certificates of Analysis and Safety Data Sheets available online

The product range includes:

- Linearity Standards
- Wavelength Standards
- Stray Light Standards
- Bandwidth Standards

These products are prepared gravimetrically on a weight/weight basis. Both solute and solvent are weighed on a balance calibrated by Reagecon engineers using OIML traceable weights. Reagecon holds ISO 17025 accreditation for calibration of laboratory balances (INAB Ref:265C). The resulting Balance Certificate of Calibration is issued in accordance with the requirements of ISO/IEC 17025. The certified values of each standard are verified using a high performance spectrophotometer calibrated with NIST traceable, ISO Guide 34 Certified Standards.

Linearity Standards @ 235, 257, 313 & 350nm

Product No.	Description	Concentration	Pack Size
RSPEC1022	Potassium Dichromate Linearity Set With Blank in Sealed Cuvettes	0mg/l, 20mg/l, 40mg/l, 60mg/l, 80mg/l, 100mg/l	6 x Permanently sealed UV Cuvettes
RSPEC0022	Potassium Dichromate Absorbance/ Transmission Standard	20mg/l	2 x Permanently Sealed UV Cuvettes (including blank)
RSPEC0023	Potassium Dichromate Absorbance/ Transmission Standard	40mg/l	2 x Permanently Sealed UV Cuvettes (including blank)
RSPEC0024	Potassium Dichromate Absorbance/ Transmission Standard	60mg/l	2 x Permanently Sealed UV Cuvettes (including blank)
RSPEC0025	Potassium Dichromate Absorbance/ Transmission Standard	80mg/l	2 x Permanently Sealed UV
RSPEC0026	Potassium Dichromate Absorbance/ Transmission Standard	100mg/l	2 x Permanently Sealed UV Cuvettes (including blank)
RSPEC0051	Spectrophotometry Blank 0.001M Perchloric Acid	0mg/l	1 x Permanently Sealed UV Cuvettes
RSPEC00511	Blank - 0.001M Perchloric Acid	0mg/l	100ml Amber Bottle
RSPEC00221	Potassium Dichromate Absorbance/ Transmission Standard	20mg/l	100ml Amber Bottle
RSPEC00231	Potassium Dichromate Absorbance/ Transmission Standard	40mg/l	100ml Amber Bottle
RSPEC00241	Potassium Dichromate Absorbance/ Transmission Standard	60mg/l	100ml Amber Bottle
RSPEC00251	Potassium Dichromate Absorbance/ Transmission Standard	80mg/l	100ml Amber Bottle
RSPEC00261	Potassium Dichromate Absorbance/ Transmission Standard	100mg/l	100ml Amber Bottle
RSPEC0018	Spectrophotometry Potassium Dichromate Absorbance/Transmission Standard - 10mg/l	10mg/l	2 x Permanently sealed UV Cuvettes (including blank)
RSPEC0019	Spectrophotometry Potassium Dichromate Absorbance/ Transmission Standard - 15mg/l	15mg/l	2 x Permanently sealed UV Cuvettes (including blank)
RSPEC0020	Spectrophotometry Potassium Dichromate Absorbance/ Transmission Standard - 50mg/l	50mg/l	2 x Permanently sealed UV Cuvettes (including blank)
RSPEC-EP0060	Spectrophotometry Potassium Dichromate Absorbance/ Transmission Standard 60mg/l (Ph.Eur)	60mg/l	2 x Permanently sealed UV Cuvettes (including blank)
RSPEC-EP00601	Spectrophotometry Potassium Dichromate Absorbance/ Transmission Standard 60mg/l (Ph.Eur)	60mg/l	100ml Amber Bottle
RSPEC-EP0061	Spectrophotometry Potassium Dichromate Absorbance/Transmission Standard 600mg/l (Ph.Eur)	600mg/l	2 x Permanently sealed UV Cuvettes (including blank)

Product No.	Description	Concentration	Pack Size
RSPEC-EP00611	Spectrophotometry Potassium Dichromate Absorbance/Transmission Standard 600mg/l (Ph.Eur)	600mg/l	100ml Amber Bottle
RSPEC-EP00751	Spectrophotometry Absorbance/ Transmission Standard Blank - 0.005M Sulfuric Acid (Ph.Eur)		100ml Amber Bottle

Linearity Standards @ 213 & 261nm

Product No.	Description	Concentration	Pack Size
RSPEC1027	Nicotinic Acid Linearity Set With Blank Linearity Set With Blank in Sealed Cuvettes	0mg/l, 6mg/l, 12mg/l, 18mg/l, 24mg/l	5 x Permanently sealed UV Cuvettes (including blank)
RSPEC0027	Nicotinic Acid Absorbance/ Transmission Standard	6mg/l	2 x Permanently Sealed UV Cuvettes (including blank)
RSPEC0028	Nicotinic Acid Absorbance/ Transmission Standard	12mg/l	2x Permanently Sealed UV Cuvettes (including blank)
RSPEC0029	Nicotinic Acid Absorbance/ Transmission Standard	18mg/l	2 x Permanently Sealed UV Cuvettes (including blank)
RSPEC0030	Nicotinic Acid Absorbance/ Transmission Standard	24mg/l	2 x Permanently Sealed UV Cuvette (including blank)
RSPEC0052	Spectrophotometry Blank 0.1M Hydrochloric Acid	0mg/l	1 x Permanently Sealed UV Cuvette
RSPEC00521	Blank -- 0.1M Hydrochloric Acid	0mg/l	100ml Amber Bottle
RSPEC00271	Nicotinic Acid Absorbance/ Transmission Standard	6mg/l	100ml Amber Bottle
RSPEC00281	Nicotinic Acid Absorbance/ Transmission Standard	12mg/l	100ml Amber Bottle
RSPEC00291	Nicotinic Acid Absorbance/ Transmission Standard	18mg/l	100ml Amber Bottle
RSPEC00301	Nicotinic Acid Absorbance/ Transmission Standard	24mg/l	100ml Amber Bottle


Reagecon

Certificate of Analysis

PRODUCT: Holmium Oxide Solution UV and Visible Wavelength Standard 240nm to 640nm

PRODUCT NO: RSPEC00151

LOT NO: RSPEC151JD1

DATE OF TEST: 05th April 2013

EXPIRY DATE: 28th April 2015

SBW	Peak Wavelength (nm)										
0.10	240.73	250.88	277.93	345.58	360.98	385.23	415.88	451.83	467.63	484.98	535.33	640.28
0.20	240.81	249.67	278.06	345.66	361.26	385.36	416.01	452.01	467.81	485.21	536.51	640.36
0.50	240.92	249.72	278.17	345.42	361.17	385.32	416.07	451.92	467.72	485.17	536.52	640.32
1.00	241.06	249.81	278.10	345.51	361.26	385.71	416.31	451.66	467.81	485.26	536.66	640.56
2.00	241.11	250.05	278.10	345.56	360.16	385.96	416.71	453.31	467.91	485.31	536.96	640.81

TEST METHOD:

The result reported above was determined by analysis of a sample of this lot taken at time of manufacture. The wavelength values of the standard was determined using a high performance calibrated, UV Spectrometer according to TPUVWAV1. This test method provides traceability to high purity ISO Guide 34 Certified Reference Materials and to National Institute of Standards and Technology (NIST).

This certificate relates solely to the lot number given above. The uncertainty of measurement has been calculated not to exceed ±0.502nm at 95% confidence level, i.e. coverage factor k=2.


TRACEABILITY IN THE PRODUCTION OF THIS STANDARD:

This product was prepared gravimetrically on a weight/weight basis. Both solute and solvent were weighed on a balance calibrated by Reagecon engineers using OIML traceable weights. Reagecon holds ISO 17025 accreditation for calibration of non-automatic weighing machines (265C). The resulting Balance Certificate of Calibration was issued in accordance with the requirements of ISO/IEC 17025. The balance was calibrated under monitored environmental conditions and atmospheric pressure. Tests were performed for capacity, readability, repeatability, eccentricity and linearity.

BALANCE ID No.: RBD006
CALIBRATION DATE OF BALANCE: 28th September 2012
CALIBRATION AUTHORITY OF BALANCE: Reagecon Diagnostics Ltd, ISO17025 Accreditation No. 265C

WEIGHTS No.: RTS12
CALIBRATION DATE OF WEIGHTS: 19th May 2012
CALIBRATION AUTHORITY OF WEIGHTS: Complete Calibrations, ISO17025 Accreditation No. 282C

WEIGHTS No.: RTS15
CALIBRATION DATE OF WEIGHTS: 21st October 2011
CALIBRATION AUTHORITY OF WEIGHTS: European Instruments (UKAS No. 0438)

INSTRUCTIONS FOR USE:

- Run against an Air Blank
- Shake well before use.

Date: 05th April 2013

This certificate must not be reproduced except in full.

Wavelength Standards (Certified at 0.1nm, 0.2nm, 0.5nm, 1.0nm & 2.0nm slit widths)

Product No.	Description	Nominal Peak Wavelengths (0.2nm Slit Width)	Pack Size
RSPEC0001	Didymium Solution UV and Visible Wavelength Standard 298nm to 865nm	298nm, 328.8nm, 353.8nm, 443.8nm, 468.5nm, 481.3nm, 511.5nm, 521.6nm, 574.8nm, 731.4nm, 739.6nm, 794nm, 801.1nm, 865nm	1 x Permanently Sealed UV Cuvette
RSPEC0008	Samarium Solution UV and Visible Wavelength Standard 235nm to 480nm	235nm, 278.8nm, 290.1nm, 305.2nm, 317.4nm, 331.6nm, 344.4nm, 362.2nm, 374.1nm, 390.4nm, 401.1nm, 415.3nm, 463.4nm, 478.6nm	1 x Permanently Sealed UV Cuvette
RSPEC0015	Holmium Oxide Solution UV and Visible Wavelength Standard 240nm to 640nm	240.8nm, 249.6nm, 278nm, 286.8nm, 333nm, 345.4nm, 361.1nm, 385.2nm, 416nm, 451.8nm, 536.3nm, 640.2nm	1 x Permanently Sealed UV Cuvette
RSPEC00011	Didymium Solution UV and Visible Wavelength Standard 298nm to 865nm	298nm, 328.8nm, 353.8nm, 443.8nm, 468.5nm, 481.3nm, 511.5nm, 521.6nm, 574.8nm, 731.4nm, 739.6nm, 794nm, 801.1nm, 865nm	100ml Amber Bottle
RSPEC00081	Samarium Solution UV and Visible Wavelength Standard 235nm to 480nm	235nm, 278.8nm, 290.1nm, 305.2nm, 317.4nm, 331.6nm, 344.4nm, 362.2nm, 374.1nm, 390.4nm, 401.1nm, 415.3nm, 463.4nm, 478.6nm	100ml Amber Bottle
RSPEC00151	Holmium Oxide Solution UV and Visible Wavelength Standard 240nm to 640nm	240.8nm, 249.6nm, 278nm, 286.8nm, 333nm, 345.4nm, 361.1nm, 385.2nm, 416nm, 451.8nm, 467.6nm, 485nm, 536.3nm, 640.2nm	100ml Amber Bottle
RSPEC-EP0064	Holmium Oxide Solution UV and Visible Wavelength Standard 240nm to 640nm (Ph. Eur)	241.15nm, 287.15nm, 361.5nm, 486nm, 536.3nm	1 x Permanently Sealed UV Cuvette

Product No.	Description	Nominal Peak Wavelengths (0.2nm Slit Width)	Pack Size
RSPEC-EP00641	Holmium Oxide Solution UV and Visible Wavelength Standard 240nm to 640nm (Ph. Eur)	241.15nm, 287.15nm, 361.5nm, 486nm, 536.3nm	100ml Amber Bottle

Stray Light Standards

Product No.	Description	Cut Off	Packed In
RSPEC0036	Stray Light Inorganic Cut-off filter - Sodium Nitrite	390nm	2 x Permanently sealed UV Cuvettes (including blank)
RSPEC0037	Stray Light Inorganic Cut-off filter - Potassium Iodide	260nm	2 x Permanently Sealed UV Cuvettes (including blank)
RSPEC0038	Stray Light Inorganic Cut-off filter - Sodium Iodide	260nm	2 x Permanently Sealed UV Cuvettes (including blank)
RSPEC0039	Stray Light Inorganic Cut-off filter - Lithium Carbonate	227nm	2 x Permanently Sealed UV Cuvettes (including blank)
RSPEC0040	Stray Light Inorganic Cut-off filter - Sodium Chloride	205nm	2 x Permanently Sealed UV Cuvettes (including blank)
RSPEC0041	Stray Light Inorganic Cut-off filter - Potassium Chloride	200nm	2 x Permanently Sealed UV Cuvettes (including blank)
RSPEC00361	Stray Light Inorganic Cut-off filter - Sodium Nitrite	390nm	100ml Amber Bottle
RSPEC00371	Stray Light Inorganic Cut-off filter - Potassium Iodide	260nm	100ml Amber Bottle
RSPEC00381	Stray Light Inorganic Cut-off filter - Sodium Iodide	260nm	100ml Amber Bottle
RSPEC00391	Stray Light Inorganic Cut-off filter - Lithium Carbonate	227nm	100ml Amber Bottle
RSPEC00401	Stray Light Inorganic Cut-off filter - Sodium Chloride	205nm	100ml Amber Bottle
RSPEC00411	Stray Light Inorganic Cut-off filter - Potassium chloride	200nm	100ml Amber Bottle
RSPEC00541	Spectrophotometry Stray Light Blank Aqueous		100ml Amber Bottle

Product No.	Description	Cut Off	Packed In
RSPEC-EP0062	Spectrophotometry Stray Light Inorganic Cut-off filter - Potassium Chloride with Blank (Ph. Eur.)	198nm	2 x Permanently Sealed UV Cuvettes (including blank)
RSPEC-EP00621	Spectrophotometry Stray Light Inorganic Cut-off filter - Potassium Chloride with Blank (Ph. Eur.)	198nm	100ml Amber Bottle
RSPEC-EP00741	Spectrophotometry Stray Light Blank Aqueous (Ph.Eur)		100ml Amber Bottle

Bandwidth Standard

Product No.	Description	Certified Value	Packed In
RSPEC1031	Bandwidth Standard - Toluene in Hexane	Ratio of 268.7nm peak to 266.8nm trough	2 x Permanently sealed UV Cuvettes (including blank)
RSPEC00311	Bandwidth Standard - Toluene in Hexane	Ratio of 268.7nm peak to 266.8nm trough	100ml Amber Bottle
RSPEC00531	Bandwidth Standard - Blank	Ratio of 268.7nm peak to 266.8nm trough	100ml Amber Bottle
RSPEC-EP00631	Bandwidth Standard - Toluene in Hexane (Ph. Eur)	Ratio of 268.7nm peak to 266.8nm trough	100ml Amber Bottle
RSPEC-EP00731	Bandwidth Standard - Blank (Ph.Eur)	Ratio of 268.7nm peak to 266.8nm trough	100ml Amber Bottle
RSPEC-EP0063	Bandwidth Standard - Toluene in Hexane with Blank (Ph. Eur.)	Ratio of 268.7nm peak to 266.8nm trough	2 x Permanently sealed UV Cuvettes (including blank)

Resolution Standards

Product No.	Description	Information	Pack Size
RSPEC-EPR001	Resolution Standard - Toluene in Methanol with Blank (Ph. Eur.)	For use in second-order derivative spectroscopy as specified by the Ph. Eur.	2 x Permanently sealed UV Cuvettes (including blank)
RSPEC-EPR002	Resolution Standard - Toluene in Methanol	For use in second-order derivative spectroscopy as specified by the Ph. Eur.	100ml Amber Bottle
RSPEC-EPR003	Resolution Standard - Methanol blank (Ph. Eur.)	For use in second-order derivative spectroscopy as specified by the Ph. Eur.	100ml Amber Bottle

Melting Point Standards

Summary of Features & Benefits:

Commercial Benefits

- Extensive range
- Can be used with any melting point apparatus
- Presented in high quality glass bottles
- Customised Melting Point Standards also available
- Ready to Use

Technical Benefits

- Uncertainty of measurement up to ± 0.3°C
- Consistency of product - Independent, Traceable, Certified
- Certificates of Analysis and Safety Data Sheets available online

The product range includes Benzophenone, Melting Point +47 to +49°C To Anthraquinone, Melting Point +283 to +286°C. These products are prepared using the highest purity raw materials. Melting points are determined using a high accuracy Differential Scanning Calorimeter (DSC) system that is calibrated to the ITS - 90 International Temperature Scale. Verification measurements are completed using a high specification melting point apparatus.

Melting Point Standards

Product No.	Description	Certified Value	Packed in
RMPSET1	**Melting Point Standard Set**		3 x 1g
	Sulphanilamide	+164 to +166˚C	
	Caffeine	+235 to +237˚C	
	Vanillin	+81 to +83˚C	
RMP236	Caffeine	+235 to +237˚C	1 x 1g
RMP165	Sulphanilamide	+164 to +166˚C	1 x 1g
MPV82	Vanillin	+81 to +83˚C	1 x 0.3g
RMP082	Vanillin	+81 to +83˚C	1 x 1g
RMPSET3	**Melting Point Standard Set**		3 x 1g
	Phenacetin	+133 to +135˚C	
	Caffeine	+235 to +237˚C	
	Vanillin	+81 to +83˚C	
RMP132	Phenacetin	+133 to +135˚C	1 x 1g
RMPSET2	**Melting Point Standard Set**		3 x 1g
	Benzophenone	+47 to +49˚C	
	Benzoic Acid	+121 to +123˚C	
	Anthraquinone	+283 to +286˚C	
RMP048	Benzophenone	+47 to +49˚C	1 x 1g
RMP122	Benzoic Acid	+121 to +123˚C	1 x 1g
RMP284	Anthraquinone	+283 to +286˚C	1 x 1g
RMP053	p-Nitrotoluene	+52 to +54˚C	1 x 1g
RMP246	Carbazole	+244 to +248˚C	1 x 1g
RMP159	Salicylic Acid	+158 to +160˚C	1 x 1g

Density Standards - Premium Range

Summary of Features & Benefits:

Commercial Benefits

- Extensive range (0.6407 - 3.1140)
- No toxic heavy metals used in any formulation
- Can be used with any brand or type of density measuring instrument
- Presented in a high quality tamper proof amber glass bottle
- Customised formulations available

Technical Benefits

- High accuracy products
- Tested using a fundamental measurement technique (Bingham Pycnometer)
- All products tested in accordance with ASTM D1480 Guidelines
- Consistency of product - Independent, Traceable, Certified
- Certificates of Analysis and Safety Data Sheets available online

Reagecon manufactures an extensive range of Density Standards in accordance with ASTM D1480-12 for testing of Density or Relative Density (specific and API gravity) by Bingham Pycnometer. These materials can be used as calibration standards for density measurement by pycnometric techniques, vibrational techniques or hydrometer based techniques.

The product range includes:

- 0.6960 - 3.1140g/ml @ 15°C
- 0.6619 - 3.1096g/ml @ 20°C
- 0.6878 - 3.1043g/ml @ 25°C
- 0.6752 - 3.0852g/ml @ 40°C
- 0.6668 - 3.0721g/ml @ 50°C
- 0.6582 - 1.0478g/ml @ 60°C
- 0.6407 - 1.0302g/ml @ 80°C

The products are prepared gravimetrically on a weight/weight basis. Both solute and solvent are weighed on a balance calibrated by Reagecon engineers using OIML traceable weights. Reagecon holds ISO 17025 accreditation for calibration of laboratory balances (INAB Ref:265C). The resulting Balance Certificate of Calibration is issued in accordance with the requirements of ISO/IEC 17025. The density of each standard is established using a high performance set of fully calibrated reference pycnometers.

Density Standards @ 15°C

Product No.	Description	Pack Size
DEN15010PY	Density Standard 0.6960g/ml @15°C	100ml
DEN15020PY	Density Standard 0.7073g/ml @15°C	100ml
DEN15030 PY	Density Standard 0.7184g/ml @15°C	100ml
DEN15040PY	Density Standard 0.7298g/ml @15°C	100ml
DEN15050PY	Density Standard 0.7411g/ml @15°C	100ml
DEN15060PY	Density Standard 0.7524g/ml @15°C	100ml
DEN15070PY	Density Standard 0.7721g/ml @15°C	100ml
DEN15080PY	Density Standard 0.7933g/ml @15°C	100ml
DEN15090PY	Density Standard 0.8168g/ml @15°C	100ml
DEN15100PY	Density Standard 0.8428g/ml @15°C	100ml
DEN15110PY	Density Standard 0.8715g/ml @15°C	100ml
DEN15120PY	Density Standard 0.9135g/ml @15°C	100ml
DEN15130PY	Density Standard 0.9514g/ml @15°C	100ml
DEN15140PY	Density Standard 1.0040g/ml @15°C	100ml
DEN15150PY	Density Standard 1.0337g/ml @15°C	100ml
DEN15160PY	Density Standard 1.0828g/ml @15°C	100ml
DEN15170PY	Density Standard 1.1661g/ml @15°C	100ml
DEN15180PY	Density Standard 1.2498g/ml @15°C	100ml
DEN15190PY	Density Standard 1.3318g/ml @15°C	100ml
DEN15200PY	Density Standard 1.4152g/ml @15°C	100ml
DEN15210PY	Density Standard 1.5820g/ml @15°C	100ml
DEN15215PY	Density Standard 1.6459g/ml @15°C	100ml
DEN15220PY	Density Standard 1.7495g/ml @15°C	100ml
DEN15225PY	Density Standard 1.8366g/ml @15°C	100ml
DEN15230PY	Density Standard 1.9171g/ml @15°C	100ml
DEN15240PY	Density Standard 2.0846g/ml @15°C	100ml
DEN15250PY	Density Standard 2.2568g/ml @15°C	100ml
DEN15260PY	Density Standard 2.4261g/ml @15°C	100ml
DEN15270PY	Density Standard 2.6055g/ml @15°C	100ml
DEN15280PY	Density Standard 2.7588g/ml @15°C	100ml
DEN15290PY	Density Standard 2.9418g/ml @15°C	100ml
DEN15300PY	Density Standard 3.1140g/ml @15°C	100ml

Density Standards @ 20°C

Product No.	Description	Pack Size
DEN20010PY	Density Standard 0.6919g/ml @20°C	100ml
DEN20020PY	Density Standard 0.7033g/ml @20°C	100ml
DEN20030PY	Density Standard 0.7148g/ml @20°C	100ml
DEN20040PY	Density Standard 0.7261g/ml @20°C	100ml
DEN20050PY	Density Standard 0.7374g/ml @20°C	100ml
DEN20060PY	Density Standard 0.7488g/ml @20°C	100ml
DEN20070PY	Density Standard 0.7683g/ml @20°C	100ml
DEN20080PY	Density Standard 0.7893g/ml @20°C	100ml
DEN20090PY	Density Standard 0.8126g/ml @20°C	100ml
DEN20100PY	Density Standard 0.8384g/ml @20°C	100ml
DEN20110PY	Density Standard 0.8668g/ml @20°C	100ml
DEN20120PY	Density Standard 0.9098g/ml @20°C	100ml
DEN20130PY	Density Standard 0.9476g/ml @20°C	100ml
DEN20140PY	Density Standard 1.0005g/ml @20°C	100ml
DEN20150PY	Density Standard 1.0301g/ml @20°C	100ml
DEN20160PY	Density Standard 1.0792g/ml @20°C	100ml
DEN20170PY	Density Standard 1.1651g/ml @20°C	100ml
DEN20180PY	Density Standard 1.2486g/ml @20°C	100ml
DEN20190PY	Density Standard 1.3304g/ml @20°C	100ml
DEN20200PY	Density Standard 1.4136g/ml @20°C	100ml
DEN20210PY	Density Standard 1.5799g/ml @20°C	100ml
DEN20220PY	Density Standard 1.7470g/ml @20°C	100ml
DEN20230PY	Density Standard 1.9141g/ml @20°C	100ml
DEN20240PY	Density Standard 2.0812g/ml @20°C	100ml
DEN20250PY	Density Standard 2.2531g/ml @20°C	100ml
DEN20260PY	Density Standard 2.4219g/ml @20°C	100ml
DEN20270PY	Density Standard 2.6011g/ml @20°C	100ml
DEN20280PY	Density Standard 2.7542g/ml @20°C	100ml
DEN20290PY	Density Standard 2.9370g/ml @20°C	100ml
DEN20300PY	Density Standard 3.1096g/ml @20°C	100ml

Density Standards @ 25°C

Product No.	Description	Pack Size
DEN25010PY	Density Standard 0.6878g/ml @25°C	100ml
DEN25020PY	Density Standard 0.6993g/ml @25°C	100ml
DEN25030PY	Density Standard 0.7111g/ml @25°C	100ml
DEN25040PY	Density Standard 0.7223g/ml @25°C	100ml
DEN25050PY	Density Standard 0.7337g/ml @25°C	100ml
DEN25060PY	Density Standard 0.7452g/ml @25°C	100ml
DEN25070PY	Density Standard 0.7645g/ml @25°C	100ml
DEN25080PY	Density Standard 0.7853g/ml @25°C	100ml
DEN25090PY	Density Standard 0.8084g/ml @25°C	100ml
DEN25100PY	Density Standard 0.8340g/ml @25°C	100ml
DEN25110PY	Density Standard 0.8622g/ml @25°C	100ml
DEN25120PY	Density Standard 0.9060g/ml @25°C	100ml
DEN25130PY	Density Standard 0.9438g/ml @25°C	100ml
DEN25140PY	Density Standard 0.9969g/ml @25°C	100ml
DEN25150PY	Density Standard 1.0265g/ml @25°C	100ml
DEN25160PY	Density Standard 1.0755g/ml @25°C	100ml
DEN25170PY	Density Standard 1.1639g/ml @25°C	100ml
DEN2512PY	Density Standard 1.2000g/ml @25°C	100ml
DEN25180PY	Density Standard 1.2471g/ml @25°C	100ml
DEN25190PY	Density Standard 1.3287g/ml @25°C	100ml
DEN25200PY	Density Standard 1.4117g/ml @25°C	100ml
DEN2515PY	Density Standard 1.5000g/ml @25°C	100ml
DEN25210PY	Density Standard 1.5775g/ml @25°C	100ml
DEN2516PY	Density Standard 1.6000g/ml @25°C	100ml
DEN25220PY	Density Standard 1.7441g/ml @25°C	100ml
DEN25230PY	Density Standard 1.9108g/ml @25°C	100ml
DEN25240PY	Density Standard 2.0775g/ml @25°C	100ml
DEN25250PY	Density Standard 2.2490g/ml @25°C	100ml
DEN25260PY	Density Standard 2.4175g/ml @25°C	100ml
DEN25270PY	Density Standard 2.5964g/ml @25°C	100ml
DEN25280PY	Density Standard 2.7493g/ml @25°C	100ml
DEN25290PY	Density Standard 2.9319g/ml @25°C	100ml
DEN25300PY	Density Standard 3.1043g/ml @25°C	100ml

Density Standards @ 40°C

Product No.	Description	Pack Size
DEN40010PY	Density Standard 0.6752g/ml @40°C	100ml
DEN40020PY	Density Standard 0.6872g/ml @40°C	100ml
DEN40030PY	Density Standard 0.6997g/ml @40°C	100ml
DEN40040PY	Density Standard 0.7109g/ml @40°C	100ml
DEN40050PY	Density Standard 0.7226g/ml @40°C	100ml
DEN40060PY	Density Standard 0.7343g/ml @40°C	100ml
DEN40070PY	Density Standard 0.7531g/ml @40°C	100ml
DEN40080PY	Density Standard 0.7733g/ml @40°C	100ml
DEN40090PY	Density Standard 0.7958g/ml @40°C	100ml
DEN40100PY	Density Standard 0.8207g/ml @40°C	100ml
DEN40110PY	Density Standard 0.8482g/ml @40°C	100ml
DEN40120PY	Density Standard 0.8945g/ml @40°C	100ml
DEN40130PY	Density Standard 0.9323g/ml @40°C	100ml
DEN40140PY	Density Standard 0.9857g/ml @40°C	100ml
DEN40150PY	Density Standard 1.0152g/ml @40°C	100ml
DEN40160PY	Density Standard 1.0642g/ml @40°C	100ml
DEN40170PY	Density Standard 1.1581g/ml @40°C	100ml
DEN40180PY	Density Standard 1.2408g/ml @40°C	100ml
DEN40190PY	Density Standard 1.3217g/ml @40°C	100ml
DEN40200PY	Density Standard 1.4039g/ml @40°C	100ml
DEN40210PY	Density Standard 1.5685g/ml @40°C	100ml
DEN40220PY	Density Standard 1.7339g/ml @40°C	100ml
DEN40230PY	Density Standard 1.8994g/ml @40°C	100ml
DEN40240PY	Density Standard 2.0649g/ml @40°C	100ml
DEN40250PY	Density Standard 2.2352g/ml @40°C	100ml
DEN40260PY	Density Standard 2.4028g/ml @40°C	100ml
DEN40270PY	Density Standard 2.5807g/ml @40°C	100ml
DEN40280PY	Density Standard 2.7329g/ml @40°C	100ml
DEN40290PY	Density Standard 2.9132g/ml @40°C	100ml
DEN40300PY	Density Standard 3.0852g/ml @40°C	100ml

Density Standards @ 50°C

Product No.	Description	Pack Size
DEN50010PY	Density Standard 0.6668g/ml @50°C	100ml
DEN50020PY	Density Standard 0.6791g/ml @50°C	100ml
DEN50030PY	Density Standard 0.6917g/ml @50°C	100ml
DEN50040PY	Density Standard 0.7033g/ml @50°C	100ml
DEN50050PY	Density Standard 0.7151g/ml @50°C	100ml
DEN50060PY	Density Standard 0.7269g/ml @50°C	100ml
DEN50070PY	Density Standard 0.7454g/ml @50°C	100ml
DEN50080PY	Density Standard 0.7653g/ml @50°C	100ml
DEN50090PY	Density Standard 0.7873g/ml @50°C	100ml
DEN50100PY	Density Standard 0.8118g/ml @50°C	100ml
DEN50110PY	Density Standard 0.8387g/ml @50°C	100ml
DEN50120PY	Density Standard 0.8868g/ml @50°C	100ml
DEN50130PY	Density Standard 0.9245g/ml @50°C	100ml
DEN50140PY	Density Standard 0.9777g/ml @50°C	100ml
DEN50150PY	Density Standard 1.0073g/ml @50°C	100ml
DEN50160PY	Density Standard 1.0562g/ml @50°C	100ml
DEN50170PY	Density Standard 1.1512g/ml @50°C	100ml
DEN50180PY	Density Standard 1.2346g/ml @50°C	100ml
DEN50190PY	Density Standard 1.3138g/ml @50°C	100ml
DEN50200PY	Density Standard 1.3973g/ml @50°C	100ml
DEN50210PY	Density Standard 1.5609g/ml @50°C	100ml
DEN50220PY	Density Standard 1.7257g/ml @50°C	100ml
DEN50230PY	Density Standard 1.8904g/ml @50°C	100ml
DEN50240PY	Density Standard 2.0551g/ml @50°C	100ml
DEN50250PY	Density Standard 2.2247g/ml @50°C	100ml
DEN50260PY	Density Standard 2.3916g/ml @50°C	100ml
DEN50270PY	Density Standard 2.5689g/ml @50°C	100ml
DEN50280PY	Density Standard 2.7207g/ml @50°C	100ml
DEN50290PY	Density Standard 2.9005g/ml @50°C	100ml
DEN50300PY	Density Standard 3.0721g/ml @50°C	100ml

Density Standards @ 60°C

Product No.	Description	Pack Size
DEN60010PY	Density Standard 0.6582g/ml @60°C	100ml
DEN60020PY	Density Standard 0.6708g/ml @60°C	100ml
DEN60030PY	Density Standard 0.6835g/ml @60°C	100ml
DEN60040PY	Density Standard 0.6955g/ml @60°C	100ml
DEN60050PY	Density Standard 0.7076g/ml @60°C	100ml
DEN60060PY	Density Standard 0.7196g/ml @60°C	100ml
DEN60070PY	Density Standard 0.7376g/ml @60°C	100ml
DEN60080PY	Density Standard 0.7572g/ml @60°C	100ml
DEN60090PY	Density Standard 0.7788g/ml @60°C	100ml
DEN60100PY	Density Standard 0.8027g/ml @60°C	100ml
DEN60110PY	Density Standard 0.8292g/ml @60°C	100ml
DEN60120PY	Density Standard 0.8790g/ml @60°C	100ml
DEN60130PY	Density Standard 0.9166g/ml @60°C	100ml
DEN60140PY	Density Standard 0.9695g/ml @60°C	100ml
DEN60150PY	Density Standard 0.9990g/ml @60°C	100ml
DEN60160PY	Density Standard 1.0478g/ml @60°C	100ml

Density Standards @ 80°C

Product No.	Description	Pack Size
DEN80010PY	Density Standard 0.6407g/ml @80°C	100ml
DEN80020PY	Density Standard 0.6538g/ml @80°C	100ml
DEN80030PY	Density Standard 0.6661g/ml @80°C	100ml
DEN80040PY	Density Standard 0.6798g/ml @80°C	100ml
DEN80050PY	Density Standard 0.6923g/ml @80°C	100ml
DEN80060PY	Density Standard 0.7047g/ml @80°C	100ml
DEN80070PY	Density Standard 0.7220g/ml @80°C	100ml
DEN80080PY	Density Standard 0.7407g/ml @80°C	100ml
DEN80090PY	Density Standard 0.7614g/ml @80°C	100ml
DEN80100PY	Density Standard 0.7844g/ml @80°C	100ml
DEN80110PY	Density Standard 0.8098g/ml @80°C	100ml
DEN80120PY	Density Standard 0.8629g/ml @80°C	100ml
DEN80130PY	Density Standard 0.9006g/ml @80°C	100ml
DEN80140PY	Density Standard 0.9520g/ml @80°C	100ml
DEN80150PY	Density Standard 0.9815g/ml @80°C	100ml
DEN80160PY	Density Standard 1.0302g/ml @80°C	100ml

Density Standards - Quality Range

Summary of Features & Benefits:

Commercial Benefits

- Extensive range (0.6538 - 1.0337 g/ml)
- No toxic heavy metals used in any formulation
- Can be used with any brand or type of vibrational density measuring instrument
- Presented in a high quality tamper proof amber glass bottle
- Customised formulations available

Technical Benefits

- Test results accredited to ISO17025. Uncertainty of measurement (assay procedure) ± 0.16%
- Produced in accordance with ASTM D4052 Guidelines
- Consistency of product - Independent, Traceable, Certified
- Certificates of Analysis and Safety Data Sheets available online
- ISO/IEC 17025 (INAB Ref:264T) Density Range 0.65-1.034g/ml

Reagecon manufactures an extensive range of Density Standards in accordance with ASTM D4052 for testing of Density, Relative Density and API Gravity of Liquids by Digital Density Meter. These materials can be used as calibration standards for density measurement by vibrational techniques or hydrometer based techniques.

The product range includes:

- 0.6960 - 1.0337g/ml @ 15°C
- 0.6619 - 1.0301g/ml @ 20°C
- 0.6878 - 1.0265g/ml @ 25°C
- 0.6752 - 1.0152g/ml @ 40°C
- 0.6668 - 1.0073g/ml @ 50°C
- 0.6582 - 0.9990g/ml @ 60°C
- 0.6538 - 1.0302g/ml @ 80°C

These products are prepared gravimetrically on a weight/weight basis. Both solute and solvent are weighed on a balance calibrated by Reagecon engineers using OIML traceable weights. Reagecon holds ISO 17025 accreditation for calibration of laboratory balances (INAB Ref:265C). The resulting Balance Certificate of Calibration is issued in accordance with the requirements of ISO/IEC 17025. The density of each standard is verified using a high performance calibrated density meter. The control of the density meter (identification no. - RRD015) is completed using high purity ISO Guide 34 accredited density standards similar in density value to these products.

Density Standards @ 15°C

Product No.	Description	Pack Size
DEN15010	Density Standard 0.6960g/ml @15°C	100ml
DEN15020	Density Standard 0.7073g/ml @15°C	100ml
DEN15030	Density Standard 0.7184g/ml @15°C	100ml
DEN15040	Density Standard 0.7298g/ml @15°C	100ml
DEN15050	Density Standard 0.7411g/ml @15°C	100ml
DEN15060	Density Standard 0.7524g/ml @15°C	100ml
DEN15070	Density Standard 0.7721g/ml @15°C	100ml
DEN15080	Density Standard 0.7933g/ml @15°C	100ml
DEN15090	Density Standard 0.8168g/ml @15°C	100ml
DEN15100	Density Standard 0.8428g/ml @15°C	100ml
DEN15110	Density Standard 0.8715g/ml @15°C	100ml
DEN15120	Density Standard 0.9135g/ml @15°C	100ml
DEN15130	Density Standard 0.9514g/ml @15°C	100ml
DEN15140	Density Standard 1.0040g/ml @15°C	100ml
DEN15150	Density Standard 1.0337g/ml @15°C	100ml

Density Standards @ 20°C

Product No.	Description	Pack Size
DEN20010	Density Standard 0.6919g/ml @20°C	100ml
DEN20020	Density Standard 0.7033g/ml @20°C	100ml
DEN20030	Density Standard 0.7148g/ml @20°C	100ml
DEN20040	Density Standard 0.7261g/ml @20°C	100ml
DEN20050	Density Standard 0.7374g/ml @20°C	100ml
DEN20060	Density Standard 0.7488g/ml @20°C	100ml
DEN20070	Density Standard 0.7683g/ml @20°C	100ml
DEN20080	Density Standard 0.7893g/ml @20°C	100ml
DEN20090	Density Standard 0.8126g/ml @20°C	100ml
DEN20100	Density Standard 0.8384g/ml @20°C	100ml
DEN20110	Density Standard 0.8668g/ml @20°C	100ml
DEN20120	Density Standard 0.9098g/ml @20°C	100ml
DEN20130	Density Standard 0.9476g/ml @20°C	100ml
DEN20140	Density Standard 1.0005g/ml @20°C	100ml
DEN20150	Density Standard 1.0301g/ml @20°C	100ml

Density Standards @ 25°C

Product No.	Description	Pack Size
DEN25010	Density Standard 0.6878g/ml @25°C	100ml
DEN25020	Density Standard 0.6993g/ml @25°C	100ml
DEN25030	Density Standard 0.7111g/ml @25°C	100ml
DEN25040	Density Standard 0.7223g/ml @25°C	100ml
DEN25050	Density Standard 0.7337g/ml @25°C	100ml
DEN25060	Density Standard 0.7452g/ml @25°C	100ml
DEN25070	Density Standard 0.7645g/ml @25°C	100ml
DEN25080	Density Standard 0.7853g/ml @25°C	100ml
DEN25090	Density Standard 0.8084g/ml @25°C	100ml
DEN25100	Density Standard 0.8340g/ml @25°C	100ml
DEN25110	Density Standard 0.8622g/ml @25°C	100ml
DEN25120	Density Standard 0.9060g/ml @25°C	100ml
DEN25130	Density Standard 0.9438g/ml @25°C	100ml
DEN25140	Density Standard 0.9969g/ml @25°C	100ml
DEN25150	Density Standard 1.0265g/ml @25°C	100ml

Density Standards @ 40°C

Product No.	Description	Pack Size
DEN40010	Density Standard 0.6752g/ml @40°C	100ml
DEN40020	Density Standard 0.6872g/ml @40°C	100ml
DEN40030	Density Standard 0.6997g/ml @40°C	100ml
DEN40040	Density Standard 0.7109g/ml @40°C	100ml
DEN40050	Density Standard 0.7226g/ml @40°C	100ml
DEN40060	Density Standard 0.7343g/ml @40°C	100ml
DEN40070	Density Standard 0.7531g/ml @40°C	100ml
DEN40080	Density Standard 0.7733g/ml @40°C	100ml
DEN40090	Density Standard 0.7958g/ml @40°C	100ml
DEN40100	Density Standard 0.8207g/ml @40°C	100ml
DEN40110	Density Standard 0.8482g/ml @40°C	100ml
DEN40120	Density Standard 0.8945g/ml @40°C	100ml
DEN40130	Density Standard 0.9323g/ml @40°C	100ml
DEN40140	Density Standard 0.9857g/ml @40°C	100ml
DEN40150	Density Standard 1.0152g/ml @40°C	100ml

Density Standards @ 50°C

Product No.	Description	Pack Size
DEN50010	Density Standard 0.6668g/ml @50°C	100ml
DEN50020	Density Standard 0.6791g/ml @50°C	100ml
DEN50030	Density Standard 0.6917g/ml @50°C	100ml
DEN50040	Density Standard 0.7033g/ml @50°C	100ml
DEN50050	Density Standard 0.7151g/ml @50°C	100ml
DEN50060	Density Standard 0.7269g/ml @50°C	100ml
DEN50070	Density Standard 0.7454g/ml @50°C	100ml
DEN50080	Density Standard 0.7653g/ml @50°C	100ml
DEN50090	Density Standard 0.7873g/ml @50°C	100ml
DEN50100	Density Standard 0.8118g/ml @50°C	100ml
DEN50110	Density Standard 0.8387g/ml @50°C	100ml
DEN50120	Density Standard 0.8868g/ml @50°C	100ml
DEN50130	Density Standard 0.9245g/ml @50°C	100ml
DEN50140	Density Standard 0.9777g/ml @50°C	100ml
DEN50150	Density Standard 1.0073g/ml @50°C	100ml

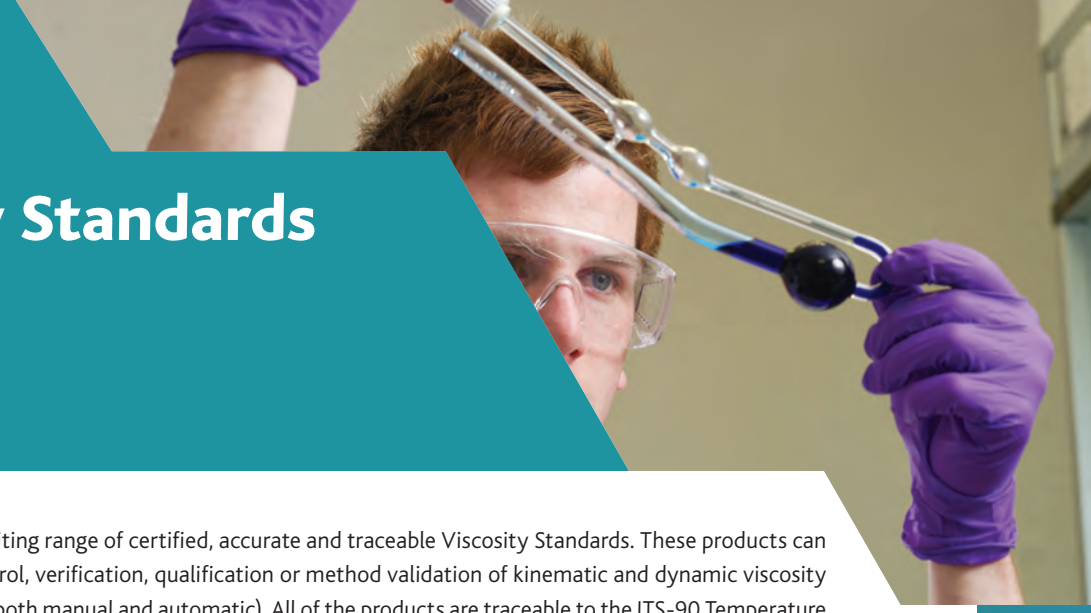
Density Standards @ 60°C

Product No.	Description	Pack Size
DEN60010	Density Standard 0.6582g/ml @60°C	100ml
DEN60020	Density Standard 0.6708g/ml @60°C	100ml
DEN60030	Density Standard 0.6835g/ml @60°C	100ml
DEN60040	Density Standard 0.6955g/ml @60°C	100ml
DEN60050	Density Standard 0.7076g/ml @60°C	100ml
DEN60060	Density Standard 0.7196g/ml @60°C	100ml
DEN60070	Density Standard 0.7376g/ml @60°C	100ml
DEN60080	Density Standard 0.7572g/ml @60°C	100ml
DEN60090	Density Standard 0.7788g/ml @60°C	100ml
DEN60100	Density Standard 0.8027g/ml @60°C	100ml
DEN60110	Density Standard 0.8292g/ml @60°C	100ml
DEN60120	Density Standard 0.8790g/ml @60°C	100ml
DEN60130	Density Standard 0.9166g/ml @60°C	100ml
DEN60140	Density Standard 0.9695g/ml @60°C	100ml
DEN60150	Density Standard 0.9990g/ml @60°C	100ml

Density Standards @ 80°C

Product No.	Description	Pack Size
DEN80020	Density Standard 0.6538g/ml @80°C	100ml
DEN80030	Density Standard 0.6661g/ml @80°C	100ml
DEN80040	Density Standard 0.6798g/ml @80°C	100ml
DEN80050	Density Standard 0.6923g/ml @80°C	100ml
DEN80060	Density Standard 0.7047g/ml @80°C	100ml
DEN80070	Density Standard 0.7220g/ml @80°C	100ml
DEN80080	Density Standard 0.7407g/ml @80°C	100ml
DEN80090	Density Standard 0.7614g/ml @80°C	100ml
DEN80100	Density Standard 0.7844g/ml @80°C	100ml
DEN80110	Density Standard 0.8098g/ml @80°C	100ml
DEN80120	Density Standard 0.8629g/ml @80°C	100ml
DEN80130	Density Standard 0.9006g/ml @80°C	100ml
DEN80140	Density Standard 0.9520g/ml @80°C	100ml
DEN80150	Density Standard 0.9815g/ml @80°C	100ml
DEN80160	Density Standard 1.0302g/ml @80°C	100ml

Viscosity Standards



Reagecon now offers an exciting range of certified, accurate and traceable Viscosity Standards. These products can be used for calibration, control, verification, qualification or method validation of kinematic and dynamic viscosity measurement instruments (both manual and automatic). All of the products are traceable to the ITS-90 Temperature scale and the universally accepted Primary Standard value of the viscosity of water at 20°C, defined as 1.0034mm^2/s (cSt) by ISO3666.

The products offer the following additional benefits;

- Manufactured and certified according to ASTM D2162 using Ubbelohde Master Viscometers.
- This is the internationally recognised primary method for Viscosity Standard certification.
- Each standard is certified for Kinematic Viscosity (mm^2/s,cSt), Dynamic Viscosity (cP) and Density (g/ml) at a range of temperatures.
- Reagecon holds ISO17025 (INAB Ref:265C) accreditation for temperature calibration, balance calibration and the testing of Density Standards for use on digital Density Meters.
- Extended shelf life.
- Attractive secure packaging.
- Certificates of Analysis and safety data sheets available on-line for every batch manufactured.
- Manufactured from high quality, stable base oils and additives.
- All standards observe Newtonian Fluid behaviour.

Reagecon has an extensive Research and Development facility based in Shannon, Ireland. Several speciality and additional ranges of viscosity standards are currently under development. These include Silicone Standards for the calibration of Rotational Viscometers.

Reagecon Viscosity Standards: Nominal Kinematic Viscosity, Dynamic Viscosity & Density

Individual batches' certified viscosity values will vary from the data given below an absolute maximum of 10%, but typically less than 5%. Individual batches' certified values will be shown to 4 significant figures for all parameters on their Certificate of Analysis.

	KINEMATIC VISCOSITY mm2/s (cSt)					DYNAMIC VISCOSITY mPa.s (cP)					DENSITY (g/ml)				
Prod Code	**20°C**	**25°C**	**37.78°C**	**40°C**	**50°C**	**20°C**	**25°C**	**37.78°C**	**40°C**	**50°C**	**20°C**	**25°C**	**37.78°C**	**40°C**	**50°C**
REVIS-N.4	0.47	0.45	0.41	0.40	-	0.31	0.29	0.26	0.25	-	0.66	0.66	0.64	0.64	-
REVIS-N.8	0.74	0.70	0.61	0.60	-	0.50	0.47	0.41	0.40	-	0.69	0.69	0.68	0.68	-
REVIS-N1.0	1.3	1.2	1.0	0.97	0.87	0.91	0.84	0.71	0.69	0.61	0.73	0.72	0.71	0.71	0.70
REVIS-N2	2.9	2.6	2.1	2.0	1.7	2.1	1.9	1.5	1.4	1.2	0.72	0.72	0.71	0.71	0.70
REVIS-S3	4.4	3.9	3.0	2.9	2.4	3.6	3.2	2.4	2.3	1.9	0.82	0.82	0.81	0.81	0.80
REVIS-N4	6.7	5.8	4.2	4.0	3.2	5.5	4.8	3.4	3.2	2.6	0.84	0.83	0.83	0.82	0.82
REVIS-S6	10	8.7	6.0	5.7	4.4	8.7	7.4	5.0	4.7	3.7	0.84	0.84	0.83	0.83	0.82
REVIS-N7.5	14	12	8.0	7.5	5.8	12	10	6.7	6.3	4.8	0.85	0.85	0.84	0.84	0.83
REVIS-N10	20	16	11	10	7.5	18	15	9.3	8.7	6.4	0.84	0.83	0.82	0.82	0.82
REVIS-N14	30	24	15	14	10	25	20	12	11	8.2	0.84	0.83	0.83	0.82	0.82
REVIS-S20	43	34	20	18	13	36	29	17	15	11	0.85	0.85	0.84	0.84	0.83
REVIS-N26	59	47	27	25	18	46	37	22	20	14	0.84	0.84	0.83	0.83	0.82
REVIS-N35	88	66	35	32	21	76	58	30	28	18	0.87	0.87	0.86	0.86	0.85
REVIS-N44	110	87	48	44	30	85	66	37	35	23	0.84	0.84	0.83	0.83	0.82
REVIS-S60	160	120	60	54	35	140	110	54	49	31	0.88	0.87	0.87	0.86	0.86
REVIS-N75	210	160	83	75	50	170	130	69	63	42	0.84	0.84	0.83	0.83	0.82
REVIS-N100	320	220	110	95	59	270	190	91	81	50	0.88	0.88	0.87	0.87	0.86
REVIS-N140	400	300	160	140	90	360	270	140	120	78	0.84	0.83	0.83	0.83	0.82
REVIS-S200	550	400	200	180	110	460	340	170	150	95	0.84	0.84	0.83	0.83	0.82
REVIS-N250	790	580	280	250	160	690	500	250	220	140	0.84	0.84	0.83	0.83	0.82
REVIS-N350	980	710	340	310	190	834	609	294	262	161	0.84	0.84	0.83	0.83	0.82
REVIS-N415	1400	1000	470	410	250	1200	840	390	350	210	0.85	0.84	0.84	0.83	0.83
REVIS-S600	1800	1300	590	520	310	1700	1200	540	480	280	0.85	0.85	0.84	0.84	0.83
REVIS-N750	2700	1800	850	760	440	2300	1600	710	640	370	0.85	0.85	0.84	0.84	0.83
REVIS-N1000	3300	2300	1100	940	560	2800	2000	940	790	460	0.86	0.85	0.85	0.84	0.83
REVIS-N1400	4900	3500	1600	1400	830	4100	3000	1300	1200	690	0.84	0.84	0.83	0.83	0.82
REVIS-S2000	8400	5300	1900	1600	810	7300	4700	1700	1400	710	0.88	0.87	0.87	0.87	0.86
REVIS-N2500	8300	5900	2700	2400	1400	7000	5000	2200	2000	1200	0.84	0.84	0.83	0.83	0.82
REVIS-N4000	19000	12000	4100	3400	1700	16000	10000	3600	3000	1500	0.88	0.88	0.88	0.87	0.87
REVIS-N5100	28000	17000	6000	5100	2500	24000	15000	5200	4400	2100	0.89	0.89	0.88	0.88	0.87
REVIS-S8000	41000	25000	8000	6700	3200	32000	20000	7000	5900	2800	0.90	0.89	0.89	0.89	0.88
REVIS-N10200	58000	36000	12000	10000	4900	51000	32000	11000	8100	4400	0.89	0.89	0.88	0.88	0.88
REVIS-N15000	77000	47000	16000	13000	6100	64000	41000	14000	12000	5000	0.89	0.89	0.88	0.88	0.88
REVIS-N18000	100000	64000	21000	18000	8500	89000	56000	19000	16000	7500	0.90	0.89	0.89	0.89	0.88
REVIS-S30000	-	79000	28000	23000	11000	-	69000	23000	20000	9000	-	0.89	0.89	0.89	0.88

ISO Guide 34 Certified Reference Materials: Sucrose in Water Standards

Summary of Features & Benefits:

Commercial Benefits

- Customised pack options available
- Extended shelf life - 12 weeks - (Manufactured inaccordance with ICUMSA guidelines)
- Ready to Use
- Can be used with any brand of refractometer
- Extensive range (1-60% w/w Sucrose in Water solutions)
- Presented in a convenient high quality dropper bottle

Technical Benefits

- ISO Guide 34 Compliant (INAB Ref:001RM)
- Measurement uncertainty computated on a batch by batch basis under these guidelines
- Consistency of product - Independent, Traceable, Certified
- Certificates of Analysis and Safety Data Sheets available
- This Certified Reference Material is intended primarily as either a calibrant or analytical control solution for use in Refractive Index based methods of Brix value determination

Reagecon now manufacture a range of Sucrose in Water solutions in compliance with ISO Guide 34 (INAB Ref:001RM). This is an internationally recognised accreditation for the production of certified reference materials. It delivers the highest level of quality assurance possible, and provides the customer with full confidence that the manufacturer's standards are produced correctly and competently in a sound metrological fashion. ISO Guide 34 accreditation requirements includes production planning, material selection, assignment of certified values, uncertainty, traceability, homogeneity and stability, as well as packaging and documentation. These standards are certified by gravimetric preparation, with an uncertainty of measurement of < 0.15% w/w, and include an equivalent % Brix and refractive index value.

ISO Guide 34 Sucrose in Water Standards (INAB Ref:001RM) -12 Week Shelf Life

Product No.	% Sucrose in Water (w/w) @ 20°C	Nominal Brix %*	Nominal Refractive Index @ 20°C	Pack size
BS05	5% Sucrose	5% Brix	1.340264	15ml
BS07	7% Sucrose	7% Brix	1.343253	15ml
BS10	10% Sucrose	10% Brix	1.347824	15ml
BS112	11.2% Sucrose	11.2% Brix	1.349682	15ml
BS115	11.5% Sucrose	11.5% Brix	1.350149	15ml
BS12	12% Sucrose	12% Brix	1.350930	15ml
BS125	12.5% Sucrose	12.5% Brix	1.351714	15ml
BS15	15% Sucrose	15% Brix	1.355679	15ml
BS20	20% Sucrose	20% Brix	1.363842	15ml
BS25	25% Sucrose	25% Brix	1.372328	15ml
BS30	30% Sucrose	30% Brix	1.381149	15ml
BS35	35% Sucrose	35% Brix	1.390322	15ml
BS40	40% Sucrose	40% Brix	1.399860	15ml
BS45	45% Sucrose	45% Brix	1.409777	15ml
BS50	50% Sucrose	50% Brix	1.420087	15ml
BS55	55% Sucrose	55% Brix	1.430800	15ml
BS60	60% Sucrose	60% Brix	1.441928	15ml

*The nominal Brix and Refractive Index values are taken from the ICUMSA published tables

Brix Standards (Stabilised)

Summary of Features & Benefits:

Commercial Benefits

- Most extensive range available in the market place
- Customised pack options available
- Extended 1 Year shelf life (For users not required to follow ICUMSA Guidelines)
- Can be used with any brand of refractometer
- Extensive range (0 - 67.5% Brix)
- Presented in a convenient high quality dropper bottle
- Available as single bottles or a handy set of 6 bottles
- Ready to Use

Technical Benefits

- Test results accredited to ISO/IEC 17025 for values 5-60% Brix (INAB Ref:264T)
- Uncertainty of measurement ±0.11% for all Brix values @ 20°C
- Consistency of product-Independent, Traceable Certified
- Certificates of Analysis and Safety Data Sheets available online

Reagecon manufactures several ranges of Brix/Refractive Index Standards for ease of use when controlling all types of refractometers. All of these standards are manufactured using high purity raw materials. These Product ranges - Product No.'s BS00S to BS67S for single bottles and BS00S6 to BS67S6 for packs of six bottles, contain the same raw materials as the ICUMSA range, but are stabilised to have an extended shelf - life of 1 year. These products represent excellent value for users that are not required to follow ICUMSA Guidelines.

All products are prepared gravimetrically on a weight/weight basis. Both solute (sucrose) and solvent (water) are weighed on a balance calibrated by Reagecon engineers using OIML traceable weights. Reagecon holds ISO/IEC 17025 accreditation for calibration of laboratory balances (INAB Ref:265C). The resulting Balance Certificate of Calibration is issued in accordance with the requirements of ISO/IEC 17025. The Brix value of the standard is verified using a high performance calibrated, temperature controlled refractometer.

The control of this instrument is completed using high purity ISO Guide 34 accredited Brix standards similar in Brix value to the products listed.

Brix Standards - Stabilised - 1 Year Shelf Life

Description	Nominal Refractive Index @ 20°C*	Product No. 15ml	Product No. 6x15ml
Sucrose (Brix) Standard Stabilised 0%	1.332986	BS00S	BS00S6
Sucrose (Brix) Standard Stabilised 5%	1.340264	BS05S	BS05S6
Sucrose (Brix) Standard Stabilised 7%	1.343253	BS07S	BS07S6
Sucrose (Brix) Standard Stabilised 10%	1.347824	BS10S	BS10S6
Sucrose (Brix) Standard Stabilised 11.2%	1.349682	BS112S	BS112S6
Sucrose (Brix) Standard Stabilised 11.5%	1.350149	BS115S	BS115S6
Sucrose (Brix) Standard Stabilised 12%	1.350930	BS12S	BS12S6
Sucrose (Brix) Standard Stabilised 12.5%	1.351714	BS125S	BS125S6
Sucrose (Brix) Standard Stabilised 14.9%	1.355519	BS149S	BS149S6
Sucrose (Brix) Standard Stabilised 15%	1.355679	BS15S	BS15S6
Sucrose (Brix) Standard Stabilised 19.4%	1.362846	BS194S	BS194S6
Sucrose (Brix) Standard Stabilised 20%	1.363842	BS20S	BS20S6
Sucrose (Brix) Standard Stabilised 23.8%	1.370261	BS238S	BS238S6
Sucrose (Brix) Standard Stabilised 25%	1.372328	BS25S	BS25S6
Sucrose (Brix) Standard Stabilised 30%	1.381149	BS30S	BS30S6
Sucrose (Brix) Standard Stabilised 35%	1.390322	BS35S	BS35S6
Sucrose (Brix) Standard Stabilised 40%	1.399860	BS40S	BS40S6
Sucrose (Brix) Standard Stabilised 45%	1.409777	BS45S	BS45S6
Sucrose (Brix) Standard Stabilised 50%	1.420087	BS50S	BS50S6
Sucrose (Brix) Standard Stabilised 55%	1.430800	BS55S	BS55S6
Sucrose (Brix) Standard Stabilised 60%	1.441928	BS60S	BS60S6
Sucrose (Brix) Standard Stabilised 67.5%	1.459290	BS67S	BS67S6

*The nominal Refractive Index value is taken from the ICUMSA published tables for all product numbers except BS67S and BS67S6 (Brix Value 67.5%) which is a measured value.

Refractive Index Standards

Summary of Features & Benefits:

Commercial Benefits

- Both sucrose and solvent based standards available
- Most extensive range in the marketplace
- Customised pack options available
- Shelf life of 1 - 2 years
- Can be used with any brand of refractometer
- Extensive range (1.33299-1.65808 $_{\eta}$D)
- Presented in a convenient high quality dropper bottle
- Available as single bottles or a handy set of 6 bottles
- Ready to Use

Technical Benefits

- Test results accredited to ISO/IEC 17025 for values in the range of 1.33310 to 1.65812 (INAB Ref:264T)
- Uncertainty of measurement up to 0.00014 $_{\eta}$D units
- Consistency of product-Independent, Traceable, Certified
- Certificates of Analysis and Safety Data Sheets available online

Product No.'s RIBS07S to RIBS60S have identical components and shelf life (1 Year) to the stabilised Brix Standards already described in the previous section. However, the certified values are expressed in Refractive Index (R.I) units $_{\eta}$D. All these products are prepared gravimetrically on a weight/weight basis. Both solute (sucrose) and solvent (water) are weighed on a balance calibrated by Reagecon engineers using OIML traceable weights. Reagecon holds ISO 17025 accreditation for calibration of laboratory balances (INAB Ref:265C). The resulting Balance Certificate of Calibration is issued in accordance with the requirements of ISO/IEC 17025. The R.I. of the standard is verified using a high performance calibrated, temperature controlled refractometer. The control of this instrument is completed using high purity ISO Guide 34 accredited Brix standards similar in Brix value to the products listed.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CERTIFICATE OF ANALYSIS

PRODUCT:	Refractive Index Stabilised Standard @ 20°C - 1.35036D
PRODUCT NO:	RIBS1358
LOT NO:	RIBS1358D1
DATE OF TEST:	04th April 2016
EXPIRY DATE:	28th April 2017
SPECIFICATION:	1.34984 - 1.35046nD @ 20°C
MEAN:	1.35046nD @ 20°C

TEST METHOD:

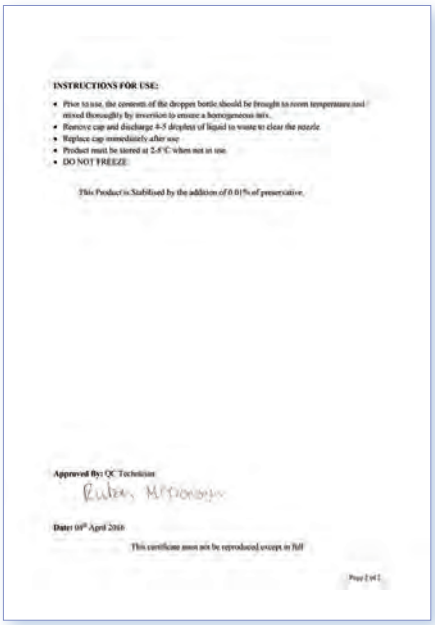
The result reported above was determined by analysis of a sample of this lot taken at time of manufacture. The Refractive Index value of the standard was determined using a high performance calibrated, temperature controlled refractometer according to TPRIA 01

This test method provides traceability to high purity ISO Guide 34 Certified Reference Materials

This certificate relates solely to the lot number given above. The uncertainty of measurement has been calculated not to exceed ±0.00014nD (0.01%) @ 20°C at 95% confidence level, k=coverage factor k=2.

ACCREDITATION:

Reagecon Diagnostics Ltd. is accredited by the Irish National Accreditation Board, under scope 264T, for the test method, TPRIA 01, 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 TPRIA 01 is technically valid and is supported by appropriate uncertainty measurements.


INSTRUCTIONS FOR USE:

- Prior to use, the contents of the dropper bottle should be brought to room temperature and mixed thoroughly by inversion to ensure a homogeneous mix.
- Remove cap and discharge 4-5 droplets of liquid to waste to clear the nozzle
- Replace cap immediately after use
- Product must be stored at 2-8°C when not in use.
- DO NOT FREEZE

This Product is Stabilised by the addition of 0.01% of preservative.

Approved By: QC Technician

Date 04th April 2016

This certificate must not be reproduced except in full

Refractive Index Standards - Stabilised Sucrose - 1 Year Shelf Life

Description (20˚C)	Nominal Refractive Index @ 20˚C*	Product No. 15ml	Product No. 6x15ml
Refractive Index @ 20˚C	1.33299	RIBS00S	RIBS00S6
Refractive Index @ 20˚C	1.34026	RIBS05S	RIBS05S6
Refractive Index @ 20˚C	1.34325	RIBS07S	RIBS07S6
Refractive Index @ 20˚C	1.34782	RIBS10S	RIBS10S6
Refractive Index @ 20˚C	1.34968	RIBS112S	RIBS112S6
Refractive Index @ 20˚C	1.35015	RIBS115S	RIBS115S6
Refractive Index @ 20˚C	1.35093	RIBS12S	RIBS12S6
Refractive Index @ 20˚C	1.35171	RIBS125S	RIBS125S6
Refractive Index @ 20˚C	1.35568	RIBS15S	RIBS15S6
Refractive Index @ 20˚C	1.36384	RIBS20S	RIBS20S6
Refractive Index @ 20˚C	1.37233	RIBS25S	RIBS25S6
Refractive Index @ 20˚C	1.38115	RIBS30S	RIBS30S6
Refractive Index @ 20˚C	1.39032	RIBS35S	RIBS35S6
Refractive Index @ 20˚C	1.39986	RIBS40S	RIBS40S6
Refractive Index @ 20˚C	1.40978	RIBS45S	RIBS45S6
Refractive Index @ 20˚C	1.42009	RIBS50S	RIBS50S6
Refractive Index @ 20˚C	1.4308	RIBS55S	RIBS55S6
Refractive Index @ 20˚C	1.44193	RIBS60S	RIBS60S6
Refractive Index @ 20˚C	1.46546	RIBS70S	RIBS70S6

* The nominal Refractive Index value is taken from the ICUMSA published tables

Solvent Based Refractive Index Standards - 2 Year Shelf Life

Description (20˚C)	Nominal Refractive Index @ 20˚C*	Product No. 15ml	Product No. 6x15ml
Refractive Index @ 20˚C	1.38779	RI0138	RI01386
Refractive Index @ 20˚C	1.40485	RI0140	RI01406
Refractive Index @ 20˚C	1.42345	RI0142	RI01426
Refractive Index @ 20˚C	1.44468	RI0144	RI01446
Refractive Index @ 20˚C	1.46768	RI0146	RI01466
Refractive Index @ 20˚C	1.49672	RI0149	RI01496
Refractive Index @ 20˚C	1.50044	RI0150	RI01506
Refractive Index @ 20˚C	1.51726	RI0151	RI01516
Refractive Index @ 20˚C	1.5366	RI0154	RI01546
Refractive Index @ 20˚C	1.65808	RI0165	RI01656

* The nominal Refractive Index value is taken from the ICUMSA published tables

Osmolality Standards

Summary of Features & Benefits:

Commercial Benefits

- Extended shelf life
- Can be used with any brand of Osmometer
- Extensive range 50 - 3000mOsm/kg H_2O
- (including protein based and urine based standards)
- Presented in convenient ampoules
- Ready to Use

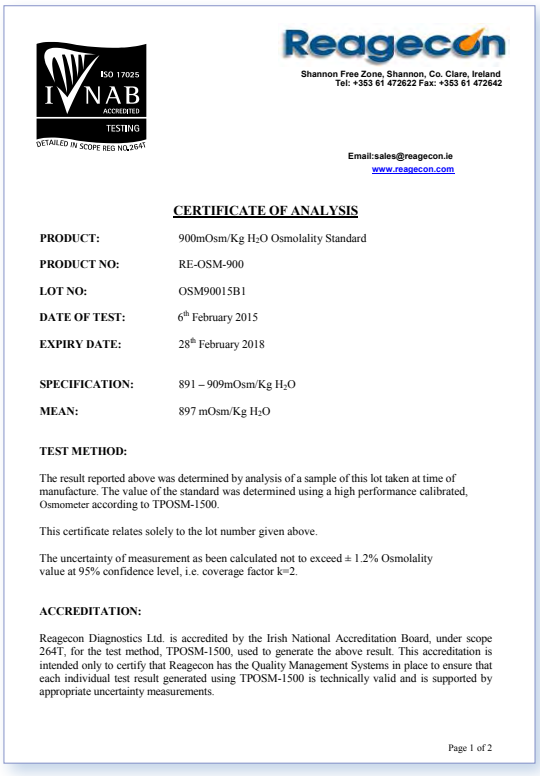
Technical Benefits

- ISO/IEC 17025 accredited for range 50 - 3000mOsm/kg H_2O (INAB Ref:264T)
- Low Uncertainty of Measurement
- Manufactured in accordance with European and United States Pharmacopoeia guidelines where appropriate
- Consistency of product - Independent, Traceable, Certified
- Certificates of Analysis and Safety Data Sheets available online

Reagecon manufactures a range of Osmolality Standards for ease of use when calibrating all types of Osmometers, irrespective of brand. All Osmolality standards are manufactured using high purity raw materials in accordance with European and United States Pharmacopoeia guidelines where appropriate. These products are prepared gravimetrically and are on a weight/weight basis. Both solute (salts) and solvent (water) are weighed on a balance calibrated by Reagecon engineers using OIML traceable weights. Reagecon holds ISO 17025 accreditation for calibration of laboratory balances (INAB Ref:265C). The resulting Balance Certificate of Calibration is issued in accordance with the requirements of ISO/IEC 17025. The Osmolality of the standard is verified using a high performance calibrated, temperature controlled Osmometer. The calibration of this instrument is completed using high purity certified Osmolality standards similar in value to the products listed below.

Product No.	Description	European Pharmacopoeia 2.2.35 United States Pharmacopeia <785>	Pack Size
RE-OSM-50	50mOsm/Kg H_2O	conforms	12 x 5ml
RE-OSM-100	100mOsm/Kg H_2O	conforms	12 x 5ml
RE-OSM-200	200mOsm/Kg H_2O	conforms	12 x 5ml
RE-OSM-290	290mOsm/Kg H_2O	conforms	12 x 5ml
RE-OSM-300	300mOsm/Kg H_2O	conforms	12 x 5ml
RE-OSM-400	400mOsm/Kg H_2O	conforms	12 x 5ml
RE-OSM-500	500mOsm/Kg H_2O	conforms	12 x 5ml
RE-OSM-600	600mOsm/Kg H_2O	conforms	12 x 5ml
RE-OSM-700	700mOsm/Kg H_2O	conforms	12 x 5ml
RE-OSM-850	850mOsm/Kg H_2O	Not Applicable	12 x 5ml
RE-OSM-900	900mOsm/Kg H_2O	Not Applicable	12 x 5ml
RE-OSM-1000	1000mOsm/Kg H_2O	Not Applicable	12 x 5ml

Product No.	Description	European Pharmacopoeia 2.2.35 United States Pharmacopeia <785>	Pack Size
RE-OSM-1500	1500mOsm/Kg H_2O	Not Applicable	12 x 5ml
RE-OSM-2000	2000mOsm/Kg H_2O	Not Applicable	12 x 5ml
RE-OSM-2500	2500mOsm/Kg H_2O	Not Applicable	12 x 5ml
RE-OSM-3000	3000mOsm/Kg H_2O	Not Applicable	12 x 5ml
RE-POSM-240	Protein Based 240mOsm/Kg H_2O	Not Applicable	12 x 5ml
RE-POSM-280	Protein Based 280mOsm/Kg H_2O	Not Applicable	12 x 5ml
RE-POSM-320	Protein Based 320mOsm/Kg H_2O	Not Applicable	12 x 5ml
RE-ROSM-300	Urine Based 300mOsm/Kg H_2O	Not Applicable	12 x 5ml
RE-ROSM-800	Urine Based 800mOsm/Kg H_2O	Not Applicable	12 x 5ml



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

Reagecon

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Email:sales@reagecon.ie
www.reagecon.com

CERTIFICATE OF ANALYSIS

PRODUCT: 900mOsm/Kg H_2O Osmolality Standard

PRODUCT NO: RE-OSM-900

LOT NO: OSM90015B1

DATE OF TEST: 6th February 2015

EXPIRY DATE: 28th February 2018

SPECIFICATION: 891 – 909mOsm/Kg H_2O

MEAN: 897 mOsm/Kg H_2O

TEST METHOD:

The result reported above was determined by analysis of a sample of this lot taken at time of manufacture. The value of the standard was determined using a high performance calibrated, Osmometer according to TPOSM-1500.

This certificate relates solely to the lot number given above.

The uncertainty of measurement as been calculated not to exceed ± 1.2% Osmolality value at 95% confidence level, i.e. coverage factor k=2.

ACCREDITATION:

Reagecon Diagnostics Ltd. is accredited by the Irish National Accreditation Board, under scope 264T, for the test method, TPOSM-1500, 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 TPOSM-1500 is technically valid and is supported by appropriate uncertainty measurements.

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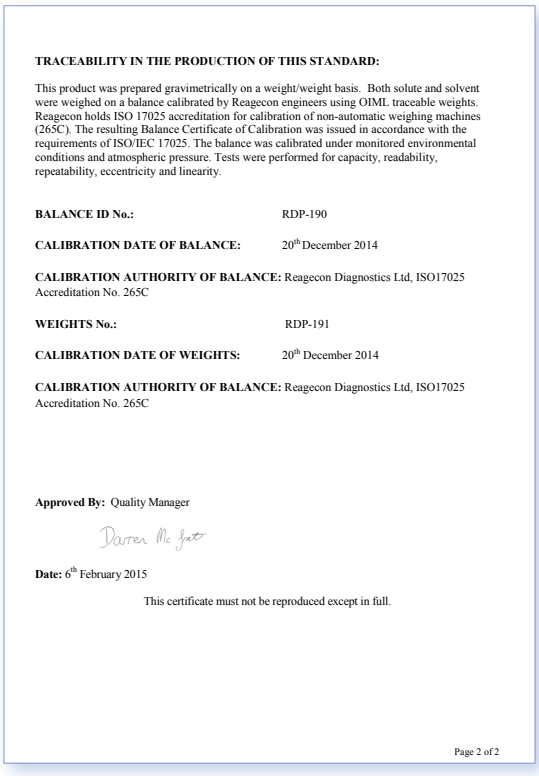

TRACEABILITY IN THE PRODUCTION OF THIS STANDARD:

This product was prepared gravimetrically on a weight/weight basis. Both solute and solvent were weighed on a balance calibrated by Reagecon engineers using OIML traceable weights. Reagecon holds ISO 17025 accreditation for calibration of non-automatic weighing machines (265C). The resulting Balance Certificate of Calibration was issued in accordance with the requirements of ISO/IEC 17025. The balance was calibrated under monitored environmental conditions and atmospheric pressure. Tests were performed for capacity, readability, repeatability, eccentricity and linearity.

BALANCE ID No.: RDP-190

CALIBRATION DATE OF BALANCE: 20th December 2014

CALIBRATION AUTHORITY OF BALANCE: Reagecon Diagnostics Ltd, ISO17025 Accreditation No. 265C

WEIGHTS No.: RDP-191

CALIBRATION DATE OF WEIGHTS: 20th December 2014

CALIBRATION AUTHORITY OF BALANCE: Reagecon Diagnostics Ltd, ISO17025 Accreditation No. 265C

Approved By: Quality Manager

Darren Mc Gate

Date: 6th February 2015

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Cryoscope Standards

The concentration of solute in a liquid solvent, effects several colligative properties of the combined solution, one of which is its Freezing Point. The Freezing Point of milk depends on this phenomenon and milk in its unadulterated state has a freezing point below 0°C. As milk is diluted with water, the freezing point moves closer to that of pure water (0°C). This elevation of freezing temperature is due mainly to reduction in concentration of lactose and inorganic salts, due to the addition of water. The reduced concentration of biological materials such as fats, proteins or other solids are not thought to contribute to the freezing point elevation.

Historically, from a regulatory and practical perspective freezing point value is considered the optimum method for determining the presence of added water in either raw or treated milk. Economically, the addition of water to milk either accidentally or deliberately by producers, or at any other point in the process chain has a profound adverse effect on the milk or milk derivatives industry. The measurement has formed the basis of an official method that dates back to at least 1923 and has become established as a scientific discipline called Cryoscopy. Dating back to the 1950's several manufacturers of Cryoscopes have offered their products in the market place. Such instruments are usually very accurate and precise. Like all scientific instruments, Cryoscopes require calibration and control and in some situations method validation and instrument qualification. Due to our extensive knowledge of metrology and our unequalled number of accreditations, Reagecon offers a range of high quality Standards to facilitate these objectives. The range on offer is completed by the availability of Heat Transfer Fluid.

Product benefits include:

- NIST traceability
- Extremely high accuracy
- Extended shelf life
- High quality, easy to use, secure packaging
- Products manufactured and certified for use on all Cryoscopes compliant to International Reference Standard ISO5764/IDF108 for the determination of Freezing Point in milk

Product No.	Description	Pack Size
MTR01025	Cryoscope Standard 000 (0.000°C)	250 ml
MTR020X	Cryoscope Standard 422 (-0.408°C) (422m°H)	100 ml
MTR02025	Cryoscope Standard 422 (-0.408°C) (422m°H)	250 ml
MTR030X	Cryoscope Standard 530 (-0.512°C) (530m°H)	100 ml
MTR03025	Cryoscope Standard 530 (-0.512°C) (530m°H)	250 ml
MTR03525	Cryoscope Standard 577 (-0.557°C) (577m°H)	250 ml
MTR040X	Cryoscope Standard 621 (-0.600°C) (621m°H)	100 ml
MTR04025	Cryoscope Standard 621 (-0.600°C) (621m°H)	250 ml
CRYBL	Cryoscope Bath Liquid	500 ml
HTF250	Cryoscope Heat Transfer Fluid	250 ml

United States Pharmacopoeia Solutions

Summary of Features & Benefits:

Commercial Benefits

- Reduce preparation time
- Free up resources for core activities
- Save valuable bench space

Technical Benefits

- Produced in accordance with USP methods
- Consistency of product - Independent, Traceable, Certified
- Certificates of Analysis and Safety Data Sheets available online

Reagecon is pleased to announce a new range of USP ready to use solutions. These solutions have been developed as part of our on-going Research and Development program. These USP solutions, which are only available from a small number of manufacturers, bring you multiple benefits that include:

- Significant reduction in the amount of time and expense required to prepare Test Solutions
- Ensure consistency of products (independent, traceable Certificates of Analysis)
- Produced according to relevant Pharmacopoeia requirements - no deviation in materials or methodology
- Manufactured with controlled processes and batch certified to ensure lot-to-lot consistency and reproducibility of results. Such benefits give you the assurance and peace of mind that in-house preparations cannot provide

For USP products not listed below, please contact us at sales@reagecon.ie

Description	Product No. 100ml	Product No. 500ml
USP Solution Acetate Buffer TS Conforms to USP	USP0101	USP0105
USP Solution Acetic Acid 2.00 Normal Conforms to USP	USP0201	USP0205
USP Solution Acetic Acid-Ammonium Acetate Buffer TS Conforms to USP	USP0301	USP0305
USP Solution Ammonia-Ammonium Chloride Buffer TS Conforms to USP	USP0401	USP0405
USP Solution Ammoniacal Potassium Ferricyanide TS Conforms to USP	USP0501	USP0505
USP Solution Ammonium Carbonate TS Conforms to USP	USP0601	USP0605
USP Solution Ammonium Chloride TS Conforms to USP	USP0701	USP0705
USP Solution Ammonium Chloride-Ammonium Hydroxide TS Conforms to USP	USP0801	USP0805
USP Solution Ammonium Thiocyanate TS Conforms to USP	USP0901	USP0905
USP Solution Barium Chloride TS/RS Conforms to USP	USP1001	USP1005
USP Solution Barium Nitrate TS Conforms to USP	USP1101	USP1105
USP Solution Bromate-Bromide Solution 0.100 Normal Conforms to USP	USP1201	USP1205
USP Solution Bromocresol Green TS Conforms to USP	USP1301	USP1305
USP Solution Bromocresol Purple TS Conforms to USP	USP1401	USP1405
USP Solution Bromophenol Blue TS Conforms to USP	USP1501	USP1505
USP Solution Bromothymol Blue TS Conforms to USP	USP1601	USP1605

Description	Product No. 100ml	Product No. 500ml
USP Solution Calcium Sulfate TS Conforms to USP	USP1701	USP1705
USP Solution Congo Red TS Conforms to USP	USP1901	USP1905
USP Solution Cupric Acetate TS Conforms to USP	USP2001	USP2005
USP Solution Cupric Sulfate TS Conforms to USP	USP2201	USP2205
USP Solution Dichlorofluorescein TS Conforms to USP	USP2301	USP2305
USP Solution Edetate DiSodium TS Conforms to USP	USP2401	USP2405
USP Solution Ferric Ammonium Sulfate TS Conforms to USP	USP2601	USP2605
USP Solution Ferric Chloride TS Conforms to USP	USP2701	USP2705
USP Solution Glycerin Base TS Conforms to USP	USP2801	USP2805
USP Solution Hydrochloric Acid 1.00 Normal Conforms to USP	USP2901	USP2905
USP Solution Iodine (Iodine-Iodide) 0.100 Normal Conforms to USP	USP3001	USP3005
USP Solution Lead Acetate TS Conforms to USP	USP3101	USP3105
USP Solution Mercuric Chloride TS Conforms to USP	USP3301	USP3305
USP Solution Methyl Orange Indicator Conforms to USP	USP3401	USP3405
USP Solution Methyl Red TS 2 Conforms to USP	USP3501	USP3505
USP Solution Methyl Red-Methylene Blue Solution Conforms to USP	USP3601	USP3605
USP Solution Methylene Blue TS Conforms to USP	USP3701	USP3705
USP Solution Neutral Red TS Conforms to USP	USP3801	USP3805
USP Solution Oxalic Acid TS Conforms to USP	USP3901	USP3905
USP Solution Perchloric Acid 0.1 Normal Conforms to USP	USP4001	USP4005
USP Solution Phenol Red TS Conforms to USP	USP4101	USP4105
USP Solution Phenolphthalein TS/RS Conforms to USP	USP4201	USP4205
USP Solution Phloroglucinol TS Conforms to USP	USP4301	USP4305
USP Solution Phosphotungstic Acid TS Conforms to USP	USP4401	USP4405
USP Solution Potassium Acetate TS Conforms to USP	USP4501	USP4505
USP Solution Potassium Carbonate TS Conforms to USP	USP4601	USP4605
USP Solution Potassium Iodide TS Conforms to USP	USP5101	USP5105
USP Solution Potassium Permanganate 0.100 Normal Conforms to USP	USP5201	USP5205
USP Solution Potassium Sulfate TS Conforms to USP	USP5301	USP5305
USP Solution Resorcinol TS Conforms to USP	USP5401	USP5405
USP Solution Silver Nitrate 0.100 Normal Conforms to USP	USP5501	USP5505
USP Solution Sodium Acetate TS Conforms to USP	USP5601	USP5605
USP Solution Sodium Chloride Conforms to USP	USP5701	USP5705
USP Solution Sodium Hydroxide 1.00 Normal Conforms to USP	USP5801	USP5805
USP Solution Sodium Thiosulfate 0.100 Normal (N/10) Conforms to USP	USP5901	USP5905
USP Solution Sulfanilic Acid TS Conforms to USP	USP6001	USP6005
USP Solution Sulfuric Acid 1.00 Normal Conforms to USP	USP6101	USP6105
USP Solution Thymol Blue TS/RS Conforms to USP	USP6201	USP6205
USP Solution Zinc Sulfate 0.0500 Molar Conforms to USP	USP6301	USP6305
USP Solution Diluted Alcohol (50/50 Alcohol Water) Conforms to USP	USP6401	USP6405
USP Solution Ammonia (Ammonium Hydroxide) TS Conforms to USP	USP6501	USP6505
USP Solution Methyl Red TS Conforms to USP	USP6601	USP6605

Colouration Reagents as outlined in the United States Pharmacopeia can be seen in the Colour Standards Chapter of this compendium.

European Pharmacopoeia Solutions

Reagecon, as a specialist manufacturer of laboratory reagents has now introduced the range of Reagents and Standard solutions in Chapters 2 and 4 of the current Ph. Eur. All are manufactured and tested in compliance with the Ph. Eur. and are supplied with a Certificates of Analysis, Lot No, and expiry date are stated on all product labels.

Reagents as outlined in Chapter 4 (4.1.1) of Ph. Eur.

Product No.	Description	Pack Size
1000401	Acetic acid (30%)	1L
1000402	Acetic acid, Dilute (12%)	1L
1000501	Acetic anhydride Solution R1	1L
1002501	Alcohol, aldehyde-free	1L
1004702	Ammonia, dilute R1	1L
1004703	Ammonia, dilute R2	1L
1005201	Ammonium Carbonate Solution	1L
1005703	Ammonium Molybdate Solution R2	1L
1007301	Anisaldehyde Solution	100ml
1007302	Anisaldehyde Solution R1	100ml
1009301	Barium Chloride Solution R1	1L
1009401	Barium Hydroxide Solution	1L
1011601	Biuret reagent	1L
1012601	Bromocresol Green Solution	100ml
1012602	Bromocresol Green - Methyl Red Mixed Indicator	100ml
10126021	Bromocresol Green - Methyl Red Mixed Indicator	1L
10126025	Bromocresol Green - Methyl Red Mixed Indicator	5L
1012701	Bromocresol Purple Indicator Solution 0.04%	100ml
1012801	Bromophenol Blue Solution	100ml
1012803	Bromophenol Blue Solution R2	100ml
1012901	Bromothymol Blue Solution R1	100ml
1012903	Bromothymol Blue Solution R3	2 x 500ml
1015201	Calcium Sulphate Solution	1L
1022001	Congo Red Solution	1L
1022002	Congo Red Paper	100pk
1022901	Crystal Violet Solution (Non-aqueous indicator)	100ml
1023100	Cupri-Citric Solution	1L
1023300A	Cupri-Tartaric Solution 1	500ml
1023300B	Cupri-Tartaric Solution 2	500ml

Product No.	Description	Pack Size
1032101	Diphenylamine Solution	1L
10321011	Diphenylamine Solution	100ml
1032102	Diphenylamine Solution R1	1L
103110101	Dimidium Bromide Disulphine Blue Mixed Indicator	100ml
1031101	Dimidium Bromide Disulphine Blue Mixed Indicator	1L
1031101-500	Dimidium Bromide - Sulphan Blue Mixed Indicator	500ml
1037702	Ferric Ammonium Sulphate R2	1L
1038100	Ferroin Solution	100ml
1039101	Formaldehyde Solution	100ml
1039401	Fuchsin Solution, Decolorised	100ml
1039402	Fuchsin Solution, Decolorised R1	100ml
1043101	Holmium Perchlorate Solution	1L
1043501	Hydrochloric Acid R1	1L
1043503	Hydrochloric Acid, Dilute	1L
1043504	Hydrochloric Acid, Dilute R1	1L
1045901	Iodine Bromide Solution	1L
1046300	Iodoplatinate	200 mL
1048001	Lanthanum Nitrate Solution	1L
1048101	Lead Acetate Cotton	10g
1048102	Lead Acetate Paper	50pk
1048103	Lead Acetate Solution	1L
1052101	Mercuric Bromide Paper	50pk
1053601	Methoxyphenylacetic	100ml
1054801	Methyl Orange Mixed Solution	100ml
1054802	Methyl Orange Solution	100ml
1055101	Methyl Red Mixed Solution	100ml
1055102	Methyl Red Indicator Solution 0.02%	100ml
1056801	Mordant Black 11 Triturate	100g
1056700	Molybdovanadic	100ml
1057601	Naphtolbenzein Solution	100ml
1058201	Nile Blue A Solution	100ml
1058303	Ninhydrin Solution	100ml
1058304	Ninhydrin Solution R1	100ml
1058305	Ninhydrin Solution R2	100ml
1058402	Nitric acid, Dilute	100ml
1062901	Perchloric Acid Solution	100ml
1063601	Phenol Red Indicator Solution	100ml
1063603	Phenol Red Solution R2	500ml
1063702	Phenolphthalein Solution	100ml
1063703	Phenolphthalein Solution R1	100ml
1064501	Phenylhydrazine Hydro Chloride Solution	2 x 500ml
1065000	Phosphomolybdotungstic Solution	100ml
1065200	Phosphotungstic Acid Solution	100ml

Product No.	Description	Pack Size
1065801	Picric Acid Solution	100ml
1065802	Picric Acid Solution R1	100ml
1069101	Potassium Chloride, 0.1M	1L
1069201	Potassium Chromate Solution	1L
1069501	Potassium Dichromate Solution	1L
106950105	Potassium Dichromate Solution	500ml
10695015	Potassium Dichromate Solution	5L
1069801	Potassium Ferrocyanide Solution	100ml
1070001	Potassium Hydrogen Phthalate, 0.2M	1L
1070302	Potassium Hydroxide in Alcohol (10% v/v) 0.5M	1L
1070303	Potassium Hydroxide in Alcohol	100ml
1070501	Potassium Iodide & Starch Solution	125ml
1070502	Potassium Iodide Solution	1L
1070504	Potassium Iodide Solution Saturated	500ml
1070600	Potassium Iodobismuthate Solution	100ml
1070602	Potassium Iodobismuthate Solution R2	100ml
1070902	Potassium Permanganate Solution	1L
1071301	Potassium Pyroantimonate Solution	125ml
1071600-A	Potassium Tetraiodomercurate Solution Alkaline Part A	100ml
1071600-B	Potassium Tetraiodomercurate Solution Alkaline Part B	100ml
1075201	Ruthenium Red Solution	100ml
1078301	Silver Nitrate Solution R1	1L
1078302	Silver Nitrate Solution R2	1L
1079301	Sodium Carbonate Solution	1L
1081401	Sodium Hydroxide Solution	1L
1081402	Sodium Hydroxide Solution Dilute	1L
1081404	Sodium Hydroxide Solution Strong	1L
10816005	Sodium Hypochlorite Solution Strong	500ml
1083901	Sodium Sulphide Solution	100ml
1085001	Stannous Chloride Solution	100ml
1085103	Starch Solution	100ml
1086500	Sulfomolybdic Reagent R3	1L
1095502TO	Carbon Dioxide Free Water	1L
1086804	Sulphuric Acid Dilute Solution	1L
1088600	Tetramethylammonium Hydroxide Solution	1L
1089602	Thioacetamide Solution	1L
1090701	Thymolphthalein 0.05% Indicator Solution	1L
1094201	Tris(hydroymethyl) Aminomethane Solution	100ml
1095502	Carbon Dioxide Free Water	1L
1096601	Zinc Chloride Formic Acid Solution	1L
1096602	Zinc Chloride Solution Iodinated	1L
1102301	Zinc Acetate Solution	1L

Volumetric Solutions as outlined in Chapter 4 (4.2.2) of Ph. Eur.

Product No.	Description	Pack Size
3000100	0.1M Ammonium and Cerium Nitrate	1L
3000200	0.01M Ammonium and Cerium Nitrate	1L
3000300	0.1M Ammonium and Cerium Sulphate	1L
3000500	0.1M Ammonium Thiocyanate	1L
3000600	0.1M Barium Chloride	1L
3000900	0.004M Benzethonium Chloride	1L
3001100	0.1M Cerium Sulphate	1L
3001300	0.1M Ferric Ammonium Sulphate	1L
3001500	6M Hydrochloric Acid	1L
3001500-10L	6M Hydrochloric Acid	10L
3001500-25L	6M Hydrochloric Acid	25L
3001500-5L	6M Hydrochloric Acid	5L
3001600	3M Hydrochloric Acid	1L
3001700	2M Hydrochloric Acid	1L
3001800	1M Hydrochloric Acid	1L
3002100	0.1M Hydrochloric Acid	1L
3002700	0.05M Iodine	1L
3002900	0.01M Iodine	1L
3003100	0.1M Lead Nitrate	1L
3003300	0.1M Lithium Methoxide	1L
3003500	0.02M Mercuric Nitrate	1L
3003900	0.1M Perchloric Acid	1L
3004200	0.033M Potassium Bromate	1L
3004800	0.1M Potassium Hydroxide	1L
3004900	0.5M Potassium Hydroxide in Alcohol (60% v/v)	1L
3005000	0.5M Potassium Hydroxide, Alcoholic	1L
30050005	0.5M Potassium Hydroxide, Alcoholic	50ml
3005100	0.1M Potassium Hydroxide, Alcoholic	1L
3005300	0.02M Potassium Permanganate	1L
3005600	0.1M Silver Nitrate	1L
3005800	0.1M Sodium Arsenite	1L
3005900	0.1M Sodium Edetate	1L
3006300	1M Sodium Hydroxide	1L
3006600	0.1M Sodium Hydroxide	1L
3007000	0.1M Sodium Hydroxide, Ethanolic	1L
3007100	0.1M Sodium Methoxide	1L
3007200	0.1M Sodium Nitrite	1L
3007300	0.1M Sodium Thiosulphate	1L
30073005	0.1M Sodium Thiosulphate	50ml
3007800	0.5M Sulphuric Acid	1L
3008000	0.05M Sulphuric Acid	1L

Product No.	Description	Pack Size
3008300	0.1M Tetrabutylammonium Hydroxide	1L
3008400	0.1M Tetrabutylammonium Hydroxide in 2-propanol	1L
3008500	0.05M Zinc Chloride	1L
3008600	0.1M Zinc Sulphate	1L
3008700	1M Cupriethylenediamine Hydroxide Solution	1L
3008800	0.1M Hydrochloric Acid, Alcoholic	1L
3009100	1.0M Potassium Hydroxide	1L
3009300	0.001M Silver Nitrate	1L

Buffer Solutions as outlined in Chapter 4 (4.1.3) of Ph. Eur.

Product No.	Description	Pack Size
4000100	Buffered Acetone Solution	1L
4000600	Buffer Solution pH 3.5	1L
4000600-500ml	Buffer Solution pH 3.5	500ml
4000700	Phosphate Buffer Solution pH 3.5	10L
4000700-5L	Phosphate Buffer Solution pH 3.5	5L
4001400	Acetate Buffer Solution pH 4.6	1L
4002000-10L	Buffer Solution pH 5.5	10L
4002400	Phosphate Buffer Solution pH 6.0	1L
4002400-10L	Phosphate Buffer Solution pH 6.0	10L
4004800	Phosphate Buffer Solution pH 7.4	1L
4004800-5L	Phosphate Buffer Solution pH 7.4	5L
4005000-5L	Phosphate Buffered Saline pH 7.4	5L
4007200	Ammonium Chloride Buffer pH 9.5	1L
4007300	Ammonium Chloride Buffer pH 10.0	1L
4008300	Buffer Phosphate Solution pH 9.0	1L
4013300	Phosphate Buffer Solution pH 8.5 acc to EP	5L

Standard Solutions for Limit Tests as outlined in Chapter 4 (4.1.2) of Ph. Eur.

Product No.	Description	Pack Size
5000200	Aluminium Standard Solution (200ppm Al)	100ml
5000203C	Concentrate To Make Aluminium Standard Solution (100ppm Al)	100ml
5000300C	Concentrate To Make Ammonium Standard Solution (100ppm NH4)	100ml
5000301	Ammonium Standard Solution (2.5 ppm NH4)	100ml
5000302C	Concentrate To Make Ammonium Standard Solution (1ppm NH4)	100ml
5000400C	Concentrate To Make Antimony Standard Solution (1000ppm Sb)	100ml
5000500C	Concentrate To Make Arsenic Standard Solution (10ppm As)	100ml
5000700	Concentrated To Make Cadmium Standard Solution (0.1% Cd)	100ml
5000800C	Concentrate To Make Calcium Standard Solution (400ppmCa)	100ml
5000802C	Concentrate To Make Calcium Standard Solution (100ppm Ca) Alcoholic	100ml
5000900C	Concentrate To Make Chloride Standard Solution (8ppm Cl)	100ml
5001000	Chromium Standard Solution (100ppm Cr)	1L
5001100	Copper Standard Solution (0.1% Cu)	100ml
5001200C	Concentrate To Make Ferrocyanide Standard Solution (100ppm Fe)	100ml
5001400C	Concentrate To Make Fluoride Standard Solution (10ppm F)	100ml
5001600C	Concentrate To Make Iron Standard Solution (20ppm Fe)	100ml
5001602C	Concentrate To Make Iron Standard Solution (8ppm Fe)	100ml
5001700	Lead Standard Solution (0.1% Pb)	100ml
5001701C	Concentrate To Make Lead Standard Solution (100ppm Pb)	100ml
5001800C	Concentrate To Make Magnesium Standard Solution (100ppm Mg)	100ml
5002000C	Concentrate To Make Nickel Standard Solution (10ppm Ni)	100ml
5002100C	Concentrate To Make Nitrate Standard Solution (100ppm NO3)	100ml
5002102C	Concentrate To Make Nitrate Standard Solution (2ppm NO3)	100ml
5002200C	Concentrate To Make Phosphate Standard Solution (5ppm PO4)	100ml
5002400C	Concentrate To Make Potassium Standard Solution (100ppm K)	100ml
5002500	Selenium Standard Solution (100ppm Se)	1L
5002700C	Concentrate To Make Sodium Standard Solution (200ppm Na)	100ml
5002800C	Concentrate To Make Sulphate Standard Solution (10ppm SO4)	100ml
5003401C	Concentrate To Make Zinc Standard Solution (100ppm Zn)	100ml

European Pharmacopoeia pH Buffer Solutions

Product No.	Description	Pack Size
EP1001-100	pH Buffer Solution pH 10.01 ± 0.01 @ 25°C	100ml
EP1245-100	pH Buffer Solution pH12.45 ± 0.05 @25°C	100ml
EP1263-100	pH Buffer Solution pH 12.63 ±0.01 @ 25°C	100ml
EP168	pH Buffer Solution pH 1.68 ± 0.01 @25°C	500ml
EP168-100	pH Buffer Solution pH 1.68 ± 0.01 @ 25°C	100ml
EP378-100	pH Buffer Solution pH 3.78 ± 0.01 @ 25°C	100ml
EP401	pH Buffer Solution pH 4.01 ± 0.01 @25°C	500ml
EP401-100	pH Buffer Solution pH 4.01 ± 0.01 @ 25°C	100ml
EP687	pH Buffer Solution pH 6.87 ± 0.01 @25°C	500ml
EP687-100	pH Buffer Solution pH 6.87 ± 0.01 @ 25°C	100ml
EP741	pH Buffer Solution pH 7.41 ± 0.01 @25°C	500ml
EP741-100	pH Buffer Solution pH 7.41 ± 0.01 @25°C	100ml
EP918	pH Buffer Solution 9.18 ± 0.01 @25°C	500ml
EP918-100	pH Buffer Solution pH 9.18 ± 0.01@ 25°C	100ml

European Pharmacopoeia Conductivity & Resistivity

Product No.	Description	Pack Size
EP133	Conductivity & Resistivity 133 µs/cm @20°C	500ml
EP1330	Conductivity & Resistivity 1330 µs/cm @20°C	500ml
EP266	Conductivity & Resistivity 26.6 µs/cm @20°C	500ml

European Pharmacopoeia Reagent Reference Solutions

Product No.	Description	Pack Size
EPY101	Reference Solution Y1	100ml
EPY201	Reference Solution Y2	100ml
EPY301	Reference Solution Y3	100ml
EPY401	Reference Solution Y4	100ml
EPY501	Reference Solution Y5	100ml
EPY601	Reference Solution Y6	100ml
EPY701	Reference Solution Y7	100ml

Colouration Reagents as outlined in the European Pharmacopoeia can be seen in the Colour Standards Chapter of this compendium.

Buffered Eluents

Summary of Features & Benefits:

Commercial Benefits

- Reduce sample preparation time
- Focus on core activities
- Ensure Consistency of product
- Free up valuable Laboratory Space
- Achieve peace of mind

Technical Benefits

- Produced in accordance with USP
- Consistency of product - Independent, Traceable, Certified
- Certificates of Analysis and Safety Data Sheets available online

Reagecon is pleased to announce a new range of Ready to Use Buffered Eluents for Liquid Chromatography. The control of Mobile Phase pH, when analysing ionisable compounds using HPLC is well recognised. There is also a substantial body of literature supporting the use of pH control when working with field samples of non-ionisable compounds due to the presence of ionisable impurities or contaminants. The use of Reagecon's high quality buffer systems will minimise variations of mobile phase pH, leading to dramatically improved selectivity, retention factor, peak shape, resolution and reproducibility. These Buffered Eluents, which are not available from any other manufacturer, bring you multiple benefits that include:

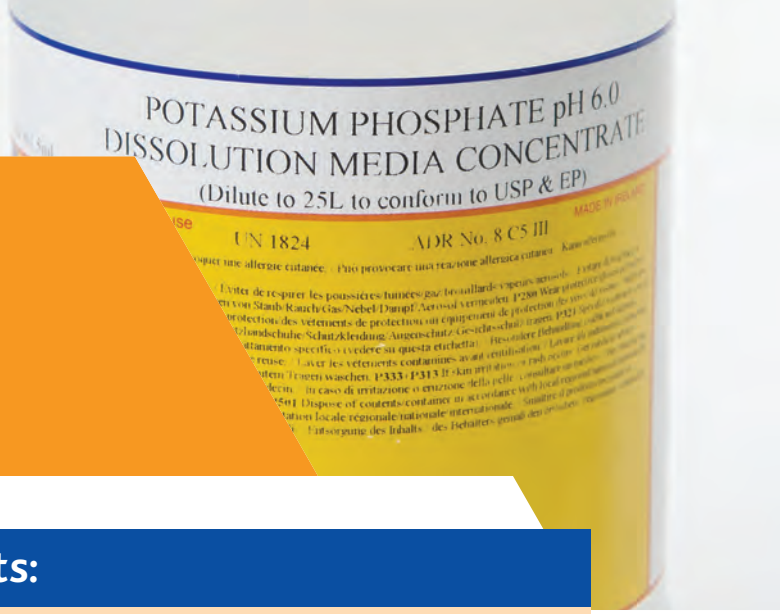
- Significant reduction in the amount of time and expense required to prepare them in house - "lean labs"
- Produced according to relevant Pharmacopoeia requirements - no deviation in materials or methodology
- Manufactured under controlled processes and batch certified to ensure lot-to-lot consistency and reproducibility of results

Reagecon has selected 19 of the most commonly recommended buffering systems from scientific literature and from the currently published 2,400 monographs of the USP, these are listed below. However, there are several hundred other buffering systems contained in the monographs and we are happy to quote for these also. The products presented are suitable for use as buffering systems in either solvent or aqueous mobile phases.

Buffered Eluents

Description	Product No. 500ml	Product No. 1L
pH 2 - 6.8g/L Monobasic Potassium Phosphate	USP8005	USP801
pH 2.5 - 0.01M Phosphoric Acid and 0.01M Monobasic Sodium Phosphate	USP8105	USP811
pH 2.5 - Monobasic Potassium Phosphate	USP8205	USP821
pH 3 - Monobasic Potassium Phosphate	USP8305	USP831
pH 3.5 - Monobasic Sodium Phosphate	USP8405	USP841
pH 4 - Monobasic Potassium Phosphate	USP8505	USP8501
pH 4.5 - Sodium Acetate Trihydrate	USP8605	USP861
pH 4.5 - Monobasic Potassium Phosphate	USP8705	USP871
pH 5 - Monobasic Potassium Phosphate	USP8805	USP881
pH 5.5 - Monobasic / Dibasic Potassium Phosphate	USP8905	USP891
pH 6 - Monobasic Potassium Phosphate	USP9005	USP901
pH 6.5 - Monobasic Potassium Phosphate	USP9105	USP911
pH 6.8 - Monobasic Potassium Phosphate / Dibasic Sodium Phosphate	USP9205	USP921
pH 6.8 - Monobasic Potassium Phosphate	USP9305	USP931
pH 7 - Monobasic Potassium Phosphate / Dibasic Sodium Phosphate	USP9405	USP941
pH 7 - Monobasic Potassium Phosphate / Sodium Hydroxide	USP9505	USP951
pH 7.5 - Monobasic Potassium Phosphate	USP9605	USP961
pH 7.5 - Dibasic Potassium / Monobasic Sodium Phosphate	USP9705	USP971
pH 8 - Monobasic Sodium Phosphate/ DiSodium Hydrogen Phosphate	USP9805	USP981

Dissolution Media - Concentrates



Summary of Features & Benefits:

Commercial Benefits

- Reduce preparation time
- Free up resources for core activities
- Save valuable bench space

Technical Benefits

- Consistency of product
- Full regulatory & labelling compliance
- Certificates of Analysis & Safety Data Sheets available online

Reagecon has added a new range of Dissolution Media Concentrates to its manufactured product portfolio.

With Reagecons dissolution media concentrates you take out all preparation steps up to the final mixing, simply add purified water and mix, allowing you to run your dissolution test without delay and at a reduced cost.

Media Preparation
- Consult relevant pharmacopeias
- Produce BOM
- Calculate quantities of ingredients
- Calibrate balance

28 – 35 mins

Weighing
- Weigh ingredients
- Measure dangerous concentrates
- Verify weights
- Calibrate pH meter or other equipment

12-36 mins

Mixing
- Dissolve chemicals
- Make up to volume
- Adjust to volume
- Measure pH & adjust if required
- Mix

8 - 16 mins

Ready for Testing

Save valuable time per batch!

Allow Reagecon to offer you major savings and improved efficiencies in your dissolution testing by having products which are:-

- Prepared according to relevant pharmacopoeia requirements
- Without deviations on materials and methodology from pharmacopoeia
- Guaranteed Accuracy and Stability
- 2 year Shelf Life
- Certificates of Analysis and Safety Data Sheets available online
- Consistency of Product, Independent, Traceable, Certified

Dissolution Media - Concentrates

Product No.	Compliant Pharm	Concentration	Pack Size
Potassium Phosphate pH 5.8			
DBC01-230	USP & Ph. Eur.	230.8ml of conc. dilutes to 6L	Pack of 12
DBC01-250	USP & Ph. Eur.	250ml of conc. dilutes to 10L	Pack of 12
DBC01-960	USP & Ph. Eur.	961.5ml of conc. dilutes to 25L	Pack of 6
Potassium Phosphate pH 6.0			
DBC02-230	USP & Ph. Eur.	230.8ml of conc. dilutes to 6L	Pack of 12
DBC02-250	USP & Ph. Eur.	250ml of conc. dilutes to 10L	Pack of 12
DBC02-960	USP & Ph. Eur.	961.5ml of conc. dilutes to 25L	Pack of 6
DBC02-1L	USP & Ph. Eur.	1L of conc. dilutes to 40L	Pack of 6
Potassium Phosphate pH 6.8			
DBC03-230	USP & Ph. Eur.	230.8ml of conc. dilutes to 6L	Pack of 12
DBC03-250	USP & Ph. Eur.	250ml of conc. dilutes to 10L	Pack of 12
DBC03-960	USP & Ph. Eur.	961.5ml of conc. dilutes to 25L	Pack of 6
Potassium Phosphate pH 7.2			
DBC04-230	USP & Ph. Eur.	230.8ml of conc. dilutes to 6L	Pack of 12
DBC04-250	USP & Ph. Eur.	250ml of conc. dilutes to 10L	Pack of 12
DBC04-960	USP & Ph. Eur.	961.5ml of conc. dilutes to 25L	Pack of 6
DBC04-1L	USP & Ph. Eur.	1L of conc. dilutes to 40L	Pack of 6
Potassium Phosphate pH 7.5			
DBC05-230	USP & Ph. Eur.	230.8ml of conc. dilutes to 6L	Pack of 12
DBC05-250	USP & Ph. Eur.	250ml of conc. dilutes to 10L	Pack of 12
DBC05-960	USP & Ph. Eur.	961.5ml of conc. dilutes to 25L	Pack of 6
DBC05-1L	USP & Ph. Eur.	1L of conc. dilutes to 40L	Pack of 6
Acetate Buffer pH 4.5			
DBC06-230	USP & Ph. Eur.	230.8ml of conc. dilutes to 6L	Pack of 12
DBC06-250	USP & Ph. Eur.	250ml of conc. dilutes to 10L	Pack of 12
DBC06-960	USP & Ph. Eur.	961.5ml of conc. dilutes to 25L	Pack of 6
Sodium Lauryl Sulphate 0.50%			
DBC07-400	USP	400ml of conc. dilutes to 6L	Pack of 12
DBC07-500	USP	500ml of conc. dilutes to 10L	Pack of 12
Potassium Phosphate pH 7.4			
DBC08-230	USP & Ph. Eur.	230.8ml of conc. dilutes to 6L	Pack of 12
DBC08-250	USP & Ph. Eur.	250ml of conc. dilutes to 10L	Pack of 12
DBC08-960	USP & Ph. Eur.	961.5ml of conc. dilutes to 25L	Pack of 6

Dissolution Media - Concentrates

Product No.	Compliant Pharm	Concentration	Pack Size
Sodium Phosphate pH 6.8			
DBC09-230	USP	230.8ml of conc. dilutes to 6L	Pack of 12
DBC09-250	USP	250ml of conc. dilutes to 10L	Pack of 12
DBC09-960	USP	961.5ml of conc. dilutes to 25L	Pack of 6
Hydrochloric Acid 0.01N			
DBC10-230	USP & Ph. Eur.	230.8ml of conc. dilutes to 6L	Pack of 12
DBC10-250	USP & Ph. Eur.	250ml of conc. dilutes to 10L	Pack of 12
DBC10-960	USP & Ph. Eur.	961.5ml of conc. dilutes to 25L	Pack of 6
DBC10-1L	USP & Ph. Eur.	1L of conc. dilutes to 40L	Pack of 6
Hydrochloric Acid 0.1N			
DBC11-230	USP & Ph. Eur.	230.8ml of conc. dilutes to 6L	Pack of 12
DBC11-250	USP & Ph. Eur.	250ml of conc. dilutes to 10L	Pack of 12
DBC11-960	USP & Ph. Eur.	961.5ml of conc. dilutes to 25L	Pack of 6
DBC11-1L	USP & Ph. Eur.	1L of conc. dilutes to 40L	Pack of 6
Simulated Gastric Fluid without enzyme			
DBC12-230	USP & Ph. Eur.	230.8ml of conc. dilutes to 6L	Pack of 12
DBC12-250	USP & Ph. Eur.	250ml of conc. dilutes to 10L	Pack of 12
DBC12-960	USP & Ph. Eur.	961.5ml of conc. dilutes to 25L	Pack of 6
Simulated Intestinal Fluid without enzyme			
DBC13-230	USP & Ph. Eur.	230.8ml of conc. dilutes to 6L	Pack of 12
DBC13-250	USP & Ph. Eur.	250ml of conc. dilutes to 10L	Pack of 12
DBC13-960	USP & Ph. Eur.	961.5ml of conc. dilutes to 25L	Pack of 6
Phosphate Buffer pH 6.8			
DBC14-500	JP	500ml of conc. dilutes to 10L	Pack of 12
DBC14-960	JP	961.5ml of conc. dilutes to 25L	Pack of 6
2nd Dissolution Fluid			
DBC15-250	JP	250ml of conc. dilutes to 10L	Pack of 12
DBC15-960	JP	961.5ml of conc. dilutes to 25L	Pack of 6
Potassium Phosphate pH 4.5			
DBC20-960	USP & Ph. Eur.	961.5ml of conc. dilutes to 25L	Pack of 6
Potassium Chloride 0.05M			
DBC25-400	USP & Ph. Eur.	400ml of conc. dilutes to 10L	Pack of 12
DBC25-960	USP & Ph. Eur.	961.5ml of conc. dilutes to 25L	Pack of 6

Product No.	Compliant Pharm	Concentration	Pack Size
Potassium Phosphate pH 4.5			
DBC40-1L	USP & Ph. Eur.	1L of conc. dilutes to 40L	Pack of 6
Potassium Phosphate pH 7.1			
DBC41-1L	USP & Ph. Eur.	1L of conc. dilutes to 40L	Pack of 6
DBC41-960	USP & Ph. Eur.	961.5ml of conc. dilutes to 25L	Pack of 6
Potassium Phosphate pH 8.0			
DBC42-1L	USP & Ph. Eur.	1L of conc. dilutes to 40L	Pack of 6
DBC42-960	USP & Ph. Eur.	961.5ml of conc. dilutes to 25L	Pack of 6
Buffered Sodium Dodecyl Sulphate, pH 7			
DBC43-500	USP & Ph. Eur.	500ml of conc. dilutes to 10L	Pack of 12
Potassium Phosphate pH 6.8 + 1.0% SDS(Sodium Dodecyl Sulphate)			
DBC44-960	USP & Ph. Eur.	961.5ml of conc. dilutes to 25L	Pack of 12
Potassium Phosphate pH 6.8 + 0.5% SDS(Sodium Dodecyl Sulphate)			
DBC45-960	USP & Ph. Eur.	961.5ml of conc. dilutes to 25L	Pack of 6
Acetate Buffer pH 4.5 + 1.0% SDS(Sodium Dodecyl Sulphate)			
DBC46-960	USP & Ph. Eur.	961.5ml of conc. dilutes to 25L	Pack of 6
Acetate Buffer pH 4.5 + 0.5% SDS(Sodium Dodecyl Sulphate)			
DBC47-960	USP & Ph. Eur.	961.5ml of conc. dilutes to 25L	Pack of 6
0.1N HCl+1.0% SDS (Sodium Dodecyl Sulphate)			
DBC48-960	USP & Ph. Eur.	961.5ml of conc. dilutes to 25L	Pack of 6
0.1N HCl+0.5% SDS (Sodium Dodecyl Sulphate)			
DBC49-960	USP & Ph. Eur.	961.5ml of conc. dilutes to 25L	Pack of 6

Dissolution Media - Ready To Use

Summary of Features & Benefits:

Commercial Benefits

- Reduce preparation time
- Free up resources for core activities
- Save valuable bench space

Technical Benefits

- Consistency of product
- Full regulatory & labelling compliance
- Certificates of Analysis & Safety Data Sheets available online

Reagecon has added a new range of Ready to Use Dissolution Media to its manufactured product portfolio.

Reagecons dissolution media eliminates all preparation steps allowing you to run your dissolution test without delay and at a reduced cost.

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- Consult relevant pharmacopeias
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- Calculate quantities of ingredients
- Calibrate balance

28 – 35 mins

Weighing
- Weigh ingredients
- Measure dangerous concentrates
- Verify weights
- Calibrate pH meter or other equipment

12-36 mins

Mixing
- Dissolve chemicals
- Make up to volume
- Adjust to volume
- Measure pH & adjust if required
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8 - 16 mins

Ready for Testing

Save valuable time per batch!

Allow Reagecon to offer you major savings and improved efficiencies in your dissolution testing by having products which are:-

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Dissolution Media - Ready to Use

Product No.	Description	Compliant Pharmacopoeia	Pack Size
DB10-121	Hydrochloric Acid 0.01N	USP & Ph. Eur.	12 x 1L
DB10-25L	Hydrochloric Acid 0.01N	USP & Ph. Eur.	25L
DB11-121	Hydrochloric Acid 0.1N	USP & Ph. Eur.	12 x 1L
DB11-10	Hydrochloric Acid 0.1N	USP & Ph. Eur.	10L (Bag in Box)
DB11-10L	Hydrochloric Acid 0.1N	USP & Ph. Eur.	10L
DB11-20	Hydrochloric Acid 0.1N	USP & Ph. Eur.	20 L
DB11-25L	Hydrochloric Acid 0.1N	USP & Ph. Eur.	25L
DB06-121	Acetate Buffer pH 4.5	USP & Ph. Eur.	12 x 1L
DB06-10	Acetate Buffer pH 4.5	USP & Ph. Eur.	10L
DB06-20	Acetate Buffer pH 4.5	USP & Ph. Eur.	20 L
DB01-121	Potassium Phosphate pH 5.8	USP & Ph. Eur.	12 x 1L
DB02-121	Potassium Phosphate pH 6.0	USP & Ph. Eur.	12 x 1L
DB03-121	Potassium Phosphate pH 6.8, R	USP & Ph. Eur.	12 x 1L
DB03-10	Potassium Phosphate pH 6.8, R	USP & Ph. Eur.	10L
DB09-121	Sodium Phosphate pH 6.8	USP	12 x 1L
DB04-121	Potassium Phosphate pH 7.2	USP & Ph. Eur.	12 x 1L
DB04-10L	Potassium Phosphate pH 7.2	USP & Ph. Eur.	10L
DB08-121	Potassium Phosphate pH 7.4	USP & Ph. Eur.	12 x 1L
DB08-10L	Potassium Phosphate pH 7.4	USP & Ph. Eur.	10L
DB08-25L	Potassium Phosphate pH 7.4	USP & Ph. Eur.	25L
DB05-121	Potassium Phosphate pH 7.5	USP & Ph. Eur.	12 x 1L
DB05-10L	Potassium Phosphate pH 7.5	USP & Ph. Eur.	10L
DB07-121	Sodium Lauryl Sulphate 0.50%	USP	12 x 1L
DB07-121-25L	Sodium Lauryl Sulphate 0.50%	USP	25L
DB12-121	Simulated Gastric Fluid, without enzyme	USP & Ph. Eur.	12 x 1L
DB12-07	Simulated Gastric Fluid, without enzyme	USP & Ph. Eur.	7 L
DB12-10	Simulated Gastric Fluid, without enzyme	USP & Ph. Eur.	10L
DB13-121	Simulated Intestinal Fluid, without enzyme	USP & Ph. Eur.	12 x 1L
DB14-121	Potassium Phosphate pH 6.80	JP	12 x 1L
DB14-10L	Potassium Phosphate pH 6.80	JP	10L
DB18-121	1st Dissolution Fluid	JP	12 x 1L
DB18-10	1st Dissolution Fluid	JP	10L
DB15-121	2nd Dissolution Fluid	JP	12 x 1L
DB15-10L	2nd Dissolution Fluid	JP	10L
DB16-121	Acetate Buffer pH 5.5	Ph. Eur.	12 x 1L
DB17-121	Acetate Buffer pH 5.8	Ph. Eur.	12 x 1L
DB19-10	HCl/NaCl, pH 1.2	Ph. Eur.	10L
DB20-10	Phosphate Buffer pH 4.5	Ph. Eur.	10L
DB21-10	Citrate Buffer 0.05M	USP & Ph. Eur.	10L

Dissolution Media - Ready to Use

Product No.	Description	Compliant Pharmacopoeia	Pack Size
DB22-10	Phosphate Buffer pH 7.5	USP & Ph. Eur.	10L
DB27-121	Buffered Sodium Dodecyl Sulphate, pH 7	USP & Ph. Eur.	12 x 1L
DB27-10	Buffered Sodium Dodecyl Sulphate, pH 7	USP & Ph. Eur.	10L
DB28-10L	Di Sodium Phosphate 55.3g + Citric Acid 4.8g, adjust to pH 6.8	USP & Ph. Eur.	10L
DB24-10	Phosphate Buffer pH 7.00	USP & Ph. Eur.	10L

Dissolution FaSSIF

Biorelevant intestinal media, first proposed by Galia et al in 1998, are media that simulate intestinal fluids secreted under both fasting or feed state conditions [1]. These laboratory prepared solutions share physiochemical properties with corresponding fluids found in-vivo and are used to mimic the properties of the in-vivo fluids for drug solubility and dissolution characteristics.

Such media contain the bile salt Sodium Taurocholate and Lecithin dissolved in a slightly acid phosphate buffer which is tested for pH, osmolality and buffer capacity, which simulates the in-vivo solution in the upper small intestinal region, which is where the majority of drugs are absorbed [2].

Reagecon offers the buffering system in a number of formulations and pack sizes, which are dependent on whether the medium under test is simulating fasting or feed state conditions.

[1] Galia, E.; Nicolaides, E.; Hörter, D.; Löbenberg, R.; Reppas, C.; Dressman, J. B. Evaluation of Various Dissolution Media for Predicting In Vivo Performance of Class I and II Drugs. Pharm. Res. 1998, 15 (5), 698-705.

[2] Leigh, M.; Kloefer, B.;, and Schaich, M. Comparison of the Solubility and Dissolution of Drugs in Fasted-State Biorelevant Media (FaSSIF and FaSSIF-V2), Dissolution Technologies, August 2013, 44-50.

Product No.	Description	Pack Size
FASSIF5	Dissolution Media FaSSIF pH 6.5 (without enzyme)	5L
FASSIFV21	Dissolution Media FaSSIF V2 - pH 6.5 - (without enzyme)	12 x 1L
FASSIFV210	Dissolution Media FaSSIF V2 - pH 6.5 (without enzyme)	10L
FESSIFV21	Dissolution Media FeSSIF V2 - pH 5.8 - (without enzyme)	12 x 1L
FESSIFV210	Dissolution Media FeSSIF V2 - pH 5.8 (without enzyme)	10L

Dairy Standards & Reagents

Analytical tests to evaluate dairy products cover a wide variety of materials of different chemical and physical composition. These include products that contain milk in either dilute or concentrated format, various consistencies ranging from liquid to solid and in some instances products that have several non dairy products added.

Because of this variety the fitness for purpose aspect in selecting the most appropriate methodology is critical. Method selection will also depend on whether the test is being carried out for regulatory or compliance reasons, for quality control, quality assurance, food safety, or product stability purposes.

Reagecon manufactures a wide range of Physical and Chemical Standards that are appropriate to the testing of dairy products. Several of these products, which are specific or unique to the dairy industry, are listed in this section. Several others relating to the measurement of pH, Conductivity, Refractive Index, Density, Metals and Anions are listed under the appropriate headings elsewhere in this catalogue.

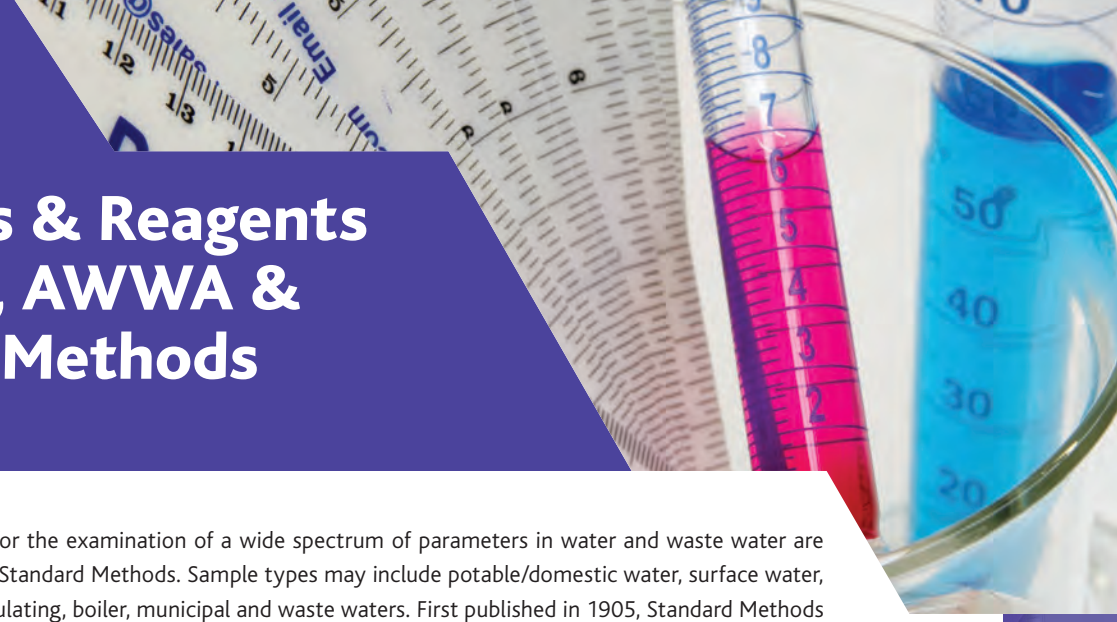
Standards and reagents relevant to the measurement of vitamins, food additives, preservatives, colours, flavours, fragrances, sugars and sanitisation residues/ by-products are currently under development. Updates on this development pipeline can be tracked and viewed at www.reagecon.com.

Reagents & Standards for the Dairy Industry

Product No.	Description	Pack Size
SUFMT1	Gerber Test Sulphuric Acid FMT d. 1.815-1.825	1L
SUFMT5	Gerber Test Sulphuric Acid FMT d. 1.815-1.825	5L
SUFMT25	Gerber Test Sulphuric Acid FMT d. 1.815-1.825	25L
SUFMTJ	Gerber Test Sulphuric Acid FMT d. 1.815-1.825	2.5L
BOA21	Kjeldahl Reagent 2% w/v Boric Acid Solution without indicator	1L
BOA25	Kjeldahl Reagent 2% w/v Boric Acid Solution without indicator	5L
BOA10	Kjeldahl Reagent 2% w/v Boric Acid Solution without indicator	10 L
BOA225	Kjeldahl Reagent 2% w/v Boric Acid Solution without indicator	25L
S30WW5	Kjeldahl Reagent 30% w/w (40% w/v) Sodium Hydroxide	5L
S30WWLN	Kjeldahl Reagent 30% w/w (40% w/v) Sodium Hydroxide	5L

Product No.	Description	Pack Size
KJR015	Kjeldahl Reagent 4% w/v Boric Acid Solution with indicator	5L
BOA41	Kjeldahl Reagent 4% w/v Boric Acid Solution without indicator	1L
BOA4	Kjeldahl Reagent 4% w/v Boric Acid Solution without indicator	5L
BOA425	Kjeldahl Reagent 4% w/v Boric Acid Solution without indicator	25L
ST840	Kjeldahl Reagent 40% w/v Sodium Hydroxide/8% Sodium Thiosulphate	25L
ST841	Kjeldahl Reagent 40% w/v Sodium Hydroxide/8% Sodium Thiosulphate	5L
WTR045	Barium Chloride Solution 10% w/v	5L
BOAI205	Kjeldahl Reagent 2% w/v Boric Acid with indicator (methylene blue and red methyl)	5L
BOAI225	Kjeldahl Reagent 2% Boric Acid Solution with indicator	25L
BOA3310	Kjeldahl Reagent 3.3% w/v Boric Acid Solution	10 L
PFS1	Indicator Solution Ferroin Indicator	100ml
FEA25	Indicator Solution Iron Alum (Volhard)	250ml
MTR05025	Indicator Methyl Orange Alcoholic Solution 0.1%	250ml
IPT01H	Indicator Phenolphthalein 0.1%	500ml
IPT05F	Indicator Phenolphthalein Alcoholic Solution 0.5%	1L
IPT05W	Indicator Phenolphthalein Alcoholic Solution 0.5%	2.5L
IPT10H	Indicator Phenolphthalein 1%	500ml
IPT10W	Indicator Phenolphthalein Alcoholic Solution 1.0%	2.5L
IPT1025	Indicator Phenolphthalein 1%	250ml
IPT16W	Indicator Phenolphthalein 1.6%	2.5L
PCS5	Indicator Solution Potassium Chromate 5%	500ml
TB04F	Indicator Thymol Blue Alcoholic Solution 0.04%	500ml
NPD03	Phosphatase Test 4-Nitrophenyl Di-Sodium Phosphate	12 x 0.15g
NPD04	Phosphatase Test Carbonate Bi-Carbonate Buffer (Aschafenburg and Mullen Phosphatase Test Buffer)	12 x 2.5g
CH3CN501	Acetonitrile, 50% v/v	1L
BAB2O41	Barium Borate-Hydroxide Buffer	1L
BAOH011	Barium Hydroxide, 0.1N	1L
BOR0091	Borax Buffer, 0.00996M	1L
BUT7051	n-Butanol, 7.5% v/v	1L
CUS051	Copper Sulfate, $CuSO_4$, 0.05%	1L
CUS11	Copper Sulfate Solution 1%	1L
CUSSOLA	Copper Sulfate Solution A 440.9mg Cu/25ml	1L
CUSSOLB	Copper Sulfate Solution B 72.5g/L	1L
FESO41	Ferrous Sulfate Solution	1L
PBA101	Lead Acetate Solution (CH COO) Pb, 10%	1L
PB00574	Phosphate Buffer 0.05M pH 7.4	1L
EFSKNO	Electrode Filling Solution Double Junction Bridge Solution 10% w/v Potassium Nitrate	100ml
PP500F	Potassium Permanganate 5% w/v	1L
PP500W	Potassium Permanganate 5% w/v	2.5L
S2WW1	Sodium Hydroxide 2% w/v	1L
ZS601	Zinc Sulphate, ZnSO4, 6% w/v	1L

Standards & Reagents for APHA, AWWA & WEF Test Methods



Test procedures specifically for the examination of a wide spectrum of parameters in water and waste water are published in a volume called Standard Methods. Sample types may include potable/domestic water, surface water, ground water or cooling, circulating, boiler, municipal and waste waters. First published in 1905, Standard Methods is now in its 22nd Edition. It is published jointly by the American Public Health Association (APHA), American Water Works Association (AWWA), and the Water Environment Federation (WEF).

Standard Methods covers a vast array of analytes and properties. Products developed specifically for Standard Methods are listed below, but other stipulated Standards and Reagents can be found in almost every chapter of this catalogue.

Standards & Reagents for APHA, AWWA and WEF Test Methods

Product No.	Description	Pack Size
ALKS042101	Alum Solution 10% w/v	1L
NH4CL041	Ammonium Chloride Standard 0.05M	1L
NH32501	Ammonium Hydroxide 5M	1L
NHMO41	Ammonium Molybdate 4% w/v	1L
NH4C2O41	Ammonium Oxalate 4% w/v	1L
NH4C2O51	Ammonium Oxalate 5% w/v	1L
NH4P301	Ammonium Phosphate 30% w/v	1L
NH4P401	Ammonium Phosphate 40% w/v	1L
NH4P501	Ammonium Phosphate 50% w/v	1L
NHS101	Ammonium Sulfate 10% w/v	1L
NAB11	Borax 1% w/v	1L
CUS0221	Copper Sulfate, $CuSO_4$, 2% w/v	1L
PFS1	Ferroin Indicator	100ml
GLYC71	Glycine 7% w/v Aqueous Solution for Ozone	1L
HGN200071	Mercuric Nitrate 0.00705M	1L
PP20002F	Potassium Permanganate 0.01N	1L
SA02F	Sodium Acetate 0.2M	1L
SA2F	Sodium Acetate 2M	1L
SA2005W	Sodium Arsenite 0.05M (0.1N)	2.5L
N20014W	Silver Nitrate 0.0141M (0.0141N)	2.5L
TBO8F	Thymol Blue, 0.08% (w/v) in Methanol	1L
CH3CZN101	Zinc Acetate 10% w/v	1L

Wine Standards & Reagents

Wine & Must Analysis

The Compendium of International Methods of Wine and Must Analysis (edition 2013) includes all test methods, approved by the General Assembly of Representatives of the Member Governments of the OIV (International Organisation of Vine and Wine) up to June 2012. First published in 1962, the European Union now recognises all of the test methods in the Compendium for the testing and control of Viticultural Products. Through its role in harmonising methods of analysis, the Compendium facilitates globalisation within the wine industry and in conjunction with the International Code of Oenological Practices and the International Oenological Codex contains content of enormous scientific value.

Each method of analysis contained within the Compendium, contains considerable detail on the Reagents, Standards, Reference Materials and Analytical Volumetric Solutions required to perform that particular method. We are proud to present throughout this catalogue, the most comprehensive range of products available on the market for Wine and Must Analysis, irrespective of whether the methodology is instrumental or manual. Products developed specifically for Wine and Must analysis are contained in this chapter but products of relevance can be found in almost every part of this catalogue. All products contained herein either match or exceed the specifications laid down in the Compendium. Reagecon has a large department dedicated to the development of Industry Specific Customised products and several additional products are under development for Wine and Must Analysis. We believe the products presented will meet or exceed your expectations, bring scientific rigour to your analytical techniques and offer you real value for money.

Standards & Reagents for the Wine Industry

Product No.	Description	Pack Size
KNAT08861	Alkaline Solution (Potassium Sodium Tartrate) 0,886M	1L
CAOH2M105	Calcium Hydroxide 2M Suspension	500ml
CAOH2M1	Calcium Hydroxide 2M Suspension	1L
CUS11	Copper Sulfate Solution 1%	1L
CUS101	Copper Sulfate Solution 10%	1L
DEXT0055	Dextrose Solution 0.5%	500ml
NATB46	di-Sodium tetra-Borate 10-hydrate Solution 4.6%	100ml
FS0101	Fehlings Solution No. 1	1L
FS010105	Fehlings Solution No. 1	500ml
FS0102	Fehlings Solution No. 2	1L
FS010205	Fehlings Solution No. 2	500ml
FOCIRE01	Folin-Ciocalteu's Reagent	100ml
K2SO41	Gypsumetric Liquor - 1ml corresponds to 0.01g	100ml
H20011	Hydrochloric Acid 0.01N 0.01M	1L
H20101	Hydrochloric Acid 0.1N 0.1M	1L
H210G1	Hydrochloric Acid 10 g/l	1L

Product No.	Description	Pack Size
H21001	Hydrochloric Acid 1.0N 1.0M	1L
HCLS115	Hydrochloric Acid 50% v/v	5L
HP0905	Hydrogen Peroxide 0.9% w/v	500ml
HP1005	Hydrogen Peroxide 10% w/v stabilised	500ml
HP1505	Hydrogen Peroxide 15%	500ml
HP25VV05	Phosphoric Acid 25%	500ml
HP301	Hydrogen Peroxide 3% w/v	1L
HP305	Hydrogen Peroxide 3% w/v	5L
I2001F	Iodine 0.01M 0.02N	1L
I2001H	Iodine 0.01M 0.02N	500ml
I2005F	Iodine 0.1N 0.05M	1L
I2005H	Iodine 0.1N 0.05M	500ml
I20031H	Iodine N/64	500ml
KFECN10WV1	Potassium Hexacyanoferrate (II) Solution 10% w/v	1L
KOH21001	Potassium Hydroxide 1.0N 1.0M	1L
KOH20101	Potassium Hydroxide 0.1N 0.1M	1L
KI20WV1	Potassium Iodide 20% Solution	1L
KI30WV1	Potassium Iodide Solution 30% w/v	1L
KT20WV1	Potassium Thiocyanate Solution 20% w/v	1L
KT5WV1	Potassium Thiocyanate Solution 5% w/v	1L
SCS20WV1	Sodium Carbonate 20%	1L
S20011	Sodium Hydroxide 0.01N 0.01M	1L
S20021	Sodium Hydroxide 0.02N 0.02M	1L
S20101	Sodium Hydroxide 0.1N 0.1M	1L
S2013321	Sodium Hydroxide 0.1332N 0.1332M	1L
S20401	Sodium Hydroxide 0.4N 0,4M	1L
S216661	Sodium Hydroxide 1.666N 1.666M	1L
S10WV1	Sodium Hydroxide 10%	1L
S10001	Sodium Hydroxide 10N 10M	1L
S201005	Sodium Hydroxide 0.1N 0.1M	500ml
S20501	Sodium Hydroxide 0.5N 0.5M	1L
S2035461	Sodium Hydroxide 0.35465N 0.35465M	1L
SU33VV1	Sulphuric Acid 33% (v/v)	1L
SU2501	Sulphuric Acid 1:4 (v/v)	1L
SU20VV1	Sulphuric Acid 1:5 v/v	1L
T20021	Sodium Thiosulphate 0.02N 0.02M	1L
T20101	Sodium Thiosulphate 0.1N 0.1M	1L
T2005511	Sodium Thiosulphate 0.0551N 0.0551M	1L
T20501	Sodium Thiosulphate 0.5N 0.5M	1L
ST105	Starch Solution 1%	500ml
ST1001	Starch Solution 1%	1L
TISAB-WINE	TISAB for wine analysis (Dir. 2676/90) for the fluoride determination by selective electrodes	250ml

Coloured Indicators for the Wine Industry.

Further indicators can be found in the section Analytical Volumetric Solutions.

Product No.	Description	Pack Size
TASHI010	Indicator Solution for Mixed Sulphur	100ml
BRCG1501	Bromocresol Green Indicator, 1%	100ml
BRTH040250	Bromothymol Blue Indicator 0.4%	250ml
BRTH05	Bromothymol Blue Indicator, 0.04%	500ml
IPT1025	Indicator Phenolphthalein 1%	250ml
MTBLU10250	Indicator Methylene Blue 1%	250ml
BRBP05	Bromophenol Blue Indicator, 0.04% Aqueous Solution	500ml
1063601	Phenol Red Indicator Solution	100ml
1055102	Methyl Red Indicator Solution 0.02%	100ml

Ethanol Density Standards for calibration of alcoholometers and densimeters in Oenology.

For more Density Standards please see chapters dedicated to Density.

Product No.	Description	Pack Size
ET08VV025	8.5% v/v Ethanol/Water - nominal density 0.98654g/ml	250ml
ET10VV025	10% v/v Ethanol/Water - nominal density 0.9865g/ml	250ml
ET11VV025	11% v/v Ethanol/Water - nominal density 0.98352g/ml	250ml
ET12VV025	12% v/v Ethanol/Water - nominal density 0.98235g/ml	250ml
ET13VV025	13.5% v/v Ethanol/Water - nominal density 0.98065g/ml	250ml
ET14VV025	14% v/v Ethanol/Water - nominal density 0.98008g/ml	250ml
ET16VV025	16% v/v Ethanol/Water - nominal density 0.97787g/ml	250ml
ET20VV025	20% v/v Ethanol/Water - nominal density 0.97356g/ml	250ml

Brix Standards for the Wine Industry.

For further Refractive Index & Brix standards please see chapters dedicated to this subject area.

Product No.	Description	Nominal Refractive Index @ 20°C	Pack Size
BS149	Sucrose (Brix) Standard 14.9% Sucrose in Water	1.36	15ml
BS194	Sucrose (Brix) Standard 19.4% Sucrose in Water	1.36	15ml
BS238	Sucrose (Brix) Standard 23.8% Sucrose in Water	1.37	15ml

Soil Testing Standards & Reagents

The testing of soil is a large and rapidly growing area within Analytical Science worldwide. A survey published in the USA in 1998 found that about 5 million samples were analysed annually in that country and even then this number was considered an underestimation. When the rapid growth in this area is factored in and the numbers extrapolated on a worldwide basis, soil testing is now a significant component of the work of public, commercial and fertilizer company laboratories in all crop growing areas of the world.

This growth is driven by the need to provide growers with accurate information as an enabler to applying correct and economical quantities of fertilizer, and monitor soil fertility. Secondly it is driven by a requirement that farmers/growers and environmental protectors operate in an environmentally friendly way, thus reducing pollution of food, air, waterways and other amenities.

For soil analysis to be effective and efficient it is vital that testing methodologies are standardized, traceable, comparable and of known measurement uncertainty. A significant recent development has been the acceleration of quality assurance, quality control and the use of proficiency testing in soil testing laboratories. Added to these advances, has been a worldwide proliferation in the numbers of soil laboratories being awarded various certificates and accreditations, e.g. ISO 17025

A pivotal constituent to all of these advances is the availability of high quality Standards (physical and chemical) and Reagents. This catalogue contains the largest selection of products relevant to soil testing available worldwide. The products are presented in three ways. Firstly, they can be accessed in the various catalogue sections, which are categorized on the basis of application. These include standards for metals, anions, conductivity and pH. They also include organic standards for pollutants including Pesticides, Phenols, Volatile Organic Carbons and Polycyclic Aromatic Hydrocarbons as examples.

Secondly, this section covers several Analytical Volumetric Solutions, Indicators, Extraction Solutions and Reagents for various specific soil testing methods. This list is indicative only. Finally Reagecon has the capability, competence, track record and experience to offer an outstanding range of bespoke products for a wide variety of methods relating to soil analysis.

We hope you find the products in this section and the remainder of the catalogue helpful. For quotes or information on additional products contact us at sales@reagecon.ie

Reagents & Standards for the Soil Testing Industry

Product No.	Description	Pack Size
NHFED01	Ammonium Fluoride-EDTA Stock Reagent	1L
APDC01	APDC Butyl Acetate-Ethanol Reagent	1L
BSE01	Boron Standard in Extraction Reagent	1L
BRAY01	Bray P1 Extracting Reagent Concentrate	1L
BMASK01	Buffer Masking Reagent	1L
CACLSS01	Calcium Chloride Stock Solution	1L
CACL20011	Calcium Chloride 0.02N 0.01M	1L
CTA01	Chromotopic Acid Solution (CTA)	1L
CUES01	Copper Standard in Extracting Reagent	1L
CUZN01	Copper-Zinc Standard	1L
DTPAE01	DTPA Extraction Reagent Concentrate	1L
DTPA00051	DTPA Solution, 0.005M	1L
H26001	Hydrochloric Acid 6.0N 6.0M	1L
FEE01	Iron Standard in Extraction Reagent	1L
LACS01	Lanthanum Compensating Solution	1L
LIWS01	Lithium Working Solution, 130.14ppm	1L
MGCLS01	Magnesium Chloride Stock Solution	1L
MGERS01	Magnesium Standard in Extracting Reagent	1L
ICCB07	Magnesium 1000ppm in H_2O	500ml
MNES01	Manganese Standard in Extracting Reagent	1L
MEHL101	Mehlich #1 Extracting Reagent	1L
MEHL301	Mehlich #3 Final Extraction Reagent	1L
MEHLBS01	Mehlich Buffer Solution	1L
MEHLBE01	Mehlich-Bowling Extracting Reagent	1L
MOREXT	Morgans Extracting Solution	25L
SOILSP01	MS Soil Spike Standard	1L
SOILSPS01	MS Soil Spike Standard #2	1L
NIES01	Nickel Standard in Extraction Reagent	1L
NNER01	Nitrate-Nitrogen Extracting Reagent	1L
NNS01	Nitrate-Nitrogen Standard	1L
NER01	Nitrogen Standard in Extracting Reagent	1L
OLSER01	Olsen's Extraction Reagent Concentrate	1L
OLSMR01	Olsen's Mixed Reagent	1L
KCR267F	Potassium Dichromate Reagent, 0.267N	1L
SMPB01	SMP Buffer Solution	1L
NACLSS01	Sodium Chloride Stock Solution	1L
NASER01	Sodium Standard in Extraction Reagent	1L
SPISL01	Spiking Solution for Water and Soil	1L
SRCL201	Strontium Chloride Diluting Solution	1L
MEHLS01	Mehlich #1 Sulfuric-Molybdate Solution	1L

Pulp & Paper Standards & Reagents

Pulp & Paper Process Testing

Reagecon offers the largest range of Reagents, Standards and Analytical Volumetric Solutions available in the market place for this important and heavily regulated industry. These products facilitate savings in time and money and offer traceability, comparability and convenience. A large part of the pulp and paper process industry uses Standard Test Methods developed through an organisation called TAPPI (Technical Association of the Pulp and Paper Industry).

TAPPI Standards may be in the form of Test Methods or other documents that include specifications, guidelines and practices. These are available from the organisation as a compendium for a wide range of physical, organic and inorganic analyses using manual and instrumental techniques. Tolerances and guidelines are provided for all Reagents and Standards specified and Reagecon matches or exceeds these tolerances in all cases. Products listed in most sections of this catalogue are relevant to pulp and paper process testing. This section contains a range of products developed specifically for TAPPI methods.

A list of Reagecon part numbers that are cross referenced to each TAPPI method is available upon request.

Standards & Reagents for use in the Pulp & Paper industry.

Product No.	Description	Pack Size
CH3C00H201	Acetic Acid, CH3COOH, 20% v/v	1L
WTR040125	Barium Chloride Solution 10% w/v	125ml
WTR0405	Barium Chloride Solution 10% w/v	500ml
WTR041	Barium Chloride Solution 10% w/v	1L
WTR045	Barium Chloride Solution 10% w/v	5L
WTR061	Barium Chloride Solution 12% w/v	1L
WTR081	Barium Chloride Solution 20% w/v	1L
H25VVJ	Hydrochloric Acid 25% v/v pure	2.5L
H2051671	Hydrochloric Acid, HCl, 0.5167M	1L
H207331	Hydrochloric Acid, HCl, 0.773M	1L
KI10WV1	Potassium Iodide, KI, 10% w/v	1L
PP2002F	Potassium Permanganate 0.02M (0.1N)	1L
N201709F	Silver Nitrate 0.1709M (0.1709N)	1L
N20250F	Silver Nitrate 0.25M (0.25N)	1L
S20011	Sodium Hydroxide 0.01M (0.01N)	1L
S203131	Sodium Hydroxide 0.313M (0.313N)	1L
T20101	Sodium Thiosulphate 0.1M (0.1N)	1L
T20201	Sodium Thiosulphate 0.2M (0.2N)	1L
T20201	Sodium Thiosulphate 0.2M (0.2N)	1L
T21001	Sodium Thiosulphate 1.0M (1.0N)	1L
SU2012751	Sulphuric Acid 0.1275M (0.255N)	1L
SU222001	Sulphuric Acid 2.0M (4.0N)	1L

Laboratory Water

Laboratory Water

Description	Product No. 5L	Product No. 10L	Product No. 25L
Purified Water	H2O5	H2O10	H2O25
Deionised Water	Y00185	Y001810	Y0018
Analytical Grade Water	H2O5AG	H2OB10AG	H2O25AG
Artificial Seawater	DSW5	DSW10	DSW25

Synthetic Fresh Water Standards - Water Hardness as $CaCO_3$

Description	Product No. 5L	Product No. 25L
Synthetic Fresh Water Standard 10-13ppm	HSVS1	HSVS5
Synthetic Fresh Water Standard 40-48ppm	HSS1	HSS5
Synthetic Fresh Water Standard 80-100ppm	HSMH1	HSMH5
Synthetic Fresh Water Standard 160-180ppm	HSH1	HSH5

Cleaning Solutions

Reagecon offer ready-to-use cleaning solutions, which eliminate the need for diluting solutions in-house, together with the associated risks of handling strong oxidiziers. These products save you time and money.

Summary of Features & Benefits:

- Pre-prepared and ready to use
- Certificates of Analysis available online
- Safety Data Sheets available online

Sodium Hypochlorite Solutions

Recommended for general disinfection of laboratory equipment and apparatus, including benches, sinks, floors and contact surfaces (not stainless steel)

- Sanitization of production areas and processing equipment
- As effective as Chlorine Gas
- Easily Stored and transported

Product No.	Description	Pack Size
SH03WW1	Sodium Hypochlorite 0.3% w/v available Chlorine	1L
SH05WV05	Sodium Hypochlorite 0.5% w/v	500ml
SH05WV5	Sodium Hypochlorite 0.5% w/v	5L
SH2WW025	Sodium Hypochlorite 2% w/v available Chlorine	250ml
SH3WW1	Sodium Hypochlorite 3% available Chlorine	1L
SH3WW25	Sodium hypochlorite 3% available Chlorine	25L
SH5WV05	Sodium Hypochlorite 5% w/v Spray	500ml
SH5WV1	Sodium Hypochlorite 5% w/v	1L
SH5WV5	Sodium Hypochlorite 5% w/v	5L
SH5WV25	Sodium Hypochlorite 5% w/v	25L
SH57WW1	Sodium Hypochlorite 5-7% available Chlorine	1L
SH155	Sodium Hypochlorite 15%	5L
SH25002	Sodium Hypochlorite 250ppm	200ml

Isopropanol Cleaning Solutions

Ideal for cleaning and decontaminating lab surfaces, production areas and processing equipment

Product No.	Description	Pack Size
IP375	IPA 37% / 63% H_2O Solution	5L
IP70WV005	IPA 70% IPA/30% H_2O Solution	5ml
IP70WV05	IPA 70% w/v/ 30% H_2O -Trigger Spray 500ml bottle	500ml
IP70WV1	IPA 70% IPA/30% H_2O Solution - Trigger Spray 1L bottle	1L
IP70WV5	IPA 70% IPA/30% H_2O Solution	5L
IP70WV10	IPA 70% IPA/30% H_2O Solution	10L
IP70WV25	IPA 70% IPA/30% H_2O Solution	25L

Analyst Qualification Sets

Summary of Features & Benefits:

Commercial Benefits

- Proof of competence for individual analysts
- Extensive range of test materials available
- More cost effective than Laboratory based Proficiency Schemes
- Enhanced audit compliance
- Ready to Use

Technical Benefits

- Uncertainty of measurement clearly defined
- NIST Traceable where applicable
- Consistency of product - Independent, Traceable, Certified
- Certificates of Analysis and Safety Data Sheets available online

Traditionally laboratories have used Proficiency Schemes to provide evidence of their competence. Now with tightening audit requirements auditors from compliance and accreditation bodies are increasingly asking for evidence that each analyst in a laboratory is competent to carry out individual analytical tests. Proficiency Schemes are not a cost effective way of meeting this requirement and method witnessing or working with known samples are of limited value.

Reagecon now provides a new approach to proving analyst competency for a range of common laboratory tests. We will provide a set of unknown samples (detailed below) with password protected, online access to our ISO 17025 accredited test results of the samples. This allows Laboratory Managers to provide their analysts with "blind" samples and to cost effectively assess the competency of each individual analyst on a specific test. The assurance provided by the use of blind samples and independent ISO 17025 accredited testing in turn allows the Laboratory Manager to meet all external auditors' "proof of competency" requirements.

The unknown samples in the Reagecon range are prepared gravimetrically on a weight/weight basis from high purity raw materials. Both solute and solvent are weighed on a balance calibrated by Reagecon engineers using OIML traceable weights. Reagecon holds ISO 17025 accreditation for calibration of laboratory balances (INAB Ref:265C). The resulting Balance Certificate of Calibration is issued in accordance with the requirements of ISO/IEC 17025.

Test Materials (choose any six to make a set)

Product No.	Description	Concentration	Pack Size
AQSPH001	Low Range pH @ 20°C	pH range 1 to 5	250ml
AQSPH002	Medium Range pH @ 20°C	pH range 5.1 to 8	250ml
AQSPH003	High Range pH @ 20°C	pH range 8.1 to 11	250ml
AQSPH004	Low Range pH @ 25°C	pH range 1 to 5	250ml
AQSPH005	Medium Range pH @ 25°C	pH range 5.1 to 8	250ml
AQSPH006	High Range pH @ 25°C	pH range 8.1 to 11	250ml
AQSCL001	Chloride Content Low	Chloride Range 0.01M to 0.49M	250ml
AQSCL002	Chloride Content Medium	Chloride Range 0.5M to 1.9M	250ml
AQSCL003	Chloride Content High	Chloride Range 2.0M to 4.0M	250ml
AQSA001	Acid Content Low	Acid Range 0.025M to 0.5M	250ml
AQSA002	Acid Content Medium	Acid Range 1.0M to 2.9M	250ml
AQSA003	Acid Content High	Acid Range 3.0M to 10M	250ml
AQSB001	Base Content Low	Base Range 0.05M to 0.99M	250ml
AQSB002	Base Content Medium	Base Range 1.0M to 3.0M	250ml
AQSB003	Base Content High	Base Range 3.0M to 10M	250ml
AQSCON001	Conductivity Ultra Low	Conductivity Range 1.3µS/cm to 50µS/cm	250ml
AQSCON002	Conductivity Low	Conductivity Range 80µS/cm to 1,000µS/cm	250ml
AQSCON003	Conductivity Medium	Conductivity Range 1,100µS/cm to 10,000µS/cm	250ml
AQSCON004	Conductivity High	Conductivity Range 100,000µS/cm to 500,000µS/cm	250ml
AQSDEN001	Density @ 20°C Low	Density Range 0.7g/ml to 0.95g/ml	250ml
AQSDEN002	Density @ 20°C High	Density Range 1.1g/ml to 2.8g/ml	250ml
AQSBRIX001	Brix Low	Sucrose (Brix) Range 5% to 19%	15ml
AQSBRIX002	Brix Medium	Sucrose (Brix) Range 20% to 34%	15ml
AQSBRIX003	Brix High	Sucrose (Brix) Range 35% to 60%	15ml
AQSOSM001	Osmolality Low	Osmolality Range 50mOsm/kg to 350mOsm/kg	5ml
AQSOSM002	Osmolality Medium	Osmolality Range 351mOsm/kg to 999mOsm/kg	5ml
AQSOSM003	Osmolality High	Osmolality Range 1,000mOsm/kg to 3,000mOsm/kg	5ml
AQSTOC001	TOC Ultra Low	TOC Range 0.5ppm to 10ppm	35ml
AQSTOC002	TOC Low	TOC Range 11ppm to 100ppm	35ml
AQSTOC003	TOC Medium	TOC Range 101ppm to 500ppm	35ml
AQSMP001	Melting Point	Melting point Range 40°C to 240°C	1g
AQSICP001	ICP - Multi-Element (7 Elements)	Concentration Range 1ppm to 1000ppm	100ml
AQSICP002	ICP - Multi-Element (19 Elements)	Concentration Range 1ppm to 1000ppm	100ml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VESSEL 5

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Physical & Chemical Standards Compendium

partner of the LLG Lab Logistics Group

QUALITY
I.S. EN ISO 9001:2008
NSAI Certified

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