

pH Buffer Solutions



Guaranteed Traceability

Reagecon's pH buffer standards are directly traceable to the IUPAC pH scale by an unbroken chain of traceability. Reagecon achieve this traceability through a series of comparisons, with the key reference materials being Standard Reference Materials (SRMs) manufactured by NIST.

For proof of traceability, all of these comparisons must be made in a technically - valid manner and the accuracy of each step must be quantified by calculating the associated Uncertainty of Measurement. Reagecon's pH buffer standards meet the ISO definition of traceability: "The ability to relate measurements back to a stated reference (usually an international standard) through an unbroken chain of comparisons, each having stated uncertainties of measurement." Reagecon's traceability claims are guaranteed by our accreditation to ISO/IEC 17025 (INAB Ref:264T).

Why use traceable pH buffers?

Your pH measurements can only be as good as the pH buffers that you use. If your pH calibration is made using traceable pH buffers then you have a direct link to the International pH scale for your measurements. Without this link, you are not entitled to report your measurements in pH units so the number displayed on your pH meter is just that - a number and is not a pH value. The common link that is achieved by traceability allows comparability of results regardless of:

- When the measurements were made
- Where the measurements were made
- What instrumentation was used to make the measurements

Traceable analysis is necessary for consistency and universal acceptance of your pH results - including acceptance by regulatory bodies.

Fully Accredited

Reagecon's pH analysis is accredited to ISO/IEC 17025 (INAB Ref:264T) "General requirements for the competence of testing and calibration laboratories". Reagecon's accreditation to ISO/IEC 17025 (INAB Ref:264T) gives independent proof of three key areas:

- Our pH analysis is technically valid and is carried out in a thoroughly controlled manner by highly - qualified staff.
- Our claims over the accuracy of our pH analysis are valid and we have properly quantified our accuracy in our Uncertainty of Measurement calculations.
- Our pH analysis is traceable to NIST SRMs. It is important to note that NIST do not police claims of traceability to their SRMs.

Reagecon's accreditation is indicated by the Irish National Accreditation Board (INAB) accreditation symbol on our Certificates of Analysis for pH Buffers. Accreditation by INAB and all other accreditation boards validated to accredit ISO/IEC 17025 (INAB Ref: 264T) are mutually recognised as being directly equivalent.

Why take chances with your pH buffer supplier's traceability? By using buffers from a manufacturer that holds ISO/IEC 17025 (INAB Ref:264T) accreditation you have a guarantee of traceability.

Stability

Reagecon's pH buffers have been specially formulated to ensure their stability. The packaging bottles that we use have also been selected and tested to provide maximum stability. We have conducted stability trials on both freshly-opened and part-full bottles of our pH buffers to validate their shelf-life - an example is given in Figure 2. This demonstrates that Reagecon's pH buffers will stay within their specification limits up to the stated expiry date regardless of when the bottle was first opened (provided that the pH buffer is stored in accordance with good laboratory practice). Most of Reagecon's pH buffers have an expiry date of either 2 years or 3 years from the date of manufacture.

This means that our pH buffers' expiry dates are an absolute value and they have a long "Active Life". We do not quote a short usage period after opening the bottle and there is no need to record by hand an "Opened on date" and a "Use by date". With Reagecon's pH buffers you just open the bottle and use the contents - with other manufacturers' pH buffers you need to record these extra dates and may need to dispose of most of the contents of the bottle at the end of its short "Active Life".

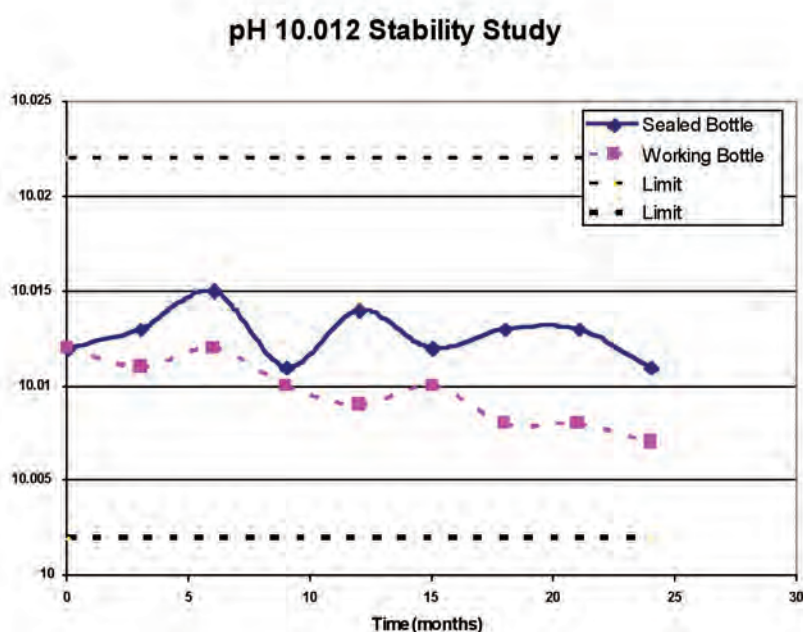


Figure 2: Stability Data for Reagecon pH 10.012 @ 25°C

Packaging Options

Besides regular bottles, Reagecon offer pH buffers in a wide variety of convenient packaging options:

- **Twin-neck bottles.** These bottles are ideal for use with portable pH meters. Their integral calibration chamber prevents contamination and removes the need to carry a separate measuring container or to decant buffers for use in the field
- **Bag-in-Box containers.** This packaging consists of a cardboard box with a collapsible plastic liner. This offers a space-saving alternative to bottles and reduces the amount of packaging waste for disposal. Every Bag-in-Box container is supplied with a tap to allow the contents to be easily dispensed.
- **Capsules.** The presentation of pH buffers in capsule format is an innovative concept developed by Reagecon, and offers several advantages
- **RECAL Buffers.** RECAL is a range of pH Buffers in a wide mouth disposable container which can be used for direct calibration of the electrode and then discarded on completion.

Extensive Range of pH values

Reagecon manufacture the most comprehensive range of pH reagents in the world; these are designed to suit all end user requirements. These include laboratory grade buffers, the Professional Range (buffer standards as per N.I.S.T/DIN and high resolution buffers), low ionic strength buffers and pH buffer capsules. We are delighted to add several new offerings that include buffers to calibrate Antimony electrodes, Sterile Buffers and colour coded pH buffers with a three decimal place specification. All are manufactured to exacting specifications with an extended shelf life and cover the pH range of pH 1.00 to pH 13.00 inclusive. All are supplied with a detailed Certificate of Analysis which outlines traceability to N.I.S.T (the N.I.S.T SRM(s) Lot No. is stated on the certificate). Temperature dependence data is printed on the label as are lot numbers and expiry dates.

Calibration Buffers

Reagecon pH Buffers are pre-programmed into the instruments of most major manufacturers.

Control Buffers

For increased confidence in their test measurements, analysts should regularly measure the pH of a Control Standard. If an acceptable value is obtained from the Control Standard measurement then the analysts, can have improved confidence that their test measurements will be correct. Reagecon's extensive range of pH buffers means that there will be a Reagecon pH buffer which can be used as a control buffer for all pH applications.

pH Buffers @ 20°C

Clear, Colourless pH Buffer Solutions. Tested at 20°C and certified by Reagecon's ISO 17025 (INAB Ref:264T) Accredited Test Method. NIST traceable and presented in various pack sizes.

Description	Product No. 500ml	Product No. 1L	Product No. 5L
pH 1.00 ± 0.02 @20°C	10105	1010	5010
pH 1.20 ± 0.02 @20°C	10125	1012	5012
pH 2.00 ± 0.02 @20°C	10205	1020	5020
pH 3.00 ± 0.02 @20°C	10305	1030	5030
pH 4.00 ± 0.01 @20°C	10405	1040	5040
pH 4.00 ± 0.01 @20°C (Phthalate Free)	CC10405	CC1040	CC5040
pH 5.00 ± 0.01 @20°C	10505	1050	5050
pH 6.00 ± 0.01 @20°C	10605	1060	5060
pH 6.80 ± 0.01 @20°C	10685	1068	5068
pH 7.00 ± 0.01 @20°C	10705	1070	5070
pH 8.00 ± 0.01 @20°C	10805	1080	5080
pH 9.00 ± 0.01 @20°C	10905	1090	5090
pH 9.20 ± 0.01 @20°C	10925	10920	50920
pH 9.22 ± 0.01 @20°C	109220	10922	50922
pH 10.00 ± 0.01 @20°C	11005	1100	5100
pH 11.00 ± 0.05 @20°C	11105	1110	5110
pH 12.00 ± 0.05 @20°C	11205	1120	5120
pH 13.00 ± 0.05 @20°C	11305	1130	5130

pH Buffers @ 25°C

Clear, Colourless pH Buffer Solutions. Tested at 25°C and certified by Reagecon's ISO 17025 (INAB Ref:264T) Accredited Test Method. NIST traceable and presented in various pack sizes.

Description	Product No. 500ml	Product No. 1L	Product No. 5L
pH 1.00 ± 0.02 @25°C	1010525	101025	501025
pH 1.68 ± 0.02@25°C	10168	1016825	5016825
pH 2.00 ± 0.02 @25°C	1020525	102025	502025
pH 2.00 ± 0.02@25°C (Mercury Free)	1020255MF	102025MF	502025MF
pH 3.00 ± 0.02 @25°C	1030525	103025	503025
pH 4.00 ± 0.01 @25°C	1040525	104025	504025
pH 4.00 ± 0.01 @25°C (Phthalate Free)	CC1040525	CC104025	CC504025
pH 5.00 ± 0.01 @25°C	1050525	105025	505025
pH 5.00 ± 0.01 @25°C (Mercury Free)	1050525MF	105025MF	505025MF
pH 6.00 ± 0.01 @25°C	1060525	106025	506025
pH 6.00 ± 0.01 @25°C (Mercury Free)	1060525MF	106025MF	506025MF
pH 6.80 ± 0.01 @25°C	1068525	106825	506825
pH 7.00 ± 0.01 @25°C (Mercury Free)	1070525MF	107025MF	507025MF
pH 7.00 ± 0.01 @25°C	1070525	107025	507025
pH 8.00 ± 0.01 @25°C	1080525	108025	508025
pH 8.00 ± 0.01 @25°C (Mercury Free)	1080525MF	108025MF	5080525MF
pH 9.00 ± 0.01 @25°C	1090525	109025	509025
pH 9.40 ± 0.01 @25°C	1094025	10940251	5094025
pH 10.00 ± 0.01 @25°C	1100525	110025	510025
pH 11.00 ± 0.05 @25°C	1110525	111025	511025
pH 12.00 ± 0.05 @25°C	1120525	112025	512025
pH 13.00 ± 0.05 @25°C	1130525	113025	513025

Colour Coded Buffers @ 20°C

Coloured pH Buffer Solutions. Tested at 20°C and certified by Reagecon's ISO 17025 (INAB Ref:264T) Accredited Test Method. NIST traceable and presented in various pack sizes.

Description	Product No. 30ml	Product No. 100ml	Product No. 250ml	Product No. 500ml	Product No. 1L	Product No. 5L
pH 4.00 ± 0.01 @20°C (Red)	1040C030	1040C100	10402C	10405C	1040C	5040C
pH 7.00 ± 0.01 @20°C (Yellow)	1070C030	1070C100	10702C	10705C	1070C	5070C
pH 9.00 ± 0.01 @ 20°C (Blue)	1090C030	1090C100	10902C	10905C	1090C	5090C
pH 10.00 ± 0.01 @20°C (Blue)	1100C030	1100C100	11002C	11005C	1100C	5100C

Colour Coded Buffers @ 25°C

Coloured pH Buffer Solutions. Tested at 25°C and certified by Reagecon's ISO 17025 (INAB Ref:264T) Accredited Test Method. NIST traceable and presented in various pack sizes.

Description	Product No. 500ml	Product No. 1L	Product No. 5L
pH 4.00 ± 0.01 @25°C (Red)	1040525C	104025C	504025C
pH 4.00 ± 0.01@ 25°C (Red) (Mercury Free)	1040525CMF	104025CMF	504025CMF
pH 7.00 ± 0.01 @25°C (Yellow)	1070525C	107025C	507025C
pH 7.00 ± 0.01@25°C (Yellow)(Mercury Free)	1070525CMF	107025CMF	507025CMF
pH 10.00 ± 0.01 @25°C (Blue)	1100525C	110025C	510025C
pH 10.00 ± 0.01@ 25°C (Blue) (Mercury Free)	1100255CMF	110025CMF	510025CMF

Twin Neck Bottle Format

pH Buffers are available in an attractive and innovative twin neck bottle.

The main advantages of this packaging are:

- No possibility of contamination
- No need for separate measuring container for use in the calibration of the Electrode
- Correct quantity of buffer required for calibration is dispensed into the calibrating chamber giving rise to no waste
- Ideally suited for field work
- Easy to carry
- 250ml, 500ml and 1L sizes available



Twin Neck Bottle Format @ 20°C

Coloured pH Buffer solutions in Twin-neck containers with integrated calibrating chamber. Tested at 20°C and certified by Reagecon's ISO/IEC 17025 (INAB Ref:264T) Accredited Test Method. NIST traceable and presented in various pack sizes.

Description	Product No. 250ml	Product No. 500ml	Product No. 1L
pH 4.00 ± 0.01 @20°C (Red)	10402CTT	10405CTT	1040CTT
pH 7.00 ± 0.01 @20°C (Yellow)	10702CTT	10705CTT	1070CTT
pH 9.00 ± 0.01 @ 20°C (Blue)	10902CTT	10905CTT	1090CTT
pH 9.22 ± 0.01 @20°C	1092202TT	1092205TT	10922CTT
pH 10.00 ± 0.01 @20°C (Blue)	11002CTT	11005CTT	1100CTT

Twin Neck Bottle Format @ 25°C

Coloured pH Buffer solutions in Twin-neck containers with integrated calibrating chamber. Tested at 25°C and certified by Reagecon's ISO/IEC 17025 (INAB Ref: 264T) Accredited Test Method. NIST traceable and presented in various pack sizes.

Description	Product No. 500ml
pH 1.00 ± 0.02 @25°C	1010525TT
pH 2.00 ± 0.02 @ 25°C	1020525TT
pH 4.00 ± 0.01 @25°C (Red)	1040525CTT
pH 6.86 ± 0.01 @25°C (Yellow)	1068805CTT
pH 6.865 ± 0.01 @25°C	106865TT
pH 7.00 ± 0.01 @25°C (Yellow)	1070525CTT
pH 9.00 ± 0.01 @25°C	1090525TT
pH 9.18 ± 0.01@25°C (Blue)	109180CTT
pH 9.18 ± 0.01 @25°C	109180TT
pH 9.21 ± 0.01 @ 25°C (Blue)	1092125CTT
pH 9.21 ± 0.01 @ 25°C	1092125TT
pH 10.00 ± 0.01 @25°C (Blue)	1100525CTT
pH 12.00 ± 0.05 @25°C	1120525TT

pH Buffer Standards NIST Values @ 20°C

Clear, Colourless NIST Value pH Buffer Solutions. Tested at 20°C and certified by Reagecon's ISO/IEC 17025 (INAB Ref:264T) Accredited Test Method. NIST traceable and presented in 500ml bottles. Other pack sizes available upon request.

Description	Product No.500ml
pH 1.675 ± 0.010 @20°C	101675
pH 1.677 ± 0.010 @20°C	101677
pH 3.788 ± 0.010 @20°C	103788
pH 4.001 ± 0.010 @20°C	104001
pH 6.881 ± 0.010 @20°C	106881
pH 7.429 ± 0.010 @20°C	107429
pH 9.225 ± 0.010 @20°C	109225
pH 10.062 ± 0.010 @20°C	110062
pH 12.627 ± 0.050 @20°C	112627

pH Buffer Standards DIN 19266 values @ 25°C

Clear, Colourless DIN Value pH Buffer Solutions. Tested at 25°C and certified by Reagecon's ISO/IEC 17025 (INAB Ref:264T) Accredited Test Method. NIST traceable and presented in 500ml bottles. Other pack sizes available upon request.

Description	Product No. 500ml
pH 1.679 ± 0.010 @25°C	101679
pH 3.776 ± 0.010 @25°C	103776
pH 4.005 ± 0.010 @25°C	104005
pH 6.865 ± 0.010 @25°C	10687
pH 7.413 ± 0.010 @25°C	107413
pH 9.180 ± 0.010 @25°C	109180
pH 10.012 ± 0.010 @25°C	110012
pH 12.454 ± 0.050 @25°C	112454

pH Buffer Standards DIN 19267 @25°C

Description	Product No. 500ml
pH 1.09 @25°C	101095
pH 3.06 @25°C	103065
pH 4.65 @25°C	104655
pH 6.79 @25°C	106795
pH 9.23 @25°C	109235
pH 12.75 @25°C	112755

High Resolution Buffers

Coloured High Resolution pH Buffer solutions. Tested at 20°C or 25°C and certified by Reagecon's ISO/IEC 17025 (INAB Ref:264T) Accredited Test Method. NIST traceable and presented in 500ml bottles. Other pack sizes available upon request.

Description	Product No. 500ml
pH 4.000 ± 0.010 @20°C (Red)	104000C
pH 4.000 ± 0.010 @25°C (Red)	H40525C
pH 4.000 ± 0.010 @25°C	H40525
pH 7.000 ± 0.010 @20°C (Yellow)	107000C
pH 7.000 ± 0.010 @25°C (Yellow)	H70525C
pH 7.000 ± 0.010 @25°C	H70525
pH 10.000 ± 0.010 @20°C (Blue)	110000C
pH 10.000 ± 0.010 @25°C (Blue)	H100525C

Antimony Buffers

Description	Product No. 250ml	Product No. 500ml
pH 1.07 @25°C - Colourless	10725025	10725050
pH 4.00 ± 0.05 @25°C - Light Red	401025P	40102550
pH 7.01 at 25°C - Yellow	70125025	70125050

Technical pH Buffer Solutions @ 25°C

Coloured Technical pH Buffer solutions. Tested at 25°C and certified by Reagecon's ISO/IEC 17025 (INAB Ref:264T) Accredited Test Method. NIST traceable and presented in various pack sizes.

Description	Product No. 250ml	Product No. 500ml	Product No. 1L
pH 2.00 ± 0.02 @25°C (Coloured)	TB2002	TB200	TB2001
pH 4.01 ± 0.02 @25°C (Coloured)	TB4012	TB401	TB4011
pH 4.60 ± 0.02 @25°C (Coloured)	TB4602	TB460	TB46001
pH 7.00 ± 0.02 @25°C (Coloured)	TB7002	TB700	TB7001
pH 9.21 ± 0.02 @25°C (Coloured)	TB9212	TB921	TB9211
pH 10.00 ± 0.02 @25°C (Coloured)	TB1002	TB100	TB1001

Low Ionic Strength Buffers

Low Ionic Strength pH Buffer Solutions. Special buffers suitable for accurate measurement of low ionic strength samples. Tested at 20°C and certified by Reagecon's ISO/IEC 17025 (INAB Ref:264T) Accredited Test Method. NIST traceable and presented in various pack sizes.

Description	Product No. 500ml	Product No. 5L
pH 4.10 ± 0.04 @20°C	LS41	LS415
pH 6.96 ± 0.04 @20°C	LS69	LS695

"Bag In Box" - Colour Coded @ 20°C

Coloured, Bag in Box pH Buffer solutions supplied in cubitainers with tap. Tested at 20°C and certified by Reagecon's ISO/IEC 17025 (INAB Ref: 264T) Accredited Test Method. NIST traceable and presented in various pack sizes.

Description	Product No. 5L	Product No.10L
pH 4.00 ± 0.01 @20°C (Red)	BPH01	BPH02
pH 6.00 ± 0.01 @20°C (Clear)	BPH34	BPH35
pH 7.00 ± 0.01 @20°C (Yellow)	BPH03	BPH04
pH 10.00 ± 0.01 @20°C (Blue)	BPH05	BPH06

Bag in Box - Colour Coded @ 25°C

Coloured, Bag in Box pH Buffer solutions supplied in cubitainers with tap. Tested at 25°C and certified by Reagecon's ISO/IEC 17025 (INAB Ref:264T) Accredited Test Method. NIST traceable and presented in various pack sizes

Description	Product No. 5L	Product No. 10L
pH 4.00 ± 0.01 @25°C (Red)	BPH07	BPH08
pH 7.00 ± 0.01 @25°C (Yellow)	BPH09	BPH10
pH 10.00 ± 0.01 @25°C (Blue)	BPH11	BPH12

pH Buffer @ 20°C - Bag in Box

Description	Product No. 5L
pH 1.675 ± 0.01 @20°C	BPH97
pH 4.00 ± 0.01 @20°C	BPH43
pH 4.66 ± 0.01 @20°C	BPH113
pH 5.00 ± 0.01 @20°C	BPH105
pH 6.881± 0.01 @20°C	BPH99
pH 7.00 ± 0.01 @20°C	BPH22
pH 8.00 ± 0.01 @20°C	BPH48
pH 9.00 ± 0.01 @20°C	BPH32
pH 9.225 ± 0.01 @20°C	BPH100
pH 10.00 ± 0.01 @20°C	BPH44
pH 11.00 ± 0.05 @20°C	BPH63

pH Buffer @ 25°C - Bag in Box

Description	Product No. 5L
pH 1.00 ± 0.02 @25°C	BPH27
pH 1.679 ± 0.01 @25°C	BPH90
pH 2.00 ± 0.02 @25°C	BPH13
pH 3.776 @25°C	BPH91
pH 4.00 ± 0.01 @25°C	BPH21

Sterile Buffers

pH Buffer Solutions sterilised by gamma irradiation.

Description	Product No. 500ml
pH 4.00 ± 0.01 @20°C (Sterile)	104005S
pH 6.00 ± 0.01 @20°C (Sterile)	106005S
pH 7.00 ± 0.01 @20°C (Sterile)	107005S
pH 8.00 ± 0.01 @20°C (Sterile)	108005S

pH Buffers @ 38°

Description	Product No. 1L
pH 4.00 ± 0.01 @ 38°C	104038
pH 6.00 ± 0.01@38°C	106038
pH 7.00 ± 0.01@ 38°C	107038
pH 8.00 ± 0.01 @ 38°C	108038

pH Buffer Capsules

The presentation of pH buffers in capsule format is an innovative concept developed by Reagecon. Tested at 25°C, NIST Traceable. These capsules offer the following advantages:

- Colour coded for ease of identification
- Dissolve quickly
- Preservative free
- Easy to store and transport
- Easy to use
- Accuracy ± 0.02 pH units
- Economical
- Extended shelf life

To use: Empty contents of one capsule into 100ml of distilled water.

Description	Product No. Pack of 50 Capsules
pH Buffer Capsules pH 4.01 ± 0.02 @25°C (Red)	CP1040
pH Buffer Capsules pH 7.00 ± 0.02 @25°C (Green)	CP1070
pH Buffer Capsules pH 9.00 ± 0.02 @25°C (Purple)	CP1090
pH Buffer Capsules pH 10.00 ± 0.02 @25°C (Blue)	CP1100
pH Buffer Capsule Kit (10 x pH 4.01, 20 x pH 7.00, 10 x pH 9.00, 10 x pH 10.00 @25°C)	CPMX47910
pH Buffer Capsule Kit (10 x pH 4.01, 20 x pH 7.00, 10 x pH 9.00 & 10 x pH 10.00)	CPMX
pH Buffer Capsule Kit (10 x pH 4, 10x pH 7, 10x pH 10 & 2 x Universal Indicator)	CPMX4710-UNI
pH Buffer Capsule Kit (3 x pH 4, 3x pH 7, 3x pH 10 & 1 Universal Indicator)	CPMX4710-UNI/1
pH Buffer Capsule Kit (20 x pH 4.01, 20 x pH 7.00, 10 x pH 9.00)	CPMX479

RECAL - Single use Calibration Buffers (Colour Coded)

RECAL is a range of pH Buffers in a wide mouth disposable container which can be used for direct calibration of the electrode and then discarded after use. RECAL offers the following advantages:

- Tested and Certified by Reagecon's ISO 17025 (INAB Ref:264T) Accredited Test Method.
- Convenience - saves time, more efficient calibration, avoids waste and spillage.
- Mobility - These are easy to store and transport, allowing calibration in the field or directly in the plant.
- Economical - No waste buffer, beaker not required.
- Accuracy - the possibility of contamination is eliminated giving increased confidence in the results.
- Traceability - Each container is labelled with lot number and expiry date and buffers are directly traceable to N.I.S.T. Standards.

Description	Product No. 6 x 90ml @ 20°C	Product No. 6 x 90ml @ 25°C
pH 4.00 (Red) ± 0.01	04C60	04C65
pH 7.00 (Yellow) ± 0.01	07C60	07C65
pH 9.00 (Clear) ± 0.01	09C60	09C65
pH 10.00 (Blue) ± 0.01	10C60	10C65
Recal mixed pack of 2xpH 4, 7 & 10 ± 0.01	MXC60	MXC65
Recal mixed pack of 2xpH 4, 7 & 9 ± 0.01	MX09C60	MX09C65

Additional pack sizes available on request