Laundry
Test Kit

Instruction Manual

56I014601 Version P1

Contents

Method 1:
Measuring water hardness

Range 50 – 600 mg/l (as $CaCO_3$)

Allow the sample water to flow for 30 seconds.	Then fill the test vessel with sample water **10ml** **(Hard Water)** **or** **20ml** **(Soft Water)**	Add drops of: **KS166** **Raw Water Hardness Reagent** until the sample turns from **Wine Red** to **Pure Blue**.	Record the number of drops added.



Colours may vary depending on sample and test conditions.

10ml Sample Size

Total Hardness (as $CaCO_3$) mg/l = Number of Drops x 20

20ml Sample Size

Total Hardness (as $CaCO_3$) mg/l = Number of Drops x 10

NOTE

This test may be used to measure the total hardness of raw (mains) water. It is important to monitor raw water hardness on a softening plant as fluctuations in water quality will affect resin regeneration times.

Method 2:
Measuring hardness of wash liquor

For optimum detergency and whiteness retention the wash liquor should be softened and therefore in hard water conditions sufficient detergent or alkali should be used to soften the wash solution.

In order to test whether the wash liquor is softened, the standard Water Hardness Test in the Test Kit can be used, however the following modification should be made. This modification is necessary since the Water Hardness Indicator works in a fixed pH range around pH 10 which is usually exceeded in wash solutions.

1 Take a 50 mls sample of wash liquor in a suitable beaker and check the pH reading (ensuring that temperature of the liquor is under 60°C).

2 If the pH is greater than 10.3 add Hydrochloric Acidifier dropwise to the sample, stirring with the pH stick until a reading in the range 9.8 - 10.3 is obtained.

3 Fill the graduated tube used for the Water Hardness Test to the 10ml mark with the pH adjusted solution above and proceed with the normal Water Hardness Test method.

A blue colour should be obtained with one or two drops of Hardness Reagent indicating soft or almost softened wash liquor.

Method 3:
Measuring water/final rinse alkalinity (M)

Range 50 – 600mg/l (as $CaCO_3$)

Take sample according to expected range. (See table below)	Add drops of **KS138 - TA4 (4.5 Indicator)** to give a **blue** colour.	Count drops of: **KS139 - TA3** until **yellow/orange**.	Record the number of drops added.




Colours may vary depending on sample and test conditions.

Total Alkalinity (as $CaCO_3$) mg/l = Number of Drops x Factor (from the table)

ppm = mg/l

Expected Range (mg/l)	Titrant Used	Sample Size (ml)	Factor (mg/l)	Factor g/g
250-700	KS139 – TA3	40	5	0.34
500-1500	KS139 – TA3	20	10	0.68
1000-3000	KS139 – TA3	10	20	1.36

The M refers to methyl orange, the indicator originally used for titrating Total Alkalinity. Nowadays 4.5 Indicator is used but the old M terminology has remained.

Interpretation

Water with alkalinities above 150 ppm. carbonate alkalinity can produce difficulties with rinsing (check pH of water and final rinse solution). Which in turn can contribute to galling. The use of interspins between rinses may help, or alternatively a sour can be used in the final rinse.

Note: 1 grain/gallon calcium carbonate is equivalent to 1 degree Clark or 14.3ppm.

Method 4:
Measuring wash alkalinity (M)

Range 200 – 3000 mg/l (as $CaCO_3$)

Take sample according to expected range. (See table below)	Add drops of **KS138 - TA4 (4.5 Indicator)** to give a **blue** colour.	Count drops of: **KS133 – ALK4** until **yellow/orange**.	Record the number of drops added.




Colours may vary depending on sample and test conditions.

Total Alkalinity (as $CaCO_3$) mg/l = Number of Drops x Factor (from the table)

ppm = mg/l

Expected Range (mg/l)	Titrant Used	Sample Size (ml)	Factor (mg/l)	Factor g/g
50-150	KS133 – ALK4	40	25	1.7
100-300	KS133 – ALK4	20	50	3.4
200-600	KS133 – ALK4	10	100	6.8

The M refers to methyl orange, the indicator originally used for titrating Total Alkalinity. Nowadays 4.5 Indicator is used but the old M terminology has remained.

Method 5: Measuring pH

Quick Start Guide:

(For full features, see the instruction booklet supplied)

Press and hold for 3 seconds to turn off.

Press to hold reading - (!) appears on LCD

Press for backlight on/off

Press for 3 seconds to store data

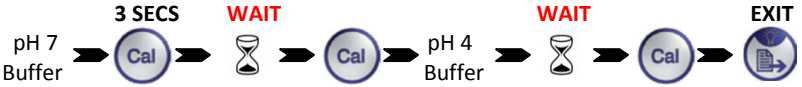
After 3 seconds the storage location (eg. 01) appears shortly on the display. Once the storage has reached maximum capacity, the data will overwrite the oldest files.

* Re-Calibrate regularly to maintain accuracy.
* Rinse the electrode with distilled water after each reading.
* If temperature is out of range, "ERR" will appear, then return to measurement mode automatically.
* If the default reading is more than 30% off compare to the standard buffer, "ERR" will appear.

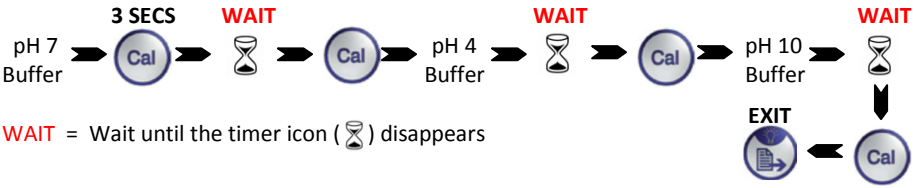
Calibration: Auto-recognition for pH 4 (L), pH 7 (M) and pH 10 (H) buffer solutions.

One point calibration:

Two Point Calibration



Three Point Calibration



WAIT = Wait until the timer icon ( ) disappears

Method 6:
Measuring pH on fabrics

Equipment

Universal Indicator Solution
Colour Card

1 Drop one or two drops of Universal Indicator Solution (UphI) onto the

fabric.

2 Wait for about 30 seconds and then compare the colour of the stain with the Colour Card.

3 Read off the pH of the colour nearest to the stain on the fabric.

4 Rinse the fabric thoroughly to remove the stain.

Method 7:
Measuring the strength of chlorine bleach in the water

Interpretation

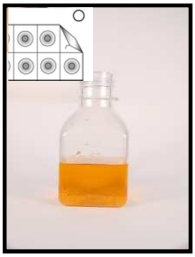
For soured fabric a pH in the range 5.5 - 6.5 is recommended. pH levels lower than pH 5 may result in fabric damage.

For unsoured fabrics a maximum pH of 8.5 is recommended. At pH levels above this, discoloration of whites can result.

Range 20 – 300 mg/l (as Cl_2)

Take a 40ml sample of wash water	Add 1 or 2 scoops of **KP146 – CL1P** **(Sulphamic Acid)**	Add 2 tablets of **KT26 – CL2A** **(Chlorine HR Tablet)** The sample will turn **Orange/Brown** if chlorine is present	Add drops of **KS149 – CL4** until a **pale yellow** colour. Note this as **Result A**






Add one scoop of **KP148 – CL2B** **(Iodine Indicator)** to give a **pale blue** colour	Count the drop required of **KS149 – CL4** to turn the sample colourless Note this as **Result B**


Colours may vary depending on sample and test conditions.

Available Chlorine (as Cl_2) mg/l = [Result A + Result B] x 10

NB: 10 ppm is equivalent to 0.4 grains/pound at low water dip.
10ppm is equivalent to 0.5 grains/pound at medium water dip.
10ppm is equivalent to 0.6 grains/pound at high water dip

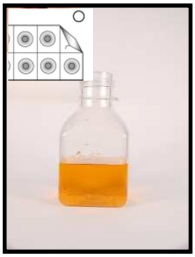
Method 8:
Measuring the strength of concentrated bleach

supplies

Range 0.01 – 15% w/v (as Cl_2)

Using the 1ml syringe, carefully transfer 0.5ml of concentrated bleach to the test jar and add approximately 20ml of tap water.	Add 1 or 2 scoops of **KP146 – CL1P (Sulphamic Acid)**	Add 2 tablets of **KT26 – CL2A (Chlorine HR Tablet)** The sample will turn **Orange/Brown** if chlorine is present	Add drops of **KS150 – CL5** Until a **pale yellow** colour. Note this as **Result A**






Add one scoop of **KP148 – CL2B (Iodine Indicator)** to give a **pale blue** colour	Count the drop required of **KS150 – CL5** to turn the sample colourless Note this as **Result B**	Samples of less than 10ml should be diluted to approximately 10-20ml with chlorine free water.	


Colours may vary depending on sample and test conditions.

Total Available Chlorine (as Cl_2) % w/v = [Result A + Result B] x 0.4

Method 9:
Measuring available oxygen in the washer

Range 10 – 500 mg/l (as O_2)

Take sample according to expected range. (See table below)	Add 1 scoop of **KP340** **(Starch/Iodide Powder)** and mix gently to dissolve. (It is not necessary for all of the powder to dissolve)	Add 10 drops of **KS381** **(Sulphuric Acidifier)** followed by 1 scoop of **KP384** **(Oxygen Test Reagent)** And mix gently to dissolve.	The solution should be **Blue** if oxygen is present. Count how many drops of **KS347** **(Oxygen Titrant)** are required to turn the sample **Colourless**. Record the number of drops added.




Colours may vary depending on sample and test conditions.

Available Oxygen (O_2) mg/l = Number of Drops x Factor

ppm = mg/l

Expected Range (mg/l)	Sample Size (ml)	Factor
10 - 50	20	2
50 - 100	10	4
100 - 200	5**	8
200 - 500	2**	20
**Samples below 10ml should be diluted to approximately 10ml with oxygen free water		

NOTES

Ignore any undissolved blue starch particles that may be present in the sample during the titration. The end-point is when the liquid sample turns colourless.

No more than 4ppm (one drop) available oxygen should be present in rinse water. Greater amounts than this can lead to fabric damage when tumble dried.

Method 10:
Measuring strength of Peroxide solutions

Peroxide test strips are supplied for the determination of peroxide in was solutions.

1 Obtain a sample of water to be tested and immerse the pad end of one peroxide test strip for a few seconds.

2 Remove and compare the colour produced on the pad with the colour scale on the side of the bottle. Record the concentration as the nearest matching colour.

Method 11:
Test for chlorine bleach residues in rinse liquors

Starch-Iodide paper is provided for a quick and easy test for bleach residue.

1 Obtain a sample of rinse water to be tested and immerse a piece of Starch iodide paper for a few seconds.

2 The presence of a blue/black colour on the paper indicates the presence of available chlorine. The deeper the colour, the higher the level present.

3 For final rinse water only a faint blue colour should be obtained.

Method 12:
Test for chlorine bleach residues on surfaces or textiles

1 Add a few drops of Chlorine Spot Tester Reagent to the surface to be tested.

2 The liquid will turn from yellow/orange to red if chlorine is present.

Method 13:
Test for iron on fabric

1 To the suspect stain add 5-10 drops of hydrochloric acidifier and 2 - 3 drops of ammonium thiocyanate.

2 Formation of a pink - deep red colour confirms the presence of iron.

IMMEDIATELY RINSE THE FABRIC TO REMOVE THE PRESENCE OF THE STRONG ACIDS

Interpretation

The thiocyanate test is extremely sensitive and often produces a pink colour on unstained fabric.

If complete items are shown to be contaminated with iron, it is possible that softeners or conditioners are entrapping iron onto the fabric. This eventually will lead to yellowing of the fabric. Try to locate the source of the iron (steam traps, poor boiler maintenance, hot water supply, etc.) and eliminate the contamination. Severe build-ups exaggerated by softeners and conditioners can be improved by using an ANIONIC detergent for a short period to strip off the softener.

Stains caused by blood residues will normally respond positively to the above test. Improved pre-flushing can usually remove such problems. Alternatively, an enzyme containing product can be considered.