

Ultra-Low™ Total Chlorine Test Strips **Instructions for Use****Indications for Use**

RPC Ultra-Low™ Total Chlorine Test Strips are intended to provide a fast, easily discernible, and accurate method for determining very low levels of total chlorine in water. Do not use these strips to determine chlorine potency.

Test Procedure

- 1) Collect a fresh 100 ml sample of water in a clean plastic sample cup (such as RPC # K100-1100).
 - A. The sample cup should be known to be free of chlorine or, prior to collecting the sample, rinse the clean sample cup with the water to be tested.
 - B. Be sure to collect the sample just prior to performing the test as Chlorine tends to volatilize out of the sample quickly.
- 2) Remove one test strip from its foil package and swish it in the sample for the amount of time indicated according to the following temperature ranges:

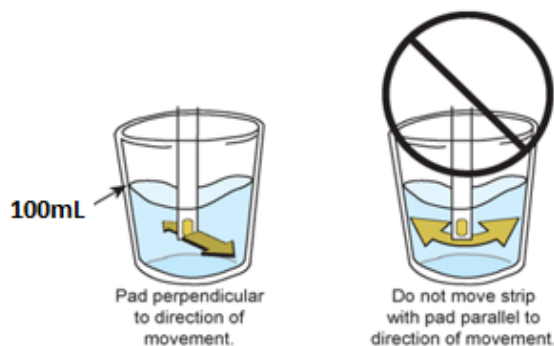
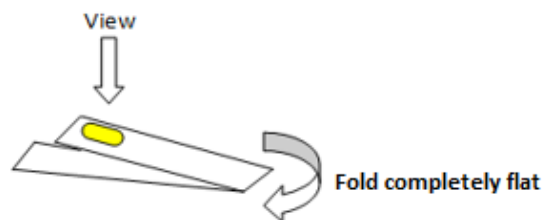
Water sample temperature from **42° F to 61° F (6° C to 16° C)**, swish time = **60** seconds.

Water sample temperature from **62° F to 74° F (17° C to 23° C)**, swish time = **32** seconds.

Water sample temperature from **75° F to 88° F (24° C to 31° C)**, swish time = **20** seconds.

Water sample temperature from **89° F to 93° F (32° C to 34° C)**, swish time = **15** seconds.

- A. Move the strip back and forth at a constant gentle rate of approximately two, 1-2 inch wide strokes (one forward – one backward) per second as shown in Figure 1.
- 3) Remove the strip and shake once, briskly, to remove excess water.
- 4) **Wait 20 seconds** for the test strip color to develop. While waiting, fold the white plastic handle of the test strip under the reagent area aperture so that it provides a consistent viewing background (Figure 2).

**Figure 1****Figure 2**

- 5) **After the 20 second wait period**, immediately compare the strip color to the K100-0118 or K100-0118F color chart to determine the Total Chlorine level in the sample.

NOTE: The strip should yield a uniform color across the entire viewing window. If the window is not a uniform color (e.g., part green and part yellow) repeat the test. A valid result is one in which the viewing window has a uniform color **ONLY**.

*** NOTE:**

K100-0118F is identical to K100-0118 except that the color chart has the 0.01ppm, 0.05ppm, and 0.2ppm color circles removed.

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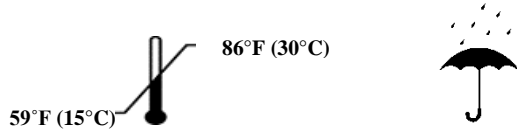


REF K100-0118 and K100-0118F*

Ultra-Low™ Total Chlorine Test Strips

Instructions for Use

Storage and Handling



- Do not touch the aperture window.
- Do not use a test strip after the expiration date.
- Do not allow the test strip to come in contact with liquids or with work surfaces that may contaminate the strip.
- Do not leave test strips in areas exposed to chlorine vapors or other oxidizing vapors.
- The lot number and expiration date are printed on each foil wrapper.

WARNING:

USE ONLY color cards that have the same revision number as the color card that has been provided within the packaging of the product received. Additional color cards of the *same* revision number (found at the lower left corner of the card) may be purchased/used.

LIMITATIONS

Known interferences with this test are oxidizers such as bromine, iodine, and permanganate. Not suitable to test for chlorine in bicarbonate concentrate or dialysate.

US Patent #6541269

NOTE: As an alternative to measuring the water temperature and using the water temperature ranges to determine swish time for the test strip, it is acceptable to use a 60 second swish time to cover a 42°F to 93°F range of water temperature. This may cause the test result to be biased more than one color circle high when testing in room

temperature or warmer water. Therefore, at 0.1ppm total chlorine in water, the test strip result (reagent pad color) is expected to produce up to a >0.2ppm result on the color chart. If a failed test is encountered when using the 60 second dip/swish time, RPC then recommends a repeat test be performed using the provided chart shown below for an accurate reading of chlorine present (to prevent premature changing of carbon beds).

Temp °F / °C	Swish Time	Temp °F / °C	Swish Time
41° / 5°	61	68° / 20°	26
43° / 6°	58	70° / 21°	24
45° / 7°	56	72° / 22°	22
46° / 8°	53	73° / 23°	21
48° / 9°	50	75° / 24°	20
50° / 10°	47	77° / 25°	19
52° / 11°	45	79° / 26°	18
54° / 12°	43	81° / 27°	18
55° / 13°	41	82° / 28°	17
57° / 14°	39	84° / 29°	17
59° / 15°	37	86° / 30°	16
60° / 16°	34	88° / 31°	16
62° / 17°	32	90° / 32°	15
64° / 18°	30	91° / 33°	15
66° / 19°	28	93° / 34°	14

0.1 ppm is the AAMI (Association for the Advancement of Medical Instrumentation) maximum allowable concentration of chloramines in feed water¹. In feed water, a result above 0.1ppm chloramines indicates that the water should not be used to prepare dialysate because of chloramine breakthrough, due to exhaustion of the carbon adsorption media in the water purification system. NANT (National Association of Nephrology Technicians/Technologists) / FDA recommends that feed water samples should be obtained after the first carbon tank to monitor chlorine / chloramine levels².

REFERENCES

¹ Association for the Advancement of Medical Instrumentation, 2005 Dialysis Edition (ANSI / AAMI RD62: 2001) Section 4.22, Table 1; published by the Association for the Advancement of Medical Instrumentation, Arlington, Virginia

² Dialysis Technology – A manual for dialysis technicians, Second Edition, page 109. National Association of Nephrology Technicians/technologists NANT), Dayton, OH, 2000.

- Caution: Federal (U.S.A.) law restricts this device to sale by or on the order of a physician.

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