The ReagentStrip™ Cyanide Test is designed for semi-quantitative monitoring of water for cyanide.

This test has been evaluated by the US EPA under the ETV program. Performance data can be found at www.epa.gov/etv or www.sensafe.com.

This test uses a modified version of the cyanide detection method developed by S. Nagashima, which uses Isonicotinic acid and Barbituric acid (see Environmental Analytical Chemistry, 1981, Vol. 10, p.99). The ReagentStrip™ system is designed for the safe and accurate addition of the chemicals. Two strips are involved:

Cyanide ReagentStrip™ #1 (three pads):
One pad is impregnated with Chloramine T hydrate, which converts Cyanide to Cyanogen chloride. Another pad is impregnated with Monobasic and Dibasic phosphates to buffer to the proper pH for the formation of Cyanogen chloride.

Cyanide ReagentStrip™ #2 (two pads of the same reagent):
Both front and back 1" pads are impregnated with a solution of Isonicotinic acid and 1,3 Dimethylbarbituric acid. The two acids react with Cyanogen chloride to form a blue color.

Interferences

As with other tests for cyanide the presence of sulfide, aldehydes and heavy metals will cause lower results depending on the concentration of these interferences. Thiocyanate gives a positive reaction: at Potassium Thiocyanate concentrations of 5.00, 1.00, and 0.05 mg/L test read 3.00, 0.57, and 0.03 mg/L respectively. Ocean salt water will also interfere with this test. When a salt water sample was diluted 1/10 with distilled water, and spiked with Cyanide, this test recovered only 60% of the spiked Cyanide.

Preparation of Sample for Testing

A. Samples with high levels of cyanide may release hydrogen cyanide gas during the test. Perform the testing in a well-ventilated area, especially if you expect the concentration of cyanide in the sample to be greater than 1ppm.
B. Typical tap water samples ranging in pH above 5.0 and below 11.0 can be used directly in the test.
C. Industrial samples and buffered samples must have the pH adjusted between 7.5 and 8.5, before testing. Adjust the sample pH with 1N HCl or 1N NaOH. CAUTION: Evolution of toxic gas will occur if the sample contains cyanide and the pH is adjusted below 7. Test is valid only when final pH is between 5.5 and 7.0.
D. Measure and record the sample temperature. This will be needed in order to determine the appropriate wait time in Step 7 of test procedure.

TEST PROCEDURE:

1. Using pipette, add 2.0mL of water sample to microcuvette.
2. Dip one #1 strip into water sample for **30 seconds** with a constant, gentle **up and down motion** (Fig. 1).
3. Remove and discard #1 strip (Fig. 2), **KEEP the water sample**.
4. Next, dip one #2 strip into water sample for **30 seconds** with a constant, gentle **up and down motion** (Fig. 1).
5. Remove #2 strip and **shake once, briskly**, to remove excess water.
6. Next, match strip to the ReagentStrip™ Colors provided. Complete color matching **within 2 minutes**.
7. For better accuracy and lower detection, keep the water sample and **WAIT (according to the chart below)** for water color to develop in microcuvette.
8. After wait time, place microcuvette on the Microcuvette colors provided. Looking down from above, move the microcuvette within the color boxes until a match is found (Fig. 4).
9. Liquid will stain microcuvette. Dispose of liquid as described below, then rinse microcuvette thoroughly and allow to dry for next use.

Fig. 1

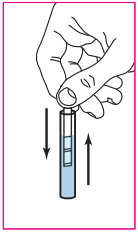
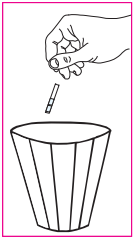


Fig. 2

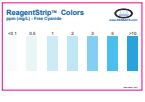


DISPOSAL:

A. Reacted test strips may be discarded in the regular trash (Fig 2).

B. Reacted samples may be poured down a sink (that is not used for food preparation) followed by generous amounts of water for dilution.

Fig. 3



Water Sample Temperature	**Wait Time**
68°F (20°C) – 82°F (28°C)	10 – 13 minutes
59°F (15°C) – 66°F (19°C)	20 – 30 minutes
41°F (5°C) – 57°F (14°C)	40 – 60 minutes

Fig. 4