

DEHA Vacu-vials® Kit

K-3903: 0 - 2.00 ppm (Prog. # 64)

Instrument Set-up

For CHEMetrics photometers, follow the **Setup and Measurement Procedures** in the operator's manual. For spectrophotometers, follow the manufacturer's instructions to set the wavelength to **560 nm.** and to zero the instrument using the ZERO ampoule supplied.

Sample Temperature

This test method is temperature dependent. For best accuracy, sample temperature must be 20°C (68°F) ± 3°C.

Test Procedure

1. Fill the sample cup to the 25 mL mark with the sample to be tested (fig. 1).
2. Add 2 drops of S-3900 Activator Solution (fig. 2). Stir to mix the contents of the cup.
3. **Immediately** place the Vacu-vial ampoule, tip first, into the sample cup and snap the tip. The ampoule will fill leaving a bubble for mixing (fig. 3).
4. To mix the ampoule, invert it several times, allowing the bubble to travel from end to end.
5. Dry the ampoule. Obtain a test result **exactly 10 minutes** after snapping tip.
6. Insert the Vacu-vial ampoule into the photometer, flat end first, and obtain a reading in ppm (mg/Liter) DEHA.

NOTE: If using a spectrophotometer that is not pre-calibrated for CHEMetrics products, then use the **equation below** or the **Concentration Calculator** on the website.

$$\text{ppm} = 1.98 (\text{abs}) + 0.026$$

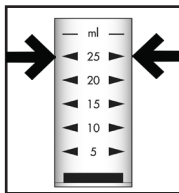


Figure 1

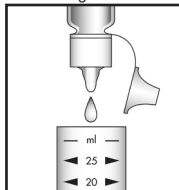


Figure 2

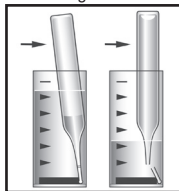


Figure 3

Test Method

The DEHA Vacu-vials®⁰¹ test kit employs the PDTS chemistry². The sample is treated with an excess of ferric iron. DEHA (N,N-Diethylhydroxylamine) reacts quantitatively with ferric iron by reducing it to the ferrous state. The resulting ferrous iron then reacts with PDTS (3-(2-pyridyl)-5,6-bis(4-phenylsulfonic acid)-1,2,4-triazine disodium salt) to form a pink-purple colored complex in direct proportion to the DEHA concentration.

Substances which reduce ferric iron will give high test results. Various metals, especially ferrous iron, will produce high test results. To correct for metals interferences, perform the test procedure omitting Step # 2. Then repeat the test procedure as written and subtract the first test result from the second.

1. Vacu-vials is a registered trademark of AquaPhoenix Scientific, LLC U.S. Patent No. 3,634,038
2. G. Frederick Smith Chemical Co., *The Iron Reagent*, 3rd ed., p. 47 (1980).

Safety Information

Read SDS before performing this test procedure. Wear safety glasses and protective gloves.

