

## Methods

Dissolved oxygen in boiler system water causes corrosion and pitting of metal surfaces, which can lead to boiler inefficiency, equipment failure, and system downtime. DEHA (N,N-Diethylhydroxylamine) is added to boiler system water as an oxygen scavenger to keep the dissolved oxygen levels as low as possible.

### The PDTS Method

Reference: G. Frederick Smith Chemical Co., *The Iron Reagents*, 3<sup>rd</sup> ed., p. 47 (1980).

The test kits employ the PDTS chemistry, in which DEHA reduces iron III (ferric state) to iron II (ferrous state), which readily 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. Test results are expressed in ppb ( $\mu\text{g/L}$ ) or ppm ( $\text{mg/L}$ ) DEHA.

### The Ceric Sulfate Titrimetric Method

Reference: Developed by CHEMetrics, Inc.

CHEMetrics developed a titrimetric method that employs a ceric sulfate titrant and ferroin end point indicator. DEHA reduces ferric iron to the ferrous state, and the resulting ferrous iron is titrated with the ceric sulfate titrant. Test results are expressed in ppm ( $\text{mg/L}$ ) DEHA.

## Visual Kits

Range: 0-400 & 400-3000 ppb  
MDL: 15 ppb / Method: PDTS

	Cat#
<b>CHEMets Kit</b>	<b>K-3902</b>
CHEMets Refill, 30 ampoules	R-3902
Activator Solution Pack, six 10 mL bottles	A-3900 <sup>1</sup>
Low Range Comparator 0, 30, 60, 100, 150, 200, 300, 400 ppb	C-3901
High Range Comparator 400, 600, 800, 1000, 1200, 1600, 2000, 2500, 3000 ppb	C-3902

Kit comes in a plastic case and contains everything needed to perform 30 tests: Refill, Low and High Range Comparator, Activator Solution, 25 mL sample cup and instructions.

<sup>1</sup>The accessory pack supplies enough solution to perform at least 200 tests.

Range: 25-250 ppm  
MDL: 25 ppm / Method: Ceric Sulfate Titrant with Ferroin Indicator

	Cat#
<b>Titrets Kit</b>	<b>K-3925</b>
Increments: 25, 27.5, 30, 32.5, 35, 37.5, 40, 45, 50, 62.5, 75, 87.5, 100, 125, 175, 250 ppm	
Kit comes in a cardboard box and contains everything needed to perform 30 tests: thirty ampoules with valve assemblies, Activator Solution, titrettor, 25 mL sample cup and instructions.	

## Instrumental Kit

**Multi-Analyte Photometers**  
V-2000 / V-3000 Series  
(See page 14 for instrumental features)

Range: 0-2.00 ppm  
Method: PDTS

	Cat#
<b>Vacu-vials Kit</b>	<b>K-3903</b>
Kit comes in a cardboard box and contains everything needed to perform 30 tests: thirty ampoules, Activator Solution, 25 mL sample cup, ampoule blank, and instructions.	

*Vacu-vials Kits require the use of a CHEMetrics Direct-Readout Photometer (photometers sold separately) or a spectrophotometer capable of accepting a 13 mm diameter round cell. See page 14 for details.*

### Kit Components common to DEHA

Description	Cat#
Sample Cup Pack, 25 mL (6 ea)	A-0013
Ampoule Blank Pack (5 ea)	A-0023
Titrettor Pack (1 ea)	A-0053

Instructions and MSDS(s) are posted on our website.

*If no shelf-life is listed for a product, then the shelf-life is at least 2 years.*