

High Range Cyanuric Acid Analysis

10 to 100 mg/L as Cyanuric Acid

Introduction

Cyanuric acid is used to stabilize chlorine in swimming pools. Cyanuric acid binds with free chlorine and allows the oxidant to be slowly released.

Material

- 246066 – Cyanuric Acid 2 Reagent Powder Pillow
- 1704200 – Bottle, square, with 25-mL mark
- 2095100 – Glass Sample Cell, 1-cm matched pair
- 4864302 – Plastic Sample Cell, with cap, 1-cm/10-mL PK/2
- 2517600 – Empty COD vials with caps, PK/25
- 712924 – Cyanuric Acid, 25 grams
- Method 8139 – Cyanuric Acid procedure (DOC316.53.01183)
- LPV445.97.52110 – DR300 Pocket Colorimeter, 528 nm

Procedure

1. Select Program (see Instrument Setup at the end of the note for programming instructions).
2. Pour 25 mL of Sample into a 25-mL mixing bottle.
3. Add one pillow Cyanuric Acid 2 Reagent to the sample and swirl to mix.
4. Allow the reagent to react for 3 minutes.
5. Prepare the blank by pouring the unreacted sample into a 1-cm glass cell, a 1-cm plastic cell (for the DR300), or a 16-mm TNT vial (for the DR900), and press zero.
6. After the 3-minute reaction time expires, pour the reacted sample into a 1-cm glass cell, a 1-cm plastic cell (for the DR300), or a 16-mm TNT vial (for the DR900), and press 'read' to obtain the results in mg/L Cyanuric Acid.

Program Setup for HR Cyanuric Acid Analysis: DR900, DR1900, DR3900, DR6000

Follow the Display prompts and Enter commands for the HR Cyanuric Acid method for the DR900, DR1900, DR3900 and DR6000.

Step	Display Shows	Enter	Select
1	Main Menu	User Programs	
2	User Programs	Program Options	
3	Program Options	New	
4	Program Number	Select a Program Number	OK
5	Program Name?	HR Cyanuric Acid	Next
6	Program Type	Single Wavelength	Next
7	Units	mg/L	Next
8	Wavelength (nm)	480 nm (DR1900, 3900 & 6000) 520 nm (DR900)	Next
9	Concentration Resolution	1	Next
10	Chemical Form?	Cyanuric Acid	Next
11	Calibration	Enter Formula	Next

Application Note: High Range Cyanuric Acid Analysis

Step	Display Shows	Enter	Select
12	Enter Formula	DR900: a = 2.2814, b = 53.082, c = 41.773 DR1900: a = 5.9579, b = 21.551, c = 55.678 DR3900: a = 5.3431, b = 23.495, c = 41.746 DR6000: a = 5.9398, b = 21.385, c = 51.001	OK>Done
13	User Program for number assigned	Upper Limit	Edit
14	Upper Limit	ON 110	OK>OK
15	User Program for number assigned	Timer 1	Edit
16	Timers	3:00	OK>OK>Store

Exit and select the Program number assigned for HR Cyanuric Acid from the User Programs Menu to run the test.

Program Setup for HR Cyanuric Acid Analysis: DR300

To enter the calibration curve for the DR300, follow the User-entered calibration curve section in the DR300 User Manual using the "Enter a calibration curve with the keypad" instructions. According to the instructions, enter the concentration value (S0) and then the absorbance value (A0) for each standard:

Conc mg/L	DR300 AO
10	0.12
25	0.35
50	0.62
75	0.84
100	1.05

Summary of Method

The test for cyanuric acid uses the turbidimetric method. Cyanuric Acid 2 Reagent precipitates any cyanuric acid in the sample and holds it in suspension. The amount of turbidity caused by the suspended particles is directly proportional to the amount of cyanuric acid in the sample. The measurement wavelength is 480 nm for spectrophotometers or 520 nm for the DR900 colorimeter and 528 nm for the DR300 pocket colorimeter.

Removal of Interferences

Filter the sample if it contains suspended particles or is turbid. Salt water will interfere with the chemical reaction producing a precipitation. To remove this interference, add 5 mLs of Rochelle Salt to the 25 mL sample volume. Invert the sample bottle to mix, then add one pillow of Cyanuric Acid 2 Reagent and follow the normal procedure.

Rochelle Salt solution is Hach part number 172549

FOR TECHNICAL ASSISTANCE, PRICE INFORMATION AND ORDERING:

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