



Certificate of Analysis

Product : Monochloramine/Free Ammonia Secondary Standards Kit

Product Number: **2507500** Lot Number: **A4055** Expiration Date: **Feb 2016**

Monochloramine as Cl₂

| Instrument (PRGM) | Blank A4035 | STD 1 (mg/L) A4043 | STD 2 (mg/L) A4043 | STD 3 (mg/L) A4043 |
|---|----------------|-----------------------|-----------------------|-----------------------|
| DR 6000 (66) | 0.00 | <u>0.40</u> +/- 0.10 | <u>1.64</u> +/- 0.15 | <u>3.25</u> +/- 0.20 |
| DR 5000 (66) | 0.00 | <u>0.40</u> +/- 0.10 | <u>1.66</u> +/- 0.15 | <u>3.29</u> +/- 0.20 |
| DR 3900 (66) | 0.00 | <u>0.40</u> +/- 0.10 | <u>1.64</u> +/- 0.15 | <u>3.25</u> +/- 0.20 |
| DR 3800 (66) | 0.00 | <u>0.40</u> +/- 0.10 | <u>1.64</u> +/- 0.15 | <u>3.25</u> +/- 0.20 |
| DR 2800 (66) | 0.00 | <u>0.40</u> +/- 0.10 | <u>1.64</u> +/- 0.15 | <u>3.25</u> +/- 0.20 |
| DR 2700 (66) | 0.00 | <u>0.40</u> +/- 0.10 | <u>1.64</u> +/- 0.15 | <u>3.25</u> +/- 0.20 |
| DR 2500 (66) | 0.00 | <u>0.40</u> +/- 0.10 | <u>1.65</u> +/- 0.15 | <u>3.26</u> +/- 0.20 |
| DR 2400 (66) | 0.00 | <u>0.40</u> +/- 0.10 | <u>1.65</u> +/- 0.15 | <u>3.26</u> +/- 0.20 |
| DR 1900 (66) | 0.00 | <u>0.40</u> +/- 0.10 | <u>1.64</u> +/- 0.15 | <u>3.25</u> +/- 0.20 |
| DR 4000 (2475) | 0.00 | <u>0.41</u> +/- 0.10 | <u>1.67</u> +/- 0.15 | <u>3.31</u> +/- 0.20 |
| DR 900 (66)* | 0.00 | <u>0.42</u> +/- 0.10 | <u>1.73</u> +/- 0.15 | <u>3.43</u> +/- 0.20 |
| DR 800 (132)** | 0.00 | <u>0.42</u> +/- 0.10 | <u>1.73</u> +/- 0.15 | <u>3.43</u> +/- 0.20 |
| PC II (Channel - 1) (Kit PN 5870026) | 0.00 | <u>0.39</u> +/- 0.10 | <u>1.61</u> +/- 0.15 | <u>3.19</u> +/- 0.20 |

Free Ammonia as NH₃-N

| Instrument (PRGM) | Blank A4035 | STD 1 (mg/L) A4043 | STD 2 (mg/L) A4043 | STD 3 (mg/L) |
|--|----------------|-----------------------|-----------------------|--------------|
| DR 6000 (389) | 0.00 | <u>0.08</u> +/- 0.04 | <u>0.33</u> +/- 0.06 | NA |
| DR 5000 (389) | 0.00 | <u>0.08</u> +/- 0.04 | <u>0.33</u> +/- 0.06 | NA |
| DR 3900 (389) | 0.00 | <u>0.08</u> +/- 0.04 | <u>0.33</u> +/- 0.06 | NA |
| DR 3800 (389) | 0.00 | <u>0.08</u> +/- 0.04 | <u>0.33</u> +/- 0.06 | NA |
| DR 2800 (389) | 0.00 | <u>0.08</u> +/- 0.04 | <u>0.33</u> +/- 0.06 | NA |
| DR 2700 (389) | 0.00 | <u>0.08</u> +/- 0.04 | <u>0.33</u> +/- 0.06 | NA |
| DR 2500 (388)**** | 0.00 | <u>0.08</u> +/- 0.04 | <u>0.33</u> +/- 0.06 | NA |
| DR 2400 (388)**** | 0.00 | <u>0.08</u> +/- 0.04 | <u>0.33</u> +/- 0.06 | NA |
| DR 1900 (389) | 0.00 | <u>0.08</u> +/- 0.04 | <u>0.33</u> +/- 0.06 | NA |
| DR 4000 (2476)**** | 0.00 | <u>0.08</u> +/- 0.04 | <u>0.34</u> +/- 0.06 | NA |
| DR 900 (389)* | 0.00 | <u>0.09</u> +/- 0.04 | <u>0.38</u> +/- 0.06 | NA |
| DR 800 (133)*** | 0.00 | <u>0.09</u> +/- 0.04 | <u>0.38</u> +/- 0.06 | NA |
| PC II (Channel - 2)***** (Kit PN 5870026) | 0.00 | <u>0.08</u> +/- 0.04 | <u>0.32</u> +/- 0.06 | NA |

NOTE: Choose the instrument and monochloramine and free ammonia program being used. Transfer the control values to the enclosed Record of Performance Verification label and keep the label with your instrument for reference.
For example, the test values for using a DR/2800 Spectrophotometer and stored program #66 would be 0.40, 1.64, and 3.25 mg/L as chlorine for Standard 1, Standard 2, and Standard 3 respectively.
Please note that Standard 3 exceeds the range of the Free Ammonia test and no value is available for this standard.
File this Certificate of Analysis for safe keeping.

Certified by: Steve Ols for and on the behalf of Hach Company.

*Software version 1.007 or higher

Doc. Cat. No. 25075-87

**Replace program 110 with 132. Program 132 is customer entered

***Replace program 46 with 133. Program 133 is customer entered

**** Install a dilution factor of 0.82

***** Pocket Colorimeter II - Serial number <14120xxxxxx, Enter new calibration, or multiply Free Ammonia result by 0.82

All Free Ammonia: Use Free Ammonia Chlorinating Solution 2877436.

Use Program 389, unless noted otherwise.

Use of Monochloramine/Free Ammonia Standards

The Monochloramine/Free Ammonia Spec \checkmark Standards can be used to verify instrument performance on all Hach Spectrophotometers and Colorimeters. These standards read directly as mg/L monochloramine or free ammonia when used with Hach Company stored programs for monochloramine or free Ammonia.

Secondary standards serve as a quality control check to verify that your instrument is operating correctly. The Spec \checkmark standards are routinely used for two purposes. First, the standards confirm that the instrument response is within the tolerance range given on the Certificate of Analysis. Refer to the Certificate of Analysis to find the test values and the tolerance ranges that apply to the instrument model and stored program being used. The actual values determined should be recorded on the Record of Performance Verification included with the standards. These instrument performance values, when used together with results from any additional reagent and calibration verification tests required by your state or local regulatory agencies, form the basis for a thorough quality control program.

The second use of the standards is to verify that instrument performance has not changed from the initial performance evaluation. The standards are especially useful in verifying that instrument response has not changed during transportation of an instrument to the field or due to exposure of an instrument to extreme environmental conditions. The standards may also be used to confirm performance evaluations between analysts under lab and field conditions. Often times it is not feasible or practical to prepare and analyze standard solutions under these conditions.

The Spec \checkmark standards are assigned monochloramine/free ammonia equivalent test values by Hach Company at the time of manufacture. The test values are determined from the monochloramine and free ammonia calibration curves stored in each Hach Company instrument. Test values are valid for two years from the date of manufacture.

Each instrument model responds or "sees" the gel standards differently as compared to the monochloramine/free ammonia chemistry color. Different responses from different instruments are due to differences in the optical systems, differences in the half-band width, and differences in the cell pathlength used for a specific stored program. These differences are expected. Each test value listed is specific to the Hach Company instrument and monochloramine or free ammonia program being used.

The Spec \checkmark Monochloramine/Free Ammonia Standards are just one part of the total testing package that Hach Company supplies for monochloramine/free ammonia testing. Prepackaged Monochloramine/Free Ammonia Reagents calibrated and controlled specifically on Hach Company instruments along with simplified procedures, standard solutions and excellent technical support gives you, the customer, the best monochloramine/free ammonia testing system available today. Z01-1ED