



## Product Notice—Monochloramine/Free Ammonia

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Dear Customer,

This is to notify you of important information relating to two Hach methods – Monochloramine LR and Free Ammonia.

### **Monochloramine testing accuracy improvements:**

To ensure the accuracy of your results when using the Low Range (Indophenol) method for Monochloramine, a software update is required for the DR 900, DR/850 and DR/890 Colorimeters. Failure to perform this update can cause monochloramine results to exceed total chlorine results. Stored programs on other instruments are not affected by this issue, and Method 10172 (High Range – Test 'N Tube) is not affected.

To ensure accurate results, please take the following steps before taking additional measurements:

#### Software Update for DR 900 Colorimeters:

- Search for DR 900 on our website, select the *Downloads* tab, and scroll to *Software/Firmware*. Choose *DR 900 Software Update*. Update the *DR900\_Factory.spm* per the *DR 900 Firmware and SPM Update Instructions* included in the set of downloaded files.

#### Program Changes for DR/850 and DR/890 Colorimeters:

- Follow the instructions on the attached page to install new Program 132. Use Program 132 instead of Program 110 when performing Monochloramine determinations with Methods 10171 (Monochloramine LR) or 10200 (Monochloramine and Free Ammonia).

#### Additional accuracy tips:

The following tips could also improve the accuracy of your monochloramine and total chlorine test results:

- **High Sample Alkalinity:** The DPD Total Chlorine test is designed to maintain a reaction pH of 6.2 to 6.5. Samples with high alkalinity could cause the reaction pH to be above pH 6.5, and this can cause DPD Total Chlorine results to be depressed, with the result that monochloramine results exceed total chlorine results. If this situation is suspected, measure the pH of the reacted DPD Total Chlorine test solution after completing the chlorine determination. If the pH is above 6.5, repeat the Total Chlorine test – adding a DPD Free Chlorine Reagent Powder Pillow (2105569) before the DPD Total Chlorine Reagent Powder Pillow.
- **Dissolved Gases or Condensation:** During the reaction period, some samples may generate bubbles or condensation on the walls of the plastic sample cell. If not corrected, either of these situations could cause high readings. Inspect the cell before measurement, and wipe off any condensation. Gently invert the capped cell to remove any bubbles on the cell windows.

### **Free Ammonia – New reagent requires software or program update:**

Free Ammonia (FA) Chlorinating Solution Reagent (2877436) and Reagent Set (2879200) have replaced Free Ammonia Reagent Solution (2877336) and Reagent Set (2879700). The new chlorinating reagent provides more consistent results, decreased reaction time and simpler procedure steps. New versions of the procedures for Nitrogen, Free Ammonia (DOC316.53.01084) and Chloramine (Mono) and Nitrogen, Free Ammonia (DOC316.53.01016) have been published, and may be downloaded from our website. Search for the new part numbers and select the Parameter/Reagent tab to locate links to the procedures. The new reagent causes a change in the sensitivity of the test, and the new procedure documents specify a new Stored Program Number (389) for current Hach spectrophotometers and the DR900 Colorimeter. Users will need to update the instrument software to utilize the new program number.

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Software updates on DR 900 Colorimeter and DR 1900 (with USB), DR2700/2800/3800/3900, DR5000/DR6000 Spectrophotometers:

Search for the appropriate instrument product page on our website, choose the *Downloads* tab and scroll to *Software/Firmware* to locate the latest version. Update the instrument firmware by following the instructions in the instrument User Manual or included with the downloaded software files.

Program Updates for DR 1900 (without USB/Power module):

Note: DR 1900 Users without the USB/Power module, please use the following inputs to create a User Program, and use it instead of program 388 or 389.

Name: AMMONIA FREE	Calibration: $C=F1+F2*A$ , where $F1 = 0.0000$ and $F2 = 0.7922$
Units: mg/L	Upper Limit: 0.5500
Wavelength: 655	Lower Limit: 0.0000
Resolution: 0.01	Timer 1: Wait 01:00
Chemical Form1: NH <sub>3</sub> F	Timer 2: Wait 05:00

DR/850 and DR/890 Colorimeters: Install new Program 133 by following the instructions on the attached page. Use Program 133 instead of Program 46 when performing Free Ammonia determinations with Method 10200 (Monochloramine and Free Ammonia) or Method 10201 (Nitrogen, Free Ammonia).

DR/2400 and DR/2500: Enter a dilution factor to adjust the sensitivity of the stored program. Press Options>Dilution Factor>On and enter a value of 0.82. Press OK>OK.

DR/4000: Enter a dilution factor to adjust the sensitivity of the stored program. Use the DIL X softkey, and follow prompts to enter a dilution factor of 0.82.

Pocket Colorimeter: Enter the new Pocket Colorimeter II calibration for Free Ammonia (instrument serial numbers with the first 5 digits below 14120). Instruments with serial numbers 14120 and higher have the new program installed.

1. Push MENU (≡) (display shows SEL). If necessary, select the NH3-N range by pushing READ/ENTER (✓). Push ≡ to go back to the measurement mode.
2. Push ≡ and hold about 5 seconds, until "USER" and then "CAL" shows on the display.
3. Push ZERO/SCROLL (O) until "Edit" shows, then push ✓.
4. When "S0" shows on the display, push ✓ 5 times.
5. When "A0" shows on the display, push ✓ 5 times.
6. When "S1" shows on the display, push ✓. Enter a value of 00.55, then push ✓. (Pushing O increases the flashing digit by one unit. Pushing ✓ moves to the next digit position.)
7. When "A1" shows on the display, push ✓. Enter a value of 0.705, then push ✓. (Pushing O increases the flashing digit by one unit. Pushing ✓ moves to the next digit position.)
8. When "Add" shows on the display, push ≡ two times to go back to measurement mode.
9. Press O. The new calibration has been successfully installed if the calibration adjust icon (↙) is displayed.

**Spec ✓ Gel Secondary Standards (PN 2507500):**

The program changes described above will cause a shift in the nominal STD values of Spec ✓ Standards for Monochloramine and Free Ammonia. Current lots of the standards are fully usable, but the STD values on the Certificate of Analysis will be incorrect when the new program is installed. Please download an updated Certificate of Analysis from our website. Search for product 2507500 and open the product Overview page, then select *Downloads* and locate the appropriate certificate for your lot number under the *Other* heading.

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### New calibration curve for Chloramine, Mono LR, Method 10171 on DR850 and DR890

Instrument Setup This procedure will add the new method to your DR/850 or DR/890 as Hach program #132. **The test procedure steps remain unchanged.**

1. Turn on the instrument by pressing the **ON** key.
2. Press the **SETUP** key.
3. Press the down arrow key until the prompt line shows **USER**.
4. Press the **ENTER** key.
5. Enter **8138**, followed by **ENTER**.
6. Enter each of the numbers in the right column, each followed by **ENTER**. The line numbers in the left column relate to the line number on the display. At any time, you may use the arrow keys to scroll back to review or change a number already entered.

Line Number	Entry	Line Number	Entry
1	132	29	108
2	42	30	78
3	74	31	0
4	0	32	0
5	0	33	0
6	0	34	0
7	0	35	63
8	0	36	57
9	0	37	199
10	0	38	104
11	0	39	62
12	64	40	74
13	160	41	61
14	22	42	45
15	240	43	1
16	0	44	204
17	0	45	0
18	0	46	5
19	0	47	10
20	67	48	1
21	108	49	44
22	50	50	0
23	0	51	0
24	0	52	0
25	78	53	0
26	72	54	217
27	50	55	0
28	67	56	255

## New calibration curve for Nitrogen, Free Ammonia, Method 10200 on DR850 and DR890

**Instrument Setup** This procedure will add the new method to your DR/850 or DR/890 as Hach program #133. **The test procedure steps remain unchanged.**

1. Turn on the instrument by pressing the **ON** key.
2. Press the **SETUP** key.
3. Press the down arrow key until the prompt line shows **USER**.
4. Press the **ENTER** key.
5. Enter **8138**, followed by **ENTER**.
6. Enter each of the numbers in the right column, each followed by **ENTER**. The line numbers in the left column relate to the line number on the display. At any time, you may use the arrow keys to scroll back to review or change a number already entered.

Line Number	Entry	Line Number	Entry
1	133	29	0
2	42	30	67
3	74	31	108
4	0	32	50
5	0	33	0
6	0	34	0
7	0	35	63
8	0	36	155
9	0	37	165
10	0	38	227
11	0	39	64
12	63	40	161
13	139	41	235
14	142	42	131
15	234	43	0
16	0	44	55
17	0	45	128
18	0	46	0
19	0	47	20
20	78	48	0
21	72	49	60
22	51	50	1
23	45	51	44
24	78	52	0
25	78	53	0
26	72	54	241
27	51	55	0
28	0	56	255

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