Revision 08/20/12
486700-K **Standard Kit**
486700-WD **Well Driller Kit**

eXact® Micro 20

Dual Wavelength Photometer System

Instruction Manual

IDEAL FOR DRINKING WATER, POOLS & SPAS, ENVIRONMENTAL, AND EDUCATIONAL TESTING

USEPA, DIN, & ISO Compliant for Free & Total Chlorine and Chlorine Dioxide Testing *(4500-CL G, DIN Standard 38 408 G4, ISO 7393/2)*

U.S. Patent No. 7,333,194, U.S. Patent No. 7,491,546, South African Patent No. 2007/0628 and international patent applications including International Patent Appln. No. PCT/US2005/033985; and Eur. Pat. App. 1,725,864

USEPA COMPLIANT
FREE AND TOTAL CHLORINE
CHLORINE DIOXIDE
(4500-CL G STANDARD)

Micro 20 is Manufactured and tested in an ISO 9001 Facility

The eXact® Micro 20 Dual Wavelength Photometer System has been designed for use with the eXact® Strip Micro reagent delivery system.

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Visit us online at sensafe.com/micro*20* for up-to-date product information and NEW tests available.

eXact® Micro 20 Test Specifications

Select Group	Menu	Tests for [1]	Range	Resolution	Best Accuracy	Page	Test Proc.
Water Quality 1	CL1	Free & Total Chlorine	0 - 5 ppm	0.01	±3%	6-7	CL
	PH2	pH	5.5 - 8.8 pH	0.01	±0.4 pH	9	2
	FE3	Total Iron (TPTZ)	0.04 - 8 ppm	0.01 (0.04-2.5), 0.1 (2.51-8)	±3%	12	7
	AL4	Total Alkalinity	1 - 320 ppm	0.1 (1-50), 1 (51-320)	±7.5%	9	1
	TH5	Total Hardness	4 - 300 ppm	1	±16%	9	1
	CU6	Copper (Cu^{+2})	0 - 11 ppm	0.01 (0-4), 0.1 (4.1-11)	±2%	10	4
	MN7	Manganese	0.02 - 1.5 ppm	0.01	±6%	12	8
	F8	Fluoride	0.03 - 1.45 ppm	0.01	±15%	10	3
Misc. 2	CN1	Cyanide	0 - 3 ppm	0.01	±13%	11	6
	FE2	Total Iron (TPTZ)	0.04 - 8 ppm	0.01 (0.04-2.5), 0.1 (2.51-8)	±3%	12	7
	NH3	Ammonia	0 - 2.4 ppm	0.01	±5%	11	5
	PO4	Phosphate	0 - 4 ppm	0.01 (0-2.5), 0.1 (2.6-4)	±4%	10	4
	bt5	pH-BT - Fresh Water	4.5 - 9.2 pH	0.01	±0.2 pH	9	2
	S6	Sulfide	0 - 1.7	0.01	±6%	11	5
Pool 3	AL1	Total Alkalinity	1 - 320 ppm	0.1 (1-50), 1 (51-320)	±7.5%	9	1
	PH2	pH	5.5 - 8.8 pH	0.01	±0.4 pH	9	2
	CL3	Free, Total, & Combined Chlorine	0 - 5 ppm	0.01	±3%	8	CL
	PO4	Phosphate	0 - 4 ppm	0.01 (0-2.5), 0.1 (2.6-4)	±4%	10	4
	CA5	Calcium	18 - 420 ppm	1	±12%	9	1
	CH6	Chloride	20 - 8600 ppm	1	±20%	13	9
	CY7	Cyanuric Acid	3 - 120 ppm	1	±8%	10	3
	bG8	Biguanide	2 - 200 ppm	0.1 (2-20), 1 (21-200)	±7.5%	9	1
	bR9 or br9	Bromine	0.1 - 12 ppm	0.01 (0.1-2), 0.1 (2.1-12)	±10%	9	1
Environmental 4	AL1	Total Alkalinity	1 - 320 ppm	0.1 (1-50), 1 (51-320)	±7.5%	9	1
	NO2	Nitrite	0 - 1.8 ppm	0.01	±5%	10	4
	NO3	Nitrate	0.12 - 30 ppm	0.01 (0.12-5), 0.1 (5.1-30)	±15%	10	4
	NH4	Ammonia	0 - 2.4 ppm	0.01	±5%	11	5
	TH5	Total Hardness	4 - 300 ppm	1	±16%	9	1
	CL6	Free & Total Chlorine	0 - 5 ppm	0.01	±3%	6-7	CL
	bt7	pH-BT - Fresh Water	4.5 - 9.2 pH	0.01	±0.2 pH	9	2
	PO8	Phosphate	0 - 4 ppm	0.01 (0-2.5), 0.1 (2.6-4)	±4 %	10	4
	CU9	Copper (Cu^{+2})	0 - 11 ppm	0.01 (0-4), 0.1 (4.1-11)	±2%	10	4
	CH0	Chloride	1 - 430 ppm	1	±20%	13	9
	P11	pH-BT - Salt Water	4.5 - 9 ppm	0.01	±0.2 pH	10	3
Oxidizers 5	CL1	Free & Total Chlorine	0 - 5 ppm	0.01	±3%	6-7	CL
	bR2 or br2	Bromine	0.1 - 12 ppm	0.01 (0.1-2), 0.1 (2.1-12)	±10%	9	1
	O3	Ozone	0 - 5 ppm	0.01	±3%	9	1
	Cd4	Chlorine Dioxide	0 - 10 ppm	0.01	±5%	14	10
	PA5	Peracetic Acid	0.02 - 6 ppm	0.01	±3%	9	1
	HP6	Hydrogen Peroxide	0 - 2 ppm	0.01	±8%	10	4
	PM7	Permanganate	0 - 5 ppm	0.01	±2%	9	1
	HR8 or Hr8	High Range Chlorine	0.3 - 300 ppm	0.1 (0.3-20), 1 (21-300)	±7.5%	10	4
	QA9	Quaternary Ammonia	4 - 110 ppm	1	±4%	9	1
Specialty 6	F1	Fluoride	0.03 - 1.45 ppm	0.01	±15%	10	3
	MN2	Manganese	0.02 - 1.5 ppm	0.01	±6%	12	8
	Al3	Aluminum	0.02 - 1.5 ppm	0.01	±13%	11	5
	SO4	Sulfate	1 - 250 ppm	1	±5%	9	1
	QA5	Quaternary Ammonia	4 - 110 ppm	1	±4%	9	1
	Cr6	Chromium (VI)	0 - 1.8 ppm	0.01	±5%	10	4
7	TR1	Transmission (525nm)	0.00 - 100 %T	0.01 (0.00-9.99), 0.1 (10.0-99.9)	±0.01%		
	TR2	Transmission (638nm)	0.00 - 100 %T	0.01 (0.00-9.99), 0.1 (10.0-99.9)	±0.01%		

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[1] Performance verified with various salt systems and water samples with optimal water temperature at 10-40˚C / 50-104˚F. Optimal water temperature for Total Alkalinity test is 15-40˚C / 59-104˚F.

NOTE: Best accuracy in optimal conditions. If you need more details, contact us.

eXact® Micro 20 Meter Specifications

Measurement Method:	Photometric
Light Source:	Light Emitting Diode (LED) with precision filter
Wavelength:	525 nm and 638 nm
Transmission Range:	100 - 0.00 %T
Photometric Precision:	+/- 0.1/0.01 %T
Automatic Range Selection:	See Specifications below
Display:	3-digit customized liquid crystal display with annunciators
Cell Pathlength:	20mm
Reagent System:	Utilizes patented eXact® Strip Micro reagent delivery system with our EZ-3™ Method

Cell Chamber:	Custom-molded, proprietary, PET plastic fused into chamber, non-removable
Sample Required:	4 mL (0.13 oz)
Operating Temperature Range:	0 - 50°C (32° - 122°F)
Power Supply:	(4) AAA alkaline batteries (Not Included)
Battery Life:	>2000 tests with alkaline batteries
Electromagnetic Compliance: (EMC)	Emitted Interference - EN 61326 Immunity to Interference - EN 61326
Waterproof Rating:	Exceeds IP67
Weight:	Instrument: 181g (6.4 oz) with batteries
Dimensions:	Instrument: 5 (W) x 3 (D) x 16.5 (H) cm; (2 x 1.2 x 6.6 in)

eXact® Micro 20 Meter Parameter List

Test	Part #	Reagents Used	Dip Time (in seconds)	Count Up Time (in seconds)
Aluminum	486821	5 Drops Al Buffer & Al Strip	20	80
Ammonia	486654	3 Drops NH (regular water), 10 Drops NH (Salt water), & NH Strip	20	500
Biguanide	486810	BG Strip	20	Immediate
bt-pH Liquid (salt water)	486657	3 Drops P-pH	20	Immediate
bt-pH Strip (fresh water)	48652	bt Strip	20	Immediate
Calcium Hardness	486629	CA Strip	20	Immediate
Chloride (fresh water)	481657-II	CH Strip	20	Immediate
Chloride (salt water)	481657-II	1:20 Dilution of sample & CH Strip	20	Immediate
Chlorine Dioxide	486637	Glycine Strip & CL (DPD-1) Strip	20, 20	Immediate
Chromium (VI)	486614	Cr Strip	20	240
Combined Chlorine	486638	CL (DPD-3) Strip	20	Immediate
Copper	486632	CU Strip	20	20
Cyanide	486812	CN-1 Strip & CN-2 Strip	30, 30	600
Cyanuric Acid	481652-II	5 Drops CY	20	60
Fluoride	486643	10 Drops F	20	Immediate
Bromine, Free Chlorine, & Permanganate	486637	CL (DPD-1) Strip	20	Immediate
High Range Chlorine	486672	HR Strip	20	120
Hydrogen Peroxide	486616	HP Strip	20	120
Manganese	486606	MN#1 Strip, MN#2 Strip & 3 Drops MN	20, 20, 20	120
Nitrate	486655	NO3 Strip	20	600
Nitrite	486623	NO2 Strip	20	360
pH	486639	PH Strip	20	Immediate
Phosphate	486814	PO Strip	20	120
Quaternary Ammonia	486823	QA Strip	20	Immediate
Sulfate	486608	SO4 Strip	20	Immediate
Sulfide	486818	4 Drops S & S Strip	20	180
Total Alkalinity	486641	AL Strip	20	Immediate
Ozone, Peracetic Acid, & Total Chlorine	486670	CL (DPD-4) Strip	20	Immediate
Total Hardness	486673	TH Strip	20	Immediate
Total Iron	486650	EZ Open Reducer (Powder) & FE Strip	20	40

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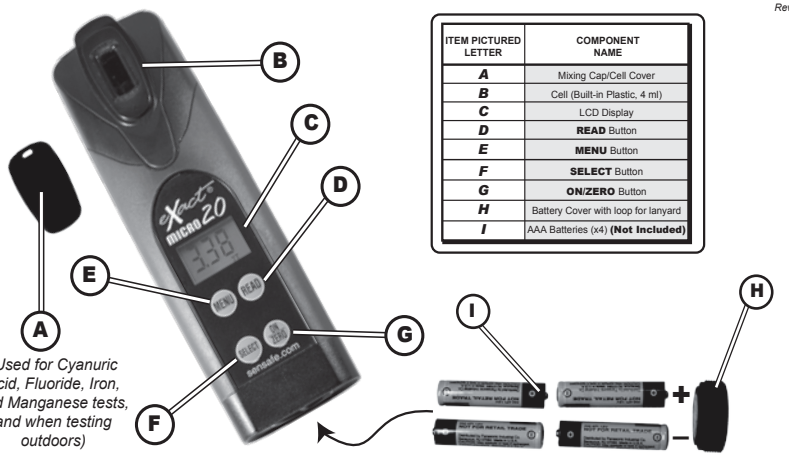


(Used for Cyanuric Acid, Fluoride, Iron, and Manganese tests, and when testing outdoors)

ITEM PICTURED LETTER	COMPONENT NAME
A	Mixing Cap/Cell Cover
B	Cell (Built-in Plastic, 4 ml)
C	LCD Display
D	**READ** Button
E	**MENU** Button
F	**SELECT** Button
G	**ON/ZERO** Button
H	Battery Cover with loop for lanyard
I	AAA Batteries (x4) **(Not Included)**

About Your eXact® Micro 20 Instrument

In order to save power, the meter is designed to turn off after 3 minutes (timed from the last button pressed). Should the meter turn off in the middle of a test, the last stored zero in the meter will remain valid when the meter is turned on again. Also, the test result is stored in memory for easy retrieval.
The eXact® Micro 20 meter is controlled by four buttons:

1. **MENU**: With each press, the MENU button advances through the tests available in the current Select Group. Each test menu can store up to 20 results. To **retrieve the stored results**, go to the desired test using the MENU key. When the desired test is displayed, **press and hold down the MENU key**. Continue holding down the MENU key to scroll the stored results for that test, starting with the most recent result. The meter will display, from memory, the last 20 readings in sequence beginning with -20, which is the latest result, followed by -19, which is the 2nd latest result, etc; and finally -01, which is the oldest result retained. Only the last 20 readings are stored in each menu.
2. **READ**: When pressed once, this button starts the timer for the parameter being tested. When pressed a second time the meter exits the timer and immediately prepares to colorimetrically measure the sample, and simultaneously stores the measurement in memory.
3. **SELECT**: With each press, the SELECT button advances through the Select Group 1 through 7. The current Select Group will appear as a small digit to the right of the selected MENU (example: CL_1).
4. **ON/ZERO**: When first pressed, this button turns the meter on. When the meter is on and this button is pressed, it zeroes the sample in the cell. It is recommended that each new water sample analyzed is zeroed before testing, to maximize sensitivity and accuracy.

If the parameter being measured is below or above the detection range, the display will show "**LO**" (Under Range) or "**HI**" (Over Range), respectively. This feature is menu specific and does not apply to all parameters.

Compliance Verification for Free and Total Chlorine Testing

This DPD test system is accepted by most health departments because this test is USEPA (DIN Standard 38 408 G4, ISO 7393/2) accepted for testing requirements for Free and Total Chlorine. The Micro 20 meter uses a wavelength of 525nm; and the compliance requirement is that the colorimeter wavelength is between 490 and 530nm. The eXact® Strip Micro CL (DPD-1) uses the same reagents and proportions, and the resulting solution pH is maintained between 6.2 and 6.5 as specified by AWWA (American Water Works Association) method 4500-Cl G. It should be understood that the USEPA does not "approve" commercial DPD delivery systems such as reagent powder pillows, tablets, dispensers, or eXact® Strip DPD delivery devices. The eXact® Strip Micro CL (DPD-1) for Free Chlorine, and the eXact® Strip Micro CL (DPD-3) or the eXact® Strip Micro CL (DPD-4) for Total Chlorine meet your reportable testing requirements because the eXact® Strip Micro CL delivers the same chemicals in identical proportions (see table below); therefore, the system is compliant. Likewise, AWWA proportions are followed as required for Total Chlorine measurements using Potassium Iodide.

Component (Free Chlorine)	AWWA 4500-Cl G	eXact® DPD-1
Anhydrous DPD sulfate	1.5%	1.5%
Anhydrous Na_2HPO_4	33.4%	33.4%
Anhydrous $KH_2PO_4Na_2$	64.0%	64.0%
EDTA	1.1%	1.1%

We offer a "Green" Alternative

eXact® Strip Micro has been designed to offer the user a more "Green" and cost-effective alternative to testing. Instead of using a 10mL water sample, *eXact® Strip Micro* uses a 4mL water sample, which uses up to 60% less chemical per test. The accuracy of the meter is maintained by designing the photo cell with a 20mm pathlength.

eXact® Micro 20 Meter Messages

The following are some common messages that may be displayed, including error messages. If an error message other than those listed below is displayed, please contact technical support in the USA at (803) 329-0162 (ext. 0).

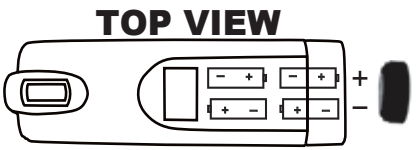
LCD Message	Description	Corrective Action
HI	In READ mode: test sample concentration is above the measurement range (test specific).	Dilute and retest. Dilution Kit available (Part Number 487200).
LO	In READ mode: test sample concentration is below the measurement range (test specific).	Sample value is below measurement range.
LO	In ZERO mode: sample absorbance (due to a cloudy or colored sample or a dirty cell) is too high to zero, the meter will read “LO”.	Dilute sample, filter sample, or clean cell. One of these options should remedy the problem.
ER	Excessive stray light detected. Normally this does not occur, even when testing in sunlight.	Place the LIGHT BLOCKING CAP over the CELL for zeroing and for reading result. Moving to a shaded area can also fix this problem.
+ –	Low battery indication.	Replace the batteries.

About The Built-In Cell

The built-in **CELL** is transparent plastic and, when filled to the top, contains 4ml. The sturdy **CELL** design will last for over 20,000 readings. Scratches on the **CELL** will not interfere or compromise the accuracy of the readings because of its fixed position. For best accuracy, rinse cell with clean water immediately after a test is completed. Do not use solvents, such as acetone, to clean the cell. When the **CELL** becomes stained or cloudy from repeated testing, or when the meter does not blank when you press the **ZERO/ON** button, the cell needs to be cleaned. Clean as follows: Fill cell with clean water and move the **Cell cleaning brush** up-and-down and back-and-forth along the walls of the cell. Afterwards, rinse the cell and the meter is ready for use again. Cleaning the cell regularly is especially recommended after you run a test that is using turbidity or precipitation chemistry for analysis (Calcium Hardness and Cyanuric Acid).

To Install/Replace “AAA” Batteries:

1. Unscrew the O-ring sealed battery cover counter-clockwise. Use proper sized pliers if necessary. Do not disturb the sealing O-ring. Batteries are not included.
2. Remove the used batteries and install 4 new AAA batteries following the diagram for correct polarity (see diagram). We recommend high quality AAA alkaline batteries be used.
4. Replace the battery cover. Be sure to tighten the cover securely. This is necessary for meter to be waterproof.
5. Dispose of the used batteries in accordance with your local regulations.
6. Press ZERO/ON button to confirm the meter turns on. The meter is now ready for operation.
7. Meter will not work if battery orientation is incorrect.



eXact® Photometer 2-Year Limited Warranty

Registration of your eXact® photometer must be received within 30 days from date of purchase to activate the warranty. The eXact® photometer is warranted to be free from defects in materials and workmanship for a period of two (2) years from the date of purchase by the customer. ITS will repair or replace any part of the product which is deemed to be faulty or otherwise defective. The non-transferable warranty does not cover product damage caused by abuse (such as crushing a tablet in the cell) or improper use. If the meter is faulty or otherwise defective contact ITS by phone (+1-803-329-9712 Ext. 0) or email (its@sensafe.com) to describe the problem and obtain a return authorization form before returning the photometer to ITS. Damage caused by improper packing of the photometer for return shipment to ITS will not be covered by the warranty. Customer is responsible for shipping charges to ITS. ITS pays postage when photometer is returned to customer. A maximum processing fee of $75 will be charged for repair or replacement of non-registered photometers and damages not covered by this warranty. Registration is available over the phone (+1-803-329-9712 Ext. 0) or online at http://www.sensafe.com/micro/warranty/ (Personal data is kept confidential)

Free or Total Chlorine Test Procedure

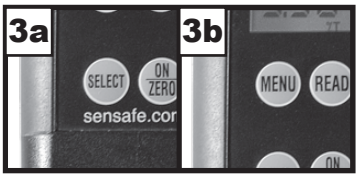
DPD-1 strip used for Free Chlorine detection, DPD-4 strip used for Total Chlorine detection

1 REMOVE STRIP

Remove one (1) **eXact® Strip Micro CL (DPD-1), Part No. 486637** or **eXact® Strip Micro CL (DPD-4), Part No. 486670** from the bottle before beginning the test. Set the strip in a dry, convenient place and recap the bottle immediately.

2 TURN METER ON

Press the **ON/ZERO** button to power the meter on; the display will show all annunciators, then the current MENU selection, followed by the last reading.



3 SELECT GROUP & MENU

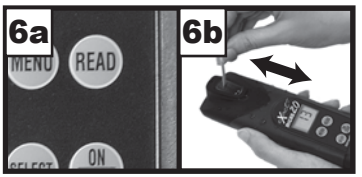
Press and re-press the **SELECT** button to **Select Group 1, 4, or 5** (see figure 3a). Press and re-press the **MENU** button to select the test parameter **CL1 or CL6** (see figure 3b).

4 RINSE AND FILL CELL WITH SAMPLE

Rinse the **CELL** at least 3 times with the water sample you will be testing - rinsing minimizes the potential for cross-contamination from a previous test. Finally, fill cell to capacity (4mL) with the water sample.

5 ZERO METER*

Press the **ON/ZERO** button. The cursor will move across the display followed by **0.00 PPM**. Sample is ready for testing.



6 DIP STRIP AND PRESS "READ"

Dip the required strip into the **CELL**, and immediately press **READ**. This starts the **20 SECOND** countdown timer. During this time, move the strip in a gentle back and forth motion (approx. 2 strokes/Sec). **Remove and discard the strip after "1" on the display disappears**.*

7 RECORD RESULT

The cursor will move across the display while the meter prepares to measure the sample. Record the value displayed for the respective parameter and this value is automatically stored in the CL MENU.

DO NOT discard the sample from the Free Chlorine (DPD-1) test if you are planning to run eXact® Strip Micro DPD-3 (Total Chlorine) Procedure. Move directly to steps 8-10 on the next page. Otherwise, rinse CELL immediately.

*NOTE: When testing outdoors (sunlight), for best accuracy, use the Mixing Cap/Cell Cover when Zeroing and Reading the sample.

DPD-3 Total Chlorine Test Procedure

This procedure is only valid when run as a continuation of the eXact® Strip Micro CL (DPD-1 Free Chlorine) Test Procedure located on the previous page.

8 REMOVE STRIP

Remove one (1) ***eXact® Strip Micro CL (DPD-3) Part No. 486638,*** from the bottle before beginning the test. Set the strip in a dry, convenient place and recap the bottle immediately.

9 DIP STRIP AND PRESS "READ"

Dip the ***eXact® Strip Micro CL (DPD-3)*** into the **CELL** and immediately press **READ**. This starts the **20 SECOND** countdown timer. During this time move the strip in a gentle back and forth motion (approx. two strokes/ Sec). **Remove and discard the strip when "1" on the display disappears**.* The cursor will move across the display while the meter prepares to measure the sample. Record the value displayed and this value is automatically stored in the CL MENU. (NOTE: The Iodide added with DPD-3 will, in the presence of Combined Chlorine or Chloramines, convert into Iodine).

10 PRESS READ AGAIN

Press **READ** again and the meter will count down and display the next reading. If this reading matches the previous result, then record this as the Total Chlorine result. This value is automatically stored in the CL MENU. After testing is completed, rinse CELL immediately. Record the highest value the meter displayed as your Total Chlorine result.

***NOTE**: *Standard Method (4500-Cl G, procedure for total chlorine) requires the reading to be made after 2 minutes from the time the KI is added. For compliance testing, you must time the two minutes and then make your measurement. NOTE: From testing in our lab, water samples above 70°F (20°C), generally, reach a stabilized reading quicker then 2 minutes.*

Chlorine and Iodine react with N,N-diethyl-p-phenylenediamine as it is released from the strip to form a magenta color, directly proportional to the Chlorine concentration. (Ozone, Bromine, and Permanganate also form the color).

*NOTE: When testing outdoors (sunlight), for best accuracy, use the Mixing Cap/Cell Cover when Zeroing and Reading the sample.

eXact® Strip Micro CL (DPD-1/DPD-3/DPD-4) Interferences

Interfering Substance	Interfering Levels & Treatments
Acidity	If sample has acidity above 150mg/L $CaCO_3$ test may not develop full color. Neutralize to pH 6.0 to 7.0 with 0.5N Sodium hydroxide.
Alkalinity	If sample has alkalinity above 200mg/L $CaCO_3$ test may not develop full color. Neutralize to pH 6.0 to 7.0 with 0.5N Sulfuric acid.
Bromine & Bromamines, Br_2	Color similar to free chlorine reaction at all levels.
Chlorine Dioxide, ClO_2	Color similar to free chlorine reaction at all levels.
Copper, Cu^{+2}	Color development is reduced above 10 ppm (mg/L).
Iodine, I_2	Color similar to free chlorine reaction at all levels.
Manganese, oxidized (Mn^{+4}, Mn^{+7}) or Chromium, oxidized (Cr^{+6})	See AWWA procedure 4500-CL F, 1(d) for removal of interferences.
Monochloramines (NH_2Cl) (applies to DPD-1 only)	Monochloramine interferences are known to occur in free chlorine DPD methods. This interference is dependent on temperature and monochloramine concentration.
Ozone, O_3	Color similar to free chlorine reaction at all levels.
Peroxides	Interference is possible.
pH	Typical pH samples of potable water with a pH of 6.0 to 9.0 are OK. If outside this range adjust to pH 6.0 to 7.0 using acid (0.5N Sulfuric acid) or base (0.5N Sodium hydroxide).

Free Chlorine with Combined Chlorine Test Procedure

(Direct read Combined Chlorine test procedure)

1 **REMOVE STRIP**

Remove one (1) ***eXact® Strip Micro CL (DPD-1), Part No. 486637*** from the bottle before beginning the test. Set the strip in a dry, convenient place and recap the bottle immediately.

2 **TURN METER ON**

Press the **ON/ZERO** button to power the meter on; the display will show all annunciators, then the current MENU selection, followed by the last reading.

3 **SELECT GROUP & MENU**

Press and re-press the **SELECT** button to **Select Group 3**. Press and re-press the **MENU** button to select the test parameter **CL3**.

4 **RINSE AND FILL CELL WITH SAMPLE**

Rinse the **CELL** at least 3 times with the water sample you will be testing - rinsing minimizes the potential for cross-contamination from a previous test. Finally, fill cell to capacity (4mL) with the water sample.

5 **ZERO METER***

Press the **ZERO/ON** button. The cursor will move across the display followed by **0.00 PPM**. Sample is ready for testing.

6 **DIP STRIP AND PRESS "READ"**

Dip the ***eXact® Strip Micro CL (DPD-1)*** into the **CELL** and immediately press **READ**. This starts the **20 SECOND** countdown timer. During this time, move the strip in a gentle back and forth motion (approx. 2 strokes/Sec). **Remove and discard the strip after "1" on the display disappears**.*

7 **RECORD RESULT**

The cursor will move across the display while the meter prepares to measure the sample. Record the result displayed as Free Chlorine.

Note: **DO NOT** discard the sample from the Free Chlorine test if you are planning to run eXact® Strip Micro DPD-3 (Combined Chlorine) Procedure. Move directly to the next steps 8-11. Otherwise, rinse the cell immediately.

8 **RE-ZERO METER***

Press the **ON/ZERO** button, the display will immediately read **0.00 PPM**

9 **REMOVE STRIP**

Remove one (1) ***eXact® Strip Micro CL (DPD-3), Part No. 486638*** from the bottle before beginning the test. Set the strip in a dry, convenient place and recap the bottle immediately.

10 **DIP STRIP AND PRESS "READ"**

Dip the ***eXact® Strip Micro CL (DPD-3)*** into the **CELL** and immediately press **READ**. This starts the **20 SECOND** countdown timer. During this time move the strip in a gentle back and forth motion (approx. 2 strokes/Sec). **Remove and discard the strip after "1" on the display disappears.***

11 **RECORD RESULT**

The cursor will move across the display while the meter prepares to measure the sample. Record the result displayed as Combined Chlorine (this result and the free chlorine result are automatically stored in CL MENU). The sum of the free and combined chlorine will equal Total Chlorine. ***Note:*** If you press **READ** again, the meter will do 20-second countdown and will display the Total Chlorine result. After testing is completed, rinse CELL immediately.

***NOTE: When testing outdoors (sunlight), for best accuracy, use the Mixing Cap/Cell Cover when Zeroing and Reading the sample.

PROCEDURE 1

(Used for Biguanide, Bromine, Calcium Hardness, Chloride in Drinking Water, Ozone, Peracetic Acid, Permanganate, Quaternary Ammonia, Sulfate, Total Alkalinity, and Total Hardness)

1 **REMOVE STRIP**

Remove the appropriate strip from the bottle before beginning the test (see Micro 20 Meter Parameter List). Set the strip in a dry, convenient place and recap the bottle immediately.

2 **TURN METER ON and SELECT GROUP & MENU**

Press the **ON/ZERO** button and press the **SELECT** button to the correct **Select Group**. Press the **MENU** button to select the test parameter from eXact® Micro 20 Test Specifications table.

3 **RINSE and FILL CELL WITH SAMPLE**

Rinse the **CELL** 3 times with the water sample you will be testing - rinsing minimizes the potential for cross-contamination from a previous test. Fill cell to capacity (4mL) with the sample.

4 **ZERO METER***

Press the **ON/ZERO** button. The cursor will move across the display followed by **0.00 PPM**. Sample is ready for testing.

5 **DIP STRIP and PRESS "READ"**

Dip the appropriate strip into the **CELL**, and immediately press **READ**. This starts the **20 SECOND** countdown timer. During this time, move the strip in a gentle back and forth motion (approx. 2 strokes/Sec). **Remove and discard the strip after "1" on the display disappears**.*

6 **RECORD RESULT**

The cursor will move across the display while the meter prepares to measure the sample. Record the value displayed for the respective parameter and this value is automatically stored in its MENU. *NOTE: After testing rinse the CELL immediately. For Calcium Hardness or Chloride, rinse CELL and clean with brush.*

PROCEDURE 2

(Used for bt-pH in Fresh Water & pH)

NOTE: If running bt-pH test, use this procedure if NaCl value is less than 4,000 ppm. If NaCl value is greater than 4,000 ppm, then use Procedure 3 on page 10.

1 **REMOVE STRIP**

Remove the appropriate strip from the bottle before beginning the test (see Micro 20 Meter Parameter List). Set the strip in a dry, convenient place and recap the bottle immediately.

2 **TURN METER ON and SELECT GROUP & MENU**

Press the **ON/ZERO** button and press the **SELECT** button to the correct **Select Group**. Press the **MENU** button to select the test parameter from eXact® Micro 20 Test Specifications table.

3 **RINSE and FILL CELL WITH SAMPLE**

Rinse the **CELL** 3 times with the water sample you will be testing - rinsing minimizes the potential for cross-contamination from a previous test. Fill cell to capacity (4mL) with the sample.

4 **ZERO METER***

Press the **ON/ZERO** button. The cursor will move across the display followed by **0.00 PH**. Sample is ready for testing.

5 **DIP STRIP and PRESS "READ"**

Dip the appropriate strip in to the **CELL**, and immediately press **READ**. This starts the **20 SECOND** countdown timer. During this time, move the strip in a gentle back and forth motion (approx. 2 strokes/Sec). **Remove and discard the strip after "1" on the display disappears**.*

6 **RECORD RESULT**

The cursor will move across the display while the meter prepares to measure the sample. Record the value displayed for the respective parameter and this value is automatically stored in its MENU. After testing, rinse CELL immediately.

*NOTE: When testing outdoors (sunlight), for best accuracy, use the Mixing Cap/Cell Cover when Zeroing and Reading the sample.

PROCEDURE 3

(Used for bt-pH in Salt Water, Cyanuric Acid, and Fluoride)

NOTE: If running bt-pH test, use this procedure if NaCl value is greater than 4,000 ppm. If NaCl value is less than 4,000 ppm, then use Procedure 2 on page 9.

1 **TURN METER ON and SELECT GROUP & MENU**

Press the **ON/ZERO** button and press the **SELECT** button to the correct **Select Group**. Press the **MENU** button to select the test parameter from eXact® Micro 20 Test Specifications table.

2 **RINSE and FILL CELL WITH SAMPLE**

Rinse the **CELL** 3 times with the water sample you will be testing - rinsing minimizes the potential for cross-contamination from a previous test. Fill cell to capacity (4mL) with the sample. Tilt the meter to discard about 0.2 mL sample in order to leave room for liquid reagent.

3 **ZERO METER***

Press the **ON/ZERO** button. The cursor will move across the display followed by **0.00 pH (for pH) and 0.00 ppm** (Cyanuric Acid and Fluoride). Sample is ready for testing.

4 **ADD DROPS**

NOTE: If you are testing for Cyanuric Acid, shake the reagent bottle vigorously to mix the suspension in the bottle, before adding the drops to the meter.

Take the required bottle of reagent and add the required drops *(See the eXact® Micro 20 Meter Parameter List) (Precaution: make sure that the bottle is straight)* and cover the meter cell with the mixing cap.

5 **PRESS "READ"**

Press **READ** to start timer, place thumb, or finger over the cap and mix the sample by turning the meter upside-down repetitively during the **20 SECOND** countdown. For Cyanuric Acid measurement, the meter begins a 60-second count up timing. The cursor will move across the display while the meter prepares to measure the sample. Record the value displayed for the respective parameter and this value is automatically stored in its MENU. *Precaution: Cover the cap firmly. For Fluoride- the reagent contains acid and, if necessary, the stir bar may be used to mix the reagent. NOTE: After testing, rinse CELL immediately and clean with the brush.*

PROCEDURE 4

(Used for Chromium, Copper, High Range Chlorine, Hydrogen Peroxide, Nitrate, Nitrite, & Phosphate)

1 **REMOVE STRIP**

Remove a strip from the bottle before beginning the test. Set the strip in a dry, convenient place and recap the bottle immediately.

2 **TURN METER ON and SELECT GROUP & MENU**

Press the **ON/ZERO** button and press the **SELECT** button to the correct **Select Group**. Press the **MENU** button to select the test parameter from eXact® Micro 20 Test Specifications table.

3 **RINSE AND FILL CELL WITH SAMPLE**

Rinse the **CELL** 3 times with the water sample you will be testing - rinsing minimizes the potential for cross-contamination from a previous test. Fill cell to capacity (4mL) with the sample. Note: For phosphate testing, clean the cell with Diluted Vinegar or 0.1 N HCl or Muriatic acid.

4 **ZERO METER***

Press the **ON/ZERO** button. The cursor will move across the display followed by **0.00 PPM**. Sample is ready for testing.

5 **DIP STRIP AND PRESS "READ"**

Take the required strip as mentioned in the eXact® Micro 20 Meter Parameter List, dip into the **CELL**, and immediately press **READ**. This starts the **20 SECOND** countdown timer. During this time, move the strip in a gentle back and forth motion (approx. 2 strokes/Sec). **Remove and discard the strip after "1" on the display disappears**.* The meter will automatically start to count up. The count up time varies for each parameter, as given in the eXact® Micro 20 Meter Parameter List. At the end, the cursor will move across the display while the meter prepares to measure the sample. Record the value displayed for the respective parameter and this value is automatically stored in its MENU. After testing, rinse CELL immediately. *NOTE: If you are testing High Range Chlorine or Nitrate, rinse the cell and clean with the brush. NOTE: If testing Chromium,* because the strip is 8mm wide, the strip will need to be angled to fit in the CELL.

*NOTE: When testing outdoors (sunlight), for best accuracy, use the Mixing Cap/Cell Cover when Zeroing and Reading the sample.

PROCEDURE 5

(Used for Aluminum, Ammonia, & Sulfide)

1 **TURN METER ON and SELECT GROUP & MENU**

Press the **ON/ZERO** button and press the **SELECT** button to the correct **Select Group**. Press the **MENU** button to select the test parameter from eXact® Micro 20 Test Specifications table.

2 **RINSE and FILL CELL WITH SAMPLE**

Rinse the **CELL** 3 times with the water sample you will be testing - rinsing minimizes the potential for cross-contamination from a previous test. Fill cell to capacity (4mL) with the sample. Tilt the meter to discard about 0.2 mL sample in order to leave room for liquid reagent.
Note: For Aluminum testing, clean the cell with Diluted Vinegar or 0.1 N HCl or Muriatic acid.

3 **ADD DROPS**

Take the required bottle of reagent and add the required drops *(See the eXact® Micro 20 Meter Parameter List)*.

4 **ZERO METER***

Press the **ON/ZERO** button. The cursor will move across the display followed by **0.00 ppm.** Sample is ready for testing.

5 **PRESS "READ"**

Take the required strip as mentioned in the eXact® Micro 20 Meter Parameter List, dip into the CELL, and immediately press **READ**. This starts the **20 SECOND** countdown timer. During this time, move the strip in a gentle back and forth motion (approx. 2 strokes/Sec). **Remove and discard the strip after "1" on the display disappears**.* The meter will automatically start to count up. The count up time varies for each parameter, as given in the eXact® Micro 20 Meter Parameter List. At the end, the cursor will move across the display while the meter prepares to measure the sample. Record the value displayed for the respective parameter and this value is automatically stored in its MENU. After testing, rinse CELL immediately. *NOTE: If you are testing Ammonia or Sulfide, rinse the cell and clean with the brush.*

PROCEDURE 6

(Used for Cyanide)

1 **REMOVE STRIPS**

Remove the ***eXact® Strip Micro CN-1, Part No. 486812-A*** and ***eXact® Strip Micro CN-2, Part No. 486812-B*** from the bottle before beginning the test. Set the strips in a dry, convenient place and recap the bottles immediately.

2 **TURN METER ON and SELECT GROUP & MENU**

Press the **ON/ZERO** button and press the **SELECT** button to **Select Group 2**. Press the **MENU** button to select the test parameter **CN1**.

3 **RINSE AND FILL CELL WITH SAMPLE**

Rinse the **CELL** 3 times with the water sample you will be testing - rinsing minimizes the potential for cross-contamination from a previous test. Fill cell to capacity (4mL) with the sample.

4 **ZERO METER***

Press the **ON/ZERO** button. The cursor will move across the display followed by **0.00 PPM**. Sample is ready for testing.

5 **DIP STRIP AND PRESS "READ"**

Dip the **CN-1** strip into the CELL, and immediately press READ. This starts the **30 Second** countdown timer. Because the strip is 8mm wide, the strip will need to be angled to fit in the cell. Be sure that the test pad is fully submerged. During this time, move the strip in a gentle back and forth motion (approx. 2 strokes/Sec). **Remove and discard the strip after "1" on the display disappears**.* The cursor will move across the display, informing you to get ready with the **CN-2** strip. When the **30 Second** countdown starts, dip immediately the **CN-2** strip into the CELL. During this time, with the strip angled slightly, move the strip in a gentle back and forth motion (approx. 2 strokes/Sec). **Remove and discard the strip after "1" on the display disappears**.

The meter will automatically start to count up to 600 seconds. At 600 seconds, the cursor will move across the display while the meter prepares to measure the sample. Record result displayed (this result is automatically stored in CN MENU). *After testing*, *rinse CELL immediately and clean with the brush.*

*NOTE: When testing outdoors (sunlight), for best accuracy, use the Mixing Cap/Cell Cover when Zeroing and Reading the sample.

PROCEDURE 7

(Used for Total Iron)

1 **TURN METER ON and SELECT GROUP & MENU**

Press the **ON/ZERO** button and press the **SELECT** button to **Select Group 1 or 2**. Press the **MENU** button to select the test parameter FE from eXact® Micro 20 Test Specifications table.

2 **RINSE and FILL CELL with SAMPLE**

Rinse the **CELL** 3 times with the water sample you will be testing - rinsing minimizes the potential for cross-contamination from a previous test. Fill cell to capacity (4mL) with the sample. Tilt the meter to discard about 0.2 mL sample in order to leave room for liquid reagent. *NOTE: Clean the CELL with Diluted Vinegar or 0.1 N HCl or Muriatic Acid.*

3 **ADD REDUCER**

Tilt meter to discard about 0.2mL water in order to leave room for powder reagent. Add the contents of one ***eXact® Reagent EZ Open REDUCER, Part No. 486601*** to the CELL and cover the CELL with the mixing cap. Press READ to start the **20 SECOND** countdown timer, place thumb over cap to keep it securely in place, and mix the sample by turning the meter upside-down repetitively. When countdown displays 1, hold the meter upright and the cursor will flash and the meter will begin a 40 second count up. After the count up, a result will be displayed (ignore this result).

4 **ZERO METER***

Press the **ON/ZERO** button. The cursor will move across the display followed by **0.00 ppm.** Sample is ready for testing.

5 **DIP and PRESS "READ"**

Dip the **eXact® Strip Micro FE (TPTZ), Part No. 486631** into the **CELL** and immediately press **READ**. This starts the **20 SECOND** countdown timer. During this time, move the strip in a gentle back and forth motion (approx. 2 strokes/Sec). **Remove and discard the strip after "1" on the display disappears**.* The meter will automatically start to count up for 40 seconds. At the end, the cursor will move across the display while the meter prepares to measure the sample. Record result displayed (this value is automatically stored in the FE MENU). *After testing is completed, rinse CELL immediately and clean with the brush.*

PROCEDURE 8

(Used for Manganese)

1 **REMOVE STRIPS**

Remove the **eXact® Strip Micro Mn#1, Part No. 481020-1** and **eXact® Strip Micro Mn#2, Part No. 481020-2** strips from their foil packets before beginning the test. Set the strips in a dry, convenient place.

2 **TURN METER ON and SELECT GROUP & MENU**

Press the **ON/ZERO** button and press the **SELECT** button to **Select Group 1 or 6**. Press the **MENU** button to select the test parameter MN from eXact® Micro 20 Test Specifications table.

3 **RINSE and FILL CELL with SAMPLE**

Rinse the **CELL** 3 times with the water sample you will be testing - rinsing minimizes the potential for cross-contamination from a previous test. Fill cell to capacity (4mL) with the sample.

4 **DIP STRIP and PRESS "READ"**

Dip the (**Mn#1**) into the **CELL**, and immediately press **READ**. This starts the **20 SECOND** countdown timer. During this time, move the strip in a gentle back and forth motion (approx. 2 strokes/Sec). **Remove and discard the strip after "1" on the display disappears**.* The cursor will move across the display, informing you to get ready with the **Mn#2** strip. When the next **20 SECOND** countdown starts, dip immediately the **Mn#2** strip into the **CELL**. During this time, move the strip in a gentle back and forth motion (approx. 2 strokes/Sec). **Remove and discard the strip after "1" on the display disappears**.* The meter will automatically start to count up to 20 seconds. After 20 seconds, the cursor will move across the display and the display will **AUTO ZERO**.

5 **ADD DROPS**

Shake the bottle of eXact® Reagent MN and add three (3) drops (*Precaution: make sure that the bottle is straight*) and cover the meter CELL with the mixing cap. Press **READ** to start timer, place thumb over the cap and mix the sample by turning the meter upside-down repetitively during the **20 SECOND** countdown. When timer displays 1, hold the meter upright and the cursor will flash. The meter will begin a 120 second count up. After **120 seconds**, the cursor will move across the display while the meter prepares to measure the sample. Record result displayed (this result is automatically stored in MN MENU). *After testing is completed, rinse CELL immediately and clean with the brush.*

*NOTE: When testing outdoors (sunlight), for best accuracy, use the Mixing Cap/Cell Cover when Zeroing and Reading the sample.

PROCEDURE 9

(Used for Chloride in Pools)

This test requires a 1:20 (1 to 20) dilution of the salt system sample.

PREPARE SAMPLE FOR TESTING (using Mini Dilution Kit II #487202)

Kit includes: Graduated Conical Tube (50mL) with cap; Graduated 3.0mL Syringe (increments of 0.1mL). **Distilled or Deionized (salt-free) water (not supplied) is required** to complete this test.

How to do 1:20 dilution using Mini Dilution Kit II for Micro 20 (MENU CH6$_4$)

Rinse syringe three times with salt system sample that you are about to test by moving plunger up and down.

1. Rinse 50mL graduated conical tube with distilled or deionized (salt-free) water.
2. Rinse the 3.0mL syringe with water sample to be tested. Finally, fill the 3.0mL syringe to the 2.0mL line (plunger ring should line up at the 2.0mL line and little or no air bubble should be present).
3. Add the syringe content (2.0mL salt system sample) to clean 50mL graduated conical tube by pushing plunger all the way down to expel sample.
4. Now, fill the graduated conical tube to the 40mL line with distilled or deionized (salt-free) water. Cap graduated conical tube.
5. Mix content of graduated conical tube by turning up side down at least three times. 1:20 Dilution Sample is ready for testing.

REMOVE STRIP

Remove one (1) ***eXact® Strip Micro Chloride II, Part No. 481657-II*** from the bottle before beginning the test. Set the strip in a dry, convenient place and recap the bottle immediately.

TURN METER ON

Press the **ON/ZERO** button to power the meter on; the display will show all annunciators, then the current MENU selection, followed by the last reading.

SELECT GROUP & MENU

Press the **SELECT** button to **Select Group 3**. Press the **MENU** button to select the **CH6** parameter.

RINSE AND FILL CELL WITH SAMPLE

Using the 1:20 Dilution Sample prepared above, **rinse the CELL 3 times**. Then, fill the **CELL** to capacity (4mL) with the 1:20 Dilution Sample.

ZERO METER*

Press the **ON/ZERO** button. The cursor will move across the display, followed by **0 PPM**. Meter is ready for testing.

DIP STRIP AND PRESS "READ"

Dip the ***eXact® Strip Micro Chloride II, Part No. 481657-II*** into the **CELL** and immediately press **READ**. This starts the **20 SECOND** countdown timer. During this time move the strip in a gentle back and forth motion (approx. 2 strokes/sec). **Remove and discard the strip when "1" on the display disappears***.

RECORD RESULT DISPLAYED

The cursor will move across the display while the meter prepares to measure the sample. Record result displayed (this result is automatically stored in CH MENU). After testing is completed, rinse CELL immediately.

*NOTE: When testing outdoors (sunlight), for best accuracy, use the Mixing Cap/Cell Cover when Zeroing and Reading the sample.

NOTE: The display only gives you three digits. You should multiply the result by 20. As an example "213" equals 4,260 ppm as Sodium Chloride (NaCl).

PROCEDURE 10

(Used for Chlorine Dioxide)

1 REMOVE STRIPS

Remove the ***eXact® Strip Micro Glycine, Part No. 484014*** and ***eXact® Strip Micro CL (DPD-1), Part No. 486637*** from the bottle before beginning the test. Set the strips in a dry, convenient place and recap the bottles immediately.

2 TURN METER ON and SELECT GROUP & MENU

Press the **ON/ZERO** button and press the **SELECT** button to **Select Group 5**. Press the **MENU** button to select the test parameter **Cd4**.

3 RINSE AND FILL CELL WITH SAMPLE

Rinse the **CELL** 3 times with the water sample you will be testing - rinsing minimizes the potential for cross-contamination from a previous test. Fill cell to capacity (4mL) with the sample.

4 DIP STRIP AND PRESS "READ"

Dip the ***eXact Strip Micro Glycine, Part No. 484014*** into the **CELL** and immediately press **READ**. This starts the **20 Second** countdown timer. During this time move the strip in a gentle back and forth motion (approx. 2 strokes/Sec). **Remove and discard the strip after "1" on the display disappears**. The cursor will move across the display, while the meter prepares to measure the sample (ignore this result).

5 ZERO METER*

Press the **ON/ZERO** button. The cursor will move across the display followed by **0.00 PPM**. Sample is ready for testing.

6 DIP STRIP AND PRESS "READ"

Dip the ***eXact Strip Micro CL (DPD-1), Part No. 486637*** into the CELL, and immediately press **READ**. This starts the **20 Second** countdown timer. During this time, move the strip in a gentle back and forth motion (approx. 2 strokes/Sec). **Remove and discard the strip after "1" on the display disappears**.* The cursor will move across the display while the meter prepares to measure the sample. Record result displayed (this result is automatically stored in Cd MENU). After testing is completed, rinse CELL immediately.

***NOTE:** When testing outdoors (sunlight), for best accuracy, use the Mixing Cap/Cell Cover when Zeroing and Reading the sample.

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eXact® Micro 20 Tips For Best Accuracy

1. Become familiar with the meter and the different tests by reading the instructions carefully.
2. The Free Chlorine, Combined Chlorine, and Total Chlorine reagents are compliant for meeting USEPA (4500-Cl G); ISO 7393/2; and German DIN 38408 G4-2 requirements.
3. Observe the dip time (*as required for the test*) for accurate results.
4. Test immediately after filling the **CELL** with water sample when testing for oxidizers such as Chlorine and Bromine (Ozone can be measured in CL3 MENU).
5. Be sure the **CELL** is filled to capacity (4ml), especially for pH and Total Alkalinity.
6. Rinse the **CELL** with clean water immediately after completing each test. Some reagents may stain the **CELL** if not rinsed shortly after use. Other reagents including Cyanuric Acid, Chloride, and Calcium Hardness may coat the **CELL** wall. It is recommended, after these tests, to use the Cell Cleaning Brush with water to clean the **CELL**.
7. Just before testing, rinse the sample **CELL** with the sample water several times to get a representative sample. (*Use deionized or distilled water for rinsing if you have a limited amount of sample*).
8. Store the meter and all test materials out of direct sunlight and away from chemical storage areas.
9. Minimize exposure of meter and test reagents to heat above 38°C (100°F).
10. Dry the outside of the meter when testing is complete or before storage of the meter.
11. When running a DPD-1 Free Chlorine test **AFTER** a Total Chlorine DPD-3, a Total Chlorine DPD-4, or a HR Chlorine test, rinsing is very important to remove residual KI, which may interfere.
12. Each eXact® Strip Micro is valid for **ONLY** one test. Discard strip after single use in regular refuse that is inaccessible to children and pets.
13. Each bottle of eXact® Strip Micro contains the quantity of strips notated on the bottle. Due to the strip slitting process, you may find one or two strips that are noticeably smaller or larger in width than the normal strips in the bottle. These should be discarded. Using these strips may give unreliable results.
14. Each table supplied has a unique revision number located in the bottom right corner of the table. We recommended that you visit www.sensafe.com regularly for any updated revisions.
15. The eXact® Micro 20 Meter is **not compatible** for use with DPD-1, DPD-3, and DPD-4 powder pillows, tablets, and liquids available from other manufacturers. Accurate results can only be guaranteed by using genuine eXact® Micro strips or reagents (*reorder information on page 19*).
16. Our lab testing with the Micro 20 meter has shown that zeroing and measuring of the sample normally does not require any cell cover for accurate results, except in sunlight. To obtain optimal accuracy when testing with the meter outdoors (sunlight), use the Mixing Cap/Cell Cover when zeroing and reading the sample.
17. Remove batteries when meter is not used for more than a month (Warranty Requirement).
18. It is recommended that Pool and Spa samples for oxidizers (such as Chlorine) be taken 18 inches below the surface as follows: submerge meter with open cell facing down 18 inches, and then turn meter upright at that depth to fill the cell. Remove meter from water with the sample for testing.

About The Accuracy / Calibration Of The Micro 20 System

All tests have been calibrated using certified reference standards and standard analytical spectrophotometric methods. The algorithms in the software reflect the best correlation of the eXact® Micro 20 Systems against the AWWA, US EPA , DIN, and ISO reference test methods for chlorine. Studies show that the eXact® Micro 20 System repeatedly agrees with an EPA Compliant reference method greater than 99% (R2= 0.99948, 0 - 5.00 ppm - see back cover). The eXact® Micro 20 Advanced Photometric System has been factory calibrated for your convenience. You can expect the fixed calibrations in the meter to be valid for the life of the meter because of the quality, Long-Life LED, the photo cell, and the software as written into the meter. This is why the meter comes with a 2-Year Warranty.

eXact® Strip Micro 20 Reagent Reorder Information

eXact® Strip Micro (4mL) Reagent Specifications - For use with eXact® Micro 20, Part no. 486700

No.	PARAMETER	PART NO.	# OF TESTS	DETECTION RANGE	CHEMISTRY
	eXact® Micro Carrying Case w/ foam	486001	N/A	N/A	N/A
	Dilution Kit	487200	N/A	N/A	N/A
	Reference Standard	486602	15	N/A	N/A
1	Alkalinity, Total	486641	100	1 - 320 ppm	Alizarin Red S + Citrate
2	Aluminum	486821	50	0.02 - 1.5 ppm	PV
3	Ammonia	486654	25	0 - 2.4 ppm	Salicylate Method
4	Biguanide	486810	50	2 - 200 ppm	Bromophenol Blue
5	Bromine	486637	100	0.1 - 12 ppm	DPD
6	Calcium (as CaCO3)	486629	50	18 - 420 ppm	Ozalic Acid
7	Chloride (as NaCl) II	481657-II	25	1 - 430 ppm	Silver (ppt)
8	Chlorine Dioxide	486637	100	0 - 10 ppm	DPD
9	Chlorine, Free	486637	100	0 - 5 ppm	DPD
	Chlorine, Free	484051	100 Foils	0 - 5 ppm	DPD
10	Chlorine, High Range	486672	50	0.3 - 300 ppm	KI + Buffer
11	Chlorine, Total**	486638	100	0 - 5 ppm	KI
	Chlorine, Total**	484053	100 Foils	0 - 5 ppm	KI
12	Chlorine, Total	486670	100	0 - 5 ppm	DPD + KI
	Chlorine, Total	484054	100 Foils	0 - 5 ppm	DPD + KI
13	Chromium (VI)	486614	50	0 - 1.8 ppm	Diphenylcarbazide
14	Copper (as Cu+2)	486632	50	0 - 11 ppm	Biquinoline
15	Cyanide	486812	50	0 - 3 ppm	Isonicotinic/Barbituric Acid
16	Cyanuric Acid II	481652-II	60	3 - 120 ppm	Melamine (ppt)
17	Fluoride	486643	25	0.03 - 1.45 ppm	SPADNS
18	Glycine (used for Chlorine Dioxide)	484014	50	N/A	Glycine
19	Hardness, Total (as $CaCO_3$)	486673	50	4 - 300 ppm	Phthalein Purple
20	Hydrogen Peroxide LR	486616	50	0 - 2 ppm	DPD + PO_4 + MoO_4 + KI
21	Iron, Total (TPTZ)	486650	50	0.04 - 8 ppm	TPTZ + PP
22	Manganese	486606	24	0.02 - 1.5 ppm	PAN + Cyanide
23	Nitrate (as NO3)	486655	50	0.12 - 30 ppm	Zinc Reduction
24	Nitrite (as NO2)	486623	50	0 - 1.8 ppm	Chromotropic Acid
25	Ozone	486670	100	0 - 5 ppm	DPD + KI
26	Peracetic Acid	486670	100	0.02 - 6 ppm	DPD + KI
27	Permanganate	486637	100	0 - 5 ppm	DPD
28	pH	486639	100	5.5 - 8.8	Phenol Red
29	pH, BT Fresh Water	486652	50	4.5 - 9.2	Bromothymol Blue and Thymol Blue
30	pH, BT Salt Water	486657	50	4.5 - 9.0	Bromothymol Blue and Thymol Blue
31	Phosphate	486814	50	0 - 4 ppm	Molybdate Method
32	Quaternary Ammonia	486823	50	4 - 110 ppm	Bromophenol Blue + Buffer
33	Sulfate	486608	50	1 - 250 ppm	Barium (ppt)
34	Sulfide	486818	50	0 - 1.7 ppm	DPD Reagent + $FeCl_3$

** Total Chlorine DPD-3 Test requires Free Chlorine DPD-1 (486637) to be run first.

When there is a question about the quality of a ReagentStrip™, your test method, or the photometer you are using, then it is recommended to test the SYSTEM (reagent, you, and photometer) by using the appropriate READY SNAP™ solution.

Follow the procedure for the test you are running. If you get the acceptible result using the READY SNAP™ solution, then you can be confident that the reagent, you, and the photometer are working as a SYSTEM correctly.

NOTE: Because most of our products are test strips or use reagents that have little or no hazard in the quantity sold, MSDS sheets are not supplied with the test. The exceptions are the Manganese (486606) test, which comes with 2 strips and one liquid reagent (PAN); Fluoride (486643) test, which is a liquid reagent (SPADNS); and Iron (486650) test, which is a powder reagent.

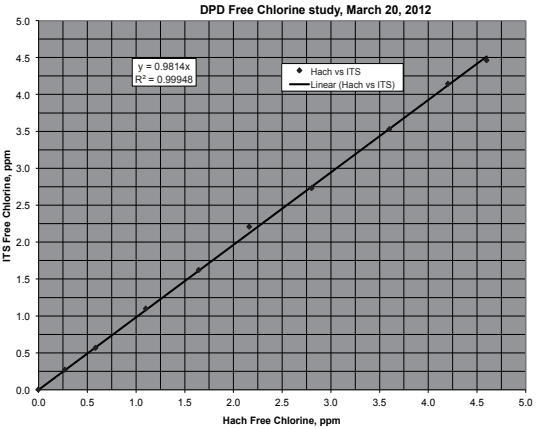
If your required procedure is not listed in this manual, please see the back page for our contact information.

To ensure optimal performance, store your eXact® kit in a cool, dry place away from excess heat (below 100°F / 38°C), moisture, and oxidizers such as Chlorine and Bromine.

eXact® Strip Micro DPD-1 Accuracy

Free Chlorine results are compared using the ***eXact® Strip Micro CL (DPD-1)*** with the eXact® Micro 20 Meter in Menu CL and Hach® DR890 Colorimeter in Program 9 and Program 12 using Hach® powder pillows.

DR890	Micro 20
0.00	0
0.27	0.27
0.58	0.57
1.10	1.10
1.64	1.62
2.16	2.21
2.8	2.73
3.6	3.53
4.2	4.14
4.6	4.46



Meter	Menu	Range (PPM)	Resolution
Micro 20	CL	0 to 5.00	0.01
DR890	Program 9	0.00 to 2.20	0.01
	Program 12	0.0 to 11.0	0.1

The eXact® Micro 20 Line of Kits

(486700-K) Standard Kit Includes:

1 eXact® Micro 20 Meter *(486700)*
eXact® Strip Micro DPD-1 *(486637-25)*
eXact® Strip Micro DPD-3 *(486638-25)*
Mini Dilution Kit II *(487202)*
1 Mixing Cap
1 Cell Cleaning Brush
This Instruction Booklet
Plastic Carrying Case
Plastic Stirrer

(486700-WD) Well Driller Kit Includes:

1 eXact® Micro 20 Meter *(486700)*
eXact® Strip Micro DPD-1 *(486637-25)*
eXact® Strip Micro DPD-3 *(486638-25)*
eXact® Strip Micro pH *(486639-25)*
eXact® Strip Micro Total Alkalinity *(486641-25)*
eXact® Strip Micro Copper *(486632-25)*
eXact® Strip Micro Nitrate *(486655-25)*
eXact® Strip Micro Manganese *(486606)*
eXact® Strip Micro Total Hardness *(486673-25)*
eXact® Strip Micro High Range Chlorine *(486672-25)*
eXact® Strip Micro Total Iron, TPTZ *(486650-25)*
Mini Dilution Kit II *(487202)*
1 Mixing Cap
1 Cell Cleaning Brush
This Instruction Booklet
Plastic Carrying Case
Plastic Stirrer

Contact Information

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