

# DREWCHECK™ CLN METER KIT COMPLETE



## INTRODUCTION

Water that is high in turbidity or color – such as seawater, wastewater, or ballast water - cannot be accurately tested for active chlorine using methods requiring visual comparisons to color standards.

Regulatory authorities may require test methods that use spectrophotometers with standardized reagents that can compensate for color and turbidity, and provide accurate results for trace level determinations of residual chlorine in wastewater, ballast water, or other vessel discharges.

## DESCRIPTION

The DREWCHECK CLN Meter Kit contains all of the components necessary to conduct free and total chlorine measurements in turbid or colored water samples. The kit is designed for shipboard use to accurately measure for low levels of chlorine (0.02 ppm to 2.00 ppm). It is particularly effective for measuring low levels of free residual chlorine in drinking water, and total residual chlorine in turbid or colored waters subject to discharge regulations.

The DREWCHECK CLN Meter is an advanced spectrophotometer that is able to compensate electronically for color or turbidity in a sample by quantitatively measuring optical interference – prior to adding test reagents - and subsequently adjusting the measured value in a treated sample. The advanced microprocessor stores up to 10 measurements.

DREWCHECK CLN Ampoules are vacuum sealed reagents, in optical-grade glass, that are protected from oxidation, moisture, and contamination. When immersed and opened within a sample, the vacuum sealed ampoules precisely draw the correct amount of sample inside, where it mixes with premeasured reagents, making tests fast, easy, and accurate.

## REGULATORY COMPLIANCE

### Final EPA Vessel General Permit 2013 & Standard Method 4500 CL G

When used as directed, the DREWCHECK CLN Meter Kit complies with the internationally accepted Standard Method 4500 CL G. The method is approved for free chlorine

## FEATURES

- Spectrophotometric Method
- Vacuum sealed ampoules w/premeasured reagents
- Measures Free and Total Chlorine
- Rugged, lightweight design
- Backlit display
- Few steps to complete tests
- Advanced microprocessor

## BENEFITS

- Highly accurate even for colored and turbid samples
- US EPA Approved for ballast, wastewater, and potable water testing
- Not subject to visual acuity of the operator
- Fast, easy and accurate tests; not subject to operator error or contamination
- Confirms adequate free available chlorine in drinking water
- Confirms discharges do not exceed limits for total chlorine residuals
- Durable and easy to use onboard ships
- Easy to read regardless of lighting conditions
- Easy to learn and execute
- Stores last 10 measurements, compensates for optical interference



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determination in drinking water by the US EPA, and is also specified in the US- EPA Final Vessel General Permit 2013 for ballast water where the maximum limit for total residual oxidant (as chlorine) is 100 µg/L (0.10 ppm).

### IMO Annex IV

The DREWCHECK CLN Meter Kit can be used to satisfy flag administrations that the best technical practices are in place to keep residual disinfectant concentrations in treated sewerage effluents to less than 0.5 ppm as Cl<sub>2</sub> - as referenced in the IMO Annex IV /MEPC.155(59) and MEPC.227(64).

### GENERAL INSTRUCTIONS

**Safety Information:** Read SDS before performing this test procedure.

**Note:** Analyze samples immediately. The VGP allowed holding time for monitoring chlorine in water samples is 15 minutes.

**Instrument Cap:** doubles as a light shield, accurate measurements cannot be obtained unless the sample or blank is covered with the cap.

**Backlight Function:** Press the power on button. Press and hold the power on button to turn the light on or off.

**Adjusting the time:** Press the MENU key, then press ZERO/SCROLL key until the display shows a time in the "00:00" format. Press READ/ENTER . The digit to be edited will flash. Use the ZERO/SCROLL key to change the entry, then press READ/ENTER to accept and advance to the next digit. The time is entered in 24-hour format.

**Confirming LR (Low Range):** After turning on the meter, the arrow in the display range should indicate (LR) low range channel is selected. If (HR) is displayed, press the MENU key. The display will show "SEL." A flashing arrow indicates the current range. Press the READ/ENTER key to toggle between ranges. Press MENU again to accept and exit back to the measurement screen.

**Recalling Stored Measurements:** Press the MENU Key, then press the ZERO/SCROLL key until the display shows "RCL." The instrument automatically stores the last 10 measurements. In RCL mode, press READ/ENTER to recall the stored measurement, beginning with the most recent measurement performed. The meter stores the measurement number, a 01 (most recent) through 10 (oldest), the time the measurement was taken, and the measurement value. The ZERO/SCROLL

key allows for selection of a specific measurement by number. The READ/ENTER key scrolls through all stored data points. Press MENU to exit to the measurement screen.

### REORDER INFORMATION

#### DREWCHECK CLN Meter Kit Complete (PCN 1AA9702) contains:

- Colorimeter
- 2 sample cells
- 4 x AAA alkaline batteries
- DREWCHECK CLN Chlorine Ampoules (1 box of 25)
- Total Chlorine Reagent (30ml)
- Beaker, 100 ml
- Instructions Description

#### ITEMS AVAILABLE SEPARATELY

Description	PCN
Sample cells	1AA9700
DREWCHECK CLN Chlorine Ampoules	0396029*
Beaker, 100 ml	0247016

\* Includes 25 ampoules and 1 x 30 ml Total Chlorine Reagent.



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## FREE CHLORINE TEST PROCEDURE


### 0.0 to 2.00 ppm Cl<sub>2</sub>

**Safety Information:** Read SDS before performing this test procedure.

**Note:** Analyze samples immediately.

**Battery Installation:** Remove the battery compartment cover. Place 4 x AAA alkaline batteries as indicated and replace the battery compartment cover.



1. Press the POWER button  to turn on the DREWCHECK™ CLN Meter. The arrow in the display should indicate the low range channel (LR).




2. Fill a 10-ml sample cell with sample and cap the cell. This will be the sample cell blank. Wipe excess liquid and fingerprints from the sample cell blank.



3. Remove the meter cap. Place the sample cell blank in the cell holder with the diamond mark facing the keypad. Cover the sample cell blank with the meter cap.



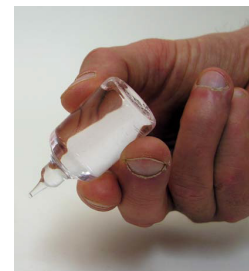
4. Press ZERO/SCROLL button.  The display will show "----" and then it will show "0.00". Remove the sample cell blank from the cell holder.




5. Collect 40-50-ml sample into a beaker. Place the tapered tip of a DREWCHECK CLN chlorine ampoule into the beaker. Snap the tip of the ampoule by squeezing the ampoule toward the side of the beaker. The sample will fill the ampoule and begin to mix with reagent. Be sure to keep the tip of the ampoule immersed in the sample until it fills completely.



6. Quickly invert the ampoule several times to mix. A pink color will form if chlorine is present. Wipe off any liquid or fingerprints. Note that accuracy is not affected by undissolved powder.



7. To determine free chlorine, place the ampoule in the cell holder. Cover the ampoule with the meter cap and press the READ/ENTER button  **within one minute** after filling the ampoule with sample. The meter will show "----" and then it will show the ppm free chlorine. Record the results.



### Order Information

#### DREWCHECK CLN Meter Kit Complete

Includes meter, 2 sample cells, 100-ml beaker, lanyard, case, 4 x AAA alkaline batteries, instructions, DREWCHECK CLN chlorine ampoules and Total Chlorine Reagent.

### PCN

1AA9702

### Order Information

#### DREWCHECK CLN Chlorine Ampoules

Includes 25 ampoules and Total Chlorine Reagent

### PCN

0396029

#### Sample cells, 2/pkg

1AA9700

#### Beaker, 100-ml

0247016



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Drew Marine maintains Safety Data Sheets on all of its products. These documents contain health and safety information for the development of appropriate product handling procedures to protect your employees. Safety Data Sheets should be read and understood by all of your supervisory personnel and employees before using Drew Marine products.



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