



# Waterproof Portable Colorimeters

Chlorine (Free and Total) • Cyanuric Acid • pH  
Chlorine Dioxide • Bromine • Ozone



**EUTECH**  
**INSTRUMENTS**  
*Technology Made Easy ...*

# Water quality analysis made easy

Eutech's latest range of laboratory grade microprocessor-based portable waterproof colorimeters measure Chlorine (Free and Total), Cyanuric Acid, pH, Chlorine Dioxide, Bromine and Ozone with quick, accurate and repeatable results. The meters are easy to use because of their simple, intuitive and direct user interface. Guiding messages and self-diagnostics are displayed on a large custom-made liquid crystal display (LCD). Each meter comes with reagents and sample vials in

a rugged carrying case for swift testing on the go. This family of colorimeters is designed for reliable and convenient water analysis in swimming pools, spas, public utilities, industrial wastewater plants, municipal water, treated water, water conditioning systems and paper and pulp mills. Select from our wide range of models, designed to meet your application needs.

## KEY FEATURES:

- **EXCELLENT TEST-TO-TEST REPEATABILITY, AUTO-RANGING AND CONVENIENCE**

The meters ensure excellent test-to-test repeatability and have auto-ranging capabilities while using only one-vial-one-sachet per test.

- **FUSS-FREE METER OPERATION**

Designed for utmost convenience (to be maintenance-free), the meters allow one-time blanking for all parameters and ranges. This value-added feature comes in handy when performing multi-parameter analysis and/or repeat measurements of a sample. The blanking value is stored in memory and retained not only if the meter is switched off, but even if batteries are replaced. Furthermore, no pre-calibration is needed for chlorine and cyanuric acid.

- **NO DETACHABLE PARTS, NO FLIP COVERS**

The meters are designed such that the high-quality customised vials fit perfectly into the sample well. Consequently, no detachable light shields or flip covers are required.

- **US EPA-APPROVED DPD METHOD**

Chlorine measurements are based on the US EPA-approved DPD method, so the results can be reliably used for reporting purposes (subject to local regulatory guidelines).

- **HIGH QUALITY REAGENTS**

Custom-formulated powder reagents provide excellent accuracy, repeatability and stability. They are conveniently packed in properly sealed individual sachets for ease of use.

- **ADVANCED POWER MANAGEMENT**

The meters are capable of more than three thousand tests on a set of four new 'AAA' alkaline batteries. The auto power-off function activates after ten minutes of non-use to conserve battery life.

- **WATERPROOF AND LIGHTWEIGHT**

The lightweight meters have a waterproof IP67-rated housing. They float if accidentally dropped in water.

- **APPLICATIONS**

Swimming Pools • Spas • Drinking Water • Public Utilities • Wastewater  
• Treated water

## Three easy steps

### Step 1:

To blank the meter, place a vial of sample liquid into the meter's sample well. Press the 'ZERO' button. The meter flashes 'STDBY' while blanking is in progress and displays 'ZERO' to confirm that blanking is complete.



### Step 2:

Add reagent into sample vial (according to the specified parameter test procedure). Secure vial in sample well in meter.



### Step 3:

Press 'READ/ENTER' to measure desired parameter.



## Colorimeter Specifications

Parameters	Range	Resolution	Accuracy	C401	C301	C201	C105	C104	C103	C102	C101
Chlorine, Free and Total	0 – 1.99 ppm	0.01 ppm	±0.02 ppm	•	•	•					
	2.0 – 6.0 ppm	0.1 ppm	±0.2 ppm								
Cyanuric Acid	5 – 90 ppm	1 ppm	±4 ppm	•						•	
pH	5.9 – 8.2 pH	0.1 pH	±0.1 pH	•	•						•
Chlorine Dioxide	0 – 3.79 ppm	0.01 ppm	±0.02 ppm						•		
	3.8 – 11.4 ppm	0.1 ppm	±0.2 ppm								
Bromine	0 – 4.49 ppm	0.02 ppm	±0.03 ppm					•			
	4.5 – 13.5 ppm	0.2 ppm	±0.3 ppm								
Ozone	0 – 1.39 ppm	0.01 ppm	±0.02 ppm				•				
	1.4 – 4.1 ppm	0.1 ppm	±0.2 ppm								
<b>Measurement Method</b>				Photometric							
<b>Light Source</b>				Light Emitting Diode (LED)							
<b>Wavelength</b>				525 nm							
<b>Detector</b>				Silicon photodiode							
<b>Absorbance Range</b>				0 – 2.5 Abs							
<b>Photometric Precision</b>				+/- 0.0015 Abs							
<b>Calibration Points</b>				User selectable; 1 point per colorimetric test							
<b>Display</b>				4-digit 14-segments customised liquid crystal display with annunciators							
<b>Sample Vials</b>				Borosilicate glass with screw caps, fill line and indexing mark Height x diameter: 51 x 25 mm ( 2 x 1 in)							
<b>Sample Required</b>				10 ml (0.33 oz)							
<b>Operating Temperature Range</b>				0 – 50 °C (32°F to 122°F)							
<b>Sample Temperature Range</b>				0 – 50 °C (32°F to 122°F)							
<b>Operating Humidity Range</b>				0-90% RH non-condensing at 30 °C (86°F)							
<b>Power Supply</b>				4 AAA alkaline batteries							
<b>Battery Life</b>				> 3000 tests							
<b>Electromagnetic Compliance (EMC)</b>				Emitted Interference - EN 61326 Immunity to Interference - EN 61326							
<b>Enclosure Rating</b>				IP67							
<b>Insulation Rating</b>				Pollution degree 2							
<b>Weight</b>				Instrument: 200 g (7 oz) Instrument in carrying case: 1.25 kg (2.75 lb)							
<b>Dimensions</b>				Instrument: 68(W) x 155(L) x 46(H) mm; (2.7 x 6.1 x 1.8 in) Carrying case: 160(W) x 350(L) x 120(H) mm; (6.3 x 13.8 x 4.7 in)							

***The effectiveness of the disinfectants used depends on your system's overall water chemistry, and not just on the disinfectants' concentrations alone. The following section provides a brief overview on the measurement of each parameter:***

### BROMINE

Bromine is often used as a disinfectant in indoor or covered water systems. With its high evaporation point, bromine is more stable in water than chlorine. Compared to chlorine, the main advantages of bromine are reduced odour, and skin and eye irritation. In addition, bromine remains effective at high temperatures and its disinfecting efficiency is not affected by pH fluctuations. The disadvantages are that bromine is more expensive than chlorine and it cannot be stabilised for outdoor use.

*Eutech's C104 colorimeter measures bromine over the range of 0ppm to 13.5ppm.*

### CHLORINE

Chlorine and chlorine-release compounds are frequently used as disinfectants in swimming pools, drinking water and other water treatment

systems. Routine chlorination kills harmful micro-organisms. The disinfection efficiency is a direct function of the level of free chlorine in a system. Total chlorine is the sum of combined and free chlorine.

In applications where there is human contact with the water e.g. in swimming pools and spas, it is essential that the right amount of chlorine is present. Insufficient chlorine will decrease the disinfectant efficiency; while excess chlorine will cause skin and eye irritation and become a health hazard.

*Eutech's C401, C301 and C201 colorimeters measure free and total chlorine over the range of 0mg/l to 6mg/l.*

### CHLORINE DIOXIDE

The use of chlorine dioxide as a disinfectant is seeing growth in many industrial applications. Unlike chlorine, chlorine dioxide remains a true gas

dissolved in solution. The lack of any significant reaction of chlorine dioxide with water is partly responsible for its retaining its disinfecting effectiveness over a wide pH range. This property makes it a logical choice for cooling systems operated in the alkaline pH range, or cooling systems with poor pH control. Other applications for chlorine dioxide include the food processing industry; the pulp and paper industries; and the potable water and waste treatment industries.

*Eutech's C103 colorimeter measures chlorine dioxide over the range of 0ppm to 11.4ppm.*

## OZONE

Ozone is one of the strongest and most rapid oxidisers and disinfectants available. Ozone does not require any stabiliser. It does not corrode nor cause scaling. In addition, ozone has no smell, does not cause skin nor eye irritation and does not pose a health hazard. Although more expensive than traditional disinfectants like chlorine and bromine, because it does not cause corrosion nor scaling, the long-term maintenance cost of a water system which uses ozone as a disinfectant may be reduced compared to using chlorine. Ozone is gaining popularity in top spas and certain swimming pools.

*Eutech's C105 colorimeter measures ozone over the range of 1.4ppm to 4.1ppm.*

## CYANURIC ACID

In applications where chlorine is used for disinfection, cyanuric acid is often present as a chlorine stabiliser.

Low levels of cyanuric acid are beneficial as they prevent wastage of free chlorine by the sun's UV rays. High levels of cyanuric acid cause the chlorine to take a longer time to kill the micro-organisms. It is important to test your water sample to determine how much cyanuric acid should be added to maximise chlorine efficiency.

*Eutech's C401 and C102 colorimeters measure cyanuric acid over the range of 5ppm to 90 ppm.*

## pH

The pH value affects the amount of free chlorine that is formed, and therefore determines the effectiveness of chlorine as a disinfectant. As pH increases, the disinfecting power of chlorine decreases. High pH causes scaling of water surfaces, pipework and fittings; this may result in cloudy water. Low pH can corrode metals in pipework and fittings; this may cause metal oxides to stain water surfaces.

*Eutech's C401, C301 and C101 colorimeters measure pH over the range of 5.9 – 8.2.*

## WARRANTY

Eutech Instruments warrants this range of Colorimeters to be free from manufacturing defects for two years.

## Order Information

Order Code.	Item Description	
ECC101	C101 pH Colorimeter <sup>(1)</sup> (2)	
ECC102	C102 Cyanuric Acid Colorimeter <sup>(1)</sup> (3)	
ECC103	C103 Chlorine Dioxide Colorimeter <sup>(1)</sup> (4)	
ECC104	C104 Bromine Colorimeter <sup>(1)</sup> (5)	
ECC105	C105 Ozone Colorimeter <sup>(1)</sup> (5)	
ECC201	C201 Free / Total Chlorine Colorimeter <sup>(1)</sup> (6)	
ECC301	C301 Free/ Total Chlorine/ pH Colorimeter <sup>(1)</sup> (2) (6)	
ECC401	C401 Free/ Total Chlorine/ pH/ Cyanuric Acid Colorimeter <sup>(1)</sup> (2) (3) (5)	
Accessories	ECTN100CUVKT	Sample Vials – pack of 3 vials
	94X377004	pH Indicator (Phenol Red) Kit
	94X377003	Cyanuric Acid Reagent Kit
	94X377001	Chlorine, Free (DPD) Reagent Kit
	94X377002	Chlorine, Total (DPD) Reagent Kit
	94X377005	Chlorine Dioxide (Glycine) Reagent Kit
	ECCLCOLORREF	Colour Reference Kit (Chlorine, Free; Chlorine, Total; Bromine; Ozone; Chlorine Dioxide)

### Comes with:

- (1) Sample vials and batteries in a rugged carrying case
- (2) A 30 ml bottle with pH7 buffer, pH Indicator (Phenol Red) Reagent Kit
- (3) Cyanuric Acid Reagent Kit
- (4) Chlorine Dioxide (Glycine) and Chlorine Free Reagent Kits
- (5) Chlorine, Total (DPD) Reagent Kit
- (6) Chlorine, Free (DPD) and Chlorine, Total (DPD) Reagent Kits

To monitor meter reliability, it is advisable to check the meter periodically for its performance. The Colour Reference Kit is supplied with one blank vial and three colour reference standards for this purpose.



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**marketing@eutechinst.com**

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