

# HACH RAPID BALLAST WATER VALIDATION TEST KIT

## Application

- Ballast Water

## Provides a simple, rapid method for determining the efficacy of ballast water treatment systems.

Offering fast, accurate results in a rugged, portable kit, Hach's Rapid Ballast Water Validation Test Kit provides ship operators, Port State Control (PSC), and other compliance officers with a simple, effective tool to assess the risk of discharging ballast water.



## Complete Solution for Regulatory Compliance

The IMO Subcommittee on Bulk Liquids and Gases (BLG) is working to finalize guidelines for uniform implementation of the 2004 BWM Convention. These guidelines include recommendations on methodologies for sampling and analysis to test for compliance with the Convention. Utilizing three instruments, Hach's Ballast Water Verification Kit satisfies the testing protocol for the D1 standard, allows a user to quickly and easily decide if a system is in gross exceedance of the D2 standard, and provides a simple solution to test total residual oxidant levels in chemical disinfection systems.

### D1: Ballast Water Exchange

Salinity—Durable refractometer provides a simple test to confirm exchange occurred.



### D2: Ballast Water Treatment ("Indicative Analysis")

Variable Fluorescence—Simple, hand-held, pocket-sized fluorometer tests for photosynthetically active chlorophyll, like that found in living phytoplankton, in less than 3 minutes—providing an indication of whether or not treatment of the ballast water system was effective.

### Total Residual Oxidant (TRO)

Colorimetry—Hach's rugged, waterproof colorimeter tests for TRO at both high (1-8 mg/L as  $Cl_2$ ) and low (0.1-4.0 mg/L as  $Cl_2$ ) levels in less than 3 minutes, providing confidence in treatment system dosing and measurement of TRO discharge levels.

## Simple for Users of All Skill Sets

The Hach BW680 Handheld Fluorometer requires no training prior to use—simply place the sample in the cuvette, press "Read," and view the risk of discharge (Fail, High, Low).

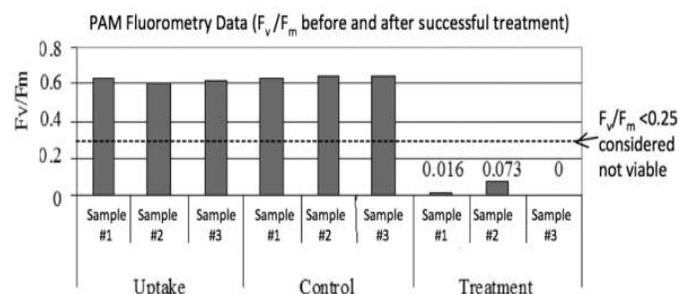
Assessing ballast water treatment efficacy is fast and easy for:

- **Ship operators**— verify the ballast water treatment system has adequately treated the water prior to discharge at port
- **Compliance officers**— quickly determine whether a ship grossly exceeds the D2 standard
- **Ballast water treatment system providers**— rapidly assess treatment system performance during testing
- **Ship service providers**— diagnose treatment system failures

In addition, all three instruments feature intuitive operation for non-technical users.

## Robust, Portable Design

All instruments fit in a compact backpack that can be easily carried to the sampling port or stored on ship for use when needed. For Port State Control, the backpack provides extra space for carrying equipment such as ear and eye protection, data notebooks and more.



**BW680 Fluorometer Specifications\***

<b>Size</b>	5.5" x 2.2" x 2.0" (140 mm x 55 mm x 50 mm)
<b>Weight</b>	10.6 oz (0.3 kg)
<b>Dynamic Range</b>	3 orders of magnitude
<b>Resolution</b>	12 bits
<b>LCD Display</b>	2 x 8 characters
<b>Case</b>	Soft-sided nylon case; hard case available upon request
<b>Temperature</b>	0 to 55°C (32 to 130°F)
<b>Detector</b>	Photodiode
<b>Error Messages</b>	Low battery
<b>Cuvette Type</b>	4 mL square cuvette
<b>Memory Capacity</b>	Up to 4 Mb
<b>Internal Data Logging</b>	Up to 100,000 data points
<b>Auto Power Off</b>	After 3 minutes of inactivity
<b>Battery Requirements</b>	4 AAA batteries
<b>Method Detection Limit (MDL)</b>	0.16ug/L Chl-a
<b>Minimum Sample Volume</b>	2 mL

*Note: The BW680 provides an indicative method for qualifying the risk of exceeding the IMO D2 standard. This risk assessment is not sufficient to conclude that the IMO D2 standard has been met.*

**Pocket Colorimeter II™ Specifications\***

<b>Lamp</b>	Light Emitting Diode (LED)
<b>Detector</b>	Silicon
<b>Enclosure</b>	IP67, waterproof at 1 m for 30 minutes (battery compartment excluded)
<b>Parameter</b>	Total Residual Oxidant (TRO)
<b>Range</b>	0.1-4.0 mg/L and 1-15 mg/L as Cl <sub>2</sub>
<b>Absorbance Range</b>	0 to 2.5 Abs
<b>Sample Cell Pathlength</b>	1 cm and 1-in. (25 mm)
<b>Operating Conditions</b>	0 to 50°C (32 to 122°F) 0 to 90% relative humidity
<b>Display</b>	LCD, backlit
<b>Power Supply</b>	4 AAA batteries; approximate life of 2000 tests (use of backlight reduces this number)
<b>Compliance</b>	European CE mark
<b>Warranty</b>	2 years
<b>Dimensions</b>	6.1 x 15.5 x 3.5 cm (2.5 x 6.2 x 1.4 in.)
<b>Weight</b>	0.23 kg (0.5 lbs.)

**Refractometer Specifications\***

<b>Scale Range</b>	0 – 100 ppt / 1.000 – 1.070 S.G.
<b>Minimum Scale</b>	1 ppt / 0.001 S.G.
<b>Accuracy</b>	±1 ppt
<b>Size</b>	30 x 30 x 200 mm
<b>Weight</b>	260 g
<b>Temperature Range</b>	Automatic temperature compensation (ATC: 10 to 30°C)

*\*Subject to change without notice.*

**Ordering Information**

<b>2037700</b>	BW680 Handheld Fluorometer
<b>5870000</b>	Pocket Colorimeter II
<b>25128000</b>	Refractometer
<b>25127000</b>	BW700 Rapid Ballast Water Verification Kit includes: Nylon Backpack, BW680 Handheld Fluorometer, Refractometer, Pocket Colorimeter II (chlorine system), standards and accessories.



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