

Ballast Water

As everyone in the industry knows, ballast water exchange is an important process, but it's one which involves several complex processes. There are guidelines which need to be followed in order to ensure the water is as safe and hygienic as it can possibly be.

The presence of any harmful bacteria, viruses and invasive species on a ship can have catastrophic effects, so our highly developed ballast water test kits are vital. Easy to use and reliably accurate, the kit enables user companies to remain compliant with current and future legislation and guidelines.

Exchanging ballast water in a timely, efficient and safe manner is an important aspect of modern marine life, but it should always be monitored effectively. With CMT on your side, you can be sure that your vessels and offshore installations are operating properly.

A successful inspection will valid a 5 year certificate for the system. For a renewal or random inspections the ballast water system should be in line with the IMO Ballast Water Convention (2004).

The IMO Ballast Water Convention (2004) specifies three different standards:

1) The **Ballast Water Exchange Standard** specifies the exchange of ballast water at sea. Ships performing ballast-water exchange shall do so with an efficiency of 95% volumetric exchange of ballast water.

The exchange procedure shall be carried out in an 'open ocean condition' at least 200 nautical miles from the nearest land and in waters at least 200 meters in depth. This can be monitored with each of the CMT Ballast Water Test Kit.

2) The **Ballast Water Performance Standard** cares about the performance of the system and specifies the maximum number of viable organism in the ballast water.

50 µm or above – less than 10 living organisms per cubic metre (1000 litres).

10 µm – 50 µm – less than 10 living organisms per millilitre.

3) The **Ballast Water Health Standard** defines limits for indicators which could cause health problems. It specifies the maximum number of Cholerae, E. coli and Enterococci bacteria as well as the total viable count of any bacteria in the ballast water.

Total Bacteria less than 1000 CFU/100 ml
E. coli less than 250 CFU/100 ml
Enterococci less than 100 CFU/100 ml
Vibrio Cholera (O1 & O139) Zero/100 ml

Ships are required to have an **Ballast Water Management Plan** and a **Ballast Water Record Book**. The Ballast Water Record Book is essential to prove compliance with the three Ballast Water Standards.



Ordering Information

WTK-CT-80033

Ballast Water Test Kit I

(VGP 2013 US Coastguard BWTS Requirements)

Total Bacteria (10):	0 – 1400 CFU
E-Coli Test (10):	0 – 2424 CFU
Enterococci Test (10):	0 – 115 CFU
Vibrio Cholera:	yes/no (O1 & O139)
Incubator:	110 / 240 V
UV Lamp	

WTK-CT-80034

Ballast Water Test Kit II

additionally to WTK-CT-80033:

Salinity Refractometer (salt in seawater)	
Zooplankton Filter Test (50) (10 µm)	
Zooplankton Filter Test (50) (50 µm)	

WTK-CT-80035

Ballast Water Test Kit III

additionally to WTK-CT-80033:

Salinity Refractometer (salt in seawater)	
Digital handheld Fluorometer for Zooplankton	

Reagents (Full refill of respective Test Kit)

WTK-CT-80048

Ballast Water Consumables Pack 1

WTK-CT-80046

Ballast Water Consumables Pack 2

WTK-CT-80047

Ballast Water Consumables Pack 3

Options for residual Biocide Monitoring

WTK-CT-80005

Chlorine Dioxide Comparator (20)

Range: 0 - 6.65 ppm

WTK-CT-80004

Chlorine Comparator Test (20)

Range: 0 - 1.0 ppm

WTK-CT-80036

Ozone Comparator Test (20)

Range: 0 - 3.4 ppm

WTK-CT-80037

Peracetic Acid Drop Test (20)

Range: 0 - 20 ppm

WTK-CT-80038

Hydrogen Peroxide Comp. Test (20)

Range: 0 - 50 ppm

The CMT test Kits meet the rules of the US Coastguard requirements (VPG 2013), according to which a large number of flag states handle the ballast water treatment.

This includes among others:

1) Ballast Water System Functionality Monitoring.

Ballast water treatment systems use physical and/or chemical processes to achieve reductions in living organisms (i.e. filters, chlorine dioxide, cavitation, UV & hypochlorite). To assess the BWTS functionality, monitoring of the BWTS functionality is required at **least once per month** for specific parameters that are applicable to your system.

2) Effluent Biological Organism Monitoring

This must be conducted **6 times during the first year** the system is installed or used. If the sampling results are within the below parameters for two consecutive events, the vessel may **reduce monitoring to 1 time per year** after the first year.

Parameters & Limits

Total Bacteria less than 1000 CFU/100 ml
E. coli less than 250 CFU/100 ml
Enterococci less than 100 CFU/100 ml

The CMT Rapid Ballast Water Validation Test Kit provides a simple rapid method for determining the efficiency of ballast water treatment systems.

Our validation 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 2004 BWM Convention guidelines include recommendations on methodologies for sampling and analysis to test for compliance with the convention.

Utilizing three instruments, the CMT **Rapid Ballast Water Test 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



3) Residual Biocide Monitoring

You must conduct monitoring of the vessel ballast water discharge for any residual biocide used in the treatment process. Initial monitoring is 3 times in the first 10 discharge events (not exceeding a 180 day period), thereafter under maintenance monitoring 2 times per year.

Parameters & Limits

Chlorine Dioxide: max.. 0.2 ppm
Chlorine: max. 0.1 ppm
Ozone: maximum 0.1 ppm
Peracetic Acid: max. 0.5 ppm
Hydrogen Peroxide: max. 1 ppm

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CMT is offering 3 different Ballast Water Test Kits to suit your needs.

Rapid Ballast Water

standard, and provides a simple solution to test total residual oxidant levels in chemical disinfection systems.

A salinity refractometer provides a simple test to confirm that an exchange occurred.

A portable, pocket size digital fluorometer tests for photosynthetically active chlorophyll, like that found in living phytoplankton, in less than 3 minutes. This will provide an indication of whether or not the treatment of the ballast water system was effective .

A waterproof colorimeter tests for Total Residual Oxidant (TRO) with a range of 0 to 5 ppm free & total chlorine in less than 3 minutes.

The 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).

Ship operators can easily verify whether the ballast water treatment system has adequately treated water prior to discharge.

Compliance officers can quickly determine whether a ship exceeds D2 standards. In case of positive results further in-depth laboratory analysis can then be performed.

Ballast water treatment system providers rapidly assess treatment system performance during testing.

Ship service providers - diagnose treatment system failures

Ordering Information

WTK-CT-80045

Rapid Ballast Water Test Kit

Salinity Refractometer (salt in seawater)	
Scale Range:	0 - 100 ppt
Accuracy:	+/- 1 ppt
Digital handheld Fluorometer	
Dynamic Range:	3 orders of magn.
Resolution:	12 bits
Chlorine Colorimeter	
Range:	0 - 5.00 mg/l
Resolution:	0.01 mg/l
Accuracy:	+/- 0.03