DrinkSafe™

EASY WATER TESTING

MARINE POTABLE WATER TEST KIT

Guaranteed compliance with MLC 2006

V3

martek™ MARINE

Innovative Ship Solutions

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Regulation and Legislation

The ILO Maritime Labour Convention (MLC 2006)

Since August 2013 under the **MLC 2006 legislation** all seagoing vessels are now required to do regular comprehensive documented testing of your ships' drinking water supplies. This legislation was then **amended in (MSN1848)** which requires you to complete potable water inspections **no less than weekly** and recorded in an onboard log book.

Developed using feedback from a survey of 8000 marine decision makers, DrinkSafe™ is guaranteed to be the easiest kit to use, includes more tests than all other kits, & DrinkSafe™ MAX is guaranteed to meet the onboard testing legisllation specified in MLC 2006 in a single kit. Easy!

What The Rules Say You Must Do

MLC 2006 defines you must perform "frequent documented inspections"

ILO Convention 78 - "Physically check quality of water at random using different outlets."

World Health Organization Guidelines - "Source water is monitored at the port to ensure that water is safe. The ship's master is responsible for operational monitoring: quality of source water: disinfectant residuals and pH (e.g., daily); microbial quality of treated water, particularly after maintenance or repairs.

Important ICS Advice

The International Chamber of Shipping (ICS) has issued urgent advice to shipowners to help them pre-empt port state control problems associated with the Maritime Labour Convention on (MLC). "Regardless of the progress which may or may not have been made by a vessel's flag state, ships are required to meet the standards in the Convention. ICS recommends you prepare a Declaration of Maritime Labour Compliance (DMLC) Part II for all your ships, which will serve as evidence that YOUR ship meets MLC standards. To issue a DMLC you must of course have provided potable water test kits for your ships.

What You'll Gain From The DrinkSafe™ Kit

Your DrinkSafe™ kit will provide you with the best value on the market with the lowest cost per test!
GUARANTEED!

Your DrinkSafe™ MAX kit will allow you to easily meet all Flag State, MLC and WHO regulations and guidelines!
GUARANTEED!

You will receive the easiest and quickest test kit on the market - **GUARANTEED!** There is no instruments to calibrate, no glass ampoules to break, no messy thio-bags and no sample dilution pots!

Easily add on the Martek Marine Sewage Effluent Test Kit for easy compliance to MARPOL Annex IV.

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Why DrinkSafe™?

DrinkSafe™ MAX is the **easiest** and **quickest** test kit to use - **GUARANTEED** or your money back

Only full kit **GUARANTEED** to meet the onboard testing legisllation specified in **MLC 2006**

More tests as standard than any other kit - **lowest average cost** per test

• No glass ampoules to break • No messy and difficult 'Thio-bags'

• No instruments to calibrate or calibration solutions • No need for sample dilution pots

	DrinkSafe™ Kit	DrinkSafe™ MAX Kit
DPD1 free chlorine tests + comparator disc	500	500
DPD3 total chlorine tests + comparator disc	500	500
pH tests + comparator disc	500	500
High range chlorine tests + comparator disc	250	250
Copper tests + comparator disc		250
Iron tests + comparator disc		250
Bacterial plate tests with syringes	40	40
E.coli/coliforms tests with sterile containers	25	25
Enterococci tests with sterile containers		20
Turbidity tester		
Colour comparator, test tubes, tablet crusher and brush	Y	Y
Incubator and UV lamp	Y	Y
Goggles and disposable gloves	Y	Y
Test log-book	Y	Y
LegionellaMAX - available as an extra to increase your testing routine		

How You Do The Tests

- Chlorine, pH, copper & iron - dissolve test tablet in ampoule of water, put in comparator then read level from the colour disc. **EASY!**
- E-coli, Enterococci - dissolve test material water, incubate, beaker then test for fluorescence with UV lamp. **EASY!**
- Total bacterial count - syringe sample onto petri dish, incubate, then count colonies. **EASY!**

Potable Water Test Kit Comparison Table

Key Features	Maker				
	Martek Marine DrinkSafe™ Max	Martek Marine DrinkSafe™	Wilhelmsen	Drew Marine	Kittiwake
Total tests in kit	2,335	1,815	1,025	100	285
Cost per test - approx	**$1.20**	**$1.10**	**$4.65**	**$21.38**	**$7.47**
Guaranteed to meet all rules/legislation & class/flag state requirements?	YES	NO	NO	NO	NO
Free Chlorine DPD 1	500	500	250	30	100
Total Chlorine DPD 3	500	500	250	30	100
High Range Chlorine	250	250	250	0	0
pH	500	500	OPTIONAL	20	0
E-Coli, Coliforms	25	25	25	20	25
Enterococci	20	0	OPTIONAL	0	20
Total Plate Count / HPC	40	40	OPTIONAL	0	40
Turbidity Tube	1	0	OPTIONAL	0	0
Copper	250	0	OPTIONAL	0	0
Iron	250	0	OPTIONAL	0	0
LegionellaMAX	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
UV Lamp	YES	YES	YES	YES	YES
Includes Incubator	YES	YES	YES	NO	YES
3 Year Guarantee on Incubator	YES	YES	?	NO	?
Uses sterile test bottles	YES	YES	NO	YES	NO
Uses awkward thio-bags	NO	NO	YES	NO	YES
Uses hazardous glass ampoules	NO	NO	NO	YES	NO
Requires instrument calibration before use	NO	NO	NO	YES	NO
Need for sample dilution pots	NO	NO	YES	NO	NO
Multi-language training DVD in test	YES	YES	NO	NO	NO
Global technical support	YES	YES	?	?	?
Dedicated employed microbiologist	YES	YES	?	?	?

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DrinkSafe™ Kit Contents

Comparator Test Using Chlorine Wheel

Shelf life: 7 years
Best practice usage: Daily
Shortest re-stock time: 16 months

Coliform / E.coli Test Results

Shelf life: 18 months
Best practice usage: Monthly
Shortest re-stock time: 18 months
Note: The test results will glow in UV light if the result is positive

Heterotrophic Plate Count

Shelf life: 1 year
Best practice usage: Monthly
Shortest re-stock time: 1 year

Turbidity Tube

Shelf life: N/A
Best practice usage: Ad hoc after bunkering
Shortest re-stock time: N/A

Complete Kit

Designed to provide 12-18 months of testing
Replace the individual pieces as you need them

Easily add on the Martek Marine Sewage Effluent Test Kit for easy compliance to MARPOL Annex IV.

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Don't just take our word for it! Here's what our customers say:

"We chose the DrinkSafe™ Max because it provided us with Martek's guaranteed compliance with all flag state requirements and it gave the crew the benefit of the simplest and easiest test procedures on board. Furthermore, the on-board training procedure provides a test certificate which acknowledges that the crew has undergone the training and test that they are competent to use it. We were advised that each component of the kit took into account the following rules and bodies to full satisfaction: MLC 2006; ILO; WHO; IACS Member Societies.

Chris Goldsworthy, Bernard Schulte Shipmanagement

BSM Bernhard Schulte Shipmanagement

"We chose DrinkSafe™ because it contained enough tests to daily water testing at multiple outlets as per WHO + ILO guidelines offering the lowest cost per test of all kits. DrinkSafe™ was also easy to understand and the kit looks simplest and quickest to use."

Ricardo Sclafani, V Ships

V.Group

"The DrinkSafe™ potable water testing from Martek Marine was selected because it was the simplest procedure for carrying out tests on-board and in addition the cost per test was also the most economic on the market. Furthermore, the kit completely adheres to the MLC 2006 directive and is in line with the WHO recommendations for tests types and frequencies"

Michael Powell, Graig Shipping PLC

GRAIG

"The Besiktas Group are proud to have selected Martek Marine and their DrinkSafe™ product for the completion of potable water testing on board our fleet of vessels. We are a Company with a strong reputation so our partner choice had to reflect this. Having compared various products in the market our final decision was influenced by Martek's ability to tailor a kit specifically to match our specific requirements."

Bulent Yildiz, Besiktas Group

BESİKTAS GROUP

As SeaRegs consulting Engineer I was asked to identify a drinking water test kit that would meet the requirements of the Maritime and Coastguard Agencies exacting standard for approving drinking water onboard ships. In addition the school made it clear that the solution should not only fulfil national and international standards but be easy to teach with logical and precise instructions on how to interpret the results.

After comparing many of the test kits that are available it became clear that the only one that met all the performance requirements was the Martek Marine Drinksafe solution. After use on 3 separate courses it has proven to deliver all the requirements that were stipulated. Comments from students indicate that they found it simple to use and the results easy to interpret. Overall a successful choice and we look forward to working with Martek Marine in the future.

David Preston OBE. CEng CMarEng CMIOSH FIMarEST - SeaRegs Training

SeaRegs Training

LegionellaMAX
SMARTER TEST • SAFER WATER

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LegionellaMAX Test Kit - Add On

The LegionellaMAX Test Kit is the most advanced, accurate and versatile technology from Martek Marine for the rapid detection of Legionella bacteria, both in water samples and biofilms taken from any source.

WHY LEGIONELLAMAX?

- The LegionellaMAX test contains all the items required to perform 4 tests (2 water samples & 2 biofilm tests)
- This test is designed for any water system such as showers, industrial and domestic water systems (e.g. cooling towers), spas and bathtubs
- The filtration step concentrates the Legionella bacteria to achieve a sensitivity level of 0.01 CFU/ ML in water samples, and a sensitivity of 0.02 CFU/ML in biofilms
- The pre-filled syringe contains a recovery buffer and pre-filled vials, meaning there's no need to measure or dilute solutions
- The test is simple to use, with no interpretation or training required
- Results are easy to read on site within 25–35 minutes, minimising delays and downtime
- Regular use increases confidence in your Legionella control
- App reader provides independent record of test

HOW DOES IT WORK?

The LegionellaMAX Test Kit uses an immunochromatographic assay to detect the presence of cell surface antigens from Legionella bacteria in a sample. The presence of antigen causes the "Test Line" to turn red in colour. A "Control Line" is included which will always turn red if the test has been performed correctly.

Request a datasheet from a member of our team for more information on the LegionellaMAX Test Kit.

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Sewage Effluent Test Kit - Add On

As a DrinkSafe customer you can purchase our standard Sewage Effluent Test Kit at a reduced cost. You will be able to reduce doubling up on equipment such as the incubator, you'll save money on tests and your crew will be used to the simple test methods used within the kit.

SEWAGE EFFLUENT TESTING MADE SIMPLE

This all in one portable water testing solution makes compliance with complex sewage discharge legislation easy.

The Sewage Effluent Test Kit is designed to provide you with simple test methods which are guaranteed to be the most economical you will find - or your money back.

The kit requires no formal training and is the only all in one solution to guarantee complete compliance with the MLC 2006 & MARPOL ANNEX IV onboard water testing legislation.

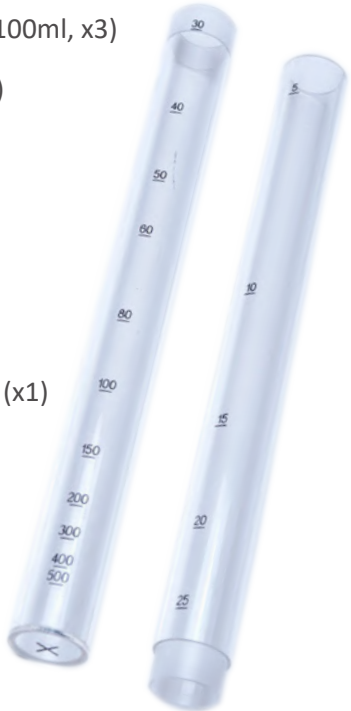
Our spares service means you only buy the full kit once and then replace what you use. This means you'll reduce waste whilst reducing costs.

WHY THE MARTEK MARINE KIT?

- The ONLY combined portable Sewage Effluent and Potable Water Test Kit
- Guaranteed to be the MOST cost effective solution on the market
- ONLY replace what you use - you'll never need to buy a full kit again
- NO formal training required

KIT CONTENTS

- Hard carry case
- Acidifying SE tablets (x300)
- Permanganate Value tablets (x300)
- Universal pH tablets (x100)
- Sterile sample containers (100ml, x3)
- Plastic test tubes (10ml, x2)
- Turbidity tube (13 inches)
- Test tube brush (12cm)
- Thermometer (x1)
- DPD free Chlorine (x500)
- PH Comparator disk 0-5mg (x1)
- Incubator (x1)
- Coliform tests (x25)
- Disposable gloves (x100)
- Goggles (x1)
- Crushing rods (pack of 10)
- Bacterial plates (pack of 4, x10)



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Regulation and Legislation - Sewage Effluent

MARPOL Annex IV

Sewage testing legislation was introduced as the discharge of raw sewage can create a health hazard, cause damage to the marine environment, while in coastal areas sewage can lead to oxygen depletion and obvious visual pollution.

MARPOL Annex IV is a set of regulations regarding the discharge of sewage into the sea from ships, regulations regarding the ships' equipment and **systems for the control of sewage discharge**, the provision of port reception facilities for sewage, and requirements for survey and certification (ISPPC – International Sewage Pollution Prevention Certificate).

MARPOL Annex IV, (resolution MEPC.115(51)), entered into force on 27th September 2008. It applies to ships on international voyages which are either 400gt and greater or less than 400gt when certified to carry more than 15 persons, which includes passengers and crew.

For vessels visiting countries that have ratified to MARPOL Annex IV will need to demonstrate compliance with the relevant International Sewage Pollution Prevention Certificate (ISPPC). A ISPCC is issued upon successful inspection and are valid for 5 years. **Non-compliance or failed inspections can result in vessel detention.**

As set out in Annex 22 Resolution MEPC.227(64) adopted on the 5th October 2012, sewage treatment plants installed prior to 1st January 2010, on ships other than passenger ships operating in MARPOL Annex IV special areas and intending to discharge treated effluent into the sea, should comply with resolution MEPC.2(VI) adopted on 3rd December 1976.

MEPC.2(VI): As set out in Annex 22 Resolution MEPC. 227(64) adopted on the 5th October 2012, sewage treatment plants installed prior to 1st January 2016 and on or after 1st January 2010, on ships other than passenger ships operating in MARPOL Annex IV special areas and intending to discharge treated effluent into the sea, should comply with resolution MPEC.159(55) adopted on 13th October 2006.

MEPC.159(55): As set out in Annex 22 Resolution MEPC. 227(64) adopted on the 5th October 2012, sewage treatment plants installed on or after 1st January 2016, on ships other than passenger ships, in all areas; and passenger ships outside MARPOL Annex IV special areas and intending to discharge treated effluent into the sea, should comply with resolution MPEC.159(55) adopted on 13th October 2006.

As set out in Annex 22 Resolution MEPC.227(64) adopted on the 5th October 2012, for new passenger ships when operating in a MARPOL Annex.

IV area and intending to discharge treated sewage effluent into the sea on or after 1st January 2016, and existing passenger ships on or after 1st January 2018, should comply with resolution MPEC.159(55) adopted on 13th October 2006 and the following additional effluent tests.

All applicable vessels will need to maintain the system in line with the effluent standards or risk detention. **T**he Martek Marine Effluent Test Kit provides simple tests for Permanganate Value, Ph, Suspended Solids, Probable BOD, COD & TOC. The Kit provides all the necessary tests to **guarantee compliance for all commercial vessels.** Crews who carry out regular testing will be able to take corrective action which will keep efficiency high whilst keeping down-time to a minimum and reducing costs.

MEPC.2(VI):

Coliforms – up to 250 CFU/100ml
Total Suspended Solids (TSS) (onboard) – up to 100 mg/l
Biological Oxygen Demand (BOD) – up to 50 mg/l

MEPC.159(55):

Coliforms – up to 100 CFU/100ml
Total Suspended Solids (TSS) – up to 35 mg/l
Biological Oxygen Demand (BOD) – up to 25 mg/l
Chemical Oxygen Demand (COD) – up to 125 mg/l
pH – between 6.0 – 8.5
Chlorine (Free) – up to 0.5 mg/l

Simple Testing - Sewage Effluent

PERMANGANATE VALUE (PV)

The Permanganate Value test is used for indicating the general quality of final effluents as to its acceptability for discharge. You simply fill your sample containers and add Acidifying SE tablets. After a short 30 minute wait you read the result from the following table.

Containers Pink	PV	Grading
All Three	PV of 0-10	Excellent
Two	PV of 10-20	Satisfactory
One	PV of 20-30	Dubious
None	PV of over 30	Unsatisfactory

TURBIDITY AND SUSPENDED SOLIDS

The Turbidity test is designed to give a measure of the suspended solids content of the final effluent. It is also useful in following the day to day variation in the quality of sewage and effluent.

The Turbidity test uses a specially calibrated plastic tube. This provides the simplest possible method of performing this important test. Test kit SP 304 includes a tube graduated at 30 to 500 turbidity units.

The Royal Commission Standards for Effluents recommend that the suspended solids content of sewage effluent should not be more than 30 mg/l.

BOD, COD AND TOC

It is possible to derive an indication of the Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD) and Total Organic Carbon (TOC) from the result of the Permanganate Value test.

To convert the Permanganate Value (PV) for domestic sewage and effluent to probable BOD, COD and TOC values multiply by the following factors:

	Sewage	Effluent
Probable BOD	PV x 5	PV x 1.5
Probable COD	PV x 10	PV x 7
Probable TOC	PV x 3	PV x 2

The probable BOD can be calculated from the result of the turbidity test using the following formula :

$$\text{Probable BOD} = \frac{\text{Turbidity}}{2} + 5$$

The Royal Commission Standard for Effluents recommends a BOD value of not more than 20 mg/l.

Simple Testing - Sewage Effluent

PH TEST

The pH test is carried out using a Universal pH test tablet in conjunction with a comparator colour wheel. The test covers the pH range 4 to 10.

The expected pH range for raw sewage is 6 to 8.5,and the pH of final effluents should also fall within the 6 to 8.5 pH range unless other consent limits are specified.

FREE CHLORINE

The Free Chlorine test is carried out by taking a sample of your sewage effluent, adding a crushed DPD 1 tablet and comparing the sample effluent against the chlorine comparator disc. The corresponding number on the disc is what you record.

BACTERIA PLATE TEST

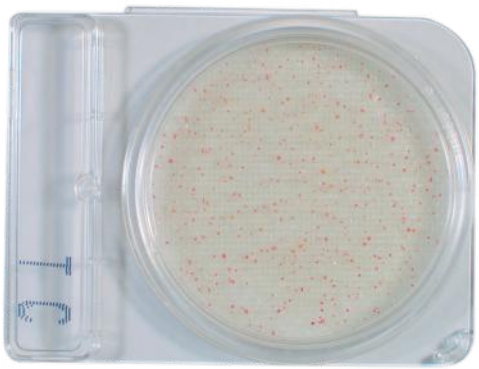
A Bacteria Plate Test simply involves taking a small 1ml sample of effluents and placing it onto the bacterial plate. You incubate the sample at 35°C for 48 hours and simply count the number of red colonies on the plates surface. You are looking for a result less than 100/250 CFU/ml depending on the vessel.

COLIFORMS

The coliform test is carried out by taking a sample of your sewage effluent and adding Sodium Thiosulphate and readycult. Once thoroughly shaken, you incubate the sample for 24 hours and 35°C. You then check for a colour change in the effluent sample, a change to blue/green indicates a presence of coliforms. Log result as present or absent.

TEMPERATURE

A check should be maintained on the temperature of effluent discharges and these should always be close to ambient temperatures. Sewage Effluent Test Kit SP 304 contains a 0 to 50°C thermometer complete in a brass protecting case



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A part of
James Fisher and Sons plc
Marine Services Worldwide

MAKE SURE YOU'RE COMPLIANT

GET IN TOUCH TODAY FOR YOUR QUOTE

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