DREW™ XP H_2O TEST KIT

DESCRIPTION

The DREW XP H_2O TEST KIT is used for onboard testing and analysis to quickly and accurately determine water content in fuel and lube oil. The self-contained test kit is battery-operated and includes a USB rechargeable water test cell, test reagent, test beaker, syringes, agitator and an easy-to-use manual.

Test results are available in minutes and can be exported to PC as a comma separated value (*.csv) file using the supplied USB cable.

Water is the most common contaminant found in fuel and lube oil. From a trace of fresh water to major seawater contamination that could quickly destroy an engine, water contamination is a major problem that reduces operating efficiency and can compromise vessel safety. Confirming water contamination through onboard testing allows operators to take immediate measures to prevent or remediate related problems, including: in sludging of fuel tanks, filter blockages, corrosion of fuel-injection equipment, exhaust valve corrosion, and turbocharger fouling.

When initial testing confirms water contamination, additional testing is needed to analyze whether the nature of the contamination is sea water since the sodium in sea water will accelerate high-temperature corrosion. The DREW XP SW CONTAMINATION TESTER (PCN 1AB2761), available separately as a companion test kit, can be used to determine if the water is fresh or contains salt, to assist in implementing appropriate corrective action.

WATER CONTAMINATION OF FUEL OIL

Water in marine fuels is typically the result of poor housekeeping, either by bunker tankers delivering water-laden fuel or onboard receiving vessels. Tank condensation, incorrect centrifuge operation, leaking steam-heating coils, and rainwater ingress are common such sources of water in fuel. Although fuel-water emulsions are sometimes used in engines to improve combustion efficiency and reduce NOx, water inadvertently mixed with fuel under uncontrolled conditions may lead instead to poor combustion and loss of engine performance. High water content in the fuel-injection system can overload fuel pumps, and under certain conditions water will foam and cause erratic engine operation.

Avoiding the irreversible consequences of probable worst-case scenarios, along with less extreme operating inefficiencies, is the primary purpose and benefit of onboard testing for water contamination. Knowing the amount of water present in fuel at the time of bunkering or while underway is

DREW XP H_2O Test Kit
(PCN # 1AB6169)

essential for effective remediation or prevention, including:

Immediate measures to reduce water contamination levels. The complex composition of residual fuel makes it difficult to predict the effectiveness of settling and centrifuging. Confirmed density and viscosity values for the fuel oil, available from separate onboard tests, help determine appropriate supplemental heating of the fuel to maximize the effectiveness of settling tanks and centrifuges for water removal.

Treatment of fuel-water emulsions. Tight emulsions of unstable fuel and water mixtures, which occur under certain conditions, make it difficult to separate and remove the water. Additional treatment may be needed using fuel additives with dispersant and emulsion-breaking properties (e.g., Drew Marine's AMERGY 2020, a fuel conditioner designed to offset the problems of water-contaminated fuels – PCN 1412402).

Preventing microbial growth. Water contamination in fuel-storage tanks creates the perfect environment for microbial growth, especially from sulfate-reducing bacteria (SRB), possibly leading to fuel spoilage and hazardous hydrogen-sulfide generation. Treatment with fuel biocides can be a cost-effective preventative measure. (Drew Marine's AMERSTAT 25 is a microbiocide fuel treatment suitable for that purpose – PCN 6979407.) Separate testing can also confirm the presence of SRB as well as the effectiveness of biocide treatment. (Drew Marine's SULFATE REDUCERS TEST SET – PCN 1707019 – is available for that purpose.) Water content at

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bunkering shown to grossly exceed specifications also may be used to trigger claims against unscrupulous suppliers. Water testing that shows significant differences versus the bunker delivery note should in all cases trigger submittal of samples to an accredited shore-based laboratory for confirmation and bunker claim processing, if warranted.

WATER CONTAMINATION OF LUBE OIL

Water contamination in lube oil can quickly destroy the integrity of the thin lube oil film protecting the moving parts of engines. Water-contaminated lube oil storage tanks are also likely breeding ground for microbial growth. Onboard tests showing high water content in lube oil should trigger prompt measures to clean or even replace the oil to prevent premature wear to moving parts and reduced service lifetime of engine components.

TECHNICAL FEATURES

The DREW XP H_2O TEST KIT provides user-selectable target ranges for optimal precision in testing specific types of oil and for specific conditions.

- 0.0 to 1.0 % (can be shown as 200 to 10,000 ppm) – Use this range for benchmark testing of fuel and lube oil delivered.
- 0.0 to 10.0 % – Testing at this range is suitable for routine checks of fuel and lube oil storage tank samples, and to investigate visual symptoms of water contamination, e.g., unusual white smoke in exhaust, excessive water draining from tanks, etc.
- 0.0 to 20.0 % – Used to test operational water-in-oil emulsions for stern tube bearings and other purposes.

OPERATING BENEFITS

- Accuracy to laboratory standards
- User-friendly, step-by-step testing procedures
- Simple prompts shown on the LCD screen of the test cell guide operators easily through the testing process.
- Results provided in 5 minutes or less.

CLEANUP AND HANDLING

The use of harsh chemicals for cleaning test kit instruments and accessories is not advisable. Use only approved cleaning agents (e.g. Drew Marine's TEST KIT CLEANER (PCN 1AB2738) to clean test kit components, and wipe clean using a clean rag. Dispose of the used rag as used oil.

Refer also to the DREW XP H_2O TEST KIT Material Safety Data Sheet, available from your Drew Marine representative, for precautions regarding the reagents included in the test kit.

TEST PROCEDURES

For step-by-step operating procedures and precautions, refer to the Water sections of the Operating Manuals for the DREW XP FO & LO TEST CABINET and/or the DREW XP LUBE OIL 5-TEST KIT.

Contents and Ordering Information	
Description	**PCN**
This test is standard as part of:	
DREW XP FO & LO TEST CABINET	1AB6170
DREW XP LUBE OIL 5-TEST KIT	1AB6168
Reorders	
DREW XP H_2O TEST KIT	1AB6169
Spares and Replacements	
Description	**PCN**
DREW XP-H_2O Test Cell	1AB6164
Reagent H2O-Paste Pack	1AB2733
Test Beaker, 100 ML	1AB2803
Test Cell Agitator, 3 CT.	1AB2804
Test Solvent, 500 ML	1AB2739
Test Syringe, 1ML	1AB2811
Test Syringe, 5ML	1AB2812
USB 2.0 A Male - Micro B Cable	1AB6165

Contact your Drew Marine representative for more information

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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.

Drew Marine®

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