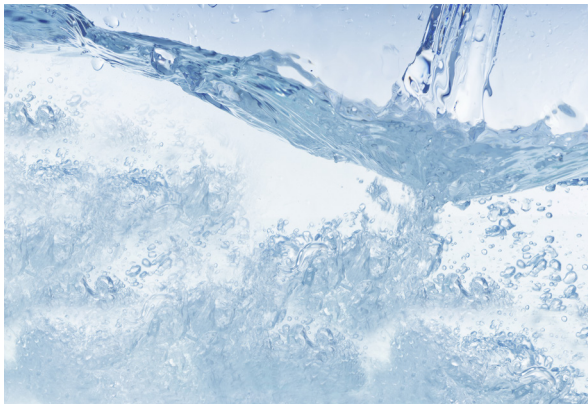
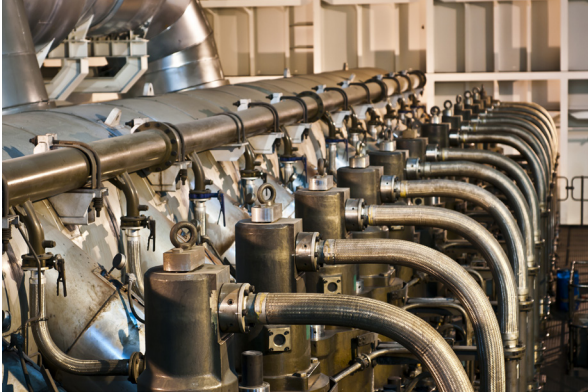




Drew Marine®

**Core Water
Solutions**



Holistic Water Treatment Programs for Critical Asset Protection

Drew Marine: Nearly a Century of Onboard Water Solutions

During our long history as the premier water treatment supplier to the maritime industry, we have developed extensive water treatment expertise and have strengthened our customers' onboard operations through fully supported programs that successfully minimize the formation of water-related problems. Our technical expertise covers scale and corrosion inhibition, microbial control, foam prevention, waste treatment, and water testing and analysis for critical systems. Our water applications include fully supported programs for evaporative distillation, reverse osmosis, high-pressure and auxiliary boilers, heat exchangers, diesel engine, and central cooling systems, chilled water systems, seawater cooling systems, potable water, and wastewater treatment.

Our TRIDENT Approach to Water Treatment

Our programs' goals are to deliver to our customers optimum operating conditions for critical equipment and to allow us to serve as reliable partners to the engineers on board. We believe a three-pronged approach can be implemented on board and supported by us. At Drew Marine, our three-pronged approach (The Trident Approach) that we impart to our customers focuses on:



Assets are Protected When Using the Trident Approach

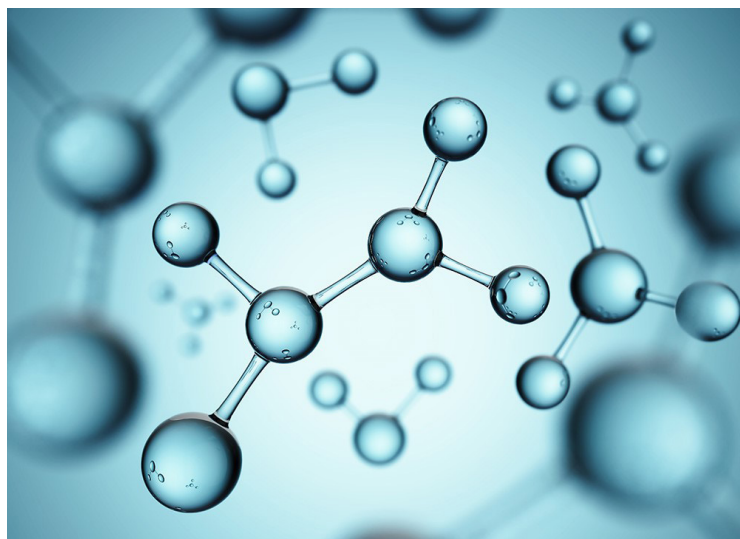
When these three complementary measures are properly implemented on board and fully supported by Drew Marine's technical team, our customers' assets remain protected, and water-related problems are minimized. We offer specific solutions and customized support so that our customers can effectively implement our trident approach across their fleets. When you choose Drew Marine as your technical partner for water treatments, we will guide your crew members through our programs and through proper sampling, monitoring, control parameters, and then audit ongoing implementation to ensure successful water treatment on board.

Drew Marine's Water Treatment Programs Offer You...

VALUE

Our water treatment programs protect equipment, and with recent focus on potable water, crew health. When followed properly, our programs work. Our products, coupled with our program approach, offer unparalleled, immediate feedback and support to the operating engineers on board. Through our technical support programs and log reviews, we support shipboard engineers by providing them customized, dependable data and detailed corrective actions to support their equipment operations and to ensure optimized utilization of our testing regimes.

Vital to our customer support is our own worldwide network of service engineers, who visit vessels, partner with the engineers on board, train the crew, and support ongoing water quality monitoring. Our service engineers are individually trained and have also served in the maritime industry. Drew Marine service engineers can investigate, evaluate, and solve unusual water treatment problems should they arise.



Backing every experienced service engineer, are expert technical and R&D support teams in our corporate offices, who assist our field personnel with their efforts to solve our customers' technical issues.

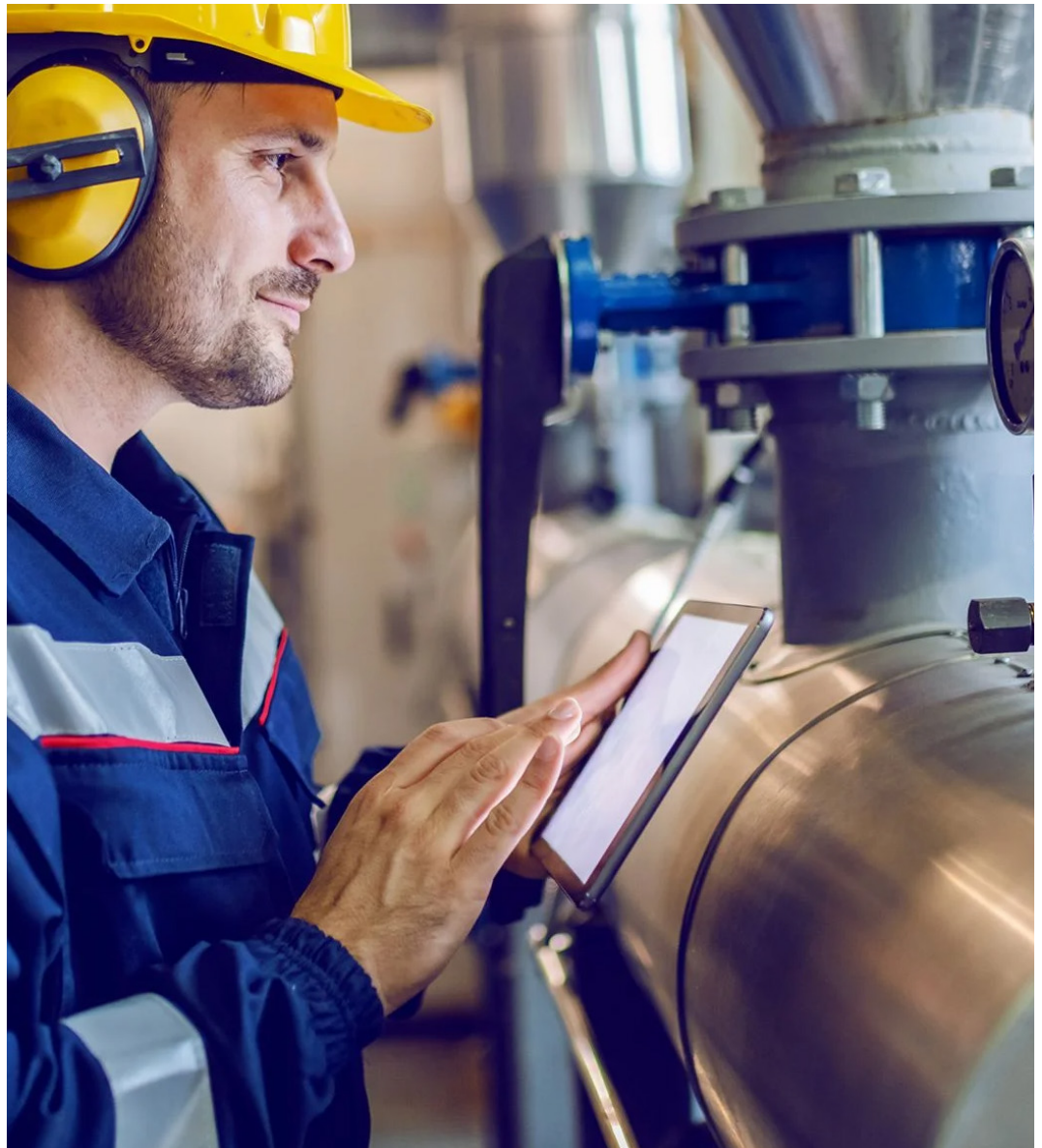
A Drew Marine protection program is grounded in marine-appropriate chemistry, which drives product selections and the product combinations used. We offer a portfolio of marine specific chemistries and associated specialty test kits that allow engineers on board to monitor system conditions consistently and easily.

Drew Marine: Nearly a Century of Onboard Water Solutions

For the most part, the evaporator is the heart of the vessel's water makeup system. Impurities that impair the operation of the evaporator can create problems with steam generation and can affect the comfort and the health of the crew.

Impurities in fresh water are the cause of many water-related problems. Drew Marine's desalination and evaporator treatments and best in class specialty test kits for monitoring water quality keep fresh-water production equipment at peak performance and enable production of high-quality feed water, makeup water, and potable water. Produced water quality can be negatively affected through scale formation, deposits, and brine carryover, which can lead to foaming and contaminates in distillate. As a result, specific parameters in produced water and in drinking water should also be regularly monitored aboard to protect assets and crew.

When our customers are using our products and test kits and following our support programs, acid cleanings and freshwater bunker supplies can be minimized. Our potable water treatments reduce scale, corrosion, and red water from forming in storage tanks and distribution piping. Our customers can count on us to provide application support in the use of our treatment chemicals and when carrying out sample testing and monitoring, including potable water testing. Our customers can also count on us to provide guidance when system cleanings are required, either when upsets occur or during routine maintenance.



Our Fresh Water Generation Treatments

Properly applied treatments assure the production of high-quality feedwater, makeup water, and potable water and lessen problems from forming in freshwater generation systems



AMEROYAL - evaporator treatment is a liquid combination of active polymer and antifoam used to prevent scale deposition in high and low-pressure evaporators. AMEROYAL treatment is proven effective in seawater, brackish and freshwater. AMEROYAL treatment may be used to remove existing scale deposits.

AMEROYAL CF - concentrated evaporator treatment is developed specifically to prevent scale deposition and carryover in high-temperature, high-production multi-stage evaporators. This treatment significantly reduces the amount of acid cleaning required to maintain design distillate production.

AMEROYAL CF-HG - concentrated evaporator treatment to prevent scale deposition and carryover in high temperature, high production, multi-stage evaporators. NSF certified to NSF/ANSI Standard 60.

AMEROYAL RO - high-performance, liquid anti-scaling treatment for controlling the deposition of inorganic scale forming salts and particulate foulants on membranes in reverse osmosis systems.

CIL - specially formulated, silica-based product for reducing corrosion normally associated with marine and offshore potable/freshwater storage and delivery systems. Use of this product in the storage tank and distribution piping will form a protective barrier-type film on internal metal surfaces. The U.S. manufactured treatment is certified by NSF International to NSF/ANSI Standard 60 for treatment of drinking water.

DREW 6134 - a powerful reducing agent used to remove residual oxidants in a variety of applications. Common uses include the production of preservation fluids for reverse osmosis systems.

DREWCLEAN 2010 - liquid cleaning formulation based on citric acid and organic sequestrants. This treatment removes inorganic mineral scale and metal oxide deposits that develop in water systems that contain high dissolved or suspended solids.

DREWCLEAN RO - used to remove a broad range of foulants that accumulate on the surfaces of reverse osmosis (RO) membranes. DREWCLEAN RO is formulated in accordance with the specifications for cleaning solutions required by membrane manufacturers.

DREWPLUS ED-795 - specifically formulated for controlling foam in evaporative desalination equipment. This U.S. manufactured treatment is certified by NSF International to NSF/ANSI Standard 60, for treatment of drinking water.

Our Boiler Water Treatment Programs:

The boiler is the heart of the steam cycle on board the ship. When boiler water is improperly treated and improperly monitored, contaminants in boiler water can cause significant equipment damage, costly repairs, and unnecessary downtime.

Our time-tested, effective boiler water treatment programs minimize the formation of water-related problems, such as the corrosion process and the formation of hard scale and deposits on heat transfer surfaces. Our boiler water programs support the production of high steam purity in boiler systems to ensure maximum equipment efficiency and to maintain lowest overall operating cost. Our best in class test kits enable simple onboard monitoring of critical parameters. We also supply suitable boiler water treatment dosing equipment and sampling equipment so crew can properly collect water samples to monitor treatment parameters and verify water quality on board. Our programs will provide the engineer a clear indication of what control or corrective measures are required in terms of blowdown and chemical dosage.

Our Highly Effective Boiler Water Treatments:

AMERZINE - an all-volatile, liquid corrosion inhibitor controls ferrous and non-ferrous corrosion in feedwater, boilers, steam and condensate lines with the use of hydrazine as the oxygen scavenger.

ADJUNCT B - is used in conjunction with GC™ concentrated alkaline liquid to prevent calcium scale deposits. Both products are used in our ULTRAMARINE program for high pressure boilers and in standard boiler water treatment programs for low pressure boiler systems.

AGK-100 - is a one product boiler, condensate, and feedwater treatment that provides an effective and easily applied program for the protection of all low/medium pressure exhaust gas economizers and auxiliary boilers using distilled water makeup. It also provides protection from corrosion in the after boiler section caused by low pH.

AMERSITE CHZ - an all-volatile, liquid oxygen scavenger and corrosion inhibitor for use in low, medium, and high pressure steam generating systems with the use of carbonylhydrazide as the oxygen scavenger.

DREWPLEX AT - phosphate and synthetic polymer based treatment for use in low and medium pressure boilers. Provides alkalinity control, scale inhibitors, deposit control, and provides protection from corrosion in the after boiler section caused by low pH. Can be used with DREWPLEX OX, AMERZINE, or AMERSITE CHZ oxygen scavengers.

DREWPLEX OX - controls ferrous and non-ferrous corrosion in feedwater, boilers, steam and condensate lines with the use of DEHA as the oxygen scavenger.

GC - concentrated alkaline liquid used to adjust boiler water alkalinity and pH. Used in conjunction with ADJUNCT B, GC also prevents the formation of scale deposits. Used in our standard boiler water treatment programs for low-pressure boiler systems and our ULTRAMARINE program for high pressure boilers.

LIQUID COAGULANT - boiler sludge conditioner is a colorless, high molecular weight solution used in both medium and low pressure boilers to prevent oil sludge deposits when feedwater becomes contaminated by oil.

SLCC-A - condensate corrosion inhibitor is a liquid alkaline amine used to control corrosion in condensate return lines and on steam condensing surfaces by traveling and condensing with the steam.

High Pressure Boilers

Our Best-in-Class Boiler Water Program for HP Boilers:

High pressure boilers are more susceptible to caustic corrosion and under deposit corrosion than lower pressure systems. Drew Marine pioneered and introduced the ULTRAMARINE Treatment Program and the associated testing program for the crew to follow. ULTRAMARINE provides close control of HP boiler water. The program is specifically designed for accurate “low range” testing and includes tests for pH, phosphate, oxygen scavenger, chloride, conductivity, alkalinity, silica, ammonia, and hardness. Common to our program approach, the ULTRAMARINE program provides crew support through regular technical service worldwide, graphic logs, and shoreside laboratory analysis, as needed. All these factors, when reviewed holistically, will provide a picture of the chemical environment within the high pressure system. The program monitors not only treatment chemicals but also the presence of contaminants.



Our Cooling Water Treatment Programs:

Our innovative, effective cooling water treatment programs, when implemented properly onboard, minimize problems from occurring in cooling water systems. Problems often encountered include corrosion, deposits, mineral scale, and microbiological contamination. Inadequate monitoring and treatment of cooling water can lead to: Hard scale formation that insulates metal surfaces, impedes heat transfer, and under deposit corrosion. These conditions can lead to localized overheating, metal failure, and critical equipment damage. Accumulation of suspended solids can cause similar negative effects through development of biofilms caused by bacteria.

Our Innovative Cooling Water Treatments:

DREWGARD XTA - organic acids (OATs) based cooling water treatment that provides excellent protection from corrosion, cavitation, and deposits in marine diesel engines. Protects ferrous and non-ferrous metals, including aluminum. It is particularly suited for modern high-speed engines.

DREWGARD ZX - organic acids (OATs) based cooling water treatment in an ethylene glycol base. Provides excellent protection from corrosion, cavitation, and deposits in marine diesel engines. Provides freeze protection and protects ferrous and non-ferrous metals, including aluminum.

LIQUIDEWT - corrosion and scale inhibitor for protecting cooling and heating water systems. This treatment is an excellent treatment for diesel engine primary and secondary cooling water;

MAXIGARD - diesel engine water treatment prevents corrosion and mineral scale in recirculating cooling water systems for medium- and high-speed marine diesel engines. It is suitable for treating chilled water and many other recirculating systems.

PERFORMAX 345M - a blend of unique organic compounds designed specifically for use in closed recirculating calcium chloride brine systems. The product provides multi-metal corrosion inhibition.

FERROCLEAN - cleaning treatment that effectively removes iron oxides from diesel cooling water systems. Innovative, patented formulation that does not subject system metallurgy to strong acid solutions.

We also offer broad spectrum biocides to treat marine recirculating cooling water systems susceptible to microbiological contamination.

Sampling, Monitoring, and Program Support

Critical to effective water treatment is the monitoring of water conditions within the systems. We offer a self-filling ampoule test method that is best in class. Our methodology provides greater accuracy, safety, and simplicity for the crew. Using our test kits, the crew can easily monitor critical parameters, log the results, and take corrective action. After the logs are received by our technical department, our log reviews and customer feedback support the effectiveness of our programs onboard. Our innovative Drew Watch program, when regularly used by the crew, enhances onboard testing and chemical treatment. Drew Watch also provides valuable feedback on water quality conditions so that corrective action can be quickly taken by the crew. We also offer a shoreside Periodic Analysis program to supplement onboard testing with a shore based testing system that monitors and trends key chemistries and corrosion metals.

Our Water Treatment Testing

Depending upon the system, some of the critical parameters we recommend be monitored through use of our best-in-class test kits, simple to use equipment, and straightforward use instructions and controls include:

OXYGEN SCAVENGER

ALKALINITY (H, P&T)

PHOSPHATES

CONDUCTIVITY

CHLORIDES

PH

HARDNESS

COOLING WATER CORROSION INHIBITOR

SILICA

CONDENSATE AMMONIA



Routine onboard testing of key parameters with test results compared to our established controls and adjustments made where needed can prevent water-related problems. Our shoreside and onboard support augment the shipboard engineers' duties. When there are questions, we are ready to support.

Remember to use the Trident Approach to minimize water-related problems and assure asset protection. Drew Marine offers the necessary products and support to ensure a good quality water supply, to safeguard properly applied and appropriate chemistry for the application; and to effectuate sampling, monitoring, and control measures in support of our customers' operations.



Why Drew Marine?

Drew Marine's extensive knowledge and experience are unmatched in both the Maritime and Oil & Gas industries. We have a distinguished history, one where we have brought groundbreaking water treatment programs to our business partners. Several of our branded chemicals have become industry standards, and we actively pursue new technologies and programs to benefit our business partners

Drew Marine Service Engineers are graduates of leading maritime academies and universities and undergo thorough corporate training programs to provide the highest quality of service available in the marine industry. Through on board visits, service engineers conduct on board water treatment tests to verify process control. They provide immediate feedback for corrective actions on board and thoroughly document test results for technical supervision.



- Leading water treatment technology
 - Onboard ship service & water treatment testing
 - Crew-training & feedback for corrective actions
 - Global network of knowledgeable service engineers
 - Unparalleled responsiveness for treating critical systems
 - Remote Assistance
 - Log Review
 - Technical Service Visualization

For more information about our treatments, testing methodologies, and onboard support, contact your Drew Marine Representative.

Periodic Analysis

To complement our onboard testing regimen, Drew marine recommends our Periodic Analysis Program. Periodic Analysis Program is a laboratory analysis program that supplements onboard testing and analyzes additional parameters in water samples to validate overall system health. Under the program, boiler water, cooling water, and makeup water samples are sent from the vessel to Drew Marine's laboratory for analysis. After the analyses are completed, a comprehensive report containing test results, technical recommendations, and system trends is supplied to our customers. Monitoring system health is more rigorous and efficient when coupled with Periodic Analysis Program, our service engineers' attendance on board, and our monthly log reviews. For more information about our Periodic Analysis Program, contact your Drew Marine representative.



Implement Drew Marine Programs to:

- Assure uninterrupted operations
- Assure efficient equipment operation
- Extend life of equipment
- Improve system performance

OUR VISION

Drew Marine is the most trusted brand and preferred global resource for marine solutions that enhance the longevity and operating efficiency of ocean vessels.

OUR MISSION

To sustain the superiority of the Drew Marine brand by bringing environmentally and technologically superior products and services for the benefit of vessel owners and operators while increasing shareholder value.



Drew Marine[®]

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