

DESCRIPTION

High-pressure boilers are more susceptible to caustic corrosion and underdeposit corrosion than lower pressure systems. This testing program is designed to provide closer control than lower pressure systems and utilizes techniques which are specifically designed for accurate “low range” testing. The ULTRAMARINE Testing Program includes tests for pH, phosphate, hydrazine, chloride, conductivity, alkalinity, silica, ammonia and hardness. The program provides regular technical service worldwide and graphic logs and shoreside laboratory analyses as needed. The aim of a water treatment program is to provide optimum conditions, and the Drew Marine team of field service representatives is specially trained in the investigation, evaluation and solving of unusual water treatment problems if they arise.

THE PROGRAM

pH and phosphate: Control of the UMP treatment program is based on the boiler water pH as well as the phosphate level. Providing a balance between the hydroxide and disodium phosphate levels in the boiler water eliminates free caustic and minimizes caustic corrosion. Also, the proper pH must be maintained to prevent the general acid corrosion of ferrous metals and phosphate reserve must be sufficient to react with incoming hardness in the feedwater to produce non-adherent and fluid sludges. Dosages of GCTM concentrated alkaline liquid and ADJUNCT® B boiler water treatment are controlled by pH and phosphate testing.

Condensate pH: Testing is necessary to determine if the volatile amine treatment in the program is maintaining the proper pH in the condensate to ensure steam line corrosion control. The dosage of SLCC-A condensate corrosion inhibitor is controlled by this simple pH test.



Water Treatment Test Cabinet, 220 Volt, PCN 1AA0016
Test reagents and equipment are provided separately

Conductivity: High-pressure systems generally are maintained at a very low level of boiler water dissolved solids. The conductivity test measures how much current a sample of water may conduct. This measurement is proportional to the level of dissolved solids in the boiler water. However, conductivity as an electrical test does not differentiate between contaminants and treatments since both contribute to the total dissolved solids (TDS) which, in excess, can lead to foaming and carryover.

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The conductivity of feedwater, boiler water, and condensate should be checked routinely in this program. The conductivity of the condensate gives an indication of the quality of water being mixed with makeup water that is fed into the boiler as feedwater.

FEATURES

- Test for each control parameter
- Specially selected methods and reagent concentrations
- Onboard graphing logs
- Experienced field service representatives
- Worldwide inventory
- Historical review
- Ampoule testing technology

BENEFITS

- Allows for accurate control of individual chemical dosage applications and blowdown
- Precise and easy testing at low pm levels
- Immediate visual feedback on program control
- Expert assistance and problem-solving in major ports
- Ready availability
- A quarterly review of logs pinpoints chronic problems and provides recommendations for procedural changes
- Economical
- Easy and accurate



Contact your Drew Marine representative for more information

Chloride: Only low levels of chloride are anticipated in a high pressure boiler system and test methods have been chosen accordingly. Increases in chloride levels are an indication of seawater contamination.

Reference Tests: A series of reference tests (ammonia, hardness, silica and alkalinity) are run to provide the shipboard personnel and the Drew Marine service personnel with more information on the program's control.

Ammonia: Tested in the condensate because excess ammonia and oxygen will cause the corrosion of copper bearing metals. The level of ammonia is controlled by venting the deaerator.

Hardness: Tested in the feedwater to detect incoming contamination.

Silica: At the operating temperatures and pressures of these systems, silica will sublime, that is, it will vaporize from the boiler water, and carryover with the steam to deposit in superheater tubes and accumulate unevenly in turbines and heat exchange surfaces. The amount of silica in the boiler water should be controlled by means of blowdown.

Alkalinity: Although the pH of the boiler water and the condensate are determined on a daily basis, the alkaline components which have contributed to these pH levels

are not determined by a pH test itself. As a result, the phenolphthalein and total alkalinities should be determined by titration to be assured that there is no free hydroxide alkalinity present.

It is important to use fresh reagents. Reagents should be carefully handled and properly stored to minimize contamination. The ULTRAMARINESM Six-Month Reagent Set is provided every six (6) months under PCN 0437047.

Only Drew Marine reagents and testing programs should be used in conjunction with the UMP water treatment program and treatment products. Non-Drew Marine reagents can result in incorrect test results and improper treatment control.

All of these factors when reviewed will provide a picture of the chemical environment within the high-pressure boiler/steam system. This picture includes not only treatment chemicals but also the presence of contaminants. These provide a clear indication of what control or corrective measures are required in terms of blowdown and chemical dosage.

Drew Marine's worldwide team of service representatives and technical support staff are available to evaluate the control of the program and to solve problems if they occur. Properly controlled, this program will minimize unscheduled system downtime and maximize efficient operation.

**Drew Marine**

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