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## 6712

# HYBAR: HIGH-PRESSURE BOILER WATER TREATMENT

### APPLICATION

Ferrous alloys used in the construction of high-pressure boilers are subject to acid attack by purified feed water. The hydronium ion found in pure water reacts with iron metal to form hydrogen gas and ferrous hydroxide. When sodium hydroxide is added to reduce the hydronium concentration a new reaction takes place with the end products being hydrogen gas and sodium salt of ferrous hydroxide. Both reactions create a condition for hydrogen embrittlement.

**6712** is a disodium phosphate solution. This product is used in a coordinated phosphate program in high-pressure boilers. The sodium reduces hydronium ion content of boiler water. The phosphate content reduces the freedom of the sodium. The result is a combination where the pH of the boiler water is elevated without the formation of sodium ferrous hydroxide salts.

**6712** is formulated to work in conjunction with **6711**, in the necessary proportions, to protect boilers operating in the range from 500 to 1,500 psi. The sodium to phosphate ratio is 2 to 1. The concept is to obtain a ratio of sodium to phosphate that provides a pH high enough to prevent hydronium attack of iron metal and enough phosphate counter ion to prevent the existence of free sodium. In this pressure range free sodium will not occur in high firing situations that may cause subnucleate boiling. Free sodium is eliminated in all concentrations.

In addition to the use listed above, **6712** can be used as a phosphate contributor during passivation of ferrous metal.

### SAFETY & HANDLING PROCEDURE

This product is a slightly alkaline liquid. It can be safely handled using the standard precautionary procedure associated with industrial chemicals of this type.

### FEEDING TECHNIQUE

Inject directly into the feed water line, makeup water line, or boiler.

### CONTROL

Maintain residuals as determined by system operating conditions and program control limits. Contact your local CH<sub>2</sub>O water treatment specialist for further information on analytical testing. Daily testing is recommended to maintain proper control. Failure to monitor and maintain treatment levels can cause damage. It is the customer's responsibility to monitor and maintain treatment levels.

### DOSAGE

Initially charge the system at the rate of 16 ounces per 1,000 gallons of system capacity and adjust feed rate to maintain control in the desired range.

### PHYSICAL PROPERTIES

pH of 1% Solution .....	8.0-9.0
Pounds per Gallon .....	8.3-8.8
Physical Appearance .....	Clear Liquid
Odor .....	Mild
Flash Point .....	N/A

### **Seller Warranty**

CH<sub>2</sub>O brand test reagent refills are available through your sales representative at no charge. Customers are required to confirm product compatibility via a control test for their specific application. CH<sub>2</sub>O recommends that you perform regular/daily testing to control chemical levels and cycles of concentration within established limits. Additional tests may be performed at your request. Test reports reflect conditions at the point when the analysis was performed. Results will change over time and with varying operating conditions.

Seller warrants that this product conforms to its chemical description and is reasonably fit for the purpose referred to in the directions for use when used in accordance with the directions under normal conditions. Buyer assumes the risk of any use contrary to such directions. Seller makes no other warranty or representation of any kind, express or implied, concerning the product, including NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OF THE GOODS FOR ANY OTHER PARTICULAR PURPOSE. No such warranties shall be implied by law and no agent of seller is authorized to alter this warranty in any way except in writing with a specific reference to this warranty. The exclusive remedy against seller shall be a claim for damages not to exceed the purchase price of the product, without regard to whether such a claim is based upon breach of warranty or tort. Jurisdiction for any issues arising from or relating to this product shall be in the courts of the State of Washington and the venue shall be Thurston County. Any controversy or claim arising out of or relating to this contract, or breach thereof, shall be settled by arbitration in accordance with the rules and procedures as stated in RCW 7.06 and shall be binding upon both parties without right to appeal, and judgment upon the award rendered by the Arbitrator(s) may be entered in any court having jurisdiction thereof.

Applies to all products sold by CH<sub>2</sub>O, Inc., and is hereby communicated to all of its customers as a condition of sale. Use of CH<sub>2</sub>O products is subject to the Standard Terms and Conditions as listed on CH<sub>2</sub>O, Inc.'s website at: [www.ch2o.com](http://www.ch2o.com).

