

**SECTION 23 2500**  
**HVAC WATER TREATMENT**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Contractor shall provide and install equipment, chemicals and services to provide initial flushing of hydronic piping. All flushing equipment installation shall be by the contractor. The University of Arkansas has an ongoing chemical treatment program. The Owner will provide and install all treatment services after initial flushing as described in this specification.

**1.3 ACTION SUBMITTALS**

- A. Product Data: Include rated capacities, operating characteristics, furnished specialties, and accessories for the following products:
  - 1. Chemical material safety data sheets.
- B. Shop Drawings: Pretreatment and chemical, and ozone-generator biocide, and UV-irradiation biocide treatment equipment showing tanks, maintenance space required, and piping connections to HVAC systems. Include plans, elevations, sections, details, and attachments to other work.
  - 1. Wiring Diagrams: Power and control wiring.

**1.4 QUALITY ASSURANCE**

- A. HVAC Water-Treatment Service Provider Qualifications: The Water Treatment provider shall be the current provider at the University Campus.

**1.5 DELIVERY, STORAGE AND HANDLING: Deliver, store, and handle chemical products in accordance with manufacturer's recommendations, as well as all local, state, and federal environmental regulations.**

**PART 2 - PRODUCTS**

**2.1 CHEMICALS**

- A. Cleaning chemicals shall be as recommended by water-treatment system manufacturer that are compatible with piping system components and connected equipment, and that can attain water quality specified in Part 3.

**PART 3 - EXECUTION**

**3.1 CHILLED WATER SYSTEM**

- A. Clean Out and Preparation:
  - 1. Fill the piping system with city water. Circulate for a minimum of one hour. Drain to city sanitary sewer system. Clean strainers.
  - 2. Fill the piping system with a solution of hot water and triodium phosphate based cleaner to remove oil and grease resulting from manufacturing process and construction of chilled water piping. Such formulations shall clean the metal surfaces, but shall not be corrosive to piping metals used in the system. Circulate cleaner for a minimum of 24 hours, maintaining strength of cleaner. Drain to city sewer in accordance with state and local codes.

3. Fill system with city water and circulate for a minimum of one hour. The Owner will draw samples for testing at this time. Take all precautions required to ensure against contamination of the central chilled water system with the pre-cleaning process.
4. The owner shall test the sample for iron content and oil. Iron content shall be less than 2.0 ppm with absolutely no oil present. If test results fail, drain system and repeat steps 1 and 2. The building system shall be opened to the district system within 48 hours after owner's acceptance of test.
5. Provide temporary pumps, cross over piping, fittings, etc., as may be required to accomplish the circulation of the pre-cleaner throughout the chilled water piping system. Remove all temporary piping, fittings, etc., after certification of cleaning has been issued.

### **3.2 HEATING WATER SYSTEM**

#### **A. Clean Out and Preparation**

1. Fill the piping system with city water. Circulate for a minimum of one hour. Drain to city sanitary sewer system. Clean strainers.
2. Fill the piping system with a solution of hot water and triodium phosphate based cleaner to remove oil and grease resulting from manufacturing process and construction of chilled water piping. Such formulations shall clean the metal surfaces, but shall not be corrosive to piping metals used in the system. Circulate cleaner for a minimum of 24 hours, maintaining strength of cleaner. Drain to city sewer in accordance with state and local codes.
3. Fill system with city water and circulate for a minimum of one hour. The Owner will draw samples for testing at this time. Take all precautions required to ensure against contamination of the central heating water system with the pre-cleaning process.
4. The owner shall test the sample for iron content and oil. Iron content shall be less than 2.0 ppm with absolutely no oil present. If test results fail, drain system and repeat steps 1 and 2. The building system shall be opened to the district system within 48 hours after owner's acceptance of test.
5. Provide temporary pumps, cross over piping, fittings, etc., as may be required to accomplish the circulation of the pre-cleaner throughout the heating water piping system. Remove all temporary piping, fittings, etc., after certification of cleaning has been issued.

**END OF SECTION**