

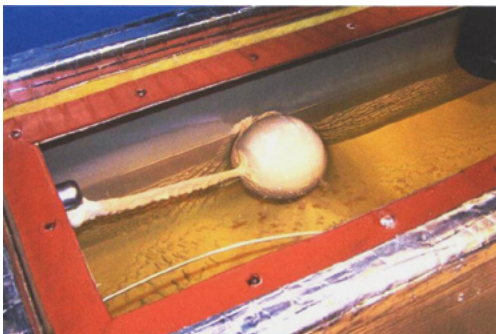
## HUMIDITY WATER QUALITY REQUIREMENTS

### Impurities

Utilizing the humidity feature of an environmental test chamber helps determine how a product performs in high humidity environments, and yet the quality of water used tends to be the most overlooked component of a humidity system. As you proceed to test your product in all environments, consider the water used in your humidity chamber as an important factor to that testing.

While some may disregard where their chamber's water source originates, we, at Thermotron, urge you to take the matter seriously. Tap water, for example, may contain numerous impurities, such as:

- Calcium
- Magnesium
- Sodium
- Potassium
- Chloride
- Nitrates
- Iron
- Copper



Excess scale and mineral deposits in a vapor generator.

These impurities dissolve in water, but when they're run through an environmental test chamber's humidity system, there can be devastating effects, including:

- Heater Failure
- Excess Scale and Mineral Deposits in the Vapor Generator
- Poor Humidity Control or Possible Nuisance Trips

### Purification

In order to cut down on maintenance costs, and save valuable time and energy making repairs, it's essential to use water with the appropriate purity levels. It may even be necessary to utilize a variety of water purification methods to avoid damaging chamber components or other equipment. We recommend getting your water tested to decide whether any of the following water purification options are needed:

- Distillation
- Reverse Osmosis
- Deionization
- Mechanical Filtration
- UV Sterilization



Humidity System Corrosion

If you choose to use any of the techniques listed above, read Thermotron's water quality recommendations to ensure you get the most out of your humidity chamber.

#### Resistivity

Between .05MΩ-cm to 3MΩ-cm  
(SM chambers require .05MΩ-cm to 1MΩ-cm)

#### Turbidity

Less than 5 NTU

#### Free Chlorine

Less than .2 parts per million

#### Color

Less than 5 TCU

#### Total Iron & Manganese

Less than .3 parts per million

#### Organics

Less than 1 part per million

#### Acidity

6.8 to 7.2 pH

#### CAUTION

Take caution with purified water! If the water is too pure, mineral leaching, corrosion, and a whole host of other complications can damage your chamber and/or product.

**REMEMBER: Keep the water's purity levels within the specified range.**

## Chamber Options

Many Thermotron humidity chambers come conveniently equipped with a Water Purification System, which takes standard tap water and processes it for safe use in the environmental test chamber. *Test your own water before relying on the chamber's purification system alone.*

Depending on your water quality, this Water Purification System may be inadequate, resulting in a need for an additional filtration system.

Thermotron's Water Purification System contains both a filter, which removes non-dissolved solids, and a deionizer which chemically removes ions from the water. Dissolved ions replace hydrogen (H+) and hydroxyl (OH-) as contaminated water passes through the mixed bed of the deionizer. The

released hydrogen (H+) and hydroxyl (OH-) then combine to form water molecules. Each deionizer has a specific capacity for ions, and the useful life of the deionizer cartridge is subject to the water quality used and the frequency of its use. Depending on the type of humidity chamber, the deionization cartridge will either change color or a red light will turn on. Both signals indicate when it's time to replace the cartridge.

Above all, know your water's mineral and chemical makeup, and use the appropriate methods to purify the water and meet your chamber's standards. The result will be an increase in the humidity system's efficiency and a decrease in humidity-related service calls, saving you time and money.



Standard Cartridge



Custom Cartridge

For more than 55 years, Thermotron has provided quality environmental test equipment. We've worked to establish a trusted reputation among our peers, and when people hear the name *Thermotron*, they have confidence in the testing of their own product. We've been building our name since 1962; now it's your turn.

**QUALITY. TRUST.  
CONFIDENCE.**  
— BUILD YOURS WITH A —  
**THERMOTRON.**

**T H E R M O T R O N . C O M**

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