

Hydrotech®



PRODUCT CATALOG

Water Conditioning Products



A Division of



Let **US** Show **YOU** How to **MAKE MORE PROFIT** Selling Canature WaterGroup™ Products



Our Mission is to provide customers with **EXCEPTIONAL VALUE** for their hard earned dollar.

We have been in the Water Conditioning Manufacturing & Distribution Business in North America for over 50 Years.

We believe our longevity is a testament to our singular focus on value creation by Efficiently delivering Innovative, High Quality Products - all backed with Expert Support.



Canature WaterGroup is celebrating over **50 years of Innovation, Quality, Efficiency ... and Growth!** Our focus has not changed much since I started the business back in 1968! Our mission has always been to create the most value possible for our customers. As a result, we have built many long-term partnerships over the years. I call them partnerships because that is really what they are. Our success depends on our customers' success.

I want to thank our customers, old and new, for being great partners and allowing myself and my team to have continued success in an industry we are very passionate about.

Don Fettes, President & CEO



Corporate Capability
Brochure Circa 1989



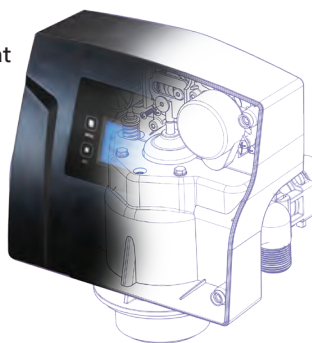
Trade & Commerce
Magazine 1977





Continuous Innovation

- Consumer driven features that set you apart
- Leading high-efficiency technology
- Dedicated product development team
- Fast, efficient innovation - from design to finished product to your door



Superior Quality

- ISO9001:2008 certified, 1,200,000 sq ft manufacturing facility
- World class testing laboratory
- Dedicated quality control team
- 3rd party certified systems & components



Industry Expertise

- Over 150 factory trained employees
- Largest field sales force in north america
- Customer service team averaging 20+ Years
- Over 15 P. Eng. & PhD's on staff
- Dedicated commercial engineering division



Higher Efficiency

- Manufacturer-direct business model eliminates non-value added activity
- State-of-the art manufacturing ensures high quality products at the lowest possible cost



U.S. Head Office

Whitestown, IN

6353 Commerce Drive
IN 46075

Distribution Centers:

Phoenix, AZ

9191 West Buckeye Rd.
Suite 110, Tolleson (Phoenix)
AZ 85353

Houston, TX

4861 S Sam Houston PKWY E
Suite 300, 77048

Guadalajara, MX

Carretera Guadalajara-Chapala km
18+800, Tlajomulco de Zúñiga,
codigo postal 45675 Jalisco, México

Hydrotech®

1-877-288-9888

www.hydrotechwater.com

Technical Support

supportusa@canaturewg.com
supportcanada@canaturewg.com

Order Desk

ordersusa@canaturewg.com
orderscanada@canaturewg.com

Canadian Head Office

Regina, SK

855 Park St., Unit 1, Regina, SK
S4N 6M1

Distribution Center:

Cambridge, ON

490 Pinebush Road,
Unit 1, N1T 0A5

A Division of



Table Of Contents

5 - 11

Capabilities

12 - 19

Water Conditioning Basics

The Hydrologic Cycle
Guidelines for Solving Water Problems
Terminology
Water Analysis
Sizing Parameters

20 - 60

Assembled Engineered Systems

Softeners
Whole House Filters
Specialty Systems

61 - 90

Components

Control Valves
Distribution Heads
Tank Connectors
Fiberglass Pressure Tanks
Brine Tanks, Jackets & Cabinets, Tank Components
Media

91 - 156

Drinking Water

Reverse Osmosis, Designer Faucets
Booster Pumps & Storage Tanks
Ultraviolet Sterilizers
POU Filters & Housings, Rusco Sediment Filters

157 - 175

Accessories

Chemical Feed Pumps
Pro Chemicals
Test Kits
Mazzei Injectors
John Guest Fittings

176 - 179

Commercial Systems

180 - 184

Water Conditioning Glossary

Capabilities

Operations & Product Development



Toby Hughes P. Eng.
Chief Operations Officer

"The Canature WaterGroup Product Development Center and manufacturing operations are beyond comparison in our industry. The investment in technology and commitment to leading manufacturing practices & innovation has resulted in higher quality and lower cost products with meaningful 'Installer / Service Driven' features. This all adds up to better value for our customers."

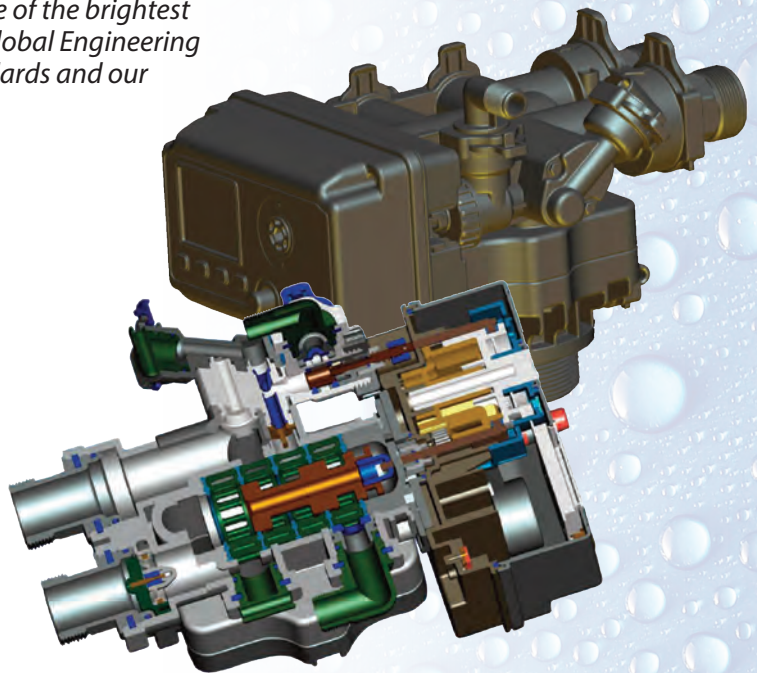
"My team of Professional Engineers is made up with some of the brightest minds in the industry. I am excited to lead Hydrotech's Global Engineering and Operations and raise the bar beyond industry standards and our customers expectations."

A handwritten signature in black ink that reads "Toby Hughes".

Toby Hughes, P.Eng., Chief Operations Officer

Toby Hughes has managed some of the largest water conditioning manufacturing operations in the industry. Throughout his career, he has toured most manufacturing facilities across the globe.

Toby brings over 20 years of extensive industry experience to Hydrotech. Toby has managed product development as well as implemented Lean manufacturing, Continuous Improvement and Quality Assurance programs, MRP (Material Requirement Planning) systems to create an efficient, low cost and quality driven manufacturing environment.

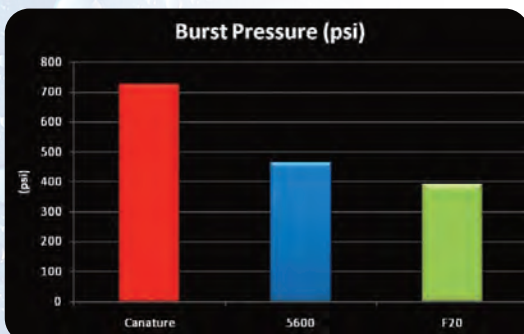


Capabilities

Control Valves

Hydrotech NSF Certified control valves meet or exceed the most vigorous industry performance and reliability standards. Familiar piston, seal and spacer design has been enhanced to improve performance and product life. The addition of a piston stabilizer reduces the side load force between the piston rod and end plug seal as it firmly guides the piston while it travels up and down. An added rib on the seal improves the sealing pressure so that the valve can withstand over 700 psi! These are just a few of the design features that make Hydrotech valves more reliable and better performing.

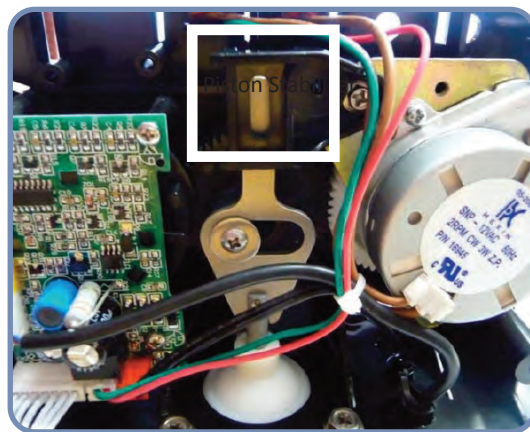
Hydrotech NSF/ANSI 44 Certified control valves meet or exceed competitive equivalents in all four key measures:
1) Service Flow Rate, 2) Back Wash Flow Rate, 3) Burst Pressure and 4) Cycle Testing.



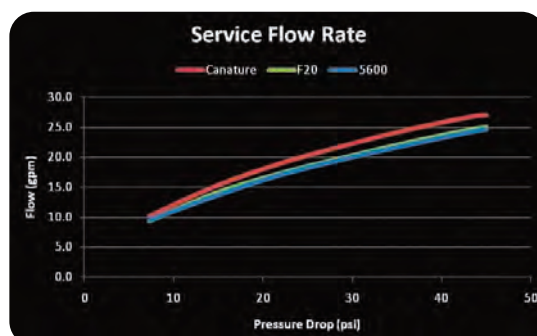
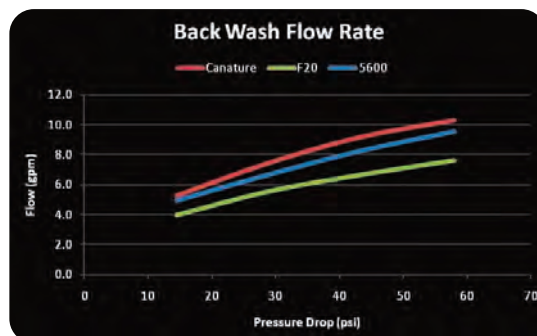
NSF Certified chloramine resistant rubber seals



Added Rib Improves Seal



Piston Stabilizer

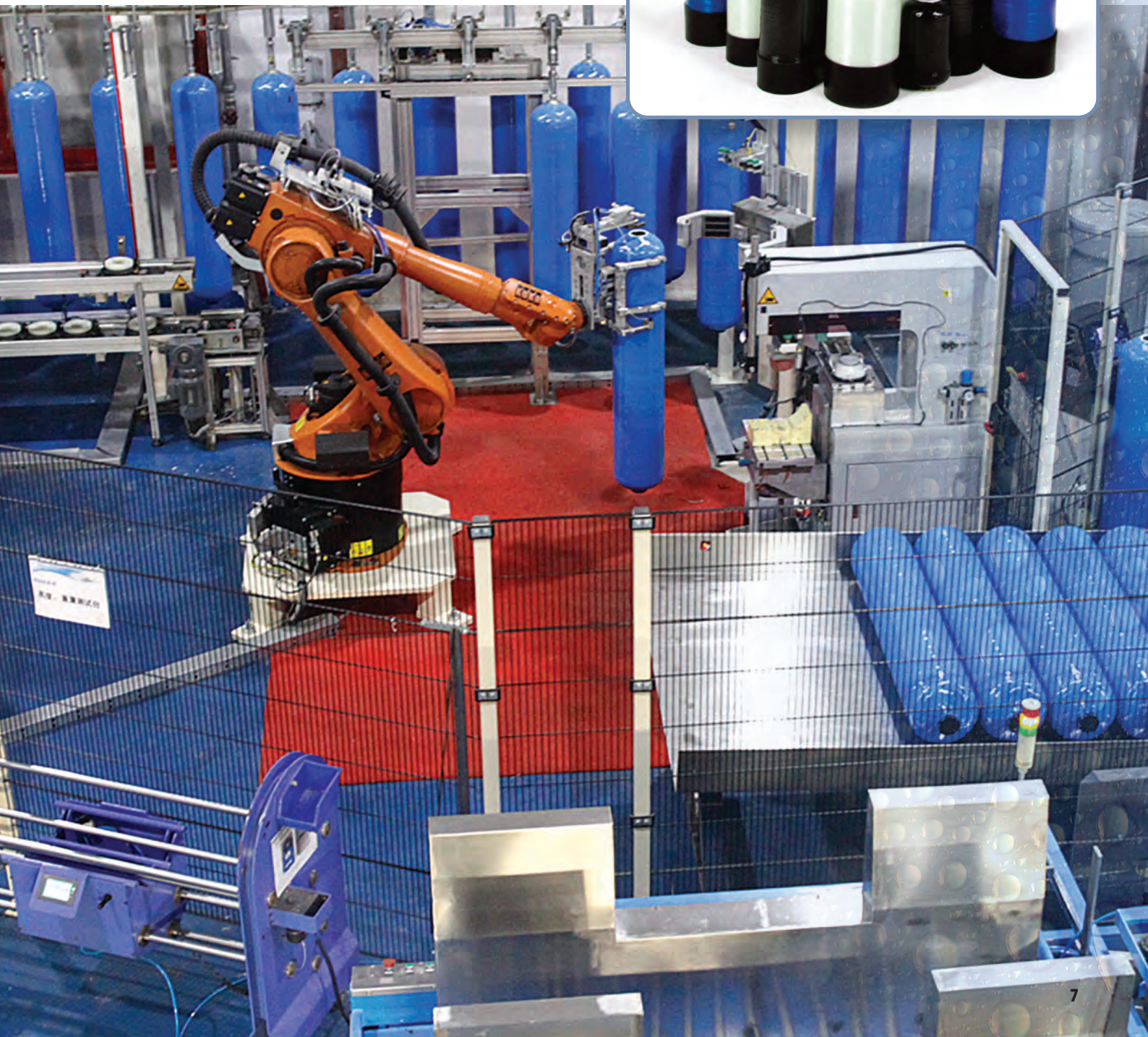


Capabilities

Fiberglass Tanks

Hydrotech NSF Certified filament wound tanks are not only strong and reliable but the finish is unparalleled in the industry. No need for a tank jacket (although we offer those too) with the neatly wound, high gloss finish. Strict tank height control measures mean no surprises when installing a duplex system.

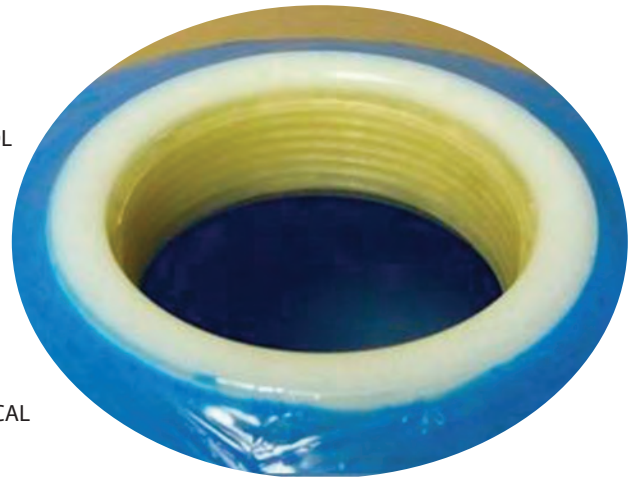
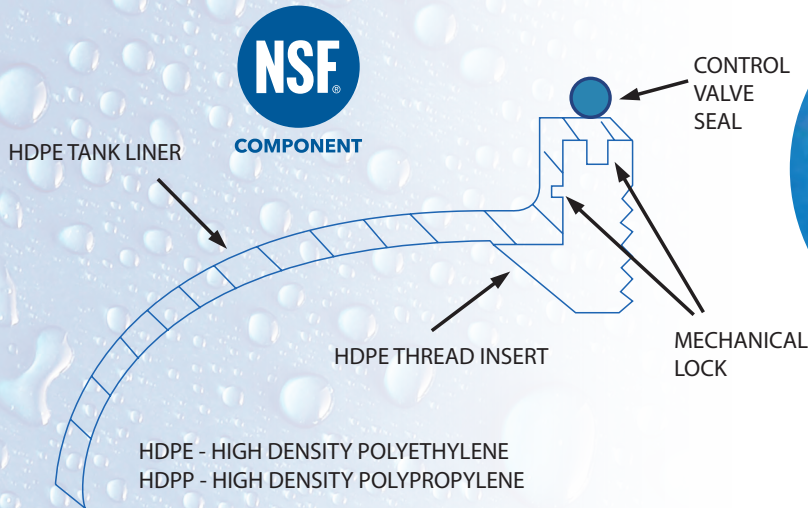
Tanks ordered as a component can come filled with high quality WQA approved resin, saving you money on freight.



Capabilities

The Industries Most Impressive Pressure Tank

The Hydrotech NSF Certified fiberglass reinforced pressure tank is designed to eliminate any potential leaks since there are no welds, joints, or seams in the tank liner.

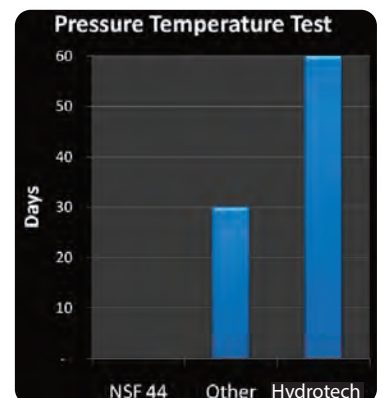
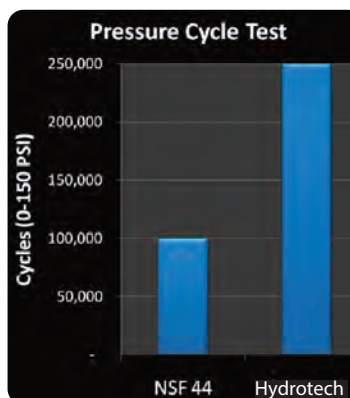
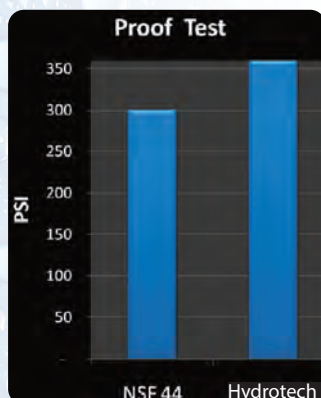
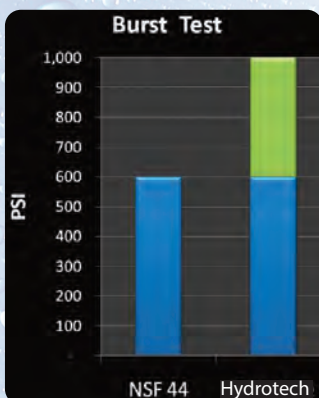


With over 1,000,000 tanks without a failure we know that our tanks perform in the field! Imagine never having to deal with another leaky tank! Tank liners are blow-molded from high quality, high strength engineering materials.



Each tank is wrapped with miles of continuous high strength glass rovings with the most advanced computer aided winding equipment in the world! Hydrotech tanks offer unmatched strength, durability and resistance to temperature and corrosion.

Our tanks are built to surpass all NSF criteria:

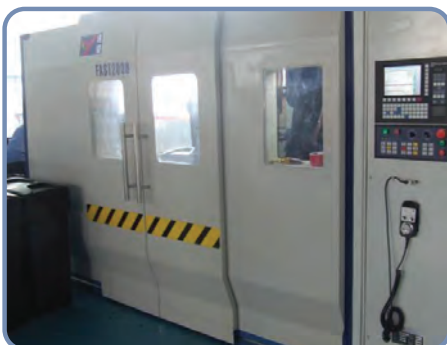


Capabilities

Plastic Department



Blow and injection molding machines produce all brine tanks, cabinets, tank jackets, salt grids, brine wells, safety floats, airchecks, bypass and installation accessories in house. We use NSF Certified high-density polyethylene for exceptional durability and crack resistance.



Capabilities

Assembly, Testing & Distribution

All water softeners and whole-house filters are engineered, assembled, tested and distributed from our North American Regional facilities. All control valves are 100% wet tested and air tested before leaving the factory. Control valves are then set up to engineering specifications for the particular unit, air tested a second time and then assembled into the finished product. All assembled products are packaged in durable, double walled high impact cardboard to ensure products arrive undamaged.



Mike Cummings
assembling a
softener in Regina,
SK facility



Capabilities

Quality Assurance Department

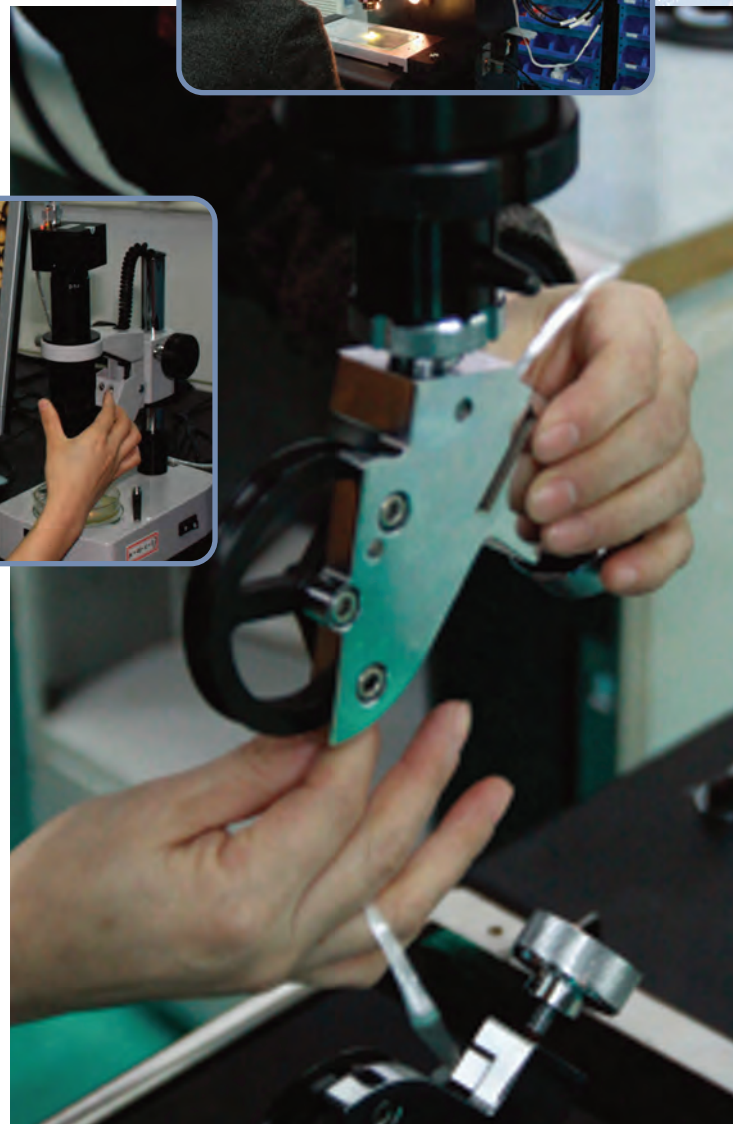
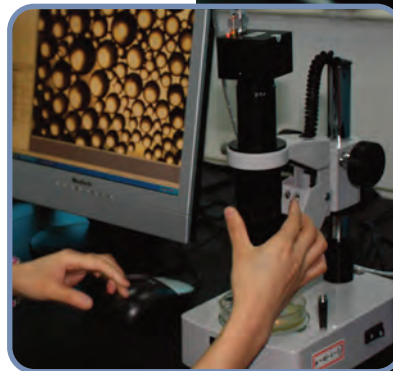
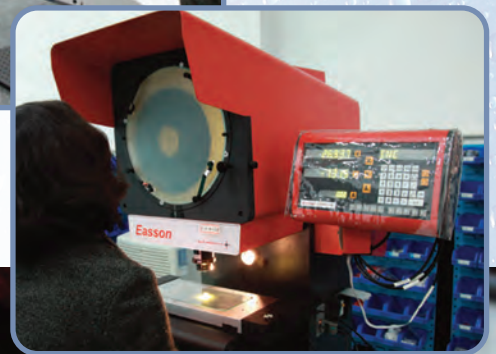
Hydrotech employs a strict and formalized quality control program. The 1,200,000 sq. ft. Shanghai Manufacturing facility is ISO9001:2008 Quality Assurance and ISO 14001:2004 Environmental Management Systems standards certified.

Quality Control systems:

- ⇒ Document Management
- ⇒ Receiving Inspection
- ⇒ In-process Quality Control
- ⇒ Final Inspection
- ⇒ Engineering Change Orders
- ⇒ First Piece & Production Part Approval
- ⇒ Test Equipment Calibration
- ⇒ Statistical Process Control
- ⇒ Vendor Quality Management
- ⇒ Customer Feedback System

World Class Testing Laboratory

- ⇒ **Burst Testing:** High pressure testing of tanks and valves to determine the maximum burst strength.
- ⇒ **Cycle Pressure Testing:** High pressure cycling testing to simulate the fatigue strength of the tanks and valves over their life.
- ⇒ **Flow Bench:** Precisely measure flow rates and pressure drops.
- ⇒ **Reliability Testing:** Continuously cycling the valve through regeneration while taking flow measurements and counting the number of cycles.
- ⇒ **Computer Aided Optical Comparator:** Used for precise measurement of very small details such as fillets or radius's.
- ⇒ **Coordinate Measuring Machine (Cmm):** Used for precise geometrical x, y, and z measurement coordinates.
- ⇒ **3d Prototype Printer:** Makes 3D models for rapid prototyping.
- ⇒ **Chemical Analysis Laboratory:** Complete chemical analysis of raw materials including metals, plastics and media to ensure quality and integrity.



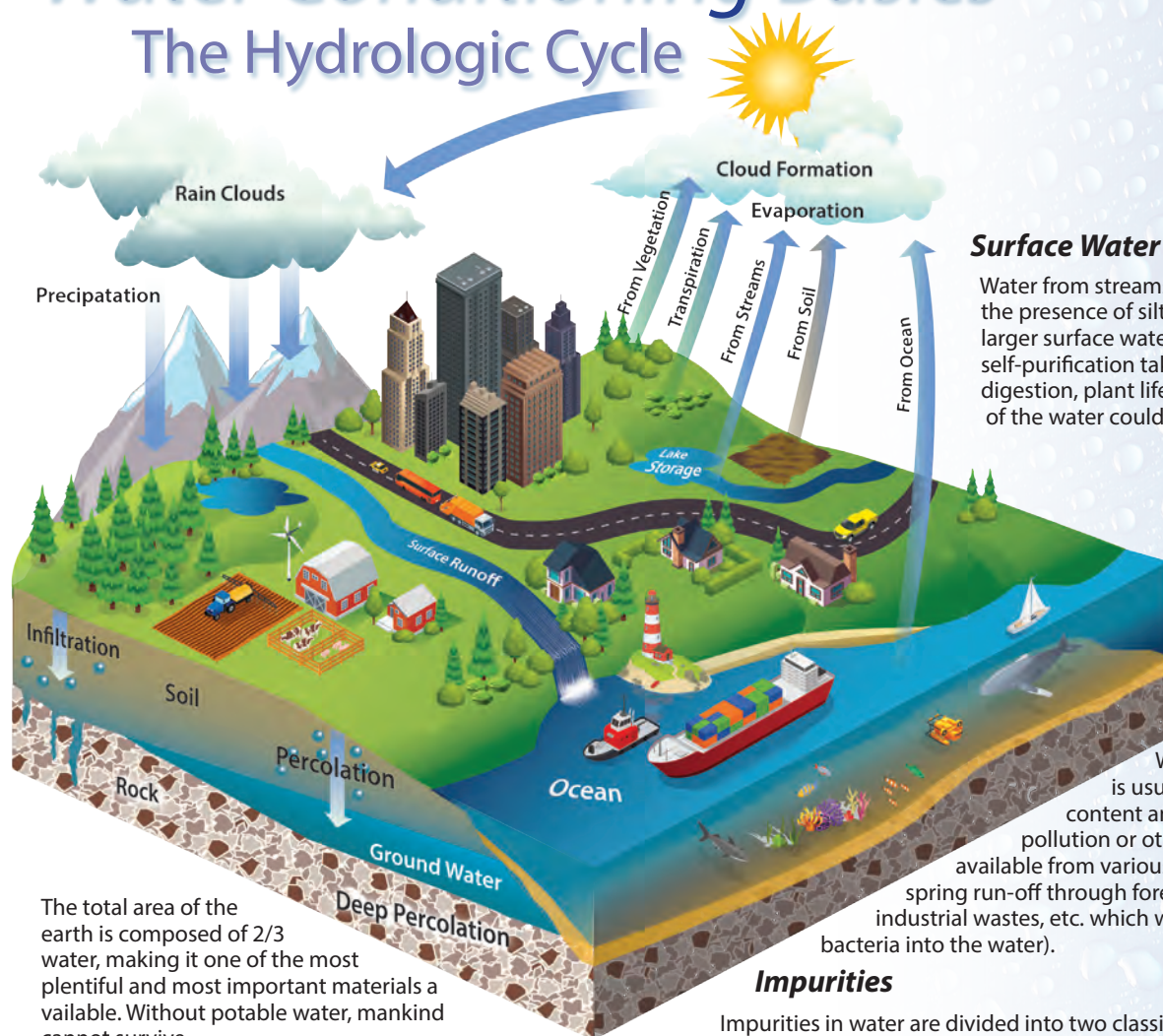
Water Conditioning Basics

*The Hydrologic Cycle,
Guidelines for Solving
Water Problems, Terminology,
Water Analysis,
Sizing Parameters*



Water Conditioning Basics

The Hydrologic Cycle



Surface Water

Water from streams may be turbid due to the presence of silt, clay, etc. However, in larger surface water, a greater amount of self-purification takes place through aerobic digestion, plant life, fish, etc. and the quality of the water could change to a great degree.

Ground Water

Normally picks up the minerals it flows through. As a general rule, water from deep wells contains a higher mineral content and is less likely to contain organics or turbidity.

Water from shallow wells is usually lower in mineral content and may be subjected to pollution or other bacteria which is available from various sources nearby (e.g. spring run-off through forests and hills, plants, industrial wastes, etc. which will all pass various bacteria into the water).

Impurities

Impurities in water are divided into two classifications:

1. Dissolved Solids

Those which naturally dissolve into water. NOTE: Gases may also dissolve into water unless they combine chemically with other impurities. They will be released into the atmosphere upon boiling and are not truly classified as dissolved solids. Upon evaporation, only the dissolved solids would remain in the actual mineral form and then can be analyzed by actual weight of the various elements.

“The only pure source of water is the earth’s atmosphere.”

2. Suspended Solids

Consist of clay, mud, silt, etc. and will not dissolve into water naturally but remain as such in their present state.

Water treatment and pollution control is one of the largest and most important industries in the modern day world. As can be seen from the preceding information, water treatment is a very broad and varied field and chemical analysis of certain water supplies is virtually impossible to completely break down. In time, modern man may discover additional information regarding the field of water treatment and the entire cycle of the earth’s largest and most important single resource.

The following sections will attempt to clarify some of the more common problems and solutions presently available.

The total area of the earth is composed of 2/3 water, making it one of the most plentiful and most important materials available. Without potable water, mankind cannot survive.

Pure water consists of two parts hydrogen and one part oxygen, chemically combined to form pure water.

The only pure source of water is the earth’s atmosphere (sometimes called the hydrological cycle). Impure water from the earth’s oceans, lakes, rivers and surface evaporates into the atmosphere, then condenses to form rain droplets which are totally pure. The above process operates basically the same as a man-made still, which evaporates all the impurities from the water, then returns the condensates into pure water. If this process did not exist, there would likely not be enough potable water to support the earth’s population.

The pure water vapor, which forms in the earth’s atmosphere (clouds), begins to pick up impurities. As it begins to fall to earth in the form of rain, snow, etc., impurities are immediately absorbed. These impurities may be dust, micro-organisms, gases, etc. - at least a little of everything found in the atmosphere on the way to the surface.

The rain or snowfall finds its way to various sources of water supplies on the earth’s lakes, rivers, oceans or it may soak into the ground and become a part of an underground stream or lake.

Characteristics of Various Water Sources

Rain Water

After the water picks up impurities in the atmosphere and percolates through the ground, it comes into contact with carbon dioxide and then forms carbonic acid. This dissolves some of the mineral content of the soil or rock it contacts, thus adding these minerals to the water.

Water Conditioning Basics

Guidelines for Solving Water Problems

PROBLEM	SYMPTOM	CAUSE	CORRECTIVE EQUIPMENT
Hard Water	Spotting on dishes and glassware; scale on inside of water heater, pipes and water-using appliances; soap curd and bathtub ring; clothes look gray and dingy.	Calcium and magnesium in water, measuring 1.0 gpg or more.	Water Softener (Max. Hardness 100 gpg) (Max. Clear Water Iron 1.5 ppm)
Clear Water Iron (Ferrous)	Yellow, brown or rusty stains on plumbing fixtures, water-using appliances and fabrics; metallic taste in foods and beverages; water is clear when drawn from the faucet but oxidizes when exposed to air, then changes color ranging from yellow to brown.	Iron in the water measuring 0.3 ppm or more.	0.3-1.5 ppm Water Softener. 1.5 - 10.0 ppm HIM Specialty System Softener. 1.5-30 ppm Chemical Free Iron Filter (Note 1).
Red Water Iron (Ferric)	Same symptoms as Clear Water Iron but iron has already oxidized and has a yellow to rust color when drawn from the faucet.	Iron in the water measuring 0.3 ppm or more.	0.3-30 ppm Chemical Free Iron Filter (Note 1). 0.3 - 7.0 ppm Iron & Sulfur Filter.
Bacterial Iron	Same symptoms as Clear & Red Water Iron but can have clumps or balls that may foul plumbing lines and other water-using appliances; particularly noticeable as a yellow to reddish slime in toilet flush tanks.	Iron bacteria are a group of bacteria which thrive in ironbearing water, utilizing iron as an energy source. This bacteria is not a health hazard.	Chemical Free Iron Filter (Note 1). Chemical feed pump feeding chlorine followed by a Multimedia Filter (Note 3).
Manganese	Blackish stain on fixtures and laundry; manganese content above 0.05 ppm causes stains.	Interaction of carbon dioxide or organic matter with manganesebearing soils. Usually found in combination with iron.	0.05-1.0 ppm Chemical Free M Iron Filter (Note 1) Iron & Sulfur Filter (Note 2).
Acid Water	Blue/green or rusty stains and corrosion of plumbing fixtures and other water-using appliances; pitting of porcelain and enamel fixtures and dishes. Pin holes in copper plumbing lines.	Generally associated with water with a pH value of less than the neutral 7.0.	pH 6.0-6.9 Neutralizing Filter. pH 4.0-6.9 Chemical Feed Pump feeding soda ash. Consult our Customer Service Dept.
Aggressive/Corrosive Water	Same symptoms as Acid Water but pH is 8.5 or higher.	Alkalinity and carbon dioxide or high dissolved oxygen in water. Electrolysis - two dissimilar metals in plumbing lines.	Consult our Customer Service Dept.
Hydrogen Sulfide	Rotten egg taste and/or odor. Turns copper plumbing lines black. Very corrosive.	Hydrogen sulfide is a dissolved gas found in some water supplies.	Up to 5.0 ppm BIF Chem Free Iron Filter Up to 3.0 ppm use an Iron and Sulphur filter 3.0 - 15.0 ppm Chemical Feed Pump feeding chlorine followed by a Multi Media Filter (Note 3)
Marshy, metallic or chlorine taste and/or odors	Objectionable tastes and/or odors other than hydrogen sulfide.	Dissolved minerals or gases; organic contamination or chlorination.	Activated Carbon Filter for whole house water supply or Taste & Odor Cartridge Filter for individual faucets.
Turbidity (Sand/Sediment)	Foreign particles, dirty or cloudy water.	Tiny suspended particles that are the result of water main scale or silt. Private wells often contain sand or clay.	Multimedia Filter for whole house water supply or a Sediment Cartridge Filter for individual faucets.
Tannins	Yellow or brown tint or cast in water supply; tannins measuring 0.5 ppm or higher may cause staining and/or interference with various water treatment processes.	Result of decaying vegetative matter.	Organic Color Removal Filter. Consult our Customer Service Dept.

Note 1 - Water must have a minimum pressure of 20 psi, pumping rate of 5 gpm and a pH of 6.5 or higher for proper operation. Most water supplies contain calcium and magnesium which are not removed by an iron filter. We recommend following an iron filter with a water softener.

Note 2 - Oxidation of manganese is more pH dependent than iron. Therefore a pH of 8.2 or higher must be maintained. If the manganese level is >2.0 ppm or bacterial iron is present, consult our Customer Service Department.

Note 3 - This system also requires a retention tank to allow adequate contact time (minimum 20 minutes). An optional activated carbon filter for the whole house water supply or a taste & odor cartridge filter for individual faucets may be installed to remove any objectionable taste or odor.

Water Conditioning Basics

Terminology

Grains per Gallon - gpg

1/7000 of a pound - normally used in relation to hardness.

Parts per Million - ppm

One part dissolved material in one million parts of water. Used as a measurement for iron, manganese, TDS, hydrogen sulfide, chlorides, sulfates and tannins.

Milligrams per Liter - mg/l

For our purpose, same as ppm. Normally used for a more accurate measurement or where small quantities of certain elements cause big problems in relation to iron, manganese, sulfur, nitrates and silica.

Converting gpg to ppm or mg/l

1 gpg = 17.1 ppm (mg/l)

Total Dissolved Solids - TDS

The weight of solids, per unit volume of water, which are in true solution. Can be determined by the evaporation of a measured volume of filtered water and determination of the residue weight. A common alternative method to determine TDS is to measure the conductivity of water.

Hardness

A characteristic of natural water due to the presence of dissolved calcium and magnesium. Water hardness is responsible for most scale formation in pipes and water heaters and forms insoluble "curd" when it reacts with soaps. Hardness is usually expressed in grains per gallon (gpg), parts per million (ppm) or milligrams per liter (mg/l), all as calcium carbonate equivalent.

Ferric Iron

Iron that is oxidized in water and is visible. Also called red water iron.

Ferrous Iron

Iron that is dissolved in water. Also called clear water iron.

pH

pH is a measure of the intensity of the acidity or alkalinity of water on a scale from 0 to 14, with 7 being neutral. When acidity is increased, the hydrogen ion concentration increases, resulting in a lower pH value. Similarly, when alkalinity is increased, the hydrogen ion concentration decreases, resulting in higher pH.

The pH value is an exponential function so that pH 10 is 10 times more alkaline than pH 9 and 100 times more alkaline than pH 8. Similarly, a pH 4 is 100 times more acid than pH 2.

pH Scale

	14.0	
	13.0	Household Lye
Extremely Alkaline	12.0	Bleach
Extremely Alkaline	11.0	Ammonia
Extremely Alkaline	10.0	Milk of Magnesia
Strongly Alkaline	9.0	Borax
Moderately Alkaline	8.0	Baking Soda
Slightly Alkaline	7.0	Sea Water
Neutral	6.0	Blood
Slightly Acid	5.0	Distilled Water
Moderately Acid	4.0	Milk
Strongly Acid	3.0	Corn
Extremely Acid	2.0	Boric Acid
Extremely Acid	1.0	Orange Juice
Excessively Acid	0.0	Vinegar
Very Extremely Acid		Lemon Juice
		Battery Acid

Note: A complete glossary can be found in the Water Conditioning Glossary section.

Water Conditioning Basics

Water Analysis

For correct sizing and application of water conditioning equipment, a water analysis is required. A basic water analysis includes tests for the following:

- **Hardness**
- **Iron**
- **Manganese**
- **pH**
- **TDS (Total Dissolved Solids)**

Water samples should be taken as near the source as possible and represent the average water condition. Clean containers must be used. When performing the analysis, the test equipment must be clean and rinsed with the test water and the test water should be between 68°F and 77°F (20°C and 25°C). Use rubber stops as supplied. Do not use your fingers as contaminants and acids could affect test results.

Additional tests can be performed for tannins and hydrogen sulfide (H₂S). The test for H₂S must be performed on-site for accurate results. Special tests can be performed for chlorides, sulfates and alkalinity by specified laboratories. If it is suspected the water supply is contaminated with coliform bacteria or nitrates, a sample must be collected in an approved sterilized container and submitted to a government approved laboratory. Iron bacteria will not be detected with the standard iron test and can be tested for by a government approved laboratory.

If the TDS is over 1000 ppm and hardness is less than 30% of the TDS, a complete water analysis should be performed to discover what other contaminants exist in the water.

If a contaminant exceeds the limits detectable by any test method, the raw water sample can be diluted with distilled water until a reading can be taken. A calculation must then be performed to determine the actual degree of contamination. All test chemicals are subject to age and extreme temperatures. Proper storage techniques and expiry dates should be observed.

The Water Analysis Report shown on the next two pages must be completed accurately to determine the correct equipment to recommend for the water problem(s) being experienced.

Hard Water

Water with a total hardness of 1.0 gpg or more as calcium carbonate equivalent.

Less than 1.0 gpg	Soft
1.0 - 3.5 gpg	Slightly hard
3.5 - 7.0 gpg	Moderately hard
7.0 - 10.5 gpg	Hard
More than 10.5 gpg	Very hard

Hardness

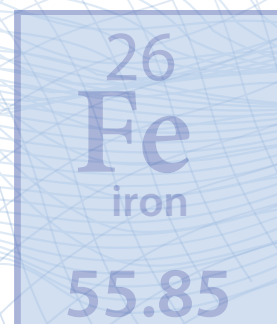
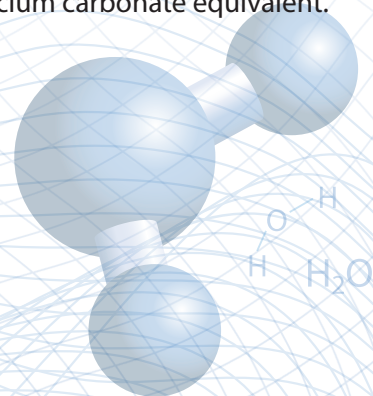
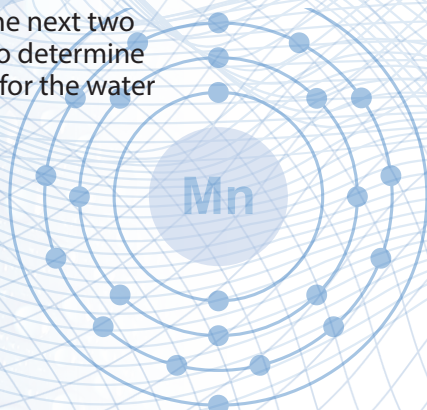
A characteristic of natural water due to the presence of dissolved calcium and magnesium. Water hardness is responsible for most scale formation in pipes and water heaters and forms insoluble "curd" when it reacts with soaps. Hardness is usually expressed in grains per gallon (gpg), parts per million (ppm) or milligrams per liter (mg/l) all as calcium carbonate equivalent.

Soft Water

Any water which contains less than 1.0 gpg (17.1 mg/l) of hardness minerals, expressed as calcium carbonate equivalent.

Softened Water

Any water that is treated to reduce hardness minerals, expressed as calcium carbonate equivalent.





Water Analysis Report

NOTE: Please answer ALL appropriate questions to ensure accurate equipment recommendations

FOR LABORATORY USE ONLY

Date Received _____

Report No. _____

Date Completed _____

CUSTOMER

Name _____

Street _____

Town _____ State/Province _____

Zip Code/P.C. _____ Email _____

Phone _____

DEALER

Name _____

Street _____

Town _____ State/Province _____

Zip Code/P.C. _____ Email _____

Phone _____

DISTRIBUTOR

Name _____

Street _____

Town _____ State/Province _____

Zip Code/P.C. _____ Email _____

Phone _____

Analysis for Bacteria, Arsenic, Lead and other heavy metals must be performed by your local health department or an independent laboratory.

HOW TO DRAW WATER SAMPLE

Use outlet nearest pump (not from bottom of pressure tank). Run water for five minutes or two pump cycles, then fill clean bottle to neck and cap immediately. Never use hot water. Return bottle with this completed form.

HOW TO MEASURE PUMPING RATE OF PUMP

1. Make certain no water is being drawn. Open spigot nearest pressure tank. When pump starts, close tap and measure time (in seconds) to refill pressure tank. This is **cycle time**.
2. Using a container of known volume, draw water and measure volume in gallons until pump starts again. This is **drawdown**.
3. Divide drawdown by cycle time and multiply the result by 60 to arrive at the **pumping rate** in gallons per minute. Insert this figure in #3 Water System.

1. Water Source

- ☐ City or area-wide authority
- ☐ Community water system (small water system usually supplying 12 homes or fewer) Water comes from:
- ☐ Well ☐ Lake ☐ Reservoir ☐ River ☐ Unknown
- ☐ New private well - Approx age: _____ months
- Depth of Well:** _____
- ☐ Old private well - Approx age: _____ months
- ☐ Private lake ☐ Private spring ☐ Private dugout ☐ Other - describe: _____

2. Household Information

Do you now have water conditioning equipment?

- ☐ No ☐ Yes Type: _____ Size: _____
- ☐ Single family ☐ Multi-family No. of units: _____
- No. persons: _____ No. baths: _____
- Do baths have high flow demand? ☐ No ☐ Yes
- ☐ Lawn irrigation on water system? ☐ Indoor pool
- ☐ Outdoor pool - Capacity: _____ gallons
- Water line size from source: _____ inches

3. Water System

Type of Pump

- ☐ Constant Pressure ☐ Jet ☐ Submersible ☐ Unknown
- Pumping rate of pump: _____ gpm

Pressure Tank

- ☐ Air to water ☐ Bladder Capacity: _____ gallons
- Operating pressure: (low/high) _____ / _____ psi.

4. Water Problems

When this sample was drawn, it was:

- ☐ Clear ☐ Colored ☐ Cloudy

This water sample is ☐ Untreated ☐ Treated

How is it treated? (List Brand and Model #s): _____

PROBLEMS

- ☐ Hardness (e.g. high soap usage, bathtub ring, lime deposits, etc.)
- ☐ Iron Deposits - if so, is iron build-up in flush tank?
- ☐ Greasy ☐ Gritty ☐ Stringy (iron bacteria?)
- Color of Water - ☐ Red ☐ Orange ☐ Black
- ☐ Greenish or blue stains on sinks, tubs, etc.
- ☐ Pitting of fixtures and/or pipes
- ☐ Sand (visible particles) ☐ Sediment or silt (cloudy)
- Bad Taste - ☐ Iron ☐ Bitter ☐ Salty
- Other - describe: _____

Bad Odor: ☐ Rotten Egg ☐ Musty ☐ Iron

Odor is in: ☐ Cold Water ☐ Hot Water ☐ Both

Other Problems - describe: _____

5. Standard Laboratory Tests

Total Hardness: _____ gpg
Iron: _____ mg/l
Manganese: _____ mg/l
pH: _____
Total Dissolved Solids: _____ mg/l

6. Other Tests

Hydrogen Sulfide: _____ mg/l
(test must be performed on-site)
Tannins: _____ mg/l

If TDS is over 1000 ppm and hardness is less than 30% of the TDS, a total water analysis is required.

7. Explanation of Water Analysis

A. Total Hardness

This indicates the efficiency or workability of the water for everyday household use. Water in excess of 3 gpg is generally considered hard and should be softened.

B. Iron

Over 0.3 ppm of iron will cause discoloration of water and staining. Fully automatic water conditioners will correct this problem. Some extreme water situations may require filtration.

C. Manganese

Manganese is frequently encountered in iron-bearing water but to a lesser degree. Manganese is similar to iron in that it stains and clogs pipes and valves. Concentrations as low as 0.05 mg/l of manganese can cause problems.

D. pH

A scale used to measure the acidity or alkalinity of water. A pH reading below 6.5 normally indicates highly corrosive water and neutralizing equipment should be used. A pH reading in excess of 8.5 could indicate contaminated water and generally requires bacteriological and chemical analysis.

E. Hydrogen Sulfide (H₂S)

Testing for hydrogen sulfide should occur on-site. Hydrogen sulfide imparts a rotten egg odor and taste that makes water all but undrinkable and also promotes corrosion. In addition, it can foul the resin bed of a water conditioner. The use of a water conditioner is not recommended unless the water is first treated for the removal of hydrogen sulfide.

F. Total Dissolved Solids (TDS)

A measure of the soluble solids present in the water.

G. Tannins

Tannic acid is formed by decaying organic matter. Tannins alone are not harmful, although they can affect the proper operation of a chemical free iron filter.

RECOMMENDATIONS

Recommendations are based entirely on the information supplied and the water sample chemistry results at the time of analysis.

Recommended by: _____

Date: _____

Return completed form to:

A Division of



Hydrotech®

Water Conditioning Basics

Sizing Parameters

Water Softener Sizing is Based On

- ⇒ 60 gallons per person per day - total household use
- ⇒ Three day minimum between regenerations
- ⇒ Capacity between regenerations at factory salt settings
- ⇒ Number of people x 60 gallons per person x gpg of hardness x 3 days = capacity required between regenerations
- ⇒ Consult your factory representative for water that is 75 gpg or harder

Water Softener/Iron Removal Combination Units

- ⇒ This unit should be recommended only when dictated by special circumstances or the needs of the customer.
- ⇒ The customer should be made aware that a separate iron filter and softener is preferred because it is a more efficient way to deal with the water.
- ⇒ When recommending a combination unit, follow the guidelines provided in the specifications.

Water Consumption for Regeneration

The volume of water used during the regeneration process of a water softener will vary depending on:

- ⇒ Amount and type of resin
- ⇒ Cycle time settings
- ⇒ Flow controllers
- ⇒ Salt settings
- ⇒ Tank diameter

Generally, water usage for regeneration is based on the cubic feet of resin per water softener from a low of 30 gallons of water per cubic foot, up to a normal of 75 gallons of water per cubic foot, to a maximum of 100 gallons of water per cubic foot. Manufactur-

ing specs and settings for each model size should be checked to verify exact amounts.

Three Day Sizing Method

The three day sizing method is used for the following reasons:

1. To determine the size of the water conditioner to be used
2. To allow for reserve capacity between regenerations so the customer does not run out of soft water
3. To provide the most economical operation cost

Conversion Factors & Compensated Iron & Manganese

Total Hardness converted from ppm or mg/l to Grains/US Gallon (gpg)

$$\text{ppm (mg/l)} \div 17.1 = \text{gpg}$$

If there is a small amount of Iron or Manganese in the water, add the following compensated values:

Iron - ppm x 4

Manganese - ppm x 8

To arrive at the additional compensated load on the softener

The Total ferrous Iron for the softener to remove should not be greater than 1.5 ppm.

The Total Manganese for the softener to remove should be greater than 0.75 ppm.

If the Total Equivalent Iron is less than 0.5 ppm, a Res-Up Feeder and Pro ResCare can be added as an optional safeguard against fouling or the bed can be cleaned occasionally by adding a small amount to the brine tank manually.

If the Total Iron is 0.5 - 1.5 ppm and or the manganese is 0.1 to 0.75 ppm, the softener can be sized accordingly but a Res-Up Feeder and Pro ResCare is required in addition to the softener to prevent iron fouling of the resin.

If the Total Iron is greater than 1.5 ppm, an Iron Filter is required as pre-treatment prior to the softener.