

Using Test Strips to Make the Sale

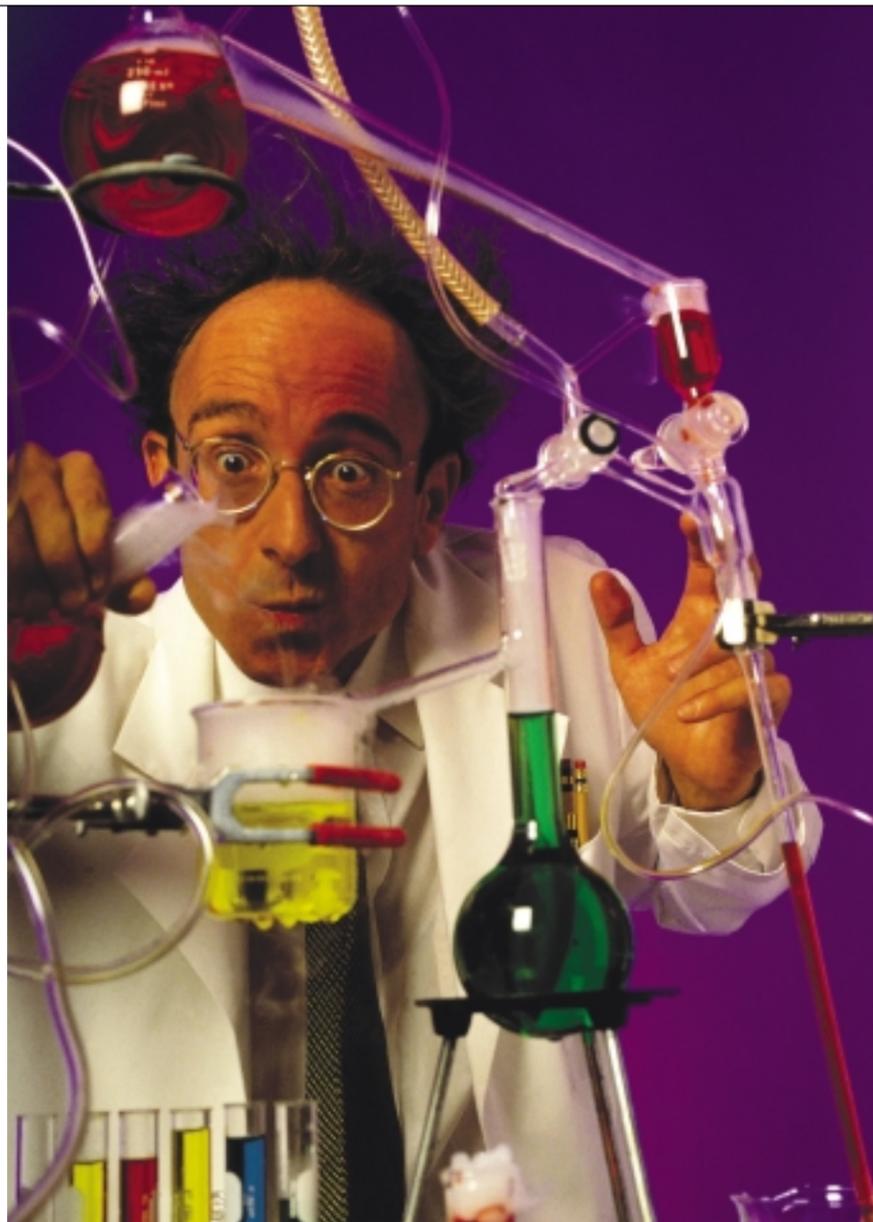
Water testing is a must whether you are doing a simple soap comparison to justify the cost of a water softener to a potential customer or trying to match the size of a nitrate removal system with the application. The question is, which testing method you should use? When thinking of the different types of test methods or chemistries that are available, most people will list three: contract laboratory testing, simple instrumentation (e.g., pH meters and colorimeters) and wet chemistry test kits. A growing number of individuals also will consider test strips as an acceptable water testing method. There are advantages and disadvantages associated with each method. So, which method should you use to help make the sale? Below are several important points regarding these various testing methods.

Apart from the advantages of test strips mentioned in the sidebar, how can test strips help you sell water purification equipment?

At one time, a water quality professional could go door-to-door with a sales pitch and testing kit selling water purification systems to homeowners.

Times have changed. People often are just too busy for this sales technique to be as successful as it once was. In most households, both decision-makers work, making them unavailable to salespeople during the day. At the end of a stressful day, they are not interested in having a stranger in their home making a sales pitch. At the same time, door-to-door sales are expensive and do not always reach enough people to be successful. This is where the inexpensive and easy-to-use test strips can help make the sale. More and more companies are adopting the idea of sending potential customers complimentary test kits as part of a marketing program. The homeowner receives the test kit in the mail with instructions and information about the test kit or whom to call after the test has been completed. This approach allows the dealer greater market coverage at a lower cost. It also empowers the customer with a do-it-yourself test kit that will feel less invasive than a salesperson. Based on the growing demand for test strips, it stands to reason that this approach is a good way to boost sales and interest in water purification equipment.

With the decline of door-to-door solicitations, dealers have opened



Water testing doesn't have to be complicated. Test kits are a quick, easy-to-use solution that even customers can perform themselves.

retail storefronts to sell bottled water, filtration equipment and filters. These items are increasingly more available

and in greater variety at large retail stores as well. With this in mind, the retail storefront has proven to be another

Testing Methods to Help Sell Your Product

Contract Laboratory Testing

- **Typical Advantages**
 - High degree of accuracy
 - Can be used to test for and measure test parameters not available in other methods of analysis
 - Laboratories follow standard testing and sample handling procedures to limit mistakes
 - Usually certified and capable of reporting U.S. Environmental Protection Agency (EPA) results
- **Typical Disadvantages**
 - Specialized equipment and trained professionals are required
 - Requires time (days or weeks) for results
 - High cost

Simple Instrumentation

- **Typical Advantages**
 - Usually portable
 - More precise than test kits and not as technical as laboratory testing
 - Can be used many times
- **Typical Disadvantages**
 - Must be calibrated often
 - Requires some expertise
 - More expensive than test kits
 - Fragile
 - Limited number of test parameters available
 - Sometimes bulky

Wet Chemistry Test Kits

- **Typical Advantages**
 - Usually Portable
 - Many tests are inexpensive
 - Requires little expertise
 - Widely accepted
 - Perceived to be highly technical, accurate and reliable
- **Typical Disadvantages**
 - User error is more likely to occur
 - Time consuming
 - Reagents expire, sometimes at different intervals
 - Often, expiration dating is not evident
 - Some reagents are hazardous

Test Strips

- **Typical Advantages**
 - Non-hazardous
 - Inexpensive
 - Reliable results are obtained even by non-technical individuals
 - Results are easy to understand
 - Large variety of test parameters
 - Completely portable and compact
 - Great for field use
 - Immediate test results
- **Typical Disadvantages**
 - Perceived to be less sensitive and reliable than other methods
 - Less widely accepted by technical people
 - Not as extensively used as other methods
 - Test strips, like wet chemistry reagents, have a limited shelf life

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benefactor of do-it-yourself home test kits. Now, customers can buy a test kit, take it home, come back to discuss the results with the dealer and then buy a purification system or water cooler.

Test strips are a great solution for filtered water that requires regular monitoring. Imagine an ion exchange system that is removing high levels of nitrate or arsenic from a water source. Test strips make it possible for the end user to periodically test this water at the point of use quickly and easily. Quick and easy helps to ensure that the water purification system is monitored and serviced when necessary. This translates into a more reliable system with the dealer selling replacement media and filters and providing maintenance at regular intervals without making unnecessary service calls.

Common Uses for Specific Test Strips

Total hardness or calcium hardness is a water characteristic that even most non-technical people understand. They know that the hardness of their water affects taste, efficiency of soap and detergents, scaling of pipes and the life and performance of coffee machines. However, testing total hardness with a titration test kit can require several minutes and some technical ability. Therefore, using total hardness test strips instead of wet chemistry kits is a great advantage. Most total hardness test strips are very simple to use and produce easy, understandable results in just a few seconds. In addition, total hardness test strips are available individually packaged and tend to be inexpensive enough for the average water quality professional to give them away at trade shows and in their stores or to include them with direct-mail literature.

Much like total hardness, chlorine is another test that frequently is done using test strips. Test strips provide a great companion product for companies that manufacture or sell the common chlorine removal filters. Test strips can be used to determine if a filter is needed, and then periodic tests can be done to determine if the filter needs replacing. Frequently, manufacturers will include a small number of individually packaged chlorine test strips with their filter for this purpose. The included test strips also are great for promoting post purchase satisfaction by allowing the consumer to confirm that the filter he has purchased is indeed reducing chlorine levels in his water.

Another example of how test strips are frequently used in the water quality industry is with nitrate testing. Other methods for testing nitrate include the

Dealers increasingly are sending potential customers complimentary test kits as part of a marketing program. This allows the dealer greater market coverage at lower cost while being less invasive to the customer.

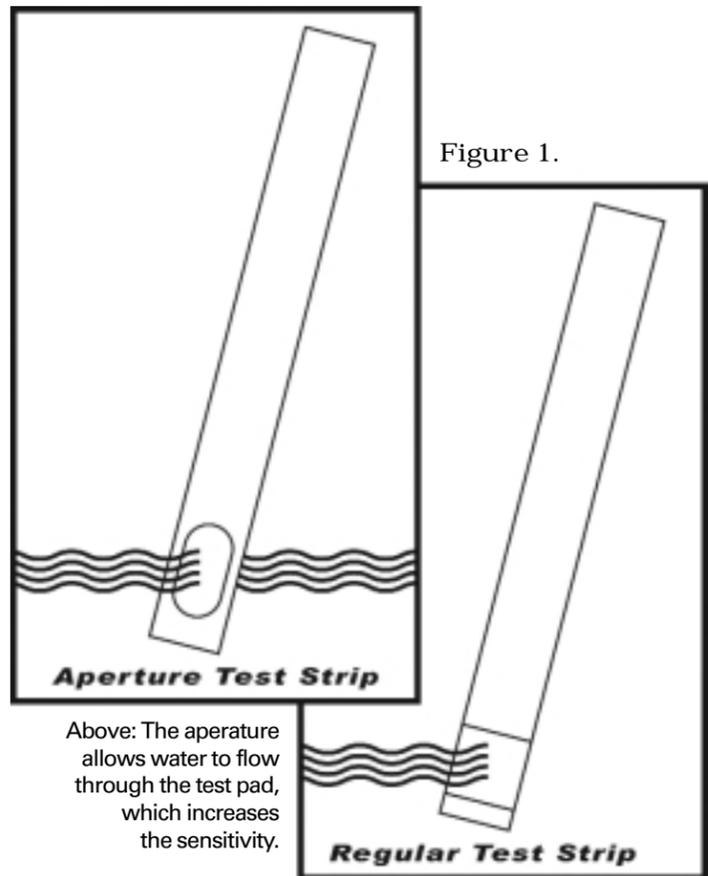
use of an expensive colorimeter, complex wet chemistry and often hazardous reducing agents such as cadmium. Nitrate test strips often are included in off-the-shelf reverse osmosis systems.

This is a requirement for manufacturers of RO systems that have been certified for nitrate removal. Because test strips can be individually packaged, give rapid results, are not technical and are easy

to use, they provide an alternative to having the customer send a water sample to a lab after the RO has been installed.

Uncovering the Latest Breakthroughs in Test Strips

Advancements in research and technology have led to test strip-based test kits that are more accurate, more sensitive and test for a greater variety

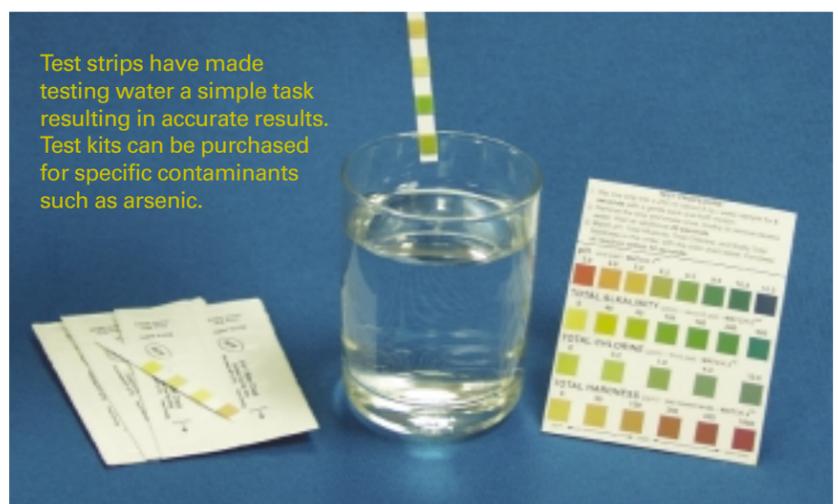


of contaminants. These advancements have made test strips more applicable and more widely used than ever before as acceptable test methods in the water purification market. Below are some examples of the latest capabilities of test strip technology.

Hydrogen sulfide gas can be deadly at high levels by numbing the sense of smell and then disrupting oxygen flow in the body. At very low levels, hydrogen sulfide has an obnoxious taste and odor. Until recently, measuring hydrogen sulfide below 0.5 parts per million was limited to expensive instrumentation. Many people simply relied on their sense of smell because a method was unavailable for quantitative testing. A new type of test kit employing a test strip allows the user to conveniently semi-quantitatively measure hydrogen sulfide below 0.010 ppm (10 ppb). The kit uses a reaction vessel and two reagents to generate

hydrogen sulfide gas. The test strip is not dipped into the sample but positioned above the sample in the cap on the reaction vessel to detect the hydrogen sulfide gas as it leaves the water sample. After the reaction takes place, the test strip is matched to an easy-read color chart. Other higher range test kits (up to 80 ppm) feature simple dip and read technology where no chemical mixing is required.

Arsenic test kits that employ test strips and make quick measurements in the field possible, even by non-technical individuals, have been available for some time. Only in the last three years has any major advancement been made. The first significant changes included a lower 5 part per billion detection level (as opposed to 100 ppb), limited hydrogen sulfide interference, use of non-hazardous reagents and refrigeration is no longer required. Additional improvements continued



with shorter test times (from more than 30 minutes to 12 minutes), elimination of the iron interference and detection levels as low as 0.2 parts per billion with some kits. The most recent addition is an optional scan unit capable of measuring the color on the reacted test strip. The scanner gives the semi-quantitative colorimetric test kit comparable resolution to that of a meter. This is because the scanner can distinguish very slight color changes—much more than the human eye—resulting in the ability to possibly report many more levels than the test kit's typical 10–15 prechosen levels.

The typical arsenic test strip kit includes a clear reaction vessel where three to five reagents (depending on the kit) are combined with a water sample. Similar to the hydrogen sulfide test, a test strip is positioned above the sample in the cap on the reaction vessel. A reaction occurs in the reaction vessel that converts any available inorganic arsenic to arsine gas. The gas is evolved from the water sample, comes in contact with the test strip and produces a color that is matched to a color chart.

Cyanide is a very poisonous element that is used in electroplating, metal cleaning, mining and other chemical processes. The EPA limit for free cyanide is 0.2 ppm in drinking water. A new patented method using a simple dip-and-read test strips now is available for the detection of free cyanide at 0, 0.1, 0.2 and 0.4 ppm. The test procedure involves dipping a test strip sensitive to cyanide in a water sample for 90 seconds and then matching the reacted test strip to a color chart. Other available methods require hazardous reagents and technical expertise or simply are unable to detect cyanide at the EPA limit. What makes this test strip able to do what others cannot is a unique design, referred to as an aperture. The aperture allows the water sample to actually flow through the test pad instead of just into the test pad (see Figure 1). This patented design results in a ten-fold or more increase in sensitivity, and is a significant advancement in test strips since the beginning of their wide use in the medical field in the 1960s.

Continuous technological advancements and the many advantages listed above make test strips an attractive alternative in the water treatment and purification market. Many water quality professionals using other testing methods still take advantage of test strips. For the water quality professional, test strips can be much easier and much more cost effective

than other methods without sacrificing accuracy and reliability. Some test strip users view test strips as a solution for special applications or marketing promotionals, while others who focus on one area of expertise such as arsenic removal may depend solely on test strip kits. Arsenic field test kits that employ test strips are the

only way to test for arsenic if results are needed quickly. Although test strips are not yet universally used in

the water treatment and purification industry, they do continue to gain popularity. **WQP**

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