

CAT Controller Courier # 31

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What Is ORP?

This article may have been a long time coming and as they say, it is better late than never. I would like to start this article by reminding everyone that ORP (Oxidation Reduction Potential) is not exactly the easiest concept to explain. However, I will attempt to portray the information in this article in the most Laymen terms as possible. When we are measuring ORP we are measuring the quality and the capability of the oxidizing component in the water. The oxidizing component can come from chlorine, bromine, Ozone, non-chlorine shocks, hydrogen peroxide, etc. As we all know sanitizers will only work upon the result of a properly balanced body of water. This is where ORP comes into play. ORP only measures specifically the ability and/or quality of the oxidizer present in the water. Its ability/quality are reduced or increased in relation to the other water chemistry variables, pH, total alkalinity, total dissolved solids, temperature, the presence Cyanuric acid, the presence of chlorine neutralizers, etc. Simply put, it does not matter how much sanitizer is in your body of water, if the other chemistry variables are not balanced the sanitizer WILL NOT WORK to its full "potential".

Oxidation, in the past, was merely defined as the interaction between oxygen molecules and all dissimilar matter that they may come in contact with. Upon the discovery of electrons, oxidation came to be more accurately defined as the loss of an electron when two or more matters interact. So when a sanitizer interacts with unwanted substances it steals an electron from the substance changing its chemical make up in turn helping to burn the substance up. However, now that the sanitizer has gained an electron it has "reduced" the sanitizer's electrical energy making the sanitizer less effective.

Reduction occurs when a substance gains an electron after the oxidation process has occurred. The atom or oxidizer that gains the electron may lose their ability to further oxidize substances or they will combine with other substances in the water resulting in by-products and/or combined chlorine.

Potential is the concept of stored energy within. The potential as it relates to ORP relates to the potential of the sanitizer present in the water to oxidize contaminants. The potential is measured in millivolts, a very small electrical reading. When an oxidizer is present in water it is attempting to steal negatively charged electrons from any substance. If the substance is a platinum or gold electrode (ORP Sensor) once the oxidizer steals the negatively charged electron from the electrode the electrode will then generate more positively charged energy, therefore increasing ORP. The more oxidizer present in the water the more positively charged the electrode becomes.

When discussing ORP, often times people like to leave out the reduction part of it. Why? Because we are measuring the potential of the oxidizer to steal electrons, not the potential of substance being reduced or gaining electrons. However, if there are exactly the same amount of reducers, oxidizer atoms that have gained electrons, and oxidizer atoms that have not yet gained electrons, there will be no "Potential" for future oxidation. That is why we must continually sanitize water or eventually it will result in the sanitizer being used up.

pH is the most important factor in keeping the strength of your sanitizer. The Potential of Hydrogen or Power of Hydrogen relates to HOCL and OCL. If you have a lower pH the HOCL, the stronger chlorine, will be more active and the sanitizer will be more effective. If the stronger part of your chlorine is working harder and is more active the more oxidizing potential it will have. Lower pH means more available H⁺ in the water, which means that the water will not take the H⁺ as frequently from the HOCL resulting in more HOCL and less OCL(your weaker free chlorine).

In conclusion ORP (Oxidation Reduction Potential) is the measurement of the potential of the oxidizer present in the water to remove electrons from unwanted substances. Once the unwanted substance loses its electron its chemical structure is changed and it is "burned up". ORP is not tricked by the effects of other variables present in the water. ORP tells you the true effectiveness of your sanitizer based solely on its ability to oxidize in that specific body of water. The millivolt reading of 650mV has been designated as the potential needed for safe drinking water. The relationship of pH, FAC, and ORP are very important. We must keep a more alkaline (7.5 or lower) pH in our water to make sure our HOCL is more active which gives it more oxidizing ability, in turn raising our ORP reading. Automated pH and ORP controllers constantly monitor both the pH and ORP in the water and make the necessary adjustments to keep a proper pH and a proper amount of oxidizer present in the water to keep your water safe 24/7.

Written By:

M. Troy McGinty
CAT Controllers, Inc.

A NICE NOTE FROM A CAT CONTROLLER DEALER

Dear CAT Controllers, Inc.,

Our installations of CAT controllers have been successful, in the sense that the customer has been satisfied with the performance of the controller(s). We believe a CAT chemical controller is as essential for a pool or spa as a thermostat is on a furnace or pool heater. Without a control mechanism to moderate conditions, you will experience unwanted extremes. These extreme conditions will ultimately result in consumer dissatisfaction with their pool or spa and increased operational complexity and costs.

We don't capture good data on operational costs prior to installing most of our controllers. The customers simply aren't very conscientious about cost analysis. They might have a vague idea about what it is costing for monthly pool chemicals, and the maintenance staff has some idea about how many hours a day they spend on pool/spa maintenance but it is mostly subjective data.

One recent story that can be considered a success is as follows: The local Radisson hotel in Sioux Falls caters mostly to business travelers. It has an indoor pool and spa. The pool contained approximately 27,000 gallons and the spa 1200 gallons. The pool had fiberglass walls and a painted concrete floor. The spa originally was a 8-ft diameter, fiberglass hexagon; later we demolished it and replaced it with a custom concrete spa with tiled surface.

The chief maintenance engineer called me in response to a CAT Controllers direct mail piece I sent out. He was curious how these devices might help him manage costs, but also hoped it would make his pool management duties easier. I visited the property and brought along a demo system for my presentation. He was interested and asked me to make a written proposal for him to give to management for consideration.

In response to my written proposal, management said they could not afford the full up-front investment for two controllers. I asked what were there estimated monthly expenses for pool and spa chemicals. They replied that these expenses averages \$450.00 per month. I told them that I would install a controller for the pool and spa and would provide sanitizer, shock, and water balancing chemicals as needed for a flat fee of \$450.00 per month for a lease/purchase period of 36 months. At the end of the 3-year period they would own the controllers and they would be free to continue to purchase pool chemicals from us or from whatever source they preferred.

They readily agreed to this arrangement. When the 3-year term was completed they continued to purchase chemicals from us at an average rate of \$120.00 per month. This was a very dramatic decrease in their monthly operational expenses for the pool and spa.

The chief engineer was very quick to understand the principles for operating the CAT 2000 controllers, and especially good at maintaining balanced water (alkalinity and calcium). Prior to using controllers they had frequent heater failures from rotted out heat exchangers. These are expensive to replace. In general, there was lots of equipment maintenance issues all related to poorly maintained water chemistry.

Once the controllers were installed it didn't take long for him to realize and appreciate the ease with which he could maintain desirable water conditions, and he also noticed that his equipment failures were significantly reduced. He also reported that the local health officials were quite pleased to see he had automated his pool and spa water.

P.S. This hotel has become a loyal customer, and the chief engineer and management staff have become a strong referral source for other business for our company.

Sincerely,

Carmen Olivieri
MC & R Pools & Spas

Lease Financing and Starting Your Own WQM Program

What is a WQM or Water Quality Management Program?

There is a growing trend in the pool industry and a lot of other industries for that matter. The trend is service oriented business models. End user consumers more and more are trying to remove themselves from the equation. They do not want the responsibility of taking care of equipment and/or product. They are interested in having services provided where they are removed and the service company provides them with equipment, product, and service for flat monthly rates. As this relates to the pool industry is regarding water quality management. Hotels, motels, HOA's, apartment complexes, etc. want a service company to provide them with everything to maintain their water chemistry. If you have 20 commercial service accounts why not provide all of them with their necessary balancing chemicals, chemical feeding equipment, and monthly service visits for a flat monthly rate. But How? Inform each client that you will be providing (NOT SELLING) them with chemical controllers for each body of water, feed equipment for each body of water, the necessary balancing chemicals for each body of water, monitoring service via Poolcomm for each body of water, and visiting the facility to service equipment and check on operations twice a month, and doing all of this for 1 flat monthly rate.

Benefits to you:

- A decent monthly contribution to margin.
- A stronger relationship with your client.
- A reduced amount of worthless service calls from your client.
- The opportunity to be proactive with your client and inform him/her of potential problems that may occur in the future, which in turn will result in extra renovation/service work.

Benefits to your client:

- Eliminates fluctuating chemical costs.
- Gives the facility some where to turn for help.
- Reduces facilities liability
- There are out of the equation and do not have to worry about faulty equipment and how to get it replaced because it is not their equipment its yours.

How can I afford to start this program?

Lease Finance Equipment?

1. **Conserves Working Capital** - You need to preserve capital for income-producing investments. Equipment can generate income, but it takes valuable capital out of circulation. However, a lease permits retention of capital which can be utilized elsewhere. Additional earnings can be generated from retained capital making the overall cost of leasing even more attractive.
2. **Obsolescence Hedge** - With the reduction and in some cases loss of Investment Tax Credits (ITC) the cost of new equipment has increased. New equipment is not only expensive, it may very well be obsolete in a few years. Leasing can help firms avoid the pitfalls of owning obsolete equipment. "Add-on" provisions or "trade-up" leases may be your company's answer to replacing equipment you either outgrow or that no longer does the job.
3. **Alternative Source to Debt** - When you acquire equipment through leasing you preserve traditional funding lines, particularly attractive during periods of expansion when "tight" money conditions exist. Through leasing, it may be possible to pay for equipment "on time" without the payments counting as a form of indebtedness.
4. **Tax Advantages** - Congress is always "fine-tuning" the tax laws and leasing continues to come out as a viable alternative. Leasing may provide the means to minimize the negative impact of the Alternative Minimum Tax (AMT). Even non-profit organizations such as hospitals, state and local governments which are confronted with budget limitations and cannot take advantage of tax benefits turn to leasing. Remember, lease payments are essentially made from pre-tax dollars and not from profits. Of course, with any tax or accounting issue, you should consult with competent, professional advisors.
5. **Accounting Treatment, Capital or Operating Leases** - On the balance sheet or off, there may be a lease structure which can be designed to address your firm's accounting needs. Equally important, leasing may reduce your bookwork costs and promote the budgeting integrity of operation.
6. **100% Financing** - Leasing provides 100% financing (which may include shipping and installation charges), eliminating such lender requirements as down payment and compensating balance on deposit.
7. **Flexibility** - Normally beyond traditional methods of financing, leasing provides payment structures, terms and end of lease options which give you latitude to purchase your equipment, trade-up or add-on. Your needs define your lease.

8. **Fixed Rates** - A hedge on inflation and rising interest rates, leasing protects against market fluctuations. You are better able to predict your future operating expenses. Your lease allows you to use equipment well into the future, paid with today's dollars.

Equipment gives you the competitive edge, and leasing gives you the equipment. Capital fuels your operation, and leasing conserves capital. Stability, cost-effectiveness, convenience, flexibility - those are the elements of equipment leasing. So why go one more day without the equipment you need?

For more information on WQM and Lease Financing options contact your sales manager at CAT Controllers 1-800-657-2287. Remember to be open to new business ideas to help you stay ahead of your competition....

Written By,

M. Troy McGinty
CAT Controllers, Inc.

CAT STRATUM SPECIAL

Contact your CAT Controller Sales Representative today and ask about a special Stratum offer. With the season just around the corner you must be sure to get your pools up to code!

CAT offering Safety with Simplicity at a GREAT PRICE!

CALL NOW 1-800-657-2287

Josh Saville - Eastern Regional Sales Manager
Paul Hammond - Western Regional Sales Manager

News from the National Swimming Pool Foundation

The National Swimming Pool Foundation continues to make advances in education and fund and disseminate research. In the last weeks, the NSPF has launched the most current and comprehensive operator handbook. Proceeds from this book and other educational programs have been funding research to advance our field. The results of that research and other world-leading researchers are presented at the World Aquatic Health™ Conference (WAHC™). Below, CAT provides you an update on the new handbook, recent research direction, and the 2009 WAHC.

The newly published 2009 edition of the NSPF® Pool & Spa Operator™ Handbook is now available for purchase in English and Spanish with both U.S. and Metric units. The corresponding Pool Operator Primer™ online training has also been updated and will be available in early April. This fundamental training and reference manual is written for professionals who help protect those who use aquatic venues, including operators, health officials, service technicians, retailers, property managers and manufacturers. Industry leaders recognize the Handbook as the single most important resource for the recreational water industry. Nearly every chapter of the new handbook has updates and new content. "A team of editorial advisors and staff members have worked diligently over the past year to include many important updates and changes to both the content and format," says Alex Antoniou, Ph.D., NSPF Director of Educational Programs.

NSPF, a non-profit organization, founded in 1965, gives back about 30% of its total funds for research. Every Handbook purchased, every certification class attended, every helps to build the arsenal to fund research. In the past 5 years, NSPF has given more than 3.5 million in grant money for scientific research into aquatics with the underlying goal of dramatically increasing America's use of pools and spas.

Despite difficult economic times, the National Swimming Pool Foundation board of directors recently awarded six grants totaling \$415,282 to continue efforts to study the health benefits unique to aquatic exercise and immersion in hot/warm water, and to reduce injury and disease in and around the water. Four health benefit grants worth \$350,282 were awarded to Utah State University, University of South Carolina, West Virginia University, and Washington State University - National Aquatic and Sports Medicine Institute. Two injury prevention grants worth \$65,000 were awarded to Purdue University and University of North Carolina - Charlotte. These grants will help to sustain ongoing research supported by NSPF in recent years. Research results will be reported by grant recipients at the 2009 World Aquatic Health Conference.

The 2009 WAHC is slated for October 28-30, 2009, immediately following and in partnership with the National Environmental Public Health Conference (NEPHC) organized by the Centers for Disease Control and Prevention's (CDC) National Center for Environmental Health, the Agency for Toxic Substances & Disease Registry (ATSDR), and the National Environmental Health Association (NEHA). Both conferences will be held at the Sheraton Atlanta Hotel in Atlanta, Georgia. Bringing these conferences together creates extraordinary networking and learning opportunities for recreational water leaders to learn more about emerging issues and to interact with public health, healthcare, advocacy, and academic professionals. "These conferences will help bring government, academia, non-profits, and industry together to understand and solve key issues," explains Thomas M. Lachocki, Ph.D., CEO of the NSPF.

Two keynote addresses will be heard by attendees:

October 29: Lonnie J. King, DVM, Director, CDC
The Importance of Aquatics in Public Health Planning

October 30: Bruce Wigo, President, ISHOF
The Social and Cultural Impact of Swimming

Conference and hotel registration are open now. Seminars will be videotaped for viewing on the web post-conference, allowing those from around the world to hear industry-thought leaders without travel, lodging expense, or time commitment.

Information about NSPF educational programs can be obtained from CAT at 301-838-4001 or directly from www.nspf.org. Research grants and the World Aquatic Health Conference information is available at www.nspf.org or by contacting NSPF at 719-540-9119.

PRE-SEASON ORDER FORM

Western Pool and Spa Show Thank You

CAT Controllers, Inc. would like to thank those of you who visited us this year at the annual Western Pool and Spa Show; as well as a special thank you to IPSSA for hosting another educational and successful event. CAT Controllers would also like to thank those of you who participated in the Western CAT Controller Training that was held all day before the beginning of the show.. Many of you were able to take advantage of CAT visiting the west coast by come to training, stopping by the CAT seminar at the show, and/or stopping by the CAT booth to see us. The CAT Controller team has worked hard the past few years to make our presence at the Western Show as large as possible and we thank you for coming out to see us! Please be sure to contact us with any questions, concerns, and/or ideas about next years show. CAT Controllers thanks you again and wishes all of you the best of luck in 2009.

CAT Controllers LAST TRAINING!

CAT Controllers, Inc. will be hosting their last CPO and CAT Training seminar until after Labor Day 2009. CAT will be offering CPO Training on Thursday, May 7th, 2009 and offering CAT Training on Friday, May 8th, 2009. Both trainings will be held at the CAT Controller facility in Rockville, MD. For more information on training or to reserve a spot please contact Troy McGinty at 800-657-2287.

CPO Fusion Thursday, May 7th, 2009

CAT Training Friday, May 8th, 2009

P- 1-800-657-2287

Email - mtmcginty@chemauto.com

I hope you enjoyed this month's CAT Controller Courier. I encourage you to send me your input on any of this month's articles. Also please feel free to send me ideas for articles that you would like to see in future CAT Controller Courier issues. Thank you all once more for your loyalty and support.

Sincerely,

Troy McGinty
CAT Controllers, Inc.