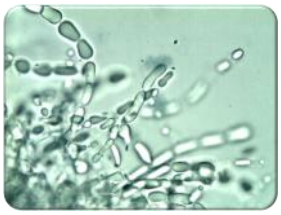
Environmental Leverage® INC.

Turning Liabilities into Leverage

September 2013

The Wastewater Insight

MYSTERY BUG OF THE MONTH



We started this month out with a new **Mystery Bug of the month!**

Check out our website for more photos of our new mystery bug!!!!

EnvironmentalLeverage.com

Inside this issue:

I need to run some tests in my plants? What are the best ways to run them?

Many tests are required not only by the EPA or for final effluent permits or pretreatment permits.

Such tests as D.O, N, P, pH, temperature, as well as alkalinity, TKN, nitrates.

Taking all these tests, as well as taking them at each shift if you are an industrial facility can add up to not only time, but expenses for each test, preparation, recording, as well as interpretation and then adjustments to the process if the tests show that the parameters need adjusting in the plant.

It can seem overwhelming, especially at small plants where staff is limited.

What measurements are critical and need to be adjusted properly at your plant?

The Critical 5- temperature, pH, ammonia, phosphorus and dissolved oxygen are usually critical at every plant and not only in the aeration basin, but in most places in the plant. Please check back issues to review these 5 parameters if needed.

These 5 parameters need to be checked often and in more than one place, so a portable probe may be the way to go to save on time as well as testing expenses. There are dozens of manufacturers now that make multi probes.

You can use simple chemettes or chemical tests for quick and dirty testing on each individual parameter.

CHEMets® Colorimetric Test Kits

Self-Filling Ampules Give Easy, Safe, Fast Analysis

No mixing, measuring, calibrating or cleaning, just snap the ampule, containing pre-measured unit dose of reagent, into the sample. You'll get quantitative results in minutes with ±4% accuracy.

Specifications: Accurately test water quality for the analytes listed below. Compare with liquid color standards included with kit for results. Each kit contains 30 individual tests, packaged in single-unit dose, vacuum-sealed ampules, plus comparators, accessory solutions (when necessary), snap cup and complete instructions.

VACUettes® Colorimetric Test Kits

Designed for Highly Concentrated Samples

Use a special auto-dilution feature that eliminates the need for a time-consuming and error-prone preliminary dilution. So, the entire test takes only two to three minutes.

Specifications: Each 7mm ampule has a capillary pipet attached to its tip. It is calibrated to draw the correct volume of sample for one of four dilution factors: 25X, 50X, 100X and 1000X. Hold the ampule horizontally so the capillary tip contacts the sample. After the pipet fills, immerse in a diluent (usually tap water) and snap ampule tip. The sample and diluent are drawn into ampule where they are mixed with the reagent. Resulting color change can then be compared with liquid color standards to quantify results. ***Test Kits*** contain 30 ampules, comparator(s), sample cup, accessory solution (when necessary) and instructions. ***Refill Packs*** of 30 ampules and accessory solutions are also available. Comparators have a two-year shelf life.

EMQUANT® Test Strips

Identify and Detect Ions and Compounds in Seconds

A wide selection of strips allows rapid, easy analysis of a variety of technical processes and solutions.

Specifications: Simply match test color to chart on strip container--no technical background or special skills required. Some strips are supplied with companion reagents in convenient dispenser bottles.

Titrets® Titrimetric Test Kits

Use Reverse Titration to Quantify Concentrations

Each Titret cell is a 13mm-dia. ampule for titrimetric analysis. The hand-held ampule contains vacuum sealed liquid titrant and has an attached flexible valve assembly. *Specifications:* Easy to use, the sample is drawn up into the ampule until a color change signals that the equivalence point has been reached. Titration is stopped and the ampule held upright. Its liquid level will correspond to a scale marked in ppm on the ampule's outer surface. Test Kits contain 30 ampules, 30 valve assemblies, a sample cup, accessory solutions (when necessary) and instructions.

Ion Sensitive probes are quick and easy to use. They cost a bit more to purchase initially, but you save time. Many have digital readouts, that you can record your data as you move from each piece of equipment and perform multiple tests. The pricing has significantly dropped on these in the past few years also.

Here is an example of a multi probe that will perform multiple tests.

HQ30d Portable Meter Package with LDO101 Optical Dissolved Oxygen Probe Product #: 8506300 **USD Price: $1,380.00**

Portable meter measures critical water quality parameters - without the need for multiple instruments. Single input channel for flexible measurement of pH, Conductivity, Dissolved Oxygen, BOD, ORP, Ammonia, Ammonium, Fluoride, Chloride, Sodium, and temperature - any IntelliCAL™ smart probe. Intuitive user interface for simple operation and accurate results. Guided calibration and check standard routines reduce calibration errors. Stabilization alerts and visual measurement lock ensure that you can trust the accuracy of the results. Trust your measurements - IntelliCAL™ smart probes store all calibrations in the probe. Calibration history allows quick and easy change out of probes without re-calibrating. The HQd smart system records serial numbers, current calibration data, user ID, sample ID, time, and date automatically in the data log for complete GLP traceability. Designed for demanding conditions. Rugged, waterproof (IP67) meter provides worry-free, reliable operation in lab or field environments. Convenient kit includes everything you need to start testing. Meter package includes HQ30d Portable Meter, LDO10101 optical dissolved oxygen probe with 1m cable, meter stand, BOD bottle and stopper for calibration, 4 AA batteries, quick-start guide, user manual, and documentation CD.

There are many others though- It takes a bit of time to sort through all the manufacturers.

Some manufacturers even created a probe that will generate a "simulated BOD" result. This will allow you to determine your loading to your system as well as if you need to make adjustments to N and P if you are an industry and have to supplement based upon flow and loading.

Here are a few company websites, but you can easily do an internet search to find the probe that will fit your facility's needs.

556MPS Handheld Multiparameter Instrument

Rugged, reliable and waterproof, the YSI 556 MPS (Multiprobe System) combines the versatility of an easy-to-use, easy-to-read handheld unit with all the functionality of a multiparameter system.

http://www.ysi.com/productsdetail.php?Professional-Plus-18

http://www.sutron.com/products/multiparameterwaterquality.htm

This company makes multi probes

http://www.hachhydromet.com/web/ott_hach.nsf/id/pa_ds5x-multiparameter-sonde.html

LDO

http://www.waterra.com/pages/Product_Line/water_quality_testing/aquaprobe_2011.html

Aquaread's aquaprobe

http://www.enviroequipment.com/rentals/PDF/Horiba-U-22-Manual.pdf

Manta 2

Sometimes you can rent a probe to try it out first. You can contact the local sales rep for a particular company and ask him to bring one out to try onsite. What you have to look at is how much it would cost for D.O. probe, ammonia probe, BOD simulation probe or COD testing equipment, phosphorus probe, etc.

If you can compare the cost to purchase each individual probes separately to a multi probe, then you might be better off with one multi probe if that is what your facility will need.

If a combination unit that may or may not do all that you require, save employee time, as well as chemicals to do each test, then a short term higher price may be worth long term time, chemicals and multi equipiment.

If it is too much, sometimes simple equipment will work just as well. Each facility has different requirements and different permits but at least this may inform you as to some of the new technology that has come out as well as alternative sources to obtain equipment that you may need.

Here are a few other sources

http://www.enviroequipment.com/

This one has used equipment as well as rentals

http://www.amazon.com/Hanna-Instruments-10-Multiparameter-Quality/dp/B002NX0VTM

http://www.grainger.com/Grainger/multi-parameter-meters/water-testing-equipment-and-meters/lab-supplies/ecatalog/N-kvg

Orbeco-Hellige COD Reactor

Not to make things confusing, but there are so many manufacturers!!!

Hach has a very good reputation and so does YSI for multi probes.

Conclusions: It does not matter which method you use, the only thing that matters is when you use it, how often you use it and how consistent you use your test methods. Where you pull the samples from also impact the calculations and your final test results. Make sure that if you are testing influent samples, that you are measuring total influent to the plant, including supernatant from sludge dewatering units or digestors. If they have a different feed point, test these streams separately if necessary, but be sure to include the final measurements in your calculations. These side streams are often overlooked.

Announcing two new Educational Seminars about Wastewater and Environmental Issues. CEU Credits apply to certain licenses.

Date Oct 21, 2013 **Time** 8a - 4:30p **Fee** $175 payments after Oct. 15th—add $25

Location

Hilton Garden Inn Tri-Cities/Kennewick

701 North Young Street

Kennewick, Washington 99336

Lunch will be provided by CARBON ONE

This seminar will present wastewater operations overview, training, troubleshooting and microscopic laboratory techniques necessary to control the wastewater treatment process with an emphasis on process monitoring and trouble shooting. These approaches are equally applicable to domestic, agriculture and industrial facilities. Past participants from industries such as dairy, refining, petrochemical, meat packing, wineries, food processing and pulp/paper have been successful in applying these methods to control their processes. Please bring a MLSS sample of your system.

2nd day seminar - CEU's available where applicable for drinking water as well as wastewater operator license

Date Oct 22, 2013 **Time** 8 :30a- 4:30p **Fee** $75 payments after Oct. 15th—add $25

Location

Hilton Garden Inn Tri-Cities/Kennewick

701 North Young Street

Kennewick, Washington 99336

Lunch will be provided by CARBON ONE

This seminar will present information on environmental issues such as air, solids, water and wastewater. Some issues covered will include Lagoon Troubleshooting, Nuisance Algae control, Winery Wastewater, Dairy Operations, Beneficial Reuse and Biosolids Land Applications. Each attendee will receive complete class notes and a Wastewater Training CD

Register for both seminars for $250 by phone 630 906-9791 fax 630 906-9792 or online

Registration Forms @ Environmentalleverage.com

http://www.environmentalleverage.com/newsletters/classes/Training%20classes.htm

Other LAB SUPPLIES SOURCES:

Microscope slides

http://www.zefon.com/store/grafco-37022f-frosted-microscope-slide.html

Grafco® Brand 3703-2F Microscope Slides are made of corrosion resistant glass with ground edges. Precleaned and suitable for a wide range of applications. Packaged 72 slides per box with paper between each slide. Sold by the Gross (144 slides).

Specifications:

- Frosted
- Sized 3" (75mm) x 1" (25mm) x 1mm
- Precleaned
- Packaged with paper separating each slide

Zefon Price: $7.00 FOR TWO PACKS OF SLIDES

Also a good source for slide boxes

Cover slips we purchase from VWR

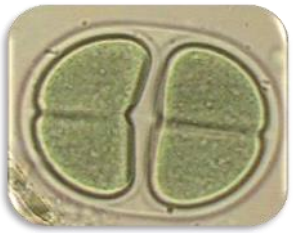
Believe it or not we found this one great for pipettes and gloves

http://www.stevespanglerscience.com/products.html

USA bluebook also a good source for many items

www.usabluebook.com

Last Month's
MYSTERY BUG OF THE MONTH



Mystery Bug of the month!

Last Month's Bug of the Month

Did you guess?

Technically anything with green in it usually means algae in wastewater. Algae should not be growing in wastewater plants with activated sludge. Usually it is too dark, and light will not penetrate down into the water. Usually it means solids build-up somewhere such as clarifier weirs or sidewalls and maintenance is needed. It may grow in ponds though.

Check out our website for more photos of our new mystery bug!!!!

August 2013 - Algae

EnvironmentalLeverage.com

Environmental Leverage
812 Dogwood Drive
North Aurora, IL 60542

Phone: 630-906-9791
Fax: 630-906-9792
E-mail: ELFEnvironmental@aol.com