

Ethanol Lab

AN ENERTECH SOLUTIONS, INC. MAGAZINE

October 2018



Inside

Welcome to Ethanol Lab Magazine

1

ISO Explained

2

Better Than Standard

4

Raising Standards

7

Fuel Ethanol Products

9

Shannon L. Smith, Editor



Ethanol Lab

AN ENERTECH SOLUTIONS, INC. MAGAZINE

October 2018



Thank you for taking a moment to read this edition of Ethanol Lab Magazine. It's all about standards.

We set the bar among innovative laboratory partners. This month's edition focuses on one of the most critical elements in your lab... reference standards. We are the best in the industry at custom-

blended, certified reference materials, and we can prove it!

The goal is to share knowledge and help you better understand the specifics regarding certifications and the details of all your critical compounds.

Jeff Smith

Jeff Smith, Owner
Enertech Solutions, Inc.



HOW IS ENERTECH BETTER?

ISO EXPLAINED

TAKING YOU STEP-BY-STEP

We've entered an age when quality has become imperative in the arena of the high tech fuel ethanol industry. The International Organization for Standardization (ISO) has provided a level playing field for all manufacturers to officially state the quality of their products and business practices.

ISO 9001, ISO 17025, and ISO Guide 34 are the three most valuable credentials for standard manufacturers.

What do these credentials really mean?

LEVEL 1:



ISO 9001 standard covers all of its operations, including general quality practices and customer and technical services.

We are registered with QSR, which recognizes our company throughout the international community.

- Certifies that a company has official written procedures and training documentation in the areas of customer service, product design, manufacturing, analysis, change management, certification, packaging, shipping, and purchasing.
- This standard is very customer service oriented. Every complaint is documented and corrective and preventive measures must be put into place.

Bottom Line: As long as a company is consistent in its documented actions, it can remain ISO 9001 certified.

LEVEL 2:



ISO 17025 "General Requirements for the Competence of Testing and Calibration Laboratories" addresses technical competency of the testing laboratory and specifically, a laboratory's ability to produce precise and accurate test and calibration data.

- Certifies that quality-oriented tests are performed correctly. These tests establish that the product is of the highest quality.
- All aspects of quotations and contracts, the Research and Design operation, and Manufacturing and Quality Control activities are examined by this standard. The qualification, education, and training of all associates are scrutinized against their job responsibilities. Even the qualifications of vendors and collaborators are checked, as well as every Quality Critical specification and purity requirement.

Bottom Line: To be ISO 17025 accredited, a company must not only be consistent, but must be proficient in testing the quality of their products.

LEVEL 3:



ISO Guide 34 "General Requirements for the Competence of Reference Materials Producers" certifies that we meet every requirement for the competence in the very specific field of Reference Material Production. Accreditation to ISO Guide 34 involves not only technical competence and good quality management practices, but adds verification of critical production management specific to reference material producers.

- This accreditation deals directly with Certified Reference Material (CRM) manufacturers.
- CRMs can only be manufactured by a Guide 34 accredited producer.
- All methods that the manufacturer uses to certify their standards must be validated and proven to be accurate.
- Requires that an "uncertainty", which includes all of the sources of error involved in certifying the standard, be reported on the Certificate of Analysis. Furthermore, the Certificate of Analysis itself must observe stricter requirements imposed by the ISO committee.

Bottom Line: Guide 34 provides the highest level of quality assurance, confidently stating that the manufacturer's standards are produced correctly and competently.

BETTER THAN STANDARD

As our industry matures and regulations on the horizon become more stringent, this leaves you, the lab manager, wondering is there anyone out there that can produce specified standards with the accreditation to stand up to any foreseeable inspection or audit with complete confidence?

WE CAN & WE DO!

We are the Ethanol industries most exciting and innovative manufacturer. We are the BEST and our tailored, customized solutions for your lab is the next evolutionary step.



DIFFERENT? HOW?

**WE DO THE SAME TESTS AS EVERYONE ELSE...
WHY IS THIS IMPORTANT?**

Everybody's instrumentation runs a little bit differently and everybody's process can certainly be varied. Why limit your analytical application?

Having to perform based on a set of standards that are pulled off the shelf with a generic formulation allows for too many variables and decreases the accuracy of your testing. If you want the best process data possible to maximize your production and efficiency, which is going to give you the most return on investment?

Do you use products made for everyone, or standards designed with your lab's needs in mind?



**WHY INVEST
IN OUR CUSTOM
REFERENCE STANDARDS
VERSUS THE OFF THE
SHELF FORMULATIONS
OF OTHER SUPPLIERS?**

The advantage of customized standards is we streamline our products to your lab's specific needs.



**CUSTOM PRODUCTS
WITHOUT
CUSTOM PRICES.**



We can customize your standards and control certain variables so that your analytical process is at pique performance.





CUSTOM STANDARDS IMPROVE LAB EFFICIENCY

We can bracket the full concentration range of values that you're using. Gone will be the days you need to make dilutions and rerun samples in order to get your analytical value within your specific calibration range. The other value that we offer is the option to set up numerous calibration points. If you want to run a 3-Point curve, great, but for better definition of your calibration range and more reliable process data, we can design that to run 4-Point or 5-Point curves.

Additionally, we can improve the efficiency and accuracy of your data by customizing the concentration of your standards to give you the optimum responses based on the equipment that you're running. For example, some of your labs may be running multiple instruments and one may be much more sensitive than the other. In that case, running the same standards on both instruments may not give comparable data so we can very easily adjust the concentrations up or down based the sensitivity of your particular instrumentation.

WE ARE THE BEST. WE CAN PROVE IT.

We are a certified reference material manufacturer. Our manufacturing process is ISO 9001, ISO 17025, and ISO 17034 accredited. This means our quality control laboratory is using accredited methods; our instrumentation is properly maintained for the quality control of the products.

Why is that significant? It identifies that our manufacturing process is in accordance with the same manufacturing processes of organizations such as NIST. In using the same manufacturing and verification principles, our reference materials are not simply considered reference materials, but certified reference materials.



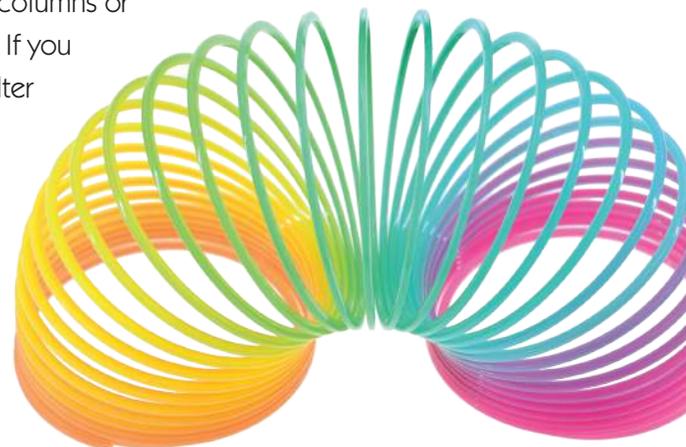
WE OFFER FLEXIBILITY

Perhaps you need to add an analyte to your standards... that's no problem for us! The additional analyte can be added into your same calibrations or quality control check standards for a minimal cost.

OK... but how do you make my job easier?

We can make your job easier in several ways. Let's say for instance you are running a 3-Point or 5-Point calibration curve to try out. Normally, that requires getting a high calibration standard, then self-diluting it to create calibration standards. We can provide them already mixed so that all you have to do is set them in your instrument, run them and be good to go.

The other thing that we do with our standards is pre-filter them through a .2 micron filter to make sure that there's no particulate matter that's going to cause problems with the columns or the guard column over time. If you are currently having to pre-filter your standards prior to use, then we can save you that step and the expense of a syringe filter. We really do make a pop the top, pour and go system.



MY STANDARDS WORK JUST FINE... **WHY CHANGE?**

If something is working analytically, why mess with it? You're dealing with a process that depends on your analytical data. Any miniscule problem will effect this operation, as we become more detailed about our data and knowing the costs inferred to the rest manufacturing process.

We offer products with pinpoint accuracy. Part of us being ISO 17034 accredited is that our standards have been analytically verified. We have the most state of the art equipment in our Quality Control Laboratory. To test the solutions we manufacture for your laboratory, we use the same methodology that you're running in your laboratory, HPLC with and RID detector, to ensure that your data is without question when you run it in your lab. This will allow other parts of the plant to make changes with absolute confidence

Why risk it?

What's so different about my lab? Why can't I just use off-the-shelf standards? Why expose myself to the risk of doing something new when there's no pressure to do so?

I guess the question you need to ask yourself is are you are a facility that's looking to continually improve? If you're happy with the status quo and you don't feel a need to improve your process or be able to tighten up your process control parameters and maybe get a little efficiency out of your process, then if you're happy with status quo, then stay status quo.

Remember, bad data has an cumulative cost down the road.

Remember, The value that the custom standards are going to provide you is better process control. By having the process controlled, you can fine-tune it to its absolutely peak efficiency. That's the bottom line.
Better Data = More \$\$\$.

How do I know I'm not get bamboozled by some snake oil?

You tell me this is special, how do I know?

What I would encourage you to do is go to A2LA (A2LA.org). That's the American Association of Laboratory Accreditation. They are the most highly regarded accreditation organization in the United States for laboratory accreditation (ISO 17025) and reference material manufacturing (ISO17034). We have auditors come into our facility every other year and they spend three to five days auditing our analytical process, our manufacturing process and our statistical analysis of our data to make sure that what we do is not only correct, but it's accurate according to NIST and the other national metrology institutes around the world.



Here's something you might not know about your standard...

not many companies look at all of the raw materials so closely before they calculate a standard, for example DP-4+, The standard DP-4+, will have some maltotriose, maltose, and glucose in it. It can even contains some smaller appearances of other analytes. This can begin to add up if the attention to detail isn't there. So we go through each of our raw materials thoroughly so that we know what the contribution to the other analytics are going to be any time we make a standard. We will compensate for that amount of contribution from each of the raw materials to the other analytes.

So when you get your standard, if it says 10,000 ppm of glucose, there's 10,000 PPM of glucose. It's not that we added 10,000 ppm, but then DP-4 added another 1,000 and maybe the maltotriose or maltose added another 300 or 400, we're actually compensating for all of those contributions.

So our standards are going to give a truly accurate read on your process.



RAISING STANDARDS BY PROTECTING YOURS

The cornerstone of the scientific community is accuracy. That's why Enertech Solutions, Inc. has always been committed to producing the industry's most exact Certified Reference Materials.

Our control... and the control of every standard manufacturer... ends shortly after a standard is calibrated and packaged. We are now changing the way we deliver our quality standards.

TRANSPIRATION: Loss of Water Vapor Through a Container

Transpiration has been described in scientific literature for years (e.g. Schumacher, 1958), and national metrological institutes such as NIST (National Institute of Standards and Technology) began discussing it on certificates in the 1990s. Additionally, the packaging industry (among others) has published data regarding transpiration, though the effect is typically referred to as moisture vapor transmission rate (MVTR) or water vapor transmission rate (WVTR).

After careful research, we commit to provide a new packaging system that drastically extends the shelf life of our standard CRMs.

With TCT, concerns about shipping or storage conditions are eliminated, as transpiration is no longer an issue, which saves you money and simplifies operations by removing the need to constantly inventory and restock CRMs.

1

WHAT IS TRANSPIRATION?



Transpiration refers to the passage of water vapor through the walls of a container and/or evaporation from the container opening. Transpiration results in an increase in the concentration of the CR/RM.

This is one reason virtually all aqueous CRMs/RMs have a limited shelf-life.



TRANSPIRATION CAN BE CAUSED BY SUBTLE TEMPERATURE CHANGES FROM BY SIMPLY OPENING AND CLOSING THE LAB REFRIGERATOR.



TRANSPIRATION CAN BE CAUSED BY OPENING AND CLOSING THE LID REPEATEDLY ON THE STORAGE CONTAINER.

OUR SOLUTION TO TRANSPIRATION

2



A Better Product Packaged A Better Way.

The way we package extends the shelf-life of the product. Enertech Solutions, Inc. uses a specially designed, sealed glass vial that prevents the loss of water vapor from escaping until you are ready to use it.

In effect, this puts you in control of the expiration date.

SAVE TIME AND MONEY WITH ENERTECH

3

From the moment your standard is packaged in the plastic bottle change begins. This change happens even faster when the bottle is opened the first time and continues no matter how tight you put the lid back on.



**OUR SPECIALLY
DESIGNED VIALS
PROTECTS YOUR
INVENTORY SO
YOU CAN HAVE
MORE ON HAND.**



**OUR VIALS GIVE
YOU CONTROL AND
CONFIDENCE THAT
YOUR CERTIFIED
REFERENCE
MATERIAL REMAINS
INTACT OVER TIME.**

Fuel Ethanol Products: Our managed system provides a unique package of blended standards, chemicals, and supplies each month. Choose EnerTech Solutions! We meet your demands for best in service, quality, and price amongst other competitors in the Ethanol industry. We have globally researched products with standards of excellence. We don't require long-term contracts, or lead time, and our order and supply system is simplistic and efficient. We have a fully stocked inventory. **Saves time, money, and worry!**

For more information or to order, click on any image below.



SYRINGE FILTERS



HPLC VIALS WITH CAPS



MOBILE PHASE



STANDARDS
Reference/Custom



GLOVES



CENTRIFUGE TUBES



CHEMICALS



**MOISTURE PANS
& WEIGHING DISHES**



BOTTLES



SYRINGES



FILTER PAPERS



TRANSFER PIPETTES



MISC. LAB CONSUMABLES

Thank You

for taking the time to enjoy

Ethanol Lab Magazine

We value your feedback and
welcome you to contact us with
any questions or comments.

www.enertechonline.com
877.389.4787 or 724.977.2375