



LABWORKS
greenLIMS™



Streamlined Operations

from **Feed to Fuel**

LABWORKS greenLIMS

Robust, easy-to-use

Paving the way for efficient biofuels process and product monitoring

As the demand for biofuels has increased, PerkinElmer has led the way in developing and delivering solutions for analyzing and reporting of in-process and finished testing requirements. LABWORKS™ Laboratory Information Management System is the leading application for the chemical and petrochemical industry; built on over 20 years of laboratory and systems experience. The newest solution, greenLIMS™, reflects an understanding of the needs for biofuels testing laboratories, providing a suite of applications designed to manage work, capture lab data, and generate Certificates of Analysis for product shipment. greenLIMS provides an affordable but scalable solution that can be implemented quickly, returning productivity benefits immediately.

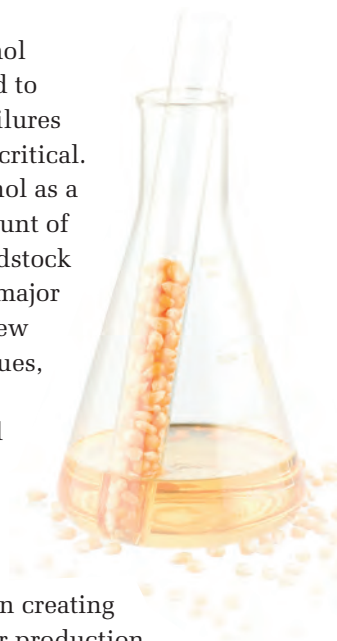
Install it and get started...

It's that easy. The Fundamental Services option for LABWORKS greenLIMS provides for the import of product and analysis codes based on the ASTM and EN Methods for Biofuels, eliminating lengthy and costly implementation. With minimal input, your laboratory is off and running—reporting your data and generating Certificates of Analysis in a couple of days. Of course, if you need any additional training or on-site assistance, our implementation and support team is ready to assist you.

LABWORKS greenLIMS comes bundled with interfaces to PerkinElmer's WinLab™ and TotalChrom® applications. Interfaces to over 200 other instruments from other vendors are available as well. What's more, as the needs of your laboratory grow, LABWORKS greenLIMS is expandable to take advantage of the features that the full LABWORKS LIMS has to offer. Your initial low-cost investment is 100% preserved—an assurance not available elsewhere.

Ethanol Production

As more efficient methods of ethanol distillation are developed, the need to record and report successes and failures with different feedstocks becomes critical. Those who oppose the use of ethanol as a viable fuel source point to the amount of energy required to produce the feedstock and distill it down to ethanol as a major deterrent. As companies evaluate new feedstocks and distillation techniques, the ability to record and chart end-product successes and failures will help to establish best practices for the production of ethanol—keeping energy costs low. LABWORKS greenLIMS will report the testing data that assists in creating the best quality and consistency for production.



Key Benefits of LABWORKS LIMS:

- ▶ Automated Certificate of Analysis (COA) generation
- ▶ Organize work orders for regularly repeated tests
- ▶ Import ready analysis codes for ASTM and EN Biodiesel Methods
- ▶ Monitor lab performance by tracking all samples status changes
- ▶ Low entry price
- ▶ Expandable to grow with your lab

S for Biofuel Production

se, cost effective

Biodiesel Production

Monitoring the key quality indicators in a blended Biodiesel manufacturing process is critical to producing a consistent quality product. Bad blends or high glycerin content can result in build-up in fuel tanks, clogged fuel systems, injector deposits and filter plugging. This ultimately results in loss of revenue for both the company and the consumer. LABWORKS greenLIMS enables efficient monitoring and reporting of critical data throughout the purification process. It's comprehensive functionality ensures effective sample management, tracking and use of this data to respond to out of control conditions. Superior product quality and efficient manufacturing depends on your laboratory's abilities to handle any number of samples, monitor plant functions, and control the entire laboratory process from start to finish. LABWORKS greenLIMS offers you these capabilities, and more. Drawing on nearly 20 years of global experience, dedicated service and the support and strength of our system, we've become the leading provider of lab management and integrated reporting solutions in process industries.

Control the process, stay in spec and increase revenue.

LABWORKS greenLIMS's powerful Process Scheduler module schedules routine sampling and monitors statuses throughout your laboratory workflow. Optional features allow personnel working outside the laboratory to effectively and securely access data using portable electronic devices. Process Scheduler saves you time and money with bar-coded labels printed onsite that automatically enter sample information, easy-to-use color-coded sample statuses and efficient work order organization. With this sample-oriented workflow, you can choose the sample and view where it is in the process, rather than choosing the task and finding the samples associated with it.

ASTM D-6751-07^{E1} & EN 14214 Standards

Flash Point	Total Glycerine
Water and Sediment	Phosphorous Content
Kinematic Viscosity, 40 oC	Distillation Temperature
Sodium & Potassium Combined	Sulfated Ash
Total Sulfur	Specific Gravity
Copper Strip Corrosion	Soap
Cetane	Rancimat@110
Cloud Point	NACE Corrosion @60°F
Carbon Residue	Haze Rating @60°F
Voluntary Filtration Method	Acid Number
Free Glycerine	Metals/other
Calcium & Magnesium Combined	



AGGRO
cooperative
The benchmark for biodiesel.

Certificate of Analysis
SUN GOLD BIODIESEL
Wednesday, January 24, 2007

PROPERTY	ASTM METHOD	UNITS	D-6751-06	STD RANGES
Flash Point	D93	Degrees C	130 min	162-174
Water & Sediment	D2709	% VOL	0.050 MAX	0.005-0.04
Kinematic Vise-40C	D445	mm ² /sec	1.9 - 6.0	4.062-4.141
Sulfated Ash	D874	% mass	0.020 max	0.003-0.010
Total Sulfur	D2453	%mass	0.05	0.0002-0.0005
Copper Strip Corrosion	D130		No. 3 Max	1A
Cetane	D813		47 min	48.4-49.7
Cloud Point	D2500	Degrees C	Report	0.0-2.2
Carbon Residue	D4530	% mass	0.050 MAX	0.006-0.010
Acid Number	D664	mg KOH/gm	0.050 MAX	0.080-0.20
Cu	ICP	PPM	Report	<0.050
Mg	ICP	PPM	Report	<0.10
Na	ICP	PPM	Report	<1.00
P	ICP	PPM	Report	<0.15
Fe	ICP	PPM	Report	<0.15
Ni	ICP	PPM	Report	<0.15
K	ICP	PPM	Report	<0.15

PerkinElmer improves productivity and quality in the Biofuels industry



Comprehensive Green Laboratory Solutions

Biofuel production plants need to deliver product that complies with ASTM and European standards, and therefore, they must maximize control over its consistency and quality. PerkinElmer has a dedicated team of experts to support the biofuels industry. We help laboratories across the world navigate compliance standards for biofuels, we design laboratories from the ground up, and we provide applications support, training and maintenance management.

PerkinElmer is ideally suited to equip your biofuels laboratory with all of the high technology analytical tools that you need to produce a biofuel that is method compliant and consistently high in quality. The instrumentation that PerkinElmer provides is specifically designed and manufactured to meet the stringent and specific needs of the biofuels industry. Our Biodiesel GC Turnkey System provides an out-of-the-box solution for analyzing free and total glycerin in biodiesel. This analytical tool is preconfigured with the proper columns, detector, and software to analyze biodiesel immediately. All of our analytical solutions, including those from our ICP-OES and FTIR product lines, have proven their fit and reliability in biofuels laboratories around the world. These products come to your laboratory complete with installation, warranty, and user training that are tailored to the needs of the biofuels laboratory. More than 1,500 factory trained service engineers ensure that this instrumentation will be functioning at full capacity in your laboratory wherever it is located.

For more information on how PerkinElmer can help your laboratory to ensure quality biofuel product, visit www.perkinelmer.com/biofuels.

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