

FOSS



Fuel ethanol process control with FOSS

Dedicated Analytical Solutions



Sustainable profit

Fuel ethanol production involves constant questions: What is the potential yield of this feedstock? Is the fermentation becoming infected? Is the quality of my DDGS consistent or does it vary? Such questions demand rapid and reliable answers anytime you need them, especially as increasingly costly feedstock puts pressure on your business.

Yield prediction made simple

FOSS has always supported the fuel ethanol industry. To name an example, the well-known Infratec™ 1241 has become a cornerstone of effective ethanol production providing a powerful yet simple-to-use tool for testing the yield potential of feedstock. Today, more than 60% of US and European ethanol producers already use a FOSS solution.

Fermentation control completes the picture

Just like effective control of feedstock, improved control of the fermentation process with BioFoss™ can have a significant impact on plant efficiency and profit. Now, a breakthrough in fermentation monitoring technology provides you with a new option for rapid and easy control of this crucial process step.

Second generation fuel

Are you working with advanced biocrops or advanced biofuels? FOSS solutions for controlling production of fuel from second generation sources are already available and in use. And, in partnership with the fuel ethanol industry, FOSS is involved in the further development of future solutions, ensuring dedicated analytical solutions to help your business develop and grow in an evolving industry.

“A reliable, rapid fermentation monitoring technology will allow plants to better optimize fermentation times and yields and reduce laboratory costs.”

Martha Schlicher, Ph.D, Vice President, GTL Resources plc/Illinois River Energy LLC

learn more on www.foss.dk/ethanol



“BioFoss™ offers a complete HPLC for routine fermentation control.”

Accurate fermentation control made fast and easy

The fermentation tank is your money-maker and keeping it running smoothly and efficiently is a major concern. Knowing what is going on inside is crucial for effective control, but analysis with existing HPLC options is time consuming and to some extent operator dependant – if only fermentation control could be fast, accurate and easy.

BioFoss™ answers that call, providing:

- ☒ **Accurate results**
 - including the important infection indicators
- ☒ **Fast analysis**
 - complete result report within two minutes
- ☒ **Ease of use**
 - place the sample, close the lid and push start

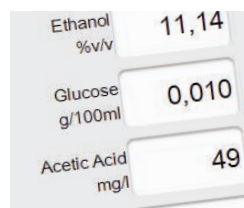
FOSS Touch Screen User Interface

Sample ID: Tank 31

Ethanol %v/v	11,14	Sucrose g/100ml	0,006
Glucose g/100ml	0,010	Fructose g/100ml	0,014
Acetic Acid mg/l	49	Mannitol g/100ml	0,026
Lactic Acid mg/l	712	Residual Sugar g/100ml	0,030
Glycerol g/100ml	0,574		

BioFoss™ measures critical parameters required for effective fermentation control.

Just how easy is it



1. Select sample type

2. Load sample

3. Press start

4. Await result

5. Wipe clean

learn more on www.foss.dk/ethanol



*“Best effective alternative to
fermentation analysis”*



Quality without compromise

Unlike some instruments that are promoted as a single solution covering different analysis requirements, FOSS solutions are dedicated to the task in hand. Through this dedication, you get a solution that is the best match for specific demands, providing optimal results at each critical control point. This ensures the reliability and accuracy you need for optimal control throughout your process.

So why compromise?

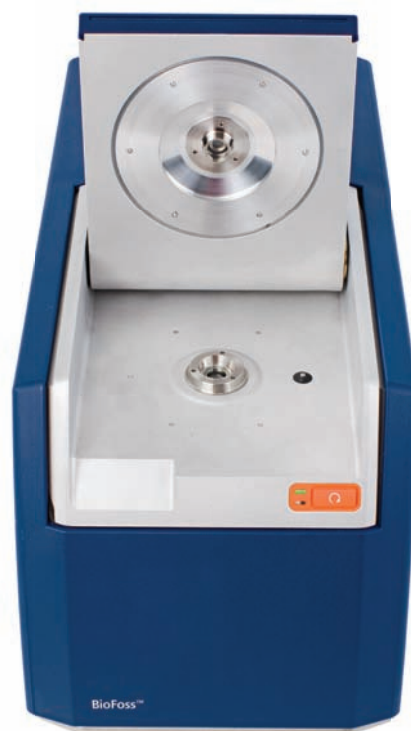
The new BioFoss™ is a case in point. It is built on analysis technology that is second-to-none for testing parameters required in fermentation monitoring.

BioFoss™ is

- Pre-calibrated
- Easy to install
- Ready-to-use

Right tool for the job

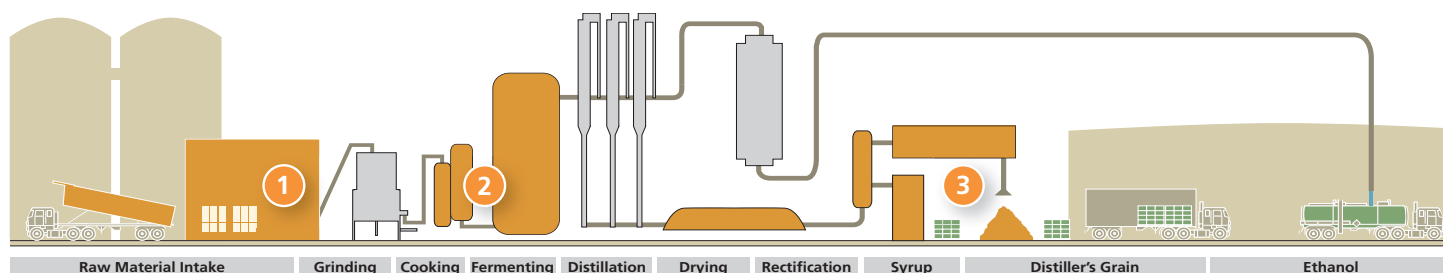
Simplicity, ease-of-use and speed-of-results are central to all FOSS solutions. With these principles in mind, FOSS has now introduced Fourier Transform Infrared Analysis (FTIR) technology to the ethanol industry. FTIR analysis is ideal for testing liquid samples and it can deliver accurate measurements for low-level constituents, making it perfect for rapid fermentation monitoring applications.



*“Why compromise on quality when
the ideal solution is available and
ready to use?”*

learn more on www.foss.dk/ethanol

Optimize every step with dedicated solutions



1

Intake - feedstock control

Find and select the right feedstock and you can make significant improvements in yield. The Infratec™ 1241 helps you do just that, providing reliable measurements of key parameters for grain, including ethanol yield potential.

Infratec™ 1241

Parameters

Ethanol Yield Potential
Starch
Protein
Moisture
Fat
Test weight



2

Optimal fermentation control

Close monitoring with the BioFoss™ enables rapid detection of infections in the fermentation process. It also avoids the cost associated with HPLC and it is so simple that anyone in the plant can use it.

BioFoss™

Parameters

Lactic Acid
Acetic Acid
Ethanol
Glucose
Maltose
DP3
DP4+
Glycerol
pH



3

Back-end process control

Frequent tests allow tighter process monitoring in the back-end operation for high quality coproducts. Cost and energy savings can also be made through rapid moisture control.

InfraXact™

Parameters

Moisture
Protein
Fat
Ash
Fibre
Amino Acids

learn more on www.foss.dk/ethanol

FOSS in the biofuel industry

FOSS is the world's leading supplier of dedicated analytical solutions for optimal production of food, agricultural, pharmaceutical and chemical products.

In the biofuel industry, FOSS dedicated analytical solutions help everyone involved in the value chain to increase yield, productivity and profitability, from growers and grain elevators to oil crushers and biofuel producers. For fuel ethanol producers specifically, FOSS solutions help to source the best feed stock for optimal yield, increase process efficiency and increase revenues from co-products.

Fast pay back, lasting advantage

With FOSS you can take advantage of:

- ☑ Ready-to-use calibrations, calibration transferability and application support
- ☑ State-of-the-art ANN calibration technology
- ☑ Simple-to-use and easy-to-maintain instruments
- ☑ A network of sales offices and exclusive dealers so that you can always talk to a local partner about ongoing support with your FOSS solution.

It is hardly surprising then that more than 60% of US and European ethanol producers today already use a FOSS dedicated analytical solution.

Visit www.foss.dk/biofuel for more information about how FOSS dedicated analytical solutions can help you to produce quality biofuel effectively and with optimal profit.



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