

Thermo Scientific ϵ scan
In-line process analyzer

Instant. Information. In-line.

Get In The Zone!

Every food item you produce has a targeted setpoint for each of the critical product components or constituents. Not maintaining these setpoints can affect product quality, profitability and regulatory specifications.

Whether you produce solids, liquids, slurries or powders, monitoring and controlling your production processes is crucial to more efficient operations and thus better profitability.

Thermo Scientific ϵ scan analyzer uses patented Guided Microwave Spectrometer (GMS) technology to measure key product constituents. This in-line process analyzer gives you better control of your process and ensures optimal equipment efficiency of your line.

The ϵ scan analyzer's ability to instantly measure fat, protein, moisture, salt, and other key constituents of your product lets you know when you are in the zone and helps to keep you there.



moisture fat
brix pH acidity
protein emulsions
salt

The Solution

No moving parts. No optical sensors.
No interrupting your process. Thermo Scientific ϵ scan analyzer is the next generation in-process measurement. Using very low microwave electromagnetic energy, ϵ scan analyzer “sees through” your product to measure various constituents and to provide you with immediate information about moisture, fat, protein and other content. This energy penetrates your product completely, thereby eliminating a surface-only measurement like the NIR method provides.

Why ϵ scan

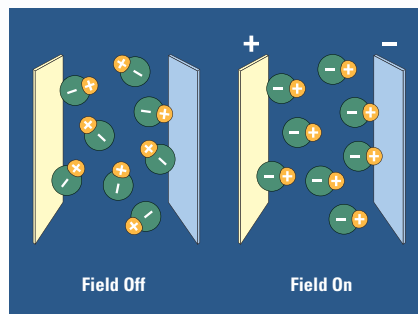
Accuracy. Efficiency. Instantly. To achieve optimal equipment efficiency you need instant, accurate, information that won't interrupt your process.

Lab testing is accurate—but it will never give you immediate results.

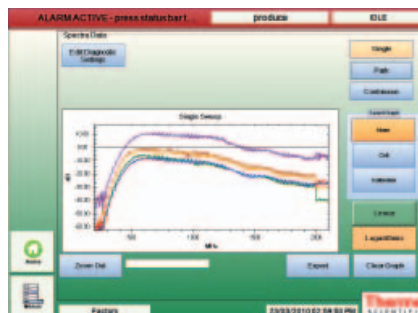
Near infra red (NIR) technology typically provides only a surface measurement.

ϵ scan™ analyzer lets you know immediately if your content deviates from your target setpoints—without stopping the line, without costly lab testing, and without expensive delays.

- ϵ scan analyzer “sees through” the food matrix to instantly measure fat, protein, moisture, salt, and other key properties
- Easy to calibrate
- Provides immediate, accurate, real-time results
- Reduces the need for constant offline lab testing
- Saves time, money and materials by giving you immediate data—allowing closed-loop control of your process
- Keeps you on target to meet your product setpoints which helps to improve product quality and to eliminate product rework
- Protects brand value
- Works with dough, meat and other foods, liquids and slurries that are processed inside a pipeline or chute
- Integrates seamlessly into your process—no flow obstruction
- Measurement is truly representative of all of the product in the pipe
- Samples up to 30 times or more than NIR
- Superior repeatability, accuracy, precision and stability
- No moving parts, no sources or detectors to replace



Polar molecule rotation



Sample spectra log screen

How ϵ scan Analyzer Works

ϵ scan analyzer uses low levels of microwave power that pass through the product to provide complete measurement and analysis of the product constituents. Microwave energy is sensitive to the concentration of polar, semi-polar and non-polar molecules such as water, protein, fat, oil and ion/salt concentration in food products. ϵ scan analyzer applies a sinusoidal signal to the material passing through the chamber to measure the bulk electrical properties.

Measuring Moisture Content

In products that have moisture, these polar molecules change the microwave's wavelength. The more moisture there is in the product, the more the velocity of the wave will decrease as it passes through the sample. Thus by measuring the changes in the wavelength of the microwave energy, you can discover the moisture content of a product.

Measuring Protein and Fat Content

Protein and fat molecules—semi polar and non-polar molecules—absorb or reflect microwave energy. To find the amount of protein or fat in a product, the ϵ scan analyzer measures the amount of energy absorbed or lost.

Process Applications



Meat

- Fat
- Protein
- Moisture



Fruit & Vegetables

- Moisture
- Salt
- Brix



Dairy

- Fat
- Moisture
- Salt
- Solids



Snack Food

- Moisture
- Salt



Peanut Butter

- Fat
- Salt
- Protein
- Viscosity



Seafood

- Salt
- Protein
- Fat



Orange Juice

- Brix, pH and acidity
- Solids

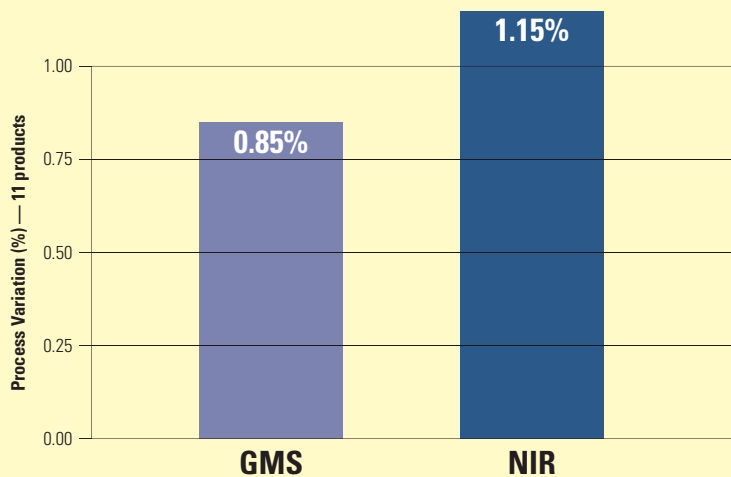


Pet Food

- Water Activity (aW)
- Moisture
- Protein

See What's in the Pipe!

€ scan Analyzer Beats the Competition by 25%!



Reduce Production Costs

No more giving away product and no more guesswork.

- € scan analyzer provides instant information
- Save time, money and improve consistency of product quality
- Accurate measurement of key ingredients, so that you can make adjustments to get in the zone and stay there

Fast Return on Investment

Optimize your processes and improve your control. The € scan analyzer promises a quick return on investment. With fast, accurate and consistent analytical results in real time, you will:

- Reduce the costs of raw materials
- Prevent waste of energy and product
- Improve productivity
- Save money on labor
- Improve your product's consistency



Easy Operation

Calibrations for many different types of products makes the € scan analyzer the ideal choice for your processing facility

- Clean design with no moving parts
- Integrates quickly and easily into your process
- No optical parts that need routine maintenance

Trust your online analytics to the experts. For more than 50 years, food and beverage companies around the world have depended on Thermo Scientific products to ensure their brand quality and promote food safety. Your confidence is our commitment!

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