IN-LINE ANALYSIS OF FLOUR

Martin Andersson, Application Specialist, FOSS
“We deliver rapid, reliable and dedicated analytical solutions for routine testing to allow for fast decisions on how to maximise value of production of agricultural food products”
NEAR INFRARED SOLUTIONS FROM FOSS

- Hit the target
- Understand your yield
- Traceability
- Fair trade
SPECTROSCOPY

Chemical analysis using near infrared: How?
SPECTROSCOPY

- Spectroscopy is the study of absorption of near infrared light (energy) by molecules.
- Near infrared ranges from 780 – 2500 nm.
- It is a part of molecular spectroscopy where interaction between light (energy) and matter (molecules).
Atoms vibrate with a frequency specific to the molecular bond.

When light hits the vibrating bond, it is just passing through when it does not match the frequency.

When light hits the bond with a matching frequency, the light is absorbed and the vibration intensifies.

Organic bonds absorb NIR light.
Color & chemical composition including

- OH
- NH
- CH

THE LUCKY REGION
CONSTITUENT SPECTRA

Water

Fat

Protein

Starch
FLOUR CAPABILITIES

- Moisture
- Protein
- Water Absorbtion
- Maltose
- Ash
- Color L (L*, a*, b*)
- Rice Amylose
Suppliers' payment, segregation and quality control of raw material

Improved control of feed manufacturing process

Safe products and compliance with regulatory requirements

Usually good...

But too late
Today

- Raw material reception
- Quality Control Laboratories
- Production
- Finished products

Supplier’s payment, segregation and quality control of raw material
Improved control of feed manufacturing process
Safe products and compliance with regulatory requirements
I TAKE SAMPLES. WHY INLINE?
1. Windows reflectance
2. Direct light
3. Powder probe
4. Lateral Transmittance probe
Fine sticky powders
NIR range: 1100 – 1650 nm

- Whole milk powder
- Skim milk powder
- Whey powder
- Infant formula powder
- Caseinate powder
- Starch powder
- Corn/wheat gluten powder
Solids on open conveyor in reflectance
NIR range: 1100 – 1650 nm

- Feed ingredients
- Feed pellets
- Minced meat
- Pasta
- Chips
PROFOSS LATERAL TRANSMITTANCE

For liquid & slurries
NIR range: 850 – 1050 nm

- Soy Milk
- Butter
- Mozzarella
- WPC / MPC
- Cream
- Fresh Cheese
- Processed Cheese
- Mechanical Debone Meat
- Wet Pet Food
- **Whole Grain**
- Gluten/starch slurries
Fluid Powders
NIR range: 1100 – 1650 nm

• Feed ingredients
• Feed mix
• Feed pellets
• Soy/rape meal
• Whole Wheat
• Whole Corn
• Flour
• Cocoa liquor
• Etc.
INSTALLATION ANGLE
Software Communication Flow

Note: the Kepware license will be needed with ISIscan Nova and Beckhoff
Graph view of noisy measurements with batch average as a thick red line, and moving average as thick black line.
New interface
**DIGITAL PRODUCTS**

1. Instrument management
2. Instrument downtime,
3. Back up sample data and instrument data
4. Monitoring and optimizing instrument performance
5. Securing basic Standard Operation Procedures are followed
6. Maintenance plan for your instrument
7. Calibration accuracy on your instrument
8. Optimizing samples for reference analyses
9. Documentation for audit trail?
10. Best possible performance for all your samples
11. ANN
12. Complete backup and auto-documentation

**FREE 90 days trial**
“A challenge I have often encountered is that when you are working within the plant, and the instrument seems to be working OK, then everyone is happy. However, when you start getting out of spec results, you get challenged. Is it the process or the instrument?

With FossAssure, we can point to and demonstrate that the instrument is not the source of the issue. It gives peace of mind because I know that someone with the right education is keeping an eye on the instruments and how they are running.”

Jennifer Robinson, VP of Corporate Quality Assurance
THANK YOU