

NIRS™ DS2500 Dairy Powder analyser In shape for sustainable dairying



The NIRS DS 2500 dairy analyser is a new generation near infrared (NIR) analyser that helps you to improve yield and reduce energy usage in powder production. The groundbreaking new design captures all the latest developments in NIR, including usability, instrument standardisation and seamless transferability of calibrations from existing NIR solutions and across multiple installed units.

Designed for use in the laboratory or at the production line, the NIRS DS2500 is a practical quality control tool ideal for routine production control and monitoring of final product quality.

Sample	Parameters
Direct measurements of dairy powders in compliance with IDF 201 guidelines	Fat, Protein, Moisture, Ash, Lactose, Acidity and more



More yield with reduced energy

Consistent routine analysis results for a range of parameters such as protein, moisture, fat, ash and other exciting potential parameters such as colour and bulk density helps you to fine tune production closer to targets and avoid wasteful rework.

Just 0.1% higher moisture concentration closer to target can save you Euro 50,000 per annum at typical production rates. And getting moisture content in the drying process can save Euro 24,000 a year for a 10,000 ton/year output.

Networking software completes the picture by allowing units to be monitored and maintained remotely by NIR experts for optimal and consistent measurement performance over time.

At-line control makes quality a matter of routine

Anyone can do reliable tests with the NIRS DS2500 with low risk of operator error. Users just place some sample in the sample cup, push the button and wait a minute for results to appear on screen via the intuitive ISIScan Nova software.

The NIRS DS2500 has been designed for high performance in the hardest production environments. It is IP65 certified to withstand dust, vibration and temperature fluctuations. Routine maintenance operations such as changing the lamp have been made simple to perform by any operator.

High performance at low cost

It's easy to get started using the NIRS DS2500 at no additional cost. Instruments are pre-calibrated with global artificial neural network (ANN) calibrations based on a comprehensive FOSS database built-up over decades of collaboration with the dairy industry. Valuable data from existing local or ANN calibrations can be transferred to the new platform using straight-

forward migration paths without any loss of performance.

Maintaining consistency between instruments and installing additional instrument units is also made simple. Every instrument that leaves the factory is hardware standardised. Important factors such as light intensity, bandwidth and wavelength precision are thoroughly controlled in production to ensure complete consistency between instruments. Built-in measurement standards help to control instrument performance, ensuring that no deviations occur over time. Likewise, multiple instruments can use the same calibrations without any modifications.

Why choose FOSS?

For decades FOSS has worked with the dairy industry to keep pace with analysis demands. FOSS is unique in offering a range of dedicated solutions based on NIR, FTIR and reference methods. FOSS solutions provide analysis and control throughout the production process, from raw material to finished product and from routine analysis to at-line and in-line process control.

Support is provided by certified support engineers stationed close to our customers across the globe. Local, competent and certified they keep your analytical solution running at peak performance for maximum productivity, payback and profit. A range of proactive services is available for you to choose from according to your business requirements.

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

Technology

Stable monochromator performance

The new generation monochromator technology used in the NIRS DS2500 (comparable with the FOSS NIRS XDS instrument) ensures versatility and stability across the full spectral range from 400 to 2500 nm. This opens up for potential new measurements such as bulk density and colour.

The spectrometer is equipped with internal standards for control of light intensity, bandwidth and wavelength position. Its stability can be validated to ensure that data transfer is continuously seamless, even over time. Designed to deliver ongoing exceptional performance, the NIRS DS2500 monochromator will not normally need recalibration. However, internal as well as external standards can be used for automatic recalibration and quality control of the spectrometer.

Online remote instrument management

FOSS Mosaic networking software allows you to connect your NIRS DS2500 to the internet for remote instrument management. Once connected, either a FOSS NIR specialist or your in-house team can manage and optimise the performance of your instrument(s) online without interrupting routine operations. With Mosaic you can manage all the settings on your instrument(s) and can carry out task such as:

- Instrument and calibration surveillance
- Instrument diagnostics for QC management
- Calibration adjustment
- Calibration updates and optimisation
- Central reporting
- Protection of valuable data and calibrations
- Online technical support

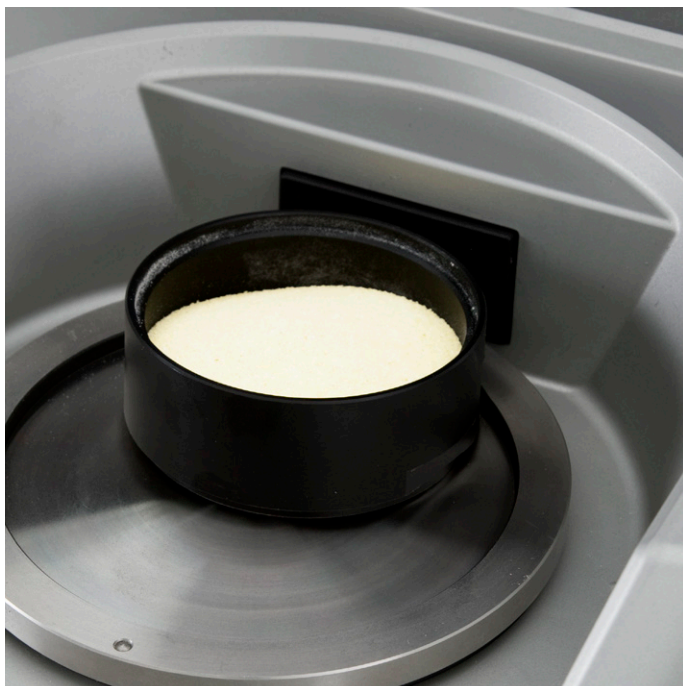
Mosaic software also allows the user to remotely set up and monitor an instrument locally (LAN) without an internet connection.



NIRS DS2500 key features

- Unmatched optical performance across the full wavelength range (400 - 2500 nm)
- Factory standardised for seamless calibration transfer
- 100% compatible with earlier FOSS solutions such as InfraXact and XDS
- Consistent results even in harsh environments
- Ready to use calibrations for feed and ingredients
- Suitable for networking using LAN (local) or WAN (internet)
- New predispersive monochromator
- Wide range of cups and accessories





Operational and calibration development software

FOSS NIRS DS2500 operates on the user-friendly ISIScan Nova software that supports the latest calibration technologies, as well as networking options. Its many features include:

- Automatic database storage of results
- Supported regression methods: LOCAL and FOSS-ANN modules
- Real-time outlier detection for each constituent
- Graph and trend analysis display
- Product control with control limits, target values and reports
- User-defined fields for tracking sample information
- LIMS compatibility (export only)
- Customer support available online

Improved traceability with RFID tags

A range of sample cups fitted with RFID tags (Radio Frequency Identification) can be used with the NIRS DS2500. In multi-product environments, this allows plant operators to significantly improve traceability by making sure that the right sample cups are used by all operators. Not only does this minimise risk of error, it also simplifies operation.

Proven calibration development

Calibration development is supported by proven WinISI calibration software for monitoring of calibrations and straight-forward development of new.

WinISI can also be integrated with FOSS Mosaic networking software for remote calibration management. Simply create or adjust your product calibrations using WinISI and distribute

them to your instruments using Mosaic. Mosaic can also collect sample data from your production plants for calibration development.

Global ANN Calibrations

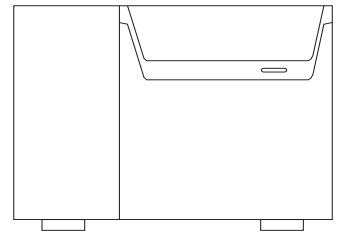
FOSS global calibrations are based on extensive samples from different regions and countries collected over the years. This means they are robust, low maintenance and easy to use already from day one, and full calibration support is available using our remote networking software Mosaic.

Part of a complete high performing solution

Whether you are new to NIR or an experienced user, FOSS offers a complete and customised support program* for your NIRS DS2500.

- On site preventive maintenance visits
- Preventive maintenance parts
- Software updates
- Remote instrument surveillance
- On-line and off-line calibration support
- Self maintenance training and video on demand support
- Priority support response

* Not all services are available in all countries.



Specifications

Feature	Specification
Dimensions (W x D x H)	375 x 490 x 300 mm
Weight	27 kg
Degree of protection	IP 65
Measurement mode	Reflectance or transmittance (for liquids)
Wavelength range	400 - 2500 nm
Detector	Silicon (400 - 1100 nm), Lead Sulfide (1100 - 2500 nm)
Optical bandwidth	8.75 ±0.1 nm
Spectral resolution	0.5 nm
Number of data points	4200
Absorbance range	Up to 2 AU
Analysis time	<1 minute*
Wavelength accuracy	<0.05 nm
Wavelength precision (Based on a single analyser)	<0.005 nm
Wavelength precision instrument-to-instrument (Based on a group of analysers)	<0.02 nm
Photometric noise**	400 - 700 nm < 50 micro au 700 - 2500 nm < 20 micro au

* Adjustable

** Noise = RMS for 10 co-added, 10 second scans

Installation requirements

NIRS™ DS2500	
Voltage supply	100-240 V AC *, frequency 50-60 Hz, Class 1, protective earth
Ambient temperature	5 - 40°C
Storage temperature	-20 to 70°C
Ambient humidity	< 93% RH
Mechanical environment	Stationary during use
EMC environment	Laboratory use, Industry requirements
* Mains supply voltage fluctuations not exceeding $\pm 10\%$ of the rated voltage.	

Legal data

The equipment is CE labelled and complies with the following directives:

- EMC (ElectroMagnetic Compatibility) Directive 2004/108/EC
- LVD (Low Voltage Directive) 2006/95/EC
- Packing and Waste Directive 94/62/EC
- RoHS Directive 2002/95/EC
- WEEE Directive 2002/96/EC
- REACH Directive 1907/2006/EC

PC requirements

Contact your local FOSS representative for information.

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