FOSS

KJELTEC™ 9

Future-proof productivity in your laboratory

ANALYTICS BEYOND MEASURE

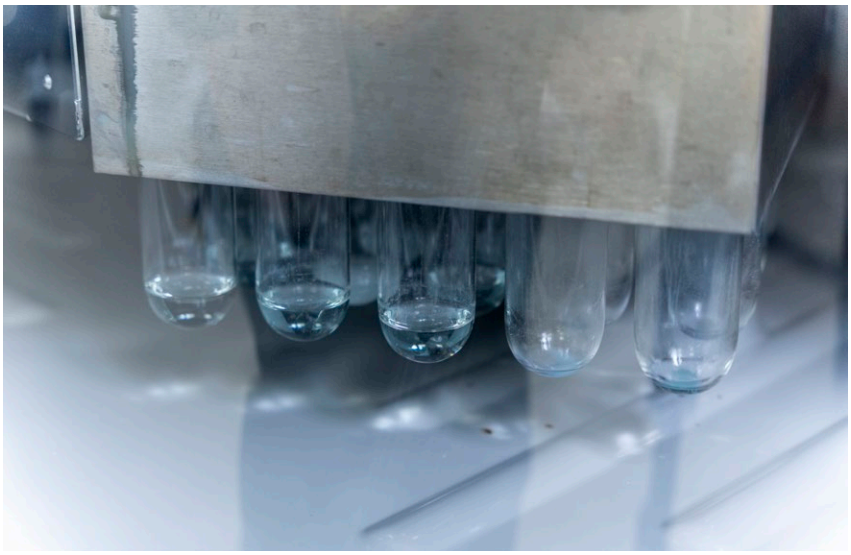
FUTURE-PROOF PRODUCTIVITY

Whatever you need to test, the Kjeldahl method is a highly versatile go-to method for any sample type and remains the reference for nitrogen and protein determination. While Kjeldahl remains the backbone of reference testing, the business landscape is ever changing.

Turnaround time, throughput and safety are as critical as ever, but the increasing need to document and secure transparent results is changing the way we work in the laboratory.

Analysis results need to be registered and backed up, including additional data concerning when and how tests are conducted. Globalisation and consumer trends such as plant-based meat and dairy products are causing an increased volume of tests and a larger variety of matrices, putting pressure on laboratories to keep track of increasingly complex test results.

Above all, a common drive to improve sustainability throughout the supply chain has created a sense of urgency for all players in the laboratory industry to find new ways to rationalise the use of chemical analysis and make it as sustainable as possible. So, how do we rise to the challenge and secure a better flow in the laboratory? Innovation offers the logical path ahead.



INTRODUCING THE KJELTEC™ 9 SERIES

Thousands of laboratories around the globe have invested in Kjeltec™ instruments that go on working year after year. Based on the renowned accuracy, cost effectiveness and safety of FOSS Kjeldahl analysis solution, the Kjeltec™ 9 series takes Kjeldahl analysis to new levels of efficiency with features to match today's demands.

Adding advanced digital capabilities to an already brilliant technology, Kjeltec™ 9 enables fast turnaround time, improved data handling and less risk of human error for accurate results.

Expect a more efficient lab flow with higher throughput, maximum uptime and a low cost per analysis.

Offer laboratory technicians a safe working environment with easy operation and simple maintenance backed up by remote monitoring, diagnostics and guided troubleshooting.

A SOLUTION TO MATCH YOUR BUSINESS

The Kjeltec™ 9 series provides safe and accurate distillation with different levels of automation to match the needs of your laboratory. Combined with a Kjeltec™ 9 Autosampler, the Kjeltec™ 9 Analyser provides the highest level of automated Kjeldahl analysis.

Kjeltec™ 9 Analyser

The Kjeltec™ 9 Analyser provides fully automated Kjeldahl analysis with built-in colorimetric titration and optional Kjeltec™ 9 Autosampler for maximum throughput. Built on a long legacy of automation within Kjeldahl analysis. The Kjeltec 9 Analyser ensures:

- Stable performance over time
- Efficient instrument batch setup and workflow
- High uptime with Alerts and Notifications
- Easy data handling and quality control
- Safe operations and easy maintenance

Kjeltec™ 9 Distillator

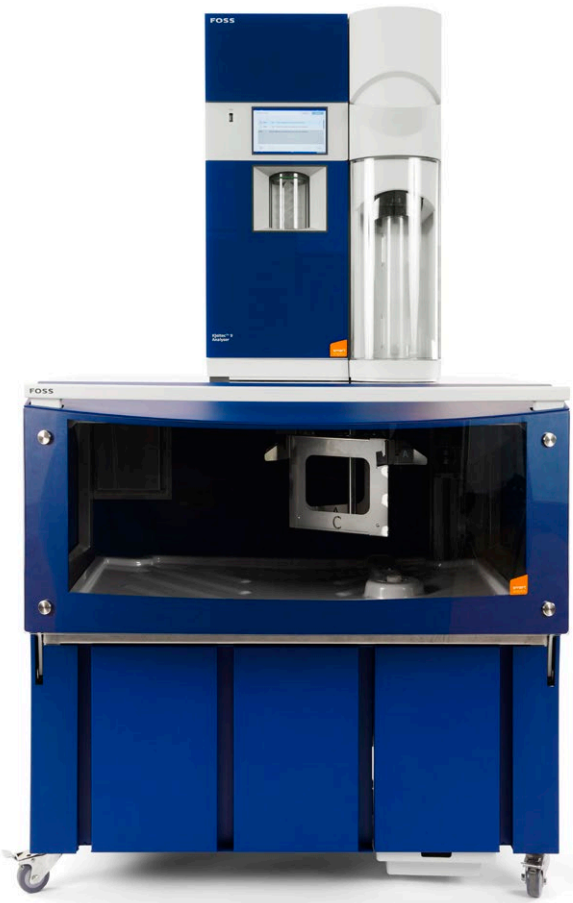
The Kjeltec™ 9 Distillator provides automated distillation for Kjeldahl analysis, adding flexibility to your laboratory. The Kjeltec 9 Distillator ensures:

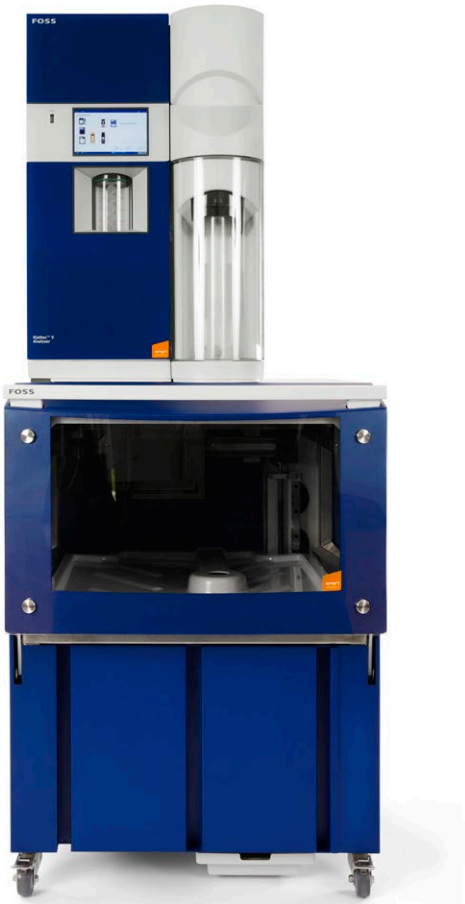
- Reduced operational costs
- Safe and easy operations
- Easy data handling and quality control
- Flexibility thanks to a wide range of applications
- Safe operations and easy maintenance

PARAMETERS:	Nitrogen, protein, ammonia
MEASURING RANGE:	0.1 – 210 mg N
WHAT CAN YOU ANALYSE:	Food, feed – anything really
ANALYSIS TIME:	~3 – 6.5 minutes per sample
PRINCIPLE:	Kjeldahl distillation and colorimetric titration

Safe operations and easy maintenance

Increase throughput with batch handling





Kjeltec™ 9 Autosamplers

Combined with an optional 20 or 60 place Kjeltec™ 9 Autosampler, the Kjeltec™ 9 Analyser provides the benefits of automation even at lower sample throughputs. Just load your sample racks directly from the digestion block and Kjeltec™ 9 will perform accurate analysis unattended for more than four hours.

Increase your throughput and free up staff to do other work.

60 Autosampler

- Run 60 samples for 4 hours of unattended operations.
- Sample throughput of 240 samples in 24 hours.
- Full size door for easy cleaning and full removal of spill tray
- Autosampler on wheels for full flexibility in your lab
- Trolley for storage of reagents
- Eliminate risk of human error with batch handling

20 Autosampler

- Run 20 samples for 1.5 hours of unattended operations.
- Sample throughput of 240 samples in 24 hours.
- Full size door for easy cleaning and full removal of spill tray
- Autosampler on wheels for full flexibility in your lab
- Elimate risk of human error with batch handling

MORE EFFICIENT LAB FLOW WITH HIGHER THROUGHPUT

The Kjeltec™ 9 Analyser exploits advances in instrument hardware and the latest in software and networking connectivity to achieve new levels of productivity in Kjeldahl analysis. Now you can benefit from new ways to evolve and boost productivity and evolve your laboratory operations.

Continuous high performance with new levels of automation

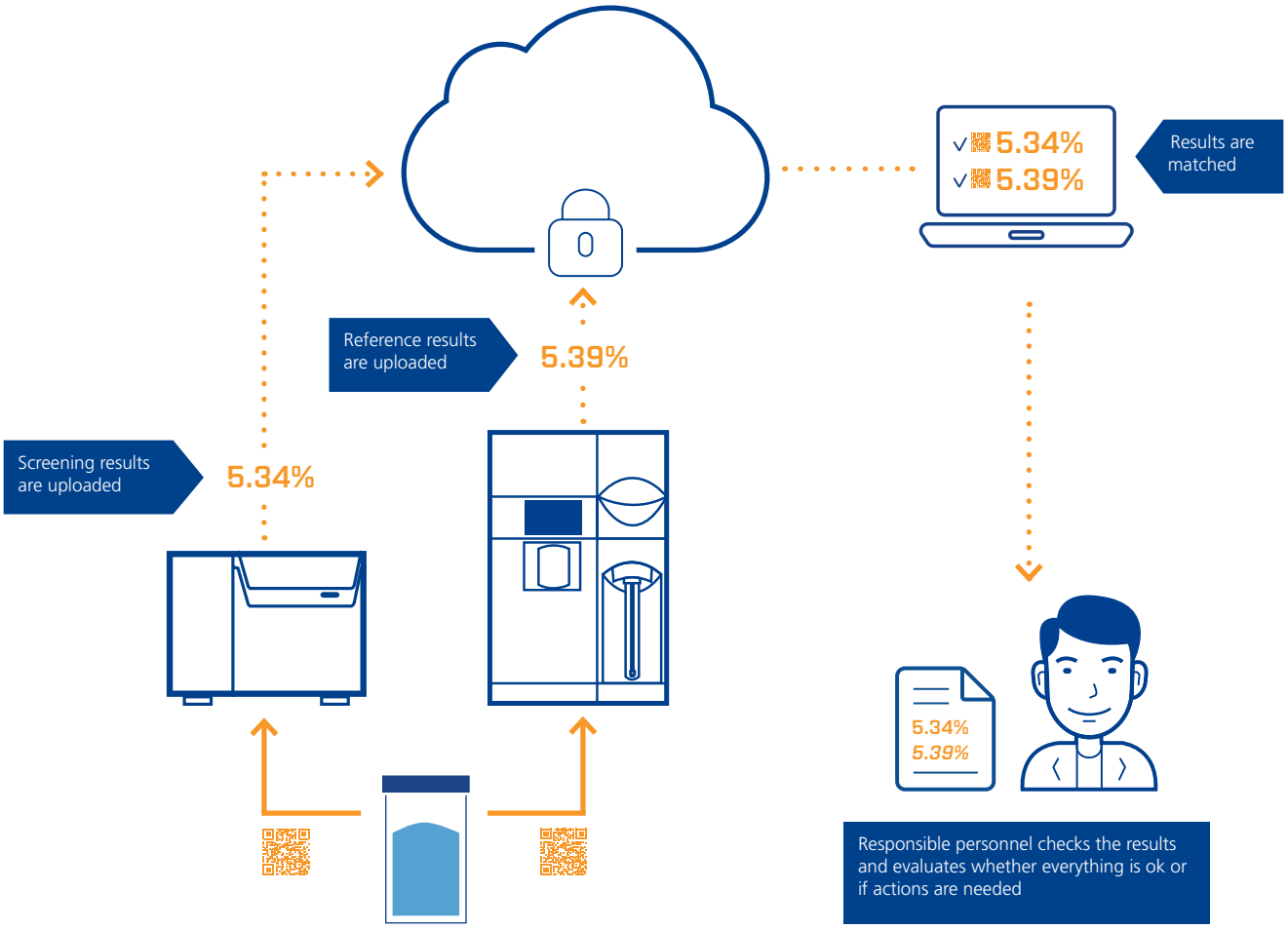
Increase laboratory throughput while reducing your training and staffing burden with an optional Kjeltec™ 9 Autosampler that allows you to test 20 or 60 samples at a time. With a 20 or 60 place Kjeltec 9 Autosampler batch handling is fully automated, letting you run up to 240 samples in 24 hours. Just load your sample racks and the system runs unattended for more than four hours.

Integrate your Kjeldahl with indirect methods

One of the challenges faced by laboratories today is that incoming samples lack information regarding expected values for fat, protein, and moisture. Integrating indirect methods in the sample preparation phase takes the guesswork out of reference analysis. Screen samples with near infrared (NIR) or Fourier Transform Infrared (FTIR) to get an estimate on expected values and choose the reference method for your next step with confidence. Eliminate errors, avoid costly reruns and reduce the use of chemicals to save time and money.

The Kjeltec 9 Analyser offers new levels of integration with other methods with data handling features that make calibration and performance monitoring of NIR and FTIR options a straightforward procedure. Routine checks that keep instrument calibrations up to date are easy to perform by running samples on both an indirect instrument and your Kjeltec 9 Analyser. Results from both instruments then need to be matched, compared, and analysed to decide on the next step.

Results from your Kjeltec™ 9 Analyser are easily integrated with indirect methods such as the NIRS™ DS3, using Sample Matching Service.



Sample Matching Service makes this process easy and labour free. The samples measured by your Kjeltec™ 9 Analyser and benchtop analyser respectively are registered automatically to eliminate the risk of error and secure optimal performance. Using integration and connectivity, analysis results from both instruments are matched and saved via cloud for evaluation and reporting purposes using digital services.

Eliminating the hassle and risk of error associated with manual matching of results, makes it easier to exploit indirect methods in the laboratory.

- Maintain and update calibrations
- Join or initiate global calibration networks
- Optimise incoming sample control
- Improve quality control of sample results

CONFIDENCE IN YOUR DAILY OPERATIONS

With Kjeldahl at the core of any busy laboratory, safe operations, making the most of staff resources and maintaining instrument uptime pose major concerns for lab managers.

Now you can reduce the training and staffing burden typically associated with managing chemical analysis operations and stop worrying about safety procedures. Kjeltec™ 9 is easy to operate and provides new levels of automation to save operator time and ensure safety. Reduce the risk of chemical spillage with FOSS pioneered SAfE mode, smart filling of reagents and minimal cleaning and maintenance for the operator.

SAfE*

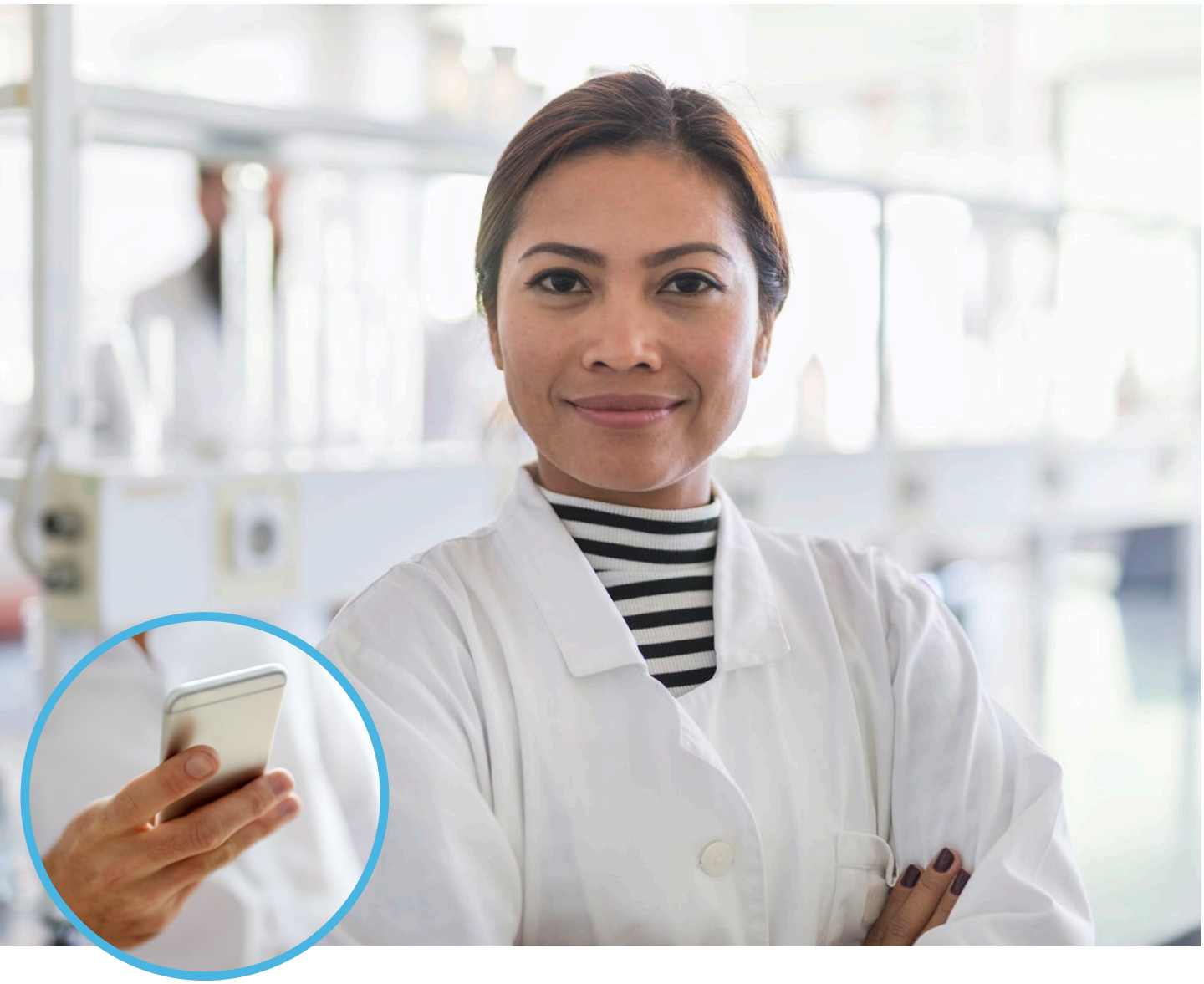
The FOSS pioneered SAfE* technology improves safety by a mixing procedure, reducing the exothermic reaction between alkali and acid during distillation and removing the need for manual pre-dilution. A fast tube draining system removes the need for handling hot reagents after distillation.
The user is fully protected by the unique safety door which must be closed with a tube in place before the unit will operate.

*Steam Addition for Equilibration.

Know that your instruments are running at top performance

Stay in control of quality and cost by monitoring instrument health and procedure compliance. FossAssure™ allows you to monitor and optimise instrument surveillance and performance, reduce unplanned downtime and improve accuracy and profitability:

- Monitor critical functions of your analyser such as check samples, wear, stability, and repeatability, among other parameters
- Actionable insights into instrument use and health, based on expert evaluations of key instrument data.
- Ensure that standard operating procedures (SOP's) are adhered to even without internal expertise
- Get recommendations for best instrument operation, maintenance and service to achieve optimal performance and highest uptime.



Set up notifications to avoid downtime

The benefit of unattended operations is that staff is free to do other work while analysis is running. However, an instrument error or warning that requires an action could cause an unnecessary interruption. Optional Alerts and Notifications provide extra confidence in your day-to-day operations.

Set up your Kjeltec 9 to provide staff with real-time notifications in the case of errors. Configure your Alerts and Notifications to suit your needs. Define how to receive notifications (email or text message), which type of events should trigger a notification as well as how, and to whom notifications should be sent.

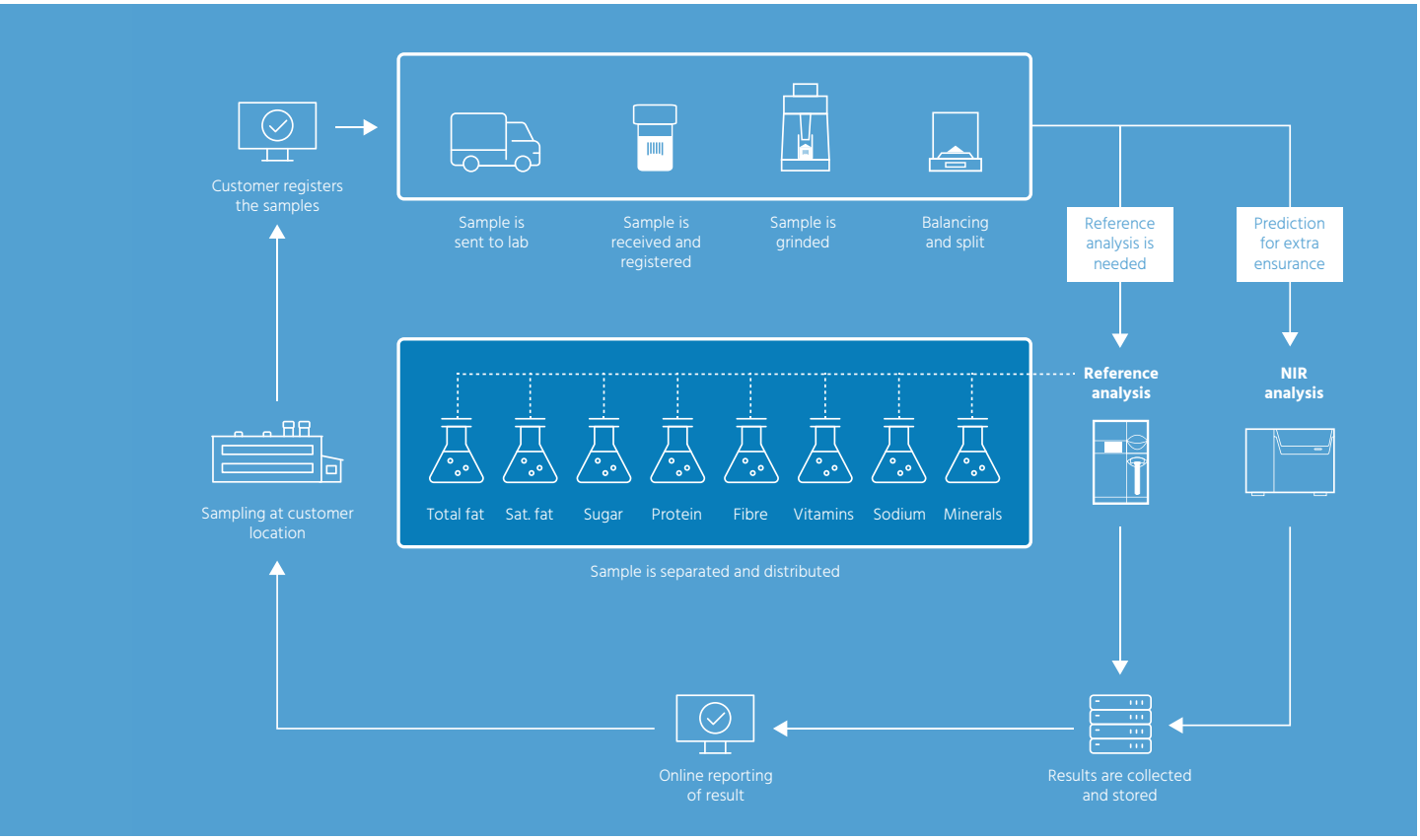
Secure uptime with a connected service solution

Instrument downtime is a major concern for any laboratory. With a connected SmartCare™ service solution, uptime is safe-guarded and troubleshooting alleviated, setting you free to do your job in pursuit of improved laboratory efficiency. Know that your Kjeltec 9 is always delivering consistently accurate results with:

- Automatic troubleshooting
- Remote service and diagnostics
- Exceptional performance and uptime

ACCURATE RESULTS AND EASY DATA HANDLING

Built on the principles of classic Kjeldahl distillation in combination with colorimetric titration, the Kjeltec™ 9 Analyser ensures accurate results for all your applications. New automatic LED calibration, smart instrument self-test and a robust and intelligent titration software ensures that results are always within expectations.



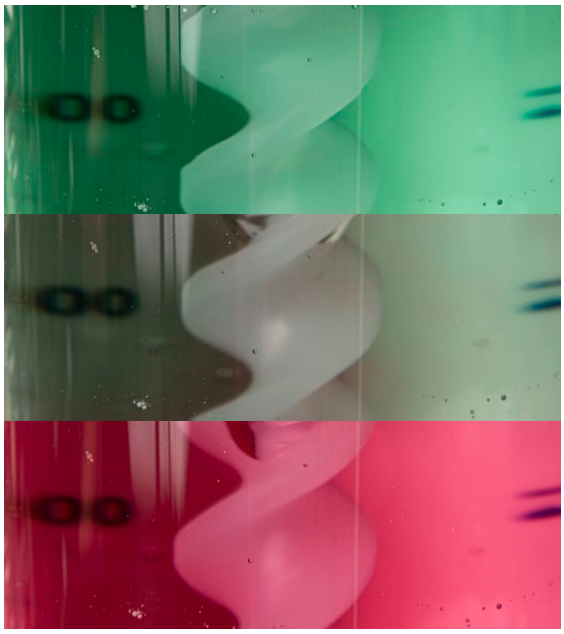
No matter how skilled operators are, a keyboard or notepad mistake can undermine the best analytical operations. Easy data handling starts with registration and configuration of your sample batches. This data is transferred to your Kjeltec™ 9 Analyser using the new Kjeltec Registration PC software that comes with your instrument. Simply scan the sample ID on incoming samples to register and configure sample batches and know which test programme to run:

- Scan sample ID with barcode scanner
- Register samples and batches
- Get sample weight directly from connected balance
- Import batch information and parameters from your LIMS system

Full traceability of analytical results

Collect results from all your instruments and all your labs in one place for overview and traceability down to the finest detail using the optional networking software.

Automatic recording and upload of data significantly reduces the risk of error, enables full traceability of your sample parameters, and ensures that all data is safely stored in the cloud for future reference, reporting and audit purposes.
All your analytical data is registered automatically in one place with Kjeltec 9. Sample data, weight results and batch information as well analysis results can be shared to your LIMS system via FOSS API, FTP or USB port.



Accurate results

Classical colorimetric titration is combined with new unique technology such as automatic LED calibration and automatic end-point colour to ensure that the results are always correct and performance is stable over time.

The automatic end-point colour feature in combination with auto mode ensures that each analysis is done in a realiable way as fast as possible. The new titration controller guarantees that the correct end-point is reached continuously throughout the distillation process.

Verified methods

Kjeltec™ 9 is verified against official standards such as AOAC, EPA, DIN, GB and ISO for simplified validation.

IMPROVE YOUR LAB FLOW FROM A-Z

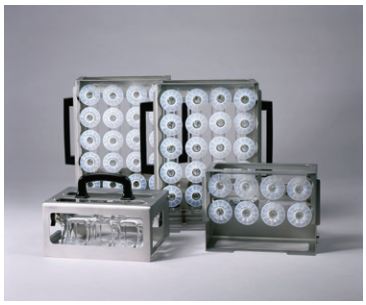
Complete your Kjeltec™ 9 system with dedicated accessories that ensure safe and efficient analysis operations from start to finish. Avoid handling of hot chemicals using the fully automated Digestor with lift system, secure efficent fume removal and save water with a dedicated Exhaust and Scrubber and get accurate results using the specially designed digestion tubes that ensure even heating of samples.

Digestor™ 2508 and 2520

FOSS Digestion systems allow fully automated digestion for convenient, safe and flexible Kjeldahl analysis. When digestion is completed the combined tube rack and exhaust manifold moves to the cooling position. Two-way PC communication supports traceability and GLP. Capable of handling eight or twenty tubes.

2501 Scrubber Unit

For Kjeldahl digestion the 2501 Scrubber Unit should always be considered for safe and efficient neutralisation of corrosive gases. The Scrubber can replace the water aspirator, supplied as standard, for efficient fume removal and uses less water than the water aspirator as it is not connected directly to a water supply tap.



Exhaust manifolds

All digestion models are delivered with a tube rack with integrated heat shields. They should always be combined with a matching exhaust manifold designed for each digestion unit facilitating fume removal, or reflux head and test tubes.

Digestion tubes

FOSS digestion systems are capable of handling eight or twenty tubes in volumes of 100 ml., 250 ml. or 400 ml. tubes dependant on chosen configuration

Kjeltabs

Kjeldahl catalyst reagents in a convenient tablet form with a range of tablets to suit general and specific applications.

FIND A SOLUTION TO MATCH YOUR LABORATORY

Choose from varying levels of automation tailored to meet the needs of your laboratory.

	Kjeltec™ 9 Distillator	Kjeltec™ 9 Analyser	Kjeltec™ 9 Analyser + Autosampler
Colorimetric titration system		x	x
External titrator connection	Optional		
Results calculation		x	x
Interchangeable burette		x	x
Ticket Printer		x	x
Variable output steam generator	x	x	x
Water saving system	x	x	x
Cooling water flow control	x	x	x
Distillate temperature monitor	x	x	x
Polypropylene splash head	x	x	x
Polypropylene tube emptying vessel	x	x	x
Bellows pumps for reagent addition	x	x	x
Automatic alkali addition	x	x	x
Automatic dilution water addition	x	x	x
Automatic receiver solution addition	x	x	x
SAfE - Steam Addition for Equilibration	x	x	x
Tube emptying / waste collection	x	x	x
Reagent alarms	x	x	x
Removable drip tray	x	x	x
Automatic tube door	x	x	x
Interlocked tube door	x	x	x
Removable tube door	x	x	x
Tube-in-place safety	x	x	x
Tube replacement sensor	x	x	x
Reagent tank trolley			Optional
Balance connection (Kjeltec Registration)		x	x
Alerts and Notifications		Optional	Optional
Storage of raw data in instrument	200 batches	200 batches	200 batches
Upload of instrument diagnostic data	Optional	Optional	Optional
Cloud management of results and data		Optional	Optional
Ethernet connection for network	x	x	x
Wi-Fi connection	Optional	Optional	Optional

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