TIME FOR A CHANGE
IN PROTEIN ANALYSIS

elementar
EXCELLENCE IN ELEMENTS

rapid N exceed

Agrarian Analysis | Chemical Analysis | Fuel Analysis | Water and Environmental Analysis | Consumables Service | Isotope Analysis

„Our rapid N exceed combines tried-and-tested technology with a brand new method, making it the most innovative protein analyser of its class.“

specialised & experienced

Setting a new standard in protein analysis

Quicker, more precise, gentler on the environment. The rapid N exceed sets new standards in Dumas protein analysis. Not only does it deliver excellent precision for greater confidence, but does it at a dramatically reduced cost using the EAS Regainer® technology (patent applied for).

The challenge of innovation

Arisen from the Analytical Instrumentation Department of the Heraeus technology group, we develop and manufacture instruments for elemental analysis for more than 110 years. We were the first to enable application of the Dumas method for macro samples up to the gram level. These were the first steps towards routine analysis in process control. With the rapid N exceed, we are now launching a brand new generation of analysers in the market.

Nitrogen, an element of life

Nitrogen is a component of proteins and, as such, an essential element of our lives. The precise analysis of nitrogen is particularly important when it comes to assessing the crude protein contents of foodstuffs and animal feed, but also when analysing the fertility of soils, fertilisers or biological and industrial materials. The modified Dumas combustion method, on which the rapid N exceed is based, is predestined as a standard method for this task.

Advantages at a glance

+ Long lifetime and 10-year guarantee
+ Few maintenance interventions and control samples
+ EAS Regainer® and EAS Reductor® technologies
+ CO_2 as carrier gas, no need for gas separation
+ State-of-the-art electronics for continuous device monitoring
+ Steel tubes instead of quartz glass
+ Perfect combustion through post-combustion and oxygen dosing

intelligent & safe

For reliable results with the user in mind

With the rapid N exceed trustable and precise results can now be obtained at an even lower cost per analysis thanks to our innovative CO_2 carrier gas system and superior water removal technology. Dual combustion guarantees complete oxidation of even the toughest samples.

Innovation

Our patented EAS Regainer® technology enables metal-free oxygen binding. The perfect combination of specific oxygen binding and the specially developed catalyst make it possible to save on raw materials (such as copper or tungsten) and reduce costs significantly. The rapid N exceed also sets standards in terms of time with the fastest N protein analysis – in less than four minutes.

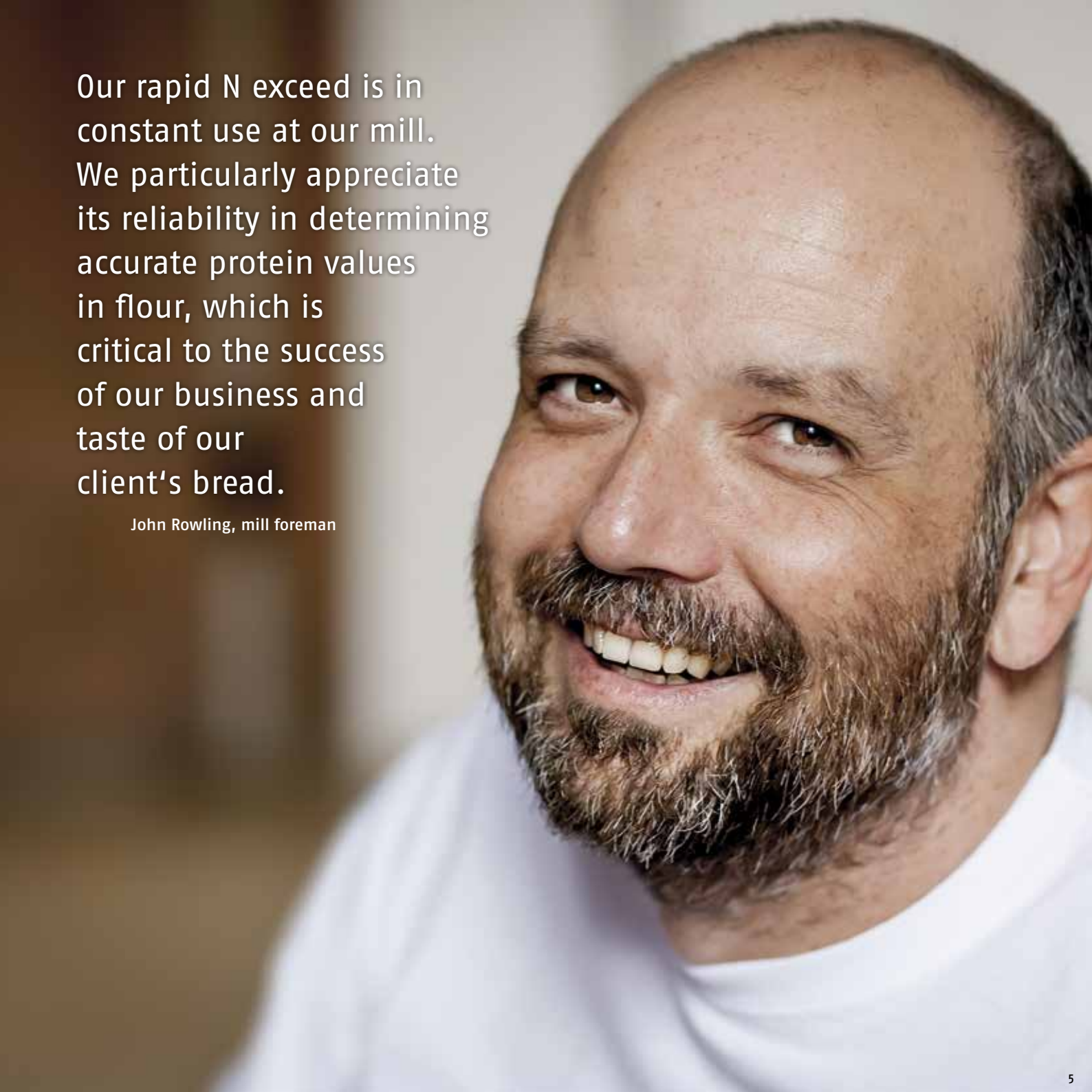
Intelligent construction

The rapid N exceed's construction is based on keeping the gas path as short as possible and the number of valves, moving parts and seals as low as possible. This ensures smooth operations over a long period of time. Handling it does not require specific expertise in analytics or software. Automatic optimisation of the operational parameters ensures precise measurement results and eliminates sources of error. Safety standards are also state-of-the-art. All these features make sure that your measuring procedures run consistently and provide powerful evidence up to 30 ppm.

Advantages of the analytical method

Compared to the traditional Kjeldahl wet chemical analysis, the Dumas method offers some significant advantages for N protein analysis:

+ Analysis takes less than four minutes instead of hours
+ Safe and fully automated operation
+ No need for corrosives or chemicals that harm the environment
+ Easy to install and low operating costs



Our rapid N exceed is in constant use at our mill. We particularly appreciate its reliability in determining accurate protein values in flour, which is critical to the success of our business and taste of our client's bread.

John Rowling, mill foreman

fast & economic

For handling large numbers of samples

With a measurement time of less than four minutes, the rapid N exceed offers the fastest N protein analysis in the market. As it was designed to enable unattended overnight measurements, it can perform more than 300 tests a day in routine operations, multiplying the number of samples compared to what can be processed with traditional analysis equipment.

The new EAS Regainer® technology

The rapid N exceed takes combustion analysis to a new level. This is made possible by a completely new method of absorbing excess oxygen from the analysis gas. Not only does the EAS Regainer® bind excess oxygen in the analysis gas, it also automatically regenerates the reducing agent that is consumed in the course of the process. This way, the reduction reactor EAS Reductor® can be used for several thousand samples without the need for maintenance or replacement.

Lowest costs per analysis

Intelligent oxygen dosing on the one hand and long-lived components and regeneration of the reduction agent with the EAS Regainer® on the other hand reduce your operating costs. In contrast to the Kjeldahl method, no additional expenses are incurred for the storage and disposal of chemicals, for installations, for acidification, or for time-consuming manual process steps.

Cost-efficient along the line

+ Optimised reduction path with EAS Regainer®
+ Long-lived detector with thermistor technology
+ No need for tungsten and drastic reduction of copper consumption
+ Reduction of all consumables

experienced & clean

For long consumable life and less waste

The rapid N exceed minimises the use of reduction metals and does not need expensive raw materials as carrier gases. The long lifetimes of components also save on resources and preserve the environment – especially when compared to competitive instrumentation or the traditional Kjeldahl method. On top of that, the fact that no toxic or aggressive chemicals are required prevents damage to the environment or personal harm to the user.

Flexible routine analysis

The rapid N exceed's environmental-friendly features do not come at the expense of its performance or efficiency. In the course of daily business, the rapid N exceed will analyse samples up to 1 g in weight. It will analyse even inhomogeneous or organic samples without time-consuming preparations. Trays with 60 – 120 positions, which can be refilled during operation, are provided for the samples. They are a tried-and-tested system for sample feeding that is characterised by its reliability, low maintenance requirement and magnetically controlled protective shield.

Digital process control

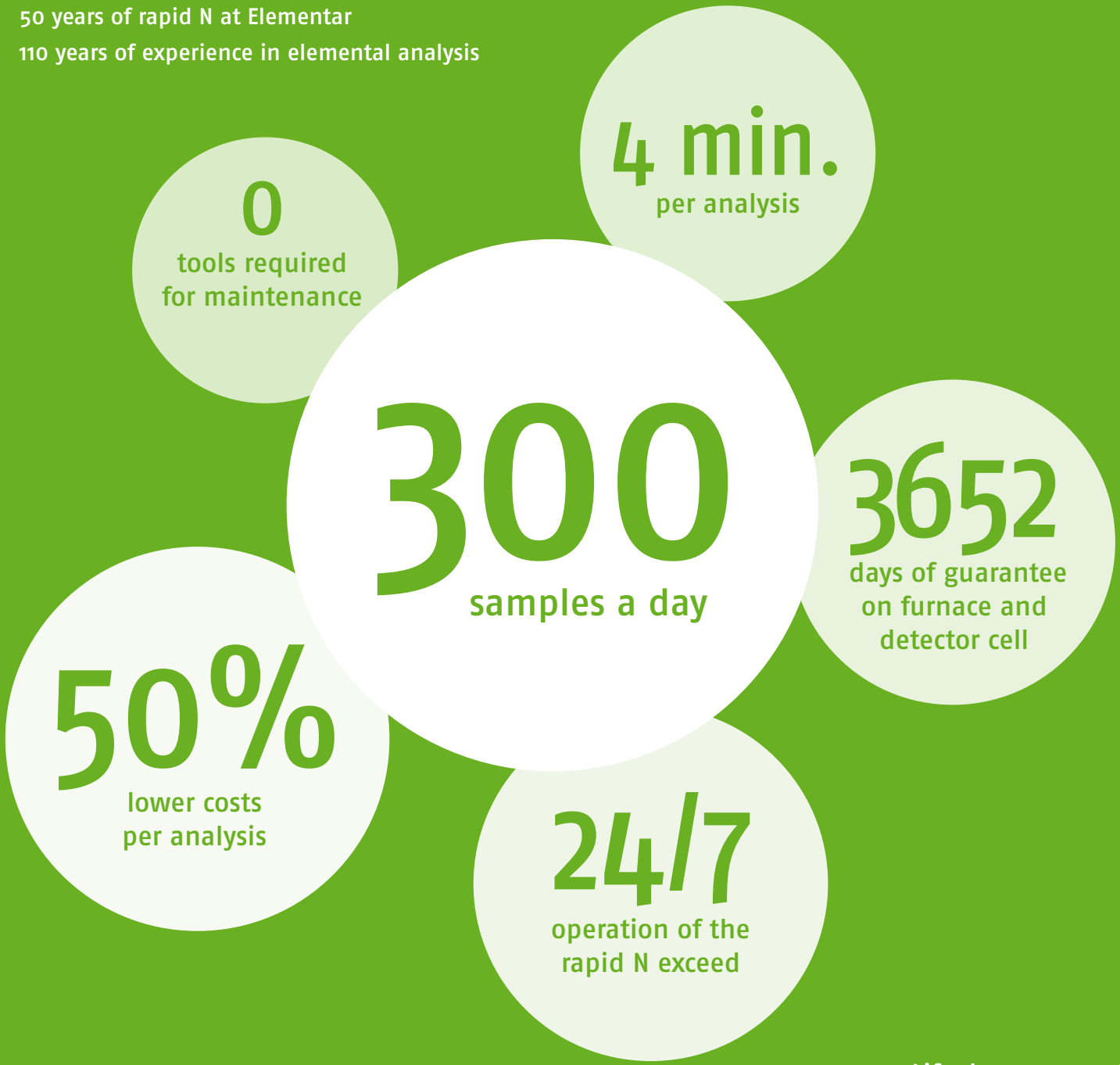
All the system's functions are digitally controlled and monitored. This opens up brand new options to optimise handling, e.g. by remote control or internet diagnosis. The technology is based on the latest generation of micro processors and a fully electronic sensor system. A commercially available PC or laptop is used for the control and analysis functions, which makes it easy to update to the latest generation of computers at any time.

A host of applications

+ Determining N protein contents of cold cuts
+ Determining N protein contents of dairy products
+ Determining protein contents of wheat flour
+ Determining protein contents of malt
+ Determining nitrogen contents in yeast samples

50 years of rapid N at Elementar

110 years of experience in elemental analysis



Life-long support

robust & low-maintenance

For continuous uninterrupted use

The rapid N exceed sets the standard for low maintenance instrumentation, drastically reducing the time for user-instrument interaction and labor costs. Our ten-year guarantee for crucial components such as furnaces or detectors is unmatched in this market. If needed, spare parts, world-wide service, and application support are always readily available.

High long-term stability

A particularly long lifetime is one of the rapid N exceed's benefits. To achieve this, its design only includes a minimum of valves, seals and supply lines. Moreover, the detector and air condensor are basically maintenance-free, and the system's calibration can be used for several years.

Intuitive handling

The system's concept is clear and straightforward, ensuring simple handling, low operating costs and minimal requirements for its installation. Maintenance has also been reduced to a minimum. A commercially available PC or laptop running on a Windows® operating system serves as control and evaluation unit. It is used for constant monitoring of the equipment status and measurement results in real time, providing both numerical and graphic output. The user interface is intuitive and does not require any special skills.

Our service

+ User-friendly and robust construction (for manufacturing and laboratory settings)
+ 10-year guarantee for furnace and detector cell
+ Low installation and maintenance requirements
+ Certification and compatibility
+ Intuitive user interface
+ User-friendly software
+ World-wide services
+ Consumables readily available

N protein analysis has never been so simple!

SUBSTANCE	N (%)	ABS. SD (%)	PROTEIN (%)	ABS. SD (%)
UREA	46.60	0.04		
PET FOOD	0.94	0.02	5.88	0.1
YEAST	2.21	0.01	13.81	0.1
DRIED YEAST	7.43	0.02	46.44	0.1
WHEAT FLOUR	1.73	0.004	10.81	0.03
SLUDGE	2.58	0.01	16.13	0.1
SOY FLOUR	5.61	0.01	35.06	0.1
STARCH 1	0.018	0.001	0.11	0.01
STARCH 2	0.034	0.002	0.21	0.01
WHEAT BRAN	2.52	0.02	15.75	0.1
GLUTEN	10.95	0.01	68.44	0.1
CHEESE	5.45	0.02	34.06	0.1
CERVELAT (COLD CUT)	3.45	0.1	21.56	0.6

SAMPLE WEIGHT: 200–300 mg

PROTEIN FACTOR 6.25

High sample throughput

The rapid N exceed enables fast evaluation of samples, with processing times of less than 4 minutes and over 300 routine analyses per day.

Reliable results

The rapid N exceed uses catalytic post-combustion technology to obtain exact results even from difficult samples or in unattended serial measurements.

Gentle on resources

The rapid N exceed uses CO_2 as carrier gas, bringing down the amount of reduction metals used and the need for maintenance.

Extremely long-lived

With its 10-year guarantee, the rapid N exceed sets new standards for the meaning of „maintenance-free."

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EXCELLENCE IN ELEMENTS

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