



## **Digestion and Distillation Solutions** Highest throughput and maximized flexibility

BUCHI's versatile solutions for digestion and steam distillation cover a broad range of applications. Maximized productivity is thereby essential, whether it is classical protein determination according to Kjeldahl, reflux digestion with aqua regia, or direct distillation of steam-volatile compounds.



## Core messages to our customers

BUCHI creates added value with “Quality in your hands”

“Quality in your hands” is the guiding principle that shapes our philosophy and our actions. It challenges us to provide outstanding services that are precisely tailored to your needs. This means that we must stay in close contact with our customers. That is why we keep in touch and continue to work very hard to understand you and your business even better.

We help you by providing high-quality products, systems, solutions, applications and services that offer you added value. This allows you to focus entirely on your processes and your work.



### Easy

You handle complex processes, do challenging work and want to focus on what is essential. We support you by providing carefully designed solutions as well as instruments and systems that are easy to operate.



### Competent

You need products, systems, solutions, applications and services that are precisely tailored to your needs. We have the technological expertise and decades of experience needed to provide competent support and work with you to continually improve our market services.



### Reliable

You want to be able to rely completely on your partner for products, systems, solutions, applications and services. We guarantee the quality and functionality of our equipment and will continue to help you quickly and efficiently whenever something does not operate to your satisfaction.



### **Cost-effective**

You want to achieve the best possible results using efficient solutions. We help you to handle your jobs and processes economically. We strive to create a high level of economic benefit and maximum added value for you.



### **Safe**

You are working in an environment in which safety is a high priority. By collaborating closely with you, we do everything in our power to make our products, systems, solutions, applications and services as safe as possible for people and the environment.



### **Global**

You value personalized service and short communication channels. As an international family-owned business with our own subsidiaries and qualified distributors, we have a presence wherever our customers are located. Our local staff and the large number of satisfied customers around the world give you the assurance that you are working with the right partner.



### **Sustainable**

You prefer a partner who acts responsibly when it comes to current environmental challenges. We support environmentally friendly processes and manufacture products that have a long service life. We utilize advanced technologies in order to conserve energy and water and leave the smallest environmental footprint possible.



## We offer solutions for Kjeldahl and beyond

From milling to analysis

For more than 50 years BUCHI has been developing outstanding solutions for the determination of Kjeldahl nitrogen and non-Kjeldahl applications. It is our utmost ambition to understand and meet your personal demands. Our solutions include innovative products for the entire process workflow, bespoke application support, sophisticated data management and professional maintenance. Thousands of satisfied customers all over the world in quality control and R&D laboratories enjoy our comprehensive approach.

### Food



Protein, Non-Protein Nitrogen (NPN), casein (NCN), Total Volatile Basic Nitrogen (TVBN), sulfur dioxide (SO<sub>2</sub>), hydroxyproline, formaldehyde, ash

### Beverage



Protein, alcohol, volatile acids, diacetyl, sulfur dioxide (SO<sub>2</sub>)

### Feed



Protein, Non-Protein Nitrogen (NPN)

### Chemicals / Agricultural



Ammonia, nitrate, nitrite (Devarda), cyanide (CN), total nitrogen

### Environmental Analysis




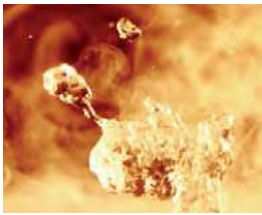


Ammonia, Total Kjeldahl Nitrogen (TKN), phenol, formaldehyde, phosphate, Chemical Oxygen Demand (COD), nitrate, nitrite (Devarda), heavy metals, (sulfated) ash

### Pharmaceutical / Cosmetics



Organic nitrogen, ammonia, urea, formaldehyde, sulfated ash

Our distillation and digestion portfolio comprises of four distinct methods. This allows you to perform classical nitrogen determination according to Kjeldahl, but also reflux digestion typically for heavy metal determination, direct distillation of steam volatile compounds and pre-incineration. For each method we provide one or several solutions. A solution consists of a recommended set of products, applications and a comprehensive service package including software to meet your distinctive needs.

|                    | Kjeldahl  | Reflux digestion  | Direct distillation  | Incineration  |
|--------------------|---|---|--|---|
|                    |  |  |                              |  |
| Analyte            | Protein, nitrogen, NPN, TKN, urea, casein   | COD, heavy metals, hydroxyproline, phosphate                                      | Nitrate, nitrite, ammonia, volatile acids, alcohol, diacetyl, TVBN, phenol, SO <sub>2</sub> , CN, formaldehyde | Ash, sulfated ash   |
| Method             | Nitrogen determination according to Kjeldahl                                      | Reflux digestion by means of air or water cooling                                 | Direct distillation of steam-volatile compounds  | Pre-incineration  |
| Milling            | Knife mill  | Knife mill  | Knife mill   | Knife mill  |
| Digestion          | IR and block digesters  | IR digesters  |  | Wet Digester  |
| Distillation       | Distillation units with different levels of automation                            |   | Distillation units featuring reduction, acidification, steam regulation  |   |
| Analysis           | Integrated and external titrators   | Third party analytical instruments  | Titrators; third party analytical instruments  | Gravimetical determination  |
| Solutions by BUCHI | «Throughput» p. 6<br>«Flexibility» p. 8<br>«Basic» p. 10                          | «Reflux» p. 12  | «Distillation» p. 14   | «Incineration» p. 16  |

Find detailed information at:  
[www.buchi.com/kjeldahl/solutions](http://www.buchi.com/kjeldahl/solutions)





## Solution «Kjeldahl Throughput»

Nitrogen determination at high throughput and full automation

You cope with ever increasing sample loads for nitrogen determination according to Kjeldahl, with rising costs per analysis and requirements for thorough documentation. We offer a solution for analyzing up to 120 samples in a one-person working day, providing a maximum degree of automation in sample and data processing.

KjelSampler K-377



KjelLink PC Software



Mixer B-400



KjelMaster K-375



KjelDigester K-449



Recirculating Chiller F-114



Scrubber K-415

## Your most important benefits

### More samples per day and yet flexible

- Unprecedented sample throughput is achieved, with the minimal number of instruments due to accelerated digestions and perfect synchronization between the KjelDigester K-449 and KjelSampler K-377.
- Fully automated process from sample preparation to titration for unattended operation. Direct data exchange with balances, bar code readers, printer, LIMS and PC.
- Quick determination of priority samples using 'Express Positions' even when complex sequences are being operated. Manual single sample operation is possible at any time.

### Fully compliant

- Excellent reproducibility by thoroughly programmable procedures including both colorimetric and potentiometric titration in compliance with AOAC, EPA, ISO, EC and DIN regulations.
- Different access levels of authorization, thorough reporting and tracked data manipulation following GLP guidelines.

### Comprehensively safe

- Environmentally sound and safe operation. Automated and effective fume transfer, neutralization and cooling of harmful digestion fumes and automatic sample transfer by the KjelSampler K-377 to the KjelMaster K-375.
- Optimal operator protection. Automated and supervised processes, tight sealings and protection shields.

## Your solution «Kjeldahl Throughput»



- Distillation, titration: KjelMaster K-375
- Autosampler: KjelSampler K-377
- Digestion: KjelDigester K-449
- Neutralization: Scrubber K-415 (TripleScrub<sup>ECO</sup>)
- Cooling: Recirculating Chiller F-114
- Milling: Mixer B-400
- Data Management: KjelLink PC Software



- Comprehensive list of reference applications
- Customized application support
- Authorized IQ, OQ and PQ documentation
- Useful tools for application development
- Practical workshops, trainings and seminars
- Preventive maintenance including IQ/OQ/PQ
- Minimize downtime thanks to our service hotline

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“The «Kjeldahl Throughput» solution for albumin determination in blood plasma is so convincing that we didn't wait too much time to have more than one unit in the lab!”

Quality Control Manager, albumin production, Italy

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## Solution «Kjeldahl Flexibility»

Nitrogen determination with greatest flexibility and convenience

You want to be flexible by using your products for classical Kjeldahl analysis also for related applications without time consuming changes. Our highly modular solution copes with semi-automated Kjeldahl applications as well as reflux digestion and direct distillation.

Options for direct distillation



Linked external titrators



Mixer B-400



KjelFlex K-360



SpeedDigester K-439



Recirculating Chiller F-108



Scrubber K-415



Optional reflux digestion

## Your most important benefits

### Highly flexible and convenient

- Save money by using the same instruments for Kjeldahl and non-Kjeldahl applications. Combine dedicated accessories with integrated features and varying sample tube sizes.
- Convenient operation thanks to automated procedures: programmable digestion temperature profiles, automated dilution, alkalization and optional acidification, followed by titration, calculation and aspiration of chemicals.
- Meeting changing needs with ready-to-use pre-programmed methods for various sample matrices and storage of 50 personalized methods.

### Fast

- Large digestion time savings of up to 135 minutes. Fast heating and cooling by means of infrared heaters. Optional continuous addition of  $H_2O_2$ .
- Concerted online titration with dedicated titrators while the sample is still being distilled. Automated calculation and result transfer.

### Safe and secure

- Maximum safety thanks to perfectly sealing joints and the ultimate four stage Scrubber K-415 (QuadScrub<sup>ECO</sup>).
- Unauthorized process or data manipulation can be prohibited by password protection of the KjelFlex K-360.

## Your solution «Kjeldahl Flexibility»



- Distillation: KjelFlex K-360
- Digestion: SpeedDigester K-439
- Neutralization: Scrubber K-415 (QuadScrub<sup>ECO</sup>)
- Cooling: Recirculating Chiller F-108
- Milling: Mixer B-400
- Options:  $SO_2$  accessory and Devarda splash protection for direct distillation;  $H_2O_2$  and reflux accessories; external third party titrators for automated colorimetric or potentiometric titration



- Comprehensive list of reference applications
- Customized application support
- Authorized IQ, OQ and PQ documentation
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*“BUCHI’s flexible solutions makes it possible to efficiently determine protein, TVBN and pepsin. It is easy to use and offers useful safety features for the operator.”*

Mrs. Suporn Pintong, Quality Control Manager, Grobest Corporation Co. Ltd., Thailand

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## Solution «Kjeldahl Basic» Nitrogen determination fulfilling basic needs

You look for a cost-effective product for basic nitrogen determination according to Kjeldahl with straightforward operation. We provide an entry-level solution with little need for sophisticated programming or automated titration but with various options to extend the scope of applications.

Scrubber K-415



Alternative  
water jet pump



SpeedDigester K-425



Distillation Unit K-350



Alternative  
Distillation Unit K-355

## Your most important benefits

### Cost-effective

- Entry level solution for basic Kjeldahl applications with little need for automation and documentation.
- More than two hours faster digestion: rapid heating and cooling with IR digestion and further optional acceleration with continuous H<sub>2</sub>O<sub>2</sub> addition.
- Flexible multipurpose use for reflux digestion even with varying sample tube sizes. Optional automated acidification and gentle distillation by using the Distillation Unit K-355.

### Easy to use

- Straightforward operation without programming.
- Quick and easy use with the SpeedDigester K-425 for reflux or H<sub>2</sub>O<sub>2</sub> digestion.
- Flexible use of varying sample tube sizes.

### Safe and sound

- Keeping the lab atmosphere free of harmful fumes using the Scrubber K-415 (DuoScrub). Ultimate sealing of BUCHI's precise tube joints with the tight suction modules.
- Excellent reproducibility thanks to superb thermal homogeneity and process supervision (RSD < 1%).
- Thorough process and operator safety with sensors for tube detection, cooling water (Distillation Unit K-355), protective and service door.

## Your solution «Kjeldahl Basic»



- Distillation: Distillation Unit K-350 or K-355
- Digestion: SpeedDigester K-425
- Neutralization: Scrubber K-415 (DuoScrub); alternative: Water jet pump



- Comprehensive list of reference applications
- Customized application support
- Authorized IQ, OQ and PQ documentation
- Useful tools for application development
- Practical workshops, trainings and seminars
- Preventive maintenance including IQ/OQ/PQ
- Minimize downtime thanks to our service hotline

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*"The unit provides fast and accurate results. The operational procedure is very easy and cuts labor costs."*  
Institut of Agricultural Science, China

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## Solution «Reflux Digestion»

For COD, heavy metal and hydroxyproline determination

You deal with limited lab space, changing samples and demands for different analytes requiring reflux digestion. We offer a modular all-in-one solution for both Kjeldahl and reflux digestion matching pre-existing external analytical instruments.



Mixer B-400



Scrubber K-415



SpeedDigester K-439

Recirculating Chiller F-108



Specific accessories  
for reflux digestion



Link to to automated  
COD analysis



Optional H<sub>2</sub>O<sub>2</sub>  
digestion



## Your most important benefits

### Range of applications

- Aqua regia,  $\text{HNO}_3$  or  $\text{HCl}$  digestion under reflux (water) for heavy metal analyses in soils, electronic waste, water, food, feed, textile or hydroxyproline in meat.
- COD determination to evaluate the water quality using air condensers according to ISO 6060.
- Fast IR digestion for nitrogen determination according to Kjeldahl. Optional acceleration by continuous addition of  $\text{H}_2\text{O}_2$  using a dedicated suction module.

### Flexible and fast

- Quick and easy switch between Kjeldahl and trace metal, hydroxyproline or COD digestion without laborious conversions.
- Meeting changing needs with 20 ready-to-use pre-programmed methods for various sample matrices and storage of 30 personal methods.
- Classical Kjeldahl digestion time can be reduced to 30 minutes.

### Safe operation

- Keeping the lab atmosphere free of harmful fumes with the ultimate four stage scrubbing system. Safe operation with aqua regia.
- Gentle and controlled addition of  $\text{H}_2\text{O}_2$  with the help of the dedicated optional  $\text{H}_2\text{O}_2$  suction module.
- Excellent reproducibility thanks to superb thermal homogeneity and process supervision (RSD < 1%).

## Your solution «Reflux Digestion»



- Digestion platform: SpeedDigester K-439
- Neutralization: Scrubber K-415 (QuadScrub<sup>ECO</sup>)
- Cooling: Recirculating Chiller F-108
- Milling: Mixer B-400
- Digestion options: Reflux by air or water,  $\text{H}_2\text{O}_2$  suction module



- Comprehensive list of reference applications
- Customized application support
- Authorized IQ, OQ and PQ documentation
- Useful tools for application development
- Practical workshops, trainings and seminars
- Preventive maintenance including IQ/OQ/PQ
- Minimize downtime thanks to our service hotline

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*“The SpeedDigester is the ideal tool for dealing with medium sample loads for both TKN and heavy metal determinations.”*

Municipal Sewage Plant, France

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## Solution «Direct Distillation»

### Semi-automated direct distillation of steam-volatile compounds

You deal with limited lab space, changing samples and demands for different analytes requiring direct steam distillation. We offer a modular all-in-one solution covering various steam-volatile compounds with semi-automated operation and direct link to external titrators.

Recirculating Chiller F-108



Mixer B-400



Linked external titrators



KjelFlex K-360

Options for direct distillation



SO<sub>2</sub> distillation



Devarda reduction



## Your most important benefits

### Range of applications

- Steam volatile compounds such as alcohol, TVBN, volatile acids or phenols are separated best by gentle distillation under reduced steam power.
- Nitrates or nitrites are conveniently reduced in-situ using programmable optional reaction steps.
- Automated dosage of strong acids such as phosphoric acid directly into the distillation tube yields exhaustive distillation of SO<sub>2</sub> or formaldehyde.

### Convenient and reproducible

- 50 personalized methods for various sample matrices featuring steam regulation, reduction and dosage of strong acids. Ready-to-use BUCHI approved Application Notes guarantee reproducible operation.
- Communication with a wide variety of titrators reduces manual operation, enables documentation and LIMS integration.
- Prevention of carry-over even of strongly foaming samples thanks to the dedicated Devarda splash protector.

### Flexible and safe

- Quick and easy switch between Kjeldahl and direct distillation without laborious reconnection of chemical tanks.
- No manual addition of harmful chemicals. Automated cooling media control.

## Your solution «Direct Distillation»



- Distillation: KjelFlex K-360
- Cooling: Recirculating Chiller F-108
- Milling: Mixer B-400
- Options: SO<sub>2</sub> accessory, Devarda splash protection and acid pump for direct distillation; external third party titrators for colorimetric or potentiometric titration



- Comprehensive list of reference applications
- Customized application support
- Authorized IQ, OQ and PQ documentation
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*“The use of the BUCHI distillation unit and the density gauge has significantly accelerated the determination of the alcohol concentration of our medicine and thus made our daily laboratory routine much easier.”*  
Manufacturer of herbal medicine, Germany

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## The best solution for your need

Comparison by customer needs, application and characteristics



IR Digestion

Block Digestion

Incineration

K-425 / K-436

K-439

K-446

K-449

B-440

### Needs/Solutions Page

| Needs/Solutions        | Page | K-425 / K-436 | K-439 | K-446 | K-449 | B-440 |
|------------------------|------|---------------|-------|-------|-------|-------|
| «Kjeldahl Throughput»  | 6    |               |       |       | ●     |       |
| «Kjeldahl Flexibility» | 8    |               | ●     |       |       |       |
| «Kjeldahl Basic»       | 10   | ●             |       |       |       |       |
| «Reflux Digestion»     | 12   |               | ●     |       |       |       |
| «Direct Distillation»  | 14   |               |       |       |       |       |

### Analyte

|  |   |   |   |   |   |
|--|---|---|---|---|---|
| Protein, nitrogen, TKN, urea, casein, NPN                          | ● | ● | ● | ● |   |
| COD, heavy metals, hydroxyproline                                  | ● | ● |   |   |   |
| Sulfated ash, ash  |   |   |   |   | ● |
| Ammonia, nitrate, nitrite  |   |   |   |   |   |
| SO <sub>2</sub> , formaldehyde, CN, diacetyl, TVBN, volatile acids |   |   |   |   |   |
| Alcohol, phenol  |   |   |   |   |   |

### Characteristics

|                             |             |             |        |        |          |
|-----------------------------|-------------|-------------|--------|--------|----------|
| No. of samples <sup>3</sup> | 6/12        | 12          | 20     | 20     | 4/6      |
| Tube size [ml]              | 500/300/100 | 500/300/100 | 300    | 300    | 90/49/20 |
| Temp./time control          |             | ●           | ●      | ●      |          |
| Heat up time to 400 °C      | 10 min      | 10 min      | 20 min | 20 min | 5 min    |
| Method memory               |             | 50          |        | 9      | 9        |
| Scrubber control            |             | ●           | ●      | ●      | ●        |
| Auto lift                   |             |             |        | ●      |          |
| Sampler rack                |             |             | ●      | ●      |          |

<sup>1</sup> In combination with the KjelSampler K-376 or K-377

<sup>2</sup> In combination with the KjelMaster K-375



Basic distillation units

Distillation including titration

K-350

K-355

K-360

K-375

K-376 / K-377

**Samples per day**

|   |          |   |                |                |           |
|---|----------|---|----------------|----------------|-----------|
|   |          |   | ● <sup>1</sup> | ● <sup>2</sup> | 40 to 140 |
|   |          | ● |                |                | 10 to 40  |
| ● | optional |   |                |                | < 10      |
|   |          |   |                |                | 6 to 36   |
|   |          | ● |                |                | 1 to 40   |

**Method**

|   |   |          |   |              |   |
|---|---|----------|---|--------------|---|
| ● | ● | ●        | ● | ●            | Nitrogen determination according to Kjeldahl              |
|   |   |          |   |              | Reflux digestion by air or water cooling                  |
|   |   |          |   |              | Pre-incineration  |
| ● | ● | ●        | ● | ammonia only | Direct distillation including in-situ reduction (Devarda) |
|   | ● | optional |   |              | Direct distillation with dosage of strong acids           |
|   | ● | ●        | ● |              | Direct distillation with reduced steam power              |

**Characteristics**

|      |      |          |           |  |   |
|------|------|----------|-----------|--|---|
|      | ●    | ●        | ●         |  | Sample dilution, steam regulation                             |
| NaOH | NaOH | ●        | ●         |  | Dosage (H <sub>3</sub> BO <sub>3</sub> , NaOH) and aspiration |
|      | ●    | optional |           |  | Dosage of strong acids  |
|      |      | 500      | > 100'000 |  | Result memory   |
| 1    | 9    | 50       | infinite  |  | Method memory   |
|      |      | external | internal  |  | Communication with titrator                                   |
|      |      | ●        | ●         |  | Port for printer and level sensors                            |
|      |      |          | ●         |  | Port for balance, ethernet, KjelSampler                       |

<sup>3</sup> Only five 500 ml tubes fit into one SpeedDigester row



## Benefit from over 50 years of experience

### Frequently asked questions

Explore the differences in IR and block digestions. Learn how to use your Kjeldahl equipment for non-nitrogen applications. Understand the different titration modes. Find out how to reduce your digestion time to 30 minutes.

#### IR versus block digesters

|   |   |
|---|---|
| What are the benefits of IR digestion?            | Fast and flexible digestion in terms of sample tube size and non-Kjeldahl applications.   |
| What are the benefits of block digestion?         | There is a higher degree of automation (lift) and throughput (compatible with KjelSampler). Some regulations explicitly refer to block digesters.   |
| Why do IR digesters need higher set temperatures? | The IR heat transfer is less effective as there is no direct contact of the sample tube with the heating block. Hence, higher set temperatures are required to achieve the boiling temperature. |

#### Non-nitrogen applications

|  |  |
|--|--|
| Why are block digesters of limited use for other applications than Kjeldahl?         | Block digesters in general accommodate only one tube size (300 ml). The format is less suitable for modular and bulky glass setups. Both disadvantages are overcome by the flexible SpeedDigester. |
| What must be considered when distilling steam-volatile compounds other than ammonia? | Depending on the analyte the instrument features “dosage of strong acids”, “steam regulation” and “in-situ reduction (Devar-da)” are mandatory.  |

#### Titration modes

|  |  |
|--|--|
| What is the benefit of potentiometric titration? | It allows for lower detection limits, shorter analysis times, on-line titration as well as the patented automated IntelliDist mode. There is no need for any indicators. |
| What is the benefit of colorimetric titration?   | It makes calibration obsolete, offers extended lifetime and the endpoint is optically visible.   |
| What is online titration?                        | Titration starts while distillation is still in progress. Hence, the analysis time for samples with a high nitrogen content can be significantly shortened.              |
| Can I use my own existing titrator?              | The KjelFlex K-360 is able to communicate with numerous external titrators. Refer to the operation manual.   |
| What is the benefit of back titration?           | Back titration is only used when boric acid is not allowed to be used. It requires an optional external dosing unit for precise addition into the receiver.              |

# Accelerating digestion for highest sample throughput

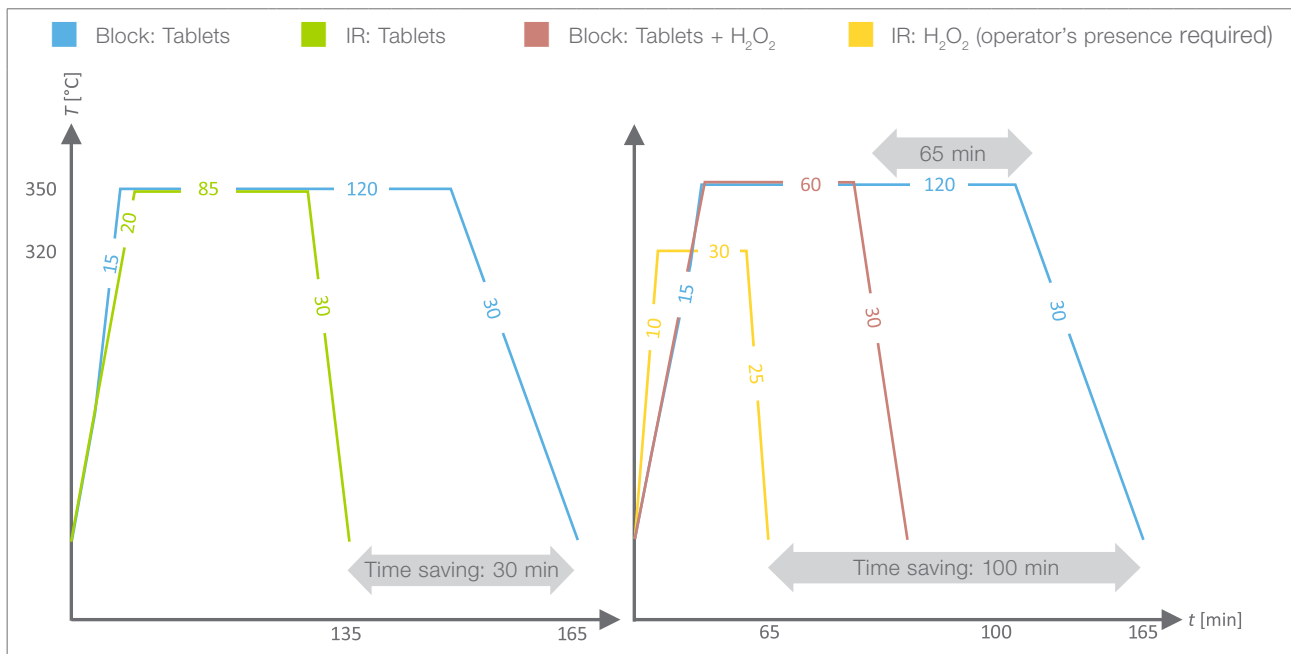
How can I speed up time-consuming heat-up and cool-down periods? IR digesters are up to 30 minutes faster than block digesters (green vs. blue graph).

Is it possible to shorten the digestion period by adding H<sub>2</sub>O<sub>2</sub> and Kjeldahl Tablets prior to heating? Yes, the time used for metal salt catalyzed Kjeldahl digestions can be reduced by up to 65 minutes (red vs. blue graph).

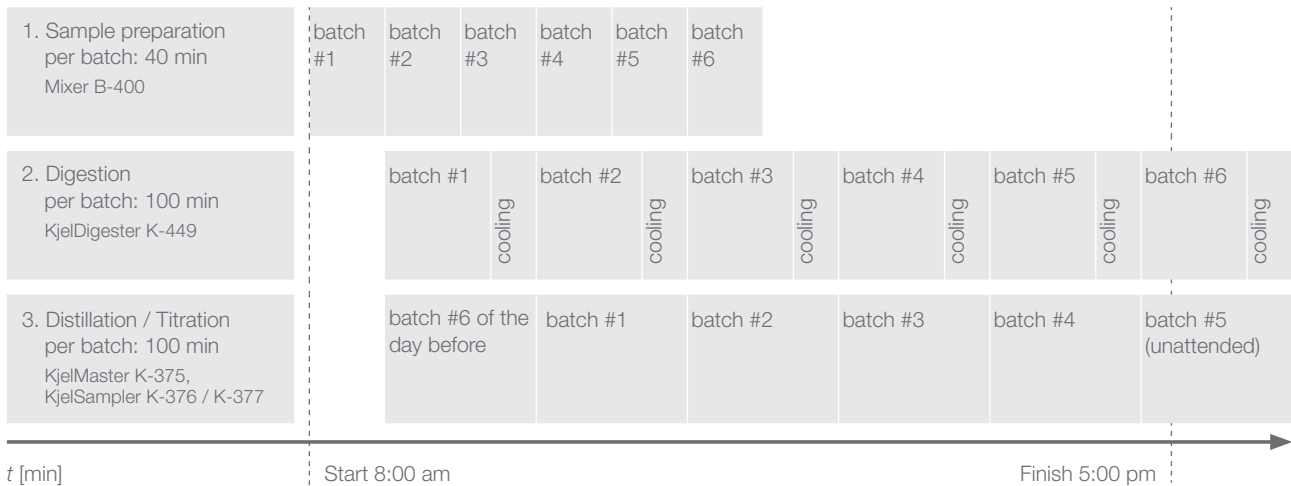
Is it possible to totally replace metal salts by H<sub>2</sub>O<sub>2</sub>? Yes, a very fast (30 minutes) and environmental sound digestion is achieved by continuously adding H<sub>2</sub>O<sub>2</sub> via capillary funnels (yellow graph).

Reduce heat-up / cool-down periods

Reduce digestion period



Use optimized «Kjeldahl Throughput» solution to get the highest sample throughput (batch size: 20 samples)





## Complete your digestion and distillation portfolio

Complementary and related products

### Mixer



The Mixer B-400 combines optimal homogenization efficiency with simple operation and flexibility.

### Scrubber



The Scrubber K-415 with up to four cleaning steps provides maximum safety for operator and environment.

### Recirculating Chiller



Sustainable cooling in accordance with economical and ecological needs is achieved with the Recirculating Chillers F-108 and F-114.

### Sample tubes



BUCHI precision glass tubes stand for extended lifetime, trouble-free operation even with foamy or splashy samples, and safe processing.

### Kjeldahl Tablets



Our high quality Kjeldahl Tablets guarantee reproducible digestions and consider ecological and economical aspects.

### Chemicals



Use the BUCHI approved indicator and reference substances for proper operation and reliable performance qualification.

## Suction modules



Use dedicated suction modules for aqueous samples (condensate trap), accelerated digestion ( $H_2O_2$ ), metal or COD digestion (reflux).

## Kjellink PC Software



Kjellink features thorough documentation, facilitated LIMS interaction, multiple user data management and at-the-desk monitoring.

## NIRMaster



Near Infrared Spectroscopy is the preferred technology to complement classical Kjeldahl analyses with a fast screening method.

## Extraction units



Complete the nutrition analysis with total fat extraction in full compliance with AOAC regulations with the help of the Extraction Unit E-812 and E-816.

## SpeedExtractor



The SpeedExtractor E-914 and E-916 excels in pressurized extraction for residue and contaminant determination in food, soils or consumer products.

## Encapsulator



Immobilize flavors & fragrances, vitamins or oils using the Encapsulator B-390 and B-395 Pro.



## Support and customer service

From feasibility to preventive maintenance

You value an efficient and personalized service. Our network of professional application specialists and service technicians as well as a large number of satisfied customers around the world give you the assurance that you are working with the right partner.



### Improve your applications

A team of highly qualified specialists continually improve our reference Application Notes. Ready-to-use detailed descriptions comprise of the entire procedure from milling to digestion, distillation and titration. Customized solutions are developed in close collaboration whenever you face new requirements, changing circumstances or new parameters to be determined.

Find more than 120 application notes at:  
[www.buchi.com/kjeldahl/applications](http://www.buchi.com/kjeldahl/applications)



### Learn more about Kjeldahl

Over 50 years of experience using official and customized applications are summarized in practical guides. The Kjeldahl Guide provides the theoretical and regulatory background for nitrogen determination and the Kjeldahl Practice Guide is useful for daily laboratory practice. Includes laminated tables, general rules and practical tips.

Discover our literature at:  
[www.buchi.com/kjeldahl/literature](http://www.buchi.com/kjeldahl/literature)



### Apps ease your daily work

Strong customer relationships result in a growing number of practical apps facilitating your daily routine. With the Kjeldahl Calculator you predict the right process parameters. And the Kjeldahl Application Downloader allows you to download Application Notes easily.

Experience our Kjeldahl apps online:  
[www.buchi.com/kjeldahl/apps](http://www.buchi.com/kjeldahl/apps)





## Profit from workshops, trainings and seminars

We regularly offer practical seminars and workshops, often in co-operation with other partners in the field of sample preparation and analysis. Customer contributions thereby underline how our solutions facilitate the daily routine. We also attend many local and international scientific and industrial congresses.

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Find an overview of our activities:  
[www.buchi.com/events](http://www.buchi.com/events)



## Use your product most effectively

We help you to set your product properly into operation. We provide thorough Installation/Operation Qualification (IQ/OQ) services to ensure compliance with FDA, GLP/GMP standards or GAMP guidelines. Whether it is because of an initial installation, requalification or relocation, we provide professional compliance verification.

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Find out more about our services:  
[www.buchi.com/service-support](http://www.buchi.com/service-support)



## Minimize downtimes

Avoid products downtimes with preventative maintenance and tailored service packages. We offer a product warranty of two years and guarantee ten years of spare parts availability.

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