BioSystems

Food & Beverage analysis product list

Food & Beverage analysis

human - centred biotech

We are a global company with presence in 17 countries and over 100 markets through partners and distributors, specialised in designing, developing, producing, and marketing biotechnological analytical solutions.

In the food sector, we provide automated analytical solutions for food and beverage quality control, including enzymatic, chemical, and immunoassay reagents.

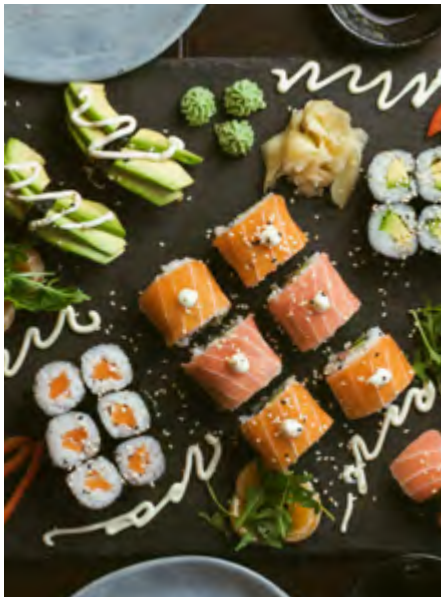
This interactive brochure will allow you to explore our different sectors and products, helping you identify the solutions and systems that best suit your needs.

The Food and Beverage analysis team wishes you an excellent experience.

Contents

↘ Sectors

1.1. Seafood



Fish and seafood can be easily spoiled and therefore it is essential to monitor their quality and safety to prevent contaminations that could lead to health risks.

If storage conditions are not properly controlled, fish microbiome or natural environment can convert the amino acid histidine, present in muscle tissues, into **histamine**, a toxic metabolite, through the enzyme histidine decarboxylase.

Histamine is a biogenic amine that can cause from mild to severe intoxications in humans and its allowed concentrations depends on the regulations of each country. Overexposure to histamine, known as **scombroid poisoning**, can lead to symptoms ranging from nausea to central nervous system issues.

Do you work in this sector?
Check the specifications of our Histamine Quantification Kit on page 16.

Our method, officially validated by the **AOAC** (Association of Official Analytical Chemists), enables rapid and efficient determination of histamine in your samples.

Other important analyte in this industry are **sulfites**, used as preservative additives in some crustaceans. As sulphites may lead to hypersensitivity reactions their labelling is mandatory.

We offer a kit for Sulfite quantification (page 16).

Phosphates, which help retain product moisture, and **ascorbic acid**, used as an antioxidant, are also regulated (page 14 & 13).

All our reagents can be automated on the **BioSystems Y15 analyser** (page 21), ensuring results comparable to official methods with minimal handling required.

We also provide **allergen detection kits**, including both ELISA and rapid tests (page 26).

1.2. Juices and Vegetables

During the production process of juices, concentrates, and purees, it is fundamental to monitor the concentration of key parameters, both nutritional and those related to food traceability.

Analytes such as **sugars, organic acids, and alcohols** provide information about the chemical and organoleptic characteristics of the product.

For example, through the analysis of lactic acid and/or ethanol, both by-products of fermentative metabolism, it is possible to monitor juice hygiene as indirect microbiological indicators.

The reagents, both enzymatic and chemical, have been developed according to the methods of the **IFU** (International Fruit and Vegetable Juice Association) and **Codex Alimentarius 247**.

All reagents can be automated on the **BioSystems Y15** analyser.

We also offer a kit for **gluten** analysis (page 17), ELISA and Rapid Tests for **allergen** analysis (page 26).

- NUTRITIONAL PARAMETERS
- PRESENCE OF ADDITIVES
- AUTHENTICITY PARAMETERS
- INDIRECT MICROBIOLOGY

1.3. Cereal Products

If you process cereal-based foods, such as bread, pasta, cookies, or those that may contain traces, you will likely be interested in controlling parameters such as **carbohydrates and gluten**, among others.

All **carbohydrates**, both simple and complex, are naturally found in many foods like fruits, vegetables, and cereals, and they can also be artificially added for technological purposes, such as **starch**, which is commonly used as a thickener and texturiser.

Carbohydrates that have nutritional value must be labeled according to current regulations.

BioSystems offers enzymatic kits for the quantification of simple sugars such as glucose, fructose, sucrose and maltose, as well as complex sugars, such as starch. These kits provide a fast, accurate, and automatable alternative to manual methods and chromatography (page 11).

We also offer a kit to measure **lactose** both as a sugar and as a regulated substance that can cause intolerance. This allows for accurate labelling of foods containing lactose and **lactose-free** products.

Moreover, we developed an automated immunoturbidimetric method for **gluten** analysis that simplifies its quantification (page 17).

This reagent has been produced following the guidelines of the **AOAC**.

In foods contaning cereals, monitoring allergens is also crucial to prevent allergic reactions in sensitive people.

More about our allergen measurement kits on page 26.

1.4. Meat Products

In the meat industry, it is essential to ensure product safety and **quality** control at all stages of the process.

Meat products are at high risk of contamination, so their integrity must be strictly preserved. To achieve this, various additives are used.

One of the most common additive used in this industry are **sulfites**, which, as previously mentioned, can cause hypersensitivity.

Our sulfite quantification method guarantees precise results that are comparable to the official Monier-Williams method (page 16).

Other preservatives commonly added to meat are **nitrites** that prevent the growth of *Clostridium botulinum*, a pathogenic bacteria that can cause severe neurotoxic effects. However, high levels of nitrites could lead to harmful health effects. Additionally, under high-temperature conditions and in an acidic environment, such as in the stomach, nitrosamines, that are carcinogenic organic compounds, are formed. BioSystems offers an automated kit for the quantification of nitrites (page 15).

Phosphates are also used in this sector, naturally present in certain animal-based products and added to improve the texture of meat. Excessive consumption can cause health problems, and their dosage is therefore regulated. You will find more details about the phosphate quantification kit on page 14.

Other parameters of interest in this sector include **sugars** (page 11), **organic acids** (page 12) ingredients that may cause intolerance such as **lactose** and allergens such as **gluten** (pages 11 & 17).

To learn more about our allergen measurement kits, please refer to page 26.

1.5. Dairy Products

The dairy sector is strongly committed to delivering products that meet the growing market demand for nutritious, healthy foods, free from additives and allergens.

BioSystems provides a system for measuring several **parameters** of interest in this sector.

In dairy products, we measure **sugars**, like lactose, and starch (page 11).

In milk, cheeses, and fermented products, **organic acids** are also of interest (page 12).

In this context, D- and L-Lactic acids acids are relevant as **indirect microbiological** parameters to assess potential contaminations and to monitor the acidity of fermented products such as yoghurt.

Other analytes of interest include:

- **Urea**: helps evaluate the nutritional balance of livestock feed (page 15).
- **Calcium:** naturally present in milk and dairy products or added to provide greater nutritional value (page 14).
- **Phosphate:** naturally present or added to preserve organoleptic characteristics (page 14).

BioSystems offers ELISA kits and Rapid Tests to quantify or screen **allergens** in these products (page 26).

↘ Third-party Laboratories

Third party labs supply results to the food industry as independent entities and thus, conduct different analysis in several matrices.

These laboratories offer different solutions, such as **quality control**, ensuring that products meet required standards, or issuing **certifications** that attest to their compliance.

By providing chemical, enzymatic, and immunoassay kits, together with the Y15 automatic analyser, BioSystems enable the delivery of precise and reliable results.

↘ Technologies

BioSystems offers an automated system based on **spectrophotometry** that streamlines laboratory routines.

The set of ready-to-use liquid reagents, along with the BioSystems Y15 analyser, enables the simultaneous analysis of multiple parameters, monitoring key factors in the production process.

We also provide ELISA **immunoassays** and Rapid Tests for allergen analysis, as well as **spike solutions** for preparing internal controls and conducting recovery studies.

3.1. Automated reagents and BioSystems Y15 analyser

Enzymatic and Chemical Reagents

Sugars

The analysis of simple **carbohydrates**, such as monosaccharides, and complex carbohydrates, such as disaccharides and starch, is essential for monitoring production processes, evaluating potential adulterations, and ensuring proper labelling. BioSystems employs enzymatic methods, which provide a better alternative to tedious manual methods.

SUGAR	CODE
D-Glucose/D-Fructose	12800
Sucrose/D-Glucose/D-Fructose	12819
Maltose/Sucrose/D-Glucose/D-Fructose	12893
Lactose/D-Galactose	12882
Sucrose	12894
Total Starch	12848

D-Glucose/D-Fructose | Ref 12800

Principle of spectrophotometric method:
Hexokinase / Phosphoglucose isomerase

This kit enables the measurement of both analytes either together or separately and is validated for various matrices, including juices and beverages, vegetables, cereals, dairy products, and meat.

Sucrose/D-Glucose/D-Fructose | Ref 12819

Principle of spectrophotometric method:
β-Fructosidase / Hexokinase / Phosphoglucose isomerase

The kit measures sucrose or the sum of all three sugars in various matrices, such as juices, beverages, vegetables, cereals, dairy products, and meat.

Maltose/Sucrose/D-Glucose/D-Fructose | Ref 12893

Principle of spectrophotometric method:
α-Glucosidase / β-Fructosidase / Hexokinase / Phosphoglucose isomerase.

Maltose, a disaccharide found in different cereals, is analysed with this kit, which measures the sum of all four sugars in cereal-based matrices.

Lactose/D-Galactose | Ref 12882

Principle of spectrophotometric method:
β-Galactosidase/ Mutarotase / β-Galactose dehydrogenase

Lactose, a disaccharide made up of D-Glucose and D-Galactose, naturally occurs in dairy products or is added as an additive.

This reagent is validated for matrices like juices, beverages, cereal-based products, meat, and dairy products.

Depending on the application, this reagent can be used for "**lactose-free**" labelling (except for dairy products with enzymatic lactose removal).

Sucrose | Ref 12894

Principle of spectrophotometric method:
β-Fructosidase / Hexokinase

This reagent allows the measurement of sucrose in samples with high concentrations of this analyte.

Total Starch | Ref 12848

Principle of spectrophotometric method:
α-Amylase / Amyloglucosidase / Hexokinase

Starch consists of a network of glucose monomers and is a primary energy source in foods like vegetables and cereals. It is also used industrially as an additive for thickening and improving product texture.

The method is validated for cereal-based and meat products.

Organic Acids

The analysis of organic acids is useful for assessing the presence of additives, monitoring fermentation processes, and detecting secondary metabolites indicative of microbial contamination.

ORGANIC ACIDS	CODE
D-Lactic Acid	12801
L-Lactic Acid	12802
L-Malic Acid	12803
L-Ascorbic Acid	12828
Citric Acid	12825
Acetic Acid	12930
Tartaric Acid*	12808
D-Gluconic Acid*	12811
L-Glutamic Acid	12830
Pyruvic Acid	12826

D-Lactic Acid | Ref 12801

Principle of spectrophotometric method:
D-Lactate Dehydrogenase

D-Lactic acid is produced by various microorganisms as a result of glucose metabolism. It is often an indicator of undesired fermentation in juices, milk, and other foods, serving as a hygiene parameter.

L-Lactic Acid | Ref 12802

Principle of spectrophotometric method:
L-Lactate Dehydrogenase.

L-Lactic acid is a by-product of glucose metabolism in lactic acid bacteria. It is measured in some foods to evaluate the unwanted presence of these microorganisms or monitored in products like yoghurt that naturally contain it.

L-Malic Acid | Ref 12803

Principle of spectrophotometric method:
L-Malate Dehydrogenase

L-Malic acid naturally occurs in many fruits and vegetables but is also used as a flavoring agent in food products.

Acetic Acid | Ref12930

Principle of spectrophotometric method:

Acetyl-CoA Synthetase / Citrate Synthase / L-Malate Dehydrogenase.

Acetic acid is a by-product of ethanol metabolism in various microorganisms. It is analysed to determine its concentration in foods such as vinegar or to detect unwanted fermentation.

D-Gluconic Acid/D-Gluconolactone | Ref 12811

Principle of spectrophotometric method:
Gluconate Kinase / 6-Phosphogluconate Dehydrogenase

D-Gluconic acid naturally occurs in foods such as fruits, vegetables, legumes, cereals, honey, meat, and dairy products. It is also used as a preservative and acidulant. D-Gluconolactone is also present in food, but its occurrence is more significant due to microbial fermentation.

D-Tartaric Acid | Ref 12808

Principle of spectrophotometric method:
Vanadium Salt

D-Tartaric acid naturally occurs in fruits like grapes, bananas, and citrus. It is also used as a leavening agent, antioxidant, and flavor enhancer.

Pyruvic Acid | Ref 12826

Principle of spectrophotometric method:
D-Lactate Dehydrogenase

Pyruvic acid is an intermediate in various fermentation processes, and its measurement helps monitor critical reactions.

L-Glutamic Acid | Ref 12830

Principle of spectrophotometric method:
Glutamate Dehydrogenase / Diaphorase

L-Glutamic acid is an essential amino acid responsible for the umami flavor, widely used as a flavor enhancer in processed foods.

Ascorbic Acid | Ref 12828

Principle of spectrophotometric method:
MTT / PMS / Ascorbate Oxidase

Ascorbic acid naturally occurs in many plant-based foods, particularly citrus fruits. It is also used as an antioxidant additive.

Citric Acid | Ref 12825

Principle of spectrophotometric method:
Citrate Lyase / Malate Dehydrogenase

Citric acid is a naturally occurring organic acid found in citrus fruits such as oranges, lemons, and grapefruits. It is also a potent preservative.

Its analysis is helpful in detecting juice adulterations, as each fruit has its unique acid profile.

* Validated only in grape juice

Ions

IONS	CODE
Calcium	12824
Potassium	12823
Phosphate	12877

Calcium | Ref 12824

Principle of spectrophotometric method:
Arsenazo III

Calcium is an ion found in many foods, especially dairy products. It is also added to enrich them.

Potassium | Ref 12823

Principle of spectrophotometric method:
Pyruvate Kinase K^+-dependent

Potassium is an ion present in many plant-based foods. Its analysis is valuable for food quality control and agronomy.

Phosphate (Phosphorus) | Ref 12877

Principle of spectrophotometric method:
Phosphomolybdate | UV

Phosphates are ions naturally present in various animal and plant-derived foods or added externally as acidulants or acidity regulators.

Nitrogenous Substances

NITROGENOUS SUBSTANCES	CODE
Nitrites	12842
Primary Amino Nitrogen (PAN)	12807
Ammonium	12809
Urea	12879

Nitrite | Ref 12842

Principle of spectrophotometric method:
Sulfanilamide / Naphthylethylenediamine

Nitrites are found in both animal and plant-based foods, both naturally and as additives. They are regulated by law, making their measurement essential.

Primary Amino Nitrogen (PAN) | Ref 12807*

Principle of spectrophotometric method:
O-Phthalaldehyde (OPA)

The primary amino nitrogen kit allows the analysis of nitrogenous compounds, such as amino acids, providing essential information regarding the quality of the product. Amino acids and peptides contribute to the organoleptic characteristics of food as they are precursors to aromatic substances and color.

Ammonium | Ref 12809*

Principle of spectrophotometric method:
Glutamate Dehydrogenase

Ammonium is another nitrogenous compound naturally present in many foods or added as a pH regulator. In fresh milk, it is considered a hygiene parameter.

Urea | Ref 12879

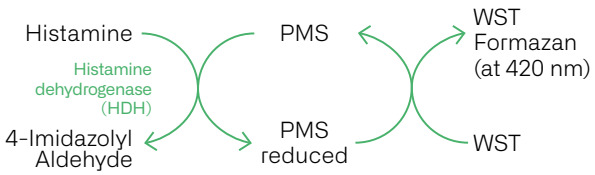
Principle of spectrophotometric method:
Glutamate Dehydrogenase / Urease

Urea is a by-product of protein metabolism and is measured in milk as an indicator of the nutritional balance of livestock feed.

*PAN and Ammonium reagents can be used as an alternative to the Formol Number.

Histamine | Ref 12829

Principle of spectrophotometric method:
Histamine Dehydrogenase



BioSystems enzymatic and automated histamine quantification system is validated in various matrices such as tuna, anchovies, sardines, among others, and is certified by **AOAC**.

- AOAC Certification (Performance Tested Method No. 072001)
- Liquid reagents, ready-to-use
- Reagent stability for up to 24 months
- High sensitivity
- Simple sample preparation
- Ranges compliant with current legislation
- Multiparametric system
- Spike Solution available* | Ref 12891

* Useful for the preparation of internal controls and recovery studies.

Histamine kit for automated procedure, certified as AOAC Performance Tested MethodSM #072001.

Sulfites | Ref 12845

Principle of spectrophotometric method:
Pararosaniline

Sulfites are regulated as substances that can lead to hypersensitivity (Regulation (EU) 1169/2011) and as **additives**. The maximum allowed limits are defined in Regulation (EU) 1129/2011.

The reagent for sulfite assay in crustaceans allows highly sensitive analysis of this substance and avoids interference by using the pararosaniline method. The analysis consists of a simple validated extraction in crustaceans and a rapid reaction with minimal reagent use.

The kit includes the extraction buffer and calibrator, making it very easy to use compared with other methodologies, and shows excellent correlation with the official method (Monier-Williams).

For more information about these analytes go to page 4.

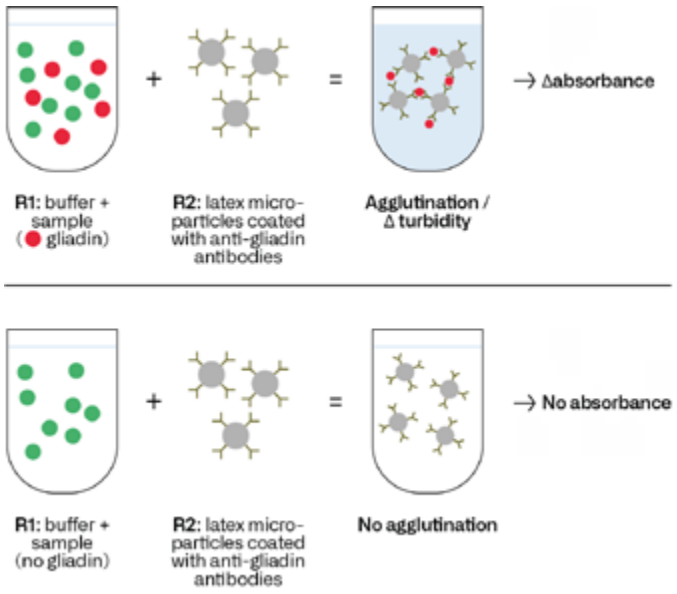
Gluten | Ref 31000

Principle of spectrophotometric method:
Immunoturbidimetry

Gluten is classified as an allergen, and regulations (EU) 1169/2011 and 828/2014 in the European Union, along with similar regulations in other countries, ensure proper gluten labelling and define the maximum permissible level (usually 20 ppm) in **gluten-free** products.

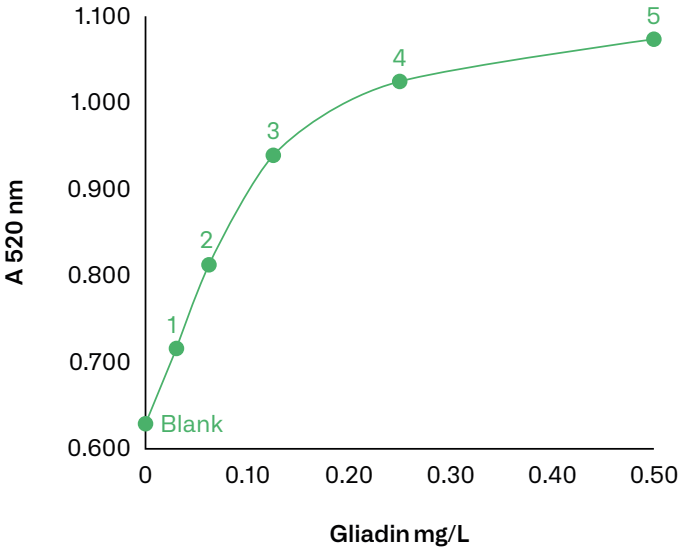
The innovative method of BioSystems allows the automated quantification of gluten in different samples and reduces the extraction process to a single step.

Product	Code
Gluten	31000
Gluten Spike Solution*	31002
Gluten Extraction Solution	31003



For more informations about this analyte go to page 6.

Calibration example:



* Useful for the preparation of internal controls and recovery studies.

Other Parameters

OTHER PARAMETERS	CODE
Ethanol	12847
Polyphenols (Folin-Ciocalteau)	12815
Glycerol	12812
Acetaldehyde	12820

Ethanol | Ref 12847

Principle of spectrophotometric method:
Alcohol Dehydrogenase

Ethanol is an alcohol produced from sugars fermented by yeasts such as *Saccharomyces cerevisiae*.

These microorganisms naturally live in fruit and, under certain conditions, can carry out unwanted fermentations. Analysing the products resulting from this metabolism is useful for monitoring product hygiene.

Polyphenols (Folin-Ciocalteau) | Ref 12815

Principle of spectrophotometric method:
Folin-Ciocalteau

Polyphenols are compounds with antioxidant effects present naturally in many foods.

Glycerol | Ref 12812

Principle of spectrophotometric method:
Glycerol-3-phosphate oxidase/Peroxidase

Glycerol is an alcohol present in both plant and animal oils and fats. It is also an intermediate of interest in alcoholic fermentation, making its analysis useful for various industrial applications.

Acetaldehyde | Ref 12820

Principle of spectrophotometric method:
Aldehyde Dehydrogenase

Acetaldehyde is a by-product of alcoholic fermentation and appears in fermented products such as alcoholic beverages and dairy products. It is also added as a flavor enhancer and preservative.

As it has harmful effects on human health, it is important to control its concentration.

Multicalibrators and Pretreatments

MULTICALIBRATORS	CODE
Multical	12818
Multireference	12933

PRETREATMENTS	
Carrez Reagent	12837

Multical | Ref 12818

Multiparametric calibrator

COMPONENT	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	UNIT
Acetic Acid	0,15	0,30	0,60	0,90	1,20	g/L
Ammonia	23	45	90	135	180	mg/L
Citric Acid	113	225	450	675	900	mg/L
D-Gluconic Acid	0,20	0,40	0,80	1,20	1,60	g/L
D-Glucose	0,90	1,80	3,60	5,40	7,20	g/L
D-Glucose+D-Fructose	0,90	1,80	3,60	5,40	7,20	g/L
Glycerol	0,11	0,23	0,45	0,68	0,90	g/L
D-Lactic Acid	0,028	0,056	0,113	0,169	0,225	g/L
L-Lactic Acid	0,34	0,68	1,35	2,03	2,70	g/L
L-Malic Acid	0,45	0,90	1,80	2,70	3,60	g/L
Primary Amino Nitrogen	45	90	180	270	360	mg/L
Sucrose+D-Glucose+D-Fructose	0,90	1,80	3,60	5,40	7,20	g/L

Multireference | Ref 12933

Multiparametric calibrator/control

COMPONENT	VALUE	E.U.	RANGE			UNIT
Acetic Acid	0,500	0,003	0,450	-	0,550	g/L
Ammonia	150,0	0,8	135,0	-	165,0	mg/L
Citric Acid	600	3	540	-	660	mg/L
D-Gluconic Acid	0,500	0,003	0,450	-	0,550	g/L
D-Glucose	4,00	0,02	3,60	-	4,40	g/L
D-Glucose+D-Fructose	4,00	0,02	3,60	-	4,40	g/L
Glycerol	0,750	0,004	0,675	-	0,825	g/L
D-Lactic Acid	0,125	0,001	0,113	-	0,138	g/L
L-Lactic Acid	0,500	0,003	0,450	-	0,550	g/L
L-Malic Acid	2,00	0,01	1,80	-	2,20	g/L
Primary Amino Nitrogen	150,0	0,8	135,0	-	165,0	mg/L
Sucrose+D-Glucose+D-Fructose	4,00	0,02	3,60	-	4,40	g/L

Pretreatments

Carrez Reagent | Ref 12837

It is used to clarify food and beverage samples by precipitating proteins, eliminating turbidity, and destabilising emulsions.

Analyser BioSystems Y15

The BioSystems Y15 is a compact, **multiparametric** analyser that offers multiple configuration options. It is developed and validated for use in food industry and laboratories.

The system features **dedicated liquid reagents** and the ability to **continuously load samples**, enabling the simultaneous and dynamic analysis of various parameters.

It delivers **results** quickly, with the first result in just 10 minutes and subsequent results every 48 seconds.

BioSystems also offers a version with a built-in cooler, the BioSystems **Y15c**, which ensures constant temperature for reagents during work sessions.

The **software** is user-friendly and adaptable to the specific needs of each laboratory.

BioSystems Y15

Automatic Random Access Analyser

Highlights

150 cycles/hour (75 results/hour).

Samples continuous loading.

Dedicated reagents, minimum handling.

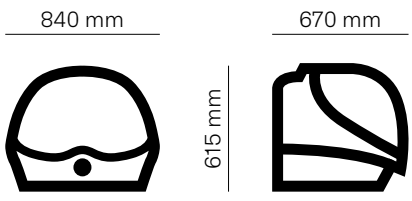
Automatic pre and post dilution.

User-friendly and adaptable software, direct results.

Item	Quantity	Code
BioSystems Y15 analyser	-	83106
BioSystems Y15C analyser	-	83106C
Reaction rotor	10 units	AC11485
Concentrated Washing Solution	500 mL	BO13416
Concentrated System Liquid	1000 mL	12889
Sample wells (pediatric cups)	1000 units	AC10770
Reagent bottles 50 mL + caps	10 units	BO11493
Reagent bottles 20 mL + caps	10 units	BO11494
Amber reagent bottles 50 mL + caps	10 units	BO13442
Halogen lamp Y15 6V/10W	1 unit	LA10429U

Intended use: automated analyser for the measurement of different kind of food and beverage samples.
For professional use in analytical laboratories only.

Dimensions



Technical Specifications

THROUGHPUTS

Speed	150 cycles/hour
Mean throughput	75 results/hour

SAMPLE HANDLING

Positions for racks (reagents or samples)	4 or 2 in Y15c
Rack samples capacity	24 sample positions/rack
Max. capacity of samples	72 or 48 in Y15c
Barcode reader	External
Size of primary tubes	Ø 13 mm or 15 mm (max. height 100 mm)
Sample well diameter	13 mm
Sample types	Agri-food and beverage samples
Dispensing pump	Ceramic pump of high durability
Dispensing tip	Stainless steel 110 mm
Level detection	Capacitative
Sample pipetting volume	From 2 µL to 80 µL
Pipetting resolution	0.1 µL
Predilution ratio	From 1:2 to 1:40
Tip wash	Inside and outside

REAGENTS HANDLING

Volume of reagent bottles	20 mL, 50 mL
Reagents rack capacity	10 bottles of 20 or 50 mL
Cooled reagent	Yes, in Y15c. 20 reagents max.
Temperature range of cooler	10 °C below room temperature (at 25 °C)
Reagent volume	R1 volume, 10 µL to 600 µL R2 volume, 10 µL to 200 µL
Dispensing mode	Ceramic pump without maintenance
Pipetting resolution	1 µL
Tip wash	Inside and outside

REACTION ROTOR

Reaction volume range	From 180 µL to 800 µL
Number of wells	120
Well material	UV methacrylate
Type of incubation	Dry without maintenance
Temperature	37.0 °C
Temperature accuracy	±0.2 °C

OPTICAL SYSTEM

Light Source	Halogen lamp (6V, 10W)
Lightpath	6 mm
Wavelengths	340 - 405 - 420 - 520 - 560 - 600 - 620 - 635 - 670 nm (filters can be replaced according to necessities)
Wavelenght accuracy	±2 nm
Spectral range	340 - 900 nm
Photometric range	-0.05 to 3.6 A
Photometric detection system	Silicon photodiode
Internal resolution	<0.0001 A
Baseline stability	0.004 A max., 30 minutes at 505 nm

SIZE AND WEIGHT

Size (w., d., h.)	840 x 670 x 615 mm
Weight	45 Kg
Packaging	120x80x94 cm; 116 Kg

ELECTRICAL AND ENVIRONMENTAL REQUIREMENTS

Mains voltage	115 to 230 V
Mains frequency	50 or 60 Hz
Electric power	150 A (200 A in Y15c)
Ambient temperature	From 10 to 35 °C
Relative humidity	<75%
Altitude	<2500 m

FLUID REQUIREMENTS

System liquid solution bottle	3 L
Washing solution bottle	3 L
Waste solution bottle	3 L

MINIMUM COMPUTER REQUIREMENTS

Operative system	Windows® 10 (x64) or Windows® 11 (x64)
CPU	Equivalent to IntelCore i3 (8th generation) @3.10 GHz or over
RAM	8 GB
Hard Disk	40 GB or over
DVD Lector	Yes
Monitor minimum resolution	1280x800
Connector of serial channel	USB

LABORATORY INFORM ON SYSTEMS (LIS)

Connectivity to LIS	Yes

Applications per sector (Enzymatic/Chemical)

		Juices & Vegetables	Dairy Products	Meat Products	Seafood	Cereal Products	Honey	Chocolate
SUGARS	D-Glucose/D-Fructose	✓	✓	✓		✓	✓	✓
	Sucrose/D-Glucose/ D-Fructose	✓	✓	✓		✓	✓	✓
	Maltose/Sucrose/ D-Glucose/D-Fructose					✓		
	Sucrose	✓						
	Lactose/D-Galactose		✓	✓		✓		✓
	Starch	✓		✓				
ORGANIC ACIDS	D-Lactic Acid	✓	✓					
	L-Lactic Acid	✓	✓					
	L-Malic Acid	✓						
	Acetic Acid	✓	✓					
	D-Gluconic Acid	✓						
	Tartaric Acid	✓						
	L-Glutamic Acid	✓		✓				
	L-Ascorbic Acid	✓		✓	✓			
	Citric Acid	✓						
	Piruvic Acid	✓						
IONS	Calcium	✓	✓					
	Potassium	✓						
	Phosphate (Phosphorus)	✓	✓	✓	✓	✓		
NITROGENOUS SUBSTANCES	Nitrites	✓		✓				
	Primary Amine Nitrogen (PAN)	✓						
	Ammonium		✓	✓				
	Urea		✓					
HISTAMINE	Histamine				✓			
GLUTEN	Gluten	✓	✓	✓		✓	✓	
SULFITES	Sulfites			✓	✓			
OTHER PARAMETERS	Ethanol	✓						
	Polyphenols	✓						
	Glycerol	✓						
	Acetaldehyde	✓						

3.2.Non-Automated Reagents

Allergen Immunoassays

Food allergens are proteins of various origins that, when consumed by sensitive individuals, trigger immune reactions ranging from mild to severe, even at low concentrations.

Potentially allergenic foods are listed in Annex II of Regulation 1169/2011 (EU) as their **labelling** is mandatory.

Countries outside the EU have specific regulations for these types of foods.

Food allergies represent a critical risk for consumers, making the detection of allergens in raw materials and finished products essential for ensuring food safety.

BioSystems offers allergen analysis through ELISA kits and rapid tests.

ELISA is an efficient tool for quantifying these substances at very low concentrations due to the specificity of the antigen-antibody binding.

Rapid tests provide qualitative analysis and are useful for internal controls (screening).

Spike Solutions are also available for internal controls and recovery studies.

For the analysis of **lactose**, **sulfites** and allergens such as **gluten**, please refer to pages 11, 16 y 17.

Advantages

ELISA

Rapid and standardised methods (20' + 20' + 20')
Easy to handle and cost efficient
Reliable results
High sensitivity
Validated for various matrices
Spiking solutions available

Rapid Test

Results in 10-15 minutes
Easy extraction
Simple to use
Cost-efficience
High sensitivity

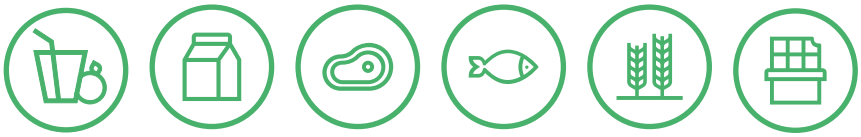
	Allergen	Presentation	Code
Allergens ELISA	Milk (β-lactoglobulin)	96 wells	14112
	Milk (Casein)	96 wells	14113
	Total Milk	96 wells	14123
	Egg White	96 wells	14117
	Ovalbumin	96 wells	14125
	Lysozyme	96 wells	14122
	Fish	96 wells	14118
	Crustaceans	96 wells	14116
	Almond	96 wells	14111
	Hazelnut	96 wells	14120
	Peanut	96 wells	14126
	Walnut	96 wells	14130
	Mustard	96 wells	14124
	Sesame	96 wells	14128
	Soy	96 wells	14129
	Gluten (gliadin)	96 wells	14119

	Allergen	Presentation	Code
Allergens Rapid Tests	Milk	10 tests	14210
	Egg	10 tests	14209
	Fish	10 tests	14211
	Crustaceans	10 tests	14208
	Soy	10 tests	14215
	Almond	10 tests	14214
	Hazelnut	10 tests	14212
	Peanut	10 tests	14213
	Mustard	10 tests	14216
	Gluten R5 Flow Through (Foods)	10 tests	14206
	Gluten R5 Flow Through (Surfaces)	10 tests	14207
Spike Solutions	Almond	3 mL	14150
	Casein	3 mL	14151
	Gluten (Gliadin)	3 mL	14152
	Soy	3 mL	14153
	Ovalbumin	3 mL	14154
	Lysozyme	3 mL	14155
	Milk	3 mL	14156
	β-Lactoglobulin	3 mL	14157
	Egg White	3 mL	14158
	Hazelnut	3 mL	14159
	Peanut	3 mL	14160
	Walnut	3 mL	14161
	Mustard	3 mL	14162
	Sesame	3 mL	14163
	Crustaceans	3 mL	1464
	Fish	3 mL	14165

Applications per sector (immunoassays)

		Juices & Vegetables	Dairy Products	Meat Products	Seafood	Cereal Products	Sweets
ALLERGENS	Milk (β-lactoglobulin)	✓		✓		✓	✓
	Milk (Casein)	✓		✓		✓	✓
	Total Milk	✓		✓		✓	✓
	Egg White			✓		✓	
	Lysozyme		✓				
	Fish				✓	✓	
	Crustaceans			✓	✓	✓	
	Almond		✓			✓	✓
	Hazelnut		✓			✓	✓
	Peanut		✓			✓	✓
	Walnut		✓			✓	✓
	Mustard		✓	✓			
	Sesame		✓	✓		✓	✓
	Soy		✓	✓		✓	✓
	Gluten (gliadin)			✓		✓	

Covering all your needs!



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