

Milk and dairy products

Ensure safe and high quality goods

Sensitive test systems to analyse your products and equipment on various parameters

- Microbiology/hygiene
- Mycotoxins
- Antibiotics
- Hormones & anabolics
- Product adulteration
- Constituents
- Allergens
- Vitamins



Ensure safety throughout the food production chain

From primary production to the final product many steps need to be controlled and monitored to obtain safe and high quality products. R-Biopharm test kits can be applied throughout the whole production chain: from raw materials to intermediates to final products, from the inspection of incoming goods to hygiene monitoring and finally to product analysis for correct labeling. Our large portfolio of different test formats can be used to analyse:

- Milk and milk powder
- Cheese
- Joghurt
- And many other dairy products

Reasons for analysing milk and dairy products during different production stages:

- Identity- and authenticity control of raw materials
- Purity control
- Control of the hygienic status
- Determination and control of the parameters for nutritional information
- Control of the conformity of the recipe
- Compliance to official regulations
- Quality control



Choose the appropriate products for your needs

This brochure will give you an overview of test kits that will help you check and control your production processes.

Further technical details (e.g. detection limits, test formats) and order numbers can be found in our Food & Feed Analysis Product Catalogue.

Your local distributor and our customer service team can also give you further advice on which tests are suitable for your individual needs.

In addition R-Biopharm offers technical trainings on specific parameters throughout the year. Please check the “Analysts Workshops” brochure on our website www.r-biopharm.com/events.

Contact us:

Phone: +49 (0) 61 51 - 81 02-0

Fax: +49 (0) 61 51 - 81 02-40

E-mail: sales@r-biopharm.de
info@r-biopharm.de

Production steps in brief



1. Inspection of raw materials

Poor quality raw materials make poor quality products. Thus, the inspection of all incoming (raw) materials is the first crucial step in the production process to ensure product consistency and minimize material costs, discard and rework.

With our wide range of test formats and parameters you can check if incoming materials comply with legal requirements and verify if your own specifications are met by your suppliers. Sorting out substandard materials before money is spent processing them is one of the most cost effective methods of ensuring a persistent high quality of the final product. Protect your process right from the beginning!

Check for:

- Microbiology/hygiene
- Aflatoxin M1
- Antibiotics
- Hormones & Anabolics
- Product adulteration
- Acids, sugars & other constituents
- Allergens
- Vitamins



2. In-process control

The quality requirements for foods and beverages such as milk are very high. Regular in-process controls are essential to ensure the safety, consistency and shelf life of the final product. Additionally, you can monitor certain constituents and spoilage organisms to make sure that processes are running within specifications. This will ensure batch-to-batch consistency, minimize economic and quality losses and prevent product recalls.

Check for:

- Microbiology/hygiene
- Acids, sugars & other constituents
- Allergens
- Vitamins



3. Final product control / Labeling

Final products have to match all quality criteria before being dispatched to customers. This includes controls to eliminate all possible health hazards like (cross-) contamination with allergens and pathogenic organisms. Furthermore, products must be labeled according to existing regulations which often vary by country and by product. R-Biopharm test kits help you to label your products properly and dispatch them with confidence.

Check for:

- Microbiology/hygiene
- Aflatoxin M1
- Antibiotics
- Product adulteration
- Acids, sugars & other constituents
- Allergens
- Vitamins



Hygiene & cleaning control at all stages of the manufacturing process

HACCP systems are implemented in most companies to certify the safety and consistency of products. Potential biological, chemical or physical hazards can be introduced by raw materials, the process, the equipment, the environment and employees. Apart from microorganisms, the presence of allergens can also lead to serious health risks for consumers.

Cross-contaminations by e.g. dust or insufficient cleaning of shared equipment are the main reason for the unintentional presence of allergens in food and beverages. Use our rapid and reliable test systems to check raw materials, final products, production lines, staff and cleaning efficiency (CIP water) for microbial and allergen (cross-) contaminations.

Sampling with Promedia ST-25



Relevant cleaning parameters

- AMP/ATP
- Protein residues
- Allergens subject to labelling (e.g. gluten, egg)

Relevant indicator organisms

- | | |
|------------------------------------|--------------------------------|
| • <i>E. coli</i> | • <i>Staphylococcus aureus</i> |
| • Enterobacteriaceae/
Coliforms | • Total aerobic count |
| • <i>Listeria</i> spp. | • Yeast & moulds |

Available test formats

- Test plates
- Swab tests
- Lateral flow test strips*

* These tests are part of the ● Allergens product portfolio.



Mycotoxins

Potentially toxic Aflatoxin M1 is secreted with the milk of lactating animals when fed with Aflatoxin contaminated feed. Since Aflatoxin M1 is relatively stable towards heat treatment and milk processing, it is recommended to check the raw milk as well as the final product.

Due to consumer health concerns Commission Regulation (EC) No 1881/2006 sets maximum levels for Aflatoxin M1 of 0.05 ppb in milk and 0.025 ppb in infant food.

Relevant parameters

- Aflatoxin M1

Available test formats/accessories

- ELISA
- Immunoaffinity columns
- Spiking solution/Dried standard

Antibiotics

Apart from the potential health risk for consumers, antibiotic drug residues bear an economic risk since they can inhibit biotechnological production processes that involve microorganisms.

Commission Regulation (EU) No 37/2010 sets allowable levels of antibiotics in foodstuff of animal origin, e.g. for milk 4 ppb Penicillins, 100 ppb Tetracycline, 200 ppb Streptomycin, 100 ppb Sulfonamides and 100 ppb Bacitracin and a zero-tolerance for Chloramphenicol.

Relevant parameters

- | | |
|-------------------|-----------------|
| • Bacitracin | • Streptomycin |
| • Chloramphenicol | • Sulfonamides |
| • Nitrofurans | • Sulfamethazin |
| • Penicillins | • Tetracycline |
| • Quinolones | |

Available test formats/accessories

- ELISA
- Spiking solutions

Hormones & Anabolics

Hormone and anabolic residues can bear health risks for consumers. Therefore, the use of hormones and anabolics in livestock breeding is completely banned in most countries (exemptions for veterinary purposes).

Our test kits allow specific and quantitative determination of hormones and anabolics in milk and dairy products.

Relevant parameters

- | | |
|--------------------|-------------------------|
| • Acetylgestagens | • Zeranol |
| • Clenbuterol | • 17 β -estradiol |
| • DES | • β -Agonists |
| • Ethinylestradiol | |

Available test formats/accessories

- ELISA
- Spiking solutions

RIDASCREEN® Enzyme immunoassays (ELISA) for high sample throughput





Microorganisms and bacterial toxins

Foodborne diseases are mainly caused by microorganisms. Thus the control of pathogens throughout the whole production chain is crucial to ensure consumer protection. Moreover, it is important to monitor typical spoilage organisms to reduce losses during production and to ensure the product's stability until the declared shelf life.

SureFast® and GEN-IAL® real-time PCR for screening and species verification.



Relevant pathogens

- | | |
|----------------------------------|-------------------------------------|
| • <i>Bacillus cereus</i> | • <i>E. coli</i> STEC / VTEC / EHEC |
| • <i>Clostridium botulinum</i> | • <i>Listeria monocytogenes</i> |
| • <i>Clostridium perfringens</i> | • <i>Salmonella</i> |
| • <i>Cronobacter</i> | • <i>Staphylococcus aureus</i> |

Relevant spoilage organisms

- | | |
|------------------------------|------------------------|
| • <i>Bacillus cereus</i> | • <i>Enterococci</i> |
| • <i>E. coli</i> | • Lactic acid bacteria |
| • Enterobacteria (Coliforms) | • Yeasts |

Relevant bacterial toxins

- | |
|--------------------------------------|
| • <i>Staphylococcal</i> enterotoxins |
|--------------------------------------|

Available test formats/accessories

- | |
|--|
| • Test plates |
| • ELISA |
| • Real-time PCR + DNA preparation kits |



Product adulterating substances

Milk belongs to the most common adulterated foods. In order to identify adulterated milk products

that were tampered with for economic reasons you can use the following test kits.

Relevant parameters

- | |
|---|
| • Cow's milk in sheep's and goat's milk or cheese |
| • Melamine |
| • Beef, sheep, goat, buffalo DNA in raw milk |

Available test formats/accessories

- | |
|--|
| • ELISA |
| • Clean-up columns |
| • Immunochromatographic test strips |
| • Real-time PCR + DNA preparation kits |

 **Acids, sugars & other constituents**

Constituents such as sugars, acids and alcohols are measured in raw materials and final products for several reasons, e.g. to give nutritional information on labels, to ensure uniform quality or to comply with legislative requirements.

Many enzymatic methods have been approved or validated by international organizations such as AOAC (e.g. Official method 984.15 Lactose in milk), International Dairy Federation (e.g. IDF 34C Citric acid in cheese and milk) and ISO (e.g. ISO 11285 (2004) Lactulose in milk).

Relevant parameters

• Acetaldehyde	• Galactose
• Acetic Acid	• Glutamic acid
• Ammonia	• Lactose
• Ascorbic Acid	• Lactulose
• Cholesterol	• Nitrate
• Citric acid	• Starch
• D-Gluconic acid	• Sucrose
• D-Glucose	• Urea
• D-/L-Lactic acid	and many others

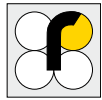
Available test formats/accessories

• Enzymatic tests
• Glucose remover kit
• Standards/Assay control solutions

RIDA®CUBE SCAN

- Ready-to-use test cartridges for single testing
- For small food laboratories or in production facilities
- In process controls





Allergens and food intolerances

In most countries it is mandatory to label ingredients which can cause allergies or intolerances. However, unintended contaminations during storage and production due to carryover are very common. That is why manufacturers should test incoming raw material as well as their final products to ensure correct labeling and to avoid product recalls. We offer test systems for the detection of the most common allergens including all 14 allergens listed in EU directive 2007/68/EC Annex IIIa. Furthermore substances that are linked with food intolerances can be detected with our test systems.

Relevant parameters

- | | |
|----------------------------------|-----------------|
| • Celery | • Mustard |
| • Egg | • Nuts |
| • Gluten | • Peanut |
| • Histamine | • Soya |
| • Lactose | • Sulfite |
| • Lysozym (especially in cheese) | and many others |

Available test formats/accessories

- ELISA
- Lateral flow test strips
- Enzymatic tests
- Real-time PCR + DNA preparation kits
- Assay controls

RIDASCREEN®, RIDA®QUICK and bioavid tests to ensure allergen free food



Vitamins

Many foods and beverages are enriched with essential vitamins to ensure a sufficient supply of the population. Manufacturers need to make sure that the added and natural vitamin contents matches with the label on the package until the declared shelf life. Our vitamin test kits and clean-up columns allow quick and reliable determinations.

Relevant parameters

- | | |
|---------------------------------|--------------------------------|
| • Vitamin B1 (Thiamin) | • Vitamin B7 (Biotin) |
| • Vitamin B2 (Riboflavin) | • Vitamin B9 (Folic Acid) |
| • Vitamin B3 (Niacin) | • Vitamin B12 (Cyanocobalamin) |
| • Vitamin B5 (Pantothenic Acid) | • Vitamin C (Ascorbic Acid) |
| • Vitamin B6 (Pyridoxin) | |

Available test formats/accessories

- Microbiological based tests
- Immunoaffinity columns
- ELISA
- Enzymatic tests
- Spiking standards