



QUALITY



INNOVATION



AUTHENTICITY

FOOD TESTING

MAKING THE DIFFERENCE

INNOVATIVE SAFETY AND QUALITY ANALYSES FOR YOUR SUPPLY CHAIN

SGS



EXPERTISE

SAFETY & QUALITY ANALYSES

Food testing services cover multiple chemical, microbiological, physical and sensory examinations to analyze the safety and quality of food. Safety and quality testing verifies product compliance with various regulatory standards.

At every stage of the food supply chain, our food safety testing services help ensure compliance with national and international regulations, as well as company and client-specific standards, governing issues such as pesticide and antibiotic residues, environmental and process contaminants, pathogenic

microorganisms, allergens, additives and nutritional content.

Using our state-of-the-art food testing laboratory services, we can help minimize potential hazards and protect your organization and brand from unwanted food safety scares, compensation claims and negative publicity.

We conduct testing on all food groups, including the following:

- Beverages, wine and spirits
- Cereals, breads and pastries, preserved food

- Chocolate and confectionery
- Ready to eat products
- Dairy products
- Delicatessen products
- Fats and oils
- Frozen foods
- Fruit, vegetables, herbs, teas, spices
- Health foods and dietary supplements
- Meat and poultry products
- Pet Food
- Seafood



SPEED TO MARKET

LABORATORY MANAGEMENT INFORMATION SYSTEM (LIMS)

SGS LIMS is a software system to support laboratory operations. It improves the productivity and efficiency of processes, facilitates sample management and tracking, allows workflow automation and analytical instrument integration. In turn, it reduces turnaround times and the risk of human error. Advanced tools meet customer needs and demonstrate compliance with standards and regulations. Test results and reports can be accessible via a web portal, in almost real-time, 24/7.



FOOD CONTAMINATION

The effect of food contamination on consumer health varies dramatically depending on the contaminant. Preventing tainted ingredients and products reaching the consumer is paramount.

Our testing laboratories provide a wide range of parameters to analyse the compliance of food products or ingredients. Moreover, we continue to invest in developing world-class testing capabilities. This is vital in the ongoing battle to protect consumers against undesirable contaminants.

We test for a wide range of restricted or undesirable substances including:

- Allergens
- Animal and plant species identification
- Dioxins and polychlorinated biphenyls (PCBs)
- Food fraud
- Genetically modified organisms (GMO)
- Heavy metals
- Melamine and cyanuric acid
- Mycotoxins
- Packaging migration
- Pesticide residues
- Process contaminants (2-MCPD, 3-MCPD and glycidol)
- Veterinary drug residues
- Pyrrolizidine and tropane alkaloids

With expertise in all food segments, we have a thorough knowledge and understanding of the legislation and voluntary agreements that regulate restricted substances in food products, including Prop 65.

MICROBIOLOGY

Testing for pathogens and spoilage organisms can ensure the safety of food products along the supply chain. Functional microbes must also be monitored during production and in the final product. Testing helps you to assess

FSMA

The US Food Safety Modernization Act (FSMA) requires food safety systems to include microbiological testing and verification to demonstrate that food is produced and stored in a safe environment and preventive controls are functioning as expected. Specific programs have specific testing requirements. These include:

- Environmental testing, for ready to eat products
- Allergen verification testing
- Ground and surface water testing for *E. coli*, at farm level
- Finished product testing to ensure legal compliance
- Manufacturing process validation

In addition to testing, we can provide audits, training and technical support to help you comply with FSMA requirements.

the safety and quality of ingredients and food products.

As the success of your program is determined by the strength of the weakest link in your supply chain, we take a proactive approach that encompasses all parties. You can trust our food microbiological testing to detect potentially dangerous pathogens, spoilage organisms and functional bacteria – to help keep you in business.

With a network of ISO 17025 accredited testing laboratories, equipped with cutting-edge technology and experts using the most up-to-date testing standards, we are your perfect test program provider, no matter what your food product is.

Our food microbiological analysis services include classical as well as rapid:

- Pathogen testing
- Quality indicator testing
- Virus testing
- Functional food testing

As part of our food laboratory service we test for:

Pathogens

- *Bacillus cereus*
- *Campylobacter* spp
- *Clostridium botulinum*

- *Clostridium perfringens*
- *Cronobacter* spp. (*Enterobacter sakazakii*)
- Shiga toxin-producing *Escherichia coli* (STEC) such as *E. coli* O157:H7 and the “Big Six” regulated by USDA FSIS: *E. coli* O26, *E. coli* O45, *E. coli* O103, *E. coli* O111, *E. coli* O121 and *E. coli* O145.
- *Legionella*
- *Listeria* spp
- *Listeria monocytogenes*
- *Salmonella* spp
- *Shigella* spp
- *Staphylococcus aureus* (and its toxin)
- *Vibrio* spp
- *Yersinia*

Spoilage organisms and hygiene indicators

- Acidophiles / *Lactobacillus*
- Aerobic/anaerobic plate counts
- Coliforms
- Generic *E. coli*
- Mesophiles
- Psychrotrophs
- Sporeformers
- Sulfite reducing bacteria
- Thermophiles
- Yeast and mold



NUTRITION & COMPOSITION

Food nutrition analysis determines the nutritional content of food and food products, supports product claims and ensures compliance with nutritional labeling requirements. Our methodology recommendations ensure that any food nutrition analysis performed complies with the intended destination market(s).

Our nutritional and composition tests include:

- Proximate analysis – moisture, fat, protein, ash, carbohydrates, proteins (regular, nitrogen, amino acid profile)
- Fats – saturated, monounsaturated, polyunsaturated, trans, fatty acid profile
- Carbohydrates – acid detergent fiber (ADF), neutral detergent fiber (NDF), beta glucan, crude fiber, total dietary fiber (TDF), starch, polysaccharides
- Food additives:
 - Colorants – Astaxanthin, Beta-Carotene, Brilliant Blue, Carmoisine, Carotenes, Erythrosine, Fast Green, Lycopene, Para Red, Patent Blue V, Ponceau 4R, Quinoline Yellow, Rhodamine B, Sudan Orange G, Sudan Red, Sunset Yellow, Tartrazine, Zeaxanthin
 - Flavors – cinnamyl acetate, menthol, thymol, vanillin flavor profile of natural fruit juice
 - Sweeteners – aspartame, acesulfame K, cyclamate, fructose, glucose, lactose, maltose, mannitol, neotame, saccharin, sorbitol, sucralose, sucrose
 - Preservatives – benzoic acid, dehydroacetic acid, ethoxyquin, gallic acid, polyphenol, sorbic acid

- Minerals & trace elements – calcium (Ca), copper (Cu), phosphorus (P), magnesium (Mg), zinc (Zn), iron (Fe), sodium (Na), potassium (K), strontium (Sr), nickel (Ni), manganese (Mn), cobalt (Co)
- Vitamins – A, C, D, E, B1, B2, B3, B5, B6, B7, B12, folic acid, beta carotene

PHYSICAL AND SENSORY TESTING

Our food sensory analysis services include consumer sensory testing for product development, as well as sensory assessment of food quality and taste. These include tests for color, taste, odor and texture that capture consumer reactions using the following methods:

- Descriptive sensory analysis
- Duo-trio test
- Evaluation test with scale
- Panel test
- Ranking test
- Triangular test

Sensory analysis is an important aspect of product development and marketing, since it offers insight into consumer behaviour and quality assurance.

The scope of our physical testing services includes:

- Appearance, tightness and inner surface condition
- Count and size
- Defects
- Foreign materials
- Granulation/particle size
- Net mass and relationship between component parts



- Temperature
- Viscosity
- Weight (gross, net and thawed)

FOOD SHELF LIFE TESTING

Food shelf life testing from SGS helps food manufacturers to comply with statutory or commercial requirements by verifying that products display the appropriate “use by” and/or “best before” date(s). Our food testing laboratories work with each product throughout its shelf life, with procedures including microbial indicator analysis as well as sensory, physical and chemical testing.

All shelf life studies are tailored to your specific needs. With a few questions, we will develop a specific study design to meet your needs based upon your unique product.

RESEARCH AND DEVELOPMENT

From Microbial Challenge Studies and Process Validation Studies to Method Validations including AOAC Research Institute and Official Methods of Analysis, SGS has developed outstanding expertise to execute the most challenging research projects.

Innovative approaches, scientific analysis and responsive client service provides on-target solutions to your most challenging food safety issues. SGS is leading the way in development of new research techniques to better serve our customers.

FOOD CONTACT MATERIALS TESTING

Packaging must not transfer its constituents into a foodstuff in unacceptable quantities. Food contact material testing ensures that food is not contaminated by its packaging. To ensure that products comply with the appropriate

regulations for food contact materials we conduct:

- Food contact testing
- Transport packaging
- Material testing
- Physical and mechanical

Our laboratories perform food contact materials testing against the regulations for regions and countries including the EU, USA, Japan and China. We also offer expertise in analytical testing and consultancy services for plastic and non-plastic materials intended to come into contact with foodstuffs.

U.S. FDA DETENTION SOLUTIONS

With U.S. Food and Drug Administration (FDA) regulations becoming more stringent, the surveillance of imported food products has increased. The U.S. FDA can detain any food shipment that it believes to be in violation of regulations.

Once an importer is placed on the FDA's Detention Without Physical Examination (DWPE) list a minimum of five consecutive commercial shipments must enter the U.S. without violation, and at least one of those five must be audited by the FDA to ensure compliance. SGS can take care of customer's arrangements for sampling, testing and reporting the results of food shipments to the FDA.

Sampling and Testing Services

Once a shipment is detained, the importer must prove the merchandise should be allowed to enter the U.S.; otherwise it will be refused entry and must be exported or destroyed within 90 days which can result in costly delays and/or product loss. SGS' knowledgeable staff has special expertise in the FDA's food regulations and protocols, to help move imports out of detention as rapidly as possible.

FDA Reporting

The FDA has stringent reporting formats that must be adhered to in order to be removed from automatic detention. SGS experts will communicate and submit all required reports to the FDA. We will contact individual district compliance offices to ensure that all forms are submitted in their preferred method, be it electronic or hard copy.

Advantages of Using SGS

SGS works with a vast network of labs in North America to optimize timing. Our SGS experts can offer guidance on testing your product to ensure compliance with U.S. FDA pesticide tolerances and colorant/color additive regulations as well as testing products for contaminants and pathogenic microorganisms. SGS will expedite the sampling and testing enabling your products to be released as soon as possible.



VETERINARY DRUGS:

The Veterinary Drug limits are regulated in the **Veterinary drugs MRLs for Food in Korea(?)**

Substance	Limit
Oxolinic acid: Antimicrobial agent	0.1 mg/kg
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Note that according to the regulation, if a substance is not mentioned it means it is b

PESTICIDES :

OPTIMIZATION

SGS DIGICOMPLY

Create New Task

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TAILORED TESTING PROGRAMS

All our food testing services may be conducted alone or in combination, as verification to findings collected during audits and product inspections. Our food testing experts can devise a program of testing and analysis to meet your specific requirements.

With dozens of dedicated food testing facilities around the world, we have the experience and expertise to help you wherever you are based and wherever you market your goods. We can work with you to reduce health risks, satisfy consumers and gain a competitive edge.

TECHNOLOGY AND INNOVATION

Innovation is at the heart of the way we do business. We embrace new technologies that deliver knowledge, insight, transparency and efficiency to help you to manage quality, safety and profitability

Transparency-One

Discover, analyze and monitor all suppliers, ingredients and facilities in the supply chain. SGS's Transparency-One uses real time data to reduce risk, identify ingredient origins and ensure compliance.

Cutting edge cloud-based technology and SGS's global experience in testing and certification, allows manufacturers to check supplier certification, reduce risk, respond quickly and effectively to potential crises, provide customers with up-to-date information, and gain consumer loyalty and trust.

SGS Digicomply

Simplify compliance with SGS Digicomply, the regulatory intelligence network transforms compliance data into user-friendly actionable knowledge. Information overload makes it difficult to identify and process the important content, impacting understanding of issues and decision making. Our powerful knowledge management platform, combines high technology with human expertise to sort and classify multiple data sources into one coherent data feed.

SGS BENEFITS

We strive to deliver outstanding value at every step in your project by providing:

-  Rapid turnaround time
-  Technical assistance
-  Key account management
-  Customized service
-  Data management and reporting

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WHEN YOU NEED TO BE SURE

SGS