HOT SOURCE

EXPERT INSIGHTS INTO SAFE, SUSTAINABLE AND HIGH-QUALITY FOOD

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SGS

DEAR READER,

Complying with quality, safety and sustainability requirements is an ongoing responsibility. To help you meet the challenge, this issue of Hot Source looks at forthcoming revisions to ISO 9001 and ISO 14001 and reminds us of the planned timetable. Many private label suppliers will also be affected by a major retailer's announcement that all suppliers must undergo BRC unannounced audits. We explain what you can expect and what will be expected of your team.

Food contamination continues to make headlines. Understanding the issues and developments is key to your success; we look at the separate issues of honey contamination and the increased presence of pathogens in plants. In a similar vein we also examine the impact of sulphites in food, both good and bad.

Isotope testing has come into its own. As well as its use in food and nutritional research, this technology can also be applied to traceability. Find out more.

Product labelling impacts consumer protection, marketing and safety. Read about the latest GMO product labelling information for Europe and also the role labelling plays in the growing halal food industry.

Whether you are transporting, manufacturing or selling food, it all requires packaging at some point. Our new feature Packaging Corner offers insights into the latest industry issues.

For the complete range of SGS services and support visit: www.foodsafety.sgs.com.

SGS Agriculture and Food Team

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UPCOMING CHANGES TO ISO 9001 AND ISO 14001

As part of their ongoing development, both ISO 9001 (Quality Management) and ISO 14001 (Environmental Management) are currently under review, with the final revised versions due in 2015.

REVISION TIMETABLE

The current ISO timeline anticipates the following:

- Draft version of the revised Standards (DIS): Q2, 2014.
- Final draft version (FDIS): Q1, 2015.
- Final revised versions: Later in 2015.

Inevitably, this timeline may be subject to delay and date slippage.

REVISED FORMAT

At this stage, it is uncertain what the precise requirements of the final revised versions will be. However, we are aware of some of the changes that will be made.

Following the adoption by ISO of 'Annex SL' in 2012, all technical committees developing management system standards have to use the same structure, terms and definitions. In the same way, any future revision to ISO 22000 will have the same structure.

For this reason, we know that the revised version of ISO 9001, ISO 14001 and any other new or revised standards will have ten sections:

1. SCOPE

2. NORMATIVE REFERENCES
Wording that is specific to the Standard (including its intende outcome).

3. TERMS AND DEFINITIONS
Reference to common terms and core definitions outlined in Annex SL and any which are specific solely to Quality, Environmental or Food Safety Management, for example.

4. CONTEXT OF THE ORGANIZATION

Understanding the organisation implementing the Standard, needs and expectations of interested parties, scope of its Management System.

5. LEADERSHIP
Leadership and commitment; quality, environmental or food safety policy; roles, responsibilities and authorities.

6. PLANNING
Actions to address risks and opportunities, objectives and plans to achieve them.

7. SUPPORT
Resources needed for the chosen Management System, personnel competence and awareness, communication and documented information.

8. OPERATION
Operational planning and control.

9. PERFORMANCE EVALUATION
Monitoring, measurement, analysis and evaluation, internal audit and management review.

10. IMPROVEMENT
Non-conformity, corrective action and continual improvement.

FUTURE UPDATES

Until the FDIS for both standards is issued in the early part of 2015, no organisation can realistically make any definite forecast about the exact requirements. The current intention is to have a three year transition period for existing users of ISO 9001:2008 and/or ISO 14001:2004 although this has still to be formally ratified. SGS will keep you updated on new developments as they happen.

For further information, please contact your local SGS office.

UNANNOUNCED AUDITS: A GUIDE TO THE NEW BRC REQUIREMENTS

A major UK retailer recently stated that any site producing products under their own label must undergo a Full Unannounced audit. The Global Food Safety Initiative (GFSI) has also discussed the possibility, or at least defining a minimum number of Unannounced audits in a given cycle. So what does this entail and how can a company best prepare?

WHO CAN HAVE ONE?

For the British Retail Consortium (BRC) Global Standard for Food Safety, the requirements state that a company must have achieved either a Grade A or B on its last audit, and opted for the Unannounced option within three months of their last certification.

As a direct result of the retailer's statement, the BRC is permitting any site that has Grade A or B to transfer into the Full Unannounced audit, even if they are beyond the three month period.

A Full Unannounced audit is where the entire audit is conducted unannounced. The BRC Global Standard has a second option for a partially unannounced audit where the Good Manufacturing Practice (GMP) or factory processes audit is unannounced whilst the systems audit is conducted as a planned and arranged audit.

WHY HAVE ONE?

It is a common myth that prior to an audit, a company goes into overdrive; fixing holes, painting walls, revising documents, training staff and getting internal audits up-to-date. Whole timetables of HACCP reviews, management reviews and recall tests are scheduled to happen just prior to the audit. Managers suddenly run around briefing people how important it is that it all "looks good on the day".

A Full Unannounced audit is a way to demonstrate that a company works to the same standards every working day, not just brushing up for a couple of days a year.

For the extra scrutiny a successful unannounced BRC audit provides, the site will be rewarded with a + symbol after the grade, demonstrating that they maintain their systems in good order year round.

WHAT DO I NEED TO DO?

Once the Unannounced audit option has been selected, the certification body will ask the site to complete a form providing key information to enable the audit to go ahead smoothly:

- Security – the certification body will provide details of all auditors who may conduct your audit, and will provide photographic proof of identity on arrival. As with all audits, a trainee auditor, or a witnessed assessment on an auditor may take place. These training and witnessed audits are conducted by strict rules, and do not affect the audit outcome.
- Block out dates – with a Full Unannounced audit, a maximum of 15 days can be blocked out (10 days for a Partial Unannounced audit), when an audit cannot take place. These should be used when the site is not in production either for shutdowns, or for refurbishment.
- Shift patterns and earliest time of arrival.
- Where the auditor is to report on arrival at the site, who to ask for and a nominated deputy.
- Pre audit info – HACCP summary, process flow, simple site plan, organisation chart, types of products produced.

The certification body must be notified of any significant changes to the site, key contacts or changes to the scope of the audit.

WHEN CAN I EXPECT TO HAVE ONE?

The BRC protocol states the potential date range for an audit is anywhere from nine months before the re-audit due date, although it will most likely occur in the last four months of the cycle.

The audit will only happen on a weekday, and the earliest start time will be based on the shift patterns and agreed with the certification body in advance.

The audit will not take place on any of the blocked out days previously supplied.

HOW DOES IT HAPPEN ON THE DAY?

The auditor will report to the agreed point on site and ask for the nominated person (or deputy), explaining it is for an Unannounced BRC Certification audit. From that point, the requirement is that the auditor is granted access to the production facilities within half an hour.

During these 30 minutes, any relevant health and safety points, a brief opening meeting, and issue of any relevant personal protective equipment needs to be completed. If your site has any specific health and safety requirements, it will pay to notify the certification body in advance of these, or provide a briefing document, to save time on the day.

If key members of the site are not available on the day, the site's defined deputies should still be able to manage the audit process. The BRC protocol does not permit an audit to be cancelled because personnel are not available.

If access is not granted, then the BRC protocol stipulates that the site's current certification can be suspended or withdrawn, so it is important that any personnel who may be at the nominated reporting point are briefed on how to communicate the arrival of the auditor.

SGS is the largest certificating body for BRC, IFS and FSSC 22000 certificates around the globe.

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HALAL MARKET TRENDS AND OVERVIEW OF HARMONISATION EFFORTS

Rapid growth and interest in halal food has captured significant attention from the food industry. According to the World Halal Forum, the global halal food and beverage trade is currently estimated to be around ca. USD 1.4 trillion annually (Farouk, 2013).

The halal food market is currently worth an estimated 16% of the total global food industry with Asia, Africa and Europe accounting for 63%, 24% and 10% respectively. A growing Muslim population, as well as growing economic development and disposable income in Muslim countries, are considered to be the main drivers of halal growth, while halal has become the world's biggest brand (in Farouk, 2013). Worldwide the number of Muslims has been calculated as 1.62 billion, representing 23.4% of an estimated 2010 world population of 6.9 billion. Europe's Muslim population is currently estimated at 44.1 million Muslims, ca. 2.7 % of its total population and is younger and growing faster, as a whole, at a rate of 1.8% per year (in van der Spiegel, 2012).

Survey-type studies have shown that 75% of Muslims living in the US and 84% of Muslims in France always eat halal meat. Religion is not thought to be the sole motive for adhering to religious dietary requirements, such as halal. Health, respect for animal welfare and a degree of acculturation have also been noted as important drivers (in Bonne and Verbeke, 2008).

ROOM TO GROW

The retail exploitation of the Muslim market segment has been delayed by a lack of insight into Muslim food purchasing and consumer behaviour. Furthermore, confusion over halal specification and certification schemes, as well as the lack of halal food chain logistics hinders the effective traceability and authenticity of halal products, especially meat. The recent incidence of pork DNA found in halal school and prison meat in the UK earlier in the year highlighted the high risk of cross-contamination and the lack of effective

control measures in the halal food chain, which is as long and complex as any other food chain. The most common cases of fraudulent adulteration of halal meat involve the substitution of meat tissue with collagen and offal, as well as using pork fat in place of other animal fat. The problem also extends to the use of cheap pork proteins and mechanically recovered meat (MRM) from pig carcasses.

Halal is a process associated with religious belief and as such it would be difficult to control and guarantee. From the consumer point of view it is difficult to evaluate and verify even after consuming the product. Therefore, consumers have to largely rely on the seller and/or trust the information provided on the product label to guide their purchase. In the case of halal, such trust on product labelling would be all about the halal process attributes including handling and safety. The latter has been linked with the effectiveness of the slaughtering process leading to complete animal bleed out therefore ensuring that blood, a potential source of bacterial contamination is removed, resulting in healthier meat.

LOOKING FOR GLOBAL STANDARDISATION

Muslim consumers increasingly desire and demand the adoption of a quality assurance approach that guarantees the halal process standards. Such an approach would require a formal certification and labelling strategy to reassure consumers of the quality and authenticity of halal meat and improve shopping convenience and choice. Halal certification is not yet globally standardised but its need is internationally recognised. Apart from its religious significance and its 'seal of quality' perception amongst consumers, halal certification provides reliable and independent authentication, a means of claim substantiation. 'Authentic halal' is a cause of controversy amongst certifying bodies and Muslim countries, as halal is widely defined by the choice and

effectiveness of stunning methods used in animal slaughter.

According to EU legislation (EC/93/119, and EC/1099/2009 that came to effect on 1st January 2013) stunning before slaughtering is a mandatory requirement in Europe and is performed to ensure that the animals are unconscious, ensuring slaughter doesn't cause them anxiety, pain, suffering and distress. This legislation has caused significant dispute amongst Muslims as there is the concern that stunning could also kill animals prior to slaughter or make them suffer.

In many EU countries, religious slaughter is exempt from stunning in line with the religious freedoms granted by Article 9 of the EU Convention on Human Rights (www.dialrel.eu). Hence, slaughter without stunning is carried out in licensed slaughterhouses or during religious festivals to ensure that the animal is healthy and has suffered no injury prior to slaughter. This conflict around animal protection prior to slaughter is guided and affected by the different perceptions of what constitutes 'authentic halal'. In turn, this prevents the development of a global halal standard and hinders harmonisation. For example, the Malaysian standard that initially identified stunning as "not recommended" was revised in 2009 to include a reference to pre-slaughter stunning under certain conditions. Despite the differences, both the pre-stun and non-stun approaches have been embraced by major UK retailers selling meat from both pre-stunned and non-stunned animals in their stores and food outlets in an attempt to respond to their customers beliefs.

STEPS IN THE RIGHT DIRECTION

It is estimated that there are currently around 122 active halal certification bodies around the world, including local government departments that have taken charge of halal certification in countries such as Malaysia, Indonesia, Singapore, Thailand and the Philippines. It is believed that global politics and government involvement may discourage a general consensus on a harmonised halal certification approach, as each country is attempting to establish themselves as the global hub for halal certification based on their own national and regional interests.

A recent attempt to harmonise halal standards has been made by the Organisation of Islamic Cooperation (OIC) that appointed the United Arab Emirates (UAE) chair of the technical committee for halal food and cosmetics. UAE was given the task of producing a unified standard that would be applied across all 57 Islamic countries within the next three years (e.g. Halal Focus, 2012). Such an initiative has already been met with scepticism, but if successful, it is believed that it will act as a further boost to the global halal market. In view of the disputes previously mentioned, available options for the development of a global halal standard seem to be limited and would involve either an element of compromise, or acceptance of the diversity and differences amongst the different Islamic 'schools of thought' and likely to consolidate only a few standards.

As a leading provider of certification, verification, inspection and testing with a global reach, we are happy to discuss your halal certification, training or other requirement anywhere in the world. SGS currently offers halal certification according to the Qibla Food Control (QFC) standard. This is a halal quality standard developed by Muslims and food experts. Audits are exclusively carried out by expert Muslim auditors, such as veterinarians, food technologists and agricultural scientists, accompanied by members of Muslim institutions, to assess compliance against halal requirements.

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ISOTOPE TESTING BREAKS NEW GROUND IN FOOD TECHNOLOGY

Identify the natural and anthropogenic properties of food, feed and related products with isotope testing.

WHAT IS AN ISOTOPE?

The term isotope is formed from the Greek roots isos (equal) and topos (place) meaning "the same place". Thus, an isotope is one of two or more atoms of a single element which have an equal number of protons but contain different numbers of neutrons. This means that each isotope of a given element has a different mass, even though they occupy the same position in the periodic table.

Both stable and radioactive isotopes exist in nature. Stable isotopes are energetically stable and do not spontaneously decay, as opposed to radioactive ones. They can be measured using various Mass Spectrometry (MS) techniques, such as Isotope Ratio Mass Spectrometry (IRMS) or Inductively Coupled Plasma – High Resolution Mass Spectrometry (ICP-HRMS).

ISOTOPES IN RESEARCH

Stable isotopes, both at the natural abundance level and artificially enriched, are used for research in drug discovery, nutrition, energy (both nuclear and petrochemical), healthcare diagnostics, and key scientific studies in physics, chemistry, environmental science and materials science.

FOOD INDUSTRY INTEREST

Applications are now being developed to use these capabilities within the food industry to enhance research into plant growth and human nutrition.

Substances may bear a unique isotope ratio fingerprint, characteristic for the processes they undergo during their formation (e.g. photosynthesis) and/or subsequent environmental transformations (e.g. oxidation/reduction/evaporation), or anthropogenic activities (e.g. fraud).

Consequently, most natural products' geographic origin and exposure to natural and anthropogenic alterations can be identified through isotope testing. For example, the testing of naturally grown botanical and animal species or parts of them, allows the comparison and verification of geographical origin or natural vs. anthropogenic influences. Equally, this testing can be applied to water and minerals.

Animal species that have been living in different geographical regions and exposed to different environments can be identified. Upon investigation of old bones discovered in tombs dating back to the Neolithic times, it has even been possible to determine the areas in which our human ancestors travelled and lived.

This research has opened the testing industry's eyes to the potential use of this capability for more projects.

PRACTICAL APPLICATION

There are several practical applications for isotope testing. It is possible to relate the origin of hormones in meat to the natural production by the animal itself, to animal feeding, or to intramuscular injection. Milk and its products are tested to determine and verify the origin of cheese and butter products. Similarly, the origin of bottled water, or water used in production of various spirits can be verified. Fraudulent addition of ethanol to whiskey, brandies or wine can also be detected.

Geographic identification requires the mapping, drawing and testing of samples known to originate from specific locations. These results are then added to an identification matrix. Trials need to be conducted to demonstrate whether the data contained in such a matrix delivers sufficient evidence to identify a claim of fraud. This applies to origin, drug discovery, chemistry and material science.

EXPERIENCE AND NEW APPLICATIONS

SGS is applying its expertise and experience in the mineral industry and the field of environmental testing to the challenge of extending isotope testing into consumer markets such as food and feed. We are starting to identify and record relevant product compositions and elements.

For further information on our isotope testing capabilities, contact:

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PATHOGENS IN PLANTS

Common pathogens like Salmonella spp., Echerichia coli, Listeria monocytogenes and Campylobacter spp., traditionally associated with animal products, are increasingly entering the food chain through contaminated fruit and vegetable products.

Consumption of fresh produce has increased in recent years, prompted by healthy eating campaigns in the USA, Europe and other parts of the world. However, compared to previous years, fruit and vegetables are now being identified more frequently as the source of a growing number of outbreaks associated with zoonotic pathogens.

Between 2003 and 2008, the food vehicles identified in 1,565 outbreaks reported to the Centers for Disease Control and Prevention (CDC) are a broad spectrum of animal- and plant-derived foods (picture 1). The list of implicated foods is regularly expanded as new ones are identified during outbreak investigations. Between 2006 and early 2012, 15 new specific food types were identified as food vehicles in outbreaks affecting the United States. It is curious that while many of the pathogens have animal reservoirs, many new food vehicles are plant derived. This includes plant-derived processed foods, like peanut butter, peanut paste, and spinach powder; spices such as black and white pepper; tree nuts and fresh produce items.

Consumer demand for greater choice, variety and year-round availability of fruit and vegetables, as well the vogue for convenient 'ready to serve' products, such as bagged salads, has driven the globalisation of supply chains and increased pressure on the food industry. Unfortunately, this may compromise safety. The standard of water used for irrigation, as well as hygiene at harvest and during storage, can vary widely between countries, potentially exposing consumers to increased numbers and varied strains of these pathogens.

Intensive farming is not new. It is becoming apparent though that lessons learned in livestock farming can also impact fresh produce growing and processing.

PROXIMITY INCREASES RISK

Zoonotic pathogens are not commonly present in fruit and vegetables in nature. Human intervention and commercial food production practices have brought the two into close proximity.

Pathogens may be naturally present in soil, or may become incorporated in the soil from organic wastes added as fertiliser, or by accidental contamination. For example, water supplies used to wash and irrigate crops can be contaminated with faecal material (and its pathogens) by run-off from nearby fields and livestock farming. The risk of contamination under these circumstances is far greater than the chances of accidental contamination caused by the intrusion of wild animals and birds into fields.

SURVIVAL ON AND IN PLANTS

Pathogens in water used for spraying can remain on fruits and vegetables and survive on these new carriers. Studies have shown that some enteropathogens are quite adept at surviving on the leaf surface (phylloplane). A study showed that E. coli applied to lettuce could be isolated from the plant for a further 15 days. Fruit and vegetable plants react differently to enteropathogens. Some have been shown to actively support their survival, while others resist. Effective washing and exposure to UV radiation can typically deal with surface contamination. While UV radiation is traditionally used to minimise contamination, successful phylloplane bacteria typically colonise sites that are

protected from UV, such as the base of structures (trichomes).

Pathogens do not always die on leaving the host animal, but may find a new carrier in the form of plants. Plants sprayed with contaminated water, either during growing or processing, can absorb pathogens through any wounds to the flesh. This is a particular issue with popular consumer items such as pre-prepared lettuce and salads. The cut surfaces exude nutrients and supply pathogens with the means to survive, penetrate to the internal tissue and grow – beyond the reach of chemical sanitisers. Internalisation of pathogens into plants may also be possible through stomata and hydathodes (permanently open water pores). Normally used to secrete water from a plant, a study has shown that under certain conditions pathogens can enter leaves through its hydathodes and move into the vascular system, which may even result in the internal translocation of the bacteria inside plants. Furthermore, contaminated irrigation water can be taken up by a plant's root system and any pathogens can be stored within its flesh.

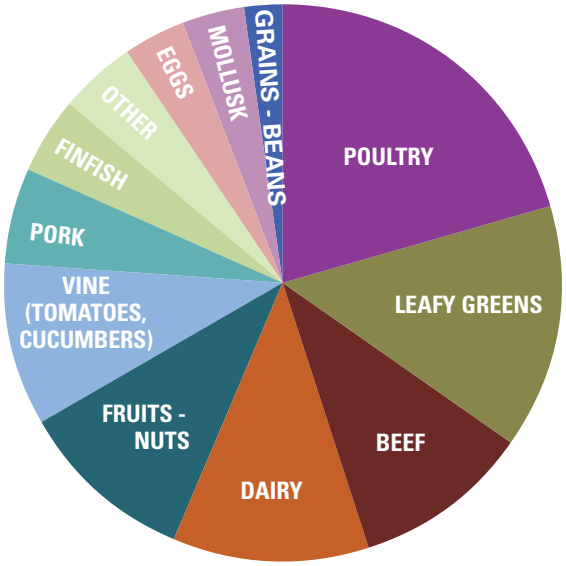
As a result the food industry must innovate and identify for ways to better protect and improve the microbial quality of fruit and vegetable produce.

PREVENTION, BETTER THAN CURE

There is little that consumers can do to protect themselves from fruit and vegetable contamination, as these products are often not cooked. Washing them has little effect on any contamination and being invisible to the naked eye it becomes increasingly important to prevent contamination occurring in the first place.

In theory, existing regulations and the food industry requirement that all processors and manufacturers implement hazard analysis and critical control point (HACCP) strategies, should prevent environmental contamination reaching the consumer. Overall evidence suggests that actual contamination of fruit and vegetables with pathogens is low. However, any outbreak has the potential to make consumers ill and in rare cases cause death.

Image 1: Distribution of illnesses by food type in 1,565 foodborne outbreaks caused by a single food type and reported to CDC's National Foodborne Disease Outbreak Surveillance System, 2003-2008. Source: NCBI (National Center for Biotechnology Information) on August 2013.



All HACCP plans should be reviewed regularly. They must deal not only with questioning whether the water at a facility is safe to use, but also if that water source is trusted and protected against potential contamination. Post-harvest contamination is also known to result from poor food handling processes and poor worker hygiene. Processors need to ensure that HACCP plans are robust, documented and perhaps most importantly, implemented. Poorly trained employees are potentially the weakest link in any plan.

END PRODUCT INTERVENTION

The food industry has, out of necessity, invested heavily in microbiological testing and surveillance programmes. Fruit and vegetable products can undergo microbiological testing at any stage of the supply chain but are most commonly checked as the end product. This enables processors to identify any pathogen contamination before goods reach the point of sale.

An integrated testing programme can verify the microbial quality of products and in the event of contamination being identified, prevent them reaching the consumer. This is preferable to suffering a product recall as a direct result of an outbreak. Product recalls cost the industry more than just money. They also damage consumer confidence and devalue the brand involved.

END PRODUCT INTERVENTION

Global supply chains mean that contamination issues in one part of the world can quickly spread. Existing food safety systems have focused on post-harvest safety, hygiene, handling and testing. Improving food safety going forward will likely rely on increased awareness of public health issues and enforcement of regulations in new and developing markets. This should be complemented by increased focus on identifying contaminations earlier, preventative in-field solutions and introducing stricter practices more in line with livestock farming.

For further information please visit our website www.foodsafety.sgs.com.

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GMO FOODS AND LABELLING

Genetically modified food, products and ingredients, are a contentious subject. Safety concerns persist amongst both consumers and some governments, despite extensive research and industry assurances, regarding the consumption of foodstuffs containing genetically modified organisms (GMOs).

The food industry has long battled with questions about the benefits and safety of GMO products. In the face of resistance from regulators, non-governmental organisations (NGOs) and consumers, GMO products have in recent years gained some acceptance in parts of the world, like USA, and are traded and sold with varying degrees of restriction. Like all other aspects of the food supply chain, GMO growers, producers and manufacturers are overseen by regulators and must meet strict quality and safety standards.

However, issues of trust arise. Assurances from the industry and even governments are not always sufficient. In part, this is because countries and regions allowing GMO production are, rightly or wrongly, perceived to have less robust oversight procedures than NGOs and consumers would like.

Another concern is choice. Consumers want to know what they are buying and to have the choice to buy and eat GMO products, or to avoid them. Labelling is the only mechanism that allows shoppers to identify whether or not a product contains any GMO and they base purchasing decisions on what they read.

GMO REGULATION

In Europe, the European Food Safety Authority (EFSA) has defined an application process to evaluate and verify the safety of a GMO.[1] In the United States, oversight of GMOs is conducted by a combination of government agencies, primarily the United States Department of Agriculture (USDA), US Food and Drug Administration (US FDA) and the US environmental Protection Agency (US EPA).

PCR TESTING

Testing for GMOs is performed with Polymerase Chain Reaction (PCR) based DNA technology that can determine the presence and/or the quantity of a specific GMO. DNA-based quantitative PCR testing utilises GMO strain standards to determine GMO levels from 0.01 per cent to 5 per cent. This can be conducted on seeds, ingredients and foods. As a result the determination of GMO in substances is possible in order to ensure proper labelling is possible.

LABELLING REQUIREMENTS

In Europe, labelling is required on all products that consist of GMO or contain GMO and products derived from GMO, but no longer containing GMO, if there is still DNA or protein resulting from the genetic modification present.[4] To NGOs the major concern is the position taken by the US FDA, which is that the labelling of a GMO product is not required, providing there are no significant differences between the GMO derived and non-GMO foods.[5] The US FDA does however state that any allergen or nutritional difference must be declared on the label or labelling. Otherwise, the labelling of GMO substances in the US is voluntary.

Including the European Union (EU), there are currently 64 countries that require the labelling of GMO products.[6]

US LABELLING EXCEPTIONS

On 19 June 2013, a NGO announced that the USDA Food Safety Inspection Service (FSIS) had approved a non-GMO label claim for meat and liquid egg products.[7] Products that are allowed to make the claim must demonstrate that the animals' feed was free of genetically modified corn, soy, or other feed. The USDA FSIS allows companies to demonstrate on their labels that they

[1] EFSA - GMO Applications Help Desk

[2] FDA - Genetically Engineered Plants for Food & Feed

[3] SGS - GMO Testing

[4] European Comission - GM Food & Feed

[5] FDA - Guidance for Industry: Voluntary Labelling Indicating Whether Foods Have or Have Not Been Developed Using Bioengineering

[6] Labelling Around the World

[7] Non-GMO Project Verified Label Receives Approval for Meat, Liquid Egg Products

are meeting third party organisation standards or claims, providing those claims are truthful, accurate and not misleading.[8] The USDA and US FDA viewpoint has not changed. They stand by the evidence that approved bioengineered crops and feedstuffs are safe to consume and do not significantly differ from crops developed through traditional plant breeding and they therefore do not require different labelling.

Additionally, on 4 June 2013, the State of Connecticut passed Bill HB 6527[9] that requires infant formula, or baby food, that is produced from GMOs to be labelled as "produced with genetic engineering". This labelling is to start 1 July 2015 and the compliance enforcement date is 1 July 2019. This law becomes effective 1 October 2013, providing four additional states pass similar legislation, one of which must border Connecticut and the total population of those states exceeds 20 million people.[10]

On 12 June 2013, the State of Maine passed LD 718[11] that requires food and feed produced from GMOs to have a disclosure statement of "Produced with Genetic Engineering". Disclosure is to take place within 18 months. The compliance enforcement date is 1 July 2019 and does not apply to foods with less than 0.9% GMOs, alcoholic beverages, restaurants, unintentionally commingled products and other conditions set forth in the law. The law will be repealed if a similar law is not adopted in at least five states, or states with a population or combined population of at least 20 million people.

While no immediate action is being taken at a federal level, 25 states are currently with legislation or ballot legislation.[12] Additionally, there is one US retailer that will require GMO labelling in their store by 2018.

LEGISLATIVE FUTURE

While it appears that there may be possible GMO labelling in the future in the US, it doesn't appear that this will be performed by federal law as once again the US congress voted down GMO labelling in May 2013.[13]

INTERNATIONAL SUPPORT

GMO testing and food nutritional labelling services from SGS can support the food industry and ensure national and international labelling requirements are met.

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[8] Approval of Non GMO Meat Label is 'Huge Win' for Industry

[9] HB 6527 - An Act Concerning Genetically-Engineered Food

[10] RT - Connecticut Passes First GMO Food Labeling Law in US

[11] Maine Legislature - An Act To Protect Maine Food Consumers' Right To Know about Genetically Engineered Food and Seed Stock

[12] Food Safety News - With Recent Victories, Movement to Label GMOs Gains Steam

[13] GMO Labeling Bill Voted Down In Senate

HONEY AND ITS CONTAMINANTS

Humans have been collecting honey for food, for more than 8,000 years and production is on the increase. Today though, honey contamination, adulteration and honey-bee colony losses pose a raft of twentieth century challenges.

Table 1. Honey & Beekeeping - Sources of Contamination

TYPES OF HONEY CONTAMINATION	BEEKEEPING CONTAMINANTS
Environmental contaminants	Acaricides: lipophilic synthetic compounds and nontoxic substances such as organic acids and components of essential oils
Heavy metals such as lead, cadmium and mercury	Antibiotics used for the control of bee brood diseases, mainly tetracyclines, streptomycin, sulfonamides, and chloramphenicol
Radioactive isotopes	Paradichlorobenzene, used for the control of wax moth and chemical repellents
Organic pollutants, polychlorinated biphenyls (PCBs)	
Pesticides (insecticides, fungicides, herbicides and bactericides)	
Pathogenic bacteria	
Genetically modified organisms	

Source: The Scientific World Journal, Article ID 930849

Health conscious consumers and increasing globalisation are driving the honey markets. In the five years to 2010 global honey production increased by 10%, from 1.4 million tons to 1.54 million tons. By 2015, the global market for honey is projected to exceed 1.9 million tons.

Honey's properties as a natural product make it popular in existing and emerging markets. However, it is susceptible to contamination from a variety of environmental sources. Bee products, including honey, are polluted via different sources of contamination (Table 1).

The main concerns for the industry relate to pesticides, antibiotics and microorganisms.

Pesticides are used worldwide to control bee diseases and pests in apiculture. However, in most instances their administration is uncontrolled and they are applied without approved protocols. The substances are used to control varroatosis and ascospheriosis such as acaricides amitraz, celazole, bromopropylate, coumaphos, flumethrin and taufluvalinate. The use of chemicals inside a beehive risks direct contamination of honey. Additionally, in agriculture, pesticide use is common practice as a means of increasing productivity. Pesticide residues include acaricides, organic acids, insecticides, fungicides, herbicides, and bactericides. Uncontrolled application can cause contamination to the environment, animals and humans. More than 150 different pesticides have been identified in colony samples.

Apiarists use antibiotics to treat bacterial diseases in the hive. As a result, traces can be found in the honey itself. Next to others, oxytetracycline and chloramphenicol residues have been found above the regulatory standards in honey. Oxytetracycline is commonly used to treat European foulbrood disease and American foulbrood diseases. Other antibiotics are also used, including but not limited to, erythromycin, lincomycin, monensin, streptomycin, and enrofloxacin. Antibiotic residues are predominantly the result of improper beekeeping practices and have been found to be above the regulatory standards for food.

Bacteria, moulds and yeast microbes are also found in honey. The presence of these microorganisms has the potential to affect honey quality and safety. Fortunately, most bacteria and microbes cannot grow or reproduce in honey but spore forming microorganisms, such as *Bacillus cereus, Clostridium perfringens and Clostridium botulinum*, can survive in honey as spores for a long time.

Another concern is about honey contaminated with pollen from genetically modified organisms (GMO). In the European Union (EU), such a honey product is considered as 'Food produced from GMO' and would require legal approval and respective labelling before it could be offered for sale.

Because of its high nutritional value and unique flavour, the price of natural bee honey is relatively much higher than that of other sweeteners. Therefore it is also susceptible to adulteration with cheaper sweeteners. Sugar syrups and molasses inverted by acids or enzymes from corn, sugar cane, sugar beet and

syrups of natural origin such as maple have all been detected in adulterated honeys. Adulteration of pure honey with synthetic honey (based on C4 plant sugars) has become more prevalent in recent years. In addition, there has recently been a major adulteration problem in honey from the Far East.

Therefore it is no surprise that in recent years, the market has seen the introduction of legislation to ensure honey quality and consumer safety in major markets. This has resulted in major producing countries like China, Turkey and Argentina cleaning up production to facilitate trade. However, contamination remains an issue. Between 2002 and 2004 honey originating from China was banned in the EU, due to contamination with antibiotics. In 2001, the USA introduced an anti-dumping duty on Chinese honey, which was linked to the EU ban. Imports to the USA declined to just 1,530 tons in 2011 and remain low today. On the other hand, from 2001-2011, USA imports of Indian honey increased from 20 tons to 26,837 tons accounting for 20% of the volume in 2011, up from 9% in 2006. According to a 2011 US report, there is strong suspicion that a considerable portion of imports from India are of Chinese origin raising the need for identification of geographical origin. In June 2010, the EU banned Indian honey due to a lack of traceability regarding origin, adulteration, and contamination by heavy metals and antibiotics.

EXPORT REGULATIONS

Supporting these policies, the EU and USA have introduced regulations to guide and qualify exporters before honey can be traded to these important markets.

In the EU, exporters must meet the requirements of European Commission Regulations No 178/2002, No 852/2004 and No 853/2004 and have an HACCP based food safety system implemented. Maximum residue limits (MRL) for pesticides are listed in Regulation No 396/2005. The EU's standard for antibiotics in food stipulates that each antibiotic must have an MRL, as listed in Regulation No 37/2010 before it can be used on a food-producing species. However, there are no MRLs for honey, which means the use of antibiotics for the treatment of honey-bees is not allowed. All honey exported to the EU must be monitored for residues in compliance with Directive 96/23/EC. Moreover, the honey must be the product of one of the countries allowed to send honey to the EU. Each year, the EU updates this list. The current list can be found in Commission Implementing Decision 2012/302/EU. Finally, EU requirements on honey intended for human consumption laid down in Directive 2001/110/EC.

In the US, there are no import restrictions specific to honey. However, exporters must comply with US food standards in relation to food safety and the use of additives and veterinary medicines. MRLs for antibiotics in food are set by the US Food and Drug Administration (USFDA) and listed in Title 21, Part 556 3. There are no specific limits for antibiotics in honey but no food in the US may contain residues of nitrofurans, chloramphenicol and fluoroquinolones.

GROWING MARKET

With no sign of honey's popularity abating the market will continue to grow, and bans and restrictions will enable new players like Ethiopia to enter the market. Producers and exporters must continue to monitor environmental contaminants and use third-party testing and certification to ensure products meet the regulatory requirements of destination markets.

For further information please visit our website www.foodsafety.sgs.com.

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HONEYBEE COLONY COLLAPSE DISORDER

Since 2006, the US and EU have seen large-scale unexplained losses of 30-90% of honey-bees in some colonies. The phenomenon, described as colony collapse disorder (CCD), was partly responsible for a 2% decline in world honey production in 2006-2007.

As of 2012, CCD remains an ongoing problem for the honey industry, with the US being hardest hit. In the EU, CCD is expected to contribute to a decline in honey production, particularly in southern European countries (Portugal, Spain, Italy and Greece) and further north in Poland. These losses impact global honey markets, as the US and EU compensate for lost domestic production.

No definitive cause has yet been identified for CCD. Most researchers believe it is a combination of contributory factors, including:

- The invasive varroa mite
- New or emerging diseases, such as Israeli Acute Paralysis virus and the gut parasite Nosema
- Pesticide poisoning, through exposure to pesticides applied to crops, or used for in-hive insect/mite control
- Bee management stress
- Modification of bee foraging habitats

Research into the potential causes continues.

SULPHITES, INTOLERANCE OR ALLERGEN, DECLARED OR UNDECLARED

Sulphites and sulphate ingredients play an important role in the food industry, but as well as preventing spoilage, they have also been linked with food intolerance and allergies.

Many countries require that sulphites and sulphate ingredients must be declared on labels as a food allergen, or intolerance additive, providing certain conditions apply. Typically, declaration is required when these additives are added directly and/or present at levels of 10 mg/kg (ppm) or greater in a product. The United States (US) goes a step further. In the US the label declaration applies if the sulphite is added to an ingredient that is added to the finished product unless it has no technical effect on the finished food and is less than 10 mg/kg.

The wide variation between countries and regions as to what foods sulphites can be applied to products and at what levels, creates problems for people who suffer a reaction to sulphites.[1]

REACTIONS CAUSED BY SULPHITES

Sulphites are known to increase symptoms in 5% of asthmatics. In some people adverse reactions include hives, swelling and anaphylaxis symptoms.[2] Other reactions more associated with intolerance to sulphites are nausea, abdominal cramping and diarrhoea.[3]

WHY USE SULPHITES

Sulphites prevent spoilage caused by microbial growth, prevent oxidation and prevent browning or colour degradation of food and wines. Other uses of sulphites are on seafood products such as shrimp and prawns. Their use on pickled vegetables is fairly common but less known is that they are used in baked products as a dough conditioner and dried beverage mixes for colour retention.

Sulphites were recognised by the Greeks and Romans as a means to preserve wine. Then around the 1880s sulphites were applied to meat products produced in South America and Australia that were being shipped to England. In the 20th century the use of sulphites on processed fruits and vegetables became commonplace.[4]

REGULATION:

In some areas/countries, such as European Union[5] and those that follow Codex Alimentarius[6] standards, the regulations and labelling requirements

[1] Suphites - International
[2] Sulphite Allergy
[3] Sulphites: Separating Facts from Fiction

are fairly straightforward. In the US, the requirements for sulphites are controlled by four different government agencies creating a degree of confusion, albeit mainly for companies importing products into the country. Alcoholic beverage sulphite labelling and requirements is controlled by the Bureau of Alcohol, Tobacco, Firearms and Explosives. The US Environmental Protection Agency is responsible for the fumigation of foodstuffs when using Sulphur Dioxide. The United States Department of Agriculture is responsible for meat, poultry and processed egg products, catfish and partially for organic products while the US Food and Drug Administration is responsible for the remaining of the food and feed products. Canada last year required sulphites to be listed as an allergen because of issues in regard to sulphite sensitivity.[7]

UNDECLARED OR EXCESSIVE SULPHITES

Since all these countries require specific labelling and set acceptable levels of sulphites one would believe that this issue is being controlled but each week there is a related product recall. In June 2013 Rapid Alert System for Food and Feed (RASFF) reported: "Sulphite: too high content (904 mg/l) in chablis wine, following a consumer complaint. Origin France, distributed also to United Kingdom"[8] and in Canada on 25 May 2013 – undeclared sulphites in a white grape juice, on 4 June 2013 snacks with undeclared sulphites and on 29 April 2013 – undeclared sulphites in golden seedless.[9] In the US, on 3 May 2013 dried whole shrimp with undeclared sulphites was recalled.[10]

RESOLUTION

As with all allergens and sensitising food ingredients, packaged food must be correctly labelled, but it is even more important to know all of the substances in the ingredients. When undeclared or excessive some ingredients, including sulphites, can cause reactions in people that result in illnesses and even death. Until the industry conducts due diligence to verify that all known substances are either declared or at the proper levels, then these recalls will continue and sensitive individuals will suffer for the industry's improper action.

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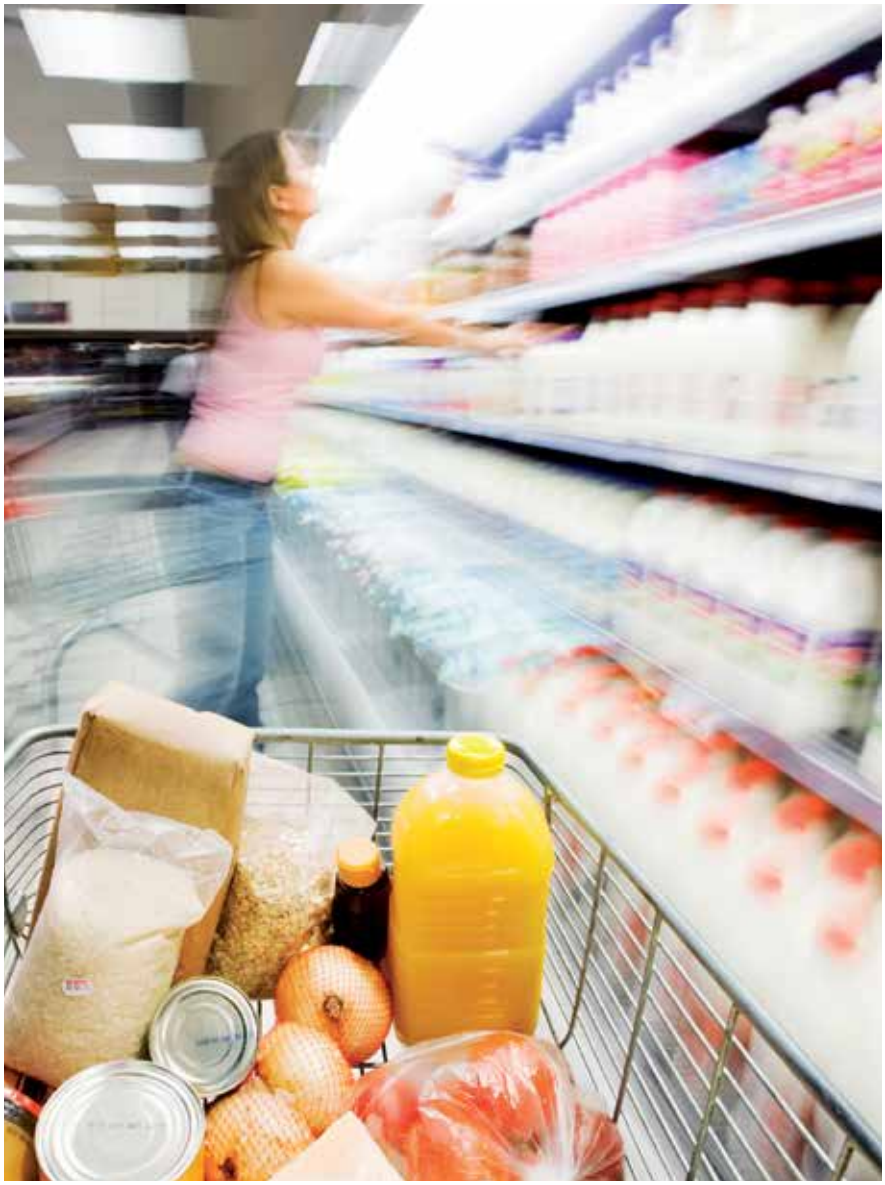
[4] Food Intolerance Network Factsheet: Sulphites (220-228)
[5] Allergenic Foods in Annex IIIa and List of Authorised Food Additives
[6] Food Additive Group Details and The Codex Recommendations
[7] Sulphites - One of the Ten Priority Allergens and Food Allergen Labelling
[8] Food Recalls in EU - Week 23
[9] Canada Recalls and Safety Alerts
[10] US FDA - Recalls, Market Withdrawals & Safety Alerts

PACKAGING CORNER

Focusing on the food packaging industry, this regular feature will examine issues affecting the industry. In this issue we look at some of the certification standards that are currently available for packaging materials.

As most of you are probably aware, in 2011 the Global Food Safety Initiative (GFSI) initiated a programme to produce a benchmark document for packaging standards. To reflect stakeholders and standards effectively, this document was compiled in co-operation with several key standard owners and relevant parties from the packaging industry, as well as support providers such as SGS.

GFSI benchmarking has been developed to introduce a key set of benchmark requirements that every packaging standard would be expected to comply with. Standard owners wishing to be GFSI benchmarked could then submit their standard to the committee, who will evaluate it against these requirements. The benchmarking document itself comprises a number of criteria that a standard must demonstrate compliance with. This also includes items related to the protocol aspects of the standard, not just specific product/process based requirements.



Standards that have already been benchmarked are:

- BRC/IoP Global Standard for Packaging and Packaging Materials – High Hygiene Risk
- FSSC 22000 Food Safety Management System – category M Food Packaging
- SQF Code edition 7 – Module 2 and 13

All packaging standards must have a risk-based element to them, with Food Safety System Certification (FSSC) and Safe Quality Food (SQF) focusing on the use of hazard analysis and critical control points (HACCP). British Retail Consortium (BRC) and Institute of Packaging (IoP) do not require any specific risk tool to be used.

The standards all require a documented management system to be in place, with associated quality documents and records being adequately controlled and maintained.

Likewise, all standards require pre-requisite programmes to be in place, with the FSSC standard focusing patriculalry on these through the additional requirements related to PAS223.

In the next issue we will take a more detailed look at the standards and consider their impact on packaging businesses.

SGS is able to offer accredited certification to all of these standards.

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SGS BREAKFAST SESSION AT GFSI 2014 ON: 'ALLERGEN MANAGEMENT, AN INTEGRAL PART OF A SAFE FOOD SUPPLY CHAIN'

SGS, leading global solution provider in food safety, quality and sustainability will be a main sponsor of the Global Food Safety Initiative (GFSI) Global Conference on 26-28 February 2014 in Anaheim, US. The overall theme of the conference is 'One World, One Safe Food Supply'.

The conference will bring together over 800 leading food safety specialists from over 50 countries around the world to advance food safety globally. Our company has been supporting this event as a sponsor for several years now as we believe that the Global Food Safety Conference is the world's leading business-driven food safety event.

SGS will host a breakfast session on Friday, 28 February 2014 at 08:00 – 09:00 AM about 'Allergen Management, an Integral Part of a Safe Food Supply Chain'. In this session, the participants will hear perspectives and practices of three professionals on how allergen management, one of the fastest growing consumer trends and concerns, is implemented in their organizations as an integral part of food safety practices. The audience will also be able to hear new insights on the subject from the broader market as a result of a global survey;

To join the conference, please sign up at http://tcgffoodsafety.com. Following that, you will be invited to confirm your attendance in the breakfast session.

SGS ACCREDITED TO OFFER FSSC 22000 CERTIFICATION TO FOOD PACKAGING INDUSTRY

We are pleased to announce that following a recent review of our management processes, JASANZ, the Joint Accreditation System of Australia and New Zealand, has now approved the scope extension of the FSSC 22000 standard to include packaging.

"SGS is proud of achieving this milestone as it is now even in a stronger position to be able to support our clients in the Food Packaging Manufacturing industry worldwide with food safety management systems through accredited FSSC 22000 certification", states Naghmeh Raiyat, Global Business Manager, Food at SGS.

Please contact us at: food@sgs.com on how to become a FSSC 22000 certified company.

PARTICIPATE IN OUR SURVEY: CURRENT PRACTICES ON ALLERGEN CONTROL & MANAGEMENT

Awareness of risks from food allergens has evolved fast and it continues to develop. Food allergies and intolerances are now well recognized as a food safety issue, yet they need to be managed increasingly better.

The main purpose of this survey is to understand current industry practices relating to allergen control and management. Sharing your current practices, issues and suggestions will help us and the industry improve the consistency of allergen management, methods and practices.

SGS will communicate the overall results and trends with industry as an aid to improving related management systems even further. However, individual responses to this questionnaire will be kept strictly confidential. Responding to the survey will take about 10 minutes of your time. SGS will share the industry feedback in a future issue of Hot Source and in our breakfast session during the 2014 GFSI Global Conference.

Take the survey.

GLOBAL FOOD SAFETY - SURVEY ON TRAINING PRACTICES

Campden BRI, Alchemy, BRC, SGS and SQF have teamed up to organize a global benchmarking exercise on food safety training practices. Distributed to over 25,000 food companies worldwide, the information collected will provide a global analysis of the situation and trends in food safety training. By filling out this survey, you will receive a report of our findings which will help you to benchmark your training program and learn about best practices used around the world.

This survey is designed to take approximately 15 minutes and all responses will be treated in confidence, remain anonymous and be used for research purposes only.

How does your training programme compare to others on a global scale? Find out by submitting the survey linked below.

Take the survey.

SGS FOOD WEBINARS

For a complete list of SGS seminars, courses and webinars, please check our events calendar.

WEBINAR TITLE	TOPIC	LANGUAGE	WEBINAR STATUS & LINK
Allergens Management: Basic principles and overview of available guidelines	Food	EN	Live on November 26 - Register @ www.sgs.com/allergenwebinars
Food Packaging - An overview of available Standards and Implications on Food Safety	Food	EN	Recorded http://www.sgs.com/foodpackagingwebinars
GFSI - A Comparative Look at Various FSMS & their Suitability for your Business	Food	EN	Recorded http://www.sgs.com/gfsiwebinars
Food Defence: Current Guidelines and Future Trends	Food	EN	Recorded http://www.sgs.com/foodwebinars
FSSC 22000: A Step Further from ISO 22000	Food	EN	Recorded http://www.sgs.com/foodwebinars
ISO 22000 + PAS 222 for animal feed	Food	EN	Recorded http://www.sgs.com/foodwebinars
BRC IOP for Packaging	Food	EN	Recorded http://www.sgs.com/foodwebinars
FSSC 22000 with PAS 223	Food	EN	Recorded http://www.sgs.com/foodwebinars
UTZ Certified – A Sustainability Program for Coffee, Cocoa and Tea	Food	EN	Recorded http://www.sgs.com/foodwebinars

IN THE KNOW & IN THE NOW

Through the SGS e-subscription web page, we are able to provide our subscribers a simple yet comprehensive news management tool. Whether you already subscribed to various SGS publications or this is your first try, our publications management page will help you choose the right types of newsletters, alerts or reports from our stable of international and country-specific publications. The main international Food-related publications and bulletins include:

CONSUMER COMPACT – embracing all consumer product segments it covers international and product news, industry articles and stories about our activities. It is published quarterly.
www.sgs.com/consumercompact

SAFEGUARDS - a technical bulletin concentrating on new product standards, regulations and test methods. SafeGuards is usually published weekly.

www.sgs.com/safeguards

SEED & CROP SERVICES - the latest news highlighting developments and specific capabilities in the Seed & Crop Services industry segment.

See the latest Seed & Crop newsletter.

OUR WHITE PAPERS - LEARN MORE ABOUT FOOD QUALITY, SAFETY & SUSTAINABILITY

UNDERSTANDING THE US FOOD SAFETY MODERNIZATION ACT (FSMA)

This document introduces the Food and Drug Administration (FDA) Food Safety Modernization Act (FSMA) and how its proposals are likely to impact the food industry. The key provisions are detailed and compared against current industry-standard GFSI-recognized schemes.

Advice is provided on how to prepare to meet the FSMA requirements, including a step-by-step process guide. This is further developed by a comparison with, and discussion around, Global Food Safety Initiative recognized schemes and the simpler move from these certifications to complete preparedness for FSMA compliance.

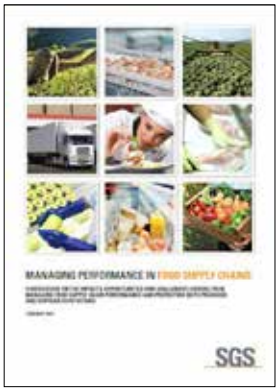
Download your copy of: 'Understanding the US Food Safety modernization Act (FSMA): White Paper'.

MANAGING PERFORMANCE IN FOOD SUPPLY CHAINS

SGS has recently published the white paper 'Managing Performance in Food Supply Chains'. It discusses the impacts, opportunities and challenges arising from managing food supply chain performance and protecting both producer and supplier reputations.

In addition, it provides an overview of steps that can be taken to prevent adverse food supply chain related incidents and to increase the performance of supply chains. Taking these actions has the additional benefit of protecting and enhancing the reputation of the organisations involved.

Download your copy of: 'Managing Performance in Food Supply Chains: White Paper'.



UNDERSTANDING SUSTAINABILITY IN FISH AND SEAFOOD

Recently published, SGS's white paper 'Understanding Sustainability in the Fish and Seafood Industry and the Related Certification Schemes and Consumer Guides' explores the industry's approach to sustainability and generating consumer conference.

This paper discusses the current state of global seafood stocks and how to meet current demand without endangering their future, including the difficulties in reaching a harmonised understanding of sustainability across the industry. Seafood is essential to the world's ability to feed the human population; adopting a long-term vision and investing in sustainability can only help to define its future.

Download your copy of: 'Understanding Sustainability in Fish and Seafood: White Paper'.

To view more white papers from SGS experts please visit the SGS White Paper Library.

SAFEGUARDS

STAY ON TOP OF REGULATORY CHANGES WITHIN THE FOOD INDUSTRY!
SafeGuards, are SGS technical bulletins concentrating on new product standards, regulations and test methods. They are written by SGS experts and dispatched on a weekly basis. Find below a selection of Food-related SafeGuards titles from the past weeks. Subscribe to SafeGuards: www.sgs.com/ConsumerSubscribe
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THE LATEST SAFEGUARDS

- USDA Finalizes Bovine Import Regulations to Meet International Health Standards - read the bulletin
- US FDA cGMP, Hazard Analysis and Preventive Control for Animal Food Proposal - read the bulletin
- EU Report on the Food Crisis, Fraud in the Food Chain and the Control Thereof - read the bulletin
- European Food Safety Agency (EFSA) Highlights Risks from Potential Carcinogen in Vegetable Fats - read the bulletin
- EU Update of Import Controls on Certain Feed and Food - read the bulletin
- Amendment to EU Directive 2006/141/EC-Protein requirements for Infant and Follow-on Formulae - read the bulletin
- Recent US FDA Recalls - 60 Percent Due to Undeclared Allergens - read the bulletin
- EU To Require Warning Labels on Products with Plant Sterol and Stanol Esters - read the bulletin
- New EU Regulation on Food for Specific Groups (FSG) - read the bulletin
- Safety Concerns with Whey Protein Concentrate Contaminated with Clostridium Botulinum - read the bulletin

UPCOMING SGS FOOD EVENTS

For more events, please check the online events calendar.

EVENT	COUNTRY	LOCATION	DATES	EVENT TYPE	CONTACT PERSON
Global Food Safety Conference	USA	Anaheim (CA)	Feb 26 - Feb 28	Conference	jennifer.buckley@sgs.com
International Boston Seafood Show	USA	Boston (MA)	March 16 - March 18	Conference	jennifer.buckley@sgs.com

FOR ENQUIRIES

Please contact:
food@sgs.com

WWW.SGS.COM

WHEN YOU NEED TO BE SURE

SGS