CHAPTER

20

Food ingredients

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20.1 Food additives

Food additives have been added to food since the beginning of time, as humans had to find ways to preserve and store food and the addition of flavors. Throughout time, the need to add food additives has changed from the 1800s when producers saw a decline in personal accountability and a lack of government regulation. There was an increase in adulteration of food, where chemicals or molecules were added to foods to increase the quantity of the food item, which could then result in bad quality. Today there are well over 3000 food additives that have been approved by governing bodies in both the European Union (EU) and the United States of America which are the two largest regulators. Food additives are defined as

> … any substance not normally consumed as a food by itself and not normally used as a typical ingredient of the food, whether or not it has nutritive value, the intentional addition of which to food for a technological (including organoleptic) purpose in manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food results, or may be reasonably expected to result (directly or indirectly), in it or its by-products becoming a component of or otherwise affecting the characteristics of such foods. ***Codex Alimentarius (2018)***

The Food and Agriculture Organization (FAO) of the United Nations and the World Health Organization (WHO) are responsible for presenting the definition of food additives and had been revised with the most recent revision taking place in 2012. The Codex Alimentarius is also known as "Food Code," and it collects the data surrounding standards, codes of practice, and guidelines about food and its processing. The Codex Alimentarius is governed by an intergovernmental body consisting of over 180 members with the framework of the Joint Standards Program established by the FAO and WHO aiming to ensure consumers are receiving food that is protected and that manufacturers are using fair practices in the food trade.

Food additives are required to be tested extensively to determine how much of each additive may be added to food over an amount of a specific time. Food additives are allowed to be added to food based on a measurement of any additive in milligrams per kilogram per body weight per day. The acceptable daily intake (ADI) is the "amount of an additive in food that could be ingested orally on a daily basis over a lifetime without appreciable health risk" (Carocho et al., 2014). The parameters are set based on testing observed in susceptible animal species and are known as the no-observed-adverse-effect level (NOAEL). The additives are given "quantum satis" or no maximum numerical level that can be added and expressed as milligrams of additive per kilogram body weight (mg/kg bw) or are given a specific limit per kilogram of body weight.

20.2 Food additives today

People depend on food additives more today than at any other time in history. It is said that the industrialized world would not have been possible without them. The need for food additives stems from the need to process and transport food long distances from manufacture or harvest to the consumer. With the demand for rising food needs, there is also demand for more food additives to assist with the special requirements needed for packaging and conditions to reduce spoilage and prevent contamination.

If the use of food additives that reduce spoilage or reduce contamination were eliminated, there would be an increase in the already significant numbers of reported foodborne illnesses. The Centers for Disease Control and Prevention in the United States reported having an estimated 76 million people get sick from food-related illnesses with 300,000 of them being hospitalized and 5000 deaths as a result of contaminated foods or beverages. While not all occurrences of foodborne illness are related to food additives from processing and distribution, additives do help to reduce the outbreak of any of the 250 different foodborne illnesses.

Food additives are divided into 26 functional classes depending on the functions in the EU and the United States; they are more narrowly classed into six distributed groups—preservatives, nutritional additives, coloring agents, flavoring agents, texturizing agents, and miscellaneous agents—and can be mentioned in more than one class. For this text and to simplify the information gathered we have adopted the Food and Drug Administration (FDA) classifications but will also include the European adaptations. The food additives are distinguishable between where they are produced by the edition of "E" before a number indicating the additive is derived in Europe.

20.3 Preservatives

Preservatives are divided into three subcategories: antimicrobial, antioxidant, and antibrowning additives. They are added to reduce natural food spoilage, oxidation, and extend the shelf life of processed foods.

20.3.1 Antimicrobials

Antimicrobials have two main purposes in food preservation: the first is to control natural food spoilage and the other is to avoid/control contamination by microorganisms. Potassium acetate, calcium acetate, lactic acid, and carbon dioxide are of quantum satis status with benzoic acid and benzoates, sorbic acid, and sorbate having restricted use ADI.

20.3.2 Antioxidants

Antioxidants are an essential preservative for extending the shelf life of foodstuffs used to prevent oxidation and do not add any additional flavors or odors to the food they are preserving. Antioxidant is commonly used in confectionary items and breakfast cereals for improving the shelf life of a product. Ascorbic acid, sodium ascorbate, and calcium ascorbate

are examples of antioxidants that are quantum satis level while butylated hydroxyanisole a common antioxidant additive has an ADI of 0.5 mg/kg bw.

20.3.3 Antibrowning

There are two types of browning that occurs in food processing that can happen at separate times during manufacturing. The first type is enzymatic, which occurs through the conversion of polyphenols to quinones that create the darkening of foods. The second is nonenzymatic, which is the browning of caramelized sugar and the Maillard reaction. Sulfites are the most used antibrowning agents, but natural compounds can be used as well such as ascorbic acid–based formations.

20.4 Nutritional additives

Nutritional additives should be considered as food enhancers as they can contribute vitamins, amino acids, fiber, fatty acids, and polyphenols. The sources of the enhancements can be from plants, fungi, animals, or synthetic.

20.5 Coloring agents

Food dyes are used to make food more pleasant looking for consumers. There is only one food dye that is listed as quantum satis, calcium carbonate, which adds white color to food.

20.6 Flavoring agents

Flavoring agents are generally added to improve the taste or aroma of a food item. They are the largest number of additives added to our food with hundreds of varieties of flavorings available. As with all food additives, there are international standards that are monitored by the WHO and FAO. Flavoring agents have been divided into three subcategories: sweeteners, natural and synthetic flavors, and flavor enhancers.

20.6.1 Sweeteners

Sweeteners as the name imply add sweetness to food and add nutritive value or can be nonnutritive. Nutritional sweeteners include sucrose, fructose (high-fructose corn syrup), and glucose. Nonnutritive sweeteners include saccharin, aspartame, acesulfame K, and sucralose (Carocho et al., 2014). There are no sweeteners that have quantum satis level.

20.6.2 Natural and synthetic flavors

Natural and synthetic flavors are used to substitute the flavors of foods by using a mixture of chemicals that mimic the flavor of natural flavors, such as lemon or vanilla extracts. More

than 1700 compounds are available and can be multifunctional acting as gelling agents or acting as an antimicrobial in food. A large number of natural and synthetic flavors are at the level of quantum satis and are organic acids such as acetic, lactic, citric, and malic acids.

20.6.3 Flavor enhancers

Flavor enhancers are added to foods to magnify, supplement, or enhance flavors in food but do not contribute any added flavor of their own. Flavor enhancers do not have a specified ADI and include glutamic acid and monosodium glutamate as the most popularly used flavor enhancers.

20.7 Texturizing agents

Texturing agents modify the mouthfeel and textures of foods through the use of chemicals. There are main two subcategories used in texturizing agents: emulsifiers and stabilizers.

20.7.1 Emulsifiers

Emulsifiers are used to combine two immiscible liquids and to maintain good dispersion such as oil and vinegar in salad dressing. Lecithin, calcium alginates, and alginic acid are examples of emulsifiers that are quantum satis; other more known additives are locust bean gum, agar, gum arabic, and pectin.

20.7.2 Stabilizers

Stabilizers and emulsifiers work the same way, and most are used to prevent evaporation and deterioration of flavor oils and maintain desired textures in food. Pectin, which is a natural gelling agent, is an example of both an emulsifier and stabilizer. Other examples are alginic acid, carrageenan, locust bean paste, xanthan gum, and invertase, all of which are quantum satis.

20.8 Genetically modified organisms

Plant breeding has been applied to farming for millennia giving way to plants that are suited for food, fiber, feed, and energy production (Barrows et al., 2014). Farmers use plant grafting as a means of creating a stronger or more beautiful crop by growing two of the same plants: one known as the rootstock and the other known as the scion, which features the size, flavor, and color of the particular crop or plant. The rootstock is grown for the viability and strength of the crop; the two plants are meticulously cut and joined together as seedlings through their vascular systems to create the modified plant.

Farmers that use conventional methods of breeding plants have yielded crops that have unforeseen mutations and is proven to be a slow and random process that is constrained

by the availability of desirable traits in other plant species that may be closely related (Barrows et al., 2014). The use of newer biotechnologies allows scientists to use attributes from plant species from distant relatives to use the desirable genetic markers in other plant forms to create an improved plant.

The first genetically engineered (GE) food was the Flavr Savr tomato developed in 1982; it was not allowed to be released for field testing, however, until 1985 by the United States Department of Agriculture Animal and Plant Health Inspection Service (APHIS), which is responsible for approving new plant seed species to be distributed for commercial use. The Flavr Savr tomato is categorized in the second-generation trait of three generational traits for GE crops. The first-generational traits are those crops that have enhanced traits that may include "herbicide tolerance, better insect resistance, and better tolerance to environmental stress" (Schneider et al., 2017). The second generation of GE crops comes with value-added traits where scientists were able to add or "improve nutrient enhancement of animal feed" (Schneider et al., 2017). The third generation of GE crops is mostly used for pharmaceuticals or other products that are processed for biofuels and crops beyond food and fiber.

Manufacturers and farmers are needed to find ways to increase production, lower costs, and reduce pollution to the air and soil surrounding farms while trying to protect the environment. Genetically modified organisms (GMO) or genetically modified (GM) foods are a result of gene splicing in plant species that helps to alleviate the need for or a reduction in toxin-producing pesticides. The process of genetically modifying foods results from the use of recombinant DNA biotechnological procedures that changes the genetic makeup of a food or organism (Schneider et al., 2017, p.1). The process takes desired DNA traits from one plant or organism and attaches it to another desired attribute of an organism to a host organism which produces a new plant or organism in a controlled environment differing from the farm-raised grafted plant. The resulting plants produce crops such as delayed-ripening tomatoes, pest-resistant crops, and herbicide-tolerant crops.

20.8.1 Common genetically modified foods

While there have been many advances to GE foods, not all of them have been commercially viable as food fit for human consumption. Most of the GE crops are regulated and are forced to go under rigorous testing before being released into food production for humans. Companies that produce GE seeds can petition the government for deregulation of their seed after testing and finding that the seed and resulting crops are successful and commercially viable. The following chart depicts the most commonly deregulated and farmed GM crops.

20.9 Internationally deregulated and farmed genetically modified crops

See Table 20.1.

TABLE 20.1 International Service for the Acquisition of Agri-biotech Applications (2016).

Genetically modified crops	Number of varieties
Corn	231[a]
Apples	3
Soybeans	25
Papayas	4
Tomatoes[b]	11
Alfalfa	5
Potatoes	48
Sugar beet	3
Total	**380**

[a]*Only 57 varieties available for commercial production.*
[b]*Tomatoes are no longer being grown and produced.*

20.9.1 Apples

GM apples have been field grown and tested in Canada before being approved by the FDA for production and farming in America. As of 2016, the first harvest for commercial use was planned for an early 2017 release in the American market. Ojanagan Specialty Fruits Inc. is the company responsible for the apple which has been given a trait that prevents apples from browning after being cut. The company has planted more than 70,000 trees across North America with hopes of increasing planting to 300,000 and 500,000 of Golden and Granny Smith verities, respectively, with Fuji in the pipeline for future growth.

20.9.2 Papayas

Researchers at Cornell University and the University of Hawaii have tacked the papaya ringspot virus (PRSV), which has affected a significant amount of Hawaii's growth of papayas in the early 1990s. They were able to develop a PRSV-resistant papaya in 1997, and it became commercially viable and available in 1998. GM papayas are now being grown in Canada and Japan where it was added to the Japanese GM fresh food quality labeling system in 2011.

20.9.3 Alfalfa

Alfalfa is the fourth largest crop grown in the United States covering more than 8.4 million hectares of land. The alfalfa grown in the United States is mostly used for animal feed with only 7% of production being used as sprouts for human consumption. Herbicide-tolerant and low lignin alfalfa are covering 1.2 million and 20,00 ha, respectively. The crops were planted for hay, haylage, and green chop, all being used as animal feed.

20.9.4 Sugar beets

Sugar beets are only grown in the United States and Canada and are also the only crop to be adopted by 100% of growers, with 472,000 ha grown in the United States and 8000 ha grown in Canada. The modified beet offers a weed control trait and is more cost effective and easier to cultivate. The sugar beet has been commercially available since 2012.

20.9.5 Tomatoes

The Flavr Savr tomato was developed by Calgene now owned by Monsanto, one of many agricultural science companies producing GM crops. It was produced from 1994 until 1997 with traits to give the tomato vine-ripened taste that could withstand the shipping process. According to Schneider et al. (2017), the Flavr Savr tomato was discontinued because of public concern and specialized transportation equipment. There are no known GMO tomatoes on the market today in North America or Europe.

20.9.6 Corn

Corn is the most widely grown GE crop. It was first introduced in 1996 as BT (*Bacillus thuringiensis*) corn and can produce an insecticide to stave off insects such as the European corn borer, the fall armyworm, and corn earworm. The varieties and their insect and herbicide resistances and tolerances have grown exponentially to include resistances to butterflies and moths, corn rootworms, and crops drought tolerant. Farmers are currently growing GE corn in 16 countries with Vietnam being the most recent to join the group with America, Brazil, and Spain leading the group (ISAAA, 2016). GE corn helps to produce food ingredients used in food processing such as high-fructose corn syrup and cornstarch.

20.9.7 Soybeans

Soybeans are responsible for the most used edible oil in the United States, and they are the second largest crop grown in the United States covering 83 million acres of farmland. GE soybeans are comprised of 93% of sustainably grown soybeans in production now. There are 11 countries currently growing soybeans including America, Brazil, Argentina, and Paraguay. The soybean varieties can withstand herbicides, moths, and butterflies and has been bred to improve the fatty acid profile of the bean. Soybeans are used in many other products that include lecithin, which is found in chocolate and some other confectionary items.

20.9.8 Potatoes

GM potatoes were deregulated in 1995 with a coleopteran-resistant, an insect species. The potatoes have since gone through various stages of deregulation and commercial sale of the seeds that include late blight resistant traits, low-acrylamide potential traits, a chemical that forms when starchy foods are heated to high temperatures, and Colorado potato beetle resistant. The potatoes are also resistant to potato virus Y and potato leafroll virus and black spot and bruise resistant versions.

Although the potatoes were deregulated in the mid-90s, they did not hit the commercial market for consumers until 2015 by the J.R Simplot company, a producer of frozen potato products. The company has caused some controversy over their use of GM potatoes in food for human consumption. The Ranger Russet, Russet Burbank, and Atlantic varieties are being grown and distributed by the J.R Simplot company. It has been noted that one of America's largest fast food chains is the most prominent customer of the J.R Simplot company and have rejected the use of any GM food from the company (ISAAA, 2016).

20.9.9 Canola

GM canola is currently being grown in Canada, Australia, and the United States. Chile produces GM canola for the seeds that are then grown elsewhere. Annually, 36 million hectares are being grown globally, and of that only an estimated 24% are GM and of that 1% is used in the production of biofuels. Canola is also known as rapeseed; it is an oilseed crop which is cultivated for its high-quality oil. The variations were created to have an impact on weed growth and quantity or higher yield for farmers.

20.10 Food labeling

20.10.1 Legislation

In the United States at least, the packaging and labeling of food is subject to regulation in most regions/jurisdictions, both to prevent false advertising and to promote food safety. The US FDA announced the new nutrition facts label for packaged foods to reflect new scientific information, including the link between diet and chronic diseases such as obesity and heart disease on May 20, 2016. The new label will make it easier for consumers to make better informed food choices. FDA published the final rules in the Federal Register on May 27, 2016, which are listed below.

20.11 Highlights of the final nutrition facts label

a. Features a refreshed design

i. The "iconic" look of the label remains, but FDA is making important updates to ensure consumers have access to the information they need to make informed decisions about the foods they eat. These changes include increasing the type size for "calories," "servings per container," and the "serving size" declaration and bolding the number of calories and the "serving size" declaration to highlight this information.

ii. Manufacturers must declare the actual amount, in addition to percent Daily Value of vitamin D, calcium, iron and potassium. They can voluntarily declare the gram amount for other vitamins and minerals.

iii. The footnote is changing to better explain what percent Daily Value means. It will read: "*The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet. 2000 calories a day is used for general nutrition advice."

b. Reflects updated information about nutrition science

i. "Added sugars," in grams and as percent Daily Value, will be included on the label. Scientific data shows that it is difficult to meet nutrient needs while staying within calorie limits if you consume more than 10% of your total daily calories from added sugar, and this is consistent with the 2015–20 Dietary Guidelines for Americans.

ii. The list of nutrients that are required or permitted to be declared is being updated. Vitamin D and potassium will be required on the label. Calcium and iron will continue to be required. Vitamins A and C will no longer be required but can be included on a voluntary basis.

iii. While continuing to require "total fat," "saturated fat," and "trans fat" on the label, "calories from fat" is being removed because research shows the type of fat is more important than the amount.

iv. Daily values for nutrients such as sodium, dietary fiber, and vitamin D are being updated based on newer scientific evidence from the Institute of Medicine and other reports such as the 2015 Dietary Guidelines Advisory Committee Report, which was used in developing the 2015–20 Dietary Guidelines for Americans. Daily values are reference amounts of nutrients to consume or not to exceed and are used to calculate the percent Daily Value (% DV) that manufacturers include on the label. The % DV helps consumers understand the nutrition information in the context of a total daily diet.

c. Updates serving sizes and labeling requirements for certain package sizes

i. By law, serving sizes must be based on amounts of foods and beverages that people are actually eating, not what they should be eating. How much people eat and drink has changed since the previous serving size requirements were published in 1993. For example, the reference amount used to set a serving of ice cream was previously 1/2 cup but is changing to 2/3 cup. The reference amount used to set a serving of soda is changing from 8 ounces to 12 ounces.

ii. Package size affects what people eat. So, for packages that are between one and two servings, such as a 20-ounce soda or a 15-ounce can of soup, the calories and other nutrients will be required to be labeled as one serving because people typically consume it in one sitting.

iii. For certain products that are larger than a single serving but that could be consumed in one sitting or multiple sittings, manufacturers will have to provide "dual column" labels to indicate the amount of calories and nutrients on both a "per serving" and "per package" or "per unit" basis. Examples would be a 24-ounce bottle of soda or a pint of ice cream. With dual-column labels available, people will be able to easily understand how many calories and nutrients they are getting if they eat or drink the entire package/unit at one time.

20.12 Compliance date

d. The FDA extended the compliance dates for the Nutrition Facts and Supplement Facts label final rule and the Serving Size final rule, from July 26, 2018 to January 1, 2020, for

manufacturers with $10 million or more in annual food sales. Manufacturers with less than $10 million in annual food sales would receive an extra year to comply—until January 1, 2021.

e. In May 2016, the US FDA finalized the Nutrition Facts and Supplement Facts Label and Serving Size final rules and set the compliance date for July 26, 2018, with an additional year to comply for manufacturers with annual food sales of less than $10 million. After those rules were finalized, industry and consumer groups provided the FDA with feedback regarding the compliance dates. After careful consideration, the FDA determined that additional time would provide manufacturers covered by the rule with necessary guidance from FDA and would help them to be able to complete and print updated nutrition facts panels for their products before they are expected to be in compliance.

20.13 Information shown on the food label in the United Kingdom

1. The name of the food
2. A "best before" or "use-by" date (or instructions on where to find it)
3. Any necessary warnings
4. Net quantity information
   - **a.** Net quantity in grams, kilograms, milliliters, or liters must be included on the label of
     - **i.** packaged food over 5g or 5 mL
     - **ii.** packaged herbs and spices
   - **b.** Solid foods packed in a liquid (or an ice glaze) must show the drained net weight.
   - **c.** The net quantity must be close enough to the name of the food that one can see all this information at the same time. This also applies to the alcoholic strength for alcoholic drinks.
   - **d.** Do not show the weight or volume on foods sold by number, for example, two bread rolls, provided that you can clearly see the number of items inside the packaging.
5. A list of ingredients (if there is more than 1)
   - **a.** For food or drink product that has two or more ingredients (including any additives), one must list them all. Ingredients must be listed in order of weight, with the main ingredient first. Percentage of an ingredient need to be showed if it is
     - **i.** highlighted by the labeling or a picture on a package, for example, "extra cheese"
     - **ii.** mentioned in the name of the product, for example, "cheese and onion pasty"
     - **iii.** normally connected with the name by the consumer, for example, fruit in a summer pudding
6. The name and address of the manufacturer, packer, or seller

TABLE 20.2 Special product considerations: Part 1.

• Bottle water	• Bread and flour
• Cocoa and chocolate products	• Fats and oils
• Fish	• Fruit juices and nectars
• Honey	• Jams and preserves
• Meat and meat products	• Milk and milk products
• Soluble coffee	• Sugar

Source: Compiled by David Wiley & Christy Ng.

7. The country of origin for the following items. One must also show the country of origin if customers might be misled without this information, for example, if the label for a pizza shows the leaning tower of Pisa but the pizza is made in the United Kingdom.
   - **a.** Beef, veal, lamb, mutton, pork, goat, and poultry
   - **b.** Fish and shellfish
   - **c.** Honey
   - **d.** Olive oil
   - **e.** Wine
   - **f.** Fruit and vegetables imported from outside the EU
8. The lot number or use-by date
9. Any special storage conditions
10. Instructions for use or cooking, if necessary

One must also show this information if they apply to the product:

- A warning for drinks with an alcohol content above 1.2%
- A warning if the product contains GM ingredients, unless their presence is accidental and 0.9% or less
- A warning if the product has been irradiated
- The words "packaged in a protective atmosphere" if the food is packaged using a packaging gas.

Also, there are special rules about what one has to show on the label if they supply any of the following (see Table 20.2).

20.14 Allergens

According to the United Kingdom's food labeling and packaging legislation, one must highlight allergens on the label using a different font, style, or background color. They must also list them in the ingredients. The allergens needed to be highlighted and listed are shown in the table below (Table 20.3):

TABLE 20.3 Special product considerations: Part 2.

• Celery	• Cereals containing gluten, including wheat, rye, barley, and oats
• Crustaceans, including prawns, crab, and lobster	• Eggs
• Fish	• Lupin
• Milk	• Mollusks, including squid, mussels, cockles, whelks, and snails
• Mustard	• Nuts
• Peanuts	• Sesame seeds
• Soybeans	• Sulfur dioxide or sulfites at levels above 10 mg per kilogram or per liter

Source: Compiled by David Wiley & Christy Ng.

20.15 Food and drink warnings

When it comes to labeling food and drinks which contain specific ingredients that may or may not trigger specific allergens, then the ingredient must be seen on the label (see Table 20.4):

TABLE 20.4 An appropriate warning must be shown on the label if the food contains certain ingredients.

Ingredient	Wording must be used
Allura red (E129)	"May have an adverse effect on activity and attention in children"
Aspartame	"Contains a source of phenylalanine"
Caffeine over 150 mg/L	"Not suitable for children, pregnant women and persons sensitive to caffeine"
Carmoisine (E122)	"May have an adverse effect on activity and attention in children"
Liquorice	"Contains liquorice" (you may need extra wording for confectionery or alcohol containing liquorice)
Polyols	"Excessive consumption may cause a laxative effect"
Ponceau 4R (E124)	"May have an adverse effect on activity and attention in children"
Quinoline yellow (E104)	"May have an adverse effect on activity and attention in children"
Raw milk	"This milk has not been heat-treated and may therefore contain organisms harmful to health"
Skimmed milk with nonmilk fat	There's no fixed wording, but you must show a warning that the product is unfit or not to be used for babies.
Sulfur dioxide over 10 mg/l	"Contains sulfur dioxide (or sulfites/sulfites)"
Sunset yellow (E110)	"May have an adverse effect on activity and attention in children"
Sweeteners	"With sweetener(s)"
Sweeteners and sugar	"With sugar and sweetener(s)"
Tartrazine (E102)	"May have an adverse effect on activity and attention in children"

Source: Compiled by David Wiley & Christy Ng.

20.16 Hong Kong–Macao labeling/marking requirements

Hong Kong's nontariff barriers related to labeling requirements, standards, and other requirements are generally minimal but are expected to become more restrictive for supplements. Pharmaceuticals and over-the-counter drugs must have indications of dosage and frequency on the label in both Chinese and English.

Hong Kong's food labeling regulations are developed and administered by the Food and Hygiene Environmental Department's Center for Food Safety. According to the Food and Drugs (Composition and Labeling) Regulations (Cap. 132 W), the following information should be provided on prepackaged food labels:

Name of the food

- List of ingredients (including allergens)
- Indication of "use-by" or "best before" date
- Statement of special conditions for storage or instructions for use
- Name and address of manufacturer or packer
- Count, weight, or volume of food
- Nutrition information stick-on product labels are allowed to remedy any noncompliance issues on preexisting labels and can be applied by Hong Kong importers with permission of the manufacturer. The labels may be provided in English, Chinese, or both languages. If both languages are used on prepackaged food, the name of the food, ingredient list, and nutritional information must be provided in both languages.

20.16.1 Labeling for biotech food

The Hong Kong government (HKG) does not require labeling of biotech food products. In 2006, the government issued guidelines for voluntary labeling of biotech foods containing 5% or more of an individual biotech food ingredient. Negative labeling is not recommended.

20.16.2 Organic certification

Hong Kong recognizes USDA organic certification, so products are sold in Hong Kong with the USDA organic logo.

20.16.3 Others

Hong Kong regulates the use of sweeteners, preservatives, coloring matters, metallic contaminants, and pesticides. In the absence of a particular regulation, the HKG refers to Codex standards and/or conducts a risk assessment to determine applicable import requirements. For details on Hong Kong's general import regulations for food products, please consult Public Health and Municipal Services Ordinance and the Food Safety Ordinance.

20.17 Expiration and use-by dates

Expiration date can be defined as the last date recommended for a product to be at peak quality. The "best before" date is appropriate for the vast majority of foods and indicates the period for which a food can reasonably be expected to retain its optimal condition (e.g., it will not be stale) and relates to the quality of the food.

The "use-by" date is the required form of date mark for those foods which are highly perishable from a microbiological point of view and which are likely after a relatively short period to present a risk of food poisoning and relates to the safety of the food.

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