

Food Safety Regulations and Food Contact Materials

Food Contact Materials



Food contact material (FCMs) are exactly that: materials that are in contact with food or potable beverages during processing, packaging or storage. This includes component parts in machinery used for food processing, even covering such things as coffee machines and drink dispensers. Food contact materials and food contact substances (FCS) mean the same thing.

During contact, molecules from materials can migrate into foods or beverages. Because of this, most countries have food safety regulatory agencies that monitor materials for food safety. In the United States, the most recognized and frequently encountered food safety agency is the FDA. NSF International is the most recognized food safety standards organization.

Important US Food Safety Agencies and Standards



FDA

The **Food and Drug Administration (FDA)** is an agency of the United States Department of Health and Human Services. FDA responsibilities include protecting public health by assuring the safety, honesty and security of the food supply. The FDA determines the appropriate use of materials for potable beverage and foodstuff processing, handling and packaging.

The FDA does not provide government inspection and certification of materials used for food contact applications. Instead, the agency sets rules and guidelines regarding appropriate material composition, properties and uses. A material that meets FDA standards is FDA compliant. FDA standards cover conditions of use like temperature, food type and whether that material is suitable for either single use or repeated contact. It is the end user's responsibility to use each material in such a way that it conforms to FDA rules. "Food safe" and "food contact safe" are generally understood to imply FDA compliant.



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Food Contact Materials – FDA, NSF and Other Standards



CFR

The **Code of Federal Regulations (CFR)** is a set of general and permanent rules published by the Federal Government. The FDA uses the Title 21 section of the CFR. Component part's "wetted materials", also called the wetted or wettable surfaces, need to be compliant with the appropriate sections of CFR Title 21. Some sections of Title 21 relevant to miniature fluidics and pneumatic flow control components are

- FDA 21 CFR 174, Indirect Food Additives: General
- FDA 21 CFR 177, Indirect Food Additives: Polymers
- FDA 21 CFR 178, Indirect Food Additives: Adjuvants, Production Aids and Sanitizers
- FDA 21 CFR 181, Prior-Sanctioned Food Ingredients



NSF

NSF International, formerly the National Sanitation Foundation, is an independent, non-governmental organization. NSF is usually associated with standards for direct and indirect drinking water additives but it also plays a part in food safety.



ANSI

NSF certifications are frequently described as NSF/ANSI. **The American National Standards Institute (ANSI)** is a private non-profit organization that oversees the development of voluntary consensus standards in the United States. NSF certification requires testing to NSF standards for contact with

drinking water, food and so on. NSF certification is provided by NSF accredited third-part certification organizations such as the Water Quality Association.



Water Quality Association

The Water Quality Association (WQA) is a not-for-profit trade organization for the water treatment industry. WQA services include testing and certification to the related NSF ANSI standards. These include drinking water treatment units, drinking water system components, drinking water additives, pool and spa equipment and food equipment.



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Some NSF Standards Relevant to Miniature Flow Control Components

NSF/ANSI-14, Plastics Piping System Components and Related Materials

This standard applies to thermoplastic and thermoset plastic piping system. It primarily addresses physical properties of plastic components in piping and plumbing systems. Plastics piping system components and related materials complying with this standard are tested and approved by NSF for use in plumbing.

NSF/ANSI-42, Drinking Water Treatment Units - Aesthetic Effects

This standard covers point-of-use (POU) and point-of-entry (POE) systems designed to reduce specific non-health-related contaminants (chlorine, taste, odor, and particulates) that may be present in drinking water. While this standard typically applies to residential systems, the testing used makes it relevant for process filtration also. Components and related materials complying with standard are tested and approved by NSF for use in POU and POE systems.

NSF/ANSI-51, Food Equipment Materials

This standard establishes minimum health and sanitation requirements for materials used in the making of commercial food equipment. Materials must not contaminate food nor make food equipment difficult to clean and sanitize. This standard also applies to component parts used in food equipment. Fittings and tubes complying with this standard are tested and approved by NSF for contact with potable beverages and foodstuffs.

NSF/ANSI-58, Reverse Osmosis Drinking Water Treatment Systems

This standard relates to flow control by establishing standards for material safety, component structural integrity and component strength as related to drinking water systems. Fittings and tubes complying with this standard are tested and approved by NSF for drinking water treatment systems.

NSF/ANSI-61, Drinking Water System Components - Health Effects

This standard covers pipes and pipe-related products, barrier materials, joining and sealing materials, process media, and point-of-entry systems. This standard only requires testing for materials safety, which looks for a wide variety of contaminants that may leach into the drinking water. It is most frequently associated with certification compliance regarding lead content.



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Some other standards related to food contact materials



3-A Sanitary Standards

3-A was founded in the 1920's by three dairy related associations. It established sanitary standards and practices (**3-A Sanitary Standards**) for commercial equipment and systems used to process milk and milk products and other perishable foods. 3-A approved materials must be resistant to steam sterilization, milk fat, acid and alkali cleaning solutions and chlorine sanitizing agents. This is in addition to being FDA food contact material compliant.



Canada AG

Agriculture and Agri-Food Canada (AAFC) and Health Canada's **Health Products and Food Branch (HPFB)** are the Canadian government agency equivalents to the United States' USDA and FDA, respectively. The **Canadian Food Inspection Agency (CFIA)** enforces Canadian food safety regulations for both domestic and imported food.



USDA

The **United States Department of Agriculture (USDA)** regulates manufacturing, packaging and handling practices in the agricultural food industry, particularly meat, poultry and egg products. USDA compliant products are documented as to their compliance with FDA food contact material standards by a written letter of guaranty from the manufacturer.



Food Safe

The international symbol for food safe materials is a stylized wine glass and fork. This indicates that the material used in the product is safe for food contact. This food safe indication is applicable to any product intended for food contact whether it is made of metals, ceramics, paper and paperboard, or plastics. The glass-and-fork symbol is mandatory for all **food contact products sold in Europe** except for things like eating utensils and glassware.



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