DE-*MIST*-IFYING CULINARY STEAM REGULATION

The guide to food and beverage regulations and standards when it comes to using steam in your process

Product safety is job one for the food and beverage industry. No manufacturer wants their product to harm a consumer or be subjected to a recall. At stake: damage to their brand, downtime, lost revenue, and costly fines.

Because steam is such a critical part of food and beverage processing, companies need to stay on top of regulations dealing with its quality and use. Currently, there are three U.S. organizations that have put forth regulations or standards for steam that directly contacts food or processing equipment during manufacture.

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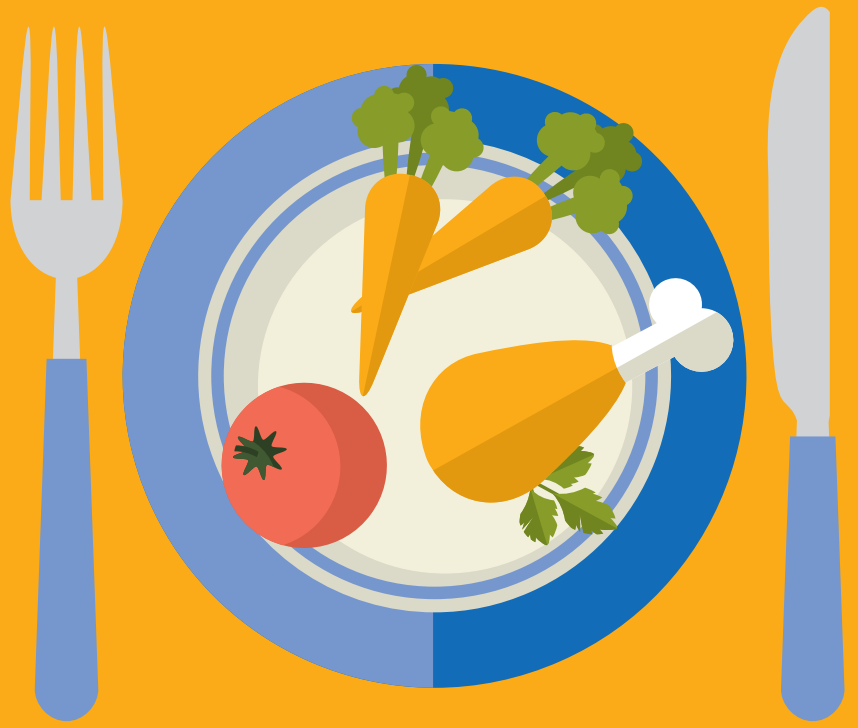
FDA Code of Federal Regulation

1

Provisions of the Food and Drug Administration (FDA) Code of Federal Regulation allow that boiler water additives may be used in preparing steam that will contact food as long as "the amount of additive is not in excess of that required for its functional purpose, and the amount of steam in contact with food does not exceed that required to produce the intended effect in or on the food." The regulation includes a list of food approved chemicals, and the amounts of each, that can be used. Even though these chemicals are approved for food processing applications, it's important to allow only dry steam vapor to come in contact with the food or process.

While the code does not specify how often chemical levels need to be checked, or how to test them, a provision of the Food Safety and Modernization Act requires nearly every U.S. food processing facility to have a written Hazard Analysis and Risk-based Prevention Control plan. This includes identifying all "critical control points" in the manufacturing process where contamination could occur and taking proactive steps to address them. (More on this in the section on HACCP, later in this guide.) Facilities are also required to comply with the act's Current Good Manufacturing Processes (CGMPs), unless specifically exempt.



3-A Sanitary Standards Institute (3-A SSI)

3-A SSI is an independent organization focused on hygienic equipment design and best practices for processing, cleaning and support systems in the food and beverage and pharmaceutical industries. 3-A has established minimum sanitary requirements for the production of culinary steam, including:

- Required equipment, such as a steam separator to remove excess water and a hygienic steam filter that removes 95% of particulates of 2 microns or larger.
- Specific materials and surface finishes for vessels, pipes, fittings and other processing equipment – for example, stainless steel for steam distribution downstream from the filter.
- Use of only FDA-approved non-volatile chemicals to prevent boiler carry-over.

Food and beverage manufacturers that meet 3-A standards can apply for culinary or clean steam certification.

Organic Standards

Organic food processors must meet more rigorous standards than non-organic facilities, so culinary steam quality is a top priority. Standards that apply to steam production or use are found in:

- The Federal Organic Foods Production Act of 1990, which requires water used in organic food processing to meet the standards of the Safe Drinking Water Act, with strict limits for any residual contaminants. Although it's not specifically stated, this standard is assumed to apply to water in all of its forms, including live steam used in direct contact with food or food processing.
- The National Organic Standards Board (NOSB), a federal advisory board established under the Organic Foods Production Act, permits the use of approved boiler additives to prevent filming and scaling. But residues "must be prevented from contacting organically produced food by the use of steam without entrained water, steam filtering, or other means." In other words, dry steam only and no boiler carry-over.

HACCP: a Comprehensive Approach to Food Safety Management

4

The relative scarcity of legislation specifically addressing steam quality management (and, in some cases, somewhat vague language) may leave food and beverage manufacturers feeling uncertain about dealing with the issue. At the same time, societal expectations for food safety and intense competition in the industry demand a proactive approach.

The FDA's National Advisory Committee on Microbiological Criteria for Foods developed and continues to update a food safety management approach called Hazard Analysis Critical Control Points (HACCP). HACCP's seven principles have been widely adopted around the world as an effective way to identify and control biological, chemical and physical hazards from harvest to consumption, and it has become a legal requirement for many retailers, who share the responsibility for food safety with manufacturers. Spirax Sarco has prepared a separate quick guide to HACCP that provides a more in-depth discussion of this system.

Food for Thought

Are you aware of all the potential contamination risks on your site? Do you have a plan to address and manage them over time? Spirax Sarco can help you identify your plant's potential contamination threats and recommend cost-effective solutions.

If you would like more information or to discover the power of a steam audit, send us an email at: **us.spiraxinfo@us.spiraxsarco.com**

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