



CGA F-1 — 2018

1ST EDITION

**STANDARD FOR
FOOD SAFETY
MANAGEMENT
SYSTEMS AND GOOD
MANUFACTURING
PRACTICES FOR
FOOD GAS
MANUFACTURERS**



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Work Item 15-114
Food Gases Committee

NOTE—Appendix A (Informative) is for information only.

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1 Introduction

On January 4, 2011, the U.S. Food and Drug Administration's (FDA) *Food Safety Modernization Act* (FSMA) was signed into law [1].¹ FSMA aims to ensure the U.S. food supply is safe by shifting the focus from responding to contamination to preventing it.

Food gases in liquid, gaseous, or solid form used as additives, processing aids, or ingredients are foods per the U.S. *Federal Food, Drug, and Cosmetic Act* (the Act) because they directly or indirectly become a component of food or drink and affect their characteristics [2]. FSMA emphasizes the importance of controlling known or reasonably foreseeable hazards that have the potential to cause adverse health consequences for consumers [1]. To ensure food safety, food gas manufacturers are required by FSMA to establish and implement a food safety system as outlined in Title 21 of the U.S. *Code of Federal Regulations* (21 CFR) Part 117, "Current Good Manufacturing Practices, Hazard Analysis, and Risk Based Preventive Control for Human Food" and Part 507, "Current Good Manufacturing Practices, Hazard Analysis, and Risk Based Preventive Control for Food for Animals" [1, 3]. A hazard analysis and risk-based preventive controls (HARPC) system is required, unless exempted.

Examples of food gases and their common uses include, but are not limited to:

- carbon dioxide, carbon monoxide, nitrogen, and oxygen, alone or in combination, as modified atmosphere packaging gases;
- carbon dioxide for carbonated beverages;
- carbon dioxide for super-critical extraction;
- hydrogen for hydrogenation of fats;
- liquid nitrogen and liquid carbon dioxide for freezing and chilling in direct contact with food;
- nitrogen and carbon dioxide as propellant gases for beverages;
- nitrous oxide as a propellant gas for cream; and
- sulfur dioxide as a preservative.

Based upon customer request, some companies have chosen to pursue certification to a Global Food Safety Initiative (GFSI) benchmarked scheme [4]. GFSI is a food industry-driven harmonization initiative that recognizes equivalency of food safety management schemes used by companies to develop their own food safety management system [4]. Companies that achieve certification to a GFSI-benchmarked scheme have the framework in place to meet the majority of the requirements of 21 CFR Part 117 [4, 3]. Appendix A provides a cross-reference between these requirements and this publication.

2 Scope

This publication applies to both U.S. and Canadian firms engaged in manufacturing, packaging, storing, and/or distributing food gases and outlines regulatory requirements and industry practices utilized to ensure compliance.

This publication provides inspectors and auditors with an understanding on where and how current food safety manufacturing requirements apply to the food gas manufacturer. It provides guidance on food safety principles in the manufacturing processes that shall be maintained to ensure the quality and safety of the food gas produced for use in the human and animal food industries.

¹ References are shown by bracketed numbers and are listed in order of appearance in the reference section.