

CGA M-10—2012

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

SECOND EDITION



**COMPRESSED GAS
ASSOCIATION, INC.**

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NOTE—Technical changes from the previous edition are underlined.

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1 Introduction

Food gases include gases used as additives, processing aids, or ingredients. Food gases are supplied to the food industry in liquid, gaseous, or solid form. Examples of food gases include:

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

It is reasonable to expect that some food gases will directly or indirectly become a component of food or drink or will otherwise affect the characteristics of food. To ensure food safety, legislation requires that food and food gases meet certain standards. Food gas manufacturers should be familiar with federal, state, and provincial regulations. This publication contains information on applicable regulations and standards, good manufacturing practices (GMP), standard industry practices, and labeling. Because it may not contain all the information necessary to comply with federal, state, or provincial regulations, it should be used in conjunction with other publications and guidelines.

2 Scope

This publication describes current industry practice for firms that engage in manufacturing, packaging, storing, and distributing food gases that are either supplied in gaseous, liquid, or solid form in various types of containers or manufactured onsite. It outlines the general requirements that apply to food gas processes and provides a summary of the applicable federal, state, and provincial regulations together with guidance on how to meet the requirements of the regulations. It provides reference, where applicable, to product specifications.

Although this publication is primarily applicable to firms engaged in manufacturing, packaging, storing, and distributing food gases, portions of this publication may also apply to firms that only distribute food gases.

This publication does not apply to the following applications:

- fish farm oxygenation;
- oxygen bars; or
- treatment of water for food applications.

3 Definitions

For the purpose of this publication, the following definitions apply.

3.1 Adapter

Fitting used to connect one type of gas connection to a different type of gas connection.