



GUIDE TO THE SUPPLY OF GASES FOR USE IN FOODS

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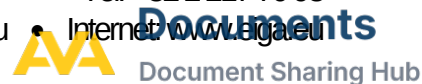
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Amendments to 125/11

Section	Change
	Editorial to align style with EIGA style manual
1	Update to Regulation numbers
2	Clarification on processing aids
3	New definitions added
4.2	Update to applicability from Regulation 1333/2008
4.2	Information transferred to appendix 1
4.4	New section on labelling
4.5	Information transferred to Appendix 2
4.6	Addition of CNR study information
5.1, 5.1.1, 5.1.2	New sections
6.3	Changes to non-conforming product guidelines
7.2	Information added on labelling and marking
7.7	Changes to non-conforming product
8	Re-ordering of section and alignment with EIGA Doc 150

NOTE Technical changes from the previous edition are underlined

1 Introduction

The basis for European food legislation is Regulation (EC) No 178/2002 *laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety* [1].¹ Current and proposed European legislation requires that foods, including gases supplied to the food industry as food additives and ingredients meet increasingly rigorous standards to ensure food safety.

Gases are used for a variety of purposes in the food industry as additives, processing aids and ingredients. Particularly for food additive and food ingredients, there are requirements regarding labelling, purity and hygiene.

For gases used as processing aids in contact with food according to the Regulation (EC) No 1333/2008 on food additives Article 3 §2 b (iii), the purity of the gas should be in compliance with food additive quality as required by the Regulation (EU) No 231/2012 laying down specifications for food additives, in order to avoid that any residues or derivatives in the gas do not represent any health risk [2, 3].

The principal uses of gases in the food industry includes, but is not limited to:

- **Additives:**
 - o oxygen, nitrogen and carbon dioxide as modified atmosphere packaging gases;
 - o nitrogen and carbon dioxide as propellant gases for beverages;
 - o nitrous oxide as a propellant gas for cream; and
 - o sulphur dioxide as a preservative for specified foods.
- **Processing aids:**
 - o liquid nitrogen and liquid carbon dioxide for freezing and chilling;
 - o carbon dioxide for super-critical extraction; and
 - o hydrogen for hydrogenation of fats.
- **Ingredients:**
 - o carbon dioxide for carbonated beverages.

This publication provides a summary of the relevant legislation together with advice as to how best to meet their requirements.

2 Scope and purpose

2.1 Scope

This publication covers all stages of the supply chain including production, storage, re-packaging and distribution of food gases to the final user (customer or consumer).

For this publication, food gases are gases in solid, liquid or gaseous form that are supplied to the food industry and used as additives, processing aids or ingredients. For the applicability of requirements for processing aids, see the definition of food gases. Food gases can be generated on site, delivered as bulk liquid, compressed cylinder gases, or, in the case of carbon dioxide, as solid dry ice.

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

2.2 Purpose

The publication is intended to establish an awareness of the particular legislative requirements as they apply to food gases and to offer advice as to how these requirements can be met. These requirements cover legislation in the following areas:

- use of food gases including purity criteria;
- hygiene and food safety requirements including use of Hazard Analysis and Critical Control Points (HACCP);
- labelling; and
- lot marking and traceability.

3 Definitions

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

3.1 Publication terminology

3.1.1 Shall

Indicates that the procedure is mandatory. It is used wherever the criterion for conformance to specific recommendations allows no deviation.

3.1.2 Should

Indicates that a procedure is recommended.

3.1.3 May

Indicate that the procedure is optional.

3.1.4 Will

Is used only to indicate the future, not a degree of requirement.

3.1.5 Can

Indicates a possibility or ability.

3.2 Technical definitions

3.2.1 Batch

A discrete, defined quantity whose characteristics can be proven, for example it can be a number of cylinders filled on the same manifold at the same time, an isolated bulk storage tank or tanker, or a period of continuous production from an air separation unit.

3.2.2 Bulk

A large amount of gas transported, supplied, stored generally in liquid cryogenic form in a cryogenic vessel.

3.2.3 Consumer

The person that eats or drinks the product and will not use the food as a part of any food business

operation or activity as per Regulation (EC) No 178/2002 [1].

3.2.4 Container

General term used in food law to describe the item used for storage or transport of foodstuffs. Within this publication the term container shall be used to describe any equipment used for the storage or transport of gases in either solid, liquid or gaseous form. Where appropriate, additional descriptions common in the gases industry may be used such as cylinder, bundle, tank, dry ice container etc.

3.2.5 Cryogenic vessel

A thermally insulated vessel for the transport and the storage of refrigerated liquefied gases, often referred to as a tank or mini-tank.

3.2.6 Customer

The legal entity that uses the food gases for further processing.

3.2.7 Cylinder

A transportable non-insulated pressure vessel for storage and containment of gases at above atmospheric pressure.

3.2.8 Food or foodstuff

Any substance or product, whether processed, partially processed or unprocessed, intended to be, or reasonably expected to be, ingested by humans as per Regulation (EC) No 178/2002 [1].

3.2.9 Food additive

Any substance not normally consumed as a food in itself and not normally used as a characteristic ingredient of food, whether or not it has nutritive value, the intentional addition of which to food for a technological purpose in the manufacture, processing, preparation, treatment, packaging, transport or storage of such food results, or may reasonably be expected to result, in it or its by-products becoming directly or indirectly a component of such foods as per Regulation (EC) No 1333/2008 [2]. Food additives include packaging gases and propellants.

3.2.10 Food business

Any undertaking, whether for profit or not and whether public or private, carrying out any of the activities related to any stage of production, processing and distribution of food as per Regulation (EC) No 178/2002 [1].

3.2.11 Food business operator

The natural or legal persons responsible for ensuring that the requirements of food law are met within the food business under their control as per Regulation (EC) No 178/2002 [1].

3.2.12 Food gases

Gases in solid, liquid, gaseous form intended to be used as a food additive, processing aid or ingredient however, processing aids are not subject to the same legal requirements as food. In this publication the requirements for food gases are indicated with a “shall”, for processing aids it may be read as “should” as the legal requirements do not apply to processing aids.

3.2.13 Hazard analysis critical control points (HACCP)

A formal method to assess the food safety risks.

3.2.14 Ingredient

Any substance or product, including flavourings, food additives and food enzymes, and any constituent of a compound ingredient, used in the manufacture or preparation of a food and still present in the finished product, even if in an altered form. Residues shall not be considered as ingredients as per Regulation (EU) No 1169/2011 on the provision of food information to consumers [4].

3.2.15 Non-conforming product

Product that does not meet the relevant company specifications or that has other unspecified impurities which are suspected or known to be at levels that might, when used in contact with foods, be injurious to health. Company specifications are assumed to exceed legislative specifications.

3.2.16 Packaging gases

Any gas, other than air, which is introduced into a container before, during or after the placing of a food in that container as per Regulation (EC) No 1333/2008 [2].

3.2.17 Preservatives

Substances which prolong the shelf-life of foods by protecting them against deterioration caused by micro-organisms and/or which protect against growth of pathogenic micro-organisms as per Regulation (EC) No 1333/2008 [2].

3.2.18 Processing aid

Any substance not consumed as a food by itself, intentionally used in the processing of raw materials, foods or their ingredients to fulfil a certain technological purpose during treatment or processing, and which may result in the unintentional but technically unavoidable presence of residues of the substance or its derivatives in the final product, provided that these residues do not present any health risk and do not have any technological effect on the finished product as per Regulation (EC) No 1333/2008 [2].

3.2.19 Propellants

Any gas, other than air, which expels a foodstuff from a container as per Regulation (EC) No 1333/2008 [2].

3.2.20 Top filling

Filling without completely degassing a cylinder.

4 European food legislation

Food legislation is issued in the form of either Directives or Regulations.

Directives are legislative acts that sets out a goal that all EU countries shall achieve. However, it is up to the individual countries how to devise their own laws to achieve these goals. This process can lead to slight differences of interpretation between the member countries and how the directive is transposed.

Regulations on the other hand, are binding legislative acts that member countries shall apply in its entirety and no modification is allowed. Therefore, for example, Regulation (EC) No 178/2002 is legally binding in all member states [1].

4.1 Regulation (EC) No 178/2002 laying down the general principles and requirements of food law, establishing the European Food Authority, and laying down procedures in matters of food safety

Regulation (EC) No 178/2002 established the European Food Authority and stipulates general principles of food law. It harmonises national requirements which, hitherto, had varied slightly between countries [1].

This regulation gives a definition of food that includes any substance that is intended to be, or is reasonably expected to be, ingested by humans. The reference to 'reasonably expected' is formulated to ensure that a substance that may be reasonably expected to find its way into the food supply chain but may find its way into different industry sectors, is handled with the same care as a food until it is clear it will not become a food. This implies that nitrogen, oxygen and carbon dioxide, etc. in the production / distribution process shall be treated as if they are foods until specifically designated otherwise.

The regulation also confirms that food includes any substance intentionally incorporated into the food during its manufacture preparation or treatment.

The regulation defines traceability as the ability to trace and follow a food through all stages of production, processing and distribution and requires food business operators to know from whom they have received food and to whom they supply it. The principal purpose of the traceability requirement is to enable efficient and rapid withdrawal from the market of any food that may be injurious to the consumer's health.

4.2 Regulation (EC) No 1333/2008 on food additives

Regulation (EC) No 1333/2008 defines food additives and processing aids and states explicitly that it does not apply to processing aids [2]. Annex I of this regulation defines 26 applications of which 3 are relevant to gases: preservatives, propellants and packaging gases.

The requirements relating to applicable labelling obligations (articles 21, 22 and 23) are given for information in Appendix 1. Additional information relating to batch / lot identification is found in Directive 2011/91/EU on indications or marks identifying the lot to which a foodstuff belongs, [5].

4.3 Regulation (EU) No 231/2012 laying down specific purity criteria on food additives other than colours and sweeteners

Regulation (EU) No 231/2012 gives purity criteria for food additives [3]. EIGA Doc 126 Minimum Specifications for Food Gas Applications lists the gases which are food additives [6].

4.4 Regulation (EU) No 1169/2011 on the provision of food information to consumers

Regulation (EU) No 1169/2011 provides the rules of a common definition of food information to consumers, for them to make informed choices, particularly on the labelling of ingredients.

Chapter IV, Article 4 describes the list of requested food information:

- name of the food;
- list of ingredients (with additive numbers in the cases of the food gases);
- quantity of ingredients;
- net quantity of the food;
- date of minimum durability;