

CONDITIONS OF USE FOR THE STATEMENT “FREE FROM SOURCES OF FRUCTOSE” AND OTHER RISK MANAGEMENT MEASURES

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Fructose is a sugar that naturally occurs in fruits (apple, pear, mango, grapes, watermelon, banana, etc.), vegetables (onion, artichoke, pepper, asparagus) and honey (approximately 40%).

However, there are also multiple metabolic precursors of fructose that are used for their sweetening properties, such as sucrose (table sugar), sorbitol (E 420), other polyols such as maltitol (E 965), lactitol (E 966), isomalt (or isomaltose/isomaltitol - E953-), glucose-fructose syrups or fructose-glucose syrups (depending on the proportion, also known as high-fructose corn syrups), agave syrup, maple syrup and invert sugar, as well as tagatose (an epimer of fructose).

Accordingly, the term “sources of fructose” refers to all foods or products that provide fructose to the body, whether as free fructose naturally present or added to them; as fructose released after the digestion of sugars that contain it in their structure (for example, sucrose); or as fructose generated through biotransformation from precursors (for example, sorbitol).

There are two conditions that impair the proper metabolism and absorption of fructose in the body and require the elimination of fructose and its sources from the diet of affected individuals.

First, Hereditary Fructose Intolerance (HFI), or aldolase B deficiency, is a serious autosomal recessive inherited disorder caused by a deficiency of the enzyme aldolase B, which is responsible for metabolizing fructose mainly in the liver (and also in the kidneys and small intestine). HFI causes acute symptoms (nausea, vomiting, abdominal pain, hypoglycaemia) and chronic symptoms resulting from metabolic toxicity (liver dysfunction, kidney failure, growth retardation and even death). The prevalence of this condition varies among populations, but it is estimated to affect between 1 in 20,000 and 1 in 60,000 births in Europe. The cornerstone of HFI management is the elimination of fructose and its sources from the diet.

Second, fructose malabsorption (intestinal fructose intolerance) occurs when a deficiency of the transporter protein in the intestinal mucosa, that enables fructose absorption in the small intestine, exists. As a result, excess unabsorbed sugars pass into the colon, where bacteria break them down into acids, gas and water, producing symptoms such as flatulence, abdominal pain/distension, diarrhoea, etc., like those experienced by individuals with lactose intolerance. This condition is becoming

increasingly common in our society, with an estimated prevalence of 20% of the population, and appears to have a synergistic and self-reinforcing relationship with Small Intestinal Bacterial Overgrowth (SIBO). The elimination of sources of fructose from the diet is likewise a key element in managing this condition.

This vulnerable population is at risk of adverse health effects either from the inadvertent consumption of fructose and its sources in foods, particularly processed foods, or from potential effects on nutritional status resulting from a restricted diet when certain foods are precautionarily excluded due to a lack of information regarding the presence or absence of fructose, even though some of those foods may in fact be suitable for these groups.

However, fructose and its sources are not covered either by the framework regulating information on substances causing allergies or food intolerances (Article 21 and Annex II of [Regulation \(EU\) No 1169/2011 on the provision of food information to consumers](#)) or by the framework regulating additional particulars required for certain categories or specific types of foods (Article 10 and Annex III of Regulation (EU) No 1169/2011).

Therefore, the legal basis for making any statement regarding the absence of fructose in food labelling is found in Articles 7 and 36 of Regulation (EU) No 1169/2011. In other words, it is voluntary information that must not mislead consumers.

This issue was reflected in the Note entitled [hereditary fructose intolerance \(HFI\)](#) approved on 16 December 2020 by the Institutional Commission of AESAN (Agencia Española de Seguridad Alimentaria y Nutrición - Spanish Agency for Food Safety and Nutrition). Nevertheless, the need for a sound scientific basis providing greater legal certainty for both food business operators and official control authorities in Spain has been identified.

In response to this need, and in the absence of progress at European Union level on this issue, the Scientific Committee of AESAN published in 2026 the [“Report on Hereditary Fructose Intolerance \(HFI\), or aldolase B deficiency, and fructose malabsorption \(intestinal fructose intolerance\)” \(ES version\)](#).

Among its conclusions, the AESAN Scientific Committee report highlights that, given the need for both of these groups to restrict fructose intake, a management measure such as providing information on food labels regarding fructose and its sources is essential so that affected individuals can make informed choices about the foods they purchase and consume, particularly processed foods.

There is insufficient scientific evidence regarding levels of fructose intake that are safe for persons with HFI (some authors indicate 40 mg/kg body weight/day, while others propose a more conservative level of 10 mg/kg body weight/day) or for persons with fructose malabsorption. Consequently, the detection and quantification limits of analytical techniques may serve as a reference value for establishing conditions of

use for a statement concerning the absence of fructose and its sources on food labels, in a similar manner to the conditions of use established for lactose.

In Spain, there are laboratories accredited in accordance with UNE-EN ISO/IEC 17025:2017 for the analysis of fructose using various techniques (chromatographic, enzymatic or other methods). These techniques enable fructose in food to be quantified at a concentration of 0.05%, and even at lower concentrations in certain matrices.

Therefore, based on the scientific evidence provided by the report of the AESAN Scientific Committee in 2026 and the legal basis laid down by Articles 7 and 36 of Regulation (EU) No 1169/2011, the statement “free from sources of fructose” may be used on a voluntary basis in the labelling of a food, provided that the total amount of fructose from all sources present in the food does not exceed 0.05%, i.e. 500 mg of fructose per kg of food (final product as sold to the final consumer).

Furthermore, for the purposes of this document and in order to ensure sufficient legal certainty for operators and competent authorities, it is important to bear in mind that:

- these groups have difficulty identifying foods that can be safely consumed because they are not a source of fructose;
- these conditions are serious and require a fructose-free diet;
- there is currently no EU or national legislation specifically regulating how this information should be communicated.

Accordingly, the presence on food labels of the statement “free from sources of fructose” should not be interpreted by official control authorities as a potential infringement of Article 7.1(c) of Regulation (EU) No 1169/2011, except in the case of single-ingredient foods for which it is obvious that they are not a source of fructose, such as water, meat (fresh, chilled or frozen), fish (fresh, chilled or frozen and unprocessed), fresh eggs, milk or oil.

The above would also apply to information provided on signs or orally in the case of non-prepacked foods and foods supplied by mass caterers, as defined in Article 2.2(d) of Regulation (EU) No 1169/2011. Where this is not possible, a feasible alternative would be to indicate whether the menu item or dish has been prepared using any source of fructose; for example, whether fruit, honey, juice, sweet wine or sugar has been used in the preparation of a sauce or marinade.

For the purpose of calculating the total amount of fructose, the sum must be determined using the fructose and fructose-source equivalence table contained in the Scientific Committee report (included in the annex to this document). The calculation must be based on analytical techniques validated by laboratories accredited under UNE-EN ISO/IEC 17025:2017, without prejudice to the use of information derived from knowledge of the product formulations.



It is also considered that an effective and wide-reaching measure would be for the food industry to formulate and reformulate products with a view to developing “free from sources of fructose” product ranges, similar to “lactose-free” products. In this context, consideration should be given to the use of sweeteners that are not a source of fructose, namely glucose, dextrin-maltose (maltodextrin or corn sugar), glucose polymers, artificial sweeteners (acesulfame K (E 950), aspartame (E 951), cyclamates (E 952), neotame (E 961) and saccharins (E 954)), thaumatin (E 957), neohesperidine DC (neohesperidine dihydrochalcone; E 959), steviol glycosides (E 960), erythritol (E 968) and xylitol (E 967).

ANNEX: FRUCTOSE AND ITS SOURCES - EQUIVALENCE TABLE

Table 1. Fructose equivalents for the different sources of fructose used in food (maximum amount, assuming complete absorption and biotransformation).

Compound	Amount of fructose (g) generated per gram of compound
Sucrose	0.53
Sorbitol (E 420)	0.99
Maltitol (E 965)	0.52
Isomalt (E 953)	0.25–0.52
Lactitol (E 966)	0.52
Glucose syrup	<0.05 (if it contains less than 5% fructose). If it contains >5% fructose, it should be designated “glucose-fructose syrup” or “fructose-glucose syrup”.
Glucose-fructose syrup / fructose-glucose syrup	0.42/0.55. Ingredients commonly used in the food industry contain 42% or 55% free fructose. If an ingredient with a higher fructose content were used, the value would be higher, but would never exceed 1 g.
Agave syrup	0.33–0.87 (depending on the raw material and the conditions of the production process)
Maple syrup	0.31–0.40
Invert sugar	0.51–0.53

Source: Report of the Scientific Committee of the Spanish Agency for Food Safety and Nutrition (AESAN) on Hereditary Fructose Intolerance (HFI), or aldolase B deficiency, and fructose malabsorption (intestinal fructose intolerance). AESAN-2026-001.

Tagatose: the equivalence with fructose is 1:1 because it is a monosaccharide epimer of fructose that follows the same metabolic pathway in the liver, converging through aldolase B into the same glycolytic intermediates (DHAP and G3P).

This document, approved by the AESAN Institutional Commission¹, sets out the position of the competent food safety authorities in Spain. It should be interpreted as a whole and not in a partial manner.

¹ The Institutional Commission is the collegiate body of the Spanish Agency for Food Safety and Nutrition responsible for establishing effective coordination and cooperation mechanisms among Public Administrations with competencies in food safety and nutrition. It is composed of representatives from the Ministries of Social Rights, Consumer Affairs and Agenda 2030; Health; Agriculture, Fisheries and Food; and Science, Innovation and Universities, together with the Autonomous Communities, the cities of Ceuta and Melilla, and local authorities.