

Aspartame

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Aspartame is an intense sweetener, approximately 200 times sweeter than sugar, which has been used in soft drinks and other low-calorie or sugar-free foods throughout the world for more than 25 years.

It is sometimes referred to by its original trade name of Nutrasweet and it appears on ingredient lists either as 'aspartame' or 'E951'.

Sweeteners and other food additives are tightly regulated and may only be used once their safety has been rigorously assessed.

Safety evaluation

Aspartame was first reviewed in 1982 by the UK's Committee on Toxicity, Consumer Products and the Environment (COT), a committee of independent experts who advise the Government on the safety of food chemicals. The European Commission's Scientific Committee on Food (SCF) also gave a positive opinion on aspartame in its 1988 review of the sweetener. The COT fully reviewed aspartame again in 1992 and, after studying all the available scientific information, confirmed that it is safe for use.

The Food Standards Agency is aware of a number of reports in circulation, which claim to cast doubt on the safety of this sweetener. The Agency takes such reports very seriously since no additive should be permitted unless there is convincing evidence that it will not harm consumers. In 2001, the Agency pressed the European Commission to revisit its previous safety assessment of aspartame at the earliest opportunity; and provided assistance in preparing a summary report for consideration by the SCF.

The SCF reviewed over 500 papers published in the scientific literature between 1988 and 2001 on the safety of aspartame, including studies supporting the safety of aspartame and others pointing to potential adverse effects. Included as an annexe to the summary report presented to the SCF was the outcome of a review of the safety of aspartame by the French Agency for Food Health and Safety (AFSSA). The AFSSA review focused primarily on the possible link between aspartame and brain tumours.

Following this extensive review, the SCF published a revised opinion in 2002, which concluded that there was no evidence to suggest a need to revise the outcome of their earlier risk assessment or the Acceptable Daily Intake (ADI) previously established for aspartame of 40 milligrams per kilogram of body weight per day (40 mg/kg bw/day).

The Agency supports the conclusions of the Committee's thorough review of the available data on the safety of the sweetener and also reiterates that all approvals of food additives should be kept under review as and when

new scientific information becomes available.

In July 2005, researchers in Bologna publicised preliminary details of new research which they claimed shows that rats given dosages of aspartame equivalent to the ADI may develop tumours. The European Food Safety Authority intends to undertake an urgent assessment of this study to establish whether there are any implications for human health. The Food Standards Agency will study EFSA's opinion carefully and consider what, if any, action may be required.

Intake of aspartame

Like many food additives, the safety assessment for aspartame has led to the setting of an Acceptable Daily Intake, or ADI. This is an estimate of the amount of an additive that could be routinely consumed every day over a lifetime with no appreciable health risk. In the case of aspartame, the ADI is set at 40 milligrams per kilogram of body weight. This is equivalent to 2800 milligrams for an average British adult. For an average 3-year-old child the amount is of the order of 600 milligrams.

The ADI applies to all sections of the population, including children and infants from the age of 12 weeks. The only exception is for people suffering from a rare genetic disease phenylketonuria (PKU) (see below).

It is not necessary, however, for each person to calculate their intake of additives in order to make sure that they keep within the ADI. Indeed, it would be extremely complicated and time-consuming to do so. Instead, legislation on food additives specifies the categories of foods in which aspartame can be used and the levels that can be added.

These levels are set after considering food consumption patterns and the likelihood of exceeding the ADI, combined with knowledge of the amount that is actually needed in the food to have the desired sweetening effect. In the case of aspartame, an adult would have to consume 14 cans of a sugar-free drink every day before reaching the ADI, assuming the sweetener was used in the drink at the maximum permitted level. In practice most drinks use aspartame in combination with other sweeteners so that the level is considerably lower.

It is the responsibility of government to monitor the exposure to all food additives and to check that consumers do not regularly exceed the ADI. Previous work by the former Ministry of Agriculture, Fisheries and Food and the Department of Health showed that aspartame intakes were considerably below the recommended maximum level, even among children and diabetics who consume large quantities of sugar-free drinks.

Phenylketonuria (PKU)

There is a small group of people who cannot safely consume aspartame. These are the sufferers of the inherited disease phenylketonuria (PKU), who are unable to metabolise the amino acid phenylalanine effectively, leading to the accumulation of potentially harmful levels. PKU is a serious, metabolic disorder, affecting 1 in 10,000 individuals and if untreated, it can cause serious brain damage.

Sufferers are normally diagnosed shortly after birth by a routine blood test

and need to follow a very strict diet in order to limit their intake of phenylalanine, which is a normal constituent of proteins in food. Since aspartame is also a source of phenylalanine, all food products containing aspartame are clearly labelled to indicate the presence of phenylalanine so that those people who suffer from PKU can avoid consuming these products. This labelling is a legal requirement.

Because high levels of phenylalanine can harm an unborn baby, women who have PKU and are actively planning a family follow a pre-conception phenylalanine controlled diet. In the UK, all new born babies have been screened for PKU since 1969. It is highly improbable that anyone born prior to 1969 would have PKU and been unaware of their condition, especially if there is no family history of PKU. However, women who are actively planning a family who have concerns about PKU should contact their doctor.

Labelling

Whilst satisfied as to the safety of aspartame, we recognise that some consumers may wish to avoid those foods containing this sweetener. One important aim of food labelling legislation is to enable consumers to make an informed choice. As well as the general requirement for foods to carry a list of food additives and other ingredients, products containing sweeteners such as aspartame must show the statement 'with sweetener(s)' on the label close to the main product name.

Foods that contain both sugar and sweetener must carry the statement 'with sugar and sweetener(s)'. In addition, foods that contain aspartame must be labelled with a warning 'contains a source of phenylalanine'. This warning is specifically to aid individuals who suffer from phenylketonuria (PKU), so that they can avoid such foods (see above).

▣ [Aspartame References](#)

▣ [French Agency for Food Health and Safety \(AFSSA\) Aspartame Review](#)

▣ [Opinion of the Scientific Committee on Food: Update on the Safety of Aspartame](#)

▣ [Request for a review of Aspartame by the Scientific Committee on Food](#)