

Making sense of food additives



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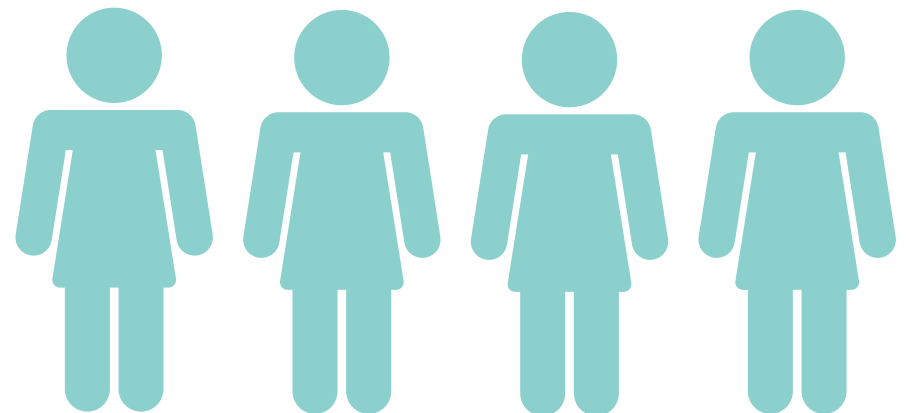
With thanks to:

Sara Stanner, British Nutrition Foundation, Science Programme Manager

Professor Sir Colin Berry FMedSci

Dr John Emsley, Chemist

Stephen Chorlton, Designer



Making sense of food additives



Sense About Science



The aim of Sense About Science is to equip people to make sense of science and evidence

Making sense of food additives



What do the general public think about E-numbers and food additives?

Bad for you

Not natural

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Does E number or food additive mean artificial?

No, E-number simply means: approved as safe for use in food by the European Food Safety Authority (EFSA).

Some of the most common ingredients in our food which have been used for centuries have E-numbers:



Baking soda is E500



Vitamin C (ascorbic acid) which is E300

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E-numbers are present in our own bodies



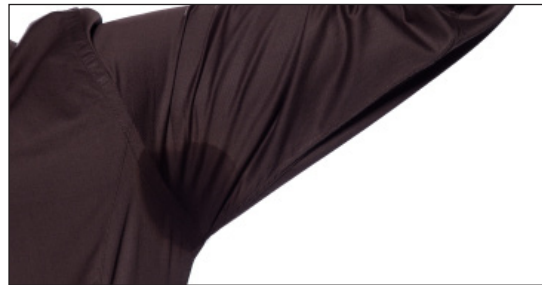
Lactic acid is in muscles;
E270 protects against
moulds in food.



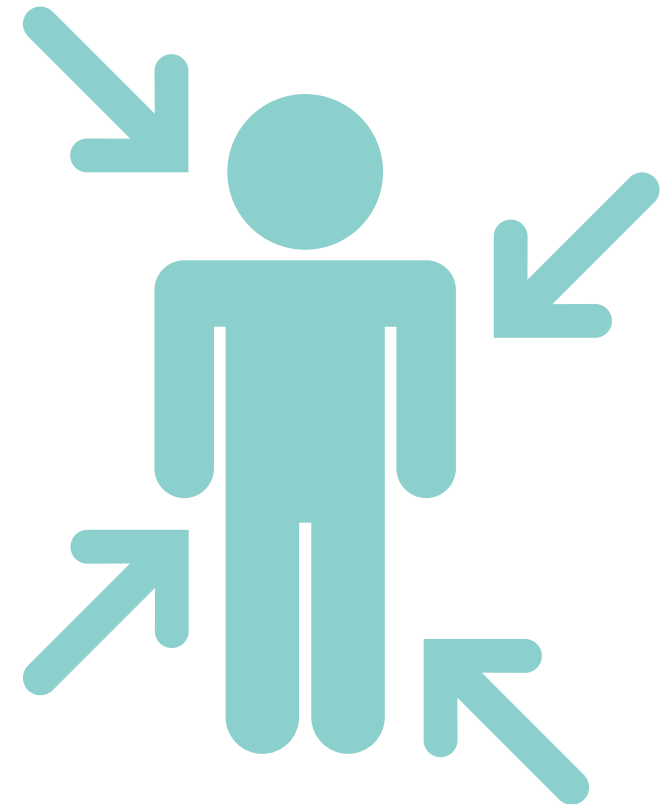
Glycerol is in body fat; E422
keeps the icing on cakes
moist.



Hydrochloric acid is
stomach acid; E507 is used
in beer and cheese making.



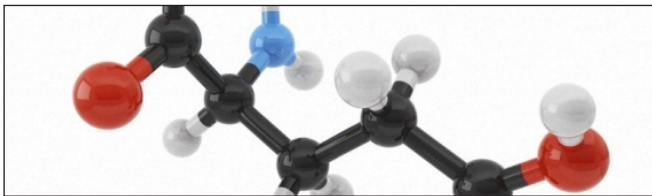
Propionic acid is in sweat;
E280 prevents mould
growing on bread.



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Does E number or additive mean bad for you?

No. Our bodies cannot tell whether an additive is created by people, copied from nature or comes directly from natural sources.



Synthetic



Natural

“Industrial”, “synthetic”, “artificial” or “man-made” do not necessarily mean damaging and “natural” does not necessarily mean good for you.

The most toxic chemicals are found in nature:

- ricin in castor oil beans
- atropine in deadly nightshade
- amanitin in amanita mushrooms

A food additive has to undergo a series of rigorous tests to define its biological properties and how much is safe to consume before it can be added to food.

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Monosodium glutamate

Monosodium glutamate is simply the sodium salt of glutamic acid which is present in proteins, and is produced through the fermentation of molasses and sugar beet, but it is also naturally present in food, such as:

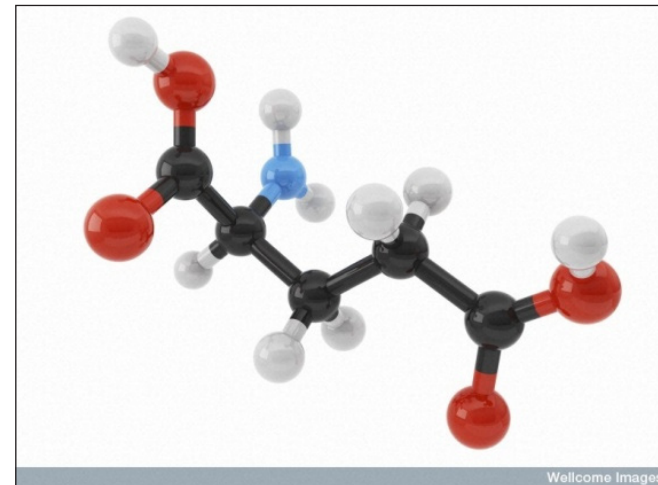


Image credit: Maurizio De Angelis.
Wellcome Images

The E number for monosodium glutamate is E621. Concerns about “Chinese restaurant syndrome” have not stood up to clinical or scientific research.

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The evidence shows that low-calorie sweeteners can help with weight maintenance.

However the public are confused:

In a British Nutrition Foundation (BNF) YouGov survey:

- 23% thought they needed more information before deciding whether low calorie sweeteners are safe
- 31% thought that safety depends on the amount of sweetener you consume

When those who thought low calorie sweeteners might not be safe or good for you were asked why this was the case:

- 44% said they didn't like the idea of artificial ingredients
- 30% thought that because they are artificial, they cannot be safe

Food acceptance, particularly in young children, is often influenced by sweet taste. Sweeteners provide fewer calories compared to sugar.

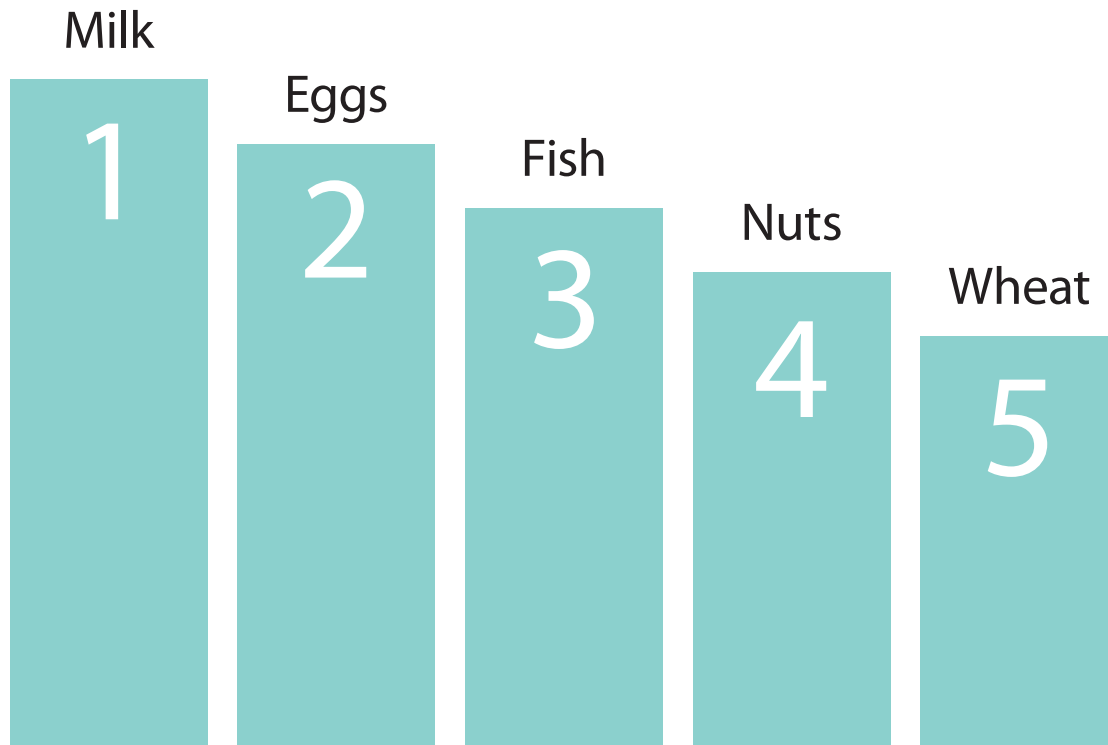
All low calorie sweeteners have been thoroughly tested before they can be used in food and drinks and proven to be safe.

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What are the leading causes of food allergies?

Tartrazine? Aspartame? MSG? Food colouring? No...



Adverse reactions to food additives are very rare in the general population, (between 1 and 23 in 10,000 people).

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Is there a gap between perception and reality?

As many as 30 in 100 people 'believe' themselves to be allergic or intolerant to one or more foods.

However, studies in the UK using blind testing suggest that between 1 and 2 people in 100 have a food allergy.



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There is no link between food additives and cancer

Many of the claims about chemicals being 'linked' to diseases simply tell us that **a chemical was present when an effect occurred**, rather than showing that the chemical causes the effect.

Approved additives are evaluated for:

- genotoxicity (the ability to damage DNA which is an essential step in cancer development); and
 - carcinogenicity (potential to cause cancer, assessed using studies in test animals that are designed and approved by international regulatory agencies).
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Do artificial food colours cause hyperactivity in children?

In the Southampton study a mixture of six artificial food colours and a preservative increased hyperactivity in children.

An expert panel reviewed the study and concluded that the **increases in hyperactivity were similar to the normal variation** you would expect to find between children.

The EFSA found the Southampton study to be unreliable regarding its claims about hyperactivity.

In 2010 a USFDA review concluded we do not have the evidence to say that artificial food colors cause hyperactivity.

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The evidence shows that some people with asthma react to sulphites in food.

How have the regulators responded to this evidence?

In the USA the FDA banned the use of sulphites to maintain colour and crispness of fresh fruits and vegetables.

Labelling: The EU and the FDA require companies to list sulphites so those with sensitivity can avoid these foods.

Sulphites are mainly used to preserve fruits and in wine; they have been an essential part of wine-making since ancient times.

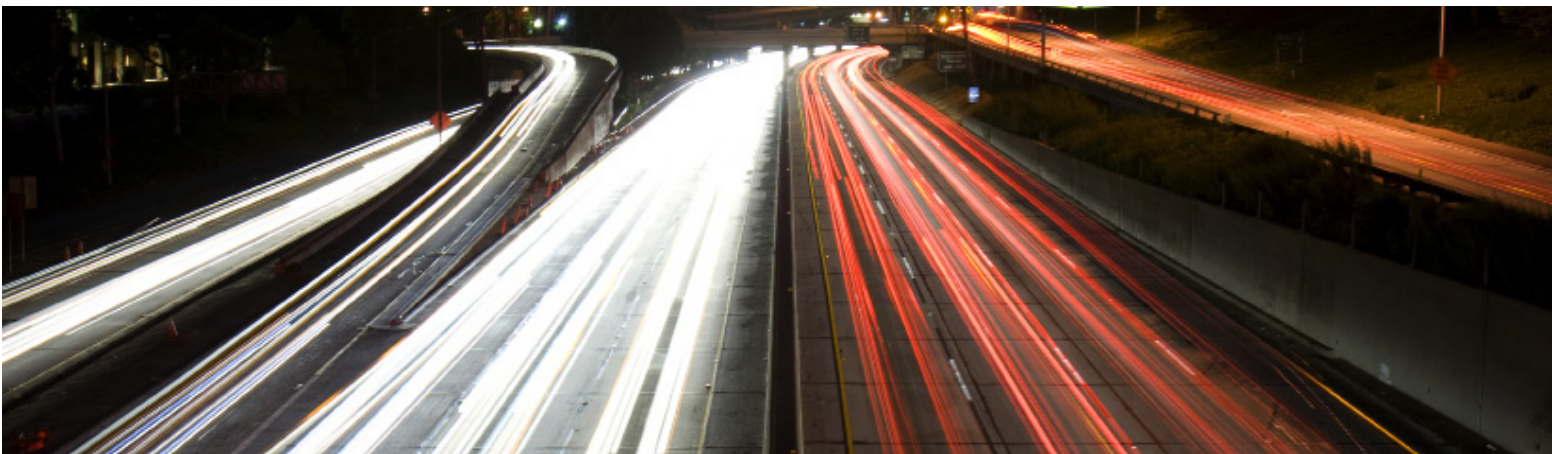
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Regulators continually review the evidence

Approval depends on scientific testing and monitoring and is reviewed in the light of new scientific information.

Some additives that were historically used and approved in foods (for example the colours E103 and E105) are no longer permitted following review by EFSA of the science on their safety.



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How do the EFSA set the Acceptable Daily Intake (ADI)?

The ADI is calculated from the highest dose of an additive that can be fed to the most sensitive animal species on a daily basis for most of their lives, with no toxic effects (the so-called no-adverse-effect level).

This safe intake for animals is then divided by a large safety factor to arrive at a safe level for humans (the ADI).

For example, if the no effect level in animals is found to be 100mg/kg of body weight per day, then the human ADI would be set at 1mg/kg.



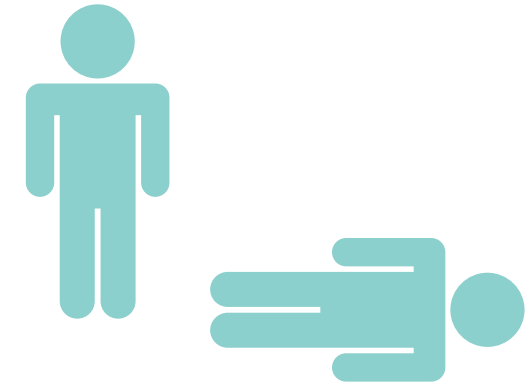
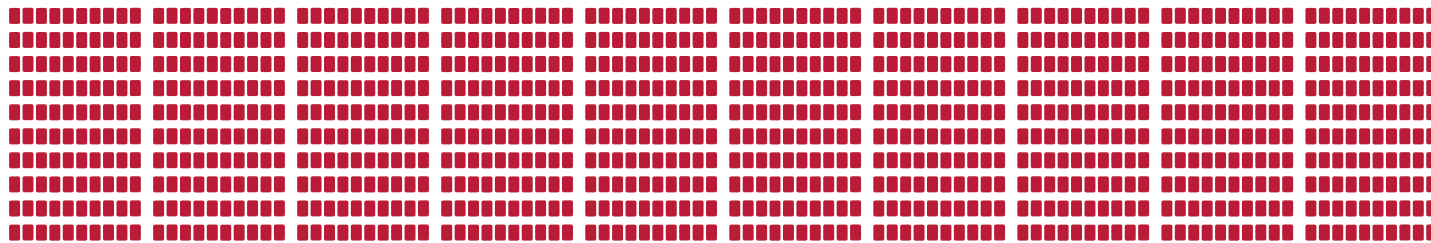
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Recent scares

“Coke and Pepsi alter recipe to avoid cancer warning”

BBC News 9 March 2012



The scare arose from a link between a minor constituent of caramel colour and cancer in rat studies. The Food and Drug Administration in the USA stated that a person would need to drink more than [1,000 cans of Coke or Pepsi a day](#) to take in the same dose of the chemical that was given to the animals in the lab test

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Food safety: Latest global concerns

Although the concerns about the safety of additives in food and drink are generally not supported by scientific studies, there are urgent issues regarding food safety that WHO are prioritizing:

Farming and food handling

Contaminated food or water kills about 1.5 million people annually. About 75% of the new infectious diseases are caused by bacteria, viruses and other pathogens that started in animals and animal products.

Certain heavy metals in food

Arsenic, cadmium, lead and mercury have no known beneficial health effects. All may be harmful if excessive amounts are eaten.

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Additives play important functions

Although there is little evidence that additives are harmful, why not exclude them as a precautionary measure?

Additives play an important role in preserving the freshness, safety, taste, appearance and texture of foods. Antioxidants prevent fats and oils becoming rancid. Emulsifiers stop peanut butter from separating into solid and liquid fractions.

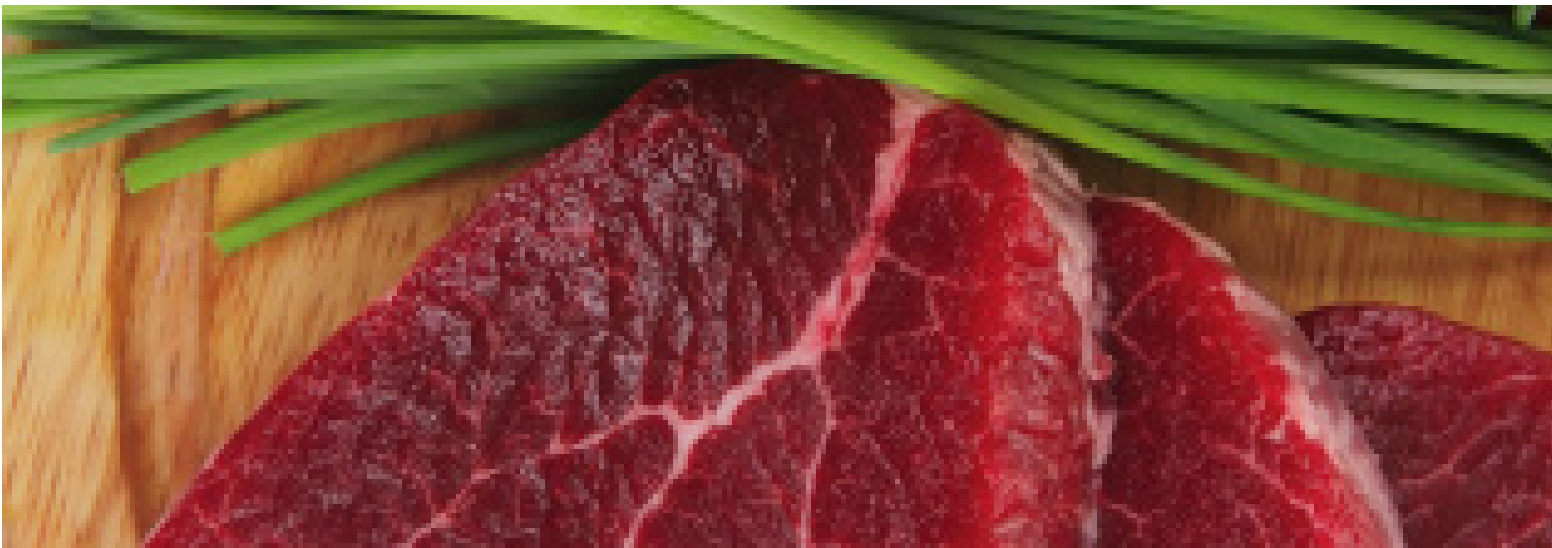


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Why can't food be "Additive-Free" or "Free of E-numbers"?

Food additives are essential to maintain freshness and texture etc for the shelf-life that is necessary in today's world. Preservatives protect foods against deterioration and prevent growth of fungi and bacteria.



Bacteria like clostridium botulinum can produce deadly poisons and the use of preservatives in cured and cooked meat is absolutely essential.

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Food additives are
present in organic food

“ Even organic foods can contain additives — currently 29 additives are approved for use in organic foods. Without additives bread would become stale very quickly, fatty foods would turn rancid and most tinned fruits and vegetables would lose their firmness and colour. ”

Nigell Denby, nutrition consultant

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Colour affects taste



Colouring food can result in people eating more of what's good for them.

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What next?

You can keep up to date by:

- Consulting the regulatory framework of the [EFSA](#).
 - Contacting [Sense About Science](#) for expert advice from food scientists.
 - Consulting the [British Nutrition Foundation](#) www.nutrition.org.uk
 - Food manufacturers can use their own [in-house experts](#) to evaluate their product range in light of current evidence.
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