The Safety Evaluation of Food Additives in the European Union

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All food additives must have not only a demonstrated useful purpose but also a thorough and rigorous safety evaluation before they can be approved for use. In the European Union, all additives have to be evaluated by the EU Scientific Committee on Food (SCF) before they can be used in food products.

Assessments are based on reviews of all available toxicological data, including observations in humans and in animal models. From lifetime feeding and multigeneration studies in experimental animals, the maximum dietary level of an additive that is without any demonstrable toxic effect is determined, i.e. the 'no-observed-adverse-effect level' (NOAEL). As a further precaution, the NOAEL is divided by 100 to take account of possible differences when extrapolating from animals to humans, and for individual variations in response between humans. This 'Acceptable Daily Intake' (ADI) figure gives a large margin of safety and refers to the amount of a food additive that can be taken daily in the diet, over a lifetime, without health risk.

Comparing food intakes with ADIs

The SCF encourages the lowest levels of use of an additive in a food consistent with technological use and benefit to the consumer. To ensure people do not exceed the ADI by consuming too much of, or too many products containing a particular additive, the EU legislation requires that intake studies be done to address any changes in consumption patterns. The ADI's can be compared with 'average' and 'extreme' consumption estimates for the population as a whole or in a particular subgroup. Provided that these intakes are within the ADI, it is reasonable to assume that there is no cause for concern. If a daily intake occasionally exceeds the ADI, it is unlikely that any harm will result because of the large built-in safety margin. However, if an intake figure indicates that the ADI may be exceeded regularly by particular sectors of the population, the SCF may find it necessary to reduce levels in foods or reduce the range of foods in which the additive is permitted.

The EU Regulatory Framework

Based on the safety evaluations by the SCF, a 'framework' Directive on Food Additives was adopted by the EU in 1988, from which more detailed legislation has been developed. For example, in 1994-5, three Directives were adopted and these are widely known as the 'sweeteners', 'colours' and 'miscellaneous' food additives Directives. They list the individual permitted additives (12 sweeteners, 43 colours and 280 miscellaneous additives). The EU Commission has also laid down specific purity criteria of the additives, the general or specific food categories in which each additive is permitted and, if necessary, laid down maximum levels of use.

On a world-wide level, the Codex Alimentarius, a joint WHO/FAO organisation is drawing up a new 'General Standards for Food Additives' (GSFA), with the aim of developing a harmonised, workable and indisputable
international standard for world trade. Only those additives that have been evaluated by the JECFA (the Joint FAO/WHO Expert Committee on Food Additives) are included. The food additives in the GSFA have been grouped into 23 major functional classes with a new International Numbering System (INS), a system similar to the E-numbering system introduced in the EU.

Thanks to strict regulation and thorough testing, food additives are safe ingredients in our diet and are contributing to the rapid evolution of the food supply in Europe and throughout the world.

References


Sites web

- Codex Alimentarius Commission
  [http://www.codexalimentarius.net/web/index_en.jsp](http://www.codexalimentarius.net/web/index_en.jsp)
- Joint Expert Group on Food Additives (JECFA)
- Scientific Committee on Food
  [http://ec.europa.eu/food/fs/sc/scf/index_en.html](http://ec.europa.eu/food/fs/sc/scf/index_en.html)