

# Opinion on Zinc Acetate as a flavour enhancer in chewing gum (Opinion expressed on 19 March 1998)

## Terms of reference

To advise the Commission on the safety in use of zinc acetate as a food additive (flavour enhancer) in chewing gum.

## Background

Zinc acetate is intended to be added to chewing gum to provide it with an astringent taste. It is categorised by the petitioner as a flavour enhancer (or flavour modifier), which intensifies the taste of bitterness from e.g. coffee and grapefruit (1). It was requested for usage in sugar free chewing gum products in concentrations up to 1 mg zinc acetate-dihydrate per 1000 mg chewing gum centres (2), which corresponds to 0,30 mg zinc/g. A chewing gum centre is described to be the mass of a strip before being coated with sweetener (1). The applicant was able to demonstrate a release of about 50 % of zinc acetate from chewing gum after 5 through 20 minutes of chewing (2;3).

## Evaluation

Zinc is an essential trace element for animals and humans and occurs mainly in meat and sea food. Its average daily intake from food has been estimated to be in the range of 5-22 mg (4).

The Scientific Committee for Food recommended in 1993 an "Average Requirement" for zinc for adult males and females of 7.5 and 5.5 mg/day, respectively. Additional recommendations were given for a "Population Reference Intake" (9.5 and 7.0 mg/day), and a "Lowest Threshold Intake" (5.0 and 4.0 mg/day). There are also recommendations for other age groups and pregnant women or women at lactation (5). In the USA, the recommended daily allowances are set at 15 mg/day for adult men and at 12 mg/day for adult women. During pregnancy, a dietary zinc intake of 15 mg/day is recommended, for formula-fed infants 5 mg/day, and for preadolescent children 10 mg/day (6).

Assuming a daily consumption of chewing gum corresponding to 10 g of chewing gum centres (equivalent to about 10 individual strips) containing 1 mg zinc acetate-dihydrate/g (0.30 mg zinc/g) and an average release of 50 %, an intake of 1.5 mg zinc/day from this source can be expected. This intake represents only 20 and 27 % of the "Average Requirement" for adult males and females, respectively, or 10 and 12,5 % of the US-RDA. Therefore, it appears not to be a matter of toxicological concern. However, the Committee notes that, if permitted at the required level as a flavour enhancer in chewing gum, this could contribute a significant proportion of the Average Requirement from a source not normally regarded as nutritious.

## Conclusion

The Committee considers that the use of zinc acetate as a flavour enhancer in chewing gum products in concentrations up to 1 mg zinc acetate-dihydrate (corresponding to 0.30 mg zinc) per 1000 mg chewing gum centres is acceptable because of the non-toxicity of zinc at the expected exposure level and the fact that the resulting intake is well below the nutritional requirement.

## References

1. Application for evaluation of zinc acetate as a flavour enhancer in chewing gum, SCF Dossier EC 151.01 (1996), submitted by FERTIN A/S, Denmark.
2. Addendum to application for evaluation of zinc acetate, corrected version of January 29, 1998, submitted by

FERTIN A/S, Denmark..

3. Addendum to application for evaluation of zinc acetate, SCF Dossier EC 151.01 (1997), submitted by FERTIN A/S, Denmark..
4. World Health Organisation (1996), Guidelines for drinking-water quality, 2nd edition. Vol. 2. Health criteria and other supporting information, WHO, Geneva.
5. Commission of the European Communities (1993), Nutrient and energy intakes for the European Community (Opinion expressed on 11 December 1992); Reports of the Scientific Committee for Food, Thirty-first series.
6. National Research Council (1989), Recommended Dietary Allowances. 10. Edition. National Academy Press, Washington D.C.