



# Artificial flavours in feed - Possible transfer of ethyl vanillin from feed to milk

## Why are feed flavours used in animal production?

The functional purpose of feed flavours (also described as aromas, sweeteners, taste enhancers, appetizers, palatants and attractants) is to provoke a sensory response that will stimulate the animal's appetite for feed, ultimately improving feed intake and performance.

Use of naturally obtained materials, such as molasses, is well known and practiced, but this category of feed flavouring substances has its own niche in the market. "Vanilla" profile is one among the preferred flavours by cows [1] and ethyl vanillin in some cases is used to create the desired flavour composition for feed and other feed additives [2, 3, 4].

Use of flavours in feed increases dry matter intake and thus could result in increase of weight by the cattle, but does not significantly affect milk yield [5, 6].

## What are the consequences of the use of feed flavours, e.g. ethyl vanillin, for dairy cattle?

It has been shown that hydrophobic flavour compounds transfer into the milk of several mammalian species including humans [7]. It has been described that for ruminants detectable amounts of the volatile compounds transfer from feed into the milk [8].

## What is the concern for milk & dairy products?

Cow's milk is the primary raw material used for the manufacturing of infant formula and follow-on formula products, as well as other milk-based baby foods.

The addition of flavouring substances, including ethyl vanillin, is not permitted in infant formula and formula for special medical purposes intended for infants (younger than 12 months of age) as established in the Codex Alimentarius Standard 72-1981 and subsequently in most regulations around the world. The eventual detection of such substances in infant formulas, even if residues do not have a flavouring effect, could lead to non-compliance and subsequent withdrawal from the market.

The addition of flavourings, including ethyl vanillin, to follow-on formulas (infants from 6 months of age) is currently permitted under Codex Alimentarius provisions and limited to 5 mg/100 ml of product ready to consume (Codex Standard 156-1987).

Ethyl vanillin is permitted in infant cereals and baby food (Codex Standard 73-1981; Codex Standard 74-1981) and limited to 7 mg/100 g of product ready to consume, but this rule does not apply equally in all countries.

In Europe, the EU member states are allowed to set stricter national rules on flavourings to be used in products for infants and young children compared to the general rules of the European Union. However, none banned them in their legal text. Only Norway and Switzerland confirmed the prohibition of adding flavours to infant formula in their national legislation. In China (GB 2760-2014), ethyl vanillin is allowed in follow-on formula but not in infant cereals or baby foods.

When allowed in food for infants and young children, the eventual finding of ethyl vanillin, if not declared as ingredient, would lead to a labelling non-compliance.

## Summary

From available publications, the use of ethyl vanillin in feed does not seem to have advantages for milk production. In addition, the presence of ethyl vanillin or its residues could create compliance issues for dairy industry, particularly for infant formula products and formula for special medical purposes

intended for infants. The pattern for translocation to milk is possibly similar to all flavours, thus the use of any artificial flavour in feed could trigger compliance issues.

## References

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