Institute of Medicine
Food and Nutrition Board
Committee on Food Chemicals Codex

Revised Monograph - Enzyme-Modified Fats

Please send comments to the Committee on Food Chemicals Codex, National Academy of Sciences, FO 3042, 2101 Constitution Avenue, N.W., Washington, DC 20418 or email them to fcc@nas.edu. All comments must be received by December 15, 1996, for consideration for the First Supplement.

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Enzyme-Modified ~~Milk~~Fats

~~Enzyme-Modified Fat~~

DESCRIPTION

Light- to medium-tan liquid, paste, or powder with strong fatty acid odor and flavor. Produced by enzyme lipolysis of ~~milk~~fats obtained from the following sources: milk, refined beef fat, or steam-rendered chicken fat, using suitable food-grade enzymes. Enzyme-modified milkfat may be prepared from milk, concentrated milk, dry whole milk, cream, concentrated cream(s), dry cream, butter, butter oil, dried butter, or anhydrous milkfat. For enzyme-modified milk fat, optional dairy ingredients such as skim milk, concentrated skim milk, nonfat dry milk, buttermilk, concentrated buttermilk, dried buttermilk, liquid whey, concentrated whey, and dried whey may be used to adjust the concentration of the flavors. Fat emulsions are reacted with suitable food-grade enzymes under controlled conditions to increase the flavor components. ~~Optional dairy ingredients such as skim milk, concentrated skim milk, nonfat dry milk, buttermilk, concentrated buttermilk, dried buttermilk, liquid whey, concentrated whey, and dried whey may be used to adjust the concentration of the flavors.~~ Thermoprocessing is then used to destroy the enzyme activity and provide acceptable microbiological quality. Suitable preservatives, emulsifiers, buffers, stabilizers, and antioxidants as well as sodium chloride may be added. The resulting product is concentrated or dried.

Functional Use in Food Flavoring agent.

REQUIREMENTS

Labeling Indicate the Acid Value.
Identification Very strong fatty acid odor.
Acid Value Not less than 98.0% and not more than 102.0% of the labeled value.
Heavy Metals (as Pb) Not more than 10 mg/kg.
Lead Not more than 1 mg/kg.
Loss on Drying Not more than 4.0% for the dry product.
Microbial Limits:
- Aerobic Plate Count Not more than 10,000 per g.
- Coliforms Not more than 10 per g.
- Salmonella Negative in 25 g.
- Staphylococcal Enterotoxins Negative in 1 g.
- Staphylococcus aureus Not more than 100 per g.

Yeasts and Molds Not more than 10 per g.

TESTS

Acid Value Determine as directed for Acid Value, Method II, under Fats and Related Substances, Appendix VII, using a 5-g sample.

Heavy Metals Prepare and test a 2-g sample as directed in Method II under the Heavy Metals Test, Appendix IIIB, using 20 µg of lead ion (Pb) in the control (Solution A).

Lead Determine as directed under Method II in the Atomic Absorption Spectrophotometric Graphite Furnace Method under the Lead Limit Test, Appendix IIIB.

Loss on Drying, Appendix IIC Dry at 105° for 48 h.

Microbial Limits:

Aerobic Plate Count Proceed as directed in chapter 3 of the FDA Bacteriological Analytical Manual, Eighth Edition, 1995.

Coliforms Proceed as directed in chapter 4 of the FDA Bacteriological Analytical Manual, Eighth Edition, 1995.

Salmonella Proceed as directed in chapter 5 of the FDA Bacteriological Analytical Manual, Eighth Edition, 1995.

Staphylococcal Enterotoxins Proceed as directed in chapter 13 of the FDA Bacteriological Analytical Manual, Eighth Edition, 1995.

Staphylococcus aureus Proceed as directed in chapter 12 of the FDA Bacteriological Analytical Manual, Eighth Edition, 1995.

Yeasts and Molds Proceed as directed in chapter 18 of the FDA Bacteriological Analytical Manual, Eighth Edition, 1995.

Packaging and Storage Store in tight containers in a cool place.