



Trade Guidelines on Reducing Trans Fats in Food

There is growing evidence indicating that trans fats intake is linked to an increased risk of cardiovascular disease. This set of guidelines aims at encouraging and assisting trade to adopt sound nutritional theory in food production and provide healthy food for the public with respect to reducing trans fats in food.

Introduction on trans fats

2. All animal and plant sources of fats contain fatty acids, which can be saturated or unsaturated. Unsaturated fatty acids can further be classified as monounsaturated and polyunsaturated. In terms of chemical structure, trans fats are classified as unsaturated fats. They have one or more carbon-carbon double bonds in trans configuration. This makes them different from other unsaturated fats. Rather, they have properties more like saturated fats. Saturated fats are known risk factor for coronary heart disease since they increase low-density lipoprotein (LDL) cholesterol, the bad cholesterol in blood. In addition to this characteristic, trans fats also reduce the high-density lipoprotein (HDL) cholesterol, the good cholesterol. As a result, trans fats are considered to be more harmful to health than saturated fats. Public should try to reduce the amount of trans fats intake and food producers are urged to reduce trans fats level in food.

3. One of our main dietary sources of intake of trans fats is from food produced with hydrogenated vegetable oil. Vegetable oil, after the process called hydrogenation, will turn from liquid to semi-solid or solid form. This process of hydrogenation will produce trans fats in the product at the same time. Higher degree of hydrogenation results in a more solid state of the oil. In principle, fully hydrogenated oil should contain no trans fats since all the double bonds will be saturated, but this fat will become hard. Hydrogenated vegetable oils are commonly used to produce or prepare bakery and fried products since they can increase shelf life of the products, change the texture of the food and are usually lower in cost. Besides these artificially produced trans fats, we may also intake trans fats from natural sources. For example, small amount of trans fats are naturally present in milk and fat of cow and sheep. Food products made with these ingredients usually only contain low level of trans fats. In addition, in highly refined oil, very low level of trans fats may also be present.

4. Common examples of hydrogenated vegetable oils are shortening and margarines. The level of trans fats in hydrogenated oils varies, from about 10% of total fatty acids to more than 30%. Bakery products like bread, cakes, pastries, crackers, cookies, chips, etc. and fried products like fried meat and fried snack are examples of food that can be produced with the hydrogenated vegetable oil.

International situation

5. Currently, there is no international consensus on the regulatory control on trans fats, including its labelling. According to the Codex Guidelines on Nutrition Labelling, where a claim is made regarding the amount and/or types of fatty acids or the amount of cholesterol, the amounts of saturated fatty acids, monounsaturated fatty acids, polyunsaturated fatty acids and cholesterol should be declared.

6. The declaration of trans fats on nutrition label is mandatory in some countries such as the USA and Canada, but not in Australia, New Zealand or member countries of EU. As for restricting the use of trans fats, Denmark and New York city have set limits for trans fats in food products.

7. The adverse health effects of trans fats also provoked discussions among food trade. Some members of the trade worked together to seek further voluntary reduction in trans fatty acids while maintaining food quality and taste. As there are increasing choices of trans-fats-free or low-trans-fats oils in the market, reducing trans fats in food products becomes more feasible for manufacturers.

Local situation

8. The Centre for Food Safety (CFS) has conducted a joint study with the Consumer Council of Hong Kong to reveal the levels of trans fats in various food in Hong Kong. The results of Part I of the study covering bread, cakes, batter-made food, pie and tarts, fried foods, butter and margarine/margarine-like spreads were published in the October 2007 issue of CHOICE magazine. The study showed that within the same kind of food, there can be a wide range of levels of trans fats. Some of them contain no or very low levels of trans fats. It signifies that reduction of trans fats in food is feasible and practically possible for producing these foods.

9. The study also found that some individual products contain relatively high level of trans fats and frequent consumption of them may lead to an intake exceeding the recommended daily limit as described in paragraph 12. Members of the trade are urged to note the trans fats level in their own products and to adopt sound nutritional theory in food production and preparation so that consumers' health can be protected.

10. According to Section 61 of the Public Health and Municipal Services Ordinance, (Cap. 132), the label of a food product should not falsely describe the food, including its nutrient contents and thus the trade should ensure that the information provided should not mislead consumers as per its nutrition values.



11. The Centre for Food Safety will closely monitor the latest international developments on the regulatory control on trans fats, including its labelling.



Advice on food production and preparation

12. In order to promote consumers' health, food trade may make reference to the following when producing and preparing food. Due to the evidence on the adverse health effects of trans fats, members of the trade are encouraged to take effective measures to reduce the trans fats levels in food products. Since the main source of trans fats intake is from hydrogenated vegetable oils, these oils should be avoided and alternatives to be looked for. In addition, it is beneficial to consumers if the saturated fats levels and overall fat content in foods are lowered. The Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) suggest that diets should provide a very low intake of trans fats. In practice, this implies an intake of less than 1% of daily energy intake. As for saturated fats and total fats, the FAO and WHO recommend an intake of less than 10% and 15-30% of daily energy intake respectively. For example, an individual with a daily energy intake of 2 000 kilocalories should limit the daily intake of trans fats to less than 2.2 grams, saturated fats to less than 22.2 grams and total fats to less than 66 grams. Members of the trade are encouraged to follow healthy nutritional principles when producing foods.



(I) Realise the source of trans and/or saturated fats in food

13. To start with, members of the trade may first list out all the ingredients used in producing the food and see which ingredients are high in trans fats and saturated fats. Trans fats are usually found in hydrogenated vegetable oils while animal fats (e.g. butter, lard, chicken skin, full cream milk, cheese), coconut oil and palm oil usually contain higher level of saturated fats.

(II) Replace with healthier alternatives

14. Fats and oils that are high in trans fats and saturated fats may be replaced by those high in monounsaturated (e.g. canola oil and olive oil) and polyunsaturated fats (e.g. soybean oil, and corn oil), which are beneficial to health if taken in appropriate amount. If margarines and shortenings are to be used, choose those with low trans fats levels. The fatty acid profile of some oils can be found in Annex I.

15. Oil and fat products containing reduced amount of trans fats are now available in the market to cater for the increasing demand and address consumers' interest. The trade may wish to explore the feasibility of using these products to replace high trans fats ingredients that are currently in use. Some examples of these products are listed in Annex II for reference.

(III) Reduce the total fat content of food

16. To further reduce the total fat content of food, some tips are listed below.

- (i) Choose ingredients with lower fat content such as leaner cuts of meat and lower fat dairy products and cooking sauces.
- (ii) Provide more dishes that use low fat cooking methods such as steaming, poaching, grilling and baking, rather than deep-frying.
- (iii) Incorporate fruits, vegetables, whole grain cereals in food products or dishes. This will decrease the total fat content of the food and at the same time increase their fibre content.
- (iv) Ready-made margarine, butter, sauce, peanut butter can be provided on the side of the food products or dishes (e.g. in separate containers) instead of being mixed with the food before serving, so consumers have the choice to take up less fat.

Annex I

Comparison of oils and fats

% Saturated fats
 % Trans fats
 % Monounsaturated fats
 % Polyunsaturated fats

Canola oil	8	64	28
High oleic sunflower oil	10	86	4
Grapeseed oil	10	17	73
Corn oil	14	29	57
Olive oil	14	75	11
Soybean oil	16	24	60
Peanut oil	18	48	34
Cottonseed oil	27	19	54
Palm oil	51	39	10
Coconut oil	92	6	
Margarine, 80% fat, stick	16	16	42
Margarine, 80% fat, tub	17	7	44
Margarine-butter blend	17	18	36
Vegetable shortening	24	34	35
Butter	66	4	26
Lard	41	47	12
Chicken fat	31	47	22

Annex II

Some examples of oil and fat products containing reduced amount of trans fats

Product type	Applications
High/Mid-oleic sunflower oil	<ul style="list-style-type: none"> Frying Baking Blending with other oils
High/Mid-oleic canola oil	<ul style="list-style-type: none"> Frying Baking Blending with other oils
Oil with 80% diacylglycerides made by interesterification of soybean/canola oil-derived-unsaturated fatty acids with glycerol	<ul style="list-style-type: none"> Baking Grilling Frying Salads
Low-energy triglyceride blend made by interesterification	<ul style="list-style-type: none"> Baking Confectionery Biscuit filling
Nonhydrogenated shortening blends (e.g., canola, soybean, sun or safflower oils)	<ul style="list-style-type: none"> Baking (e.g., for cookies, pie crust, cakes, crackers, pizza base) Blending with other oils

Reference:

Tarrago-Trani MT, Phillips KM, Lemar LE, Holden JM. New and existing oils and fats used in products with reduced trans-fatty acid content. *J Am Diet Assoc.* 2006; 106:867-880.