



**International Fishmeal & Oil
Manufacturers Association**

**ESTIMATED COST EFFECTS OF
THE POSSIBLE IMPOSITION OF A
5% MAX LIMIT ON TRANS FATTY
ACIDS IN OILS AND FATS
PRODUCTS**

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REPORT FOR IFOMA

ON

ESTIMATED COST EFFECTS OF THE POSSIBLE IMPOSITION

OF A 5% MAX LIMIT ON TRANS FATTY ACIDS

IN OILS AND FATS PRODUCTS

Purpose

To estimate the likely cost effect in the UK of having to meet a possible new EU Regulation requiring that oils and fats products contain no more than 5% trans fatty acids.

To provide data on the likely change in saturated fatty acid contents for blends pre- and post-implementation of this trans fatty acid limit.

Background

Some recent work has indicated that trans fatty acids may have the same health effects as saturated fatty acids. One report has been interpreted by the media and others, that trans fatty acids may be more harmful than saturated fatty acids.

Because trans fatty acids in oils and fats product come principally from hydrogenated oils and fats, it has been assumed that it is relatively straightforward, from a technical viewpoint, to reformulate products to minimise the use of hydrogenated oils or even to exclude them. No account has been taken for the cost effect nor of the likely increase in saturated fat content of the alternative, very low trans blends.

This brief report considers the cost and saturated fat content implications of moving to very low trans blends from the current "moderate" trans blends.

Three product categories are considered :

- Premium all-vegetable margarines/spreads (e.g. Flora, Vitalite)
- Value for money margarine blends (e.g. Stork)
- A cake margarine/shortening blend which is widely used in UK bakery fats.

It should be noted that although no problems are foreseen with customer and/or consumer acceptance of high animal fat content blends in the UK (for non all-vegetable brands/products), there may be resistance to such blends in countries like Germany and Denmark.

Discussion

Data is presented based upon oil prices on two specific dates (15 January 1994 and 17 September 1994) together with data based upon averaged oil prices for the periods January - October 1993 and November 1993-August 1994. The reason for taking the end of October 1993 as the "break point" between the two averaging periods is that after October 1993 vegetable oil prices rose steeply. In addition, many of the "normal" differentials between oil prices became distorted. The 1993 average is more representative of a "typical" market situation. The difference in cost implications for reformulation based upon the 15 January and 17 September oil prices highlights the sensitivity of formulation costs to major disruption to the "typical" oil price relativities.

As expected, the cost implications of having to meet a 5% max trans fatty acid limit for all vegetable formulations are relatively small. Indeed, small savings may be possible under certain market price conditions.

A 5% max limit for trans fatty acids in non-all vegetable blends essentially requires reformulation away from hydrogenated fish oil with its content of approximately 50% trans fatty acids. Naturally hard fats like palm oil, palm stearin, palm kernel oil, lard and tallow are used to replace hydrogenated fish oil. Almost invariably this increases the cost of the oil blend required for the product by a significant sum of money and the cost advantage of non-all vegetable over all vegetable products is greatly reduced. This clearly would reduce the attractiveness of "value for money" products to consumers. Industrial users (e.g. cake margarine), on the other hand, may still see a sufficient saving versus all vegetable alternatives to continue using non-all vegetable products provided that their performance remained satisfactory.

UK Government statistics show that during 1993, 82,000 tonnes of fish oil was used in "value for money" margarines and spreads and 12,000 tonnes in cooking/baking fats. Legislation limiting the trans fatty acid content would force the fat blending industry to greatly reduce their use of hydrogenated fish oils and to replace them with low trans oils such as rapeseed oil, palm oil and tallow. Some of these oils are already in short supply. Additional demand will further increase these prices and the cost of the final product to the consumer.

Fat blending companies seek always to achieve minimum cost blends for each oil market price situation. The blends used as illustrations in this report are technically acceptable for the applications shown. For the very high "extra costs" necessary to meet a 5% max. limit on trans fatty acids, fat blenders would seek alternative blends to those shown so as to reduce the high cost premium. It is possible, however, that no other blends would meet all the legal and performance requirements.

PRICE DATA USED

	15.01.94 (£/Tonne)	17.09.94 (£/Tonne)	Average Jan/Oct 93 (£/Tonne)	Average Nov 93/Aug 94 (£/Tonne)
Hydrogenated fish oil	416	320	383	383
Hydrogenated vegetable oil (Soya)	569	609	487	545
Rapeseed oil	486	520	339	462
Sunflower oil	600	541	457	542
Lard	578	523	430	497
Tallow	398	405	364	387
Palm oil	411	575	392	438
Palm kernel oil	539	620	444	551
Palm olein	458	644	430	497
Palm stearin	361	544	354	516
Fully hydrogenated vegetable oil "stearin"	574	614	492	553
Fully hydrogenated fish oil "stearin"	421	325	388	388

FAT BLEND COSTS

A Premium All-Vegetable Margarine (Retail)

(i) Current

30% Hydrogenated vegetable oil	170.70	182.70	146.10	163.50
70% Sunflower oil	<u>420.00</u>	<u>378.70</u>	<u>319.90</u>	<u>379.40</u>
Total (rounded to nearest £1)	<u>591</u>	<u>561</u>	<u>466</u>	<u>543</u>
Typical saturates (%)	15	15	15	15
Typical trans (%)	16	16	16	16

(ii) Future

30% I.E.* (30% Palm Stearin + 40% Palm Kernel oil + 30% Palm oil)	158.16	199.11	144.42	175.98
70% Sunflower oil	<u>420.00</u>	<u>378.70</u>	<u>319.90</u>	<u>379.40</u>
Total	<u>578</u>	<u>578</u>	<u>464</u>	<u>555</u>
Typical saturates (%)	28	28	28	28
Typical trans (%)	1	1	1	1

Extra cost/(saving) for meeting 5% max trans	(13)	17	(2)	12
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It is recognised that a maximum of 25% saturates is permitted in products claiming "high in polyunsaturates". The above formulation is taken from a patent which claims it to be suitable for high in polyunsaturate margarine blends. The actual saturate content may have to be influenced by selection of particular component oils for interesterification.

	15.01.94 (£/Tonne)	17.09.94 (£/Tonne)	Average Jan/Oct 93 (£/Tonne)	Average Nov 93/Aug 94 (£/Tonne)
B				
<u>Value for money Margarine/Spread</u>				
(i) <u>Current</u>				
90% Hydrogenated fish oil	374.40	288.00	344.70	344.70
10% Rapeseed oil	<u>48.60</u>	<u>52.00</u>	<u>33.90</u>	<u>46.20</u>
Total	<u>423</u>	<u>340</u>	<u>379</u>	<u>391</u>
Typical saturates (%)	39	39	39	39
Typical trans (%)	50	50	50	50
(ii) <u>Future</u>				
(a) I.E. (20% Hydrogenated vegetable oil "stearin" + 80% Rapeseed oil)	583.60	618.80	449.60	560.20
Total	<u>584</u>	<u>619</u>	<u>450</u>	<u>560</u>
Typical saturates (%)	26	26	26	26
Typical trans (%)	1	1	1	1
Extra cost for meeting 5% max trans limit	161	279	71	169
(b) I.E. (20% Hydrogenated fish oil "stearin" + 80% Rapeseed oil)	553.00	561.00	428.80	527.20
Total	<u>553</u>	<u>561</u>	<u>429</u>	<u>527</u>
Typical saturates (%)	26	26	26	26
Typical trans (%)	1	1	1	1
Extra cost for meeting 5% max trans limit	130	221	50	148

NOTE : * I.E. = interesterified

	15.01.94 (£/Tonne)	17.09.94 (£/Tonne)	Average Jan/Oct 93 (£/Tonne)	Average Nov 93/Aug 94 (£/Tonne)
C				
<u>Cake Margarine</u> (Non all-vegetable)				
(i) <u>Current</u>				
90% Hydrogenated fish oil	374.40	288.00	344.70	344.70
10% Rapeseed oil	<u>48.60</u>	<u>52.00</u>	<u>33.90</u>	<u>46.20</u>
Total	<u>423</u>	<u>340</u>	<u>379</u>	<u>391</u>
Typical saturates (%)	39	39	39	39
Typical trans (%)	50	50	50	50
(ii) <u>Future</u>				
(a) 33% Tallow	131.34	133.65	120.12	127.71
67% Palm	275.37	385.25	262.14	293.46
Total	<u>407</u>	<u>519</u>	<u>383</u>	<u>421</u>
Typical saturates (%)	53	53	53	53
Typical trans (%)	1	1	1	1
Extra cost/(saving) for meeting 5% max trans limit	(16)	179	4	4
(b) 5% Hydrogenated fish oil	20.80	16.00	19.15	19.15
65% Lard	375.70	339.95	279.50	323.05
30% Palm olein	<u>137.40</u>	<u>193.20</u>	<u>129.00</u>	<u>149.10</u>
Total	<u>534</u>	<u>549</u>	<u>428</u>	<u>491</u>
Typical saturates (%)	37	37	37	37
Typical trans (%)	1	1	1	1
Extra cost for meeting 5% max trans limit	111	209	49	100