THE CANCER ASSOCIATION OF SOUTH AFRICA’S POSITION STATEMENT ON CANCER AND THE ENVIRONMENT

FACT SHEET ON TRANS FATS

WHY SHOULD I CARE ABOUT SYNTHETIC TRANS FATS?

• Because they are not essential and provide no known benefit to human health.

• Because there is a direct, proven relationship between diets high in trans fat content and LDL (“bad”) cholesterol levels and, therefore, an increased risk of coronary heart disease – a leading cause of death\(^1\).

• Because serum trans-fatty acids are associated with an increased risk of prostate cancer\(^2\).

• Because an association has been found between fat stores of trans fatty acids and breast cancer in postmenopausal women\(^3\).

• Because the risk of breast cancer in postmenopausal women is doubled in those having higher serum levels\(^4\).

• Because trans fatty acid intake is positively associated with serum markers of systemic inflammation which is an emerging risk factor for coronary artery disease, insulin resistance, diabetes, dyslipidemia and heart failure\(^5\).

• Because there is evidence that when pregnant rats are exposed to trans fatty acids in the food, this can have harmful consequences for the offspring in adulthood\(^6\).

• Because trans fatty acids contribute more to weight gain than monosaturated and polyunsaturated fats. Among overweight women, for every one percentage increase in percentage calories from trans fat, women gained an additional 1 kg of body weight\(^7\).

WHAT ARE TRANS FATS?

• In order to convert liquid plant oils into a semi-solid spread, like margarine, use is made of the so-called industrial hydrogenation process whereby the vegetable oil is exposed to high pressure and heat with hydrogen gas bubbling through it in the presence of a nickel catalyst.

• Under these conditions hydrogen atoms open up double bonds converting unsaturated fats in liquid oils into hardened saturated fats.
• Unfortunately some (about 40%) of the newly created saturated fats are not 100% identical to pre-existing natural saturated fats because they have a “kink” caused by the molecule undergoing a structural change from cis-configuration to a trans-configuration at a double bond usually in the middle of the molecule. Chemically trans fats may be identical to certain natural fats but structurally they are different due to a “kink” in the middle of the molecule.

• Trans fats are not used by the cell in normal biochemistry. These molecules are man-made and abnormal molecules.

WHAT DOES A TRANS FAT LOOK LIKE?

WHERE ARE TRANS FATS FOUND?

• Up to 2-5% natural trans fats in milk and body fat of cattle and sheep (No negative effects).

• Up to 15% in certain margarines.

• Up to 45% in baking shortenings

• In deep-frying oils for French fries and chicken.

• Confectionary such as rusks, croissants, pies, crackers, cookies, donuts, sweet rolls.

HOW CAN THE POTENTIAL CANCER RISK OF TRANS FATS BE REDUCED?

• By avoiding food containing trans fatty acids.

• Woolworths has been indicating the presence of trans fats on new product labels since 2004.

• Denmark has banned trans fats from all food since 2003. The limit is 2% of fats and oils.

• The public can be warned about the harmful effects of trans fats and the trans fat contents of any particular food should by law be indicated on the food label (See below). Such a rule made by the FDA became effective in the US on January 1, 2006. All margarines and especially shortenings and fast foods must show trans fat contents.
• In South Africa there is no such law, but draft regulations (No. R 642) were published by the Department of Health in the Government Gazette No. 30075 of 20 July 2007. According to draft regulation 33, “Whenever a fully hydrogenated fat or partially hydrogenated fat has been used as an ingredient in a foodstuff, the real analytical values of all the following fatty compounds shall be declared in the table with nutritional information, as follows: Total fat; saturated fat; trans fat; poly-unsaturated fat; monounsaturated fat.”

• CANSA can lobby the government to speed up the promulgation of the food labeling legislation so that food labels indicate trans fat contents in South Africa as well. South African consumers have the right to know what they are eating.

• The trans fat contents of margarines can be determined and the results can be posted on the CANSA website in order to inform the public and encourage the manufacturers to change their products in order to be trans fat free. (MacDonald’s is sold trans fat-free in Denmark).

• Choosing Unilever products, Flora, Rama and Stork margarine which indicate trans fats less than 2%. (These margarines are not made with the industrial hydrogenation process).

• Trans fats can be banned from restaurants as has happened in New York where a serving may not contain more than 0.5 grams trans fats. This target needs to be met in all foods by July 1, 2008.

• Big fast food chains can be lobbied to abandon trans fats. KFC has promised to remove trans fats from products in the US by the end of 2007.

• An alternative to margarines or butter is to lubricate bread with good quality olive oil as is the custom in Italy and Greece.
In general it can be assumed that margarines that do not indicate trans fat contents most probably contain trans fats. If the margarines did not contain trans fats one would expect this to be advertised on the product because worldwide there is a movement away from trans fats.

WHY DO MANUFACTURERS LIKE TO USE TRANS FATS?

- Partially hydrogenated oils are attractive to food manufacturers for several reasons.
- Partial hydrogenation reduces rancidity. (When double bonds in polyunsaturated plant oils are opened up by oxygen the oils “go off” and have a pungent, rancid smell. Hydrogenation destroys these double bonds –especially in omega-3 fatty acids – thus increasing the shelf life of the oil while at the same time destroying “good” fats and creating “bad” fats.
- Hydrogenation decreases refrigeration requirements thus saving money.
- Trans fats are saturated like animal fat and have a similar smooth texture and taste good with salt and spices.

REFERENCES:

2. Serum trans-fatty acids are associated with risk of prostate cancer in beta-carotene and retinol efficacy trial, King IB et al., Cancer Epidemiol Biomarkers Prev., 2005, 14, 988-992.
7. Dietary fat and weight gain among women in the Nurse’s Health Study, Field AE et al., Obesity (Silver Spring), 2007, 15, 967-976.