



# What are Edible Oils & Fats?



**FEDIOL**

The EU Vegetable Oil &  
Proteinmeal Industry

“Oil”, “fat” or “lipid” are all different names for the same substance. “Fat” usually refers to a lipid that is solid at room temperature, whereas the term “oil” refers to a lipid that is usually liquid at room temperature. They can come from plant (e.g. sunflower, rapeseed, palm, *etc.*) or from animal (beef, pig, goose, chicken, fish, *etc.*) origin.



**Consuming a healthy amount of oils and fats ensures that the body has appropriate energy reserves and that it develops and functions properly. Additionally, oils and fats are the major suppliers of energy to the body and help in maintaining body temperature.**

Oils and fats have different fatty acid compositions, which affect their nutritional properties. Fatty acids are essential building blocks of cell membranes. Oils and fats also contain other components such as fat soluble vitamins, notably vitamin E.

Oils and fats are composed of different fatty acids in different proportions. The amount of the fatty acids depends on the specific plant or animal origin.

**The main fatty acids are the following:**

- Polyunsaturated or PUFA, including Omega 3 and Omega 6 fatty acids
- Mono-unsaturated or MUFA
- Saturated or SFA
- *Trans* or TFA





### Some typical oil and fat compositions are:

Fatty acid composition*	PUFA	MUFA	SFA	TFA
Rapeseed oil	31%	61%	7%	<2%
Sunflower oil	62%	26%	11%	<2%
Olive oil	11%	71%	17%	<2%
Soybean oil	61%	23%	15%	<2%
Coconut oil	2%	6%	91%	<2%
Corn oil	59%	27%	13%	<2%
Palm oil	10%	39%	50%	<2%
Butter	5%	23%	67%	5%
Baking margarine (fat content 75-80%)**	14%	36%	49%	<2%
Spreading margarine (fat content 30-35%)**	45%	29%	25%	<2%

(\*) Figures based on average market value. There may be variability based on composition of products, geographical origin. PUFA, MUFA, SFA and TFA sum up to 100%;

(\*\*) Fatty acid levels above are on fat basis.

In addition to their multiple health and nutrition benefits oils and fats are also important ingredients for the structure and taste of many food products.

Oils and fats are essential to produce and maintain certain properties in foods, including aeration (e.g. ice cream), moisture retention (e.g. cake), glossy appearance

(e.g. chocolate) and texture (e.g. margarine). They also improve flavour, and by blending and use of constantly improving technologies, oils and fats with healthier fatty acid compositions can be incorporated into food products without loss of texture or taste.

## **Polyunsaturates or Polyunsaturated fatty acids or PUFA**

= fatty acids with two or more cis, cis-methylene interrupted double bonds (EU Regulation 1169/2011).

Omega 6 (Linoleic acid or LA) and Omega 3 ( $\alpha$ -Linolenic acid or ALA) are “essential” PUFA, because the human body needs them, but cannot produce them. Therefore they must be provided by food to our bodies. The main vegetable oils containing Omega 3 are rapeseed, soybean, linseed or walnut oils. The main vegetable oils containing Omega 6 are sunflower, soybean or safflower oils.

### **As recognised by the European Food Safety Authority (EFSA):**

Essential fatty acids are needed for normal growth and development of children (EU Health claim, Regulation 983/2009 amended by Regulation 376/2010).

Replacing saturated fats with unsaturated fats in the diet has been shown to lower/reduce blood cholesterol. High cholesterol is a risk factor in the development of coronary heart disease (EU Health claim, Regulation 1226/2014).

Omega 3 or ALA contributes to the maintenance of normal blood cholesterol levels (EU Health claim, Regulation 432/2012). Linoleic acid contributes to the maintenance of normal blood cholesterol levels (EU Health claim, Regulation 432/2012).

## **Mono-unsaturates or mono-unsaturated fatty acids or MUFA**

= fatty acids with one cis double bond (EU Regulation 1169/2011).

Vegetable oils rich in MUFA are for example rapeseed oil, olive oil or nut oils.

### **As recognised by EFSA:**

Replacing saturated fats with unsaturated fats in the diet has been shown to lower/reduce blood cholesterol. High cholesterol is a risk factor in the development of coronary heart disease (EU Health claim, Regulation 1226/2014).

## **Saturates or saturated fatty acids or SFA**

= fatty acids without double bonds (EU Regulation 1169/2011).

SFA are present in various amounts in all oils and fats.

They are present in larger amounts in animal fats and in some tropical oils such as coconut oil or palm oil. Blending tropical oils

with vegetable oils rich in unsaturated fatty acids (MUFA and PUFA) helps to improve the nutrition profile of the final food product. What matters is the overall fatty acid composition of the diet and not the composition of each ingredient/food of the diet.

### **As recognised by EFSA:**

Replacing saturated fats with unsaturated fats in the diet has been shown to lower/reduce blood cholesterol. High cholesterol is a risk factor in the development of coronary heart disease. (EU Health claim, Regulation 1226/2014).

EFSA recommends a SFA intake as low as possible within the context of a nutritionally adequate diet (EFSA, 2010).

## **Trans fatty acids or TFA**

= fatty acids with at least one non-conjugated (namely interrupted by at least one methylene group) carbon-carbon double bond in the trans configuration (EU Regulation 1169/2011).

Consumption of diets containing TFA consistently increases LDL cholesterol, decreases HDL cholesterol and hence increases LDL to HDL cholesterol ratio, which is associated with an increased risk of cardiovascular disease.

TFA can be found in animal fat (ruminant TFA) or in partially hydrogenated vegetable oils (non ruminant TFA). FEDIOL could accept an EU legislation setting a limit on the TFA content of fat products sold to the final consumers.

EFSA recommends a TFA intake as low as possible within the context of a nutritionally adequate diet (EFSA, 2010). There is no reason to believe that TFA from animal origin have a different effect on human health than TFA from vegetable origin (EFSA, 2004).

## **References**

*EFSA, 2010 EFSA Panel on Dietetic Products, Nutrition, and Allergies (NDA); Scientific Opinion on Dietary Reference Values for fats, including saturated fatty acids, polyunsaturated fatty acids, monounsaturated fatty acids, trans fatty acids, and cholesterol. EFSA Journal 2010; 8(3):1461. [107 pp.]. doi:10.2903/j.efsa.2010.1461. Available online: [www.efsa.europa.eu](http://www.efsa.europa.eu)*

*EFSA, 2004 EFSA opinion of the scientific panel on dietetic products, nutrition and allergies on a request from the Commission related to the presence of trans fatty acids in foods and the effects on human health of the consumption of trans fatty acids (Request EFSA-Q-2003-022) adopted on 8 July 2004.*