

## Sunflower oil



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**Sunflower oil** is the non-volatile oil expressed from sunflower (*Helianthus annuus*) seeds. Sunflower oil is commonly used in food as a frying oil, and in cosmetic formulations as an emollient.

### Composition

Sunflower oil contains predominantly linoleic acid in triglyceride form. The British Pharmacopoeia lists the following profile:

- Palmitic acid : 4 - 9%,
- Stearic acid : 1 - 7%,
- Oleic acid : 14 - 40%,
- Linoleic acid : 48 - 74%.

There are several types of sunflower oils produced, such as high linoleic, high oleic and mid oleic. High linoleic sunflower oil typically has at least 69% linoleic acid. High oleic sunflower oil has at least 82% oleic acid. Variation in unsaturated fatty acids profile is strongly influenced by both genetics and climate. In the last decade high stearic sunflower lines have been developed in Spain to avoid the use of hydrogenated vegetable oils in food industry.

Sunflower oil also contains lecithin, tocopherols, carotenoids and waxes. Sunflower oil's properties are typical of a vegetable triglyceride oil. Sunflower oil is produced from oil type sunflower seeds. Sunflower oil is light in taste and appearance and has a high Vitamin E content. It is a combination of mono-unsaturated and polyunsaturated fats with low saturated fat levels.

### Physical properties

Sunflower oil is liquid at room temperature. The refined oil is clear and slightly amber-colored with a slightly fatty odor.

Smoke point (refined)	232 °C
Smoke point (unrefined)	227 °C
Density (25 °C)	917 kg/m <sup>3</sup>
Refractive index (25 °C)	≈1.473

## Uses

As a frying oil, sunflower oil behaves as a typical vegetable triglyceride. In cosmetics, it has smoothing properties and is considered noncomedogenic. Only the high-oleic variety possesses shelf life sufficient for commercial cosmetic formulation. Sunflower oil's INCI name is *Helianthus Annuus (Sunflower) Seed Oil*.

## Health benefits

There are a variety of health benefits associated with the consumption of sunflower oil.

### Diet and cardiovascular benefits

Sunflower oil is high in the essential vitamin E and low in saturated fat. The two most common types of sunflower oil are linoleic and high oleic. Linoleic sunflower oil is a common cooking oil that has high levels of the essential fatty acids called polyunsaturated fat. It is also known for having a clean taste and low levels of trans fat. High oleic sunflower oils are classified as having monounsaturated levels of 80% and above. Newer versions of sunflower oil have been developed as a hybrid containing linoleic acid. They have monounsaturated levels lower than other oleic sunflower oils. The hybrid oil also has lower saturated fat levels than linoleic sunflower oil. Sunflower oil of any kind has been shown to have cardiovascular benefits as well. Diets combined with a low fat content and high levels of oleic acid have been suggested to lower cholesterol which, in turn, results in a smaller risk of heart disease. Sunflower oils fit this criteria. Studies of adults suggested that a balanced diet in which small quantities of saturated fats are replaced with sunflower oil has detectable cholesterol-reducing benefits. Research suggests that lower cholesterol levels can be caused by balances of polyunsaturated and monounsaturated fatty acids. Sunflower oil may help with this balance.

### Restaurant and food industry uses

Restaurants and food manufacturers are becoming aware of the health benefits of sunflower oil. The oil can be used in conditions with extremely high cooking temperatures. It may also help food stay fresher and healthier for longer periods of time. Food manufacturers are starting to use sunflower oil in an effort to lower the levels of trans fat in mass produced foods. A number of common snack foods currently contain sunflower oil, including Majans BHUJA Mix healthy snacks, Kettle Chips, Sun Chips, Sunflower Chips, Ruffles, Walkers and Lay's potato chips; the recipe of the latter was modified in late 2006 in order to include the oil.

### Sunflower oil as skin protection

Sunflower oil, like other oils, can retain moisture in the skin. It may also provide a protective barrier that resists infection in pre-term infants. Studies using sunflower oil have been conducted involving low birth weight pre-term infants that are often susceptible to infection due to their underdeveloped skin. The study determined that infants receiving a daily skin treatment of sunflower oil were 41% less likely to develop infections in hospital.

### Negative health effects

A high consumption of omega-6 polyunsaturated fatty acids, which are found in most types of vegetable oil including sunflower oil, may increase the likelihood that postmenopausal women will develop breast cancer. Similar effect was observed on prostate cancer. Other

analysis suggested an inverse association between total polyunsaturated fatty acids and breast cancer risk.