

# Canola Oil Sensory Properties

## Importance of Fat in Foods

Fat adds to the sensory appeal of food. The lightness and tenderness of cakes and pastries and the sheen and smoothness of sauces and salad dressings reflect some of the roles of fat in food structures. Fat is also a popular cooking medium because of the crispness of fried foods and the pleasing flavor of surface flavor browning compounds formed at frying temperatures. The successful performance of canola as an edible oil has been proven in the Canadian marketplace. In 1993 it made up 65 percent of the total Canadian production of deodorized edible oils. In terms of domestic production of value-added foods, this accounted for 84 percent of salad/cooking oils, 55 percent of shortening/shortening oils, and 45 percent of the margarine in Canada. In the United States in 2000 canola oil made up 32.5 percent of the total U.S. production of edible oils and 76 percent of the salad and cooking oils.

## Fatty Acid Composition of Canola Oil

Canola oil enjoys a healthy fatty acid profile with a very low level of saturated fatty acids (7%), a high level of monosaturates (61%, primarily C18:1n-9), and a medium level of polyunsaturates, linolenic acid (21% C18:2n-6) and linolenic acid (11% C18:3n-3).

## Salad Oil

An oil suitable for salad dressings and mayonnaise should be bland in flavor, light in color, and able to remain free-running at refrigerator temperatures. Deodorized, bleached canola oil satisfies all of these criteria. Some other oils require commercial winterizing to remove high melting point triglycerides which, otherwise, would form crystals during low temperature storage. These crystals give the oil a haze when it is cold and their formation in mayonnaise may break the emulsion, causing it to weep. The ability of refined canola oil to resist cold-clouding gives it a particular advantage in the salad oil market. Some manufacturers promote salad oils for their thinness, or lightness, on pouring. Physical measurements show that canola oil is about 25%-30% more viscous than soybean oil.

## Flavor Stability

Fully refined, deodorized canola oil has a bland, slightly nutty and buttery flavor when it is fresh. To keep it this way, canola oil is best packaged in lightproof containers after blanketing with an inert gas such as nitrogen, and stored at refrigerator temperatures. However, storage studies have shown that canola oil's sensory quality remains relatively unchanged for up to 16 weeks even when it is held at room temperature provided that it is protected from light. Research tests have shown canola oil appears to be more stable to light than soybean oil.

Aids to extend the storage life of canola oil include blending it with oils low in linolenic acid such as sunflower, cottonseed, or palm, or adding certain novel antioxidants. However, the most promising approach to extend shelf life appears to be the reduction of linolenic acid by genetic modification of the seed.

Stellar is licensed canola cultivar with a linolenic acid level of three per cent of less instead of the ten percent in regular canola varieties. The resistance to oxidation of this low linolenic acid canola oil has been demonstrated during accelerated storage by a ten-member, trained, sensory panel measuring odor intensity and by 92 untrained consumers judging odor acceptability. The consumer acceptance threshold, defined as the point at which only 50% of the people found the odor acceptable, was estimated as 12 days at 60°C for regular canola oil and as 34 days for low linolenic acid canola oil, close to a threefold stability advantage.