

# Canola

## Standards and Regulations

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### Canola Council of Canada

The Canola Council of Canada is a non-profit industry association representing all sectors of the Canadian canola industry. As an umbrella organization, the Council promotes the use and awareness of canola and encourages and assists in the technical development of the crop. Through the Council, the processing industry, federal and provincial governments, research institutions, marketing agencies and producers can co-ordinate total crop and product development, exchange information and communicate industry-wide interests. The Council is also active in market development, however, it does not enter directly into actual marketing transactions. It also guides the development of quality and quantity standards for canola production and, based on priorities established by the industry, it allocates funding to support existing research groups. The Canola Council does not conduct any of its own research.

In an industry where individuals have diverse interests, the Canola Council of Canada has encouraged the kind of co-operation which has facilitated the development of a quality product second to none in the world.

### What is Canola?

*Canola* (Ca no'la) — the seed of the species *Brassica napus* or *Brassica campestris*, the oil component of which seed contains less than two per cent erucic acid and the solid component of which seed contains less than 30 micromoles of any one or any mixture of 3-butenyl glucosinolate, 4-pentenyl glucosinolate, 2-hydroxy-3-butenyl glucosinolate, and 2-hydroxy-4-pentenyl glucosinolate per gram of air dry, oil free solid as measured by the gas liquid chromatograph method of the Canadian Grain Commission.

Canola's botanical origin is rooted in rapeseed, however, the deliberate breeding programs carried out in university and federal government research laboratories created the genetically altered "double low" cultivars which established Canadian canola. Canadian cultivars are low in both erucic acid and glucosinolates, and the minimum requirements for canola are an oil which is less than two per cent erucic acid, and a meal which contains no more than 30 micromoles of glucosinolates per gram of air dry, oil free meal.

Conversion to canola varieties in Canada began with the licensing of the first canola variety, Tower, in 1974. The changeover to canola in Canada commenced gradually in 1974 and is now 100 per cent complete. There are still some acres of contract rapeseed grown to service the industrial market.

Varieties of seed equivalent in quality to Canadian canola are not grown to any extent outside of Canada. Varieties currently grown on a commercial scale outside of Canada are low in erucic acid but remain somewhat higher in glucosinolates. In recent years, some European countries and Australia have placed a concerted effort in the development of canola varieties suited to their growing conditions. In China and India, the *Brassica napus* and *Brassica campestris* rapeseed varieties currently grown are high in both erucic acid and glucosinolates.

When measured against world rapeseed and canola production, Canada ranks third behind China and India. European countries as a group out-produce Canada, however, this is not the case when each country is considered individually.

### Use of the Term Canola

The name "canola" was initially registered by the Western Canadian Oilseed Crushers' Association for reference to oil, meal, protein extractions, seed and seed hulls from or of varieties with five per cent or less erucic acid in the oil and three milligrams per gram or less of the normally measured glucosinolates in the meal. The canola trademark was transferred to the Canola Council of Canada in 1980.

When first registered, the erucic acid limit in canola oil was set at less than five per cent. On September 12, 1986, the canola trademark was amended by the Trade Marks Branch of Consumer and Corporate Affairs to indicate that canola oil must contain less than two per cent erucic acid, and the solid component of the seed must contain less than 30 micromoles per gram of glucosinolates.

## Canadian General Standards Board

The Canadian General Standards Board (CGSB) is a component of Supply and Services Canada. The CGSB is accredited as a national standards writing organization of the Standards Council of Canada. The CGSB is an agency which develops standards and manages qualifications and certification listing programs for government and the private sector. These standards are used for a variety of reasons including purchasing, consumer protection, health and safety, international trade and regulatory reference.

Standards and qualification certification listings are achieved through a system of voluntary participation and formalized approval procedures. When a standard is to be developed, a committee of diverse but balanced interests is drawn from government, industry, research institutions, the academic community and consumers.

The standards for canola oil established in January 1987 by the CGSB are outlined in Table 1.

**Table 1. Canadian General Standards Board Requirements for Canola Oil<sup>a</sup>**

<b>A. Crude Canola Oil</b>			
<b>Characteristics</b>	<b>Super Degummed</b>	<b>Degummed</b>	<b>Crude</b>
Free fatty acids (as oleic acid), % by mass, max.	1.0	1.0	1.0
Moisture and impurities, combined % by mass, max.	0.3	0.3	0.5
Phosphorous, ppm, max.	50	200	—
Chlorophyll, ppm, max.	30	30	30
Sulfur, ppm, max.	8	10	10
Erucic Acid, % by mass, max.	2.0	2.0	2.0
<b>B. Refined, bleached and deodorized canola oil</b>			
<b>Characteristics</b>	<b>Min.</b>	<b>Max.</b>	
Free fatty acids (as oleic acid), % by mass	—	0.05	
Moisture and impurities, combined, % by mass	—	0.05	
Lovibond colour, (133.4 mm cell)		1.5 red, 15 yellow	
Peroxide value, milliequivalents per kilogram	—	2.0	
Cold test, h	12	—	
Smoke point, °C	232	—	
Unsaponifiable value, g/kg	—	15	
Saponification value, milligrams potassium hydroxide per gram oil	182	193	
Refractive index ( $n_D$ 40°C)	1.465	1.467	
Iodine values (Wijs)	110	126	
Relative Density (20°C/water 20°C)	0.914	0.920	
Erucic acid, % by mass	—	2.0	

<sup>a</sup> From Tables 1 and 2, Canadian General Standards Board

## Legislation in the United States

In response to a petition from Canada in January 1985, the United States affirmed low erucic acid rapeseed oil (LEAR oil) as a food substance Generally Recognized As Safe (GRAS). The pertinent legislation is shown in Table 2.

The final hurdle to the use of “canola” on food labels in the United States was cleared on December 29, 1988 when the American Food and Drug Administration (FDA) published in the Federal Register that canola and low erucic acid rapeseed (LEAR) were interchangeable terms with respect to the labelling of American food products.

As one final step in support of reducing trade barriers with the United States, canola was included in the Canada-U.S. Free Trade Agreement.

**Table 2. United States Legislation on Low Erucic Acid Rapeseed Oil (F.D.A. 1985)**

### **Title #21, Code of Federal Regulations, Part 184.1555**

#### **(C) Low erucic acid rapeseed oil**

- (1) Low erucic acid rapeseed oil, also known as canola oil, is the fully refined, bleached and deodorized edible oil obtained from certain varieties of *Brassica napus* or *B. campestris* of the family *Cruciferae*. The plant varieties are those producing oil-bearing seeds with a low erucic acid content. Chemically, low erucic acid rapeseed oil is a mixture of triglycerides composed of both saturated and unsaturated fatty acids, with an erucic acid content of not more than 2 per cent of the component fatty acids.
- (2) Low erucic acid rapeseed oil as defined in paragraph (C)(1) of this section may be partially hydrogenated to reduce the proportion of unsaturated fatty acids. When partially hydrogenated low erucic acid rapeseed oil is used, it shall be referred to as partially hydrogenated low erucic acid rapeseed oil.
- (3) In addition to limiting the content of erucic acid to a level not exceeding 2 per cent of the component fatty acids, F.D.A. is developing other foodgrade specifications for low erucic acid rapeseed oil and partially hydrogenated low erucic acid rapeseed oil in cooperation with the National Academy of Sciences. In the interim, the ingredients must be of a purity suitable for their intended use.
- (4) Low erucic acid rapeseed oil and partially hydrogenated low erucic acid rapeseed oil are used as edible fats and oils in food, except in infant formula, at levels not to exceed current good manufacturing practice.