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22 Date of Revision

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Corn Oil

1 Nonproprietary Names

BP: Refined Maize Oil
JP: Corn Oil
PhEur: Maize Oil, Refined
USP–NF: Corn Oil

2 Synonyms

Maize oil; *Majsao CT*; maydis oleum raffinatum; maydol.

3 Chemical Name and CAS Registry Number

Corn oil [8001-30-7]

4 Empirical Formula and Molecular Weight

Corn oil is composed of fatty acid esters with glycerol, known commonly as triglycerides. Typical corn oil produced in the USA, which is rich in polyunsaturated fatty acids, contains five major fatty acids: linoleic 58.9%; oleic 25.8%; palmitic 11.0%; stearic 1.7%; and linolenic 1.1%. Corn grown outside the USA yields corn oil with lower linoleic, higher oleic, and higher saturated fatty acid levels. Corn oil also contains small quantities of plant sterols.

The USP 40–NF 35 S1 describes corn oil as the refined fixed oil obtained from the embryo of *Zea mays* Linné (Fam. Gramineae).

5 Structural Formula

See Section 4.

6 Functional Category

Oleaginous vehicle; solvent.

7 Applications in Pharmaceutical Formulation or Technology

Corn oil is used primarily in pharmaceutical formulations as a solvent for intramuscular injections or as a vehicle for topical preparations. Emulsions containing up to 67% corn oil are also used as oral nutritional supplements; see also Section 18. When combined with surfactants and gel-forming polymers, it is used to formulate veterinary vaccines.

Corn oil has a long history of use as an edible oil and may be used in tablets or capsules for oral administration.

8 Description

Corn oil occurs as a clear, light yellow-colored, oily liquid with a faint characteristic odor and slightly nutty, sweet taste resembling cooked sweet corn.

9 Pharmacopeial Specifications

See Table I.

Table I: Pharmacopeial specifications for corn oil.

Test	JP XVII	PhEur 9.2	USP 40–NF 35 S1
Identification	–	+	+
Characters	+	+	–
Acid value	≤0.2	≤0.5 ^(a)	≤0.2
Alkaline impurities	–	+	+
Cottonseed oil	–	–	–
Fatty acid composition	–	+	+
Fatty acids <C ₁₆	–	≤0.6%	–
Arachidic acid	–	≤0.8%	≤0.8%
Behenic acid	–	≤0.5%	≤0.3%
Oleic acid	–	20.0–42.2%	20.0–42.2%
Eicosenoic acid	–	≤0.5%	≤0.5%
Linoleic acid	–	39.4–65.6%	39.4–62.0%
Linolenic acid	–	0.5–1.5%	0.5–1.5%
Palmitic acid	–	8.6–16.5%	8.6–16.5%
Stearic acid	–	≤3.3%	1.0–3.3%
Other fatty acids	–	≤0.5%	–
Sterols	–	≤0.3%	≤0.3%
Water	–	≤0.1%	≤0.1%
Free fatty acids	–	–	–
Heavy metals	–	–	≤10 ppm
Iodine value	103–130	–	–
Peroxide value	–	≤10.0	≤10.0
Refractive index	–	≈1.474	–
Saponification value	187–195	–	–
Specific gravity	0.915–0.921	≈0.920	–
Unsaponifiable matter	≤1.5%	≤2.8%	≤1.5%

(a) If intended for parenteral use.

10 Typical Properties

Acid value 2–6
Autoignition temperature 393°C
Density 0.915–0.918 g/cm³